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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC5818

Sampling Date: 05/03/23



Report to:

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Total number of pages in report: 1140



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

Norm Farmer
Technical Director

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Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)
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Test results relate only to samples analyzed.

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Sample Summary

AECOM, INC.

Job No: FC5818

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC5818-1	05/03/23	09:35 AA	05/04/23	AQ	Ground Water	AF-RHMW17S-WGN01LF-2305W1
FC5818-2	05/03/23	10:10 AA	05/04/23	AQ	Equipment Blank	AF-RHMW17S-WQEB01-2305W1
FC5818-3	05/03/23	10:50 AA	05/04/23	AQ	Ground Water	AF-RHMW17D-WGN01LF-2305W1
FC5818-4	05/03/23	10:25 AA	05/04/23	AQ	Field Blank Water	AF-RHMW17D-WQFB01-2305W1
FC5818-5	05/03/23	12:50 AA	05/04/23	AQ	Ground Water	AF-RHMW17-WGN01LF-2305W1

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC5818

Site: N6274223F0104 RH Fire Suppression System

Report Date: 5/12/2023 7:27:58 AM

On 05/04/2023, 4 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3.1 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC5818 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: OP96747

Sample(s) FC5818-3MS, FC5818-5DUP, FC5818-3MS were used as the QC samples indicated.

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

Sample(s) FC5818-3 have surrogates outside control limits.

FC5818-3: Dilution required (ID recovery standard failure).

FC5818-3 for 13C4-PFBA: Outside control limits.

FC5818-3 for d3-MeFOSAA: Outside control limits.

FC5818-3 for d5-EtFOSAA: Outside control limits.

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

Narrative prepared by:

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

Summary of Hits

Job Number: FC5818
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 05/03/23



Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method
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FC5818-1 AF-RHMW17S-WGN01LF-2305W1

Perfluoropentanoic acid	9.5	7.3	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	2.0 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	1.3 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	1.1 J	3.6	0.91	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	0.63 J	3.6	1.8	ng/l	EPA DRAFT 1633

FC5818-2 AF-RHMW17S-WQEB01-2305W1

No hits reported in this sample.

FC5818-3 AF-RHMW17D-WGN01LF-2305W1

No hits reported in this sample.

FC5818-4 AF-RHMW17D-WQFB01-2305W1

No hits reported in this sample.

FC5818-5 AF-RHMW17-WGN01LF-2305W1

Perfluorobutanoic acid	2.9 J	14	3.6	ng/l	EPA DRAFT 1633
Perfluoropentanoic acid	3.0 J	7.1	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.9 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.76 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	0.58 J	3.6	0.89	ng/l	EPA DRAFT 1633

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW17S-WGN01LF-2305W1		
Lab Sample ID:	FC5818-1	Date Sampled:	05/03/23
Matrix:	AQ - Ground Water	Date Received:	05/04/23
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	4Q44163.D	1	05/09/23 20:42	MV	05/05/23 11:00	OP96747	S4Q639
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	9.5	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	2.0	3.6	1.8	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.3	3.6	1.8	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	1.1	3.6	0.91	0.45	ng/l	J
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.63	3.6	1.8	0.45	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17S-WGN01LF-2305W1		
Lab Sample ID:	FC5818-1	Date Sampled:	05/03/23
Matrix:	AQ - Ground Water	Date Received:	05/04/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	30%		20-150%
	13C5-PFPeA	91%		20-150%
	13C5-PFHxA	107%		20-150%
	13C4-PFHpA	108%		20-150%
	13C8-PFOA	105%		20-150%
	13C9-PFNA	101%		20-150%
	13C6-PFDA	93%		20-150%
	13C7-PFUnDA	78%		20-150%
	13C2-PFDoDA	72%		20-150%
	13C2-PFTeDA	45%		20-150%
	13C3-PFBS	95%		20-150%
	13C3-PFHxS	92%		20-150%

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

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Report of Analysis

Client Sample ID:	AF-RHMW17S-WGN01LF-2305W1		
Lab Sample ID:	FC5818-1	Date Sampled:	05/03/23
Matrix:	AQ - Ground Water	Date Received:	05/04/23
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	83%		20-150%
	13C8-FOSA	87%		20-150%
	d3-MeFOSA	66%		20-150%
	d5-EtFOSA	65%		20-150%
	d3-MeFOSAA	91%		20-150%
	d5-EtFOSAA	87%		20-150%
	d7-MeFOSE	61%		20-150%
	d9-EtFOSE	58%		20-150%
	13C2-4:2FTS	167%		20-180%
	13C2-6:2FTS	104%		20-180%
	13C2-8:2FTS	93%		20-180%
	13C3-HFPO-DA	85%		20-150%

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 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW17S-WQEB01-2305W1		
Lab Sample ID:	FC5818-2	Date Sampled:	05/03/23
Matrix:	AQ - Equipment Blank	Date Received:	05/04/23
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	4Q44164.D	1	05/09/23 20:56	MV	05/05/23 11:00	OP96747	S4Q639
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	3.8	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	0.94	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17S-WQEB01-2305W1		
Lab Sample ID:	FC5818-2	Date Sampled:	05/03/23
Matrix:	AQ - Equipment Blank	Date Received:	05/04/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	107%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	104%		20-150%
	13C4-PFHpA	105%		20-150%
	13C8-PFOA	97%		20-150%
	13C9-PFNA	91%		20-150%
	13C6-PFDA	95%		20-150%
	13C7-PFUnDA	90%		20-150%
	13C2-PFDoDA	79%		20-150%
	13C2-PFTeDA	70%		20-150%
	13C3-PFBS	98%		20-150%
	13C3-PFHxS	87%		20-150%

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 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17S-WQEB01-2305W1		Date Sampled:	05/03/23
Lab Sample ID:	FC5818-2	Date Received:	05/04/23	
Matrix:	AQ - Equipment Blank		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	84%		20-150%
	13C8-FOSA	75%		20-150%
	d3-MeFOSA	67%		20-150%
	d5-EtFOSA	70%		20-150%
	d3-MeFOSAA	90%		20-150%
	d5-EtFOSAA	89%		20-150%
	d7-MeFOSE	57%		20-150%
	d9-EtFOSE	61%		20-150%
	13C2-4:2FTS	125%		20-180%
	13C2-6:2FTS	122%		20-180%
	13C2-8:2FTS	105%		20-180%
	13C3-HFPO-DA	92%		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-RHMW17D-WGN01LF-2305W1		
Lab Sample ID:	FC5818-3	Date Sampled:	05/03/23
Matrix:	AQ - Ground Water	Date Received:	05/04/23
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	4Q44167.D	1	05/09/23 21:38	MV	05/05/23 11:00	OP96747	S4Q639
Run #2 ^a	6Q17727.D	5	05/10/23 23:13	MV	05/05/23 11:00	OP96747	S6Q267

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

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

375-22-4	Perfluorobutanoic acid	18 U ^b	70	18	8.4	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.0	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

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

FLUOROTELOMER SULFONIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	0.88	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17D-WGN01LF-2305W1		
Lab Sample ID:	FC5818-3	Date Sampled:	05/03/23
Matrix:	AQ - Ground Water	Date Received:	05/04/23
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	18 U ^b	22	18	4.4	ng/l	
2991-50-6	EtFOSAA	18 U ^b	22	18	5.8	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		4% ^c	4% ^c	20-150%
13C5-PFPeA		26%	26%	20-150%
13C5-PFHxA		101%	101%	20-150%
13C4-PFHpA		115%	119%	20-150%
13C8-PFOA		121%	113%	20-150%
13C9-PFNA		108%	115%	20-150%
13C6-PFDA		122%	102%	20-150%
13C7-PFUnDA		114%	101%	20-150%
13C2-PFDoDA		103%	88%	20-150%
13C2-PFTeDA		64%	64%	20-150%
13C3-PFBS		98%	107%	20-150%
13C3-PFHxS		101%	111%	20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW17D-WGN01LF-2305W1		Date Sampled:	05/03/23
Lab Sample ID:	FC5818-3		Date Received:	05/04/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	114%	56%	20-150%
	13C8-FOSA	122%	44%	20-150%
	d3-MeFOSA	117%	48%	20-150%
	d5-EtFOSA	122%	49%	20-150%
	d3-MeFOSAA	169% ^c	64%	20-150%
	d5-EtFOSAA	181% ^c	63%	20-150%
	d7-MeFOSE	85%	33%	20-150%
	d9-EtFOSE	86%	38%	20-150%
	13C2-4:2FTS	152%	101%	20-180%
	13C2-6:2FTS	124%	133%	20-180%
	13C2-8:2FTS	121%	105%	20-180%
	13C3-HFPO-DA	80%	101%	20-150%

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

(b) Result is from Run# 2

(c) Outside control limits.

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW17D-WQFB01-2305W1		
Lab Sample ID:	FC5818-4	Date Sampled:	05/03/23
Matrix:	AQ - Field Blank Water	Date Received:	05/04/23
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	4Q44169.D	1	05/09/23 22:06	MV	05/05/23 11:00	OP96747	S4Q639
Run #2							

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

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

375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	3.8	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

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

FLUOROTELOMER SULFONIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	0.94	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17D-WQFB01-2305W1		
Lab Sample ID:	FC5818-4	Date Sampled:	05/03/23
Matrix:	AQ - Field Blank Water	Date Received:	05/04/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	114%		20-150%
	13C5-PFPeA	114%		20-150%
	13C5-PFHxA	107%		20-150%
	13C4-PFHpA	107%		20-150%
	13C8-PFOA	114%		20-150%
	13C9-PFNA	103%		20-150%
	13C6-PFDA	99%		20-150%
	13C7-PFUnDA	101%		20-150%
	13C2-PFDoDA	88%		20-150%
	13C2-PFTeDA	63%		20-150%
	13C3-PFBS	108%		20-150%
	13C3-PFHxS	113%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW17D-WQFB01-2305W1		
Lab Sample ID:	FC5818-4	Date Sampled:	05/03/23
Matrix:	AQ - Field Blank Water	Date Received:	05/04/23
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	93%		20-150%
	13C8-FOSA	86%		20-150%
	d3-MeFOSA	81%		20-150%
	d5-EtFOSA	88%		20-150%
	d3-MeFOSAA	108%		20-150%
	d5-EtFOSAA	106%		20-150%
	d7-MeFOSE	69%		20-150%
	d9-EtFOSE	74%		20-150%
	13C2-4:2FTS	145%		20-180%
	13C2-6:2FTS	149%		20-180%
	13C2-8:2FTS	147%		20-180%
	13C3-HFPO-DA	102%		20-150%

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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW17-WGN01LF-2305W1		
Lab Sample ID:	FC5818-5	Date Sampled:	05/03/23
Matrix:	AQ - Ground Water	Date Received:	05/04/23
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	4Q44170.D	1	05/09/23 22:20	MV	05/05/23 11:00	OP96747	S4Q639
Run #2							

Run #	Initial Volume	Final Volume
Run #1	560 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	2.9	14	3.6	1.7	ng/l	J
2706-90-3	Perfluoropentanoic acid	3.0	7.1	1.8	0.84	ng/l	J
307-24-4	Perfluorohexanoic acid	1.9	3.6	1.8	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.76	3.6	1.8	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	0.58	3.6	0.89	0.45	ng/l	J
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.54	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	0.75	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	0.62	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	0.48	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	0.57	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.1	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.60	ng/l	
31506-32-8	MeFOSA	3.6 U	7.1	3.6	0.89	ng/l	
4151-50-2	EtFOSA	3.6 U	7.1	3.6	0.89	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17-WGN01LF-2305W1		Date Sampled:	05/03/23
Lab Sample ID:	FC5818-5	Date Received:	05/04/23	
Matrix:	AQ - Ground Water	Percent Solids:	n/a	
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.89	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	36	18	3.9	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.6	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.89	ng/l	
919005-14-4	ADONA	3.6 U	7.1	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.1	1.8	0.89	ng/l	
863090-89-5	PFMBA	3.6 U	7.1	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.1	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.1	3.6	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.1	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	7.1	1.8	0.70	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.9 U	18	8.9	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	89	18	7.8	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	89	18	7.0	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	94%		20-150%
	13C5-PFPeA	104%		20-150%
	13C5-PFHxA	101%		20-150%
	13C4-PFHpA	106%		20-150%
	13C8-PFOA	100%		20-150%
	13C9-PFNA	96%		20-150%
	13C6-PFDA	94%		20-150%
	13C7-PFUnDA	83%		20-150%
	13C2-PFDoDA	66%		20-150%
	13C2-PFTeDA	53%		20-150%
	13C3-PFBS	105%		20-150%
	13C3-PFHxS	98%		20-150%

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

4.5
4

Report of Analysis

Client Sample ID:	AF-RHMW17-WGN01LF-2305W1		Date Sampled:	05/03/23
Lab Sample ID:	FC5818-5		Date Received:	05/04/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	82%		20-150%
	13C8-FOSA	91%		20-150%
	d3-MeFOSA	70%		20-150%
	d5-EtFOSA	72%		20-150%
	d3-MeFOSAA	100%		20-150%
	d5-EtFOSAA	104%		20-150%
	d7-MeFOSE	66%		20-150%
	d9-EtFOSE	63%		20-150%
	13C2-4:2FTS	129%		20-180%
	13C2-6:2FTS	129%		20-180%
	13C2-8:2FTS	94%		20-180%
	13C3-HFPO-DA	90%		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 North America Inc - Orlando

Chain of Custody

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

FC5818

COC #: 2305W1AFSG12

SGS - ORLANDO JOB #:

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Client / Reporting Information			Project Information										Analytical Information		Matrix Codes			
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
Address: 1001 Bishop St. ste 1600			Street															
City: Honolulu State: HI Zip: 96813			City Honolulu State Hawaii															
Project Contact: Katie Abbott Email: katie.abbott@aecom.com			Project # 60697810															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com			Fax #															
Phone #: 303-796-4624 / 808-954-4512			Client Purchase Order #															
Sampler(s) Name(s) (Printed)			Sampler 1: Sampler 2:										LAB USE ONLY					
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	CONTAINER INFORMATION										PFAS EPA Draft 1633	INITIAL ASSESSMENT	LABEL VERIFICATION		
				COLLECTION	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NON-PC	PC	INCH	INCH	PESCH				MACHINING	BIOWATER
1	AF-RHMMW17S-WGN01LF-2305W1	5/13/23	0935	AK	GW	3		X										
2	AF-RHMMW17S-WQEB01-2305W1	5/13/23	1010	AK	GW	3		X										
Turnaround Time (Business days)			Data Deliverable Information										Comments / Remarks					
10 Day (Business) 7 Day 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other			Approved By: / Date: <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S										EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016-92539123					
Rush T/A Data Available VIA Email or Lablink												Sample Custody must be documented below each time samples change possession, including courier delivery.						
Relinquished by/Sampler/Affiliation	Date Time:	Received By/Affiliation	Date Time:	Relinquished by/Sampler/Affiliation	Date Time:	Received By/Affiliation	Date Time:	Relinquished by/Sampler/Affiliation	Date Time:	Received By/Affiliation	Date Time:	Relinquished by/Sampler/Affiliation	Date Time:					
1 Arie Asoli	5/10/23	2 Alex Edmunds	5/13/23	3 Alex Edmunds	5/13/23	4 [Signature]	1600	5 [Signature]	1600	6 [Signature]	1600	7 [Signature]	1600					
Lab Use Only: Cooler Temperature (s) Celsius (corrected): 3.2IR1												http://www.sgs.com/en/terms-and-conditions						

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FC5818: Chain of Custody

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Chain of Custody

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SGS - ORLANDO JOB # :

COC #: 2305W1AFSG11
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FC5818

Client / Reporting Information			Project Information										Analytical Information										Matrix Codes
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System										<div style="text-align: center;"> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
Address: 1001 Bishop St. ste 1600			Street																				
City: Honolulu State: HI Zip: 96813			City Honolulu State Hawaii																				
Project Contact: Katie Abbott Email: katie.abbott@aecom.com Project Manager: Watson Tanji Email: watson.tanji@aecom.com			Project # 60697810																				
Phone #: 303-796-4624 / 808-954-4512			Fax #										PFAS EPA Draft 1633										
Sampler(s) Name(s) (Printed)			Client Purchase Order #																				
Sampler 1:																							
Sampler 2:																							
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY								
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NOISE	HDI	NICH	PAOS	PEBCA	NICH+ZINAC	IN WATER		MEDI							
3	AF-RHMW17D-WGN01LF-2305W1	5/13/23	1050	AA	GW	3		X								X							
4	AF-RHMW17D-WQFB01-2305W1	5/13/23	1025	AA	GW	3		X								X							
Turnaround Time (Business days)			Data Deliverable Information										Comments / Remarks										
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other			Approved By: / Date: <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S										EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016-92539123										
Rush T/A Data Available VIA Email or Lablink			Sample Custody must be documented below each time samples change possession, including courier delivery.																				
Relinquished by Sampler/Affiliation		Date Time:	Received By/Affiliation		Relinquished By/Affiliation		Date Time:	Received By/Affiliation		Relinquished By/Affiliation		Date Time:	Received By/Affiliation		Date Time:	Received By/Affiliation							
1 Arie Aspill		5/13/23	2 Alex Edwards AFE		3 Alex Edwards AFE		5/13/23	4 [Signature] SGS		5 [Signature] SGS		5/13/23	6 [Signature] SGS		5/13/23	7 [Signature] SGS							
5			6		7			8					9			10							
Lab Use Only: Cooler Temperature (s) Celsius (corrected):													http://www.sgs.com/en/terms-and-conditions										

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FC5818: Chain of Custody

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SGS North America Inc - Orlando

Chain of Custody

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www.sgs.com

FC 5818

COC #: 2305W1AFSG10

SGS - ORLANDO JOB # :

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes			
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small; margin-right: 5px;">PFAS EPA Draft 1633</div> <div style="border: 1px solid black; padding: 5px; width: 100%; height: 100%; position: relative;"> 5/12/23 <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em;">5/12/23</div> </div> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
Address: 1001 Bishop St. ste 1600		Street															
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii															
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #															
Sampler(s) Name(s) (Printed)		Sampler 1:		Sampler 2:													
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY		
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NOPE	HCl	NH ₄ OH	NH ₄ NO ₃	H ₂ SO ₄	NaOH/ZnAC	DI WATER		MICH	
5	AF-RHMW17-WGN01LF-2305W1	5/12/23	1:50	QA	GW	3		X									X
Turnaround Time (Business days)		Data Deliverable Information				Comments / Remarks											
10 Day (Business) Approved By: / Date: _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____ Rush T/A Data Available VIA Email or Lablink		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016 925 39 123											
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation					
1 Anie Aspill		5/12/23		2 Alex Edmonds/AEOM		5/12/23		3 Alex Edmonds/AEOM		5/12/23		4 VBSGS 0424 23					
5				6				7				8					
Lab Use Only : Cooler Temperature (s) Celsius (corrected):													http://www.sgs.com/en/terms-and-conditions				

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SGS Sample Receipt Summary

Job Number: FC5818

Client: AECOM

Project: : N6274223F0104 RH Fire Suppression System

Date / Time Received: 5/4/2023 4:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #s: United Cargo AWB #: 016-92539123

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.2);

Cooler Temps (Corrected) °C: Cooler 1: (3.1);

Cooler Information

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

Trip Blank Information

	Y	or	N	N/A
1. Trip Blank present / cooler	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
	W	or	S	N/A
3. Type Of TB Received	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Information

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

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____
 Test Strip Lot #s: pH 0-3 _____ 230320 _____ pH 10-12 _____ 25BDH07 _____ Other: (Specify) pH 1.0 - 12.0 _____ 222221 _____
 Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: TORYW

Date: 5/4/2023 4:00:00 PM

Reviewer: CD

Date: 5/5/2023

FC5818: Chain of Custody

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QC Evaluation: DOD QSM5.x Limits

Job Number: FC5818
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 05/03/23

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

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

* Sample used for QC is not from job FC5818

5.2
5

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Instrument Blank

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-IBLK	4Q44136.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

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

Instrument Blank

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-IBLK	4Q44136.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	105% 20-150%
	13C5-PFHxA	98% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	102% 20-150%
	13C9-PFNA	107% 20-150%
	13C6-PFDA	97% 20-150%
	13C7-PFUnDA	99% 20-150%
	13C2-PFDoDA	97% 20-150%
	13C2-PFTeDA	93% 20-150%
	13C3-PFBS	100% 20-150%
	13C3-PFHxS	93% 20-150%
	13C8-PFOS	104% 20-150%
	13C8-FOSA	109% 20-150%
	d3-MeFOSA	94% 20-150%
	d5-EtFOSA	103% 20-150%
	d3-MeFOSAA	100% 20-150%
	d5-EtFOSAA	108% 20-150%
	d7-MeFOSE	85% 20-150%
	d9-EtFOSE	90% 20-150%
	13C2-4:2FTS	103% 20-180%
	13C2-6:2FTS	111% 20-180%
	13C2-8:2FTS	116% 20-180%
	13C3-HFPO-DA	93% 20-150%

6.1.1
6

Instrument Blank

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q267-IBLK	6Q17712.D	1	05/10/23	MV	n/a	n/a	S6Q267

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	104% 20-150%
	13C4-PFHpA	99% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	109% 20-150%
	13C6-PFDA	100% 20-150%
	13C7-PFUnDA	98% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	94% 20-150%
	13C3-PFBS	93% 20-150%
	13C3-PFHxS	107% 20-150%
	13C8-PFOS	98% 20-150%
	13C8-FOSA	91% 20-150%
	d3-MeFOSA	92% 20-150%
	d5-EtFOSA	96% 20-150%
	d3-MeFOSAA	107% 20-150%
	d5-EtFOSAA	101% 20-150%
	d7-MeFOSE	90% 20-150%
	d9-EtFOSE	90% 20-150%
	13C2-4:2FTS	105% 20-180%
	13C2-6:2FTS	107% 20-180%
	13C2-8:2FTS	109% 20-180%
	13C3-HFPO-DA	104% 20-150%

Continuing Calibration Blank

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-ICCB	4Q44159.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2

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: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-ICCB	4Q44159.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2

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	104%	20-150%
	13C5-PFHxA	99%	20-150%
	13C4-PFHpA	105%	20-150%
	13C8-PFOA	101%	20-150%
	13C9-PFNA	98%	20-150%
	13C6-PFDA	95%	20-150%
	13C7-PFUnDA	97%	20-150%
	13C2-PFDoDA	102%	20-150%
	13C2-PFTeDA	88%	20-150%
	13C3-PFBS	97%	20-150%
	13C3-PFHxS	94%	20-150%
	13C8-PFOS	105%	20-150%
	13C8-FOSA	102%	20-150%
	d3-MeFOSA	95%	20-150%
	d5-EtFOSA	96%	20-150%
	d3-MeFOSAA	106%	20-150%
	d5-EtFOSAA	105%	20-150%
	d7-MeFOSE	83%	20-150%
	d9-EtFOSE	82%	20-150%
	13C2-4:2FTS	115%	20-180%
	13C2-6:2FTS	124%	20-180%
	13C2-8:2FTS	140%	20-180%
	13C3-HFPO-DA	87%	20-150%

6.1.3

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Continuing Calibration Blank

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-ICCB	4Q44166.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-3, FC5818-4, FC5818-5

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

Continuing Calibration Blank

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q639-ICCB	4Q44166.D	1	05/09/23	MV	n/a	n/a	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-3, FC5818-4, FC5818-5

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

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	100%	20-150%
	13C5-PFPeA	103%	20-150%
	13C5-PFHxA	97%	20-150%
	13C4-PFHpA	100%	20-150%
	13C8-PFOA	101%	20-150%
	13C9-PFNA	109%	20-150%
	13C6-PFDA	94%	20-150%
	13C7-PFUnDA	94%	20-150%
	13C2-PFDoDA	93%	20-150%
	13C2-PFTeDA	86%	20-150%
	13C3-PFBS	94%	20-150%
	13C3-PFHxS	91%	20-150%
	13C8-PFOS	103%	20-150%
	13C8-FOSA	107%	20-150%
	d3-MeFOSA	92%	20-150%
	d5-EtFOSA	96%	20-150%
	d3-MeFOSAA	112%	20-150%
	d5-EtFOSAA	116%	20-150%
	d7-MeFOSE	84%	20-150%
	d9-EtFOSE	83%	20-150%
	13C2-4:2FTS	117%	20-180%
	13C2-6:2FTS	121%	20-180%
	13C2-8:2FTS	134%	20-180%
	13C3-HFPO-DA	88%	20-150%

Continuing Calibration Blank

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q267-ICCB	6Q17726.D	1	05/10/23	MV	n/a	n/a	S6Q267

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	107% 20-150%
	13C5-PFHxA	110% 20-150%
	13C4-PFHpA	107% 20-150%
	13C8-PFOA	95% 20-150%
	13C9-PFNA	100% 20-150%
	13C6-PFDA	96% 20-150%
	13C7-PFUnDA	93% 20-150%
	13C2-PFDoDA	89% 20-150%
	13C2-PFTeDA	96% 20-150%
	13C3-PFBS	107% 20-150%
	13C3-PFHxS	110% 20-150%
	13C8-PFOS	90% 20-150%
	13C8-FOSA	98% 20-150%
	d3-MeFOSA	95% 20-150%
	d5-EtFOSA	95% 20-150%
	d3-MeFOSAA	106% 20-150%
	d5-EtFOSAA	106% 20-150%
	d7-MeFOSE	89% 20-150%
	d9-EtFOSE	94% 20-150%
	13C2-4:2FTS	103% 20-180%
	13C2-6:2FTS	105% 20-180%
	13C2-8:2FTS	110% 20-180%
	13C3-HFPO-DA	112% 20-150%

Continuing Calibration Blank

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q267-ICCB	6Q17731.D	1	05/11/23	MV	n/a	n/a	S6Q267

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	103% 20-150%
	13C5-PFPeA	101% 20-150%
	13C5-PFHxA	100% 20-150%
	13C4-PFHpA	102% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	95% 20-150%
	13C6-PFDA	108% 20-150%
	13C7-PFUnDA	103% 20-150%
	13C2-PFDoDA	104% 20-150%
	13C2-PFTeDA	95% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	99% 20-150%
	13C8-FOSA	99% 20-150%
	d3-MeFOSA	91% 20-150%
	d5-EtFOSA	89% 20-150%
	d3-MeFOSAA	115% 20-150%
	d5-EtFOSAA	96% 20-150%
	d7-MeFOSE	94% 20-150%
	d9-EtFOSE	94% 20-150%
	13C2-4:2FTS	106% 20-180%
	13C2-6:2FTS	107% 20-180%
	13C2-8:2FTS	111% 20-180%
	13C3-HFPO-DA	101% 20-150%

Method Blank Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-MB	4Q44162.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

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

Method Blank Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-MB	4Q44162.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	109% 20-150%
	13C5-PFPeA	107% 20-150%
	13C5-PFHxA	107% 20-150%
	13C4-PFHpA	108% 20-150%
	13C8-PFOA	109% 20-150%
	13C9-PFNA	106% 20-150%
	13C6-PFDA	108% 20-150%
	13C7-PFUnDA	106% 20-150%
	13C2-PFDoDA	80% 20-150%
	13C2-PFTeDA	74% 20-150%
	13C3-PFBS	101% 20-150%
	13C3-PFHxS	106% 20-150%
	13C8-PFOS	101% 20-150%
	13C8-FOSA	72% 20-150%
	d3-MeFOSA	66% 20-150%
	d5-EtFOSA	72% 20-150%
	d3-MeFOSAA	108% 20-150%
	d5-EtFOSAA	98% 20-150%
	d7-MeFOSE	53% 20-150%
	d9-EtFOSE	60% 20-150%
	13C2-4:2FTS	131% 20-180%
	13C2-6:2FTS	147% 20-180%
	13C2-8:2FTS	122% 20-180%
	13C3-HFPO-DA	93% 20-150%

6.1.7
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Blank Spike Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-LLBS	4Q44161.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0266	89	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0129	86	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0069	92	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0064	85	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0062	83	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0054	72	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0071	95	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0065	87	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0067	89	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0063	84	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0071	95	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0060	90	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0063	89	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0058	85	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0068	95	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0065	93	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0057	79	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0062	86	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0055	76	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0266	95	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0256	90	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0265	92	40-150
754-91-6	PFOSA	0.0075	0.0069	92	40-150
31506-32-8	MeFOSA	0.015	0.0136	91	40-150
4151-50-2	EtFOSA	0.015	0.0128	85	40-150
2355-31-9	MeFOSAA	0.0075	0.0060	80	40-150
2991-50-6	EtFOSAA	0.0075	0.0049	65	40-150
24448-09-7	MeFOSE	0.0375	0.0349	93	40-150
1691-99-2	EtFOSE	0.0375	0.0373	99	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0135	90	40-150
919005-14-4	ADONA	0.0142	0.0140	99	40-150
377-73-1	PFMPA	0.015	0.0133	89	40-150
863090-89-5	PFMBA	0.015	0.0131	87	40-150
151772-58-6	NFDHA	0.015	0.0099	66	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0135	96	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0139	98	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-LLBS	4Q44161.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0111	83	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0247	66	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.169	90	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.195	104	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	113%	20-150%
	13C5-PFPeA	110%	20-150%
	13C5-PFHxA	108%	20-150%
	13C4-PFHpA	111%	20-150%
	13C8-PFOA	111%	20-150%
	13C9-PFNA	111%	20-150%
	13C6-PFDA	115%	20-150%
	13C7-PFUnDA	110%	20-150%
	13C2-PFDoDA	104%	20-150%
	13C2-PFTeDA	89%	20-150%
	13C3-PFBS	110%	20-150%
	13C3-PFHxS	114%	20-150%
	13C8-PFOS	117%	20-150%
	13C8-FOSA	91%	20-150%
	d3-MeFOSA	84%	20-150%
	d5-EtFOSA	89%	20-150%
	d3-MeFOSAA	119%	20-150%
	d5-EtFOSAA	124%	20-150%
	d7-MeFOSE	72%	20-150%
	d9-EtFOSE	79%	20-150%
	13C2-4:2FTS	145%	20-180%
	13C2-6:2FTS	149%	20-180%
	13C2-8:2FTS	139%	20-180%
	13C3-HFPO-DA	93%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-BS	4Q44160.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0925	93	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0454	91	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0219	88	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0229	92	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0239	96	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0177	71	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0231	92	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0237	95	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0225	90	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0219	88	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0240	96	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0210	95	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0205	87	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0174	76	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0242	102	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0214	92	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0219	91	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0206	85	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0185	76	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0931	99	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0845	89	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0986	103	40-150
754-91-6	PFOSA	0.025	0.0225	90	40-150
31506-32-8	MeFOSA	0.05	0.0475	95	40-150
4151-50-2	EtFOSA	0.05	0.0481	96	40-150
2355-31-9	MeFOSAA	0.025	0.0228	91	40-150
2991-50-6	EtFOSAA	0.025	0.0229	92	40-150
24448-09-7	MeFOSE	0.125	0.116	93	40-150
1691-99-2	EtFOSE	0.125	0.109	87	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0479	96	40-150
919005-14-4	ADONA	0.0473	0.0508	108	40-150
377-73-1	PFMPA	0.05	0.0468	94	40-150
863090-89-5	PFMBA	0.05	0.0452	90	40-150
151772-58-6	NFDHA	0.05	0.0365	73	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0494	106	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0479	101	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-BS	4Q44160.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0387	87	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0863	69	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.581	93	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.650	104	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	110%	20-150%
	13C5-PFPeA	113%	20-150%
	13C5-PFHxA	114%	20-150%
	13C4-PFHpA	112%	20-150%
	13C8-PFOA	107%	20-150%
	13C9-PFNA	113%	20-150%
	13C6-PFDA	104%	20-150%
	13C7-PFUnDA	104%	20-150%
	13C2-PFDoDA	93%	20-150%
	13C2-PFTeDA	77%	20-150%
	13C3-PFBS	103%	20-150%
	13C3-PFHxS	107%	20-150%
	13C8-PFOS	107%	20-150%
	13C8-FOSA	79%	20-150%
	d3-MeFOSA	68%	20-150%
	d5-EtFOSA	72%	20-150%
	d3-MeFOSAA	107%	20-150%
	d5-EtFOSAA	108%	20-150%
	d7-MeFOSE	57%	20-150%
	d9-EtFOSE	61%	20-150%
	13C2-4:2FTS	122%	20-180%
	13C2-6:2FTS	141%	20-180%
	13C2-8:2FTS	125%	20-180%
	13C3-HFPO-DA	95%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-MS	4Q44168.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639
FC5818-3	4Q44167.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639
FC5818-3 ^a	6Q17727.D	5	05/10/23	MV	05/05/23	OP96747	S6Q267

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

CAS No.	Compound	FC5818-3 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.070 U ^b	0.0893	0.0728	82	40-150
2706-90-3	Perfluoropentanoic acid	0.0070 U	0.0446	0.0395	88	40-150
307-24-4	Perfluorohexanoic acid	0.0035 U	0.0223	0.0196	88	40-150
375-85-9	Perfluoroheptanoic acid	0.0035 U	0.0223	0.0204	91	40-150
335-67-1	Perfluorooctanoic acid	0.0035 U	0.0223	0.0193	86	40-150
375-95-1	Perfluorononanoic acid	0.0035 U	0.0223	0.0185	83	40-150
335-76-2	Perfluorodecanoic acid	0.0035 U	0.0223	0.0201	90	40-150
2058-94-8	Perfluoroundecanoic acid	0.0035 U	0.0223	0.0210	94	40-150
307-55-1	Perfluorododecanoic acid	0.0035 U	0.0223	0.0211	95	40-150
72629-94-8	Perfluorotridecanoic acid	0.0035 U	0.0223	0.0152	68	40-150
376-06-7	Perfluorotetradecanoic acid	0.0035 U	0.0223	0.0201	90	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0035 U	0.0198	0.0183	92	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0044 U	0.021	0.0191	91	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0035 U	0.0204	0.0191	94	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0035 U	0.0213	0.0238	112	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0035 U	0.0207	0.0195	94	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0035 U	0.0215	0.0169	79	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0035 U	0.0215	0.0175	81	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0044 U	0.0217	0.0096	44	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0837	0.0820	98	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.0848	0.0849	100	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0857	0.0929	108	40-150
754-91-6	PFOSA	0.0035 U	0.0223	0.0213	95	40-150
31506-32-8	MeFOSA	0.0070 U	0.0446	0.0424	95	40-150
4151-50-2	EtFOSA	0.0070 U	0.0446	0.0405	91	40-150
2355-31-9	MeFOSAA	0.022 U ^b	0.0223	0.0216	97	40-150
2991-50-6	EtFOSAA	0.022 U ^b	0.0223	0.0197	88	40-150
24448-09-7	MeFOSE	0.035 U	0.112	0.101	90	40-150
1691-99-2	EtFOSE	0.035 U	0.112	0.104	93	40-150
13252-13-6	HFPO-DA (GenX)	0.0035 U	0.0446	0.0421	94	40-150
919005-14-4	ADONA	0.0070 U	0.0422	0.0552	131	40-150
377-73-1	PFMPA	0.0070 U	0.0446	0.0108	24*	40-150
863090-89-5	PFMBA	0.0070 U	0.0446	0.0674	151*	40-150
151772-58-6	NFDHA	0.0070 U	0.0446	0.0242	54	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0070 U	0.0417	0.0530	127	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0070 U	0.0422	0.0371	88	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-MS	4Q44168.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639
FC5818-3	4Q44167.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639
FC5818-3 ^a	6Q17727.D	5	05/10/23	MV	05/05/23	OP96747	S6Q267

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

CAS No.	Compound	FC5818-3 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0070 U	0.0397	0.0385	97	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	0.112	0.0177	16*	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.088 U	0.558	0.620	111	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.088 U	0.558	0.723	130	40-150

CAS No.	ID Standard Recoveries	MS	FC5818-3	FC5818-3	Limits
	13C4-PFBA	3%* c	4%* c	4%* c	20-150%
	13C5-PFPeA	21%	26%	26%	20-150%
	13C5-PFHxA	87%	101%	101%	20-150%
	13C4-PFHpA	104%	115%	119%	20-150%
	13C8-PFOA	106%	121%	113%	20-150%
	13C9-PFNA	112%	108%	115%	20-150%
	13C6-PFDA	103%	122%	102%	20-150%
	13C7-PFUnDA	96%	114%	101%	20-150%
	13C2-PFDoDA	83%	103%	88%	20-150%
	13C2-PFTeDA	44%	64%	64%	20-150%
	13C3-PFBS	86%	98%	107%	20-150%
	13C3-PFHxS	93%	101%	111%	20-150%
	13C8-PFOS	115%	114%	56%	20-150%
	13C8-FOSA	106%	122%	44%	20-150%
	d3-MeFOSA	106%	117%	48%	20-150%
	d5-EtFOSA	111%	122%	49%	20-150%
	d3-MeFOSAA	156%* c	169%* c	64%	20-150%
	d5-EtFOSAA	178%* c	181%* c	63%	20-150%
	d7-MeFOSE	74%	85%	33%	20-150%
	d9-EtFOSE	75%	86%	38%	20-150%
	13C2-4:2FTS	119%	152%	101%	20-180%
	13C2-6:2FTS	108%	124%	133%	20-180%
	13C2-8:2FTS	110%	121%	105%	20-180%
	13C3-HFPO-DA	71%	80%	101%	20-150%

- (a) Dilution required (ID recovery standard failure).
- (b) Result is from Run #2.
- (c) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-DUP	4Q44171.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639
FC5818-5	4Q44170.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

CAS No.	Compound	FC5818-5		DUP		Q	RPD	Limits
		ug/l	Q	ug/l	Q			
375-22-4	Perfluorobutanoic acid	0.0029	J	0.0028	J	4		30
2706-90-3	Perfluoropentanoic acid	0.0030	J	0.0030	J	0		30
307-24-4	Perfluorohexanoic acid	0.0019	J	0.0017	J	11		30
375-85-9	Perfluoroheptanoic acid	0.00076	J	0.00064	J	17		30
335-67-1	Perfluorooctanoic acid	0.00058	J	0.00048	J	19		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	0.0071	U	ND		nc		30
4151-50-2	EtFOSA	0.0071	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	0.0071	U	ND		nc		30
377-73-1	PFMPA	0.0071	U	ND		nc		30
863090-89-5	PFMBA	0.0071	U	ND		nc		30
151772-58-6	NFDHA	0.0071	U	ND		nc		30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0071	U	ND		nc		30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0071	U	ND		nc		30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96747-DUP	4Q44171.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639
FC5818-5	4Q44170.D	1	05/09/23	MV	05/05/23	OP96747	S4Q639

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5818-1, FC5818-2, FC5818-3, FC5818-4, FC5818-5

CAS No.	Compound	FC5818-5 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0071 U	ND			nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	ND			nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.089 U	ND			nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.089 U	ND			nc	30

CAS No.	ID Standard Recoveries	DUP	FC5818-5	Limits
	13C4-PFBA	94%	94%	20-150%
	13C5-PFPeA	109%	104%	20-150%
	13C5-PFHxA	105%	101%	20-150%
	13C4-PFHpA	108%	106%	20-150%
	13C8-PFOA	104%	100%	20-150%
	13C9-PFNA	103%	96%	20-150%
	13C6-PFDA	98%	94%	20-150%
	13C7-PFUnDA	88%	83%	20-150%
	13C2-PFDoDA	74%	66%	20-150%
	13C2-PFTeDA	67%	53%	20-150%
	13C3-PFBS	101%	105%	20-150%
	13C3-PFHxS	103%	98%	20-150%
	13C8-PFOS	97%	82%	20-150%
	13C8-FOSA	92%	91%	20-150%
	d3-MeFOSA	74%	70%	20-150%
	d5-EtFOSA	75%	72%	20-150%
	d3-MeFOSAA	106%	100%	20-150%
	d5-EtFOSAA	103%	104%	20-150%
	d7-MeFOSE	66%	66%	20-150%
	d9-EtFOSE	66%	63%	20-150%
	13C2-4:2FTS	126%	129%	20-180%
	13C2-6:2FTS	123%	129%	20-180%
	13C2-8:2FTS	102%	94%	20-180%
	13C3-HFPO-DA	92%	90%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q639-CC634	Injection Date:	05/09/23
Lab File ID:	4Q44158.D	Injection Time:	19:31
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	68618	2.93	45028	5.54	53770	7.12	24678	7.68	18492	8.18
Check Std ^c	75482	2.93	46079	5.56	57019	7.16	27184	7.71	18625	8.22
Upper Limit ^d	137236	3.33	90056	5.96	107540	7.56	49356	8.11	36984	8.62
Lower Limit ^e	20585	2.53	13508	5.16	16131	6.76	7403	7.31	5548	7.82

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
S4Q639-ICCB	63969	2.88	39979	5.56	47827	7.16	22305	7.71	17090	8.22	1
OP96747-BS	61430	2.93	37438	5.56	45324	7.16	21301	7.71	16293	8.22	1
OP96747-LLBS	60551	2.93	38793	5.57	44588	7.16	21970	7.71	15183	8.22	1
OP96747-MB	64357	2.94	39670	5.56	47049	7.16	22937	7.71	15561	8.22	1
FC5818-1	44019	2.92	38410	5.56	47596	7.16	22594	7.71	16074	8.22	1
FC5818-2	67676	2.93	41419	5.57	49601	7.16	24254	7.71	16513	8.20	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: S4Q634-ICC634 4Q43887.D 05/03/23 11:54. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q639-CC634	Injection Date:	05/09/23
Lab File ID:	4Q44158.D	Injection Time:	19:31
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5105	7.23	11432	8.33
Check Std ^c	5466	7.25	12618	8.35
Upper Limit ^d	10210	7.65	22864	8.75
Lower Limit ^e	1532	6.85	3430	7.95

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S4Q639-ICCB	4663	7.25	10440	8.35	1
OP96747-BS	4445	7.25	9800	8.37	1
OP96747-LLBS	4152	7.25	9126	8.37	1
OP96747-MB	4558	7.25	10413	8.37	1
FC5818-1	4635	7.25	9967	8.35	1
FC5818-2	4920	7.25	11196	8.35	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q634-ICC634 4Q43887.D 05/03/23 11:54. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q639-CC634	Injection Date:	05/09/23
Lab File ID:	4Q44165.D	Injection Time:	21:10
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	68618	2.93	45028	5.54	53770	7.12	24678	7.68	18492	8.18
Check Std ^c	76215	2.93	46059	5.56	56110	7.16	26694	7.71	19366	8.22
Upper Limit ^d	137236	3.33	90056	5.96	107540	7.56	49356	8.11	36984	8.62
Lower Limit ^e	20585	2.53	13508	5.16	16131	6.76	7403	7.31	5548	7.82

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
S4Q639-ICCB	63783	2.89	40304	5.56	48894	7.16	22605	7.71	17405	8.22	1
FC5818-3	58359	2.93	37924	5.56	45668	7.16	23843	7.71	16885	8.20	1
OP96747-MS	63257	2.93	41940	5.56	50036	7.16	24678	7.71	19024	8.20	1
FC5818-4	62179	2.93	38722	5.56	45998	7.16	22526	7.71	16155	8.22	1
FC5818-5	65641	2.93	40766	5.56	50244	7.16	24737	7.71	17416	8.22	1
OP96747-DUP	61284	2.93	39679	5.56	48569	7.16	23500	7.71	16587	8.22	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q634-ICC634 4Q43887.D 05/03/23 11:54. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2
6

Injection Standard Area Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q639-CC634	Injection Date:	05/09/23
Lab File ID:	4Q44165.D	Injection Time:	21:10
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5105	7.23	11432	8.33
Check Std ^c	5493	7.25	11852	8.35
Upper Limit ^d	10210	7.65	22864	8.75
Lower Limit ^e	1532	6.85	3430	7.95

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S4Q639-ICCB	4836	7.25	10284	8.35	1
FC5818-3	4606	7.25	8378	8.34	1
OP96747-MS	4859	7.25	8282	8.34	1
FC5818-4	4320	7.25	9787	8.35	1
FC5818-5	4587	7.25	10530	8.35	1
OP96747-DUP	4636	7.25	10025	8.35	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q634-ICC634 4Q43887.D 05/03/23 11:54. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2
6

Injection Standard Area Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q267-CC265	Injection Date:	05/10/23
Lab File ID:	6Q17725.D	Injection Time:	22:44
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	60761	2.90	44590	5.48	69256	7.08	23780	7.61	19885	8.08
Check Std ^c	63433	2.92	45598	5.48	72228	7.08	27040	7.60	20652	8.08
Upper Limit ^d	121522	3.32	89180	5.88	138512	7.48	47560	8.00	39770	8.48
Lower Limit ^e	18228	2.52	13377	5.08	20777	6.68	7134	7.20	5966	7.68

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
S6Q267-ICCB	62938	2.92	41712	5.48	73657	7.08	24720	7.60	20942	8.08	1
FC5818-3 ^f	55820	2.90	37170	5.48	62175	7.08	21425	7.61	18615	8.08	5
S6Q267-ECC265	63815	2.92	44902	5.48	71721	7.07	24695	7.60	22379	8.08	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: S6Q265-ICC265 6Q17549.D 05/08/23 16:49. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Dilution required (ID recovery standard failure).

6.5.3
6

Injection Standard Area Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q267-CC265	Injection Date:	05/10/23
Lab File ID:	6Q17725.D	Injection Time:	22:44
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	8310	7.19	12460	8.24
Check Std ^c	8267	7.19	11840	8.24
Upper Limit ^d	16620	7.59	24920	8.64
Lower Limit ^e	2493	6.79	3738	7.84

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q267-ICCB	7817	7.19	12459	8.24	1
FC5818-3 ^f	7060	7.19	23345	8.23	5
S6Q267-ECC265	8391	7.18	13222	8.24	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q265-ICC265 6Q17549.D 05/08/23 16:49. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Dilution required (ID recovery standard failure).

6.5.3
6

TDCA Retention Time Check

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q634-RT	Injection Date:	05/03/23
Lab File ID:	4Q43881.D	Injection Time:	10:23
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.305	--	--
TDCA	6.847	1.458	1.000
TCDCA	6.686	1.619	1.000
TUDCA	5.842	2.463	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
S4Q634-IC634	4Q43883.D	05/03/23	10:58	00:35	Mass Calibration Verification
S4Q634-IC634	4Q43884.D	05/03/23	11:12	00:49	Initial cal 1
S4Q634-IC634	4Q43885.D	05/03/23	11:26	01:03	Initial cal 2
S4Q634-IC634	4Q43886.D	05/03/23	11:40	01:17	Initial cal 3
S4Q634-ICC634	4Q43887.D	05/03/23	11:54	01:31	Initial cal 4
S4Q634-IC634	4Q43888.D	05/03/23	12:08	01:45	Initial cal 5
S4Q634-IC634	4Q43889.D	05/03/23	12:22	01:59	Initial cal 6
S4Q634-IC634	4Q43890.D	05/03/23	12:36	02:13	Initial cal 7
S4Q634-IC634	4Q43891.D	05/03/23	12:50	02:27	Initial cal 8
S4Q634-IBLK	4Q43892.D	05/03/23	13:04	02:41	Instrument Blank
S4Q634-IBLK	4Q43892.D	05/03/23	13:04	02:41	Instrument Blank
S4Q634-ICV634	4Q43894.D	05/03/23	13:20	02:57	Initial cal verification 20
S4Q634-ICV634	4Q43895.D	05/03/23	13:35	03:12	Initial cal verification 4
S4Q634-CC634	4Q43897.D	05/03/23	13:51	03:28	Continuing cal 1.0LL
OP96662-BS	4Q43898.D	05/03/23	14:05	03:42	Blank Spike
OP96662-LLBS	4Q43899.D	05/03/23	14:19	03:56	Blank Spike
OP96662-MB	4Q43900.D	05/03/23	14:33	04:10	Method Blank
ZZZZZZ	4Q43901.D	05/03/23	14:47	04:24	(unrelated sample)
ZZZZZZ	4Q43902.D	05/03/23	15:01	04:38	(unrelated sample)
ZZZZZZ	4Q43903.D	05/03/23	15:15	04:52	(unrelated sample)
ZZZZZZ	4Q43904.D	05/03/23	15:29	05:06	(unrelated sample)
FC5685-3	4Q43905.D	05/03/23	15:43	05:20	(used for QC only; not part of job FC5818)
OP96662-MS	4Q43906.D	05/03/23	15:57	05:34	Matrix Spike
S4Q634-CC634	4Q43907.D	05/03/23	16:11	05:48	Continuing cal 4
S4Q634-ICCB	4Q43908.D	05/03/23	16:25	06:02	Continuing Calibration Blank
FC5685-4	4Q43909.D	05/03/23	16:39	06:16	(used for QC only; not part of job FC5818)
OP96662-DUP	4Q43910.D	05/03/23	16:54	06:31	Duplicate
ZZZZZZ	4Q43911.D	05/03/23	17:08	06:45	(unrelated sample)
OP96659-BS	4Q43912.D	05/03/23	17:22	06:59	Blank Spike
OP96659-LLBS	4Q43913.D	05/03/23	17:36	07:13	Blank Spike
OP96659-MB	4Q43914.D	05/03/23	17:50	07:27	Method Blank
ZZZZZZ	4Q43916.D	05/03/23	18:18	07:55	(unrelated sample)
S4Q634-CC634	4Q43917.D	05/03/23	18:32	08:09	Continuing cal 4
S4Q634-ICCB	4Q43918.D	05/03/23	18:46	08:23	Continuing Calibration Blank

TDCA Retention Time Check

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q634-RT	Injection Date:	05/03/23
Lab File ID:	4Q43881.D	Injection Time:	10:23
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q634-ICCB	4Q43918.D	05/03/23	18:46	08:23	Continuing Calibration Blank
ZZZZZZ	4Q43919.D	05/03/23	19:00	08:37	(unrelated sample)
ZZZZZZ	4Q43920.D	05/03/23	19:14	08:51	(unrelated sample)
ZZZZZZ	4Q43921.D	05/03/23	19:28	09:05	(unrelated sample)
ZZZZZZ	4Q43922.D	05/03/23	19:42	09:19	(unrelated sample)
OP96657-BS	4Q43923.D	05/03/23	19:56	09:33	Blank Spike
OP96657-LLBS	4Q43924.D	05/03/23	20:10	09:47	Blank Spike
OP96657-MB	4Q43925.D	05/03/23	20:24	10:01	Method Blank
ZZZZZZ	4Q43926.D	05/03/23	20:38	10:15	(unrelated sample)
S4Q634-CC634	4Q43927.D	05/03/23	20:53	10:30	Continuing cal 4
S4Q634-ICCB	4Q43928.D	05/03/23	21:07	10:44	Continuing Calibration Blank
S4Q634-ICCB	4Q43928.D	05/03/23	21:07	10:44	Continuing Calibration Blank
FC5371-11	4Q43929.D	05/03/23	21:21	10:58	(used for QC only; not part of job FC5818)
OP96657-MS	4Q43930.D	05/03/23	21:35	11:12	Matrix Spike
OP96657-MSD	4Q43931.D	05/03/23	21:49	11:26	Matrix Spike Duplicate
ZZZZZZ	4Q43932.D	05/03/23	22:03	11:40	(unrelated sample)
ZZZZZZ	4Q43933.D	05/03/23	22:17	11:54	(unrelated sample)
ZZZZZZ	4Q43935.D	05/03/23	22:45	12:22	(unrelated sample)
ZZZZZZ	4Q43936.D	05/03/23	22:59	12:36	(unrelated sample)
ZZZZZZ	4Q43938.D	05/03/23	23:27	13:04	(unrelated sample)
S4Q634-CC634	4Q43939.D	05/03/23	23:41	13:18	Continuing cal 4
S4Q634-ICCB	4Q43940.D	05/03/23	23:55	13:32	Continuing Calibration Blank
S4Q634-ICCB	4Q43940.D	05/03/23	23:55	13:32	Continuing Calibration Blank
ZZZZZZ	4Q43941.D	05/04/23	00:09	13:46	(unrelated sample)
FC5371-20	4Q43942.D	05/04/23	00:23	14:00	(used for QC only; not part of job FC5818)
OP96657-MS2	4Q43943.D	05/04/23	00:37	14:14	Matrix Spike
OP96657-MSD2	4Q43944.D	05/04/23	00:51	14:28	Matrix Spike Duplicate
ZZZZZZ	4Q43945.D	05/04/23	01:05	14:42	(unrelated sample)
S4Q634-ECC634	4Q43946.D	05/04/23	01:19	14:56	Ending cal 4
S4Q634-ICCB	4Q43947.D	05/04/23	01:34	15:11	Continuing Calibration Blank
S4Q634-ICCB	4Q43947.D	05/04/23	01:34	15:11	Continuing Calibration Blank

6.6.1

6

TDCA Retention Time Check

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q639-RT	Injection Date:	05/09/23
Lab File ID:	4Q44133.D	Injection Time:	13:28
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.343	--	--
TDCA	6.885	1.458	1.000
TCDCA	6.735	1.608	1.000
TUDCA	5.892	2.451	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
S4Q639-IBLK	4Q44136.D	05/09/23	14:10	00:42	Instrument Blank
S4Q639-IBLK	4Q44136.D	05/09/23	14:10	00:42	Instrument Blank
S4Q639-CC634	4Q44137.D	05/09/23	14:24	00:56	Continuing cal 4
S4Q639-CC634	4Q44138.D	05/09/23	14:38	01:10	Continuing cal 1.0LL
OP96746-BS	4Q44139.D	05/09/23	14:52	01:24	Blank Spike
OP96746-LLBS	4Q44140.D	05/09/23	15:06	01:38	Blank Spike
OP96746-MB	4Q44141.D	05/09/23	15:20	01:52	Method Blank
ZZZZZZ	4Q44144.D	05/09/23	16:02	02:34	(unrelated sample)
ZZZZZZ	4Q44145.D	05/09/23	16:26	02:58	(unrelated sample)
ZZZZZZ	4Q44146.D	05/09/23	16:40	03:12	(unrelated sample)
ZZZZZZ	4Q44148.D	05/09/23	17:11	03:43	(unrelated sample)
S4Q639-CC634	4Q44149.D	05/09/23	17:25	03:57	Continuing cal 4
S4Q639-ICCB	4Q44150.D	05/09/23	17:39	04:11	Continuing Calibration Blank
ZZZZZZ	4Q44151.D	05/09/23	17:53	04:25	(unrelated sample)
ZZZZZZ	4Q44152.D	05/09/23	18:07	04:39	(unrelated sample)
ZZZZZZ	4Q44153.D	05/09/23	18:21	04:53	(unrelated sample)
ZZZZZZ	4Q44154.D	05/09/23	18:35	05:07	(unrelated sample)
ZZZZZZ	4Q44155.D	05/09/23	18:49	05:21	(unrelated sample)
ZZZZZZ	4Q44156.D	05/09/23	19:03	05:35	(unrelated sample)
ZZZZZZ	4Q44157.D	05/09/23	19:17	05:49	(unrelated sample)
S4Q639-CC634	4Q44158.D	05/09/23	19:31	06:03	Continuing cal 4
S4Q639-ICCB	4Q44159.D	05/09/23	19:45	06:17	Continuing Calibration Blank
OP96747-BS	4Q44160.D	05/09/23	19:59	06:31	Blank Spike
OP96747-LLBS	4Q44161.D	05/09/23	20:13	06:45	Blank Spike
OP96747-MB	4Q44162.D	05/09/23	20:28	07:00	Method Blank
FC5818-1	4Q44163.D	05/09/23	20:42	07:14	AF-RHMW17S-WGN01LF-2305W1
FC5818-2	4Q44164.D	05/09/23	20:56	07:28	AF-RHMW17S-WQEB01-2305W1
S4Q639-CC634	4Q44165.D	05/09/23	21:10	07:42	Continuing cal 4
S4Q639-ICCB	4Q44166.D	05/09/23	21:24	07:56	Continuing Calibration Blank
FC5818-3	4Q44167.D	05/09/23	21:38	08:10	AF-RHMW17D-WGN01LF-2305W1
OP96747-MS	4Q44168.D	05/09/23	21:52	08:24	Matrix Spike
FC5818-4	4Q44169.D	05/09/23	22:06	08:38	AF-RHMW17D-WQFB01-2305W1
FC5818-5	4Q44170.D	05/09/23	22:20	08:52	AF-RHMW17-WGN01LF-2305W1
OP96747-DUP	4Q44171.D	05/09/23	22:34	09:06	Duplicate

TDCA Retention Time Check

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q639-RT	Injection Date:	05/09/23
Lab File ID:	4Q44133.D	Injection Time:	13:28
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q639-CC634	4Q44172.D	05/09/23	22:48	09:20	Continuing cal 4
S4Q639-CC634	4Q44173.D	05/09/23	23:02	09:34	Continuing cal 1.0LL
S4Q639-ICCB	4Q44174.D	05/09/23	23:16	09:48	Continuing Calibration Blank
OP96784-BS	4Q44175.D	05/09/23	23:30	10:02	Blank Spike
OP96784-LLBS	4Q44176.D	05/09/23	23:44	10:16	Blank Spike
OP96784-MB	4Q44177.D	05/09/23	23:58	10:30	Method Blank
ZZZZZZ	4Q44178.D	05/10/23	00:12	10:44	(unrelated sample)
FC5890-1	4Q44179.D	05/10/23	00:27	10:59	(used for QC only; not part of job FC5818)
OP96784-MS	4Q44180.D	05/10/23	00:41	11:13	Matrix Spike
FC5890-2	4Q44181.D	05/10/23	00:55	11:27	(used for QC only; not part of job FC5818)
OP96784-DUP	4Q44182.D	05/10/23	01:09	11:41	Duplicate
ZZZZZZ	4Q44183.D	05/10/23	01:23	11:55	(unrelated sample)
S4Q639-ECC634	4Q44184.D	05/10/23	01:37	12:09	Ending cal 4
S4Q639-ICCB	4Q44185.D	05/10/23	01:51	12:23	Continuing Calibration Blank

6.6.2
6

TDCA Retention Time Check

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q265-RT	Injection Date:	05/08/23
Lab File ID:	6Q17543.D	Injection Time:	15:22
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.228	--	--
TDCA	6.799	1.429	1.000
TCDCA	6.638	1.590	1.000
TUDCA	5.785	2.443	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
S6Q265-IC265	6Q17545.D	05/08/23	15:51	00:29	Mass Calibration Verification
S6Q265-IC265	6Q17546.D	05/08/23	16:06	00:44	Initial cal 1
S6Q265-IC265	6Q17547.D	05/08/23	16:20	00:58	Initial cal 2
S6Q265-IC265	6Q17548.D	05/08/23	16:35	01:13	Initial cal 3
S6Q265-ICC265	6Q17549.D	05/08/23	16:49	01:27	Initial cal 4
S6Q265-IC265	6Q17550.D	05/08/23	17:04	01:42	Initial cal 5
S6Q265-IC265	6Q17551.D	05/08/23	17:18	01:56	Initial cal 6
S6Q265-IC265	6Q17552.D	05/08/23	17:33	02:11	Initial cal 7
S6Q265-IC265	6Q17553.D	05/08/23	17:47	02:25	Initial cal 8
S6Q265-IBLK	6Q17554.D	05/08/23	18:02	02:40	Instrument Blank
S6Q265-IBLK	6Q17554.D	05/08/23	18:02	02:40	Instrument Blank
S6Q265-ICV265	6Q17555.D	05/08/23	18:16	02:54	Initial cal verification 4
S6Q265-ICV265	6Q17556.D	05/08/23	18:31	03:09	Initial cal verification 20
S6Q265-CC265	6Q17557.D	05/08/23	18:45	03:23	Continuing cal 4
S6Q265-CC265	6Q17558.D	05/08/23	18:59	03:37	Continuing cal 1.0LL
OP96680-BS	6Q17559.D	05/08/23	19:14	03:52	Blank Spike
OP96680-LLBS	6Q17560.D	05/08/23	19:28	04:06	Blank Spike
OP96680-MB	6Q17561.D	05/08/23	19:43	04:21	Method Blank
ZZZZZZ	6Q17562.D	05/08/23	19:57	04:35	(unrelated sample)
ZZZZZZ	6Q17563.D	05/08/23	20:12	04:50	(unrelated sample)
ZZZZZZ	6Q17564.D	05/08/23	20:26	05:04	(unrelated sample)
ZZZZZZ	6Q17565.D	05/08/23	20:41	05:19	(unrelated sample)
ZZZZZZ	6Q17566.D	05/08/23	20:55	05:33	(unrelated sample)
ZZZZZZ	6Q17567.D	05/08/23	21:10	05:48	(unrelated sample)
ZZZZZZ	6Q17568.D	05/08/23	21:24	06:02	(unrelated sample)
S6Q265-CC265	6Q17569.D	05/08/23	21:39	06:17	Continuing cal 4
S6Q265-ICCB	6Q17570.D	05/08/23	21:53	06:31	Continuing Calibration Blank
ZZZZZZ	6Q17571.D	05/08/23	22:08	06:46	(unrelated sample)
ZZZZZZ	6Q17572.D	05/08/23	22:22	07:00	(unrelated sample)
ZZZZZZ	6Q17573.D	05/08/23	22:37	07:15	(unrelated sample)
ZZZZZZ	6Q17574.D	05/08/23	22:51	07:29	(unrelated sample)
ZZZZZZ	6Q17575.D	05/08/23	23:06	07:44	(unrelated sample)
ZZZZZZ	6Q17576.D	05/08/23	23:20	07:58	(unrelated sample)
ZZZZZZ	6Q17577.D	05/08/23	23:35	08:13	(unrelated sample)

TDCA Retention Time Check

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q265-RT	Injection Date:	05/08/23
Lab File ID:	6Q17543.D	Injection Time:	15:22
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
FC5348-15	6Q17578.D	05/08/23	23:49	08:27	(used for QC only; not part of job FC5818)
OP96680-MS	6Q17579.D	05/09/23	00:04	08:42	Matrix Spike
OP96680-MSD	6Q17580.D	05/09/23	00:18	08:56	Matrix Spike Duplicate
S6Q265-CC265	6Q17581.D	05/09/23	00:33	09:11	Continuing cal 4
S6Q265-ICCB	6Q17582.D	05/09/23	00:47	09:25	Continuing Calibration Blank
ZZZZZZ	6Q17583.D	05/09/23	01:02	09:40	(unrelated sample)
ZZZZZZ	6Q17584.D	05/09/23	01:16	09:54	(unrelated sample)
ZZZZZZ	6Q17585.D	05/09/23	01:31	10:09	(unrelated sample)
OP96699-BS	6Q17586.D	05/09/23	01:45	10:23	Blank Spike
OP96699-LLBS	6Q17587.D	05/09/23	01:59	10:37	Blank Spike
OP96699-MB	6Q17588.D	05/09/23	02:14	10:52	Method Blank
FC5391-1	6Q17589.D	05/09/23	02:28	11:06	(used for QC only; not part of job FC5818)
OP96699-MS	6Q17590.D	05/09/23	02:43	11:21	Matrix Spike
FC5391-2	6Q17591.D	05/09/23	02:57	11:35	(used for QC only; not part of job FC5818)
OP96699-DUP	6Q17592.D	05/09/23	03:12	11:50	Duplicate
S6Q265-CC265	6Q17593.D	05/09/23	03:26	12:04	Continuing cal 4
S6Q265-ICCB	6Q17594.D	05/09/23	03:41	12:19	Continuing Calibration Blank
ZZZZZZ	6Q17595.D	05/09/23	03:55	12:33	(unrelated sample)
ZZZZZZ	6Q17596.D	05/09/23	04:10	12:48	(unrelated sample)
ZZZZZZ	6Q17597.D	05/09/23	04:24	13:02	(unrelated sample)
ZZZZZZ	6Q17598.D	05/09/23	04:39	13:17	(unrelated sample)
ZZZZZZ	6Q17599.D	05/09/23	04:53	13:31	(unrelated sample)
ZZZZZZ	6Q17600.D	05/09/23	05:08	13:46	(unrelated sample)
ZZZZZZ	6Q17601.D	05/09/23	05:22	14:00	(unrelated sample)
ZZZZZZ	6Q17602.D	05/09/23	05:37	14:15	(unrelated sample)
ZZZZZZ	6Q17603.D	05/09/23	05:51	14:29	(unrelated sample)
ZZZZZZ	6Q17604.D	05/09/23	06:06	14:44	(unrelated sample)
S6Q265-CC265	6Q17605.D	05/09/23	06:20	14:58	Continuing cal 4
S6Q265-CC265	6Q17606.D	05/09/23	06:35	15:13	Continuing cal 1.0LL
S6Q265-ICCB	6Q17607.D	05/09/23	06:49	15:27	Continuing Calibration Blank
ZZZZZZ	6Q17608.D	05/09/23	07:04	15:42	(unrelated sample)
ZZZZZZ	6Q17609.D	05/09/23	07:18	15:56	(unrelated sample)
ZZZZZZ	6Q17610.D	05/09/23	07:33	16:11	(unrelated sample)
ZZZZZZ	6Q17611.D	05/09/23	07:47	16:25	(unrelated sample)
ZZZZZZ	6Q17612.D	05/09/23	08:02	16:40	(unrelated sample)
S6Q265-CC265	6Q17615.D	05/09/23	08:45	17:23	Continuing cal 4
S6Q265-ICCB	6Q17616.D	05/09/23	08:59	17:37	Continuing Calibration Blank
OP96700-BS	6Q17617.D	05/09/23	09:14	17:52	Blank Spike
OP96700-LLBS	6Q17618.D	05/09/23	09:28	18:06	Blank Spike
OP96700-MB	6Q17619.D	05/09/23	09:43	18:21	Method Blank
ZZZZZZ	6Q17620.D	05/09/23	09:57	18:35	(unrelated sample)
FC5347-2	6Q17621.D	05/09/23	10:12	18:50	(used for QC only; not part of job FC5818)
OP96700-MS1	6Q17622.D	05/09/23	10:26	19:04	Matrix Spike
OP96700-MSD1	6Q17623.D	05/09/23	10:41	19:19	Matrix Spike Duplicate

TDCA Retention Time Check

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q265-RT	Injection Date:	05/08/23
Lab File ID:	6Q17543.D	Injection Time:	15:22
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q17624.D	05/09/23	10:55	19:33	(unrelated sample)
ZZZZZZ	6Q17625.D	05/09/23	11:10	19:48	(unrelated sample)
ZZZZZZ	6Q17626.D	05/09/23	11:24	20:02	(unrelated sample)
S6Q265-CC265	6Q17627.D	05/09/23	11:39	20:17	Continuing cal 4
S6Q265-ICCB	6Q17628.D	05/09/23	11:53	20:31	Continuing Calibration Blank
ZZZZZZ	6Q17629.D	05/09/23	12:08	20:46	(unrelated sample)
ZZZZZZ	6Q17630.D	05/09/23	12:22	21:00	(unrelated sample)
ZZZZZZ	6Q17631.D	05/09/23	12:37	21:15	(unrelated sample)
ZZZZZZ	6Q17632.D	05/09/23	12:51	21:29	(unrelated sample)
ZZZZZZ	6Q17633.D	05/09/23	13:06	21:44	(unrelated sample)
ZZZZZZ	6Q17634.D	05/09/23	13:20	21:58	(unrelated sample)
FC5355-7	6Q17635.D	05/09/23	13:35	22:13	(used for QC only; not part of job FC5818)
OP96700-MS2	6Q17636.D	05/09/23	13:49	22:27	Matrix Spike
OP96700-MSD2	6Q17637.D	05/09/23	14:04	22:42	Matrix Spike Duplicate
ZZZZZZ	6Q17638.D	05/09/23	14:18	22:56	(unrelated sample)
S6Q265-CC265	6Q17639.D	05/09/23	14:33	23:11	Continuing cal 4
S6Q265-ICCB	6Q17640.D	05/09/23	14:47	23:25	Continuing Calibration Blank
ZZZZZZ	6Q17641.D	05/09/23	15:02	23:40	(unrelated sample)
S6Q265-ECC265	6Q17642.D	05/09/23	15:16	23:54	Ending cal 4
S6Q265-ICCB	6Q17643.D	05/09/23	15:31	24:09	Continuing Calibration Blank

6.6.3

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TDCA Retention Time Check

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q267-RT	Injection Date:	05/10/23
Lab File ID:	6Q17709.D	Injection Time:	18:52
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.228	--	--
TDCA	6.787	1.441	1.000
TCDCA	6.638	1.590	1.000
TUDCA	5.785	2.443	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
S6Q267-IBLK	6Q17712.D	05/10/23	19:35	00:43	Instrument Blank
S6Q267-CC265	6Q17713.D	05/10/23	19:50	00:58	Continuing cal 4
S6Q267-CC265	6Q17714.D	05/10/23	20:04	01:12	Continuing cal 1.0LL
ZZZZZZ	6Q17715.D	05/10/23	20:19	01:27	(unrelated sample)
ZZZZZZ	6Q17716.D	05/10/23	20:33	01:41	(unrelated sample)
ZZZZZZ	6Q17717.D	05/10/23	20:48	01:56	(unrelated sample)
ZZZZZZ	6Q17718.D	05/10/23	21:02	02:10	(unrelated sample)
ZZZZZZ	6Q17722.D	05/10/23	22:00	03:08	(unrelated sample)
ZZZZZZ	6Q17723.D	05/10/23	22:15	03:23	(unrelated sample)
ZZZZZZ	6Q17724.D	05/10/23	22:29	03:37	(unrelated sample)
S6Q267-CC265	6Q17725.D	05/10/23	22:44	03:52	Continuing cal 4
S6Q267-ICCB	6Q17726.D	05/10/23	22:58	04:06	Continuing Calibration Blank
FC5818-3	6Q17727.D	05/10/23	23:13	04:21	AF-RHMW17D-WGN01LF-2305W1
S6Q267-ECC265	6Q17730.D	05/10/23	23:56	05:04	Ending cal 4
S6Q267-ICCB	6Q17731.D	05/11/23	00:11	05:19	Continuing Calibration Blank

Ion Ratio Summary

Job Number: FC5818
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q639 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios					
		PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFBS
S4Q634-ICC634	4Q43887.D	0	0	2.9	17.8	19.3	40.6
FC5818-1	4Q44163.D		0	3.5	14.6	17.4	42.4
FC5818-2	4Q44164.D						
FC5818-3	4Q44167.D						
FC5818-4	4Q44169.D						
FC5818-5	4Q44170.D	0	0	4.1	14.9	11.4	

6.7.1

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Isotope Dilution Standard Recovery Summary

Job Number: FC5818
 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
FC5818-1	4Q44163.D	30	91	107	108	105	101	93	78
FC5818-2	4Q44164.D	107	110	104	105	97	91	95	90
FC5818-3	6Q17727.D	4* a	26	101	119	113	115	102	101
FC5818-3	4Q44167.D	4* a	26	101	115	121	108	122	114
FC5818-4	4Q44169.D	114	114	107	107	114	103	99	101
FC5818-5	4Q44170.D	94	104	101	106	100	96	94	83
OP96747-BS	4Q44160.D	110	113	114	112	107	113	104	104
OP96747-DUP	4Q44171.D	94	109	105	108	104	103	98	88
OP96747-LLBS	4Q44161.D	113	110	108	111	111	111	115	110
OP96747-MB	4Q44162.D	109	107	107	108	109	106	108	106
OP96747-MS	4Q44168.D	3* a	21	87	104	106	112	103	96
S4Q639-IBLK	4Q44136.D	101	105	98	103	102	107	97	99
S4Q639-ICCB	4Q44159.D	100	104	99	105	101	98	95	97
S4Q639-ICCB	4Q44166.D	100	103	97	100	101	109	94	94
S6Q267-IBLK	6Q17712.D	100	103	104	99	97	109	100	98
S6Q267-ICCB	6Q17726.D	100	107	110	107	95	100	96	93
S6Q267-ICCB	6Q17731.D	103	101	100	102	101	95	108	103

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

(a) Outside control limits.

6.8.1
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Isotope Dilution Standard Recovery Summary

Job Number: FC5818
 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
FC5818-1	4Q44163.D	72	45	95	92	83	87	66	65
FC5818-2	4Q44164.D	79	70	98	87	84	75	67	70
FC5818-3	6Q17727.D	88	64	107	111	56	44	48	49
FC5818-3	4Q44167.D	103	64	98	101	114	122	117	122
FC5818-4	4Q44169.D	88	63	108	113	93	86	81	88
FC5818-5	4Q44170.D	66	53	105	98	82	91	70	72
OP96747-BS	4Q44160.D	93	77	103	107	107	79	68	72
OP96747-DUP	4Q44171.D	74	67	101	103	97	92	74	75
OP96747-LLBS	4Q44161.D	104	89	110	114	117	91	84	89
OP96747-MB	4Q44162.D	80	74	101	106	101	72	66	72
OP96747-MS	4Q44168.D	83	44	86	93	115	106	106	111
S4Q639-IBLK	4Q44136.D	97	93	100	93	104	109	94	103
S4Q639-ICCB	4Q44159.D	102	88	97	94	105	102	95	96
S4Q639-ICCB	4Q44166.D	93	86	94	91	103	107	92	96
S6Q267-IBLK	6Q17712.D	99	94	93	107	98	91	92	96
S6Q267-ICCB	6Q17726.D	89	96	107	110	90	98	95	95
S6Q267-ICCB	6Q17731.D	104	95	98	103	99	99	91	89

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

6.8.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC5818
 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
FC5818-1	4Q44163.D	91	87	61	58	167	104	93	85
FC5818-2	4Q44164.D	90	89	57	61	125	122	105	92
FC5818-3	6Q17727.D	64	63	33	38	101	133	105	101
FC5818-3	4Q44167.D	169* a	181* a	85	86	152	124	121	80
FC5818-4	4Q44169.D	108	106	69	74	145	149	147	102
FC5818-5	4Q44170.D	100	104	66	63	129	129	94	90
OP96747-BS	4Q44160.D	107	108	57	61	122	141	125	95
OP96747-DUP	4Q44171.D	106	103	66	66	126	123	102	92
OP96747-LLBS	4Q44161.D	119	124	72	79	145	149	139	93
OP96747-MB	4Q44162.D	108	98	53	60	131	147	122	93
OP96747-MS	4Q44168.D	156* a	178* a	74	75	119	108	110	71
S4Q639-IBLK	4Q44136.D	100	108	85	90	103	111	116	93
S4Q639-ICCB	4Q44159.D	106	105	83	82	115	124	140	87
S4Q639-ICCB	4Q44166.D	112	116	84	83	117	121	134	88
S6Q267-IBLK	6Q17712.D	107	101	90	90	105	107	109	104
S6Q267-ICCB	6Q17726.D	106	106	89	94	103	105	110	112
S6Q267-ICCB	6Q17731.D	115	96	94	94	106	107	111	101

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%

(a) Outside control limits.

6.8.1
6

Initial Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICC634
 Lab FileID: 4Q43887.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Level Name	1	2	3	4	5	6	7	8	Avg RF	%RSD
D:\MassHunter\methods	1633_050323_S4Q634.quantmethod.xml	D:\MassHunter\Data\050323_1633_S4Q634\QuantResults\4q634.batch.bin	5/3/2023 2:36:06 PM	D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d	1	0.2504	0.2538	0.2537	0.2602	0.2588	0.2798	0.2885	0.2970	0.2678	6.711
D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d									
Compound															
I M4-PFBA	T PFBA					0.2504	0.2538	0.2537	0.2602	0.2588	0.2798	0.2885	0.2970	0.2678	6.711
I M5-PFPeA	T PFMPA					0.5750	0.6115	0.6080	0.6163	0.6026	0.6527	0.6722	0.6921	0.6288	6.286
T 3:3FTCA						0.0478	0.0517	0.0503	0.0510	0.0495	0.0540	0.0565	0.0626	0.0529	9.003
T PFPeA						1.0898	1.1688	1.1491	1.1980	1.1723	1.2688	1.2816	1.2954	1.2030	6.035
T PFMBa						0.6517	0.6614	0.6512	0.6538	0.6369	0.6931	0.7034	0.7197	0.6714	4.441
I M5-PFHxA	T NFDHA					0.0674	0.0747	0.0720	0.0724	0.0661	0.0716	0.0707	0.0647	0.0699	4.965
T PFHxA						0.9533	0.9081	0.9479	0.9673	0.9184	1.0146	1.0493	1.0780	0.9796	6.279
T PFEEsA						0.6957	0.7073	0.7124	0.7334	0.6927	0.7903	0.7981	0.8015	0.7414	6.397
T 5:3FTCA						0.1206	0.1232	0.1300	0.1350	0.1268	0.1392	0.1434	0.1450	0.1329	6.915
T 7:3FTCA						0.0620	0.0637	0.0665	0.0702	0.0670	0.0722	0.0752	0.0756	0.0691	7.359
I M4-PFHpA	T PFHpA					1.3498	1.5110	1.5459	1.5452	1.5753	1.7086	1.6655	1.7394	1.5801	7.913
I M8-PFOA	T PFOA					1.3945	1.3613	1.3697	1.5034	1.3513	1.5014	1.5441	1.5125	1.4423	5.553
I M9-PFNA	T PFNA					0.9948	0.9058	0.8803	0.8935	0.9013	0.9685	0.9454	0.9220	0.9264	4.296
I M6-PFDA	T PFDA					0.8758	0.8681	0.9454	0.9120	0.9343	1.0187	0.9840	1.0488	0.9484	6.852
I M7-PFUnDA	T PFUnDA					0.7913	0.7501	0.8195	0.8568	0.8063	0.9016	0.9386	0.9278	0.8490	8.072
I M2-PFDODA															

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Initial Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICC634
 Lab FileID: 4Q43887.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0517	0.9317	0.9713	0.9511	0.9772	1.0612	1.0552	1.0246	1.0030	5.111
T PFTfDA	Avg RF	1.5121	1.2188	1.3516	1.3026	1.3355	1.3884	1.3320	1.2823	1.3404	6.405
I M2-PFTeDA	Avg RF	1.0874	1.1761	1.1742	1.2028	1.2067	1.2859	1.3553	1.3005	1.2236	6.981
T PFTeDA						ISTD					
I M8-FOSA	Avg RF	1.0199	1.0337	1.0399	1.0094	0.9598	1.0939	1.0715	1.1528	1.0476	5.585
T FOSA						ISTD					
I M3-PFBS	Avg RF	0.9762	0.9895	0.9259	1.0263	0.9986	1.0891	1.0880	1.1104	1.0255	6.333
T PFBS						ISTD					
I M3-PFHxS	Avg RF	0.8228	0.9177	0.8171	0.8943	0.8276	0.8739	0.9197	0.9591	0.8790	5.998
T PFPeS	Avg RF	0.9489	0.9500	0.9507	1.0599	1.0278	1.0253	1.0789	1.1563	1.0247	7.219
T PFHxS						ISTD					
I M8-PFOS	Avg RF	0.9069	0.7781	0.9593	0.8466	0.8745	0.9619	0.8979	0.9794	0.9006	7.515
T PFHpS	Avg RF	1.3089	1.0233	1.2520	1.2364	1.1129	1.3196	1.3138	1.2207	1.2235	8.626
T PFOs	Avg RF	0.5375	0.5103	0.6127	0.5196	0.5189	0.5548	0.5302	0.5821	0.5488	6.514
T PFNS	Avg RF	0.5712	0.6140	0.6741	0.6171	0.5955	0.6407	0.5899	0.6518	0.6193	5.558
T PFDS	Avg RF	0.5744	0.4802	0.5883	0.5423	0.5478	0.5826	0.5373	0.5686	0.5527	6.308
T PFDoDS						ISTD					
I M2-4:2FTS	Avg RF	7.7011	8.0461	8.0228	8.3503	7.8109	7.4550	8.9479	8.0189	8.0441	5.620
T 4:2FTS						ISTD					
I M2-6:2FTS	Avg RF	4.5824	4.8856	4.7997	5.3724	4.4974	4.7330	5.1432	4.6215	4.8294	6.168
T 6:2FTS						ISTD					
I M2-8:2FTS	Avg RF	2.6507	2.3592	2.9342	3.0041	2.9492	2.7714	3.0994	2.5303	2.7873	9.201
T 8:2FTS						ISTD					
I M3-MeFOSAA	Avg RF	1.0154	0.8321	0.7942	0.7955	0.8322	0.9054	0.8576	0.9393	0.8715	8.835
T MeFOSAA						ISTD					
I M3-HFO-DA	Avg RF	0.9249	0.9004	0.9267	0.9394	0.9088	1.0230	1.0020	1.0195	0.9556	5.314
T HFO-DA	Avg RF	9.9265	9.9475	9.8908	10.01	9.7701	10.46	10.24	10.20	10.06	2.258
T ADONA	Avg RF	4.3417	4.5268	4.6403	4.5503	4.4417	4.8388	4.6559	4.6434	4.5799	3.302
T 9Cl-PF3ONS	Avg RF	3.2726	3.4845	3.4936	3.6619	3.6116	3.8301	3.7290	3.6859	3.5961	4.847
T 11Cl-PF3OUds						ISTD					
I M5-EFOSAA	Avg RF	0.9545	0.9537	0.9862	0.8150	0.9424	0.9961	1.0072	1.0294	0.9605	6.864
T EFOSAA						ISTD					
I M7-MeFOSE	Avg RF	1.1230	1.0416	0.9123	1.0158	0.8815	1.0215	1.0555	1.1636	1.0268	9.268
T MeFOSE						ISTD					
I M9-EFOSE	Avg RF	0.9071	0.9448	0.9234	0.9458	0.9337	0.9977	1.0397	1.0504	0.9678	5.623
T EFOSE						ISTD					

Generated at 2:36 PM on 5/3/2023

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Initial Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICC634
 Lab FileID: 4Q43887.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EtFOSA	Avg RF	0.8263	1.0054	1.0110	1.0788	0.9993	1.1318	1.1661	1.1600	1.0473	10.776
I M3-MeFOSA											
T MeFOSA	Avg RF	0.8291	0.8709	0.9209	0.9057	0.9259	1.0268	1.0333	1.0217	0.9418	8.196
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.5858	0.6032	0.6022	0.6539	0.6144	0.6079	0.6982	0.6828	0.6311	6.608
S 13C8-PFOS	Linear	0.8673	0.9865	0.8358	0.9730	0.9142	0.9282	1.0539	0.9710	0.9412	7.418
S d5-EFOSAA	Linear	0.4472	0.4981	0.4701	0.5664	0.5250	0.5192	0.5559	0.5754	0.5197	8.850
S 13C8-FOSA	Linear	1.4476	1.5207	1.4801	1.7116	1.7515	1.5014	1.5770	1.5524	1.5678	6.968
S d7-MeFOSE	Linear	0.6942	0.7871	0.8307	0.9697	0.9467	0.6923	0.6787	0.6234	0.7778	16.563
S d3-MeFOSA	Linear	0.9149	0.9977	0.9568	1.0593	0.9573	0.9404	0.9859	1.0311	0.9804	4.890
S d9-EFOSE	Linear	1.0482	1.1457	1.1884	1.3249	1.2785	0.9836	0.9499	0.8920	1.1014	14.328
S d5-EFOSA	Linear	1.0190	1.0393	1.0002	1.0300	1.0340	1.0444	1.0900	1.0808	1.0422	2.880
I 13C3-PFBA											
S 13C4-PFBA	Linear	0.9419	0.9424	0.9441	0.9489	0.9425	0.9416	0.9399	0.9258	0.9409	0.708
I 1802-PFHxS											
S 13C2-4:2FTS	Linear	0.1148	0.1010	0.1095	0.0977	0.1033	0.1072	0.0917	0.0877	0.1016	8.935
S 13C3-PFBS	Linear	2.4774	2.3246	2.6089	2.2592	2.3778	2.2863	2.3961	2.1298	2.3575	6.150
S 13C2-6:2FTS	Linear	0.2018	0.1846	0.1959	0.1742	0.1956	0.1866	0.1682	0.1585	0.1832	8.231
S 13C3-PFHxS	Linear	1.5780	1.5174	1.6873	1.4849	1.5504	1.5703	1.5824	1.4264	1.5496	4.979
S 13C2-8:2FTS	Linear	0.3000	0.2936	0.2924	0.2737	0.2876	0.2969	0.2645	0.2787	0.2859	4.357
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8048	0.8379	0.8309	0.8093	0.8265	0.8219	0.8063	0.8294	0.8209	1.528
I 13C2-PFDA											
S 13C6-PFDA	Linear	1.0744	1.0307	1.0830	1.0667	1.0646	1.0841	1.1362	1.0251	1.0706	3.228
S 13C7-PFUnDA	Linear	1.1430	1.0538	1.1673	1.1173	1.1842	1.1414	1.0804	1.0247	1.1140	5.044
S 13C2-PFDODA	Linear	1.1355	1.1282	1.2168	1.2688	1.2865	1.2138	1.2274	1.2123	1.2112	4.621
S 13C2-PFTEdA	Linear	0.9810	0.9567	1.0416	1.0420	1.0806	0.9685	0.9062	0.9075	0.9855	6.520
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.8245	0.8755	0.8324	0.8282	0.8204	0.8292	0.8848	0.9024	0.8497	3.812
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.7803	0.7635	0.7594	0.7761	0.7821	0.7803	0.7656	0.7531	0.7701	1.435
S 13C5-PFHxA	Linear	1.1387	1.0991	1.0961	1.0805	1.1224	1.1056	1.0817	1.0850	1.1011	1.874
S 13C3-HPOdA	Linear	0.1628	0.1588	0.1598	0.1632	0.1644	0.1655	0.1701	0.1711	0.1645	2.681
S 13C4-PFHpA	Linear	0.6701	0.6325	0.6289	0.6410	0.6353	0.6389	0.6604	0.6415	0.6436	2.218

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

Initial Calibration Summary

Job Number: FC5818
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICC634
Lab FileID: 4Q43887.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	$y = 0.940892 * x$	
S 13C5-PFPeA	Linear	$y = 0.770055 * x$	
S 13C2-4:2FTS	Linear	$y = 0.101613 * x$	
S 13C3-PFBS	Linear	$y = 2.357511 * x$	
S 13C5-PFHxA	Linear	$y = 1.101142 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.164465 * x$	
S 13C4-PFHpA	Linear	$y = 0.643569 * x$	
S 13C2-6:2FTS	Linear	$y = 0.183170 * x$	
S 13C8-PFOA	Linear	$y = 0.820904 * x$	
S 13C3-PFHxS	Linear	$y = 1.549646 * x$	
S 13C9-PFNA	Linear	$y = 0.849685 * x$	
S 13C2-8:2FTS	Linear	$y = 0.285923 * x$	
S 13C6-PEDA	Linear	$y = 1.070585 * x$	
S d3-MeFOSAA	Linear	$y = 0.631061 * x$	
S 13C8-PFOS	Linear	$y = 0.941239 * x$	
S d5-EFOSAA	Linear	$y = 0.519656 * x$	
S 13C7-PFUInDA	Linear	$y = 1.114017 * x$	
S 13C2-PFDODA	Linear	$y = 1.211165 * x$	
S 13C8-FOSA	Linear	$y = 1.567785 * x$	
S 13C2-PFTeDA	Linear	$y = 0.985520 * x$	
S d7-MeFOSE	Linear	$y = 0.777842 * x$	
S d3-MeFOSA	Linear	$y = 0.980410 * x$	
S d9-EFOSE	Linear	$y = 1.101380 * x$	
S d5-EFOSA	Linear	$y = 1.042215 * x$	

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

Initial Calibration Verification

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICV634
 Lab FileID: 4Q43894.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050323_1633_S4Q634\s4q634.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q43894
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.232	4.6	104.6
13C2-6:2FTS	5.000	5.310	6.2	106.2
13C2-8:2FTS	5.000	5.361	7.2	107.2
13C2-PFDoDA	1.250	1.329	6.3	106.3
13C2-PFTeDA	1.250	1.210	-3.2	96.8
13C3-PFBS	2.500	2.370	-5.2	94.8
13C3-PFHxS	2.500	2.439	-2.4	97.6
13C4-PFBA	10.000	10.101	1.0	101.0
13C4-PFHpA	2.500	2.581	3.2	103.2
13C5-PFHxA	2.500	2.494	-0.2	99.8
13C5-PFPeA	5.000	5.155	3.1	103.1
13C6-PFDA	1.250	1.317	5.4	105.4
13C7-PFUnDA	1.250	1.264	1.1	101.1
13C8-FOSA	2.500	2.395	-4.2	95.8
13C8-PFOA	2.500	2.593	3.7	103.7
13C8-PFOS	2.500	2.590	3.6	103.6
13C9-PFNA	1.250	1.283	2.6	102.6
4:2FTS	20.000	21.008	5.0	105.0
6:2FTS	20.000	19.784	-1.1	98.9
8:2FTS	20.000	19.681	-1.6	98.4
d3-MeFOSAA	5.000	5.156	3.1	103.1
EtFOSAA	20.000	19.622	-1.9	98.1
FOSA	20.000	21.189	5.9	105.9
MeFOSAA	20.000	21.188	5.9	105.9
PFBA	20.000	19.285	-3.6	96.4
PFBS	20.000	21.672	8.4	108.4
PFDA	20.000	21.489	7.4	107.4
PFDoDA	20.000	18.483	-7.6	92.4
PFDS	20.000	20.356	1.8	101.8
PFHpA	20.000	20.571	2.9	102.9
PFHpS	20.000	20.453	2.3	102.3
PFHxA	20.000	21.781	8.9	108.9
PFHxS	20.000	21.628	8.1	108.1
PFNA	20.000	21.766	8.8	108.8
PFNS	20.000	19.676	-1.6	98.4
PFOA	20.000	20.675	3.4	103.4
PFOS	20.000	17.958	-10.2	89.8

Initial Calibration Verification

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICV634
 Lab FileID: 4Q43894.D

PFPeA	20.000	22.207	11.0	111.0
PFPeS	20.000	21.124	5.6	105.6
PFTeDA	20.000	22.200	11.0	111.0
PFTTrDA	20.000	17.597	-12.0	88.0
PFUnDA	20.000	21.187	5.9	105.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.956	4.8	104.8
13C3-HFPO-DA	10.000	10.436	4.4	104.4
9C1-PF3ONS	20.000	20.003	0.0	100.0
ADONA	20.000	20.063	0.3	100.3
HFPO-DA	20.000	19.289	-3.6	96.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.642	3.2	103.2
5:3FTCA	20.000	21.505	7.5	107.5
7:3FTCA	20.000	19.966	-0.2	99.8
d3-MeFOSA	2.500	2.334	-6.6	93.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	22.087	10.4	110.4
EtFOSE	100.000	117.541	17.5	117.5
MeFOSA	20.000	21.625	8.1	108.1
MeFOSE	100.000	115.447	15.4	115.4
PFDoDS	20.000	18.910	-5.4	94.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.377	7.5	107.5
d7-MeFOSE	25.000	19.407	-22.4	77.6
d9-EtFOSE	25.000	19.443	-22.2	77.8
d5-EtFOSA	2.500	2.486	-0.6	99.4
NFDHA	20.000	22.218	11.1	111.1
PFMBA	20.000	21.080	5.4	105.4
PFMPA	20.000	21.251	6.3	106.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	20.000	19.156	-4.2	95.8

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICV634
 Lab FileID: 4Q43895.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050323_1633_S4Q634\s4q634.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q43895
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.225	4.5	104.5
13C2-6:2FTS	5.000	5.427	8.5	108.5
13C2-8:2FTS	5.000	5.503	10.1	110.1
13C2-PFDoDA	1.250	1.352	8.2	108.2
13C2-PFTeDA	1.250	1.175	-6.0	94.0
13C3-PFBS	2.500	2.446	-2.2	97.8
13C3-PFHxS	2.500	2.501	0.0	100.0
13C4-PFBA	10.000	9.953	-0.5	99.5
13C4-PFHpA	2.500	2.507	0.3	100.3
13C5-PFHxA	2.500	2.463	-1.5	98.5
13C5-PFPeA	5.000	5.107	2.1	102.1
13C6-PFDA	1.250	1.390	11.2	111.2
13C7-PFUnDA	1.250	1.321	5.7	105.7
13C8-FOSA	2.500	2.358	-5.7	94.3
13C8-PFOA	2.500	2.569	2.8	102.8
13C8-PFOS	2.500	2.663	6.5	106.5
13C9-PFNA	1.250	1.253	0.2	100.2
4:2FTS	9.375	9.629	2.7	102.7
6:2FTS	9.500	9.570	0.7	100.7
8:2FTS	9.600	9.305	-3.1	96.9
d3-MeFOSAA	5.000	5.122	2.4	102.4
EtFOSAA	2.500	2.476	-1.0	99.0
FOSA	2.500	2.374	-5.0	95.0
MeFOSAA	2.500	2.411	-3.5	96.5
PFBA	10.000	9.658	-3.4	96.6
PFBS	2.218	2.126	-4.2	95.8
PFDA	2.500	2.394	-4.3	95.7
PFDoDA	2.500	2.428	-2.9	97.1
PFDS	2.413	2.127	-11.9	88.1
PFHpA	2.500	2.493	-0.3	99.7
PFHpS	2.383	2.285	-4.1	95.9
PFHxA	2.500	2.426	-2.9	97.1
PFHxS	2.285	2.247	-1.7	98.3
PFNA	2.500	2.420	-3.2	96.8
PFNS	2.405	2.162	-10.1	89.9
PFOA	2.500	2.445	-2.2	97.8
PFOS	2.320	2.145	-7.6	92.4

Initial Calibration Verification

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICV634
 Lab FileID: 4Q43895.D

PFPeA	5.000	4.862	-2.8	97.2
PFPeS	2.353	2.157	-8.3	91.7
PFTeDA	2.500	2.573	2.9	102.9
PFTTrDA	2.500	2.326	-6.9	93.1
PFUnDA	2.500	2.535	1.4	101.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.708	-0.4	99.6
13C3-HFPO-DA	10.000	9.782	-2.2	97.8
9C1-PF3ONS	4.675	4.643	-0.7	99.3
ADONA	4.725	4.705	-0.4	99.6
HFPO-DA	5.000	5.194	3.9	103.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.478	0.0	100.0
5:3FTCA	62.400	61.286	-1.8	98.2
7:3FTCA	62.400	63.299	1.4	101.4
d3-MeFOSA	2.500	2.227	-10.9	89.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.831	-3.4	96.6
EtFOSE	12.500	12.331	-1.3	98.7
MeFOSA	5.000	5.497	9.9	109.9
MeFOSE	12.500	11.966	-4.3	95.7
PFDoDS	2.425	2.184	-9.9	90.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.122	2.4	102.4
d7-MeFOSE	25.000	19.955	-20.2	79.8
d9-EtFOSE	25.000	19.264	-22.9	77.1
d5-EtFOSA	2.500	2.483	-0.7	99.3
NFDHA	5.000	4.925	-1.5	98.5
PFMBA	5.000	4.790	-4.2	95.8
PFMPA	5.000	4.814	-3.7	96.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.399	-1.1	98.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44138.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050923_1633_S4Q639\s4q639.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q44138
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.033	0.7	100.7
13C2-6:2FTS	5.000	5.266	5.3	105.3
13C2-8:2FTS	5.000	5.782	15.6	115.6
13C2-PFDoDA	1.250	1.191	-4.7	95.3
13C2-PFTeDA	1.250	1.063	-14.9	85.1
13C3-PFBS	2.500	2.391	-4.4	95.6
13C3-PFHxS	2.500	2.278	-8.9	91.1
13C4-PFBA	10.000	9.860	-1.4	98.6
13C4-PFHpA	2.500	2.534	1.4	101.4
13C5-PFHxA	2.500	2.554	2.2	102.2
13C5-PFPeA	5.000	5.359	7.2	107.2
13C6-PFDA	1.250	1.205	-3.6	96.4
13C7-PFUnDA	1.250	1.206	-3.5	96.5
13C8-FOSA	2.500	2.692	7.7	107.7
13C8-PFOA	2.500	2.462	-1.5	98.5
13C8-PFOS	2.500	2.544	1.8	101.8
13C9-PFNA	1.250	1.253	0.2	100.2
4:2FTS	0.750	0.800	6.7	106.7
6:2FTS	0.760	0.778	2.4	102.4
8:2FTS	0.768	0.802	4.4	104.4
d3-MeFOSAA	5.000	4.617	-7.7	92.3
EtFOSAA	0.200	0.187	-6.3	93.7
FOSA	0.200	0.201	0.4	100.4
MeFOSAA	0.200	0.154	-22.8	77.2
PFBA	0.800	0.756	-5.5	94.5
PFBS	0.177	0.161	-9.0	91.0
PFDA	0.200	0.183	-8.3	91.7
PFDoDA	0.200	0.216	8.1	108.1
PFDS	0.193	0.191	-0.9	99.1
PFHpA	0.200	0.185	-7.3	92.7
PFHpS	0.191	0.183	-4.0	96.0
PFHxA	0.200	0.202	0.8	100.8
PFHxS	0.183	0.218	19.2	119.2
PFNA	0.200	0.179	-10.4	89.6
PFNS	0.192	0.193	0.3	100.3
PFOA	0.200	0.171	-14.7	85.3
PFOS	0.186	0.190	2.4	102.4

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44138.D

PFPeA	0.400	0.365	-8.7	91.3
PFPeS	0.188	0.146	-22.2	77.8
PFTeDA	0.200	0.201	0.5	100.5
PFTTrDA	0.200	0.185	-7.7	92.3
PFUnDA	0.200	0.180	-10.1	89.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.359	-5.2	94.8
13C3-HFPO-DA	10.000	9.611	-3.9	96.1
9C1-PF3ONS	0.367	0.372	1.3	101.3
ADONA	0.378	0.352	-6.9	93.1
HFPO-DA	0.400	0.422	5.6	105.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.010	1.2	101.2
5:3FTCA	4.992	5.211	4.4	104.4
7:3FTCA	4.992	5.431	8.8	108.8
d3-MeFOSA	2.500	2.348	-6.1	93.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.406	1.4	101.4
EtFOSE	1.000	0.968	-3.2	96.8
MeFOSA	0.400	0.399	-0.1	99.9
MeFOSE	1.000	0.937	-6.3	93.7
PFDoDS	0.194	0.158	-18.3	81.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.940	-1.2	98.8
d7-MeFOSE	25.000	22.145	-11.4	88.6
d9-EtFOSE	25.000	21.635	-13.5	86.5
d5-EtFOSA	2.500	2.410	-3.6	96.4
NFDHA	0.400	0.326	-18.5	81.5
PFMBA	0.400	0.364	-9.0	91.0
PFMPA	0.400	0.375	-6.4	93.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.309	-13.1	86.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44149.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050923_1633_S4Q639\s4q639.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q44149
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.602	12.0	112.0
13C2-6:2FTS	5.000	5.806	16.1	116.1
13C2-8:2FTS	5.000	6.068	21.4	121.4
13C2-PFDoDA	1.250	1.272	1.7	101.7
13C2-PFTeDA	1.250	1.164	-6.9	93.1
13C3-PFBS	2.500	2.356	-5.8	94.2
13C3-PFHxS	2.500	2.413	-3.5	96.5
13C4-PFBA	10.000	10.119	1.2	101.2
13C4-PFHpA	2.500	2.542	1.7	101.7
13C5-PFHxA	2.500	2.442	-2.3	97.7
13C5-PFPeA	5.000	5.092	1.8	101.8
13C6-PFDA	1.250	1.330	6.4	106.4
13C7-PFUnDA	1.250	1.312	5.0	105.0
13C8-FOSA	2.500	2.622	4.9	104.9
13C8-PFOA	2.500	2.593	3.7	103.7
13C8-PFOS	2.500	2.674	6.9	106.9
13C9-PFNA	1.250	1.157	-7.5	92.5
4:2FTS	9.375	9.679	3.2	103.2
6:2FTS	9.500	9.447	-0.6	99.4
8:2FTS	9.600	9.897	3.1	103.1
d3-MeFOSAA	5.000	5.051	1.0	101.0
EtFOSAA	2.500	2.170	-13.2	86.8
FOSA	2.500	2.455	-1.8	98.2
MeFOSAA	2.500	2.358	-5.7	94.3
PFBA	10.000	9.658	-3.4	96.6
PFBS	2.218	2.284	3.0	103.0
PFDA	2.500	2.529	1.1	101.1
PFDoDA	2.500	2.518	0.7	100.7
PFDS	2.413	2.178	-9.8	90.2
PFHpA	2.500	2.457	-1.7	98.3
PFHpS	2.383	2.188	-8.2	91.8
PFHxA	2.500	2.438	-2.5	97.5
PFHxS	2.285	2.285	0.0	100.0
PFNA	2.500	2.456	-1.8	98.2
PFNS	2.405	2.054	-14.6	85.4
PFOA	2.500	2.377	-4.9	95.1
PFOS	2.320	2.014	-13.2	86.8

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44149.D

PFPeA	5.000	4.839	-3.2	96.8
PFPeS	2.353	2.328	-1.1	98.9
PFTeDA	2.500	2.550	2.0	102.0
PFTTrDA	2.500	2.423	-3.1	96.9
PFUnDA	2.500	2.524	1.0	101.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.131	8.6	108.6
13C3-HFPO-DA	10.000	8.938	-10.6	89.4
9C1-PF3ONS	4.675	5.183	10.9	110.9
ADONA	4.725	5.105	8.0	108.0
HFPO-DA	5.000	4.906	-1.9	98.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.665	1.5	101.5
5:3FTCA	62.400	70.068	12.3	112.3
7:3FTCA	62.400	74.164	18.9	118.9
d3-MeFOSA	2.500	2.403	-3.9	96.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.826	-3.5	96.5
EtFOSE	12.500	12.354	-1.2	98.8
MeFOSA	5.000	4.798	-4.0	96.0
MeFOSE	12.500	11.460	-8.3	91.7
PFDoDS	2.425	2.034	-16.1	83.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.365	7.3	107.3
d7-MeFOSE	25.000	20.933	-16.3	83.7
d9-EtFOSE	25.000	19.402	-22.4	77.6
d5-EtFOSA	2.500	2.447	-2.1	97.9
NFDHA	5.000	4.048	-19.0	81.0
PFMBA	5.000	4.830	-3.4	96.6
PFMPA	5.000	4.966	-0.7	99.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.319	-2.9	97.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44158.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050923_1633_S4Q639\s4q639.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q44158
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.009	20.2	120.2
13C2-6:2FTS	5.000	6.163	23.3	123.3
13C2-8:2FTS	5.000	5.992	19.8	119.8
13C2-PFDoDA	1.250	1.292	3.4	103.4
13C2-PFTeDA	1.250	1.195	-4.4	95.6
13C3-PFBS	2.500	2.427	-2.9	97.1
13C3-PFHxS	2.500	2.392	-4.3	95.7
13C4-PFBA	10.000	10.098	1.0	101.0
13C4-PFHpA	2.500	2.589	3.5	103.5
13C5-PFHxA	2.500	2.512	0.5	100.5
13C5-PFPeA	5.000	5.245	4.9	104.9
13C6-PFDA	1.250	1.270	1.6	101.6
13C7-PFUnDA	1.250	1.322	5.8	105.8
13C8-FOSA	2.500	2.547	1.9	101.9
13C8-PFOA	2.500	2.462	-1.5	98.5
13C8-PFOS	2.500	2.378	-4.9	95.1
13C9-PFNA	1.250	1.246	-0.3	99.7
4:2FTS	9.375	8.903	-5.0	95.0
6:2FTS	9.500	9.571	0.7	100.7
8:2FTS	9.600	10.513	9.5	109.5
d3-MeFOSAA	5.000	4.992	-0.2	99.8
EtFOSAA	2.500	2.320	-7.2	92.8
FOSA	2.500	2.454	-1.9	98.1
MeFOSAA	2.500	2.388	-4.5	95.5
PFBA	10.000	9.850	-1.5	98.5
PFBS	2.218	2.093	-5.6	94.4
PFDA	2.500	2.521	0.9	100.9
PFDoDA	2.500	2.438	-2.5	97.5
PFDS	2.413	2.278	-5.6	94.4
PFHpA	2.500	2.408	-3.7	96.3
PFHpS	2.383	2.405	0.9	100.9
PFHxA	2.500	2.333	-6.7	93.3
PFHxS	2.285	2.350	2.8	102.8
PFNA	2.500	2.294	-8.2	91.8
PFNS	2.405	2.245	-6.6	93.4
PFOA	2.500	2.346	-6.2	93.8
PFOS	2.320	2.303	-0.7	99.3

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44158.D

PFPeA	5.000	4.868	-2.6	97.4
PFPeS	2.353	2.248	-4.4	95.6
PFTeDA	2.500	2.459	-1.6	98.4
PFTTrDA	2.500	2.467	-1.3	98.7
PFUnDA	2.500	2.439	-2.5	97.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.247	11.1	111.1
13C3-HFPO-DA	10.000	8.905	-10.9	89.1
9C1-PF3ONS	4.675	5.251	12.3	112.3
ADONA	4.725	5.016	6.2	106.2
HFPO-DA	5.000	4.939	-1.2	98.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.686	1.6	101.6
5:3FTCA	62.400	69.631	11.6	111.6
7:3FTCA	62.400	74.280	19.0	119.0
d3-MeFOSA	2.500	2.230	-10.8	89.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.852	-3.0	97.0
EtFOSE	12.500	11.969	-4.2	95.8
MeFOSA	5.000	5.265	5.3	105.3
MeFOSE	12.500	11.061	-11.5	88.5
PFDoDS	2.425	2.261	-6.8	93.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.297	5.9	105.9
d7-MeFOSE	25.000	20.818	-16.7	83.3
d9-EtFOSE	25.000	19.491	-22.0	78.0
d5-EtFOSA	2.500	2.374	-5.1	94.9
NFDHA	5.000	4.143	-17.1	82.9
PFMBA	5.000	4.764	-4.7	95.3
PFMPA	5.000	4.903	-1.9	98.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.313	-3.1	96.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44165.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050923_1633_S4Q639\s4q639.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q44165
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.369	27.4	127.4
13C2-6:2FTS	5.000	6.196	23.9	123.9
13C2-8:2FTS	5.000	6.355	27.1	127.1
13C2-PFDoDA	1.250	1.243	-0.5	99.5
13C2-PFTeDA	1.250	1.102	-11.9	88.1
13C3-PFBS	2.500	2.348	-6.1	93.9
13C3-PFHxS	2.500	2.291	-8.4	91.6
13C4-PFBA	10.000	10.101	1.0	101.0
13C4-PFHpA	2.500	2.561	2.4	102.4
13C5-PFHxA	2.500	2.494	-0.2	99.8
13C5-PFPeA	5.000	5.252	5.0	105.0
13C6-PFDA	1.250	1.222	-2.2	97.8
13C7-PFUnDA	1.250	1.288	3.0	103.0
13C8-FOSA	2.500	2.762	10.5	110.5
13C8-PFOA	2.500	2.639	5.6	105.6
13C8-PFOS	2.500	2.493	-0.3	99.7
13C9-PFNA	1.250	1.258	0.6	100.6
4:2FTS	9.375	8.667	-7.5	92.5
6:2FTS	9.500	9.923	4.4	104.4
8:2FTS	9.600	10.122	5.4	105.4
d3-MeFOSAA	5.000	5.502	10.0	110.0
EtFOSAA	2.500	2.308	-7.7	92.3
FOSA	2.500	2.465	-1.4	98.6
MeFOSAA	2.500	2.383	-4.7	95.3
PFBA	10.000	9.674	-3.3	96.7
PFBS	2.218	2.210	-0.4	99.6
PFDA	2.500	2.581	3.2	103.2
PFDoDA	2.500	2.510	0.4	100.4
PFDS	2.413	2.441	1.2	101.2
PFHpA	2.500	2.430	-2.8	97.2
PFHpS	2.383	2.257	-5.3	94.7
PFHxA	2.500	2.393	-4.3	95.7
PFHxS	2.285	2.349	2.8	102.8
PFNA	2.500	2.359	-5.6	94.4
PFNS	2.405	2.314	-3.8	96.2
PFOA	2.500	2.236	-10.6	89.4
PFOS	2.320	2.259	-2.6	97.4

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44165.D

PFPeA	5.000	4.882	-2.4	97.6
PFPeS	2.353	2.282	-3.0	97.0
PFTeDA	2.500	2.579	3.1	103.1
PFTTrDA	2.500	2.383	-4.7	95.3
PFUnDA	2.500	2.489	-0.4	99.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.327	12.7	112.7
13C3-HFPO-DA	10.000	9.131	-8.7	91.3
9C1-PF3ONS	4.675	5.134	9.8	109.8
ADONA	4.725	5.023	6.3	106.3
HFPO-DA	5.000	4.964	-0.7	99.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.446	-0.3	99.7
5:3FTCA	62.400	69.286	11.0	111.0
7:3FTCA	62.400	77.538	24.3	124.3
d3-MeFOSA	2.500	2.463	-1.5	98.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.930	-1.4	98.6
EtFOSE	12.500	11.742	-6.1	93.9
MeFOSA	5.000	4.847	-3.1	96.9
MeFOSE	12.500	11.274	-9.8	90.2
PFDoDS	2.425	2.393	-1.3	98.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.571	11.4	111.4
d7-MeFOSE	25.000	21.797	-12.8	87.2
d9-EtFOSE	25.000	20.683	-17.3	82.7
d5-EtFOSA	2.500	2.551	2.0	102.0
NFDHA	5.000	4.140	-17.2	82.8
PFMBA	5.000	4.788	-4.2	95.8
PFMPA	5.000	4.863	-2.7	97.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.304	-3.3	96.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44172.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050923_1633_S4Q639\s4q639.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q44172
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.790	15.8	115.8
13C2-6:2FTS	5.000	6.174	23.5	123.5
13C2-8:2FTS	5.000	6.259	25.2	125.2
13C2-PFDoDA	1.250	1.269	1.5	101.5
13C2-PFTeDA	1.250	1.137	-9.0	91.0
13C3-PFBS	2.500	2.331	-6.8	93.2
13C3-PFHxS	2.500	2.223	-11.1	88.9
13C4-PFBA	10.000	10.164	1.6	101.6
13C4-PFHpA	2.500	2.548	1.9	101.9
13C5-PFHxA	2.500	2.492	-0.3	99.7
13C5-PFPeA	5.000	5.163	3.3	103.3
13C6-PFDA	1.250	1.209	-3.3	96.7
13C7-PFUnDA	1.250	1.290	3.2	103.2
13C8-FOSA	2.500	2.688	7.5	107.5
13C8-PFOA	2.500	2.493	-0.3	99.7
13C8-PFOS	2.500	2.306	-7.7	92.3
13C9-PFNA	1.250	1.323	5.8	105.8
4:2FTS	9.375	9.338	-0.4	99.6
6:2FTS	9.500	9.315	-1.9	98.1
8:2FTS	9.600	10.528	9.7	109.7
d3-MeFOSAA	5.000	5.307	6.1	106.1
EtFOSAA	2.500	2.450	-2.0	98.0
FOSA	2.500	2.450	-2.0	98.0
MeFOSAA	2.500	2.415	-3.4	96.6
PFBA	10.000	9.705	-3.0	97.0
PFBS	2.218	2.088	-5.9	94.1
PFDA	2.500	2.548	1.9	101.9
PFDoDA	2.500	2.434	-2.6	97.4
PFDS	2.413	2.544	5.4	105.4
PFHpA	2.500	2.420	-3.2	96.8
PFHpS	2.383	2.427	1.8	101.8
PFHxA	2.500	2.347	-6.1	93.9
PFHxS	2.285	2.285	0.0	100.0
PFNA	2.500	2.311	-7.5	92.5
PFNS	2.405	2.387	-0.7	99.3
PFOA	2.500	2.373	-5.1	94.9
PFOS	2.320	2.305	-0.6	99.4

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44172.D

PFPeA	5.000	4.819	-3.6	96.4
PFPeS	2.353	2.355	0.1	100.1
PFTeDA	2.500	2.509	0.4	100.4
PFTTrDA	2.500	2.442	-2.3	97.7
PFUnDA	2.500	2.430	-2.8	97.2
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	5.331	12.8	112.8
13C3-HFPO-DA	10.000	8.794	-12.1	87.9
9C1-PF3ONS	4.675	5.343	14.3	114.3
ADONA	4.725	5.162	9.3	109.3
HFPO-DA	5.000	5.119	2.4	102.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.552	0.6	100.6
5:3FTCA	62.400	68.409	9.6	109.6
7:3FTCA	62.400	73.628	18.0	118.0
d3-MeFOSA	2.500	2.368	-5.3	94.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.889	-2.2	97.8
EtFOSE	12.500	11.642	-6.9	93.1
MeFOSA	5.000	4.928	-1.4	98.6
MeFOSE	12.500	12.092	-3.3	96.7
PFDoDS	2.425	2.403	-0.9	99.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.710	14.2	114.2
d7-MeFOSE	25.000	21.386	-14.5	85.5
d9-EtFOSE	25.000	20.413	-18.3	81.7
d5-EtFOSA	2.500	2.385	-4.6	95.4
NFDHA	5.000	3.767	-24.7	75.3
PFMBA	5.000	4.787	-4.3	95.7
PFMPA	5.000	4.853	-2.9	97.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.226	-5.0	95.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44173.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050923_1633_S4Q639\s4q639.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q44173
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.340	26.8	126.8
13C2-6:2FTS	5.000	6.412	28.2	128.2
13C2-8:2FTS	5.000	7.548	# 51.0	151.0
13C2-PFDoDA	1.250	1.237	-1.1	98.9
13C2-PFTeDA	1.250	1.099	-12.0	88.0
13C3-PFBS	2.500	2.388	-4.5	95.5
13C3-PFHxS	2.500	2.592	3.7	103.7
13C4-PFBA	10.000	10.009	0.1	100.1
13C4-PFHpA	2.500	2.548	1.9	101.9
13C5-PFHxA	2.500	2.455	-1.8	98.2
13C5-PFPeA	5.000	4.988	-0.2	99.8
13C6-PFDA	1.250	1.253	0.3	100.3
13C7-PFUnDA	1.250	1.320	5.6	105.6
13C8-FOSA	2.500	2.695	7.8	107.8
13C8-PFOA	2.500	2.478	-0.9	99.1
13C8-PFOS	2.500	2.442	-2.3	97.7
13C9-PFNA	1.250	1.263	1.0	101.0
4:2FTS	0.750	0.774	3.2	103.2
6:2FTS	0.760	0.795	4.6	104.6
8:2FTS	0.768	0.646	-15.9	84.1
d3-MeFOSAA	5.000	5.307	6.1	106.1
EtFOSAA	0.200	0.173	-13.6	86.4
FOSA	0.200	0.219	9.5	109.5
MeFOSAA	0.200	0.165	-17.4	82.6
PFBA	0.800	0.751	-6.1	93.9
PFBS	0.177	0.203	14.7	114.7
PFDA	0.200	0.187	-6.4	93.6
PFDoDA	0.200	0.196	-2.0	98.0
PFDS	0.193	0.191	-0.8	99.2
PFHpA	0.200	0.163	-18.4	81.6
PFHpS	0.191	0.158	-17.3	82.7
PFHxA	0.200	0.181	-9.6	90.4
PFHxS	0.183	0.167	-8.7	91.3
PFNA	0.200	0.189	-5.7	94.3
PFNS	0.192	0.181	-5.8	94.2
PFOA	0.200	0.183	-8.4	91.6
PFOS	0.186	0.191	2.9	102.9

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q639-CC634
 Lab FileID: 4Q44173.D

PFPeA	0.400	0.387	-3.2	96.8
PFPeS	0.188	0.163	-13.5	86.5
PFTeDA	0.200	0.199	-0.6	99.4
PFTTrDA	0.200	0.179	-10.4	89.6
PFUnDA	0.200	0.196	-2.1	97.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.410	8.5	108.5
13C3-HFPO-DA	10.000	8.747	-12.5	87.5
9C1-PF3ONS	0.367	0.393	7.1	107.1
ADONA	0.378	0.393	4.0	104.0
HFPO-DA	0.400	0.435	8.7	108.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.066	6.7	106.7
5:3FTCA	4.992	5.253	5.2	105.2
7:3FTCA	4.992	5.618	12.5	112.5
d3-MeFOSA	2.500	2.273	-9.1	90.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.390	-2.5	97.5
EtFOSE	1.000	0.998	-0.2	99.8
MeFOSA	0.400	0.406	1.6	101.6
MeFOSE	1.000	0.936	-6.4	93.6
PFDoDS	0.194	0.184	-4.9	95.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.824	16.5	116.5
d7-MeFOSE	25.000	19.913	-20.3	79.7
d9-EtFOSE	25.000	19.617	-21.5	78.5
d5-EtFOSA	2.500	2.324	-7.1	92.9
NFDHA	0.400	0.371	-7.3	92.7
PFMBA	0.400	0.373	-6.7	93.3
PFMPA	0.400	0.394	-1.4	98.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.322	-9.6	90.4

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q265-ICC265
 Lab FileID: 6Q17549.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Level Name	1	2	3	4	5	6	7	8	Avg RF	%RSD
D:\MassHunter\Methods	1633_050823_S6Q265.quantmethod.xml	D:\MassHunter\Data\050823_1633_S6Q265	5/9/2023 7:33:25 AM	D:\MassHunter\Data\050823_1633_S6Q265\6Q17546.d	1	0.3455	0.3425	0.3487	0.3451	0.3803	0.3737	0.3727	0.3564	0.3581	4.242
D:\MassHunter\Data\050823_1633_S6Q265	6Q17547.d	D:\MassHunter\Data\050823_1633_S6Q265	5/9/2023 7:33:25 AM	D:\MassHunter\Data\050823_1633_S6Q265\6Q17548.d	2	0.7161	0.7087	0.7170	0.7081	0.7992	0.7743	0.7598	0.7419	0.7406	4.614
D:\MassHunter\Data\050823_1633_S6Q265	6Q17549.d	D:\MassHunter>Data\050823_1633_S6Q265	5/9/2023 7:33:25 AM	D:\MassHunter\Data\050823_1633_S6Q265\6Q17550.d	3	0.0952	0.0907	0.0863	0.0873	0.0982	0.0955	0.0960	0.0968	0.0933	4.851
D:\MassHunter>Data\050823_1633_S6Q265	6Q17551.d	D:\MassHunter>Data\050823_1633_S6Q265	5/9/2023 7:33:25 AM	D:\MassHunter\Data\050823_1633_S6Q265\6Q17552.d	4	1.3927	1.4089	1.4246	1.3929	1.5900	1.5347	1.5081	1.4389	1.4613	5.050
D:\MassHunter>Data\050823_1633_S6Q265	6Q17553.d	D:\MassHunter>Data\050823_1633_S6Q265	5/9/2023 7:33:25 AM		5	0.9793	0.9943	1.0240	0.9976	1.1100	1.0700	1.0522	1.0272	1.0318	4.242
					6										
					7										
					8										
Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD				
I M4-PFBA	Avg RF	0.3455	0.3425	0.3487	0.3451	0.3803	0.3737	0.3727	0.3564	0.3581	4.242				
T PFBA															
I M5-PFPeA	Avg RF	0.7161	0.7087	0.7170	0.7081	0.7992	0.7743	0.7598	0.7419	0.7406	4.614				
T PFMPA															
T 3:3FTCA	Avg RF	0.0952	0.0907	0.0863	0.0873	0.0982	0.0955	0.0960	0.0968	0.0933	4.851				
T PFESA															
T PFPeA	Avg RF	1.3927	1.4089	1.4246	1.3929	1.5900	1.5347	1.5081	1.4389	1.4613	5.050				
T PFMBa															
I M5-PFHxA	Avg RF	0.9793	0.9943	1.0240	0.9976	1.1100	1.0700	1.0522	1.0272	1.0318	4.242				
T NFDHA															
T PFHxA	Avg RF	0.1103	0.1007	0.1072	0.1005	0.1265	0.1154	0.1069	0.1007	0.1085	8.265				
T PFHxA															
T PFESA	Avg RF	1.0322	0.9612	0.9589	0.9677	1.1285	1.0711	1.0495	0.9675	1.0171	6.222				
T 5:3FTCA															
T 7:3FTCA	Avg RF	1.2989	1.2579	1.2755	1.2386	1.4726	1.3765	1.4035	1.2939	1.3272	6.151				
I M4-PFHpA															
T PFHpA	Avg RF	0.1788	0.1664	0.1679	0.1586	0.1912	0.1836	0.1818	0.1593	0.1735	6.946				
I M8-PFOA															
T PFOA	Avg RF	0.0805	0.0736	0.0783	0.0747	0.0836	0.0830	0.0843	0.0669	0.0781	7.747				
I M9-PFNA															
T PFNA	Avg RF	1.2363	1.2491	1.2690	1.1595	1.3829	1.2675	1.3078	1.2274	1.2624	5.126				
I M6-PFDA															
T PFDA	Avg RF	1.2680	0.9664	1.2368	1.1429	1.3202	1.2637	1.2594	1.3016	1.2199	9.447				
I M7-PFUnDA															
T PFUnDA	Quadratic	0.8364	0.8234	0.9081	0.9405	0.9404	0.9827	0.9042	0.8857	0.9027	5.959				
I M2-PFDaDA															
T PFDA	Avg RF	1.3666	1.5222	1.4727	1.5771	1.7217	1.4479	1.6685	1.6015	1.5473	7.634				
I M7-PFUnDA															
T PFUnDA	Avg RF	0.7108	0.7460	0.9711	0.8655	0.9173	0.9673	0.9704	0.8798	0.8785	11.565				
I M2-PFDaDA															

Generated at 7:33 AM on 5/9/2023

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Initial Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q265-ICC265
 Lab FileID: 6Q17549.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.9832	1.1108	0.9534	0.9333	1.0302	0.9754	1.0297	0.9563	0.9965	5.801
T PFTfDA	Avg RF	1.2823	1.1112	1.1944	1.1657	1.2187	1.2123	1.2018	1.0392	1.1782	6.286
I M2-PFTeDA	Avg RF	1.2820	1.2208	1.3049	1.3379	1.3740	1.2768	1.2932	1.2540	1.2929	3.678
T PFTeDA	Avg RF	0.9211	0.8763	0.8778	0.8317	0.8822	0.9956	1.0140	0.9359	0.9168	6.854
I M8-FOSA	Avg RF	1.1703	1.3355	1.1756	1.2599	1.3206	1.1521	1.2370	1.2465	1.2372	5.527
T PFBs	Avg RF	1.4240	1.5773	1.3714	1.3551	1.3118	1.4051	1.4432	1.3659	1.4067	5.719
I M3-PFHxS	Avg RF	1.5067	1.5445	1.4566	1.3747	1.3725	1.5150	1.5569	1.4758	1.4753	4.796
T PFHxS	Avg RF	1.2863	1.4999	1.3200	1.2047	1.4573	1.3538	1.2989	1.3420	1.3454	7.028
I M8-PFOS	Avg RF	1.1381	1.4200	1.3830	1.1889	1.3448	1.2997	1.2630	1.3492	1.2983	7.458
T PFHps	Avg RF	1.0898	1.3096	1.2402	1.1850	1.2016	1.2385	1.2709	1.3704	1.2382	6.815
T PFOS	Avg RF	0.7580	0.8828	0.8839	0.7985	0.8725	0.8560	0.8689	0.8706	0.8427	5.184
T PFDoDs	Avg RF	0.4011	0.4545	0.4210	0.4204	0.4718	0.4793	0.4606	0.4823	0.4489	6.843
I M2-4:2FTS	Avg RF	7.7002	7.8974	7.7190	7.1452	7.9244	7.5122	8.4142	6.7612	7.6342	6.623
T 4:2FTS	Avg RF	5.1818	6.1483	5.5111	4.8623	6.4170	6.0074	5.4564	4.3735	5.4947	12.491
I M2-6:2FTS	Avg RF	2.4781	3.1518	2.7512	3.0630	3.6638	2.6371	2.9277	2.5608	2.9042	13.389
T 6:2FTS	Avg RF	0.9021	0.9789	1.0090	0.9739	1.1390	1.2082	1.0363	1.0194	1.0334	9.416
I M2-8:2FTS	Avg RF	0.9351	0.9817	0.9377	0.9215	0.9836	1.0030	0.9980	0.9589	0.9649	3.213
T 8:2FTS	Avg RF	15.24	16.16	17.19	15.20	17.08	17.00	15.12	15.25	16.03	5.843
I M3-MeFOSAA	Avg RF	6.0955	5.8642	6.1155	5.6154	6.0277	5.8054	5.7363	5.7010	5.8701	3.229
T MeFOSAA	Avg RF	3.6736	3.7545	3.9494	3.6511	3.9213	3.9267	3.7669	3.9725	3.8270	3.397
I M3-HFO-DA	Avg RF	1.0989	0.8648	0.8857	0.7665	0.8624	0.8809	0.9468	0.8880	0.8992	10.543
T HFO-DA	Avg RF	1.0857	1.0251	1.0402	1.0503	1.1850	1.1940	1.1552	1.2186	1.1193	6.927
I M7-MeFOSE	Avg RF	1.0667	1.0380	1.0451	0.9855	1.0965	1.1072	1.1724	1.0881	1.0749	5.155
T MeFOSE	Avg RF	1.0667	1.0380	1.0451	0.9855	1.0965	1.1072	1.1724	1.0881	1.0749	5.155

Generated at 7:33 AM on 5/9/2023

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Initial Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q265-ICC265
 Lab FileID: 6Q17549.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EtFOSA	Avg RF	0.9735	1.0555	1.1673	1.0664	1.1670	1.1623	0.9937	1.0848	1.0838	7.100
I M3-MeFOSA											
T MeFOSA	Avg RF	1.1049	1.1524	1.1230	1.1749	1.1909	1.2754	1.1341	1.0142	1.1462	6.543
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.7672	0.7123	0.7499	0.6567	0.6756	0.6550	0.7065	0.6852	0.7010	5.882
S 13C8-PFOS	Linear	0.8576	0.7285	0.8026	0.7536	0.7713	0.7647	0.7754	0.7282	0.7727	5.463
S d5-EFOSAA	Linear	0.5894	0.5935	0.6344	0.6252	0.6345	0.6287	0.6301	0.5784	0.6143	3.757
S 13C8-FOSA	Linear	1.6801	1.7387	1.8235	1.6883	1.7735	1.6364	1.6080	1.7409	1.7112	4.183
S d7-MeFOSE	Linear	0.7204	0.6951	0.7752	0.6806	0.6767	0.6673	0.6663	0.6078	0.6862	7.012
S d3-MeFOSA	Linear	0.6146	0.5933	0.6385	0.5688	0.6187	0.5767	0.6341	0.6679	0.6141	5.437
S d9-EFOSE	Linear	0.8120	0.8039	0.8696	0.7617	0.7940	0.7836	0.7474	0.7245	0.7871	5.665
S d5-EFOSA	Linear	0.7348	0.7546	0.7511	0.6874	0.7349	0.7032	0.7692	0.7221	0.7322	3.721
I 13C3-PFBA											
S 13C4-PFBA	Linear	1.2002	1.2157	1.1870	1.1930	1.2011	1.1873	1.1768	1.1796	1.1926	1.071
I 1802-PFHxS											
S 13C2-4:2FTS	Linear	0.0880	0.0882	0.0977	0.0933	0.0948	0.0942	0.0841	0.0985	0.0923	5.496
S 13C3-PFBS	Linear	2.1256	2.0270	2.4864	2.0266	2.2513	2.4185	2.1334	2.1268	2.1995	7.833
S 13C2-6:2FTS	Linear	0.1221	0.1034	0.1290	0.1215	0.1072	0.1108	0.1096	0.1294	0.1166	8.686
S 13C3-PFHxS	Linear	1.3153	1.1581	1.3764	1.2772	1.4109	1.3470	1.1926	1.3397	1.3022	6.763
S 13C2-8:2FTS	Linear	0.1162	0.1256	0.1429	0.1181	0.1138	0.1333	0.1160	0.1336	0.1249	8.532
I 13C4-PFOA											
S 13C8-PFOA	Linear	1.0090	1.0709	1.0122	0.9567	0.9639	0.9676	1.0320	0.8395	0.9815	7.051
I 13C2-PFDA											
S 13C6-PFDA	Linear	0.8365	0.7854	0.7745	0.7974	0.9190	0.8790	0.8305	0.7350	0.8197	7.242
S 13C7-PFUnDA	Linear	1.1389	1.1446	0.9320	1.1319	1.2386	1.1233	1.0525	1.0052	1.0959	8.699
S 13C2-PFDODA	Linear	1.1154	1.0246	0.9697	1.1221	1.2015	1.1048	1.0559	1.0696	1.0829	6.459
S 13C2-PFTeDA	Linear	0.7333	0.7010	0.6713	0.7111	0.8331	0.7341	0.7513	0.7066	0.7303	6.609
I 13C5-PFNA											
S 13C9-PFNA	Linear	1.0598	1.0659	0.9236	0.8780	0.9187	0.9083	0.8962	0.8553	0.9382	8.532
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.5253	0.5556	0.5314	0.5282	0.5226	0.5367	0.5119	0.5163	0.5285	2.559
S 13C5-PFHxA	Linear	1.1965	1.3126	1.2050	1.2337	1.1427	1.2268	1.1493	1.2623	1.2161	4.634
S 13C3-HFPO-DA	Linear	0.1847	0.1947	0.1737	0.1804	0.1906	0.1889	0.1838	0.1886	0.1857	3.524
S 13C4-PFHpA	Linear	1.0176	1.0962	1.0352	1.0867	1.0667	1.0653	1.0344	1.0676	1.0587	2.576

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

Initial Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q265-ICC265
 Lab FileID: 6Q17549.D

Initial Calibration Report

Compounds with curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PFBA	Linear	$y = 1.192581 * x$	
S 13C5-PFPeA	Linear	$y = 0.528507 * x$	
S 13C2-4:2FTS	Linear	$y = 0.092347 * x$	
S 13C3-PFBS	Linear	$y = 2.199468 * x$	
S 13C5-PFHxA	Linear	$y = 1.216125 * x$	
S 13C3-HFOPO-DA	Linear	$y = 0.185681 * x$	
S 13C4-PFHpA	Linear	$y = 1.058716 * x$	
S 13C2-6:2FTS	Linear	$y = 0.116630 * x$	
S 13C8-PFOA	Linear	$y = 0.981483 * x$	
S 13C3-PFHxS	Linear	$y = 1.302151 * x$	
S 13C9-PFNA	Linear	$y = 0.938214 * x$	
T PFNA	Quadratic	$y = -0.001187 * x^2 + 0.944424 * x$	8.2572
S 13C2-8:2FTS	Linear	$y = 0.124931 * x$	
S 13C6-PFDA	Linear	$y = 0.819653 * x$	
S d3-MeFOSAA	Linear	$y = 0.701050 * x$	
S 13C8-PFOS	Linear	$y = 0.772721 * x$	
S d5-EFOSAA	Linear	$y = 0.614284 * x$	
S 13C7-PFUnDA	Linear	$y = 1.095889 * x$	
S 13C2-PFDoDA	Linear	$y = 1.082942 * x$	
S 13C8-FOSA	Linear	$y = 1.711175 * x$	
S 13C2-PFTeDA	Linear	$y = 0.730262 * x$	
S d7-MeFOSE	Linear	$y = 0.686166 * x$	
S d3-MeFOSA	Linear	$y = 0.614069 * x$	
S d9-EFOSE	Linear	$y = 0.787087 * x$	
S d5-EFOSA	Linear	$y = 0.732162 * x$	

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

Initial Calibration Verification

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q265-ICV265
 Lab FileID: 6Q17555.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050823_1633_S6Q265\s6q265.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050823_1633_S6Q265\6Q17546.d
 2:D:\MassHunter\Data\050823_1633_S6Q265\6Q17547.d
 3:D:\MassHunter\Data\050823_1633_S6Q265\6Q17548.d
 4:D:\MassHunter\Data\050823_1633_S6Q265\6Q17549.d
 5:D:\MassHunter\Data\050823_1633_S6Q265\6Q17550.d
 6:D:\MassHunter\Data\050823_1633_S6Q265\6Q17551.d
 7:D:\MassHunter\Data\050823_1633_S6Q265\6Q17552.d
 8:D:\MassHunter\Data\050823_1633_S6Q265\6Q17553.d

Data File: 6Q17555
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.473	9.5	109.5
13C2-6:2FTS	5.000	5.319	6.4	106.4
13C2-8:2FTS	5.000	5.945	18.9	118.9
13C2-PFDoDA	1.250	1.280	2.4	102.4
13C2-PFTeDA	1.250	1.265	1.2	101.2
13C3-PFBS	2.500	2.487	-0.5	99.5
13C3-PFHxS	2.500	2.583	3.3	103.3
13C4-PFBA	10.000	9.996	0.0	100.0
13C4-PFHpA	2.500	2.462	-1.5	98.5
13C5-PFHxA	2.500	2.575	3.0	103.0
13C5-PFPeA	5.000	5.122	2.4	102.4
13C6-PFDA	1.250	1.250	0.0	100.0
13C7-PFUnDA	1.250	1.274	1.9	101.9
13C8-FOSA	2.500	2.380	-4.8	95.2
13C8-PFOA	2.500	2.585	3.4	103.4
13C8-PFOS	2.500	2.424	-3.0	97.0
13C9-PFNA	1.250	1.127	-9.9	90.1
4:2FTS	9.375	8.856	-5.5	94.5
6:2FTS	9.500	9.667	1.8	101.8
8:2FTS	9.600	8.995	-6.3	93.7
d3-MeFOSAA	5.000	5.233	4.7	104.7
EtFOSAA	2.500	2.530	1.2	101.2
FOSA	2.500	2.456	-1.8	98.2
MeFOSAA	2.500	2.272	-9.1	90.9
PFBA	10.000	9.661	-3.4	96.6
PFBS	2.218	2.232	0.6	100.6
PFDA	2.500	2.431	-2.8	97.2
PFDoDA	2.500	2.359	-5.6	94.4
PFDS	2.413	2.253	-6.6	93.4
PFHpA	2.500	2.559	2.4	102.4
PFHpS	2.383	2.433	2.1	102.1
PFHxA	2.500	2.315	-7.4	92.6
PFHxS	2.285	2.258	-1.2	98.8
PFNA	2.500	2.435	-2.6	97.4
PFNS	2.405	2.374	-1.3	98.7
PFOA	2.500	2.390	-4.4	95.6
PFOS	2.320	2.326	0.2	100.2

Initial Calibration Verification

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q265-ICV265
 Lab FileID: 6Q17555.D

PFPeA	5.000	4.895	-2.1	97.9
PFPeS	2.353	2.433	3.4	103.4
PFTeDA	2.500	2.406	-3.8	96.2
PFTTrDA	2.500	2.265	-9.4	90.6
PFUnDA	2.500	2.774	11.0	111.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.897	3.6	103.6
13C3-HFPO-DA	10.000	9.995	0.0	100.0
9C1-PF3ONS	4.675	4.752	1.6	101.6
ADONA	4.725	4.967	5.1	105.1
HFPO-DA	5.000	4.727	-5.5	94.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.744	-5.9	94.1
5:3FTCA	62.400	60.107	-3.7	96.3
7:3FTCA	62.400	57.597	-7.7	92.3
d3-MeFOSA	2.500	2.426	-3.0	97.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.131	2.6	102.6
EtFOSE	12.500	12.529	0.2	100.2
MeFOSA	5.000	4.905	-1.9	98.1
MeFOSE	12.500	11.234	-10.1	89.9
PFDoDS	2.425	2.360	-2.7	97.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.638	-7.2	92.8
d7-MeFOSE	25.000	23.773	-4.9	95.1
d9-EtFOSE	25.000	23.015	-7.9	92.1
d5-EtFOSA	2.500	2.372	-5.1	94.9
NFDHA	5.000	5.028	0.6	100.6
PFMBA	5.000	4.875	-2.5	97.5
PFMPA	5.000	4.814	-3.7	96.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.220	-5.2	94.8

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q265-ICV265
 Lab FileID: 6Q17556.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050823_1633_S6Q265\s6q265.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050823_1633_S6Q265\6Q17546.d
 2:D:\MassHunter\Data\050823_1633_S6Q265\6Q17547.d
 3:D:\MassHunter\Data\050823_1633_S6Q265\6Q17548.d
 4:D:\MassHunter\Data\050823_1633_S6Q265\6Q17549.d
 5:D:\MassHunter\Data\050823_1633_S6Q265\6Q17550.d
 6:D:\MassHunter\Data\050823_1633_S6Q265\6Q17551.d
 7:D:\MassHunter\Data\050823_1633_S6Q265\6Q17552.d
 8:D:\MassHunter\Data\050823_1633_S6Q265\6Q17553.d

Data File: 6Q17556
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.588	11.8	111.8
13C2-6:2FTS	5.000	5.151	3.0	103.0
13C2-8:2FTS	5.000	5.302	6.0	106.0
13C2-PFDoDA	1.250	1.137	-9.0	91.0
13C2-PFTeDA	1.250	1.136	-9.2	90.8
13C3-PFBS	2.500	2.525	1.0	101.0
13C3-PFHxS	2.500	2.554	2.2	102.2
13C4-PFBA	10.000	10.096	1.0	101.0
13C4-PFHpA	2.500	2.377	-4.9	95.1
13C5-PFHxA	2.500	2.367	-5.3	94.7
13C5-PFPeA	5.000	4.929	-1.4	98.6
13C6-PFDA	1.250	1.283	2.6	102.6
13C7-PFUnDA	1.250	1.163	-6.9	93.1
13C8-FOSA	2.500	2.120	-15.2	84.8
13C8-PFOA	2.500	2.436	-2.6	97.4
13C8-PFOS	2.500	2.384	-4.6	95.4
13C9-PFNA	1.250	1.087	-13.1	86.9
4:2FTS	20.000	19.428	-2.9	97.1
6:2FTS	20.000	19.531	-2.3	97.7
8:2FTS	20.000	21.194	6.0	106.0
d3-MeFOSAA	5.000	4.613	-7.7	92.3
EtFOSAA	20.000	21.530	7.6	107.6
FOSA	20.000	23.687	18.4	118.4
MeFOSAA	20.000	21.208	6.0	106.0
PFBA	20.000	20.393	2.0	102.0
PFBS	20.000	21.263	6.3	106.3
PFDA	20.000	19.951	-0.2	99.8
PFDoDA	20.000	19.106	-4.5	95.5
PFDS	20.000	19.491	-2.5	97.5
PFHpA	20.000	21.887	9.4	109.4
PFHpS	20.000	20.084	0.4	100.4
PFHxA	20.000	20.860	4.3	104.3
PFHxS	20.000	20.707	3.5	103.5
PFNA	20.000	26.144	# 30.7	130.7
PFNS	20.000	22.068	10.3	110.3
PFOA	20.000	20.412	2.1	102.1
PFOS	20.000	17.431	-12.8	87.2

Initial Calibration Verification

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q265-ICV265
 Lab FileID: 6Q17556.D

PFPeA	20.000	22.973	14.9	114.9
PFPeS	20.000	21.674	8.4	108.4
PFTeDA	20.000	21.592	8.0	108.0
PFTrDA	20.000	17.503	-12.5	87.5
PFUnDA	20.000	20.971	4.9	104.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	21.724	8.6	108.6
13C3-HFPO-DA	10.000	10.111	1.1	101.1
9C1-PF3ONS	20.000	20.933	4.7	104.7
ADONA	20.000	19.490	-2.6	97.4
HFPO-DA	20.000	20.605	3.0	103.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.961	4.8	104.8
5:3FTCA	20.000	23.750	18.8	118.8
7:3FTCA	20.000	23.135	15.7	115.7
d3-MeFOSA	2.500	2.381	-4.7	95.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	21.558	7.8	107.8
EtFOSE	100.000	111.303	11.3	111.3
MeFOSA	20.000	20.094	0.5	100.5
MeFOSE	100.000	104.985	5.0	105.0
PFDoDS	20.000	19.464	-2.7	97.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.473	-10.5	89.5
d7-MeFOSE	25.000	22.492	-10.0	90.0
d9-EtFOSE	25.000	21.994	-12.0	88.0
d5-EtFOSA	2.500	2.204	-11.8	88.2
NFDHA	20.000	22.189	10.9	110.9
PFMBA	20.000	22.246	11.2	111.2
PFMPA	20.000	21.653	8.3	108.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	20.000	19.817	-0.9	99.1

CC Criteria: +/- 30%

6.9.12
6

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q267-CC265
 Lab FileID: 6Q17714.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0501023_1633_S6Q267\s6q267.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050823_1633_S6Q265\6Q17546.d
 2:D:\MassHunter\Data\050823_1633_S6Q265\6Q17547.d
 3:D:\MassHunter\Data\050823_1633_S6Q265\6Q17548.d
 4:D:\MassHunter\Data\050823_1633_S6Q265\6Q17549.d
 5:D:\MassHunter\Data\050823_1633_S6Q265\6Q17550.d
 6:D:\MassHunter\Data\050823_1633_S6Q265\6Q17551.d
 7:D:\MassHunter\Data\050823_1633_S6Q265\6Q17552.d
 8:D:\MassHunter\Data\050823_1633_S6Q265\6Q17553.d

Data File: 6Q17714
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.488	9.8	109.8
13C2-6:2FTS	5.000	5.780	15.6	115.6
13C2-8:2FTS	5.000	5.577	11.5	111.5
13C2-PFDoDA	1.250	1.350	8.0	108.0
13C2-PFTeDA	1.250	1.278	2.2	102.2
13C3-PFBS	2.500	2.530	1.2	101.2
13C3-PFHxS	2.500	2.674	7.0	107.0
13C4-PFBA	10.000	9.979	-0.2	99.8
13C4-PFHpA	2.500	2.574	3.0	103.0
13C5-PFHxA	2.500	2.511	0.4	100.4
13C5-PFPeA	5.000	5.146	2.9	102.9
13C6-PFDA	1.250	1.377	10.2	110.2
13C7-PFUnDA	1.250	1.315	5.2	105.2
13C8-FOSA	2.500	2.552	2.1	102.1
13C8-PFOA	2.500	2.561	2.4	102.4
13C8-PFOS	2.500	2.442	-2.3	97.7
13C9-PFNA	1.250	1.233	-1.4	98.6
4:2FTS	0.750	0.694	-7.4	92.6
6:2FTS	0.760	0.653	-14.1	85.9
8:2FTS	0.768	0.791	3.0	103.0
d3-MeFOSAA	5.000	5.515	10.3	110.3
EtFOSAA	0.200	0.177	-11.6	88.4
FOSA	0.200	0.194	-3.2	96.8
MeFOSAA	0.200	0.173	-13.5	86.5
PFBA	0.800	0.749	-6.4	93.6
PFBS	0.177	0.154	-12.9	87.1
PFDA	0.200	0.189	-5.5	94.5
PFDoDA	0.200	0.201	0.3	100.3
PFDS	0.193	0.199	3.0	103.0
PFHpA	0.200	0.191	-4.6	95.4
PFHpS	0.191	0.154	-19.3	80.7
PFHxA	0.200	0.185	-7.6	92.4
PFHxS	0.183	0.174	-5.0	95.0
PFNA	0.200	0.206	2.8	102.8
PFNS	0.192	0.186	-3.0	97.0
PFOA	0.200	0.179	-10.7	89.3
PFOS	0.186	0.185	-0.3	99.7

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q267-CC265
 Lab FileID: 6Q17714.D

PFPeA	0.400	0.381	-4.7	95.3
PFPeS	0.188	0.159	-15.7	84.3
PFTeDA	0.200	0.183	-8.3	91.7
PFTTrDA	0.200	0.184	-7.9	92.1
PFUnDA	0.200	0.190	-4.8	95.2
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	0.355	-6.1	93.9
13C3-HFPO-DA	10.000	10.622	6.2	106.2
9C1-PF3ONS	0.367	0.371	1.0	101.0
ADONA	0.378	0.339	-10.2	89.8
HFPO-DA	0.400	0.420	4.9	104.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.876	-12.3	87.7
5:3FTCA	4.992	5.456	9.3	109.3
7:3FTCA	4.992	5.712	14.4	114.4
d3-MeFOSA	2.500	2.522	0.9	100.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.422	5.6	105.6
EtFOSE	1.000	0.929	-7.1	92.9
MeFOSA	0.400	0.369	-7.7	92.3
MeFOSE	1.000	0.950	-5.0	95.0
PFDoDS	0.194	0.202	4.0	104.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.101	2.0	102.0
d7-MeFOSE	25.000	23.589	-5.6	94.4
d9-EtFOSE	25.000	24.843	-0.6	99.4
d5-EtFOSA	2.500	2.188	-12.5	87.5
NFDHA	0.400	0.425	6.1	106.1
PFMBA	0.400	0.387	-3.1	96.9
PFMPA	0.400	0.395	-1.2	98.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.329	-7.6	92.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q267-CC265
 Lab FileID: 6Q17725.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0501023_1633_S6Q267\s6q267.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050823_1633_S6Q265\6Q17546.d
 2:D:\MassHunter\Data\050823_1633_S6Q265\6Q17547.d
 3:D:\MassHunter\Data\050823_1633_S6Q265\6Q17548.d
 4:D:\MassHunter\Data\050823_1633_S6Q265\6Q17549.d
 5:D:\MassHunter\Data\050823_1633_S6Q265\6Q17550.d
 6:D:\MassHunter\Data\050823_1633_S6Q265\6Q17551.d
 7:D:\MassHunter\Data\050823_1633_S6Q265\6Q17552.d
 8:D:\MassHunter\Data\050823_1633_S6Q265\6Q17553.d

Data File: 6Q17725
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.690	13.8	113.8
13C2-6:2FTS	5.000	5.033	0.7	100.7
13C2-8:2FTS	5.000	4.913	-1.7	98.3
13C2-PFDoDA	1.250	1.129	-9.6	90.4
13C2-PFTeDA	1.250	1.152	-7.8	92.2
13C3-PFBS	2.500	2.471	-1.2	98.8
13C3-PFHxS	2.500	2.431	-2.8	97.2
13C4-PFBA	10.000	9.955	-0.4	99.6
13C4-PFHpA	2.500	2.445	-2.2	97.8
13C5-PFHxA	2.500	2.487	-0.5	99.5
13C5-PFPeA	5.000	4.907	-1.9	98.1
13C6-PFDA	1.250	1.253	0.3	100.3
13C7-PFUnDA	1.250	1.237	-1.0	99.0
13C8-FOSA	2.500	2.554	2.2	102.2
13C8-PFOA	2.500	2.281	-8.8	91.2
13C8-PFOS	2.500	2.750	10.0	110.0
13C9-PFNA	1.250	1.044	-16.5	83.5
4:2FTS	9.375	8.094	-13.7	86.3
6:2FTS	9.500	10.183	7.2	107.2
8:2FTS	9.600	9.868	2.8	102.8
d3-MeFOSAA	5.000	5.562	11.2	111.2
EtFOSAA	2.500	2.398	-4.1	95.9
FOSA	2.500	2.354	-5.8	94.2
MeFOSAA	2.500	2.299	-8.1	91.9
PFBA	10.000	9.616	-3.8	96.2
PFBS	2.218	2.185	-1.5	98.5
PFDA	2.500	2.298	-8.1	91.9
PFDoDA	2.500	2.767	10.7	110.7
PFDS	2.413	2.076	-14.0	86.0
PFHpA	2.500	2.357	-5.7	94.3
PFHpS	2.383	2.106	-11.6	88.4
PFHxA	2.500	2.327	-6.9	93.1
PFHxS	2.285	2.049	-10.3	89.7
PFNA	2.500	2.445	-2.2	97.8
PFNS	2.405	2.178	-9.4	90.6
PFOA	2.500	2.474	-1.0	99.0
PFOS	2.320	2.151	-7.3	92.7

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q267-CC265
 Lab FileID: 6Q17725.D

PFPeA	5.000	4.796	-4.1	95.9
PFPeS	2.353	2.237	-4.9	95.1
PFTeDA	2.500	2.403	-3.9	96.1
PFTTrDA	2.500	2.599	3.9	103.9
PFUnDA	2.500	2.420	-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	4.483	-5.1	94.9
13C3-HFPO-DA	10.000	9.729	-2.7	97.3
9C1-PF3ONS	4.675	4.685	0.2	100.2
ADONA	4.725	4.415	-6.6	93.4
HFPO-DA	5.000	4.944	-1.1	98.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.434	-8.4	91.6
5:3FTCA	62.400	53.549	-14.2	85.8
7:3FTCA	62.400	55.345	-11.3	88.7
d3-MeFOSA	2.500	2.356	-5.8	94.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.584	-8.3	91.7
EtFOSE	12.500	11.820	-5.4	94.6
MeFOSA	5.000	5.210	4.2	104.2
MeFOSE	12.500	11.701	-6.4	93.6
PFDoDS	2.425	2.121	-12.6	87.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.128	2.6	102.6
d7-MeFOSE	25.000	25.479	1.9	101.9
d9-EtFOSE	25.000	24.573	-1.7	98.3
d5-EtFOSA	2.500	2.565	2.6	102.6
NFDHA	5.000	4.811	-3.8	96.2
PFMBA	5.000	4.781	-4.4	95.6
PFMPA	5.000	4.830	-3.4	96.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.220	-5.2	94.8

CC Criteria: +/- 30%

6.9.14
6

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q267-ECC265
 Lab FileID: 6Q17730.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0501023_1633_S6Q267\s6q267.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050823_1633_S6Q265\6Q17546.d
 2:D:\MassHunter\Data\050823_1633_S6Q265\6Q17547.d
 3:D:\MassHunter\Data\050823_1633_S6Q265\6Q17548.d
 4:D:\MassHunter\Data\050823_1633_S6Q265\6Q17549.d
 5:D:\MassHunter\Data\050823_1633_S6Q265\6Q17550.d
 6:D:\MassHunter\Data\050823_1633_S6Q265\6Q17551.d
 7:D:\MassHunter\Data\050823_1633_S6Q265\6Q17552.d
 8:D:\MassHunter\Data\050823_1633_S6Q265\6Q17553.d

Data File: 6Q17730
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.967	-0.7	99.3
13C2-6:2FTS	5.000	5.064	1.3	101.3
13C2-8:2FTS	5.000	5.123	2.5	102.5
13C2-PFDoDA	1.250	1.052	-15.8	84.2
13C2-PFTeDA	1.250	1.075	-14.0	86.0
13C3-PFBS	2.500	2.467	-1.3	98.7
13C3-PFHxS	2.500	2.490	-0.4	99.6
13C4-PFBA	10.000	10.079	0.8	100.8
13C4-PFHpA	2.500	2.308	-7.7	92.3
13C5-PFHxA	2.500	2.615	4.6	104.6
13C5-PFPeA	5.000	5.065	1.3	101.3
13C6-PFDA	1.250	1.056	-15.5	84.5
13C7-PFUnDA	1.250	1.150	-8.0	92.0
13C8-FOSA	2.500	2.344	-6.3	93.7
13C8-PFOA	2.500	2.540	1.6	101.6
13C8-PFOS	2.500	2.233	-10.7	89.3
13C9-PFNA	1.250	1.213	-3.0	97.0
4:2FTS	9.375	9.141	-2.5	97.5
6:2FTS	9.500	10.172	7.1	107.1
8:2FTS	9.600	10.088	5.1	105.1
d3-MeFOSAA	5.000	5.350	7.0	107.0
EtFOSAA	2.500	2.236	-10.6	89.4
FOSA	2.500	2.263	-9.5	90.5
MeFOSAA	2.500	2.304	-7.8	92.2
PFBA	10.000	9.610	-3.9	96.1
PFBS	2.218	2.105	-5.1	94.9
PFDA	2.500	2.856	14.2	114.2
PFDoDA	2.500	2.602	4.1	104.1
PFDS	2.413	2.398	-0.6	99.4
PFHpA	2.500	2.597	3.9	103.9
PFHpS	2.383	2.413	1.2	101.2
PFHxA	2.500	2.276	-9.0	91.0
PFHxS	2.285	1.965	-14.0	86.0
PFNA	2.500	2.583	3.3	103.3
PFNS	2.405	2.493	3.6	103.6
PFOA	2.500	2.158	-13.7	86.3
PFOS	2.320	2.278	-1.8	98.2

Continuing Calibration Summary

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q267-ECC265
 Lab FileID: 6Q17730.D

PFPeA	5.000	4.797	-4.1	95.9
PFPeS	2.353	2.195	-6.7	93.3
PFTeDA	2.500	2.507	0.3	100.3
PFTTrDA	2.500	2.613	4.5	104.5
PFUnDA	2.500	2.305	-7.8	92.2
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	4.421	-6.4	93.6
13C3-HFPO-DA	10.000	9.867	-1.3	98.7
9C1-PF3ONS	4.675	4.903	4.9	104.9
ADONA	4.725	4.338	-8.2	91.8
HFPO-DA	5.000	4.919	-1.6	98.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.451	-8.2	91.8
5:3FTCA	62.400	56.070	-10.1	89.9
7:3FTCA	62.400	58.418	-6.4	93.6
d3-MeFOSA	2.500	2.236	-10.5	89.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.808	-3.8	96.2
EtFOSE	12.500	12.099	-3.2	96.8
MeFOSA	5.000	5.237	4.7	104.7
MeFOSE	12.500	12.845	2.8	102.8
PFDoDS	2.425	2.322	-4.2	95.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.021	0.4	100.4
d7-MeFOSE	25.000	21.628	-13.5	86.5
d9-EtFOSE	25.000	22.821	-8.7	91.3
d5-EtFOSA	2.500	2.289	-8.5	91.5
NFDHA	5.000	4.771	-4.6	95.4
PFMBA	5.000	4.843	-3.1	96.9
PFMPA	5.000	4.874	-2.5	97.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.093	-8.0	92.0

CC Criteria: +/- 30%

6.9.15
6

Run Sequence Report

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q634	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q634-RT	4Q43881.D	05/03/23 10:23	n/a	Retention Time Marker
S4Q634-RT	4Q43882.D	05/03/23 10:37	n/a	Retention Time Marker
S4Q634-IC634	4Q43883.D	05/03/23 10:58	n/a	Mass Calibration Verification
S4Q634-IC634	4Q43884.D	05/03/23 11:12	n/a	Initial cal 1
S4Q634-IC634	4Q43885.D	05/03/23 11:26	n/a	Initial cal 2
S4Q634-IC634	4Q43886.D	05/03/23 11:40	n/a	Initial cal 3
S4Q634-ICC634	4Q43887.D	05/03/23 11:54	n/a	Initial cal 4
S4Q634-IC634	4Q43888.D	05/03/23 12:08	n/a	Initial cal 5
S4Q634-IC634	4Q43889.D	05/03/23 12:22	n/a	Initial cal 6
S4Q634-IC634	4Q43890.D	05/03/23 12:36	n/a	Initial cal 7
S4Q634-IC634	4Q43891.D	05/03/23 12:50	n/a	Initial cal 8
S4Q634-IBLK	4Q43892.D	05/03/23 13:04	n/a	Instrument Blank
S4Q634-IBLK	4Q43892.D	05/03/23 13:04	n/a	Instrument Blank
S4Q634-ICV634	4Q43894.D	05/03/23 13:20	n/a	Initial cal verification 20
S4Q634-ICV634	4Q43895.D	05/03/23 13:35	n/a	Initial cal verification 4
S4Q634-CC634	4Q43897.D	05/03/23 13:51	n/a	Continuing cal 1.0LL
OP96662-BS	4Q43898.D	05/03/23 14:05	OP96662	Blank Spike
OP96662-LLBS	4Q43899.D	05/03/23 14:19	OP96662	Blank Spike
OP96662-MB	4Q43900.D	05/03/23 14:33	OP96662	Method Blank
ZZZZZZ	4Q43901.D	05/03/23 14:47	OP96662	(unrelated sample)
ZZZZZZ	4Q43902.D	05/03/23 15:01	OP96662	(unrelated sample)
ZZZZZZ	4Q43903.D	05/03/23 15:15	OP96662	(unrelated sample)
ZZZZZZ	4Q43904.D	05/03/23 15:29	OP96662	(unrelated sample)
FC5685-3	4Q43905.D	05/03/23 15:43	OP96662	(used for QC only; not part of job FC5818)
OP96662-MS	4Q43906.D	05/03/23 15:57	OP96662	Matrix Spike
S4Q634-CC634	4Q43907.D	05/03/23 16:11	n/a	Continuing cal 4
S4Q634-ICCB	4Q43908.D	05/03/23 16:25	n/a	Continuing Calibration Blank
FC5685-4	4Q43909.D	05/03/23 16:39	OP96662	(used for QC only; not part of job FC5818)
OP96662-DUP	4Q43910.D	05/03/23 16:54	OP96662	Duplicate
ZZZZZZ	4Q43911.D	05/03/23 17:08	OP96662	(unrelated sample)
OP96659-BS	4Q43912.D	05/03/23 17:22	OP96659	Blank Spike
OP96659-LLBS	4Q43913.D	05/03/23 17:36	OP96659	Blank Spike
OP96659-MB	4Q43914.D	05/03/23 17:50	OP96659	Method Blank
ZZZZZZ	4Q43916.D	05/03/23 18:18	OP96659	(unrelated sample)
S4Q634-CC634	4Q43917.D	05/03/23 18:32	n/a	Continuing cal 4
S4Q634-ICCB	4Q43918.D	05/03/23 18:46	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43918.D	05/03/23 18:46	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43919.D	05/03/23 19:00	OP96659	(unrelated sample)
ZZZZZZ	4Q43920.D	05/03/23 19:14	OP96659	(unrelated sample)
ZZZZZZ	4Q43921.D	05/03/23 19:28	OP96659	(unrelated sample)
ZZZZZZ	4Q43922.D	05/03/23 19:42	OP96659	(unrelated sample)
OP96657-BS	4Q43923.D	05/03/23 19:56	OP96657	Blank Spike
OP96657-LLBS	4Q43924.D	05/03/23 20:10	OP96657	Blank Spike
OP96657-MB	4Q43925.D	05/03/23 20:24	OP96657	Method Blank
ZZZZZZ	4Q43926.D	05/03/23 20:38	OP96657	(unrelated sample)
S4Q634-CC634	4Q43927.D	05/03/23 20:53	n/a	Continuing cal 4

Run Sequence Report

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q634	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
S4Q634-ICCB	4Q43928.D	05/03/23 21:07	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43928.D	05/03/23 21:07	n/a	Continuing Calibration Blank
FC5371-11	4Q43929.D	05/03/23 21:21	OP96657	(used for QC only; not part of job FC5818)
OP96657-MS	4Q43930.D	05/03/23 21:35	OP96657	Matrix Spike
OP96657-MSD	4Q43931.D	05/03/23 21:49	OP96657	Matrix Spike Duplicate
ZZZZZZ	4Q43932.D	05/03/23 22:03	OP96657	(unrelated sample)
ZZZZZZ	4Q43933.D	05/03/23 22:17	OP96657	(unrelated sample)
ZZZZZZ	4Q43935.D	05/03/23 22:45	OP96657	(unrelated sample)
ZZZZZZ	4Q43936.D	05/03/23 22:59	OP96657	(unrelated sample)
ZZZZZZ	4Q43938.D	05/03/23 23:27	OP96657	(unrelated sample)
S4Q634-CC634	4Q43939.D	05/03/23 23:41	n/a	Continuing cal 4
S4Q634-ICCB	4Q43940.D	05/03/23 23:55	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43940.D	05/03/23 23:55	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43941.D	05/04/23 00:09	OP96657	(unrelated sample)
FC5371-20	4Q43942.D	05/04/23 00:23	OP96657	(used for QC only; not part of job FC5818)
OP96657-MS2	4Q43943.D	05/04/23 00:37	OP96657	Matrix Spike
OP96657-MSD2	4Q43944.D	05/04/23 00:51	OP96657	Matrix Spike Duplicate
ZZZZZZ	4Q43945.D	05/04/23 01:05	OP96657	(unrelated sample)
S4Q634-ECC634	4Q43946.D	05/04/23 01:19	n/a	Ending cal 4
S4Q634-ICCB	4Q43947.D	05/04/23 01:34	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43947.D	05/04/23 01:34	n/a	Continuing Calibration Blank

6.10.1
6

Run Sequence Report

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q639	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
S4Q639-RT	4Q44133.D	05/09/23 13:28	n/a	Retention Time Marker
S4Q639-RT	4Q44134.D	05/09/23 13:42	n/a	Retention Time Marker
S4Q639-IBLK	4Q44136.D	05/09/23 14:10	n/a	Instrument Blank
S4Q639-IBLK	4Q44136.D	05/09/23 14:10	n/a	Instrument Blank
S4Q639-CC634	4Q44137.D	05/09/23 14:24	n/a	Continuing cal 4
S4Q639-CC634	4Q44138.D	05/09/23 14:38	n/a	Continuing cal 1.0LL
OP96746-BS	4Q44139.D	05/09/23 14:52	OP96746	Blank Spike
OP96746-LLBS	4Q44140.D	05/09/23 15:06	OP96746	Blank Spike
OP96746-MB	4Q44141.D	05/09/23 15:20	OP96746	Method Blank
ZZZZZZ	4Q44144.D	05/09/23 16:02	OP96746	(unrelated sample)
ZZZZZZ	4Q44145.D	05/09/23 16:26	OP96746	(unrelated sample)
ZZZZZZ	4Q44146.D	05/09/23 16:40	OP96746	(unrelated sample)
ZZZZZZ	4Q44148.D	05/09/23 17:11	OP96746	(unrelated sample)
S4Q639-CC634	4Q44149.D	05/09/23 17:25	n/a	Continuing cal 4
S4Q639-ICCB	4Q44150.D	05/09/23 17:39	n/a	Continuing Calibration Blank
ZZZZZZ	4Q44151.D	05/09/23 17:53	OP96746	(unrelated sample)
ZZZZZZ	4Q44152.D	05/09/23 18:07	OP96746	(unrelated sample)
ZZZZZZ	4Q44153.D	05/09/23 18:21	OP96746	(unrelated sample)
ZZZZZZ	4Q44154.D	05/09/23 18:35	OP96746	(unrelated sample)
ZZZZZZ	4Q44155.D	05/09/23 18:49	OP96746	(unrelated sample)
ZZZZZZ	4Q44156.D	05/09/23 19:03	OP96746	(unrelated sample)
ZZZZZZ	4Q44157.D	05/09/23 19:17	OP96746	(unrelated sample)
S4Q639-CC634	4Q44158.D	05/09/23 19:31	n/a	Continuing cal 4
S4Q639-ICCB	4Q44159.D	05/09/23 19:45	n/a	Continuing Calibration Blank
OP96747-BS	4Q44160.D	05/09/23 19:59	OP96747	Blank Spike
OP96747-LLBS	4Q44161.D	05/09/23 20:13	OP96747	Blank Spike
OP96747-MB	4Q44162.D	05/09/23 20:28	OP96747	Method Blank
FC5818-1	4Q44163.D	05/09/23 20:42	OP96747	AF-RHMW17S-WGN01LF-2305W1
FC5818-2	4Q44164.D	05/09/23 20:56	OP96747	AF-RHMW17S-WQEB01-2305W1
S4Q639-CC634	4Q44165.D	05/09/23 21:10	n/a	Continuing cal 4
S4Q639-ICCB	4Q44166.D	05/09/23 21:24	n/a	Continuing Calibration Blank
FC5818-3	4Q44167.D	05/09/23 21:38	OP96747	AF-RHMW17D-WGN01LF-2305W1
OP96747-MS	4Q44168.D	05/09/23 21:52	OP96747	Matrix Spike
FC5818-4	4Q44169.D	05/09/23 22:06	OP96747	AF-RHMW17D-WQFB01-2305W1
FC5818-5	4Q44170.D	05/09/23 22:20	OP96747	AF-RHMW17-WGN01LF-2305W1
OP96747-DUP	4Q44171.D	05/09/23 22:34	OP96747	Duplicate
S4Q639-CC634	4Q44172.D	05/09/23 22:48	n/a	Continuing cal 4
S4Q639-CC634	4Q44173.D	05/09/23 23:02	n/a	Continuing cal 1.0LL
S4Q639-ICCB	4Q44174.D	05/09/23 23:16	n/a	Continuing Calibration Blank
OP96784-BS	4Q44175.D	05/09/23 23:30	OP96784	Blank Spike
OP96784-LLBS	4Q44176.D	05/09/23 23:44	OP96784	Blank Spike
OP96784-MB	4Q44177.D	05/09/23 23:58	OP96784	Method Blank
ZZZZZZ	4Q44178.D	05/10/23 00:12	OP96784	(unrelated sample)
FC5890-1	4Q44179.D	05/10/23 00:27	OP96784	(used for QC only; not part of job FC5818)
OP96784-MS	4Q44180.D	05/10/23 00:41	OP96784	Matrix Spike
FC5890-2	4Q44181.D	05/10/23 00:55	OP96784	(used for QC only; not part of job FC5818)

Run Sequence Report

Job Number: FC5818
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q639	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
OP96784-DUP	4Q44182.D	05/10/23 01:09	OP96784	Duplicate
ZZZZZZ	4Q44183.D	05/10/23 01:23	OP96784	(unrelated sample)
S4Q639-ECC634	4Q44184.D	05/10/23 01:37	n/a	Ending cal 4
S4Q639-ICCB	4Q44185.D	05/10/23 01:51	n/a	Continuing Calibration Blank

6.10.2

6

Run Sequence Report

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q265	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q265-RT	6Q17543.D	05/08/23 15:22	n/a	Retention Time Marker
S6Q265-RT	6Q17544.D	05/08/23 15:37	n/a	Retention Time Marker
S6Q265-IC265	6Q17545.D	05/08/23 15:51	n/a	Mass Calibration Verification
S6Q265-IC265	6Q17546.D	05/08/23 16:06	n/a	Initial cal 1
S6Q265-IC265	6Q17547.D	05/08/23 16:20	n/a	Initial cal 2
S6Q265-IC265	6Q17548.D	05/08/23 16:35	n/a	Initial cal 3
S6Q265-ICC265	6Q17549.D	05/08/23 16:49	n/a	Initial cal 4
S6Q265-IC265	6Q17550.D	05/08/23 17:04	n/a	Initial cal 5
S6Q265-IC265	6Q17551.D	05/08/23 17:18	n/a	Initial cal 6
S6Q265-IC265	6Q17552.D	05/08/23 17:33	n/a	Initial cal 7
S6Q265-IC265	6Q17553.D	05/08/23 17:47	n/a	Initial cal 8
S6Q265-IBLK	6Q17554.D	05/08/23 18:02	n/a	Instrument Blank
S6Q265-IBLK	6Q17554.D	05/08/23 18:02	n/a	Instrument Blank
S6Q265-ICV265	6Q17555.D	05/08/23 18:16	n/a	Initial cal verification 4
S6Q265-ICV265	6Q17556.D	05/08/23 18:31	n/a	Initial cal verification 20
S6Q265-CC265	6Q17557.D	05/08/23 18:45	n/a	Continuing cal 4
S6Q265-CC265	6Q17558.D	05/08/23 18:59	n/a	Continuing cal 1.0LL
OP96680-BS	6Q17559.D	05/08/23 19:14	OP96680	Blank Spike
OP96680-LLBS	6Q17560.D	05/08/23 19:28	OP96680	Blank Spike
OP96680-MB	6Q17561.D	05/08/23 19:43	OP96680	Method Blank
ZZZZZZ	6Q17562.D	05/08/23 19:57	OP96680	(unrelated sample)
ZZZZZZ	6Q17563.D	05/08/23 20:12	OP96680	(unrelated sample)
ZZZZZZ	6Q17564.D	05/08/23 20:26	OP96680	(unrelated sample)
ZZZZZZ	6Q17565.D	05/08/23 20:41	OP96680	(unrelated sample)
ZZZZZZ	6Q17566.D	05/08/23 20:55	OP96680	(unrelated sample)
ZZZZZZ	6Q17567.D	05/08/23 21:10	OP96680	(unrelated sample)
ZZZZZZ	6Q17568.D	05/08/23 21:24	OP96680	(unrelated sample)
S6Q265-CC265	6Q17569.D	05/08/23 21:39	n/a	Continuing cal 4
S6Q265-ICCB	6Q17570.D	05/08/23 21:53	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17571.D	05/08/23 22:08	OP96680	(unrelated sample)
ZZZZZZ	6Q17572.D	05/08/23 22:22	OP96680	(unrelated sample)
ZZZZZZ	6Q17573.D	05/08/23 22:37	OP96680	(unrelated sample)
ZZZZZZ	6Q17574.D	05/08/23 22:51	OP96680	(unrelated sample)
ZZZZZZ	6Q17575.D	05/08/23 23:06	OP96680	(unrelated sample)
ZZZZZZ	6Q17576.D	05/08/23 23:20	OP96680	(unrelated sample)
ZZZZZZ	6Q17577.D	05/08/23 23:35	OP96680	(unrelated sample)
FC5348-15	6Q17578.D	05/08/23 23:49	OP96680	(used for QC only; not part of job FC5818)
OP96680-MS	6Q17579.D	05/09/23 00:04	OP96680	Matrix Spike
OP96680-MSD	6Q17580.D	05/09/23 00:18	OP96680	Matrix Spike Duplicate
S6Q265-CC265	6Q17581.D	05/09/23 00:33	n/a	Continuing cal 4
S6Q265-ICCB	6Q17582.D	05/09/23 00:47	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17583.D	05/09/23 01:02	OP96680	(unrelated sample)
ZZZZZZ	6Q17584.D	05/09/23 01:16	OP96680	(unrelated sample)
ZZZZZZ	6Q17585.D	05/09/23 01:31	OP96680	(unrelated sample)
OP96699-BS	6Q17586.D	05/09/23 01:45	OP96699	Blank Spike
OP96699-LLBS	6Q17587.D	05/09/23 01:59	OP96699	Blank Spike

Run Sequence Report

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q265	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP96699-MB	6Q17588.D	05/09/23 02:14	OP96699	Method Blank
FC5391-1	6Q17589.D	05/09/23 02:28	OP96699	(used for QC only; not part of job FC5818)
OP96699-MS	6Q17590.D	05/09/23 02:43	OP96699	Matrix Spike
FC5391-2	6Q17591.D	05/09/23 02:57	OP96699	(used for QC only; not part of job FC5818)
OP96699-DUP	6Q17592.D	05/09/23 03:12	OP96699	Duplicate
S6Q265-CC265	6Q17593.D	05/09/23 03:26	n/a	Continuing cal 4
S6Q265-ICCB	6Q17594.D	05/09/23 03:41	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17595.D	05/09/23 03:55	OP96699	(unrelated sample)
ZZZZZZ	6Q17596.D	05/09/23 04:10	OP96699	(unrelated sample)
ZZZZZZ	6Q17597.D	05/09/23 04:24	OP96699	(unrelated sample)
ZZZZZZ	6Q17598.D	05/09/23 04:39	OP96699	(unrelated sample)
ZZZZZZ	6Q17599.D	05/09/23 04:53	OP96699	(unrelated sample)
ZZZZZZ	6Q17600.D	05/09/23 05:08	OP96699	(unrelated sample)
ZZZZZZ	6Q17601.D	05/09/23 05:22	OP96699	(unrelated sample)
ZZZZZZ	6Q17602.D	05/09/23 05:37	OP96699	(unrelated sample)
ZZZZZZ	6Q17603.D	05/09/23 05:51	OP96699	(unrelated sample)
ZZZZZZ	6Q17604.D	05/09/23 06:06	OP96699	(unrelated sample)
S6Q265-CC265	6Q17605.D	05/09/23 06:20	n/a	Continuing cal 4
S6Q265-CC265	6Q17606.D	05/09/23 06:35	n/a	Continuing cal 1.0LL
S6Q265-ICCB	6Q17607.D	05/09/23 06:49	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17608.D	05/09/23 07:04	OP96699	(unrelated sample)
ZZZZZZ	6Q17609.D	05/09/23 07:18	OP96699	(unrelated sample)
ZZZZZZ	6Q17610.D	05/09/23 07:33	OP96699	(unrelated sample)
ZZZZZZ	6Q17611.D	05/09/23 07:47	OP96699	(unrelated sample)
ZZZZZZ	6Q17612.D	05/09/23 08:02	OP96699	(unrelated sample)
S6Q265-CC265	6Q17615.D	05/09/23 08:45	n/a	Continuing cal 4
S6Q265-ICCB	6Q17616.D	05/09/23 08:59	n/a	Continuing Calibration Blank
OP96700-BS	6Q17617.D	05/09/23 09:14	OP96700	Blank Spike
OP96700-LLBS	6Q17618.D	05/09/23 09:28	OP96700	Blank Spike
OP96700-MB	6Q17619.D	05/09/23 09:43	OP96700	Method Blank
ZZZZZZ	6Q17620.D	05/09/23 09:57	OP96700	(unrelated sample)
FC5347-2	6Q17621.D	05/09/23 10:12	OP96700	(used for QC only; not part of job FC5818)
OP96700-MS1	6Q17622.D	05/09/23 10:26	OP96700	Matrix Spike
OP96700-MSD1	6Q17623.D	05/09/23 10:41	OP96700	Matrix Spike Duplicate
ZZZZZZ	6Q17624.D	05/09/23 10:55	OP96700	(unrelated sample)
ZZZZZZ	6Q17625.D	05/09/23 11:10	OP96700	(unrelated sample)
ZZZZZZ	6Q17626.D	05/09/23 11:24	OP96700	(unrelated sample)
S6Q265-CC265	6Q17627.D	05/09/23 11:39	n/a	Continuing cal 4
S6Q265-ICCB	6Q17628.D	05/09/23 11:53	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17629.D	05/09/23 12:08	OP96700	(unrelated sample)
ZZZZZZ	6Q17630.D	05/09/23 12:22	OP96700	(unrelated sample)
ZZZZZZ	6Q17631.D	05/09/23 12:37	OP96700	(unrelated sample)
ZZZZZZ	6Q17632.D	05/09/23 12:51	OP96700	(unrelated sample)
ZZZZZZ	6Q17633.D	05/09/23 13:06	OP96700	(unrelated sample)
ZZZZZZ	6Q17634.D	05/09/23 13:20	OP96700	(unrelated sample)
FC5355-7	6Q17635.D	05/09/23 13:35	OP96700	(used for QC only; not part of job FC5818)

6-10-3

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Run Sequence Report

Job Number: FC5818
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q265	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP96700-MS2	6Q17636.D	05/09/23 13:49	OP96700	Matrix Spike
OP96700-MSD2	6Q17637.D	05/09/23 14:04	OP96700	Matrix Spike Duplicate
ZZZZZZ	6Q17638.D	05/09/23 14:18	OP96700	(unrelated sample)
S6Q265-CC265	6Q17639.D	05/09/23 14:33	n/a	Continuing cal 4
S6Q265-ICCB	6Q17640.D	05/09/23 14:47	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17641.D	05/09/23 15:02	OP96700	(unrelated sample)
S6Q265-ECC265	6Q17642.D	05/09/23 15:16	n/a	Ending cal 4
S6Q265-ICCB	6Q17643.D	05/09/23 15:31	n/a	Continuing Calibration Blank

6.10.3

6

Run Sequence Report

Job Number: FC5818
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q267	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q267-RT	6Q17709.D	05/10/23 18:52	n/a	Retention Time Marker
S6Q267-RT	6Q17710.D	05/10/23 19:06	n/a	Retention Time Marker
S6Q267-IBLK	6Q17712.D	05/10/23 19:35	n/a	Instrument Blank
S6Q267-CC265	6Q17713.D	05/10/23 19:50	n/a	Continuing cal 4
S6Q267-CC265	6Q17714.D	05/10/23 20:04	n/a	Continuing cal 1.0LL
ZZZZZZ	6Q17715.D	05/10/23 20:19	OP96723	(unrelated sample)
ZZZZZZ	6Q17716.D	05/10/23 20:33	OP96723	(unrelated sample)
ZZZZZZ	6Q17717.D	05/10/23 20:48	OP96723	(unrelated sample)
ZZZZZZ	6Q17718.D	05/10/23 21:02	OP96723	(unrelated sample)
ZZZZZZ	6Q17722.D	05/10/23 22:00	OP96723	(unrelated sample)
ZZZZZZ	6Q17723.D	05/10/23 22:15	OP96723	(unrelated sample)
ZZZZZZ	6Q17724.D	05/10/23 22:29	OP96723	(unrelated sample)
S6Q267-CC265	6Q17725.D	05/10/23 22:44	n/a	Continuing cal 4
S6Q267-ICCB	6Q17726.D	05/10/23 22:58	n/a	Continuing Calibration Blank
FC5818-3	6Q17727.D	05/10/23 23:13	OP96747	AF-RHMW17D-WGN01LF-2305W1
S6Q267-ECC265	6Q17730.D	05/10/23 23:56	n/a	Ending cal 4
S6Q267-ICCB	6Q17731.D	05/11/23 00:11	n/a	Continuing Calibration Blank

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44163.d
Operator : marthav
Acq. Method : 1633full_4Q.m
Acq. Date-Time : 5/9/2023 8:42:04 PM
Sample Name : FC5818-1
Vial : P3-B9
DA Method File : 1633_050323_S4Q634.quantmethod.xml
Batch Name : s4q639.batch.bin
Sample Information : OP96747,S4Q639,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	25061	10.00 µg/L	0.000
M5-PFPeA	4.375	268.3 -> 223.0	53754	5.00 µg/L	-0.012
M5-PFHxA	5.559	318.0 -> 273.0	45303	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	26792	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	41089	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	19294	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	15931	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	13976	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	13960	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	7076	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	13658	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	10433	2.50 µg/L	0.000
M3-PFHxS	7.254	402.1 -> 79.9	6632	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	7746	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1569	5.00 µg/L	0.000
M2-6:2FTS	6.923	429.1 -> 80.9	1765	5.00 µg/L	0.000
M2-8:2FTS	8.003	529.1 -> 80.9	2455	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	11478	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	21584	10.00 µg/L	0.000
M5-EtFOSAA	8.483	589.2 -> 419.0	9053	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	47461	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	63450	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	6791	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	6423	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	9967	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	44019	5.00 µg/L	-0.013
18O2-PFHxS	7.253	403.0 -> 83.9	4635	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	47596	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	16074	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	22594	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	38410	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.247	329.1 -> 80.9	1569	8.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 166.6%		
13C2-6:2FTS	6.923	429.1 -> 80.9	1765	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-8:2FTS	8.003	529.1 -> 80.9	2455	4.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C2-PFDoDA	9.130	615.1 -> 570.0	13960	0.90 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 71.7%		
13C2-PFTeDA	9.924	715.2 -> 670.0	7076	0.56 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 44.7%		
13C3-PFBS	5.452	302.1 -> 79.9	10433	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C3-PFHxS	7.254	402.1 -> 79.9	6632	2.31 µg/L	0.012

7.1.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%		
13C4-PFBA	2.924	216.8 -> 171.9	25061	3.03	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 30.3%		
13C4-PFHpA	6.492	367.1 -> 322.0	26792	2.71	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%		
13C5-PFHxA	5.559	318.0 -> 273.0	45303	2.68	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%		
13C5-PFPeA	4.375	268.3 -> 223.0	53754	4.54	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.9%		
13C6-PFDA	8.216	519.1 -> 474.1	15931	1.16	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.6%		
13C7-PFUnDA	8.685	570.0 -> 525.1	13976	0.98	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 78.0%		
13C8-FOSA	9.796	506.1 -> 77.8	13658	2.18	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.4%		
13C8-PFOA	7.163	421.1 -> 376.0	41089	2.63	µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%		
13C8-PFOS	8.354	507.1 -> 79.9	7746	2.06	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.6%		
13C9-PFNA	7.709	472.1 -> 427.0	19294	1.26	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%		
d3-MeFOSAA	8.273	573.2 -> 419.0	11478	4.56	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.2%		
13C3-HFPO-DA	5.914	286.9 -> 168.9	21584	8.54	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.4%		
d3-MeFOSA	11.089	515.0 -> 219.0	6423	1.64	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 65.7%		
d5-EtFOSAA	8.483	589.2 -> 419.0	9053	4.37	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.4%		
d7-MeFOSE	10.972	623.2 -> 58.9	47461	15.30	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 61.2%		
d9-EtFOSE	11.281	639.2 -> 58.9	63450	14.45	µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 57.8%		
d5-EtFOSA	11.373	531.1 -> 219.0	6791	1.63	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 65.4%		

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	2.996	212.8 -> 168.9	0	µg/L	m	1
PFBS	5.453	298.7 -> 79.9	296	0.07	µg/L	89
		298.7 -> 98.8	125			
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8				
		363.1 -> 319.0	2478	0.15 µg/L	m	93
PFHpS	-	363.1 -> 169.0	363			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.562	449.0 -> 98.9				
		313.0 -> 269.0	3864	0.22 µg/L		98
PFHxS	7.255	313.0 -> 118.9	136			
		398.7 -> 79.9	151	0.06 µg/L		87
PFNA	-	398.7 -> 98.9	73			
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	7.164	548.8 -> 98.9				
		413.0 -> 369.0	2788	0.12 µg/L	m	95
PFOS	-	413.0 -> 169.0	486			
		498.9 -> 79.9	-	N.D.		
PFPeA	4.414	498.9 -> 98.8				
		263.0 -> 219.0	13487	1.04 µg/L		100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	3.711	241.0 -> 177.0	0	µg/L	m	1
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.644	630.0 -> 58.9	0	µg/L	m	1
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

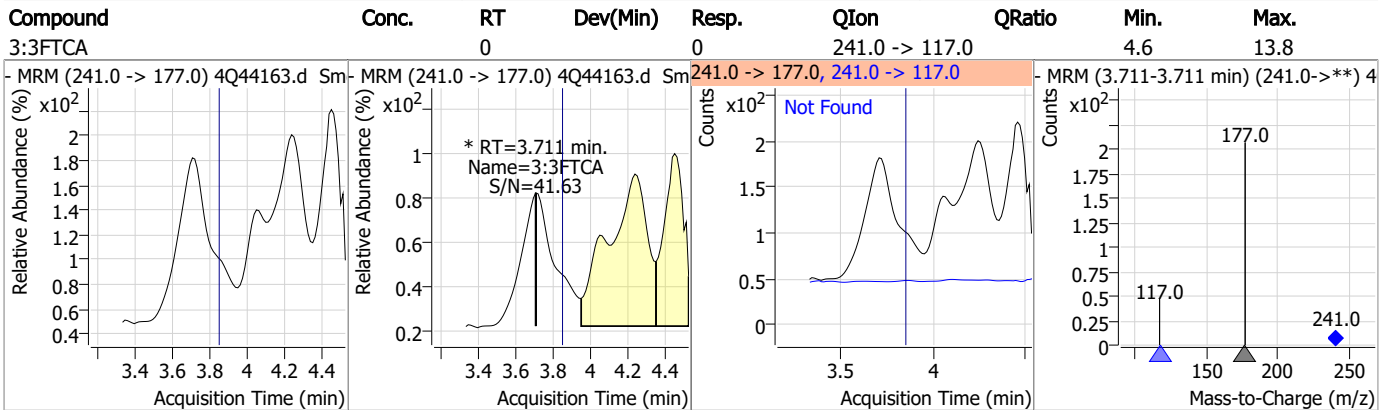
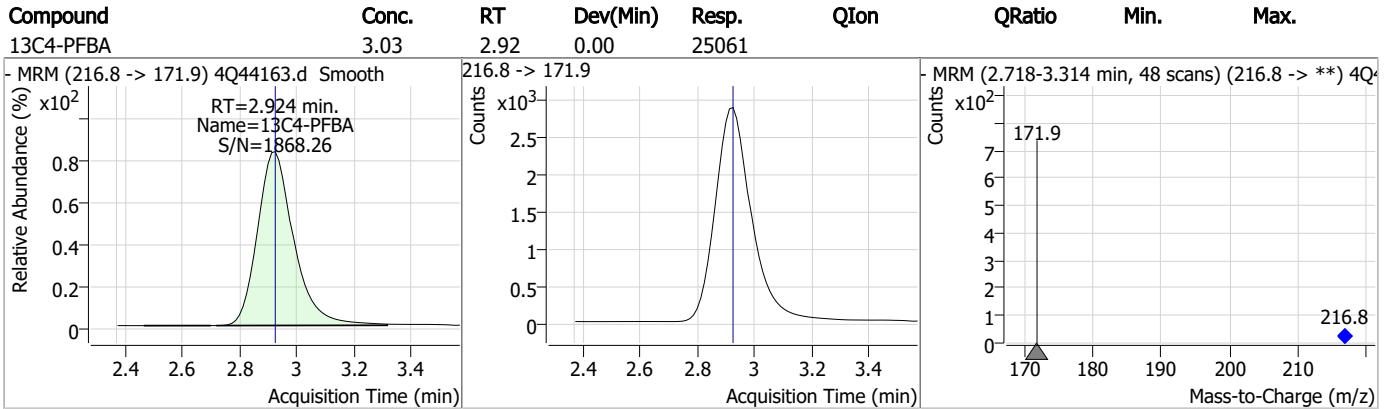
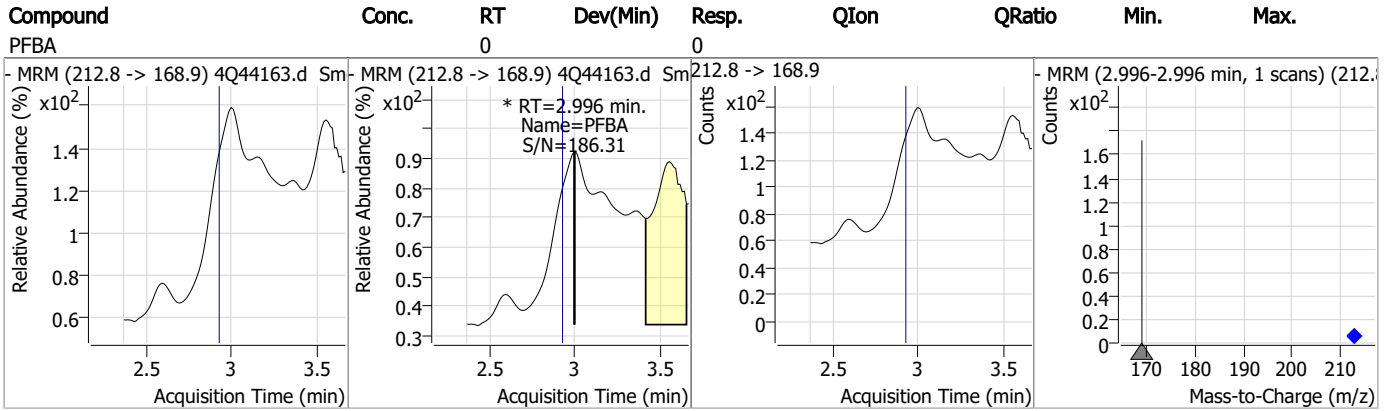
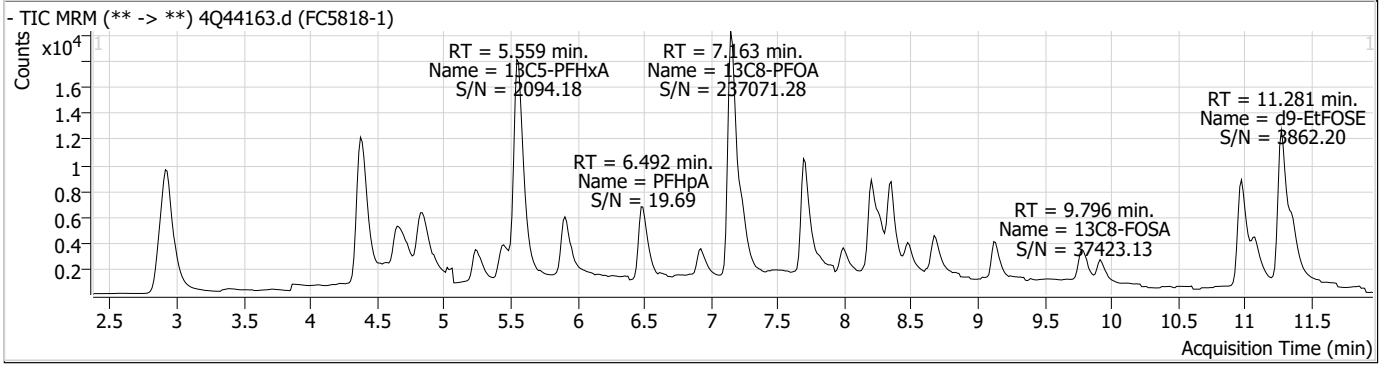
Perfluorinated Compounds by LC/MS/MS

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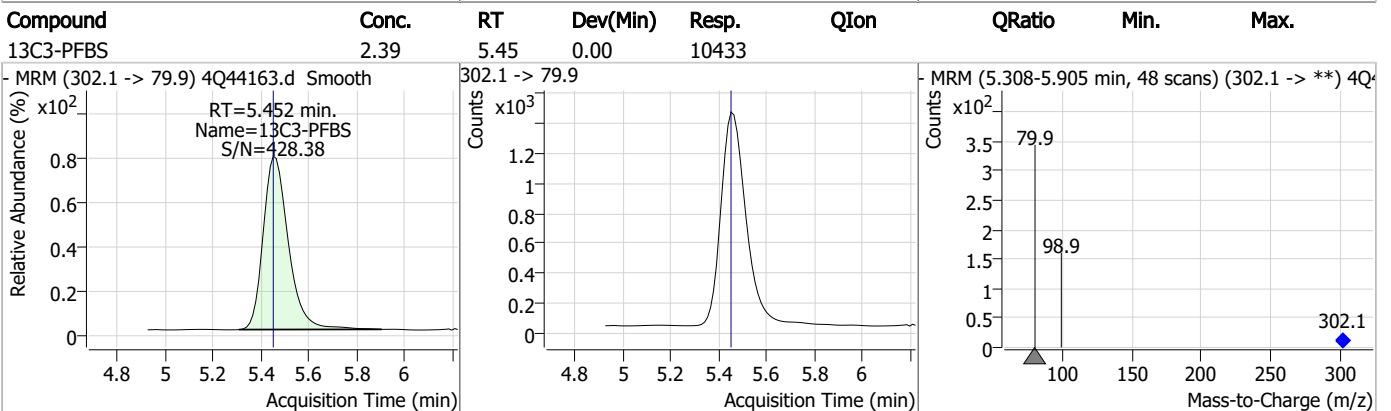
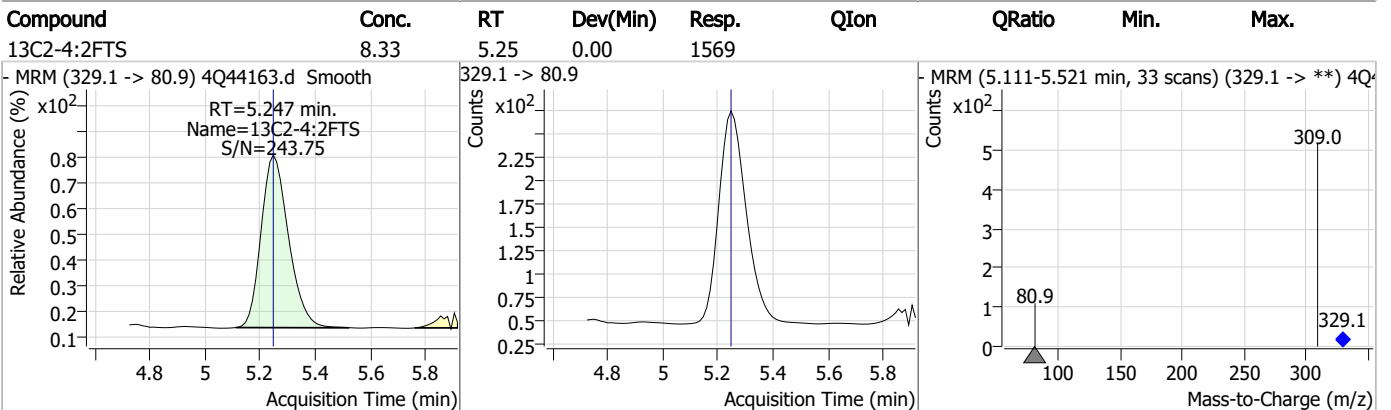
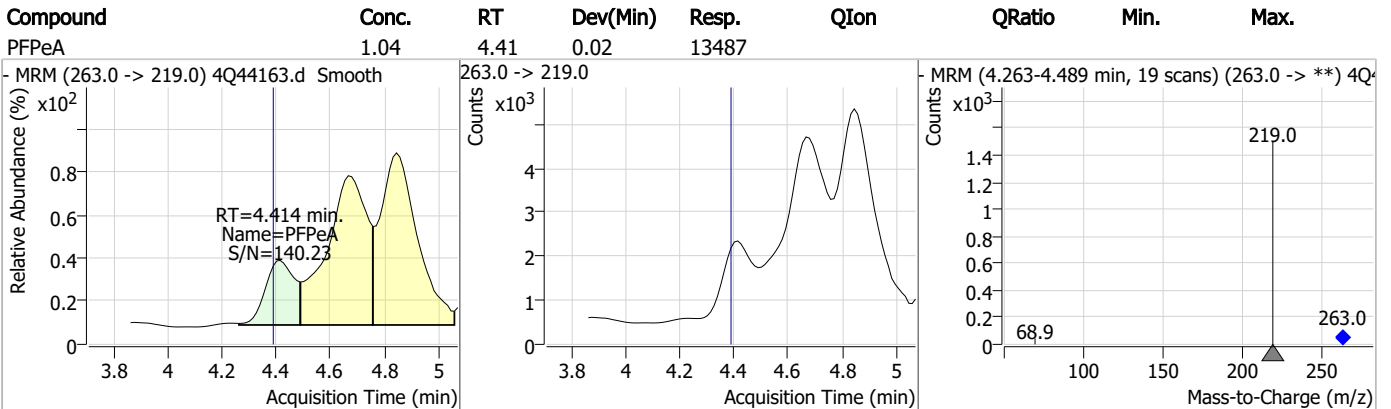
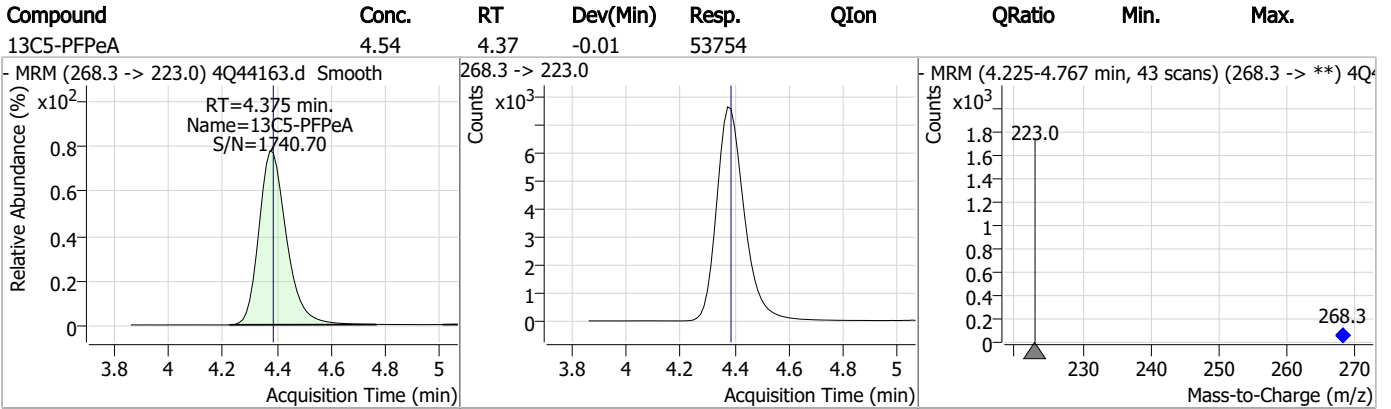
7.1.1
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Perfluorinated Compounds by LC/MS/MS

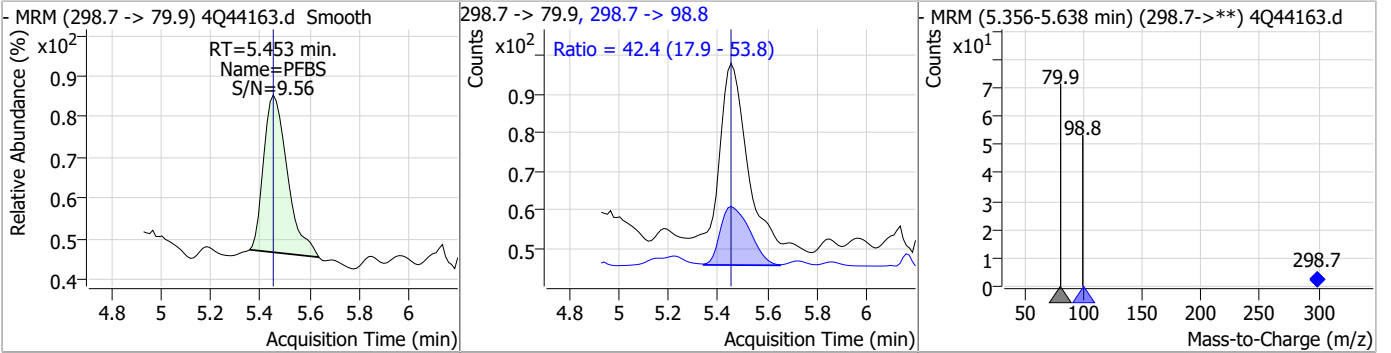


Perfluorinated Compounds by LC/MS/MS

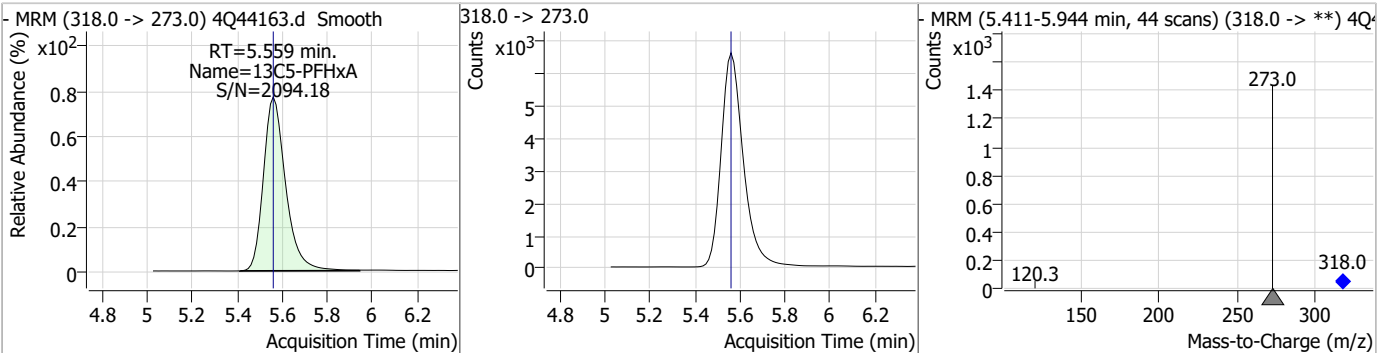


Perfluorinated Compounds by LC/MS/MS

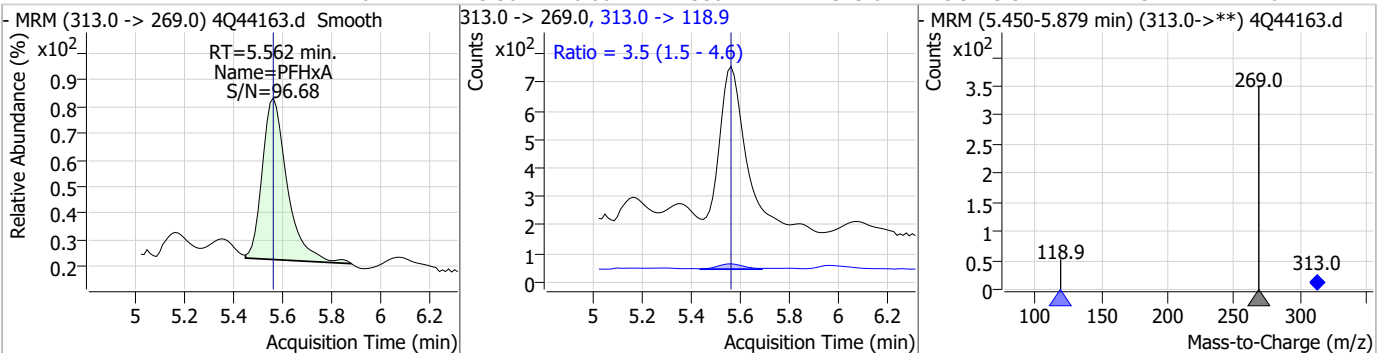
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.07	5.45	0.00	296	298.7 -> 98.8	42.4	17.9	53.8



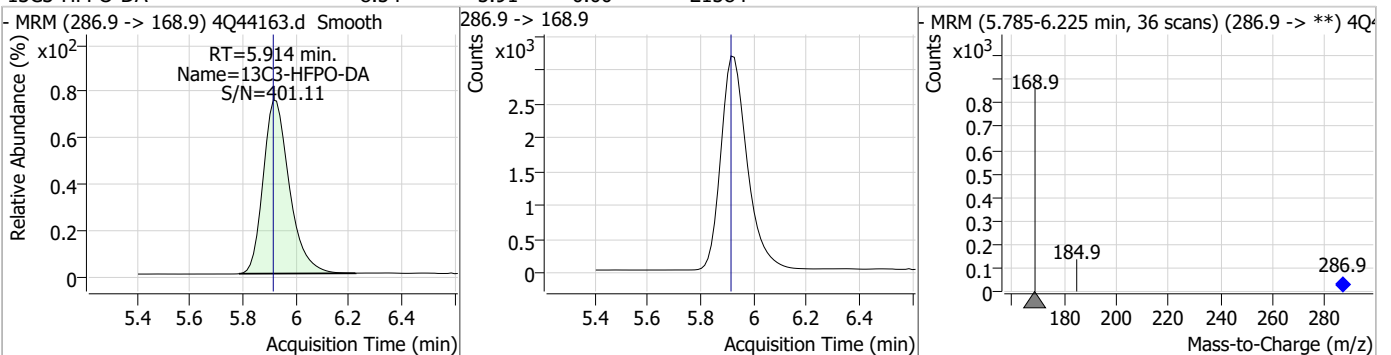
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.68	5.56	0.00	45303				



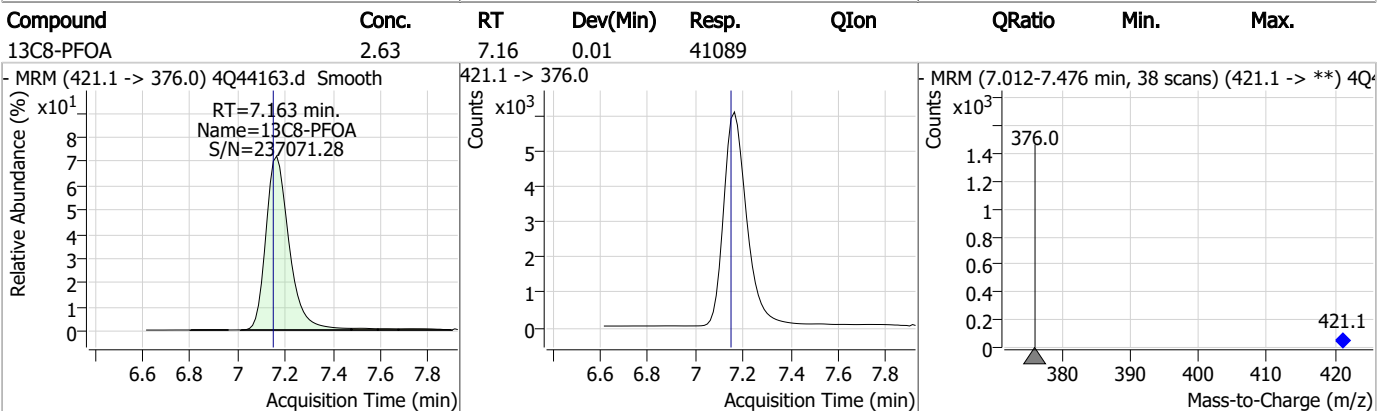
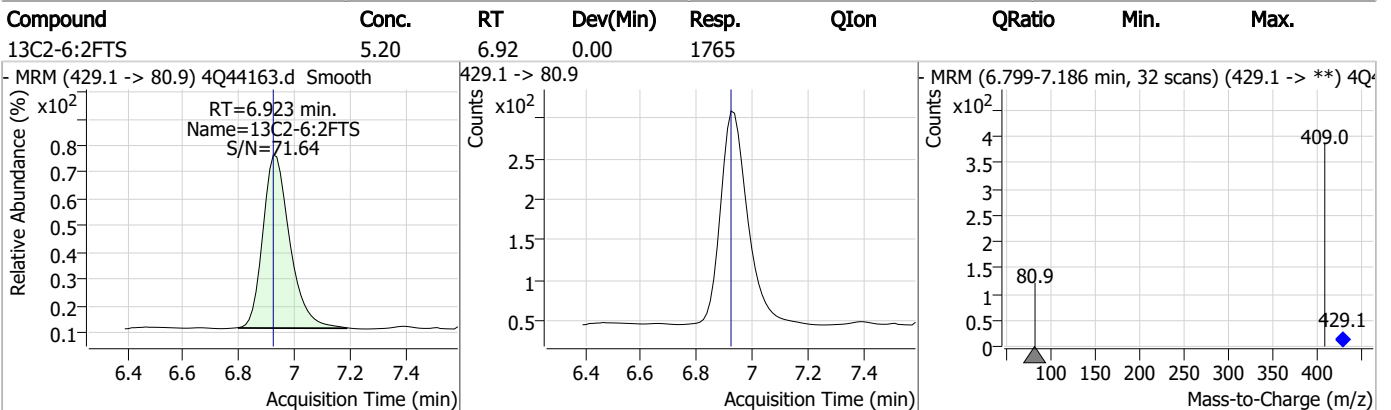
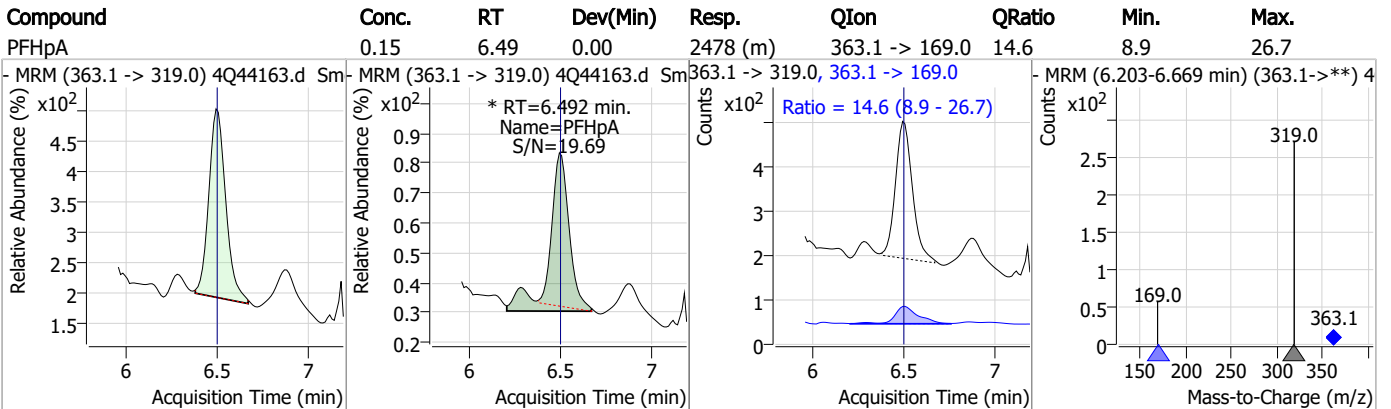
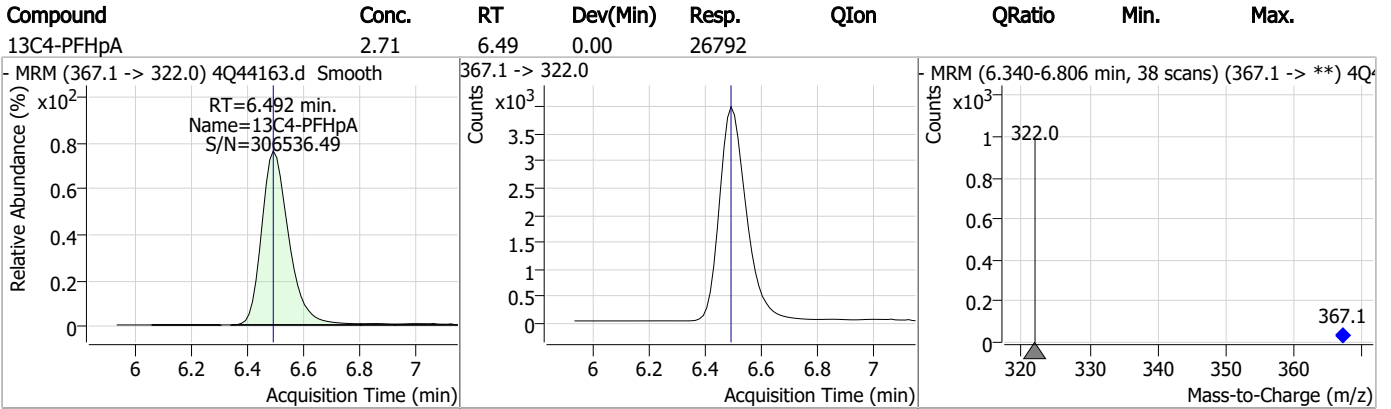
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.22	5.56	0.00	3864	313.0 -> 118.9	3.5	1.5	4.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.54	5.91	0.00	21584				

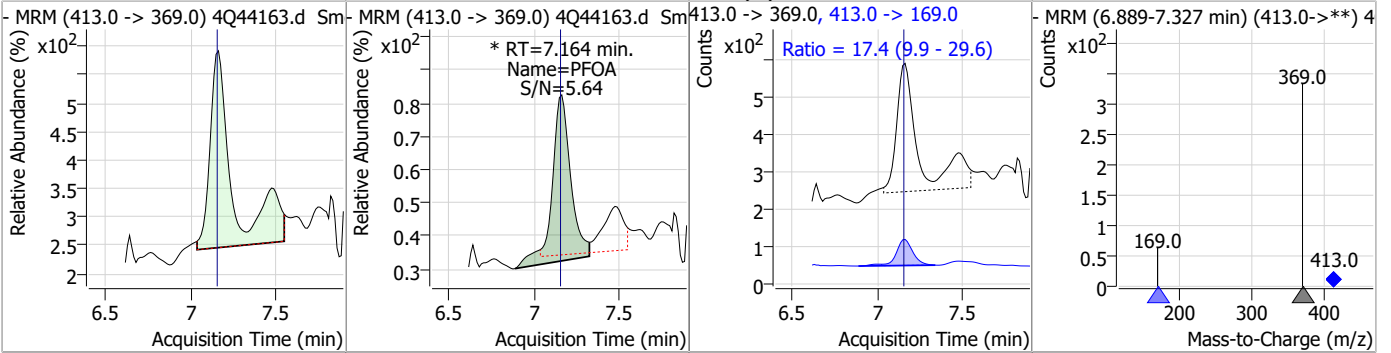


Perfluorinated Compounds by LC/MS/MS

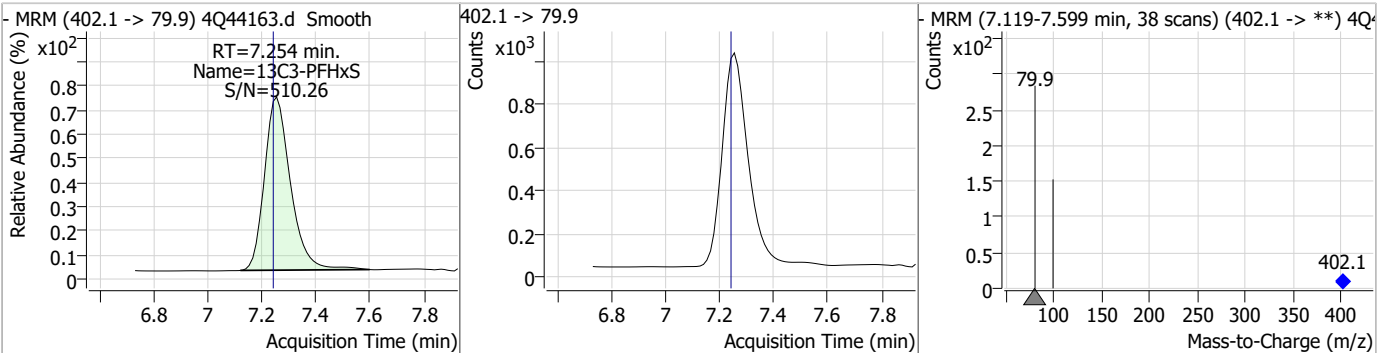


Perfluorinated Compounds by LC/MS/MS

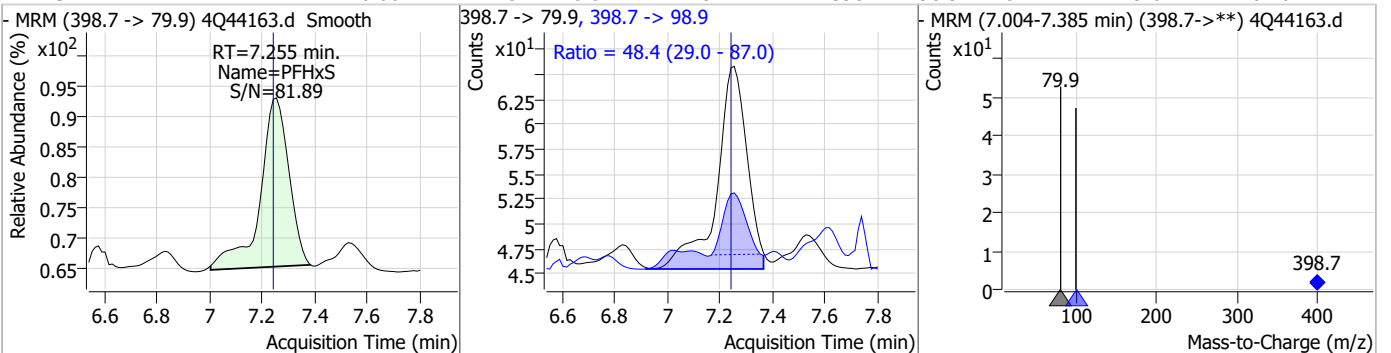
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.12	7.16	0.01	2788 (m)	413.0 -> 169.0	17.4	9.9	29.6



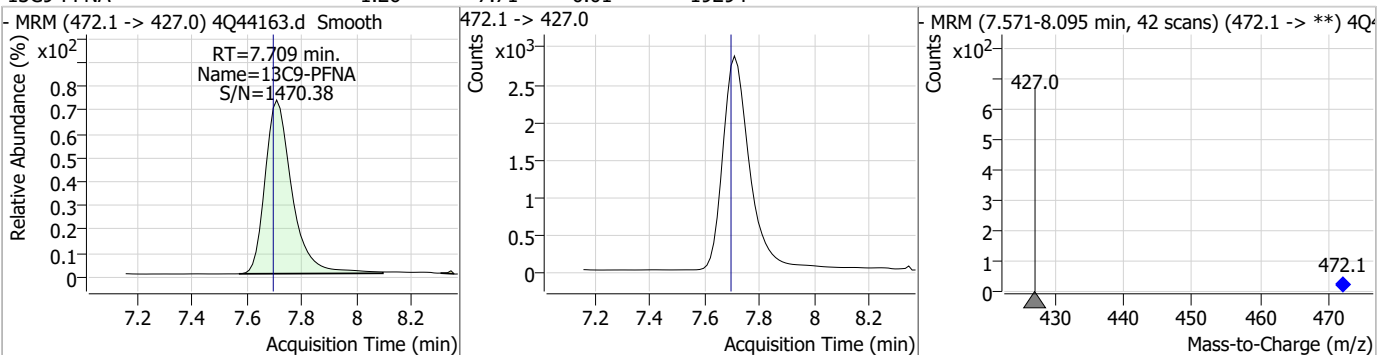
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.31	7.25	0.01	6632				



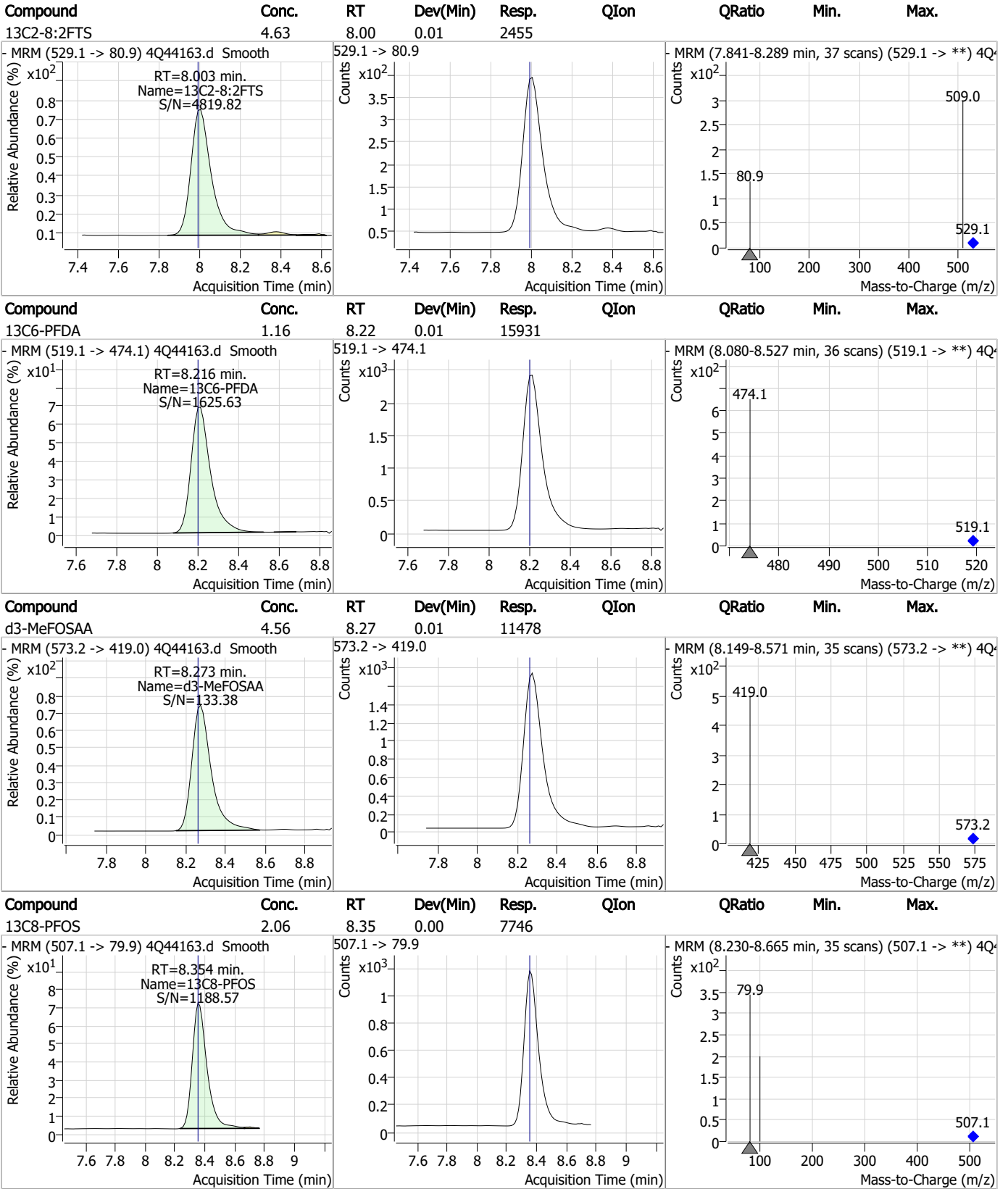
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.06	7.25	0.01	151	398.7 -> 98.9	48.4	29.0	87.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.71	0.01	19294				



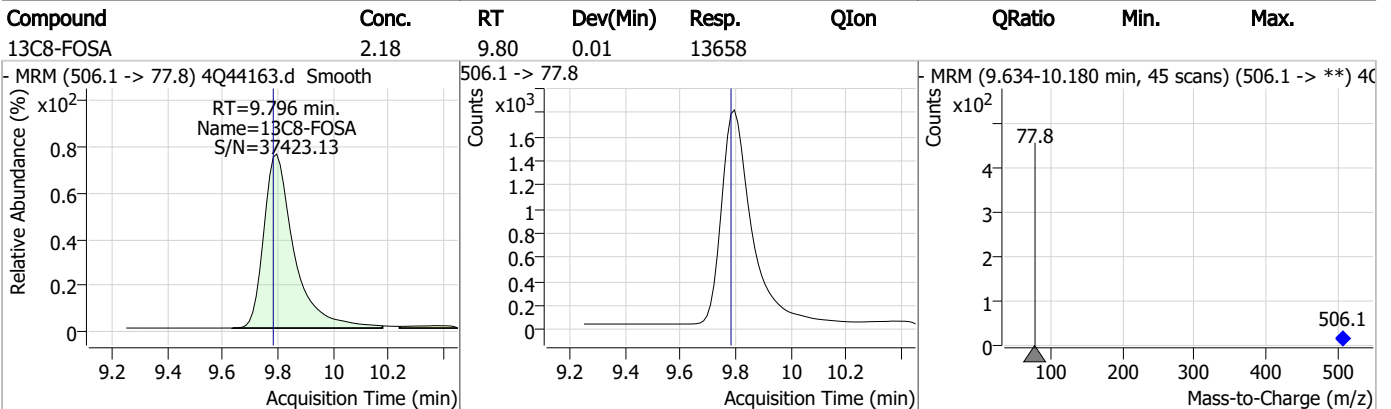
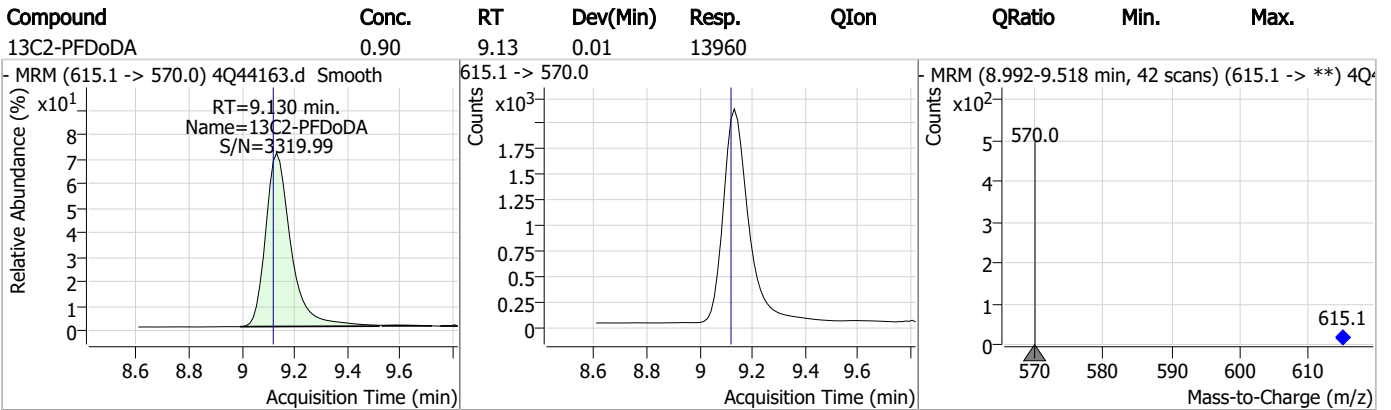
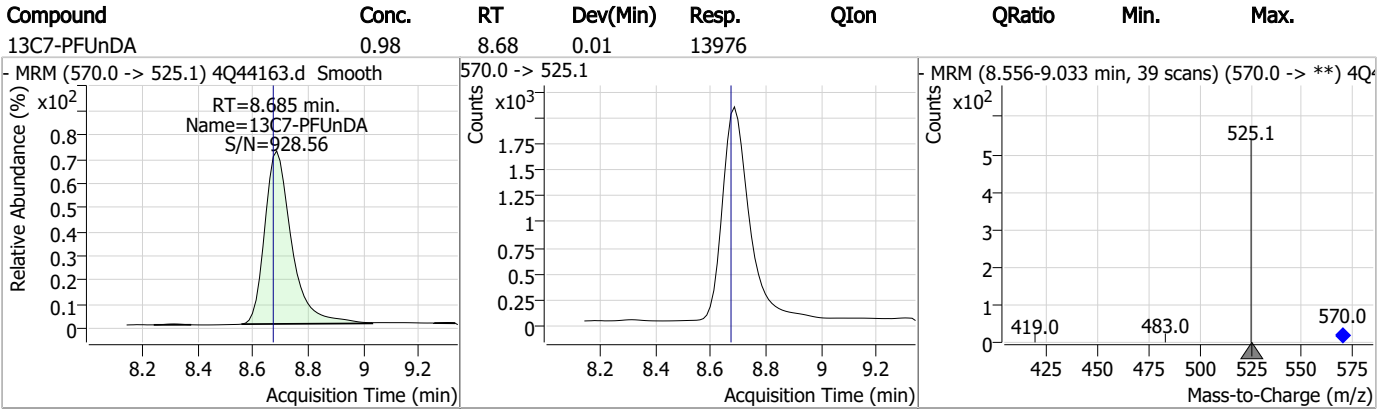
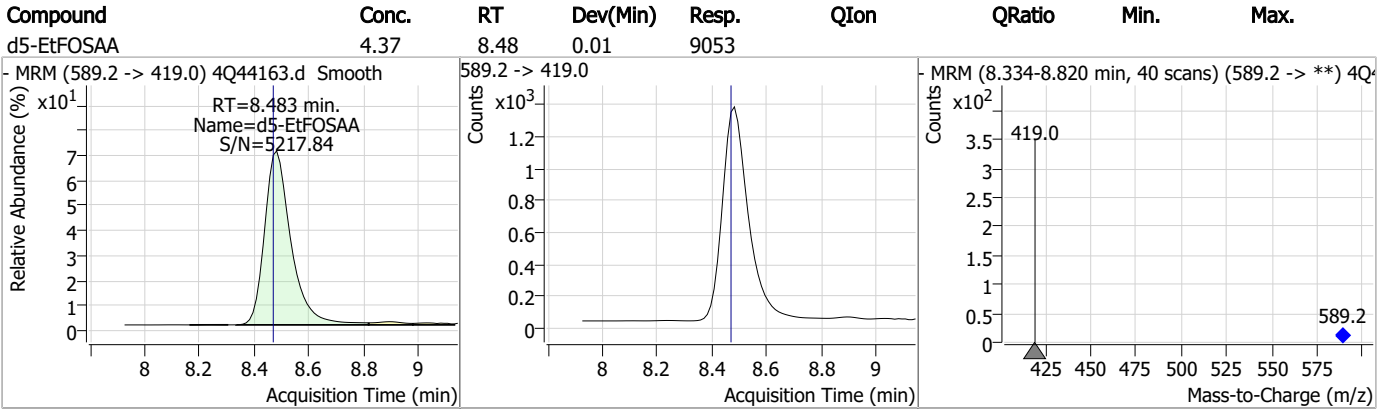
Perfluorinated Compounds by LC/MS/MS



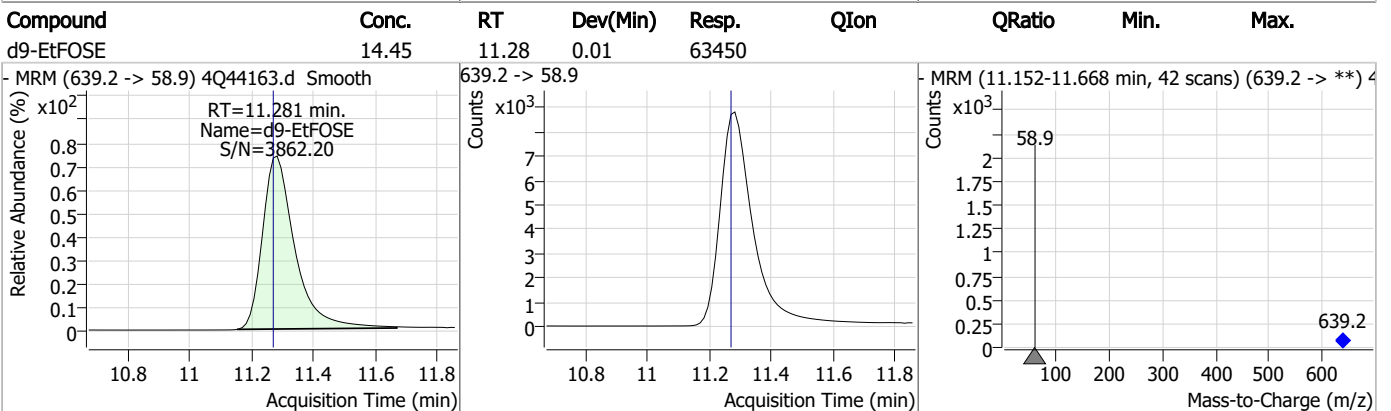
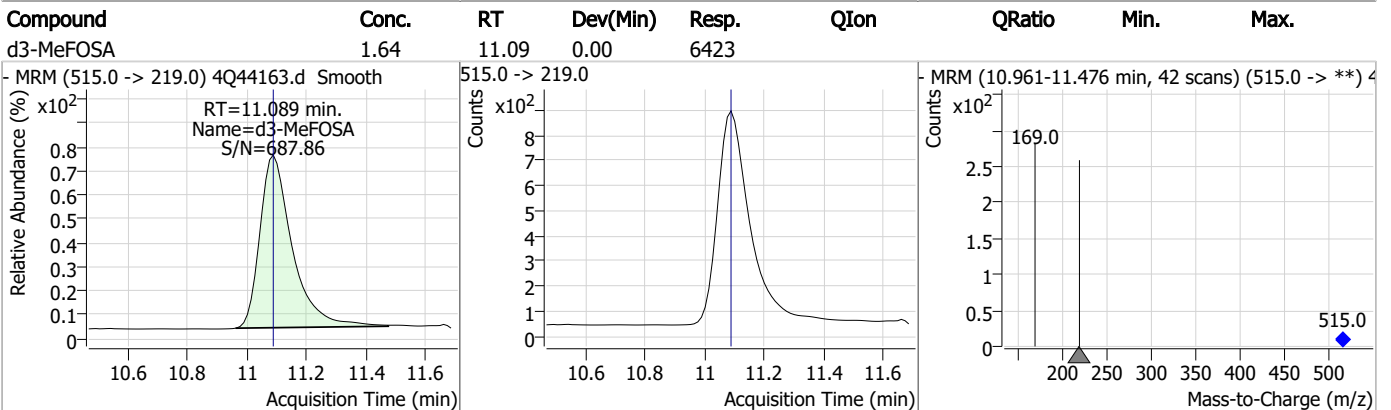
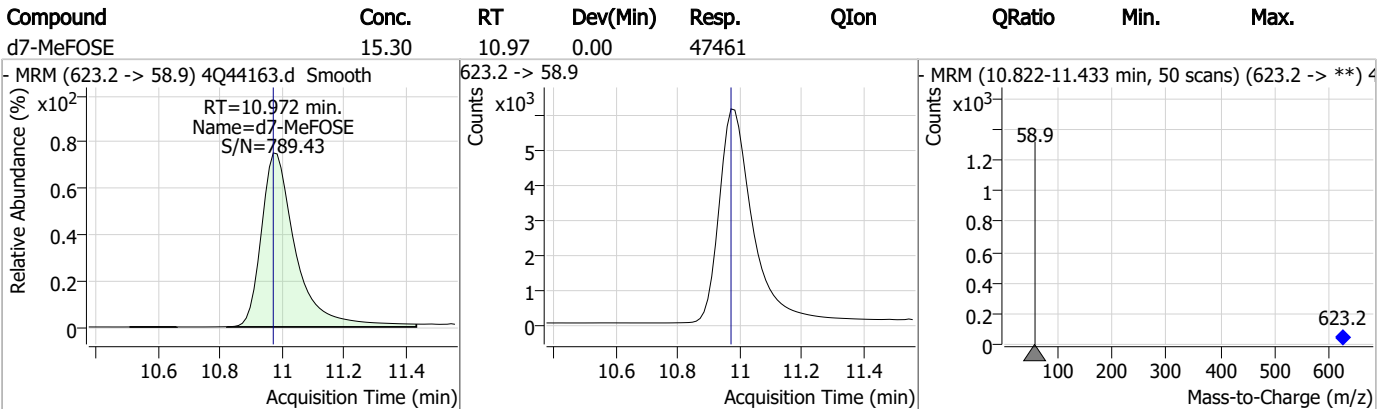
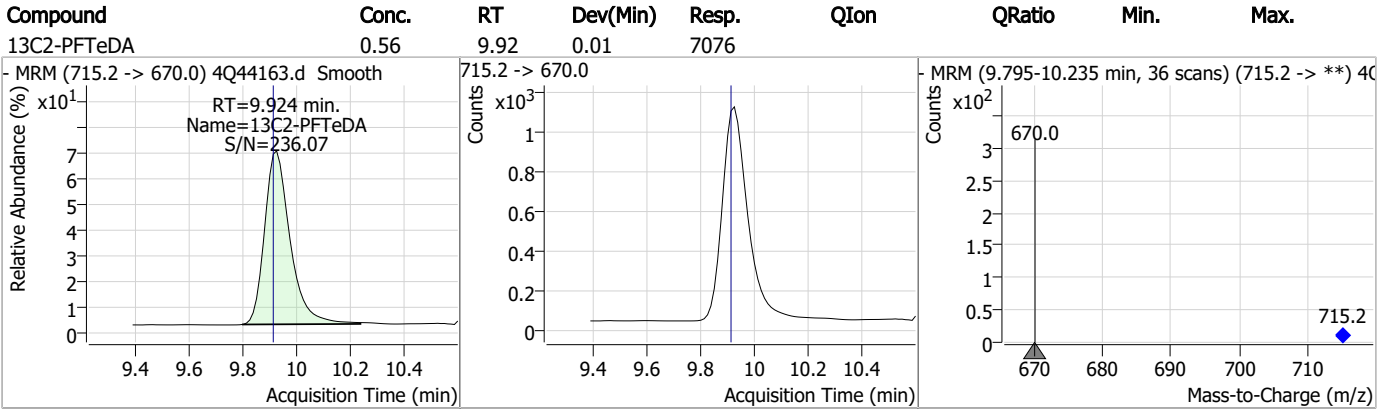
7.1.1
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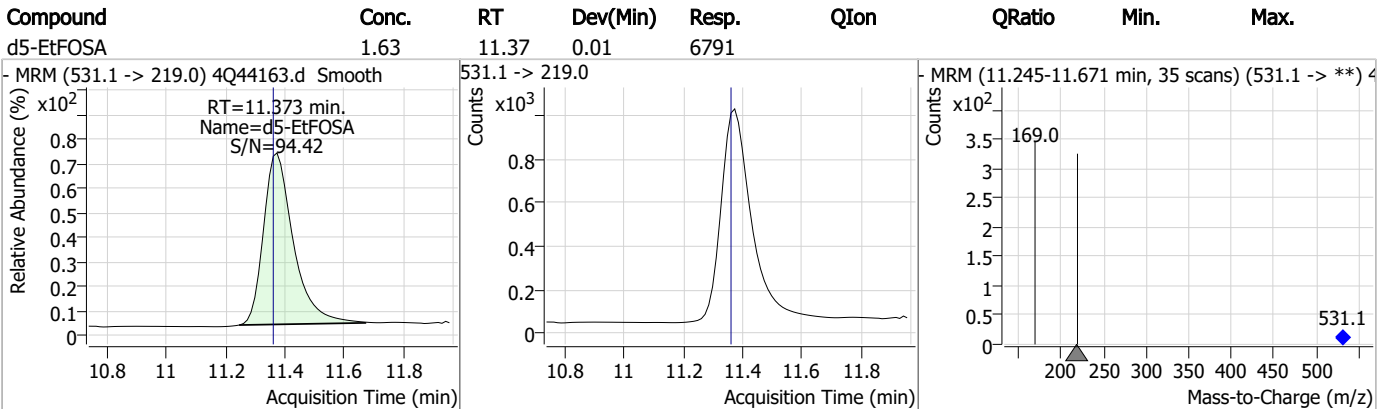
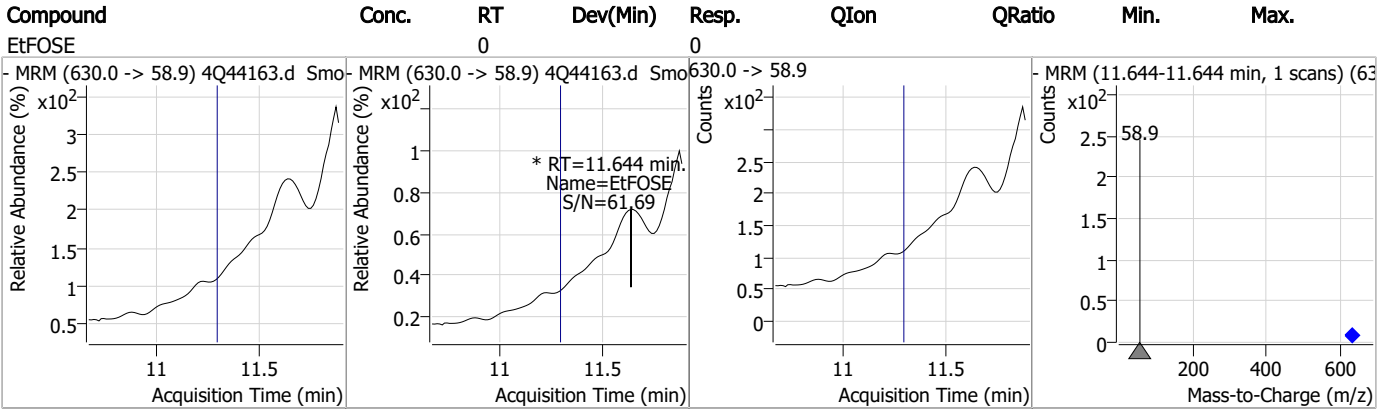
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: FC5818-1 Method: EPA DRAFT 1633
Lab FileID: 4Q44163.D Analyst approved: 05/10/23 11:51 Martha Valls
Injection Time: 05/09/23 20:42 Supervisor approved: 05/10/23 17:27 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.49	Split peak
Perfluorooctanoic acid	335-67-1		7.16	Split peak

7.1.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44164.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 8:56:07 PM
 Sample Name : FC5818-2
 Vial : P3-C1
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96747,S4Q639,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	136138	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	70022	5.00 µg/L	0.000
M5-PFHxA	5.572	318.0 -> 273.0	47641	2.50 µg/L	0.012
M4-PFHpA	6.504	367.1 -> 322.0	28005	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	39314	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	18836	1.25 µg/L	0.012
M6-PFDA	8.203	519.1 -> 474.1	16875	1.25 µg/L	0.000
M7-PFUnDA	8.685	570.0 -> 525.1	16574	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	15765	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	11354	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	13133	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	11366	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	6646	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	8813	2.50 µg/L	0.000
M2-4:2FTS	5.260	329.1 -> 80.9	1253	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	2207	5.00 µg/L	0.013
M2-8:2FTS	7.990	529.1 -> 80.9	2963	5.00 µg/L	0.000
M3-MeFOSAA	8.273	573.2 -> 419.0	12650	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	25013	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	10332	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	49806	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	74846	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	8129	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	7346	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	11196	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	67676	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4920	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	49601	2.50 µg/L	0.014
13C2-PFDA	8.204	515.1 -> 470.1	16513	1.25 µg/L	0.000
13C5-PFNA	7.709	468.0 -> 423.0	24254	1.25 µg/L	0.012
13C2-PFHxA	5.573	315.1 -> 270.0	41419	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.260	329.1 -> 80.9	1253	6.27 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.3%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2207	6.12 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.5%		
13C2-8:2FTS	7.990	529.1 -> 80.9	2963	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-PFDoDA	9.130	615.1 -> 570.0	15765	0.99 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.8%		
13C2-PFTeDA	9.924	715.2 -> 670.0	11354	0.87 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.8%		
13C3-PFBS	5.464	302.1 -> 79.9	11366	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.254	402.1 -> 79.9	6646	2.18 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 = 87.2%		
13C4-PFBA	2.924	216.8 -> 171.9	136138	10.69 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C4-PFHpA	6.504	367.1 -> 322.0	28005	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C5-PFHxA	5.572	318.0 -> 273.0	47641	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C5-PFPeA	4.387	268.3 -> 223.0	70022	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C6-PFDA	8.203	519.1 -> 474.1	16875	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C7-PFUnDA	8.685	570.0 -> 525.1	16574	1.13 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C8-FOSA	9.796	506.1 -> 77.8	13133	1.87 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 74.8%		
13C8-PFOA	7.163	421.1 -> 376.0	39314	2.41 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C8-PFOS	8.354	507.1 -> 79.9	8813	2.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 83.6%		
13C9-PFNA	7.709	472.1 -> 427.0	18836	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.4%		
d3-MeFOSAA	8.273	573.2 -> 419.0	12650	4.48 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.5%		
13C3-HFPO-DA	5.927	286.9 -> 168.9	25013	9.18 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 91.8%		
d3-MeFOSA	11.089	515.0 -> 219.0	7346	1.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 66.9%		
d5-EtFOSAA	8.483	589.2 -> 419.0	10332	4.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.8%		
d7-MeFOSE	10.972	623.2 -> 58.9	49806	14.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 57.2%		
d9-EtFOSE	11.281	639.2 -> 58.9	74846	15.17 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 60.7%		
d5-EtFOSA	11.373	531.1 -> 219.0	8129	1.74 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 69.7%		

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	7.892	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	7.675	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.669	630.0 -> 58.9	0	µg/L	m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

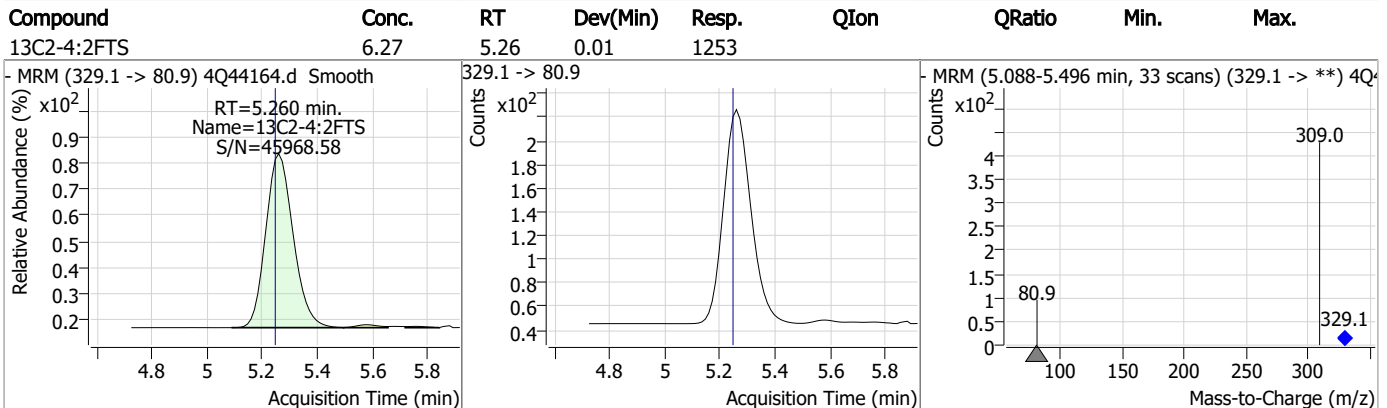
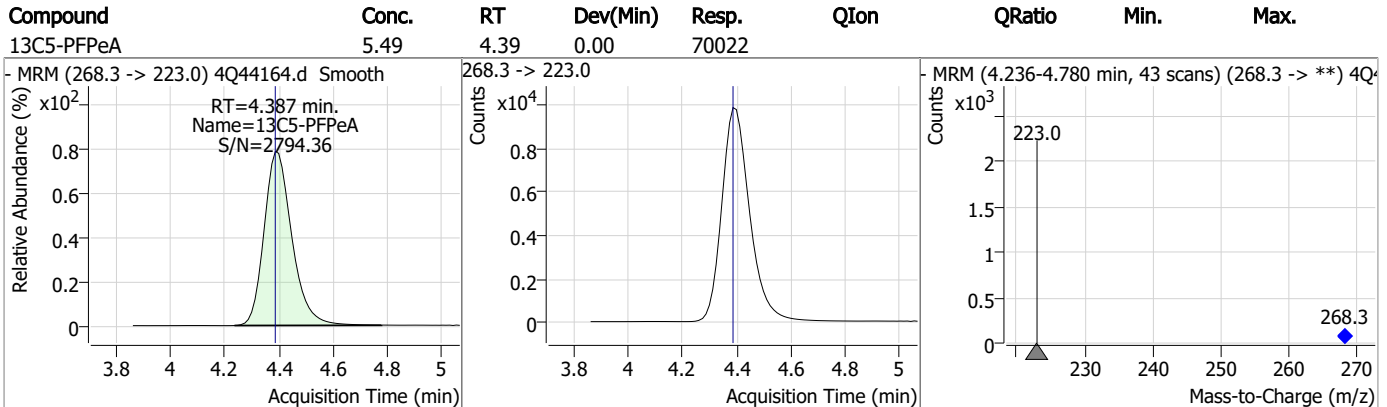
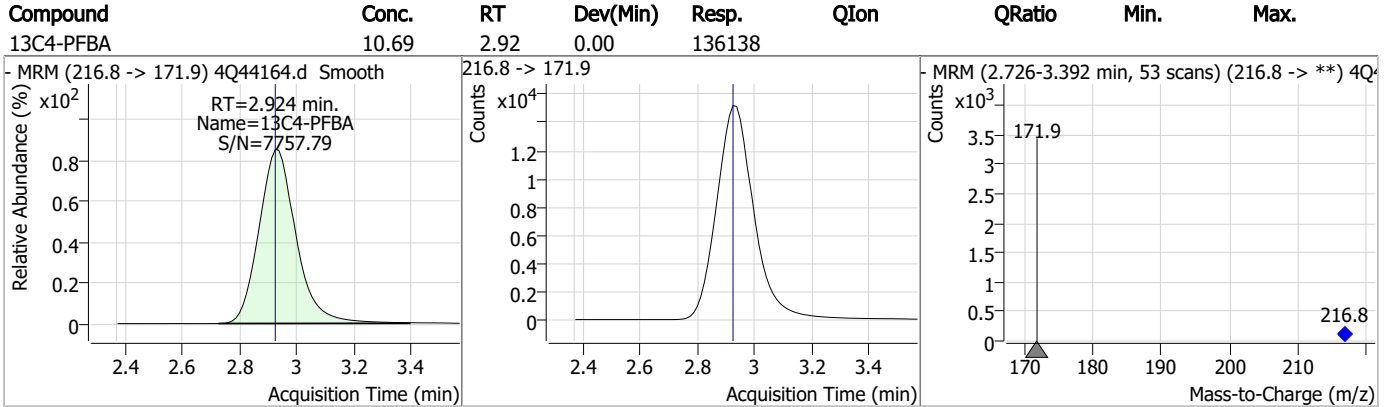
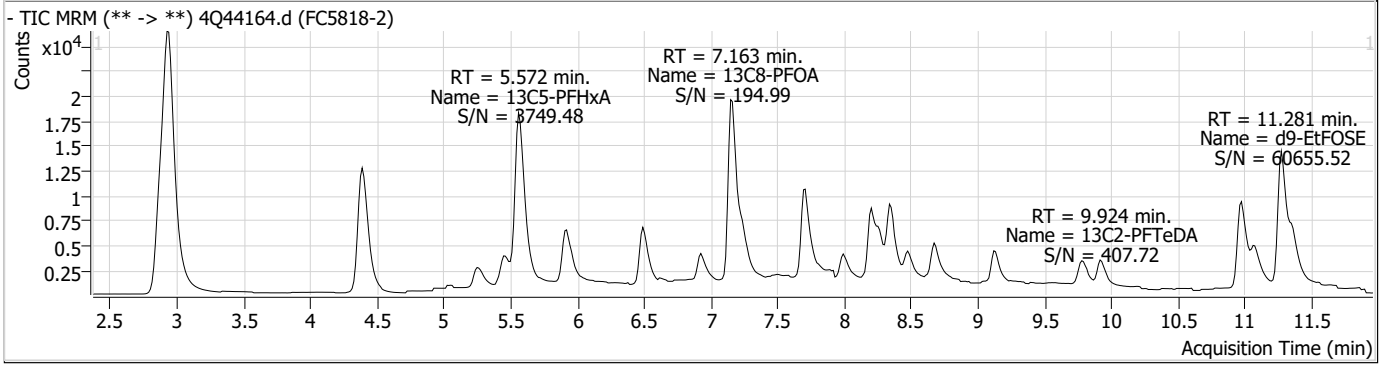
Perfluorinated Compounds by LC/MS/MS

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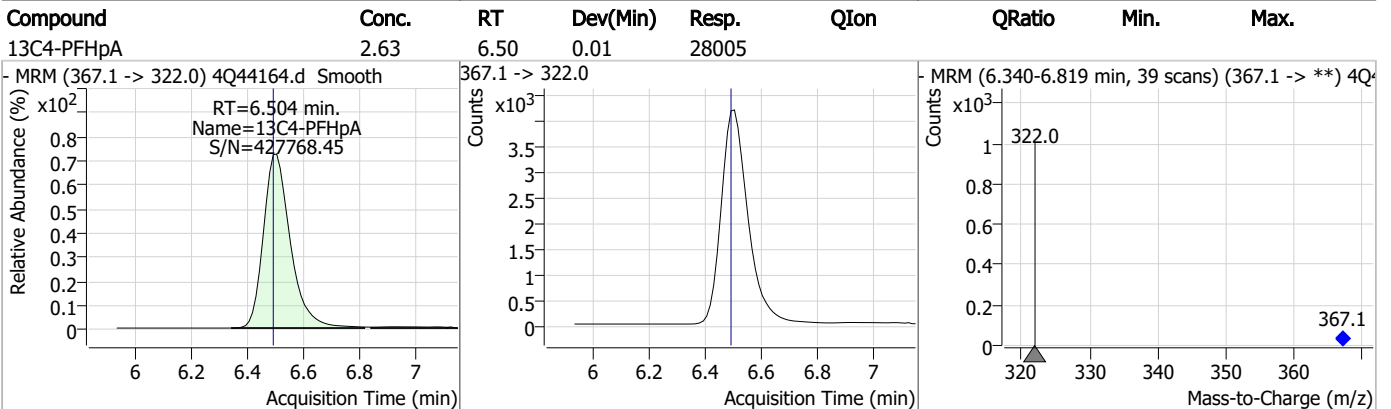
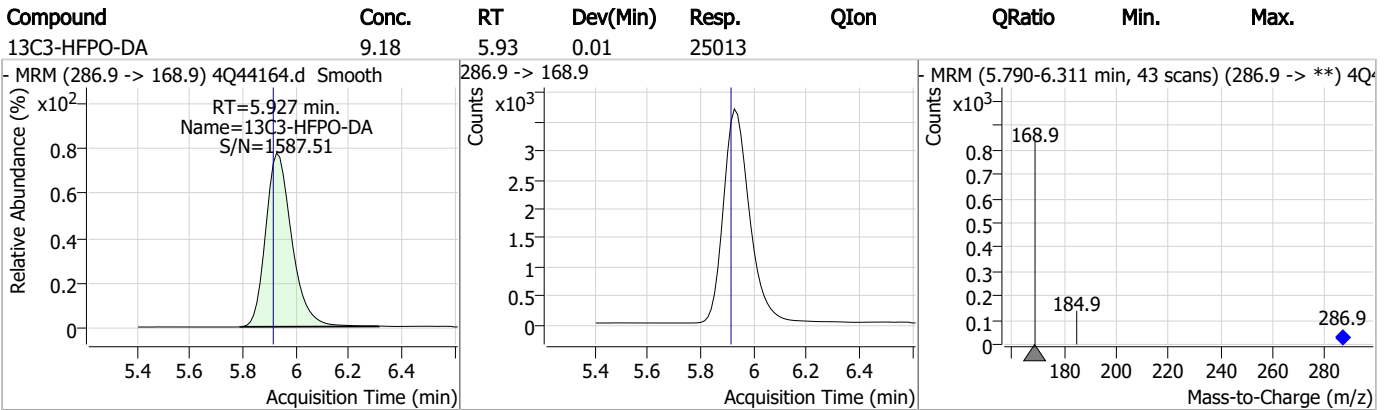
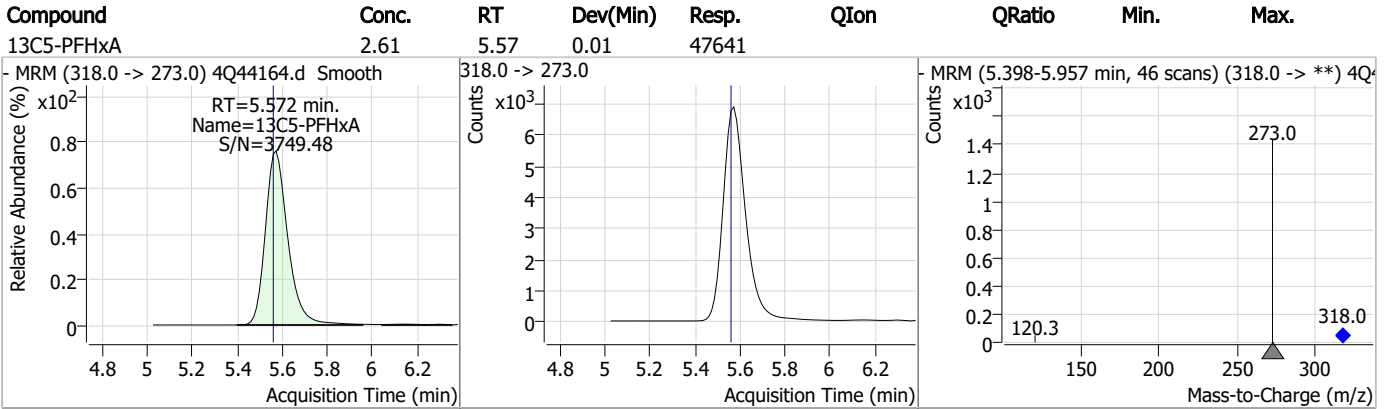
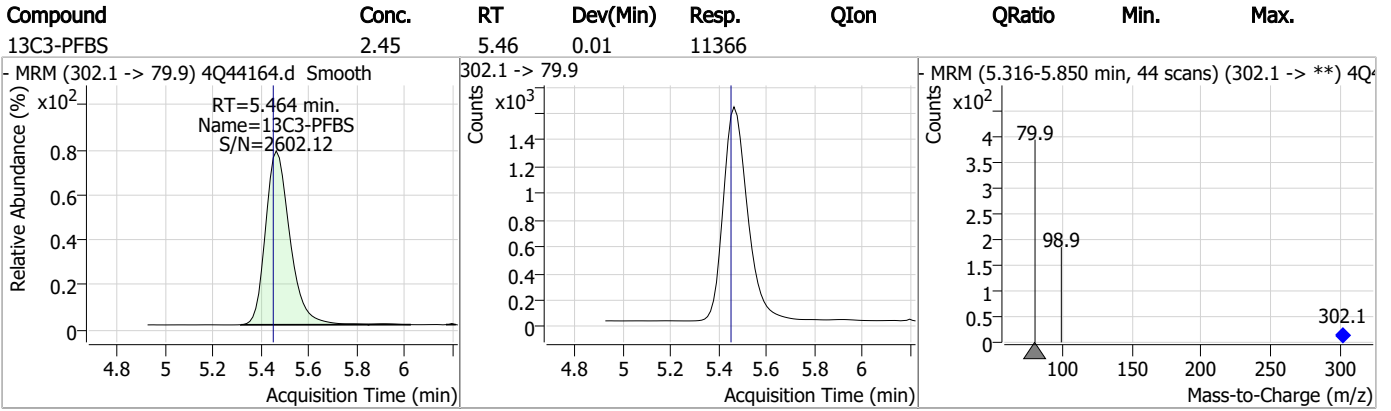
7.1.2

7

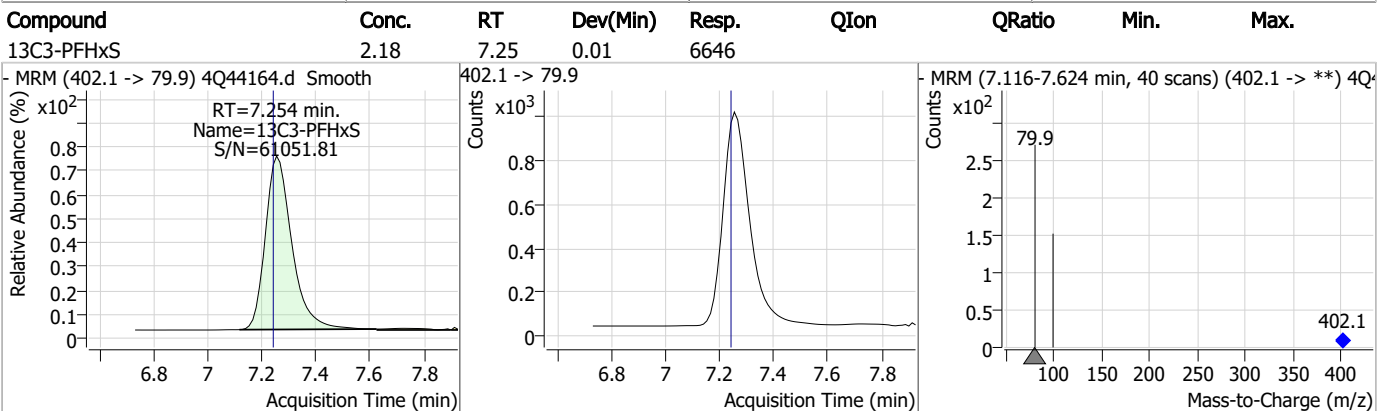
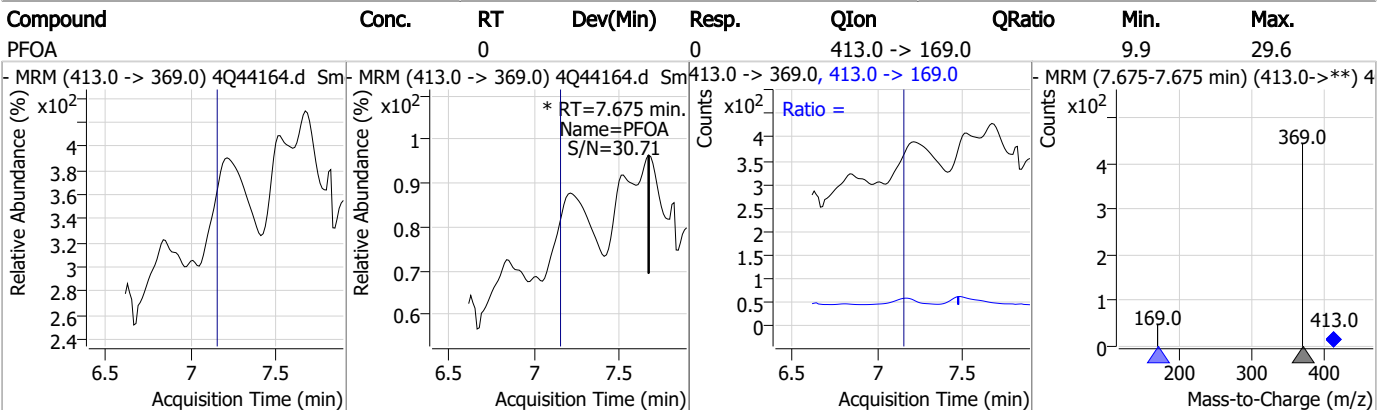
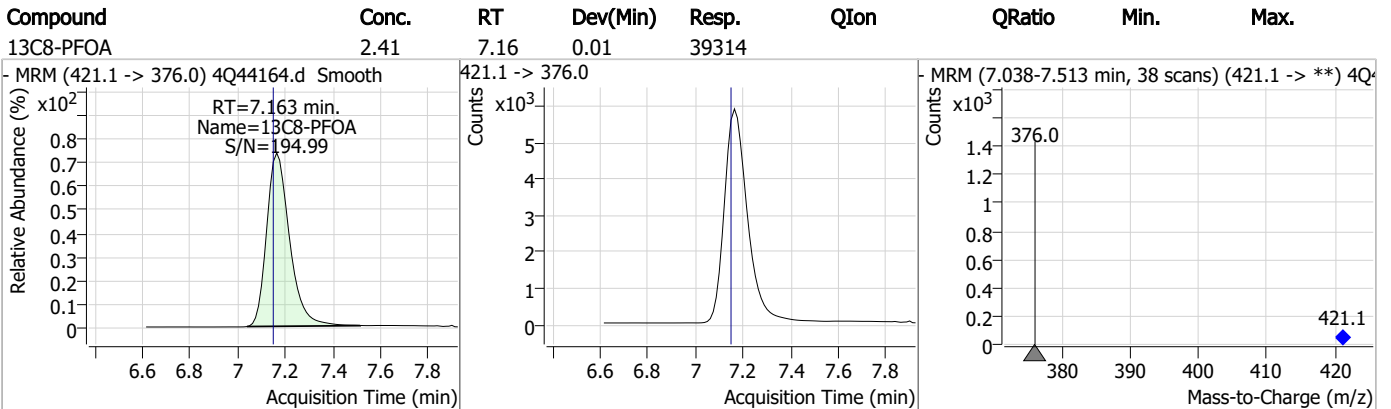
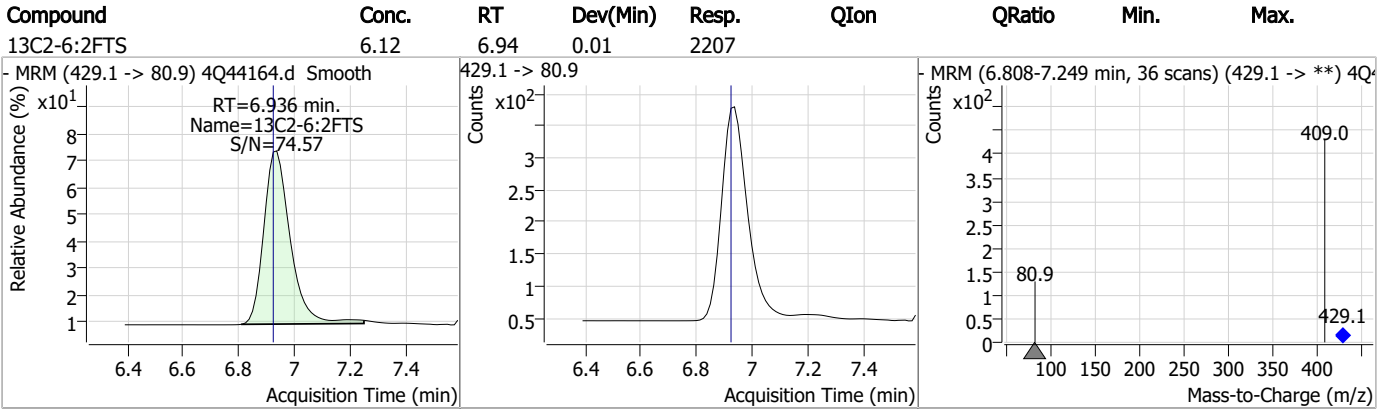
Perfluorinated Compounds by LC/MS/MS



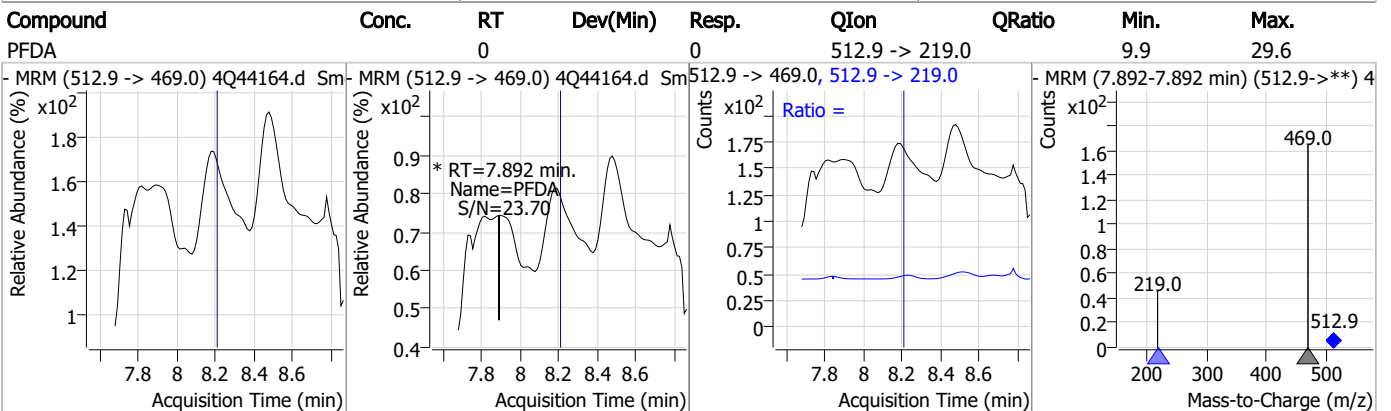
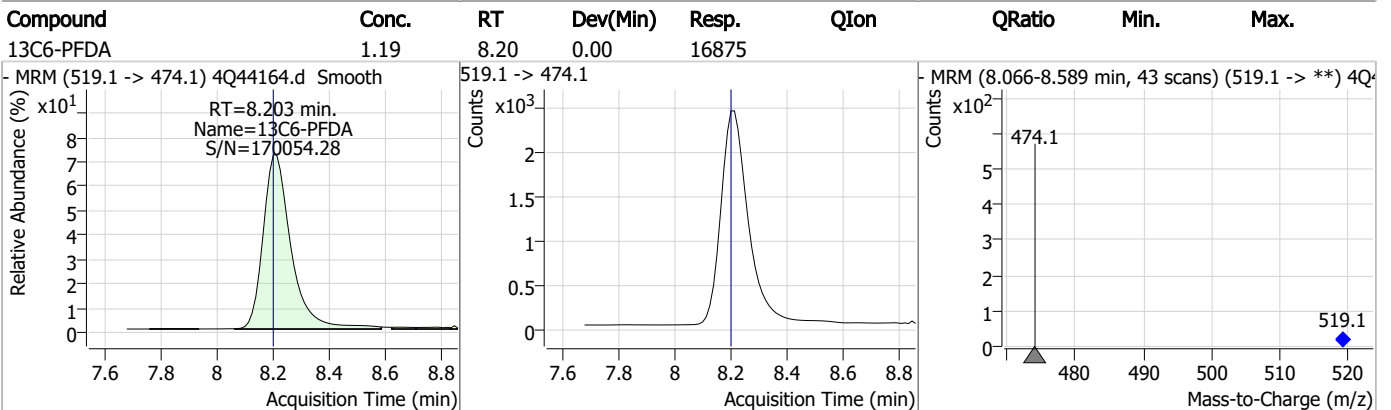
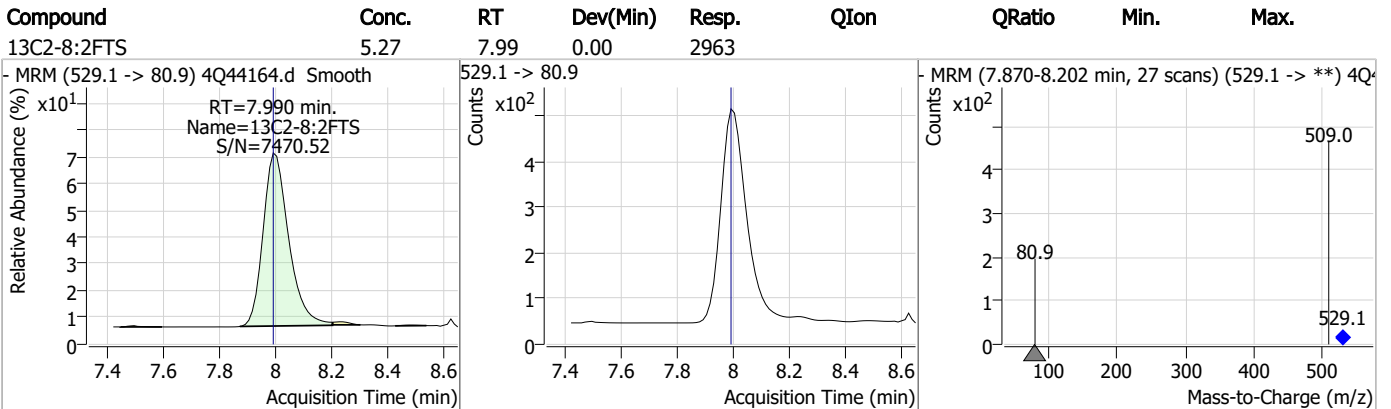
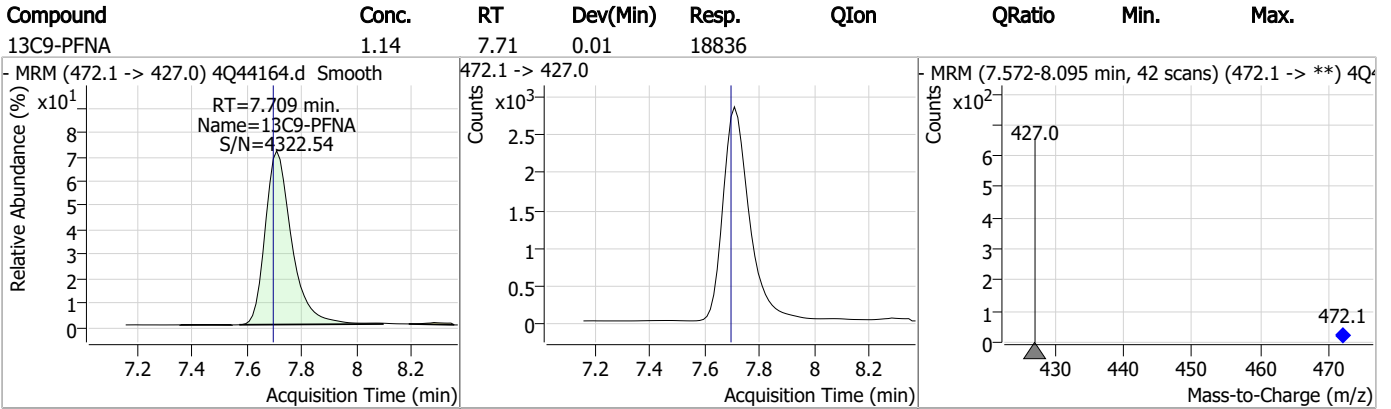
Perfluorinated Compounds by LC/MS/MS



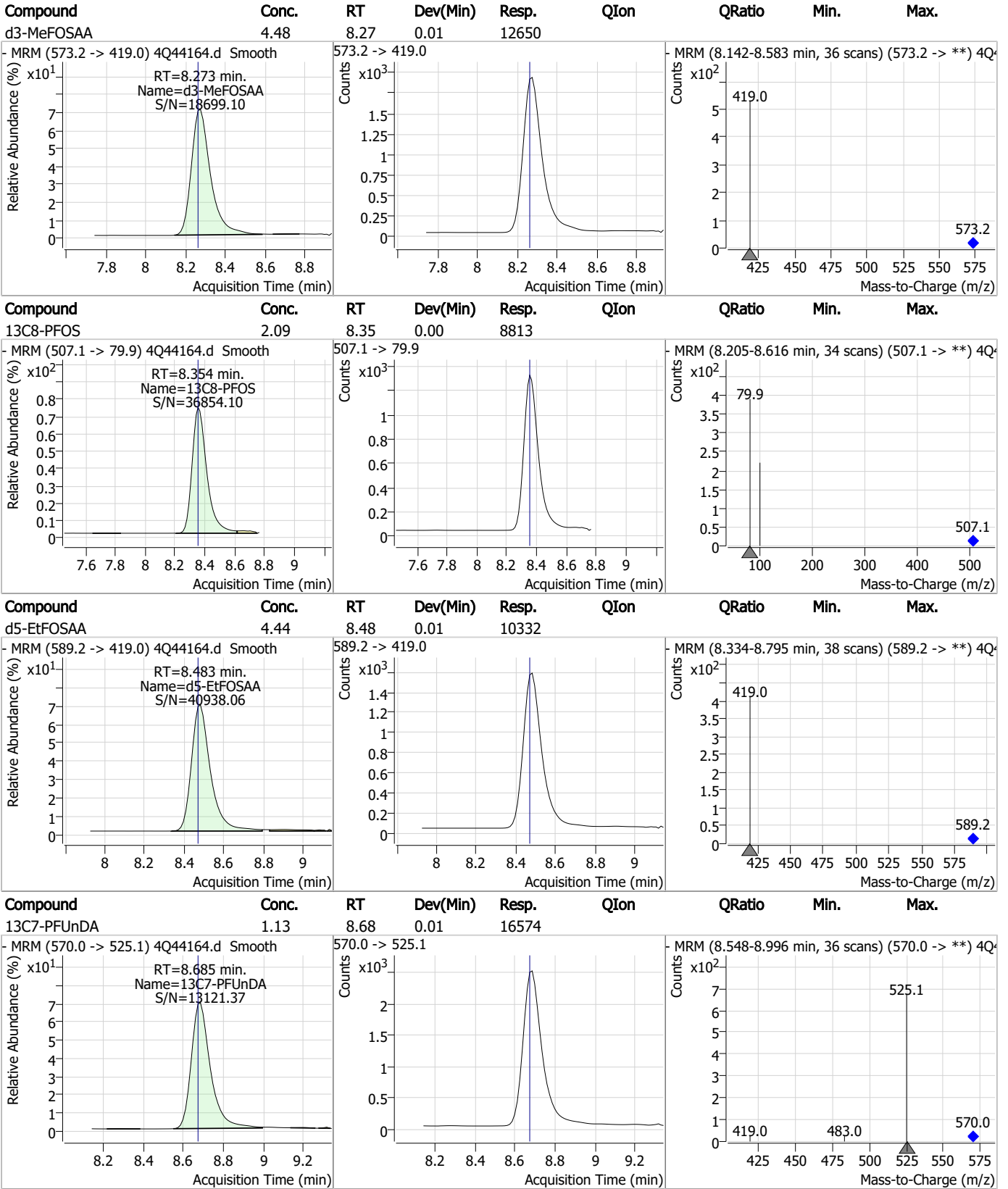
Perfluorinated Compounds by LC/MS/MS



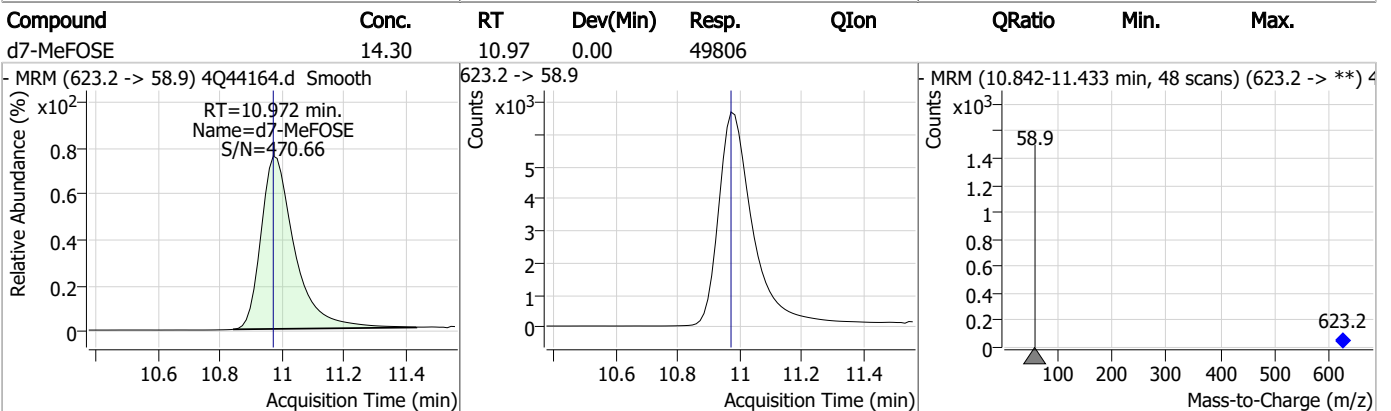
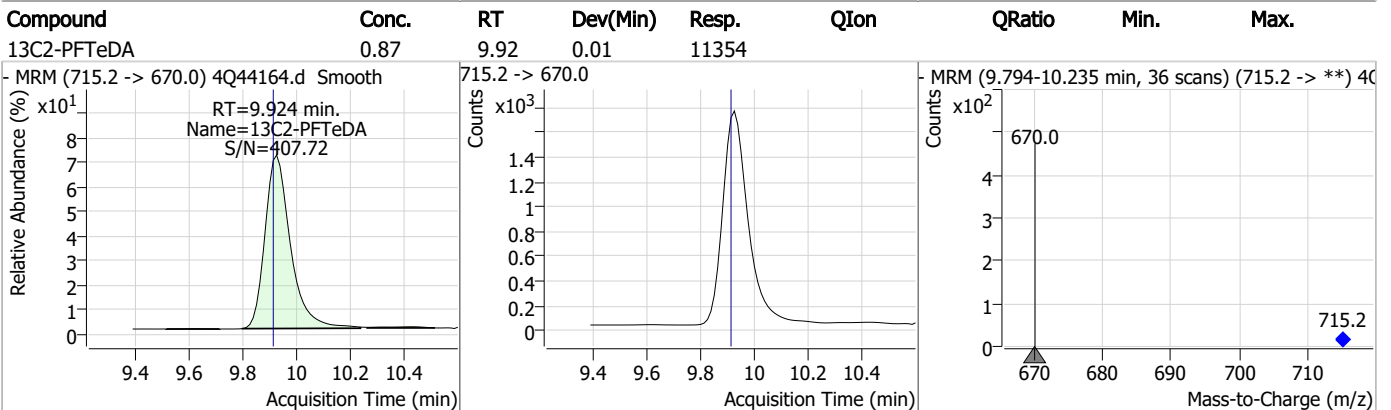
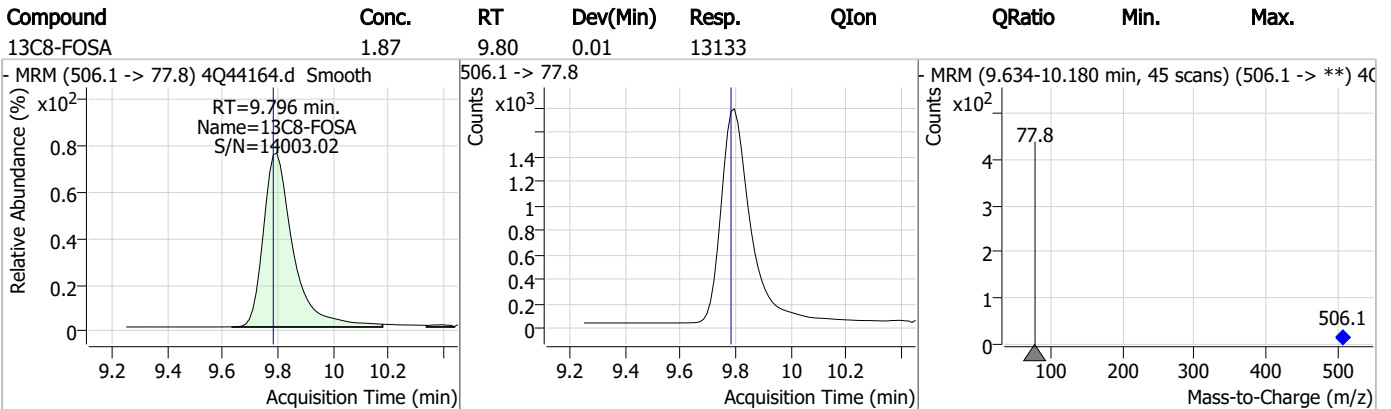
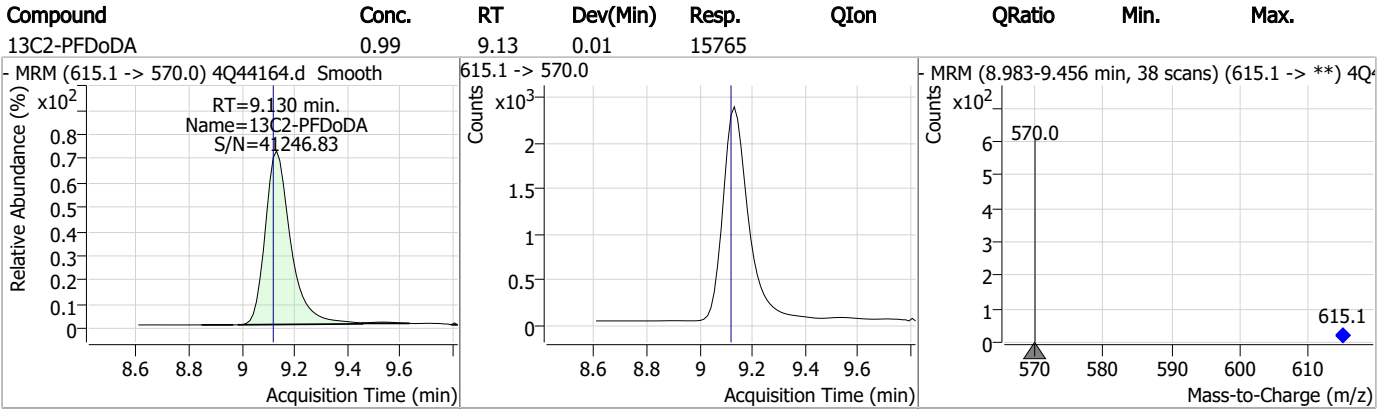
Perfluorinated Compounds by LC/MS/MS



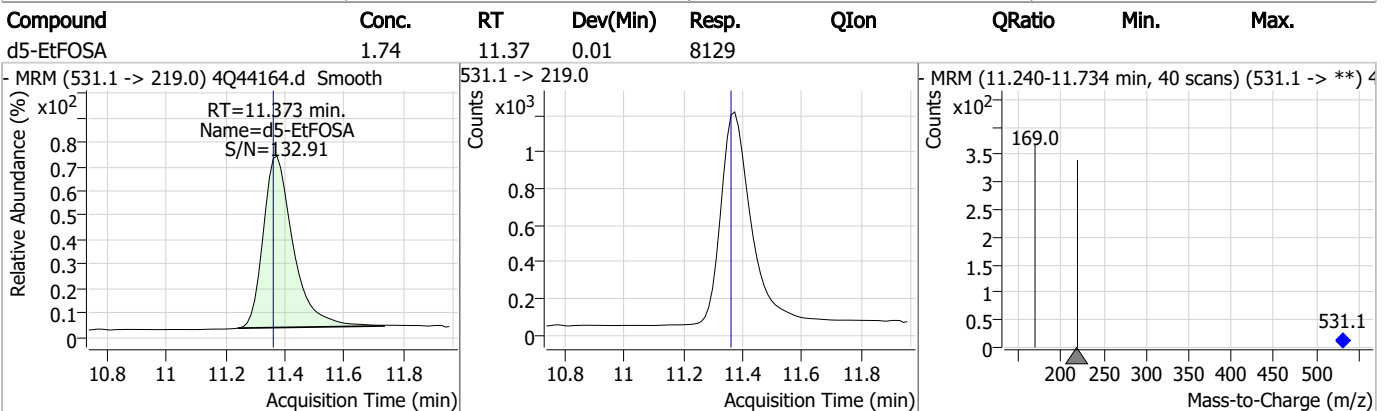
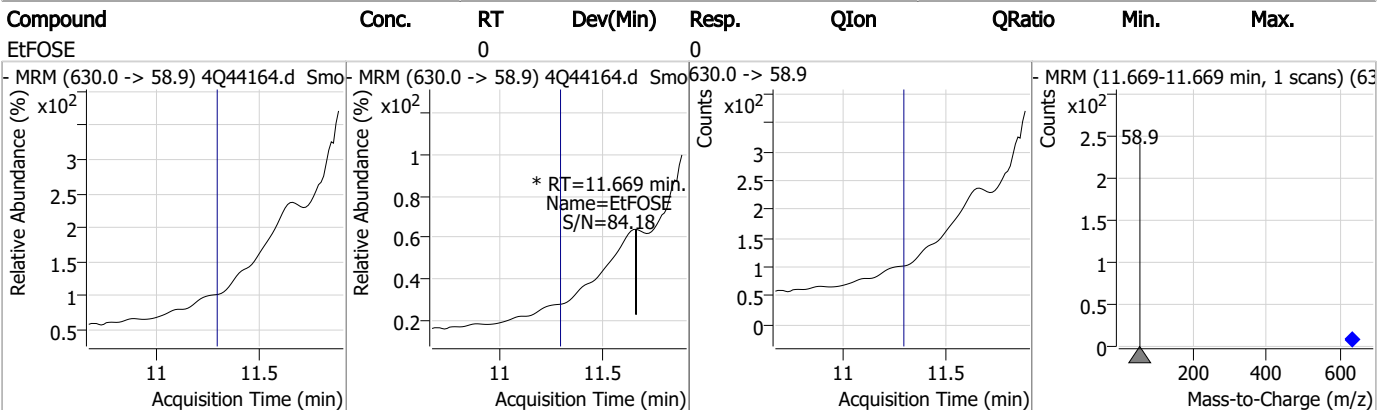
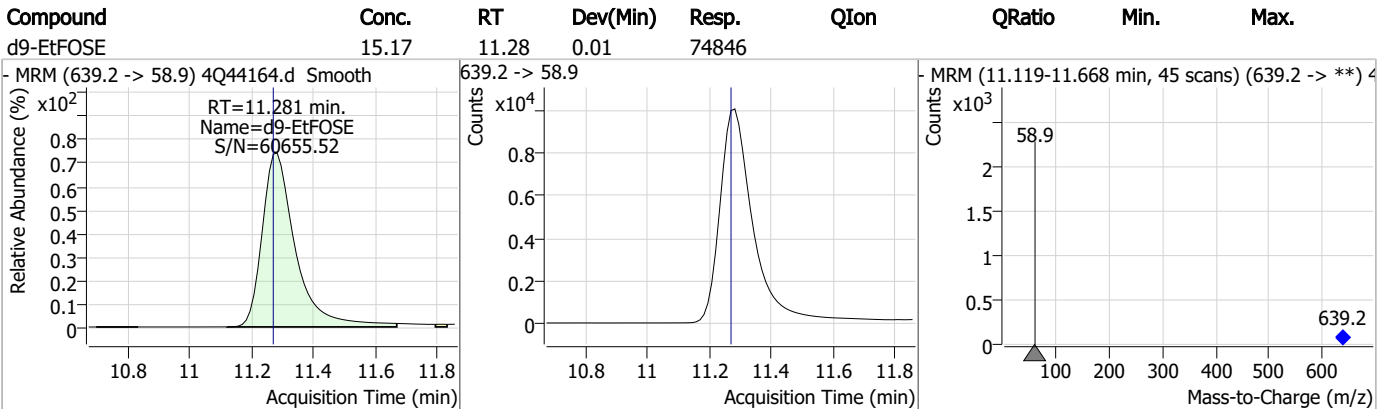
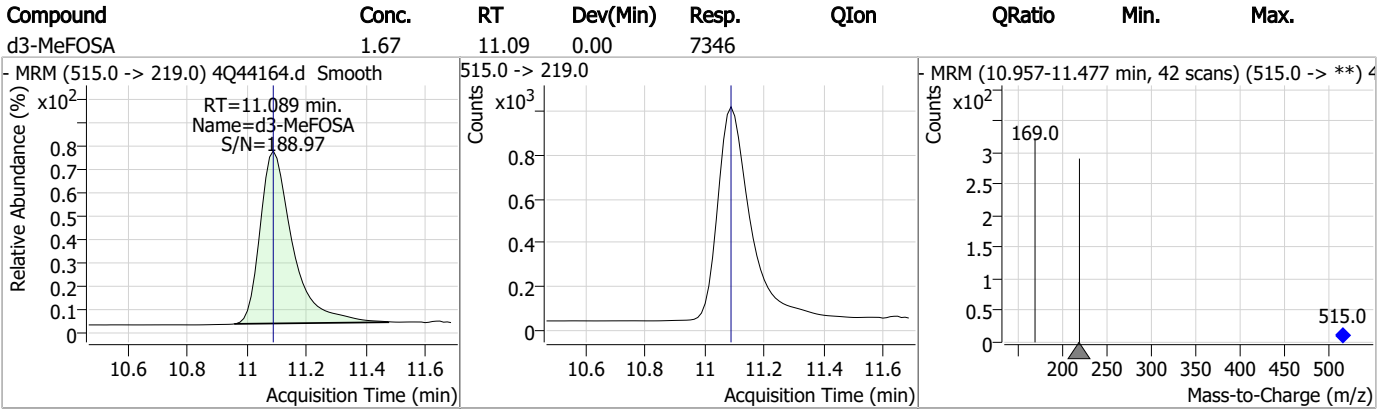
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44167.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 9:38:17 PM
 Sample Name : FC5818-3
 Vial : P3-C2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96747,S4Q639,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	4052	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	15087	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	42308	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	28146	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	45494	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	21956	1.25 µg/L	0.012
M6-PFDA	8.203	519.1 -> 474.1	22085	1.25 µg/L	0.000
M7-PFUnDA	8.685	570.0 -> 525.1	21363	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	21123	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	10667	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	15975	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	10687	2.50 µg/L	0.000
M3-PFHxS	7.254	402.1 -> 79.9	7211	2.50 µg/L	0.012
M8-PFOS	8.341	507.1 -> 79.9	8977	2.50 µg/L	-0.012
M2-4:2FTS	5.260	329.1 -> 80.9	1419	5.00 µg/L	0.012
M2-6:2FTS	6.923	429.1 -> 80.9	2094	5.00 µg/L	0.000
M2-8:2FTS	7.990	529.1 -> 80.9	3192	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	17885	5.00 µg/L	0.000
M3-HFPO-DA	5.927	286.9 -> 168.9	19870	10.00 µg/L	0.012
M5-EtFOSAA	8.470	589.2 -> 419.0	15796	5.00 µg/L	0.000
M7-MeFOSE	10.972	623.2 -> 58.9	55329	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	79807	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	10620	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	9590	2.50 µg/L	0.000
13C4-PFOS	8.342	502.8 -> 79.9	8378	2.50 µg/L	-0.012
13C3-PFBA	2.928	216.0 -> 172.0	58359	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4606	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	45668	2.50 µg/L	0.014
13C2-PFDA	8.204	515.1 -> 470.1	16885	1.25 µg/L	0.000
13C5-PFNA	7.709	468.0 -> 423.0	23843	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	37924	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.260	329.1 -> 80.9	1419	7.58 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 151.6%		
13C2-6:2FTS	6.923	429.1 -> 80.9	2094	6.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.1%		
13C2-8:2FTS	7.990	529.1 -> 80.9	3192	6.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.2%		
13C2-PFDoDA	9.130	615.1 -> 570.0	21123	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-PFTeDA	9.924	715.2 -> 670.0	10667	0.80 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 64.1%		
13C3-PFBS	5.452	302.1 -> 79.9	10687	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C3-PFHxS	7.254	402.1 -> 79.9	7211	2.53 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 = 101.0%		
13C4-PFBA	2.924	216.8 -> 171.9	4052	0.37 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 3.7%		
13C4-PFHpA	6.492	367.1 -> 322.0	28146	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.3%		
13C5-PFHxA	5.559	318.0 -> 273.0	42308	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C5-PFPeA	4.387	268.3 -> 223.0	15087	1.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 25.8%		
13C6-PFDA	8.203	519.1 -> 474.1	22085	1.53 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 122.2%		
13C7-PFUnDA	8.685	570.0 -> 525.1	21363	1.42 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C8-FOSA	9.796	506.1 -> 77.8	15975	3.04 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.6%		
13C8-PFOA	7.163	421.1 -> 376.0	45494	3.03 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.4%		
13C8-PFOS	8.341	507.1 -> 79.9	8977	2.85 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C9-PFNA	7.709	472.1 -> 427.0	21956	1.35 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.4%		
d3-MeFOSAA	8.261	573.2 -> 419.0	17885	8.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 169.1%		
13C3-HFPO-DA	5.927	286.9 -> 168.9	19870	7.96 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 79.6%		
d3-MeFOSA	11.089	515.0 -> 219.0	9590	2.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.7%		
d5-EtFOSAA	8.470	589.2 -> 419.0	15796	9.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 181.4%		
d7-MeFOSE	10.972	623.2 -> 58.9	55329	21.22 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 84.9%		
d9-EtFOSE	11.269	639.2 -> 58.9	79807	21.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 86.5%		
d5-EtFOSA	11.373	531.1 -> 219.0	10620	3.04 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.6%		
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	6.924	427.1 -> 407.0 427.1 -> 80.9	467 200	0.23 µg/L	100
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	9.419	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L m	1
PFDS	9.220	599.0 -> 79.9	0	µg/L m	1

7.1.3

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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	8.333	363.1 -> 169.0	0		µg/L	m
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	0	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	7.872	398.7 -> 98.9	0		µg/L	m
		463.0 -> 419.0				
PFNS	8.362	463.0 -> 219.0	0		µg/L	m
		548.8 -> 79.9				
PFOA	7.150	548.8 -> 98.9	0		µg/L	m
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	0	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	6.759	349.1 -> 79.9	0		µg/L	m
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	9.666	663.0 -> 619.0	0		µg/L	m
		663.0 -> 168.9				
PFUnDA	8.673	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.3
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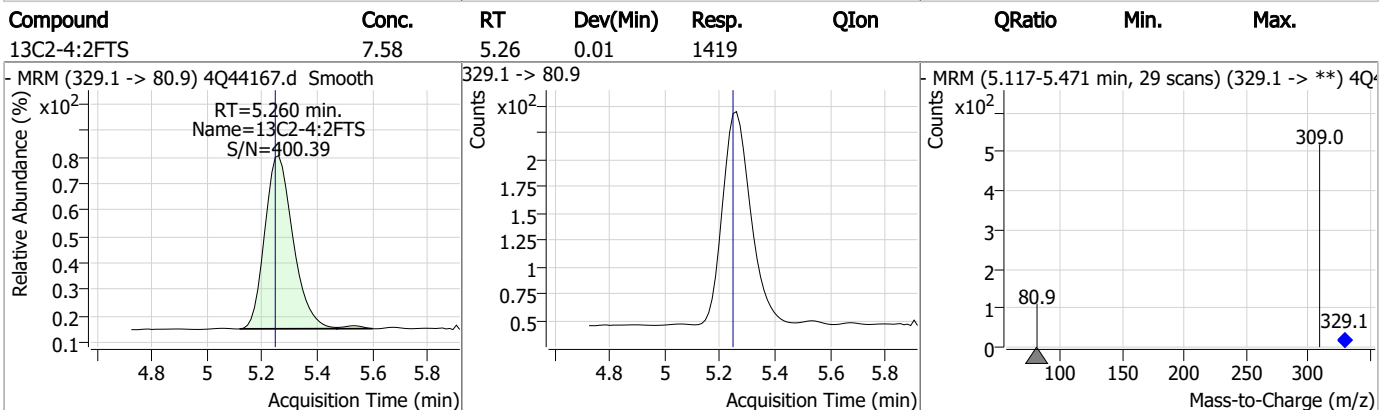
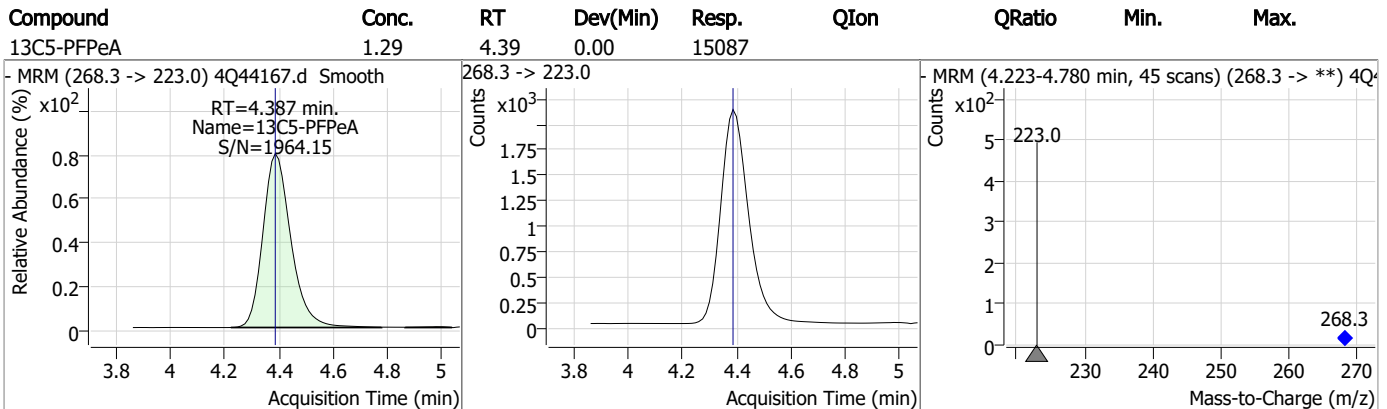
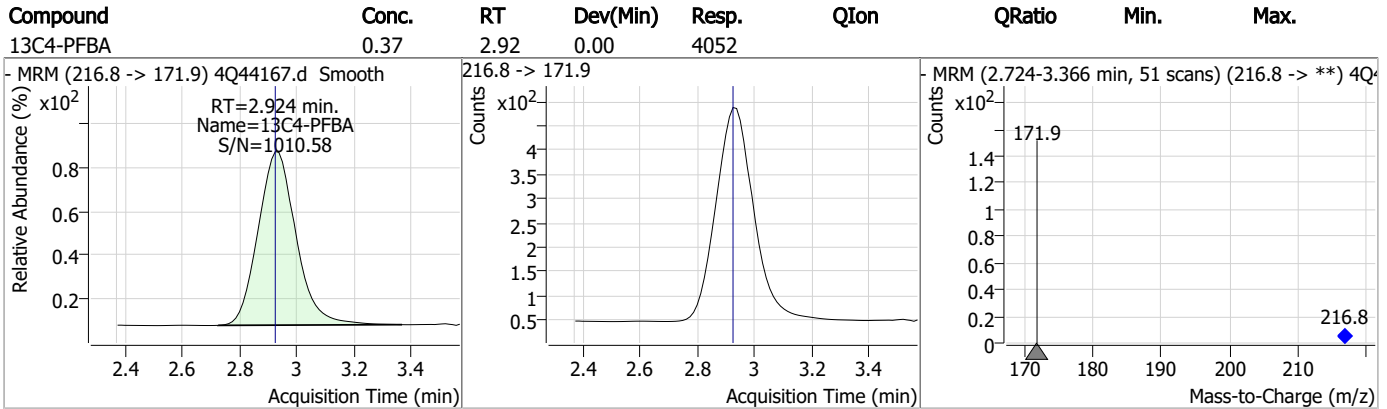
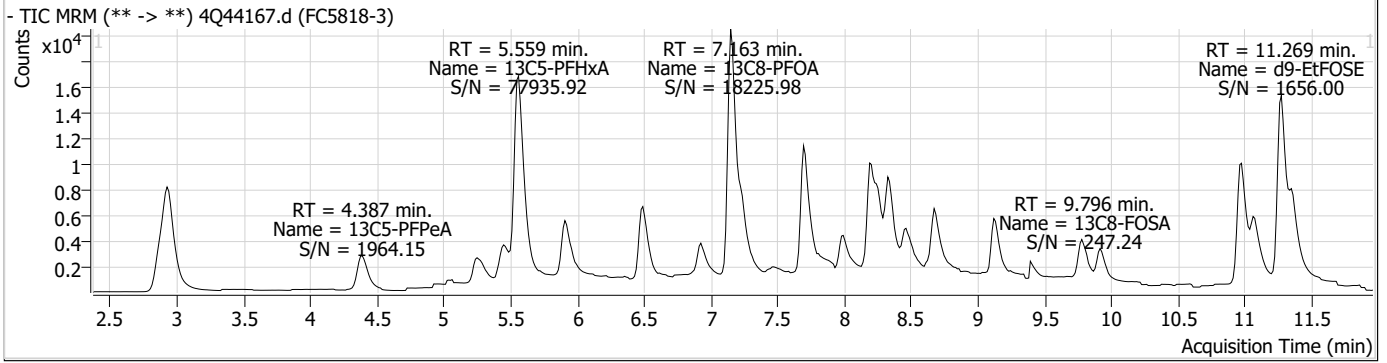
Perfluorinated Compounds by LC/MS/MS

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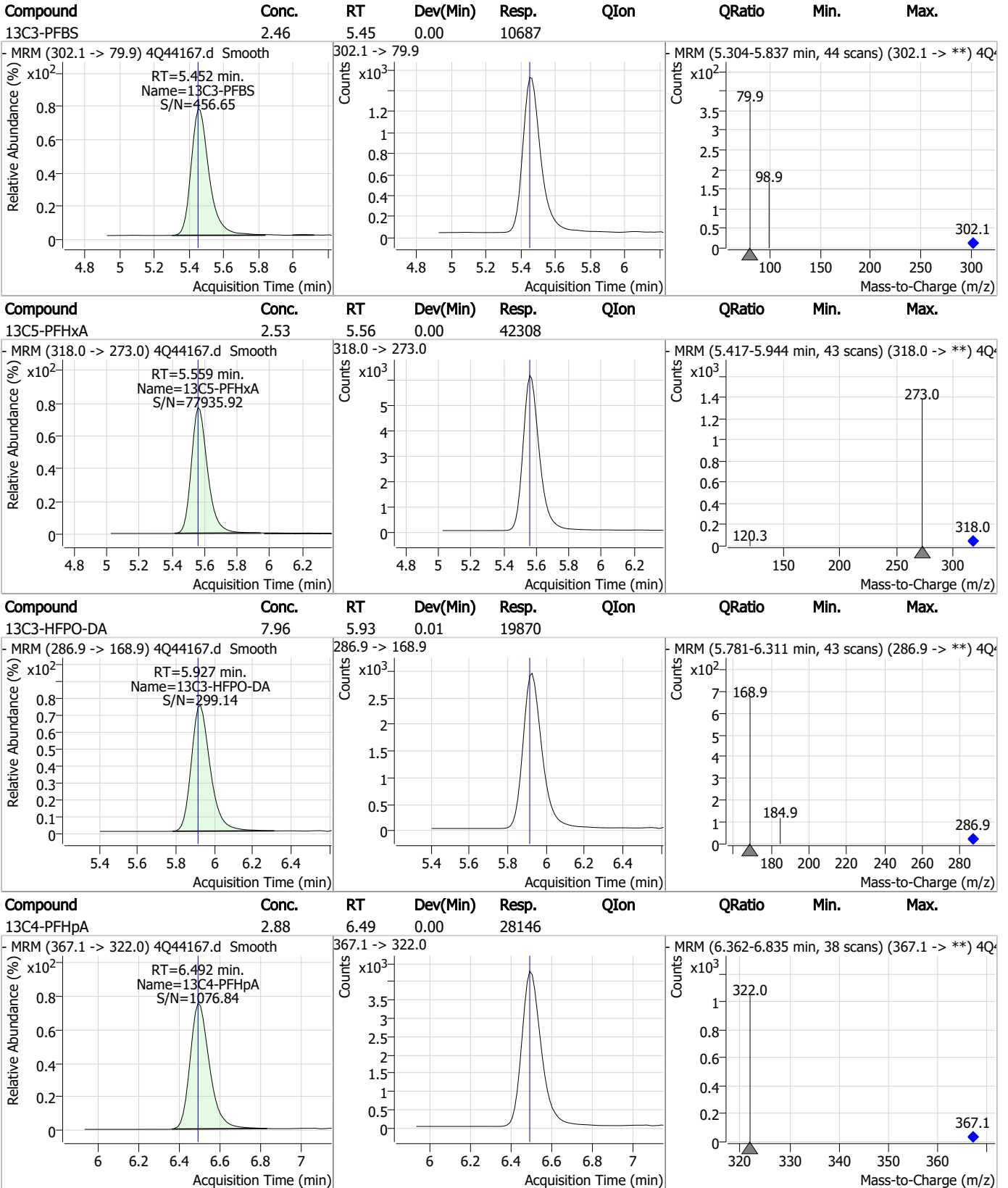
7.1.3
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Perfluorinated Compounds by LC/MS/MS

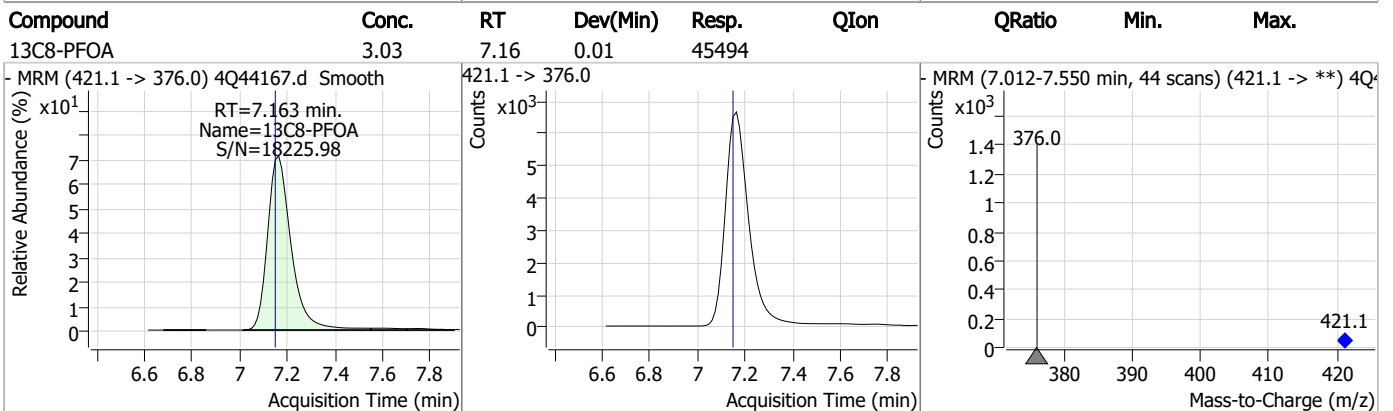
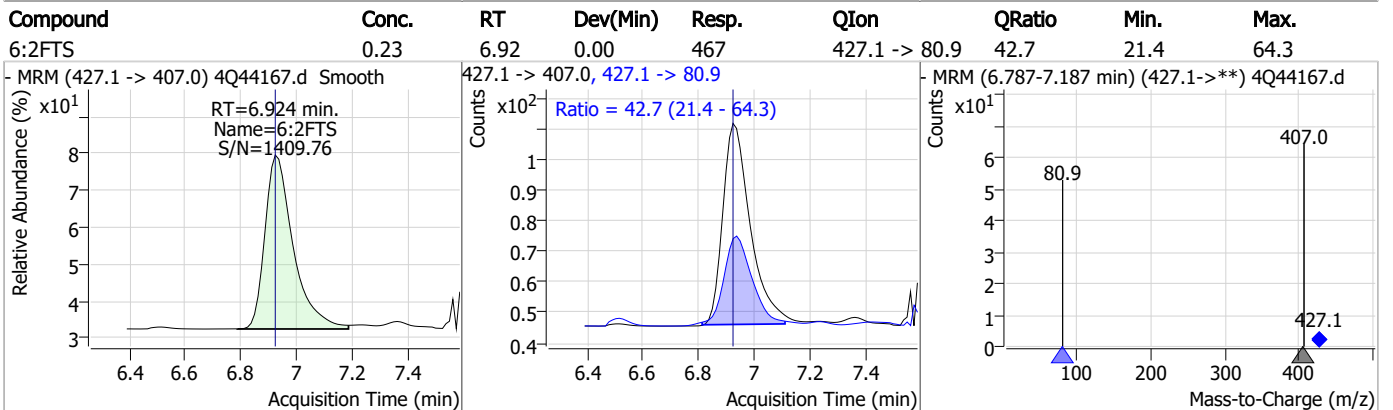
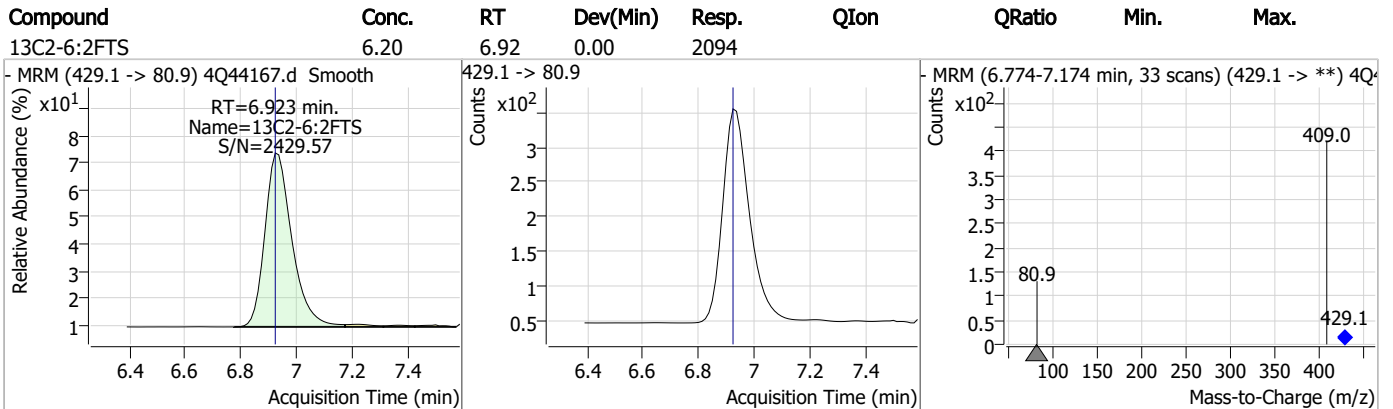
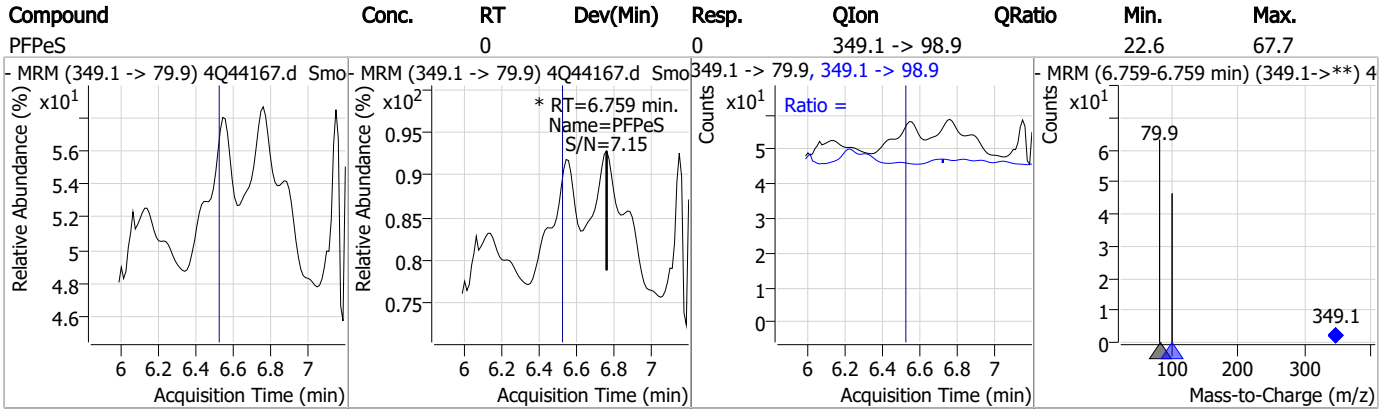


Perfluorinated Compounds by LC/MS/MS



7.1.3
7

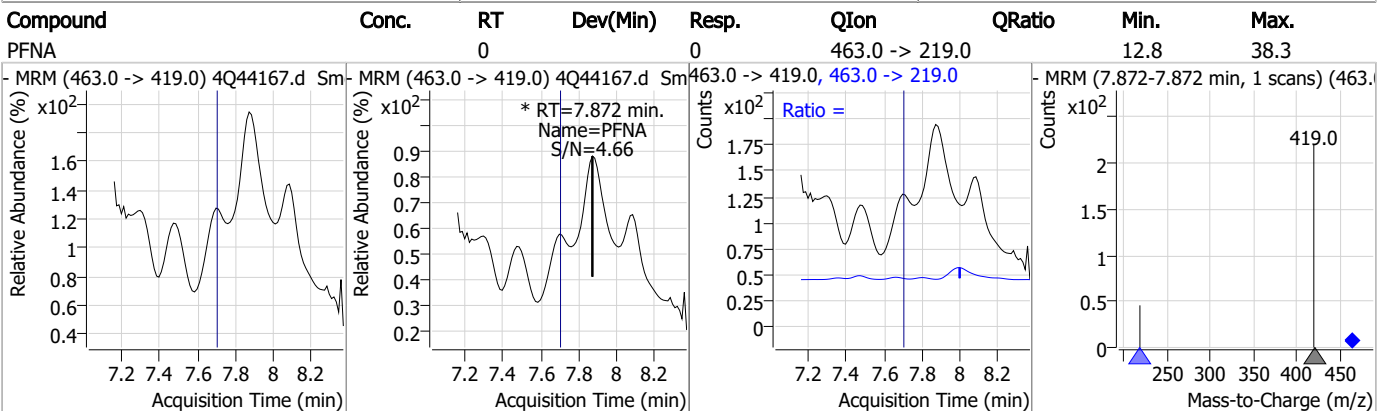
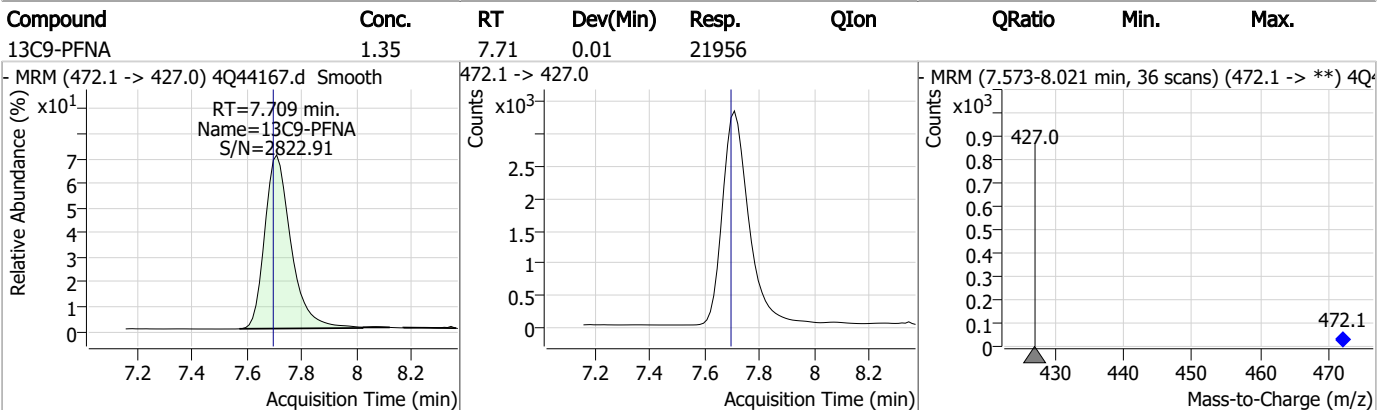
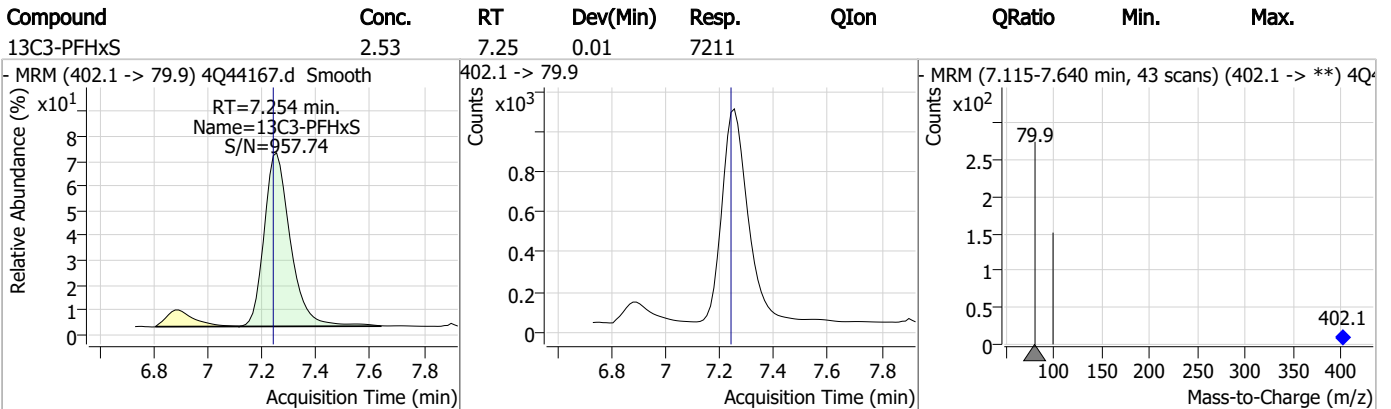
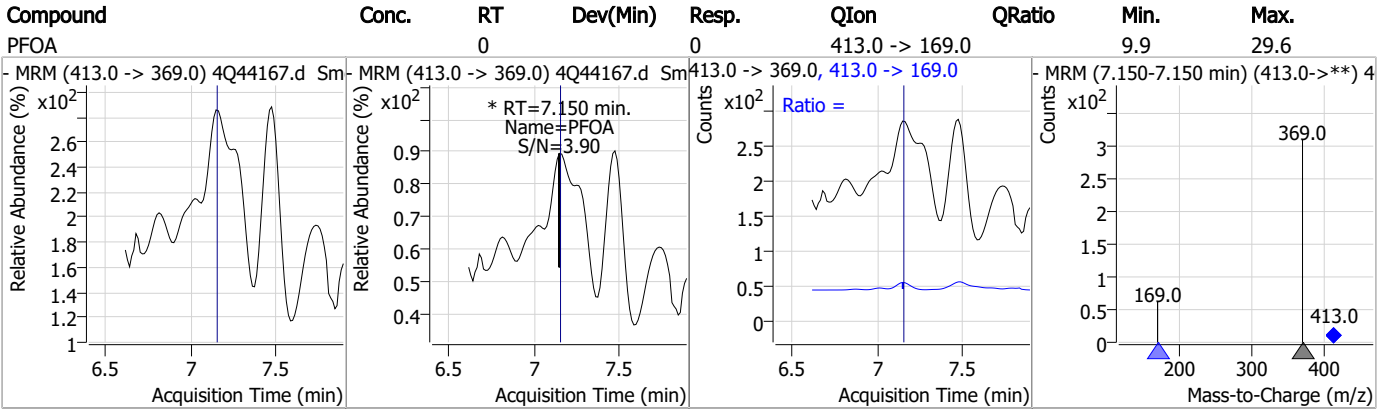
Perfluorinated Compounds by LC/MS/MS



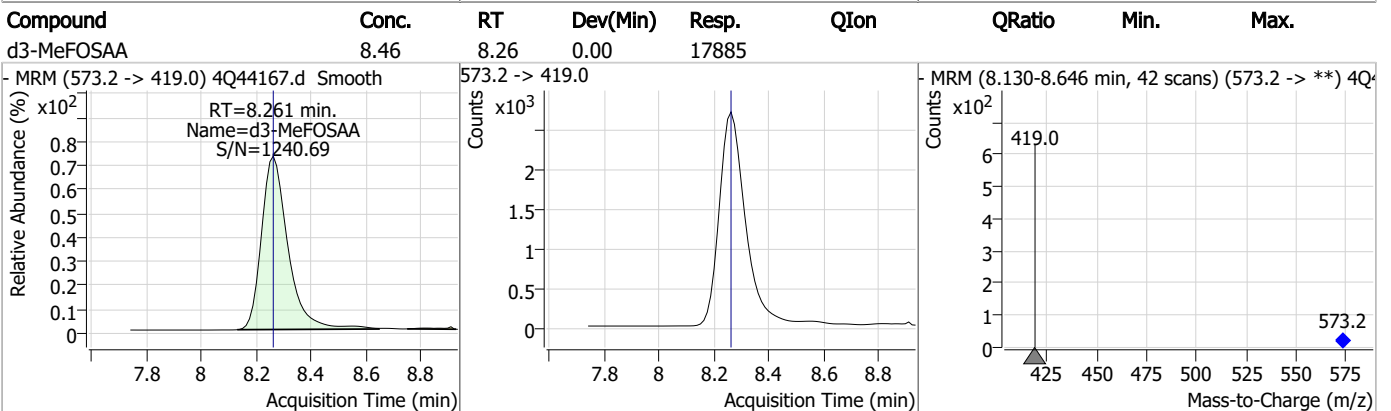
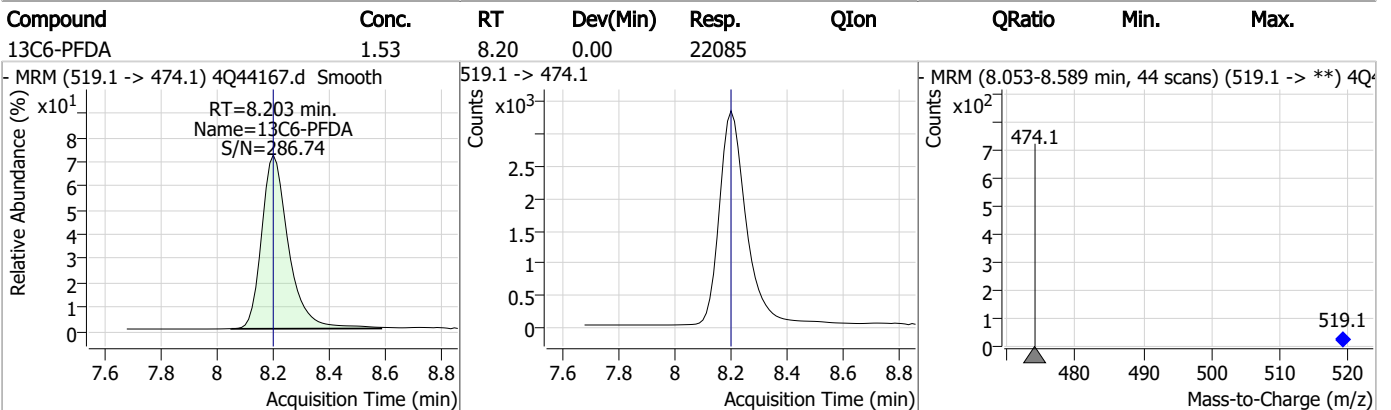
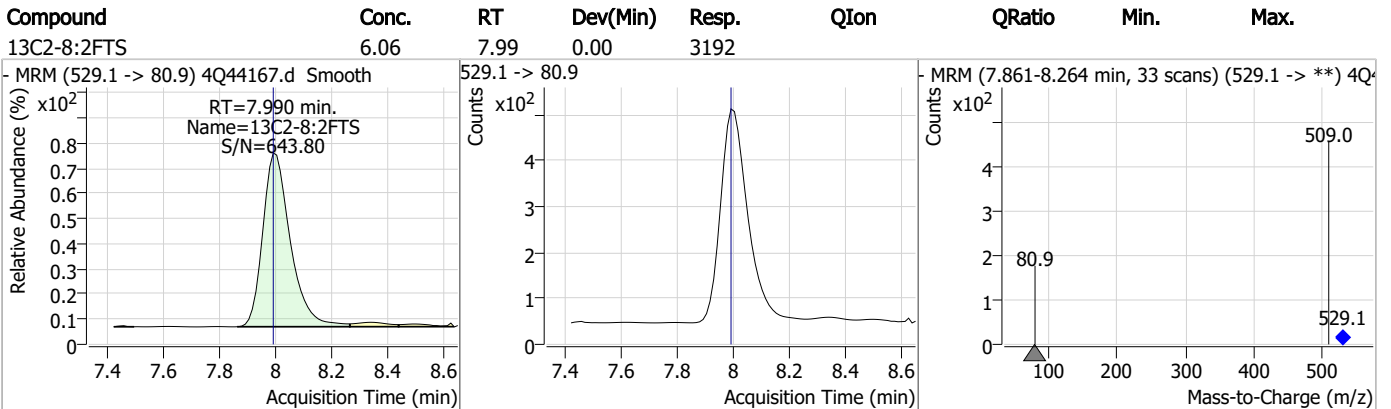
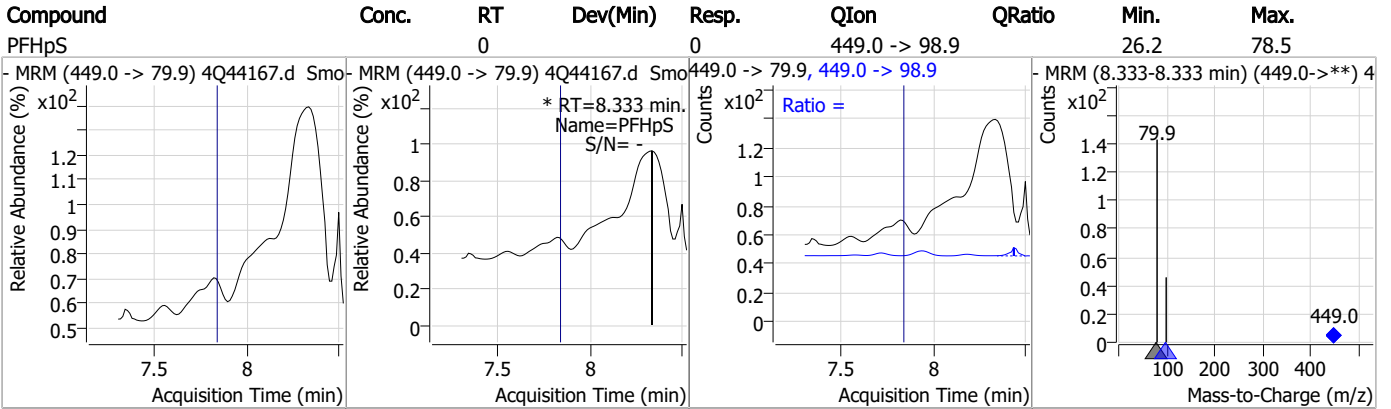
7.1.3

7

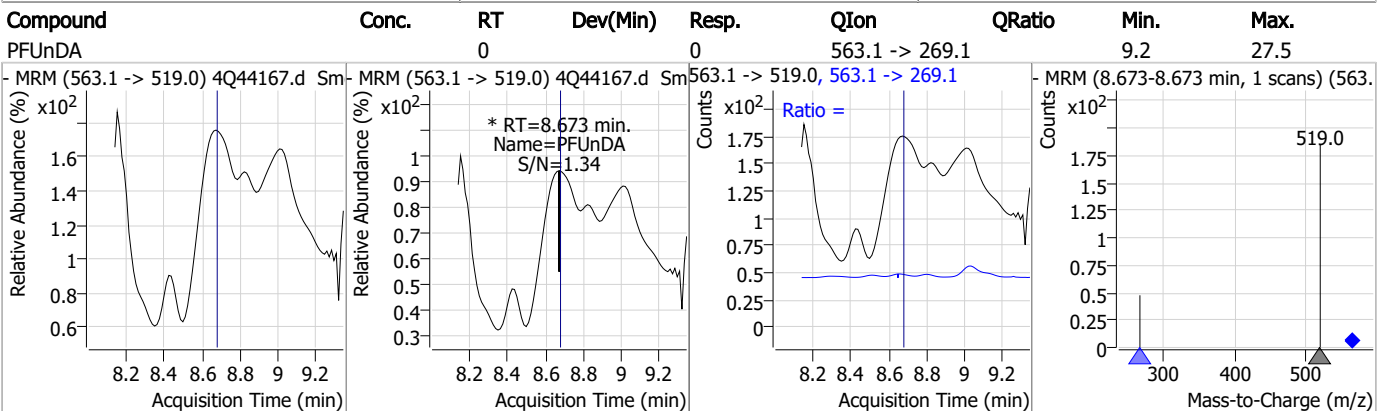
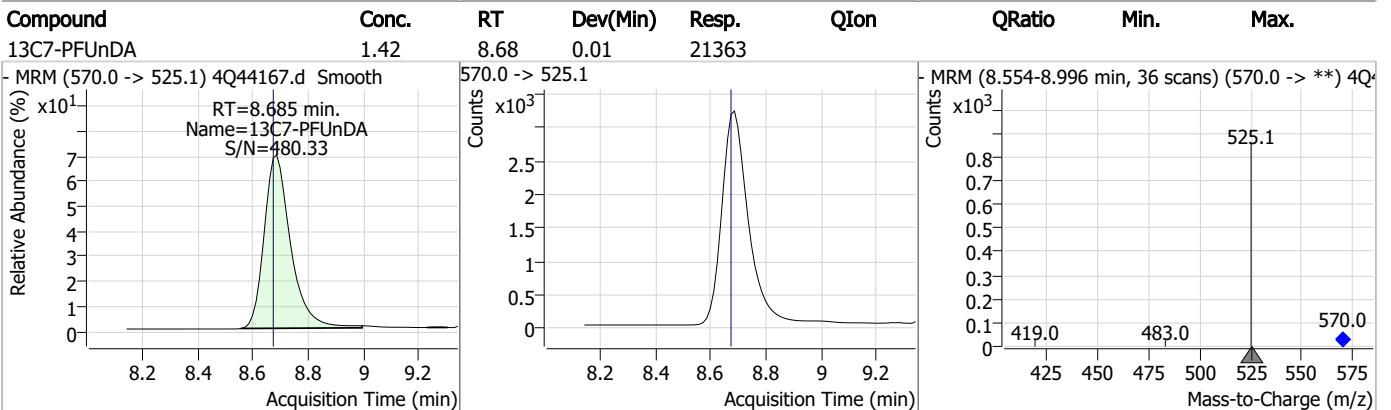
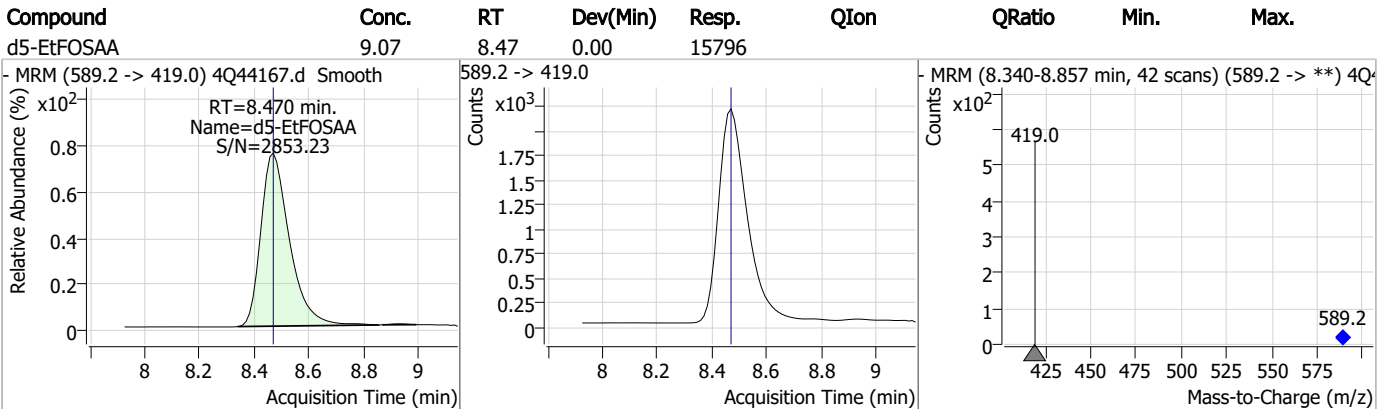
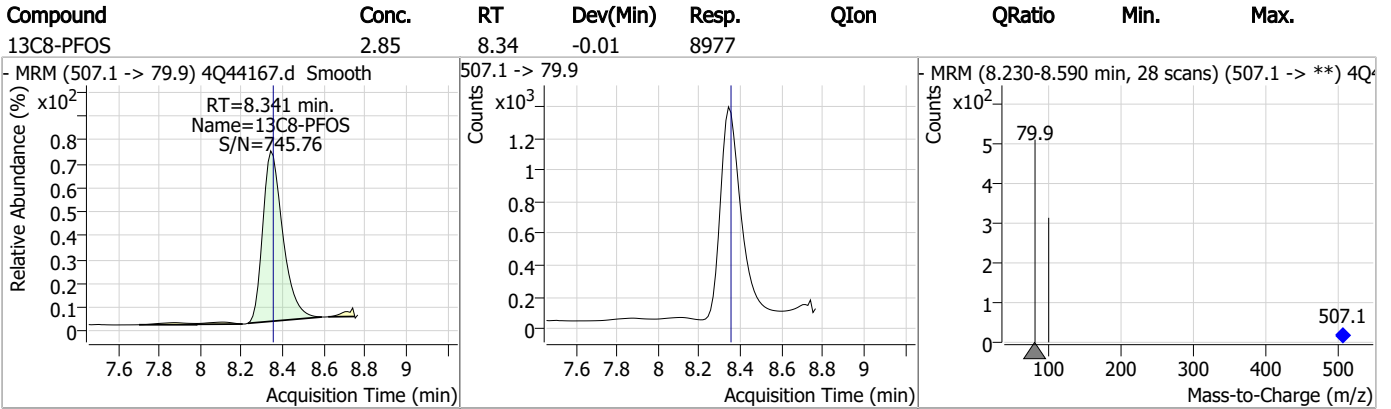
Perfluorinated Compounds by LC/MS/MS



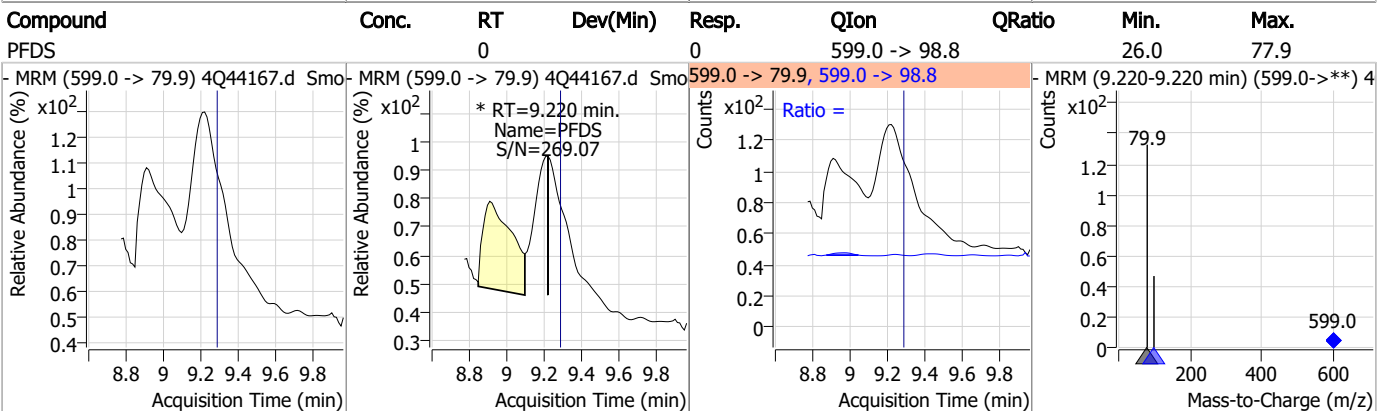
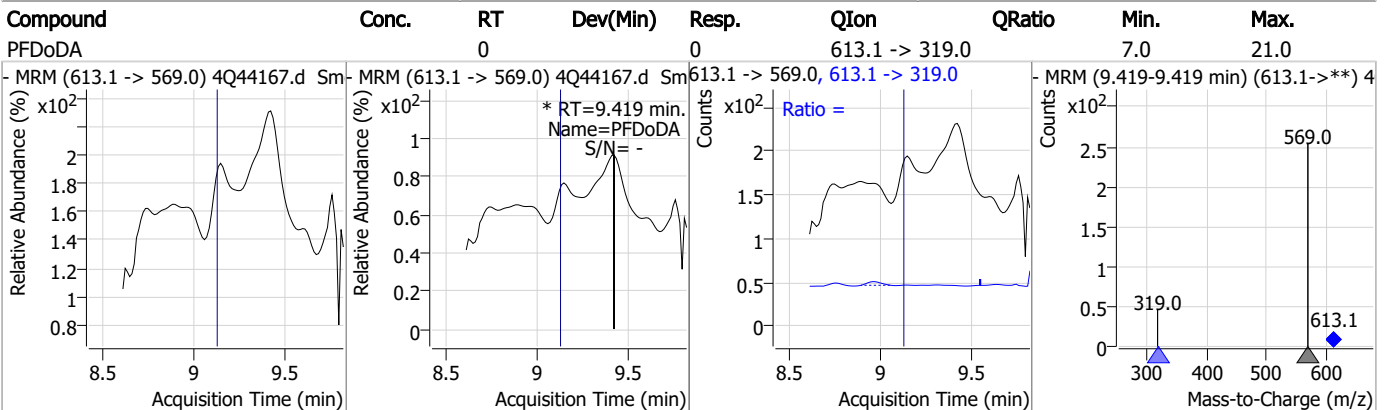
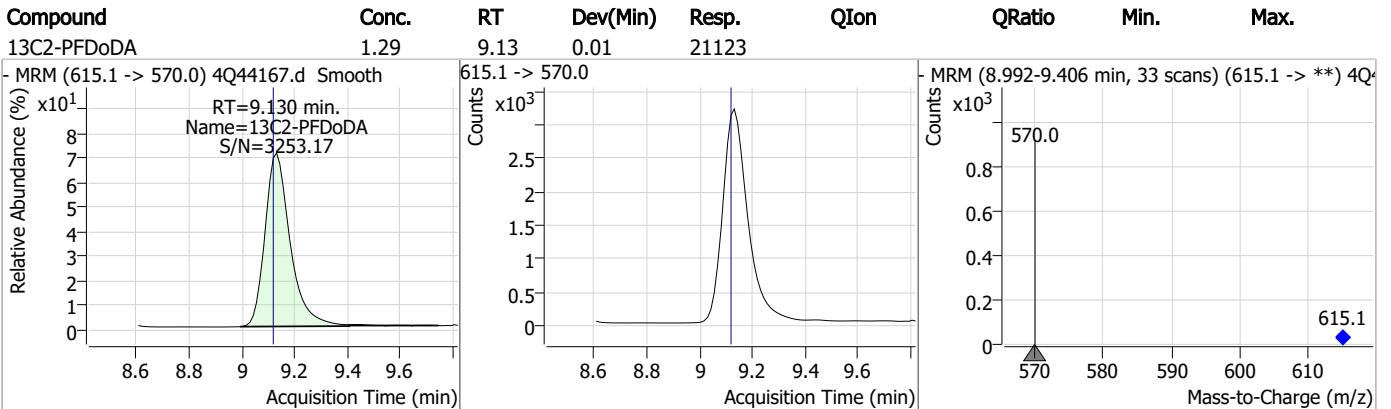
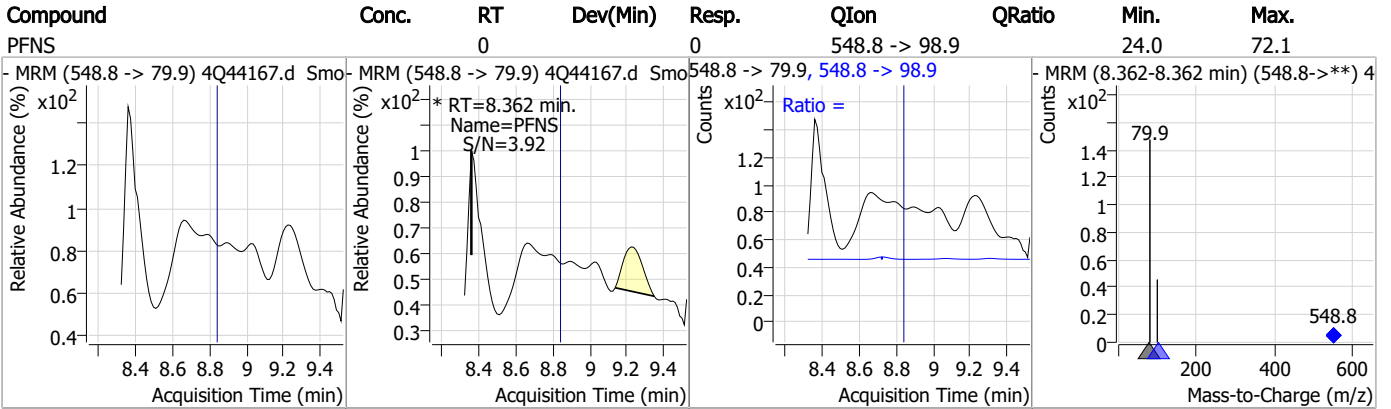
Perfluorinated Compounds by LC/MS/MS



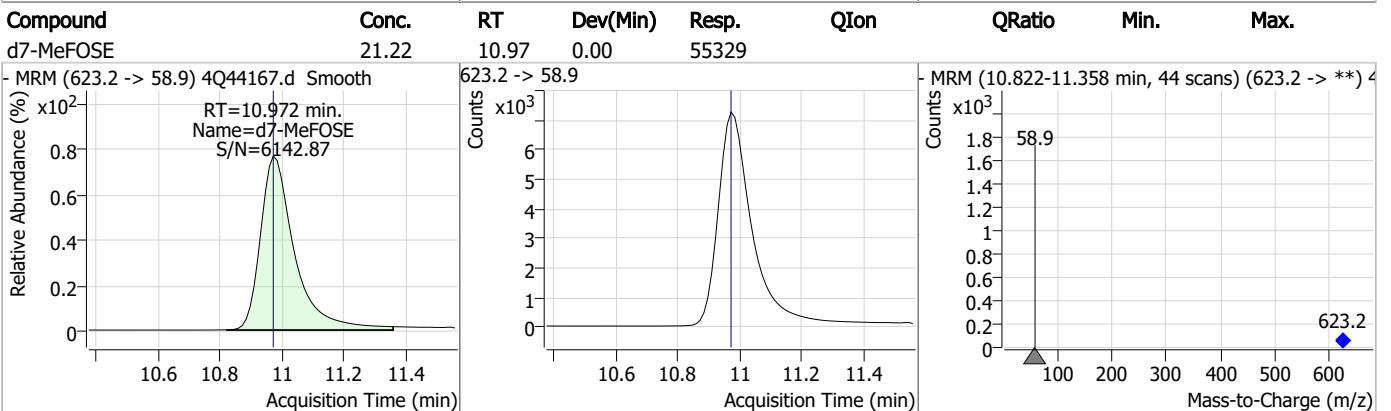
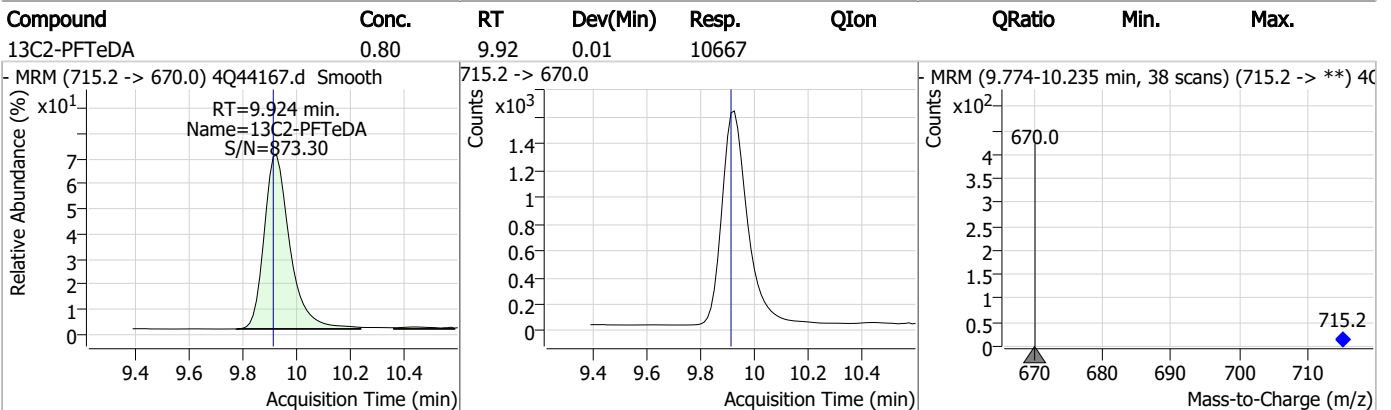
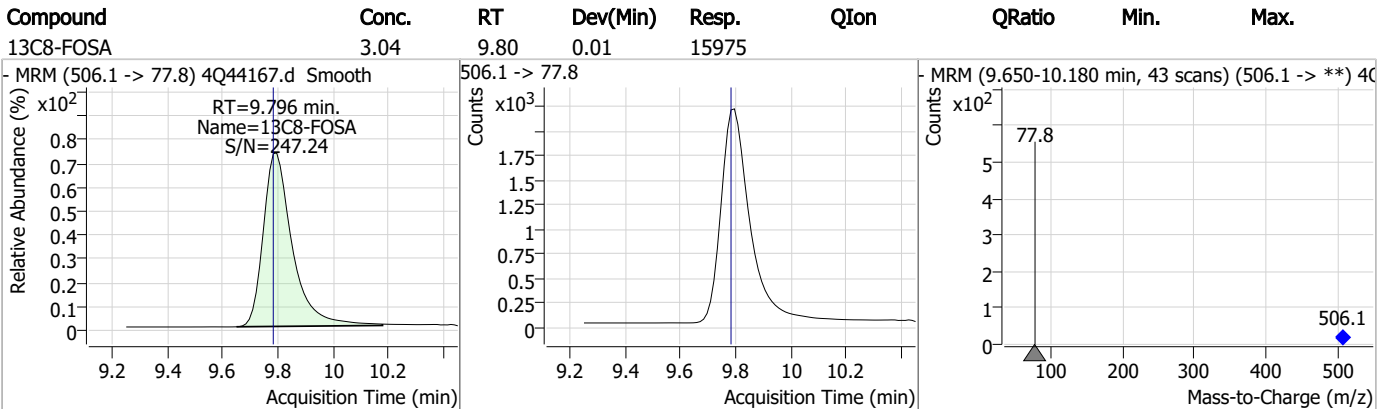
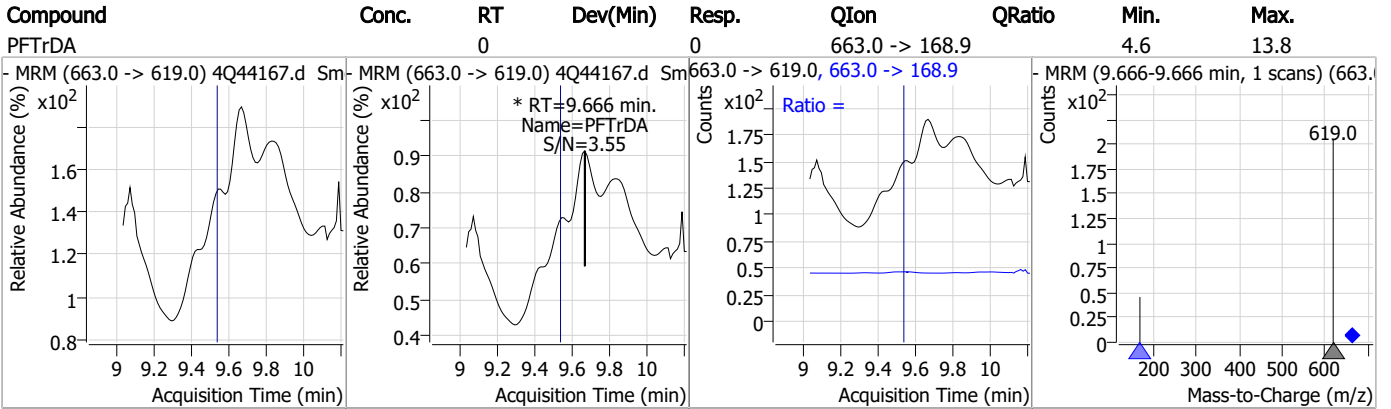
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



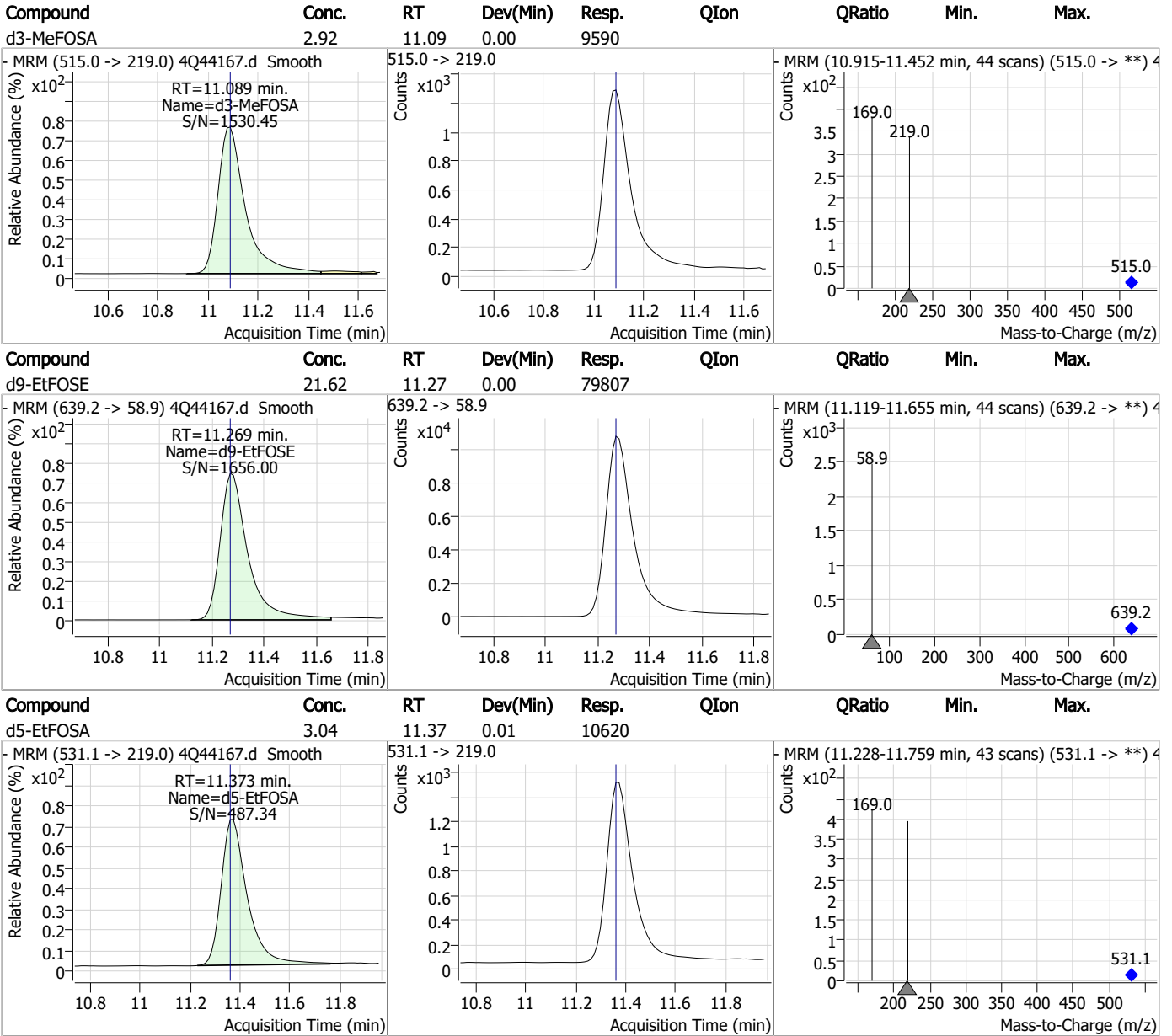
Perfluorinated Compounds by LC/MS/MS



7.1.3

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Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17727.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/10/2023 11:13:18 PM
 Sample Name : FC5818-3
 Vial : P3-B2
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q267.batch.bin
 Sample Information : OP96747,S6Q267,570,,,5.0,5,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	984	2.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	2007	1.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	9137	0.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	9337	0.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	13738	0.50 µg/L	0.000
M9-PFNA	7.608	472.1 -> 427.0	4632	0.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	3108	0.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	4111	0.25 µg/L	0.012
M2-PFDoDA	8.949	615.1 -> 570.0	3567	0.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	1745	0.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	3499	0.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	3315	0.50 µg/L	0.000
M3-PFHxS	7.192	402.1 -> 79.9	2038	0.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	2019	0.50 µg/L	-0.012
M2-4:2FTS	5.143	329.1 -> 80.9	263	1.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	438	1.00 µg/L	0.000
M2-8:2FTS	7.876	529.1 -> 80.9	370	1.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	4161	1.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	5585	2.00 µg/L	-0.012
M5-EtFOSAA	8.341	589.2 -> 419.0	3617	1.00 µg/L	0.012
M7-MeFOSE	10.660	623.2 -> 58.9	10620	5.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	13992	5.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	1667	0.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	1389	0.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	4669	0.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	11164	1.00 µg/L	0.000
18O2-PFHxS	7.191	403.0 -> 83.9	1412	0.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	12435	0.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	3723	0.25 µg/L	0.000
13C5-PFNA	7.608	468.0 -> 423.0	4285	0.25 µg/L	0.012
13C2-PFHxA	5.479	315.1 -> 270.0	7434	0.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	263	1.01 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 20.2%		
13C2-6:2FTS	6.850	429.1 -> 80.9	438	1.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 26.6%		
13C2-8:2FTS	7.876	529.1 -> 80.9	370	1.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 21.0%		
13C2-PFDoDA	8.949	615.1 -> 570.0	3567	0.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 17.7%		
13C2-PFTeDA	9.677	715.2 -> 670.0	1745	0.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 12.8%		
13C3-PFBS	5.409	302.1 -> 79.9	3315	0.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 21.4%		
13C3-PFHxS	7.192	402.1 -> 79.9	2038	0.55 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 = 22.2%	
13C4-PFBA	2.913	216.8 -> 171.9	984	0.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 0.7%	
13C4-PFHpA	6.432	367.1 -> 322.0	9337	0.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 23.7%	
13C5-PFHxA	5.478	318.0 -> 273.0	9137	0.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 20.2%	
13C5-PFPeA	4.272	268.3 -> 223.0	2007	0.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 5.1%	
13C6-PFDA	8.076	519.1 -> 474.1	3108	0.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 20.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	4111	0.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 20.2%	
13C8-FOSA	9.636	506.1 -> 77.8	3499	0.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 8.8%	
13C8-PFOA	7.077	421.1 -> 376.0	13738	0.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 22.5%	
13C8-PFOS	8.226	507.1 -> 79.9	2019	0.28 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 11.2%	
13C9-PFNA	7.608	472.1 -> 427.0	4632	0.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 23.0%	
d3-MeFOSAA	8.133	573.2 -> 419.0	4161	0.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 12.7%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	5585	2.02 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 20.2%	
d3-MeFOSA	10.752	515.0 -> 219.0	1389	0.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 9.7%	
d5-EtFOSAA	8.341	589.2 -> 419.0	3617	0.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 12.6%	
d7-MeFOSE	10.660	623.2 -> 58.9	10620	1.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 6.6%	
d9-EtFOSE	10.907	639.2 -> 58.9	13992	1.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 7.6%	
d5-EtFOSA	10.984	531.1 -> 219.0	1667	0.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 9.8%	

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	9.064	599.0 -> 79.9	0	µg/L m	1

7.14
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	0			
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	7.897	449.0 -> 79.9	0	µg/L	m	1
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	9.042	548.8 -> 79.9	0	µg/L	m	1
		548.8 -> 98.9	0			
PFOA	7.215	413.0 -> 369.0	0	µg/L	m	1
		413.0 -> 169.0	0			
PFOS	8.215	498.9 -> 79.9	0	µg/L	m	1
		498.9 -> 98.8				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	8.258	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	7.535	441.0 -> 316.9	929	0.65 µg/L	#m	21
		441.0 -> 336.9	782			
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

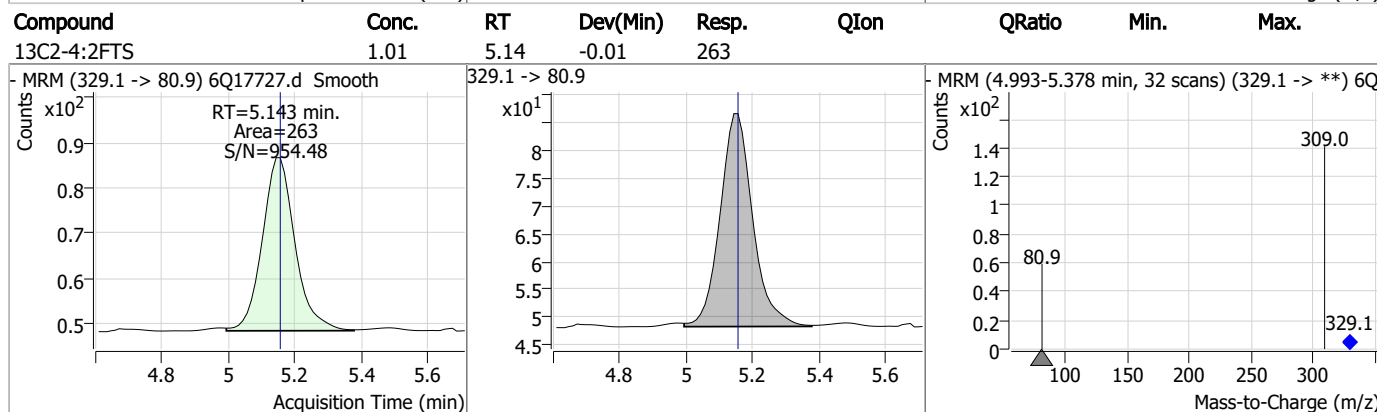
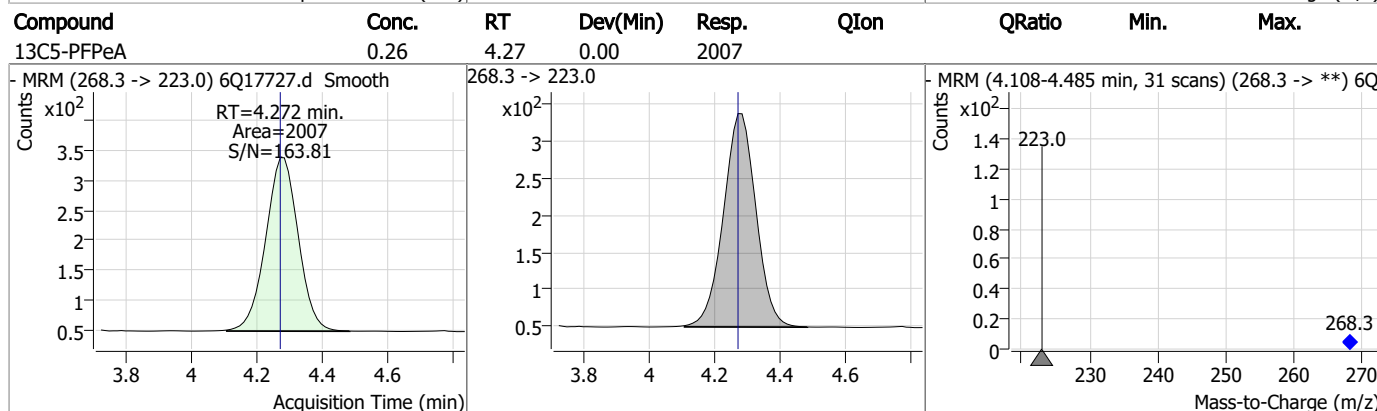
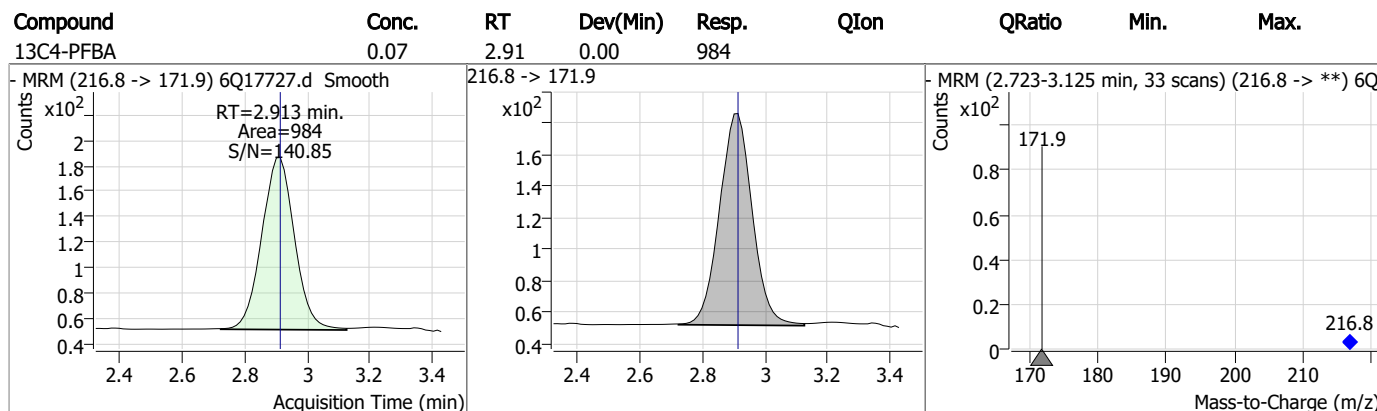
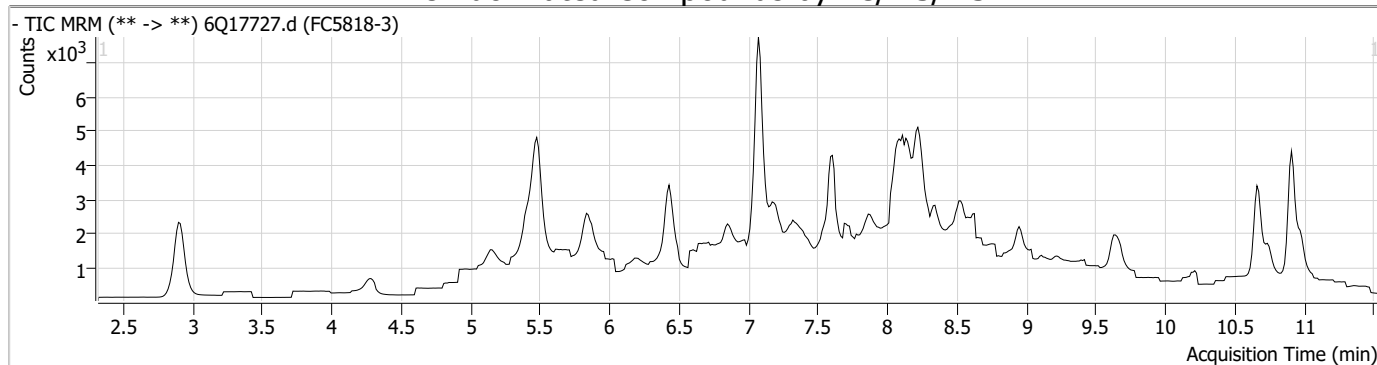
Perfluorinated Compounds by LC/MS/MS

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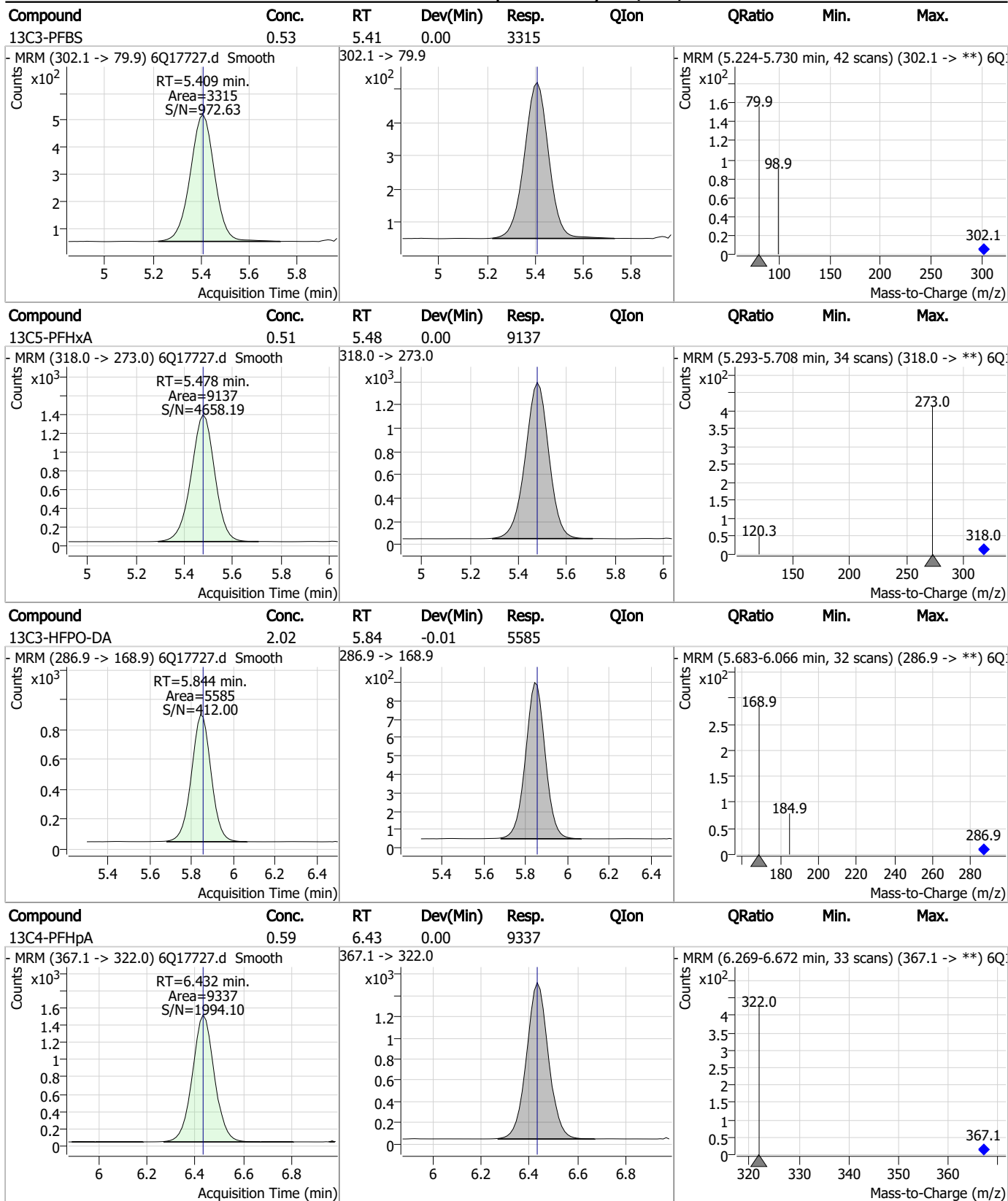
7.1.4
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Perfluorinated Compounds by LC/MS/MS

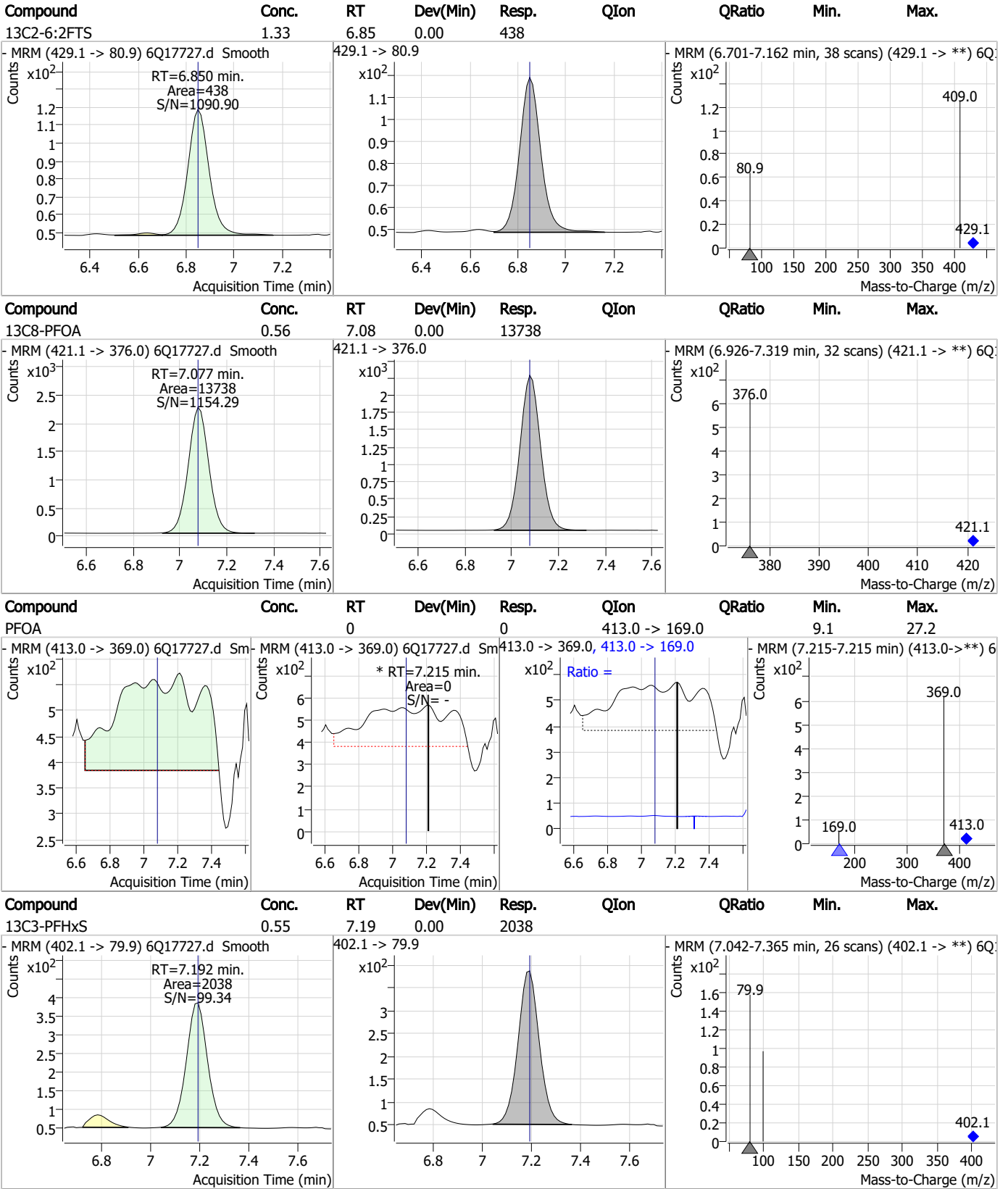


Perfluorinated Compounds by LC/MS/MS



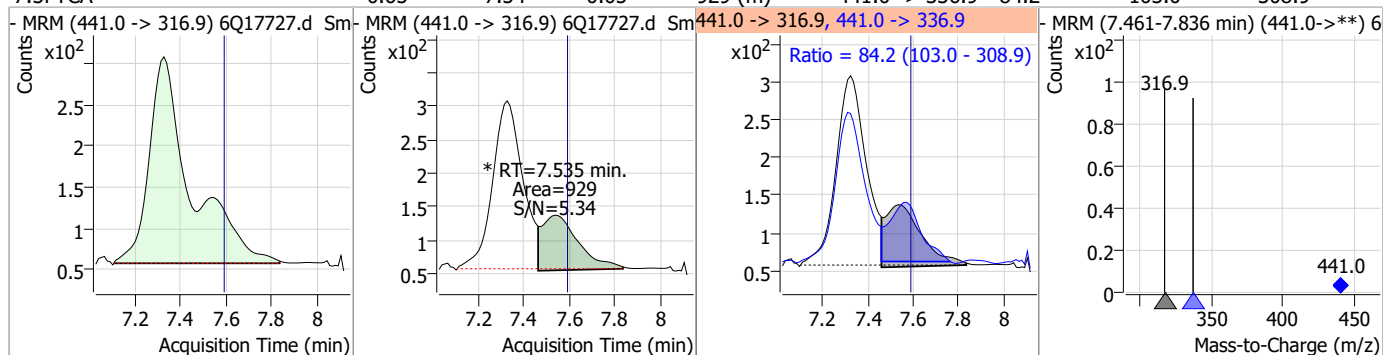
7.1.4
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Perfluorinated Compounds by LC/MS/MS

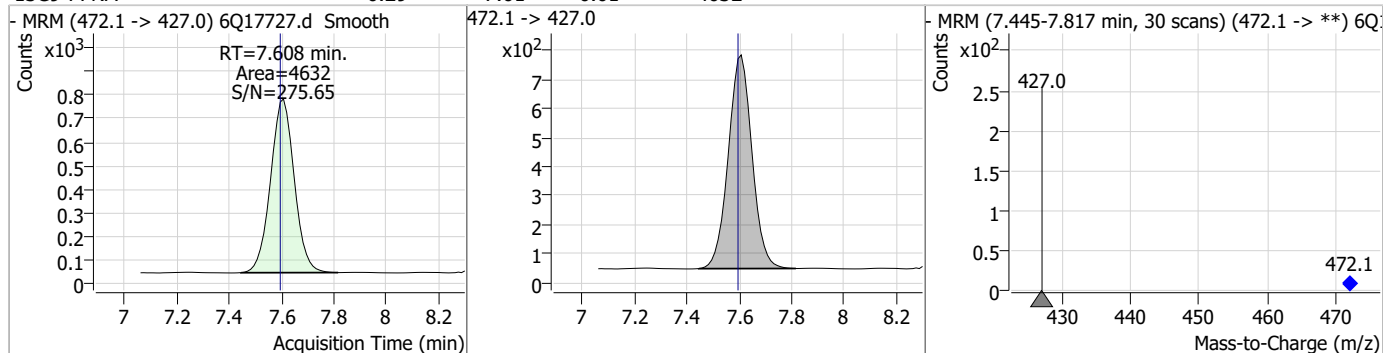


Perfluorinated Compounds by LC/MS/MS

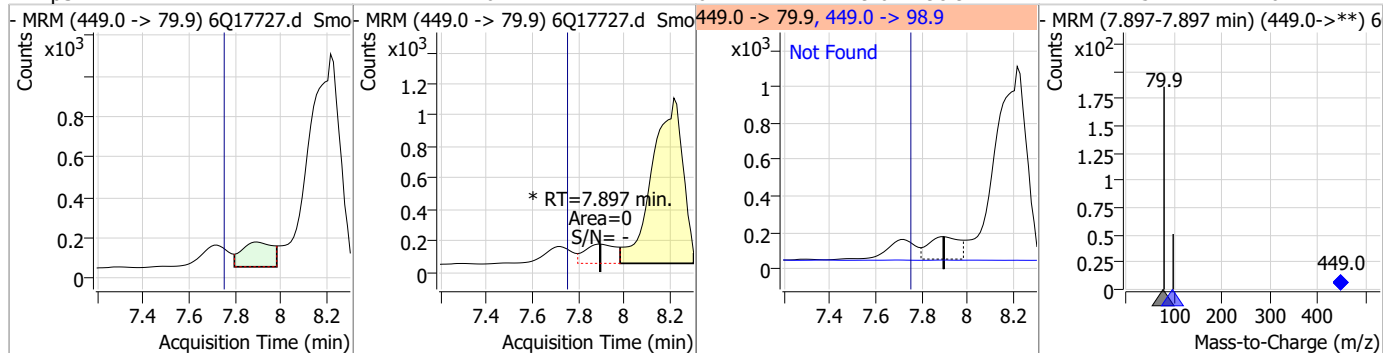
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	0.65	7.54	-0.05	929 (m)	441.0 -> 336.9	84.2	103.0	308.9



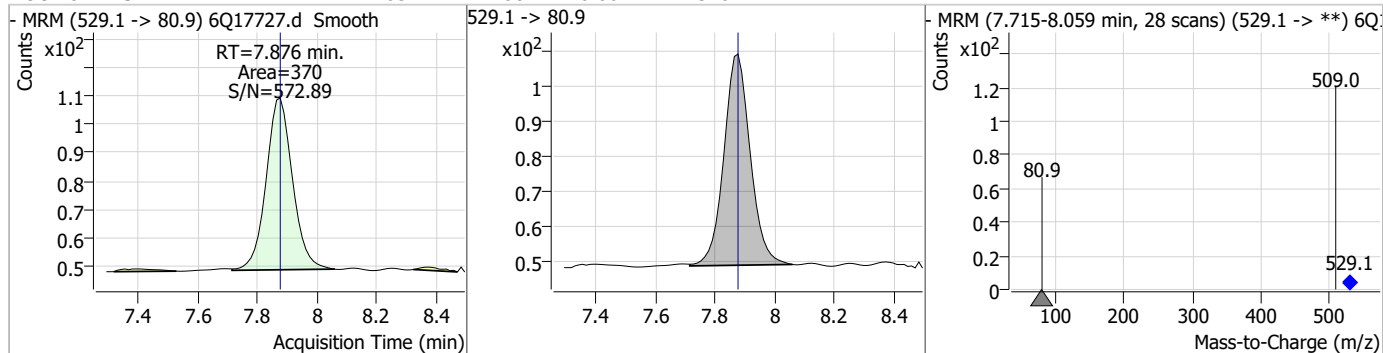
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	0.29	7.61	0.01	4632				



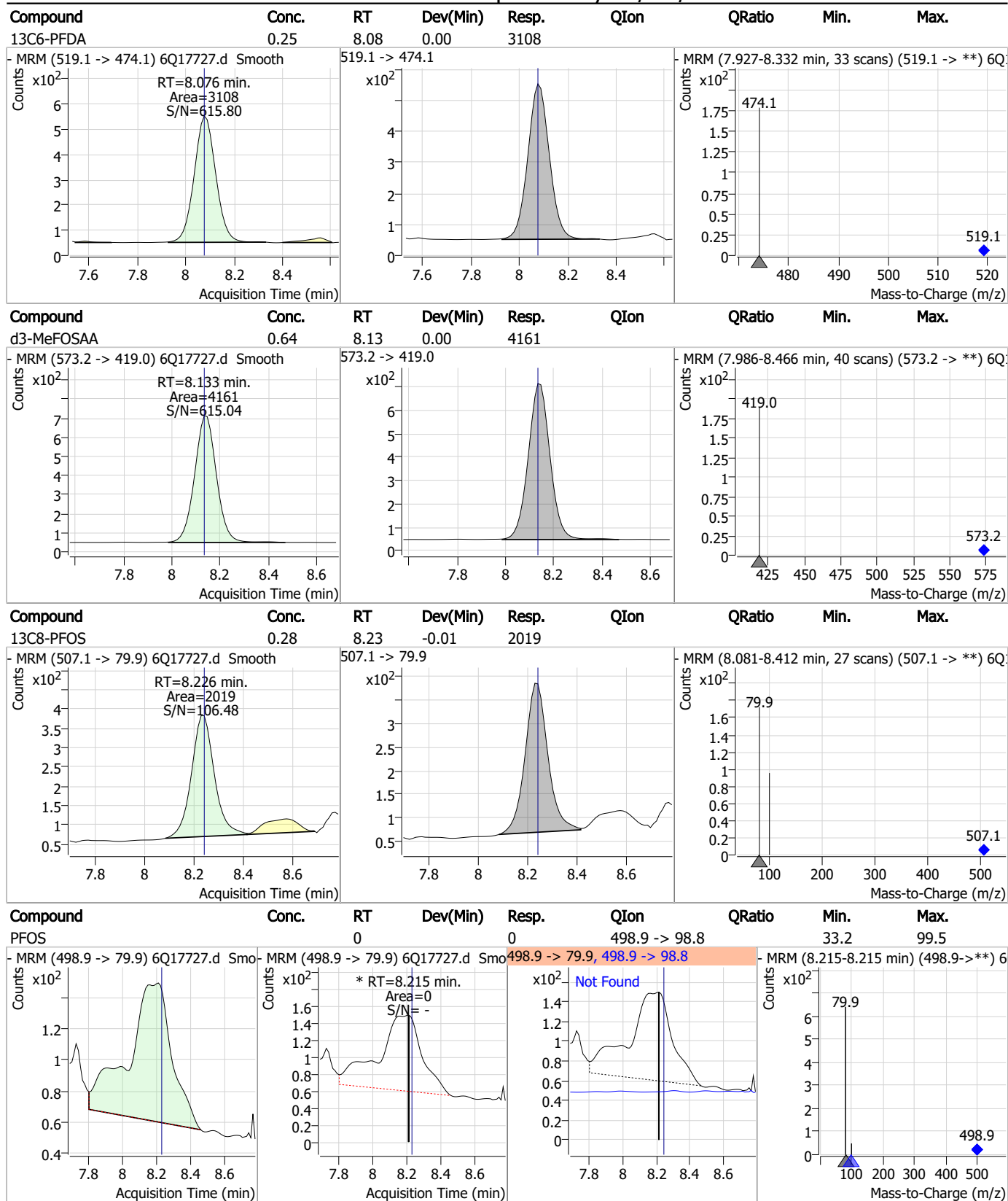
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0	0		0	449.0 -> 98.9		25.4	76.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	1.05	7.88	0.00	370				

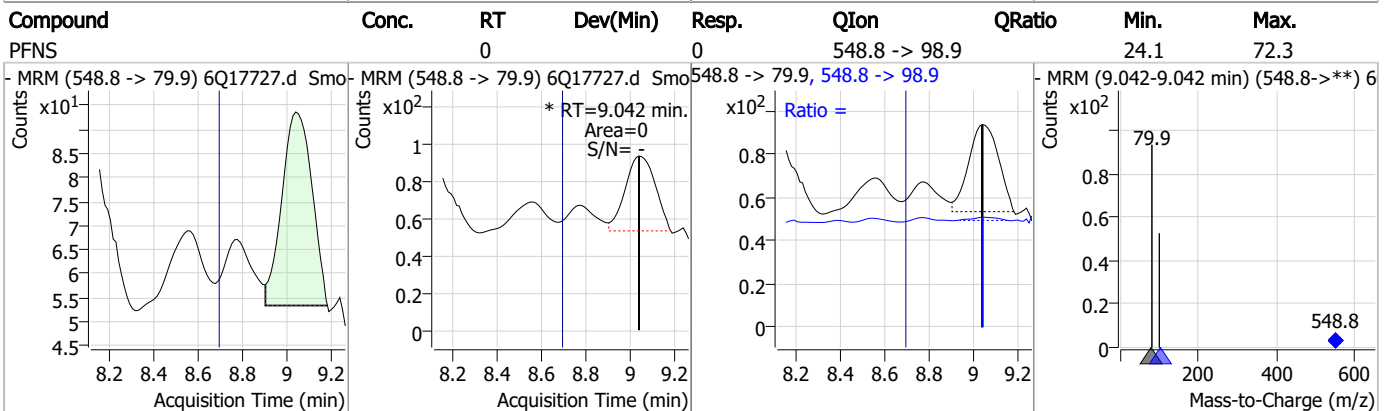
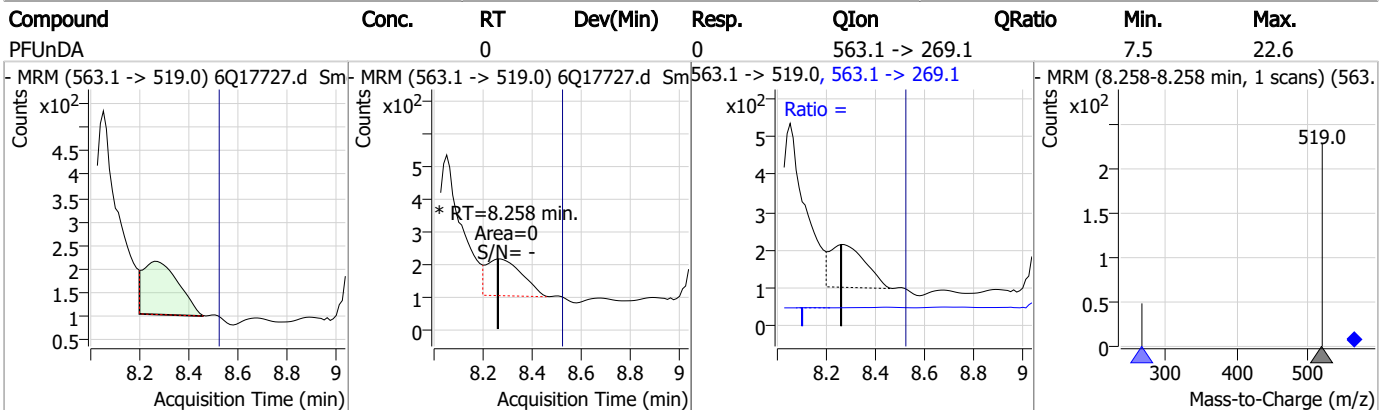
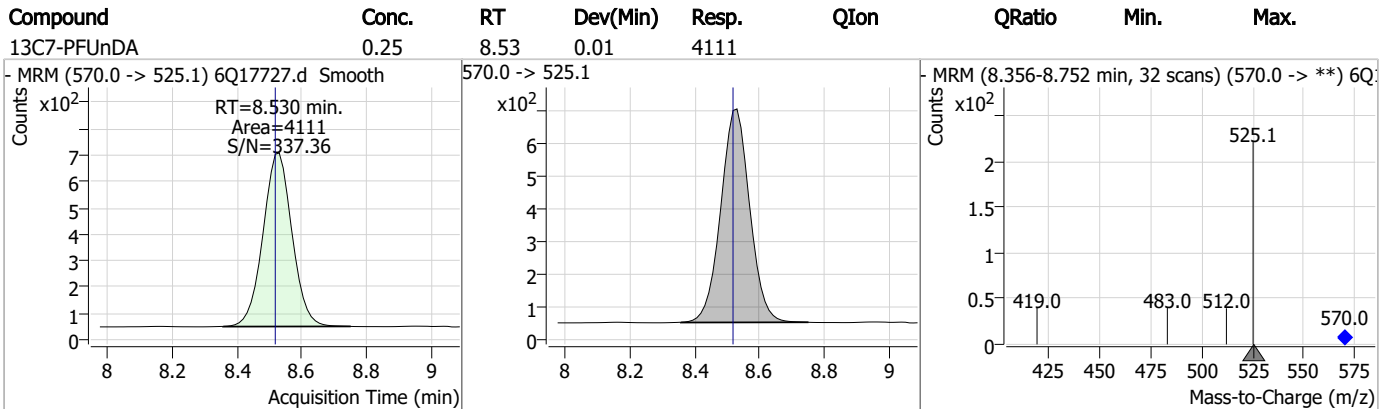
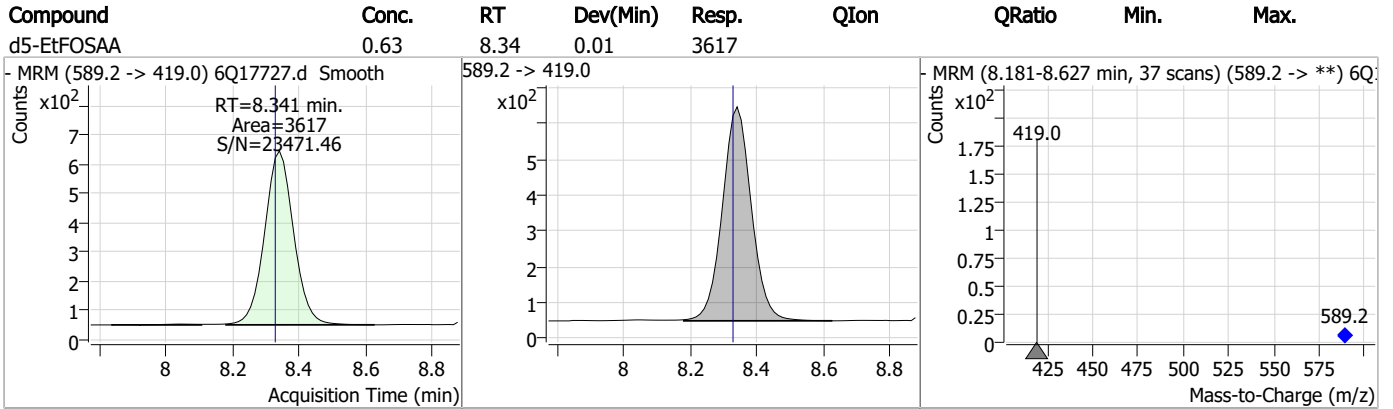


Perfluorinated Compounds by LC/MS/MS

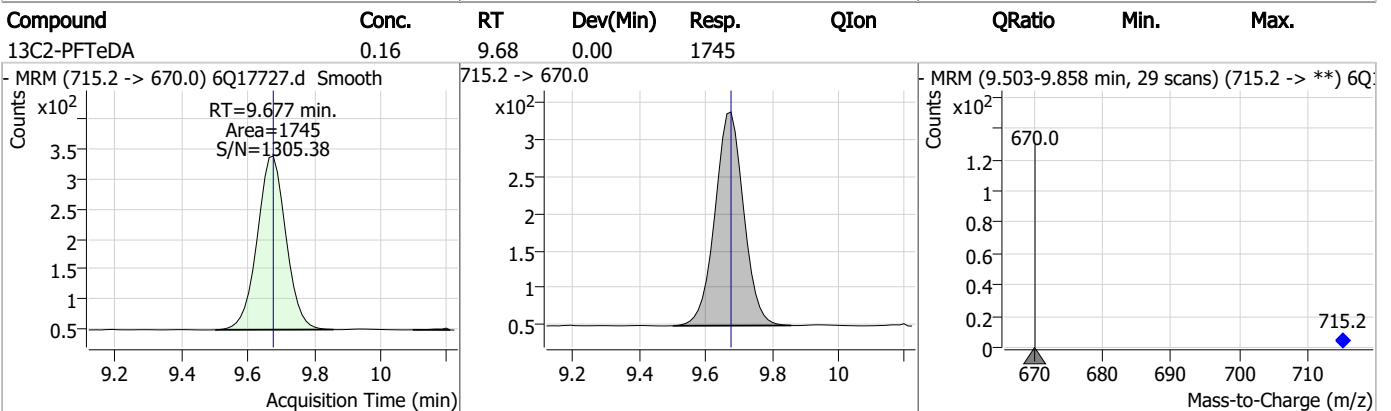
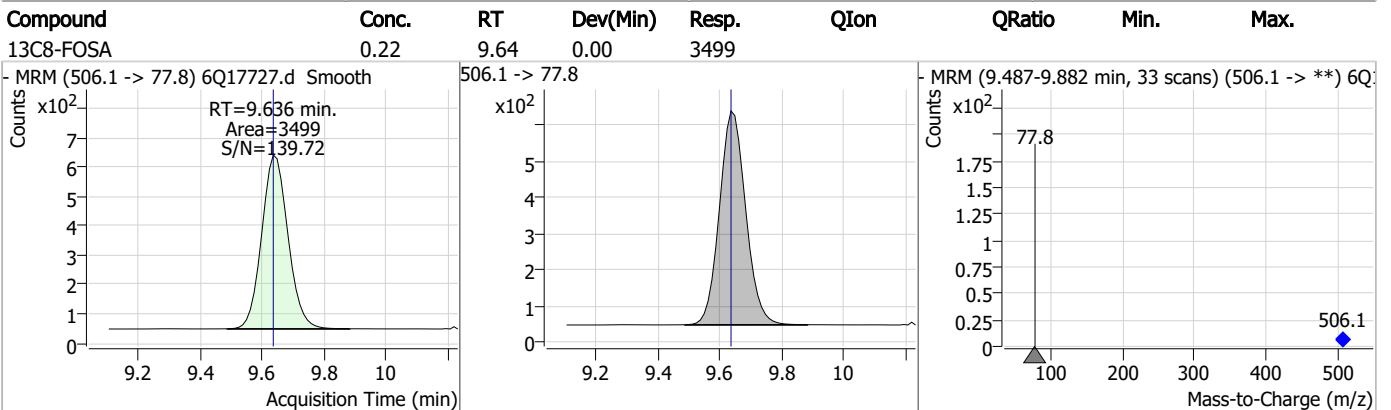
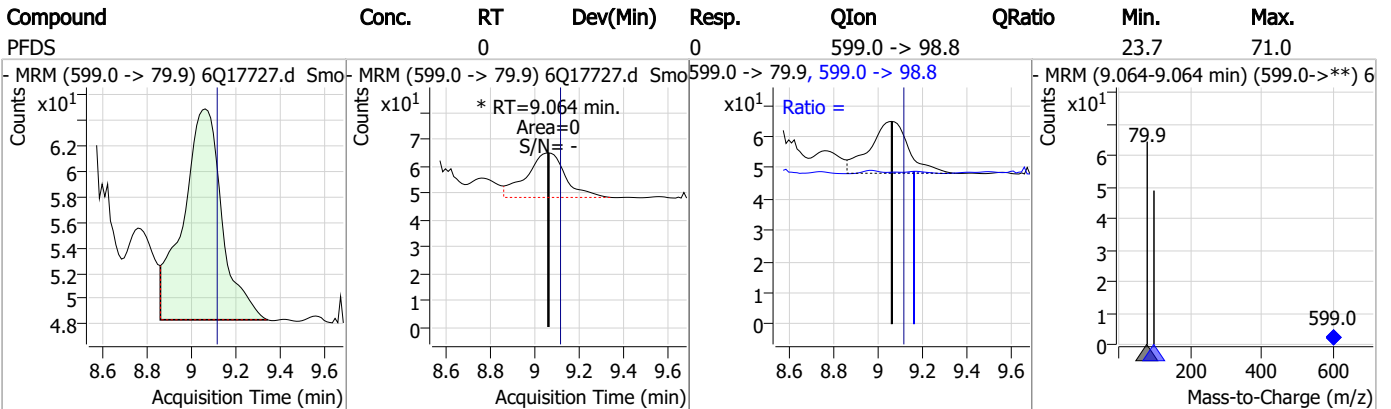
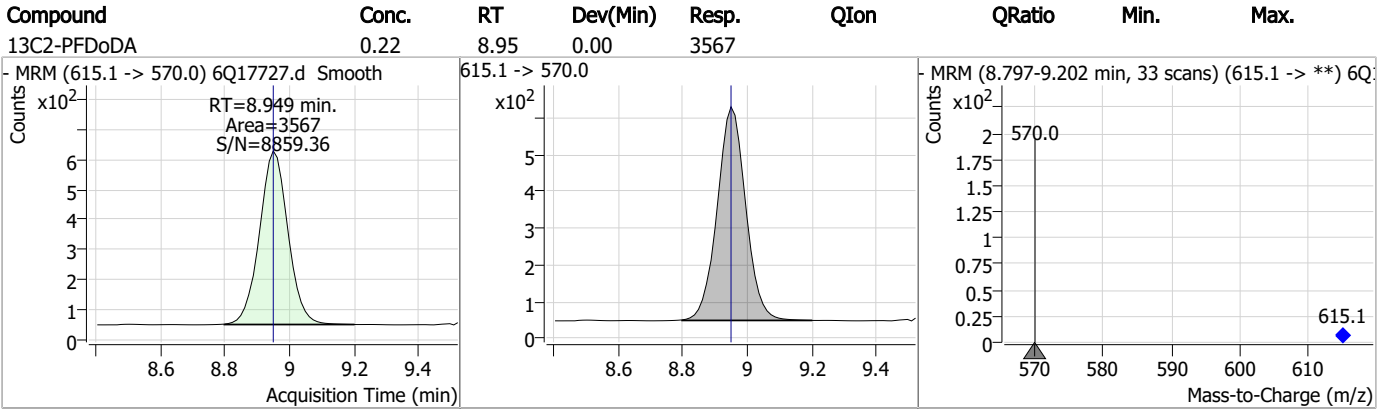


7.1.4
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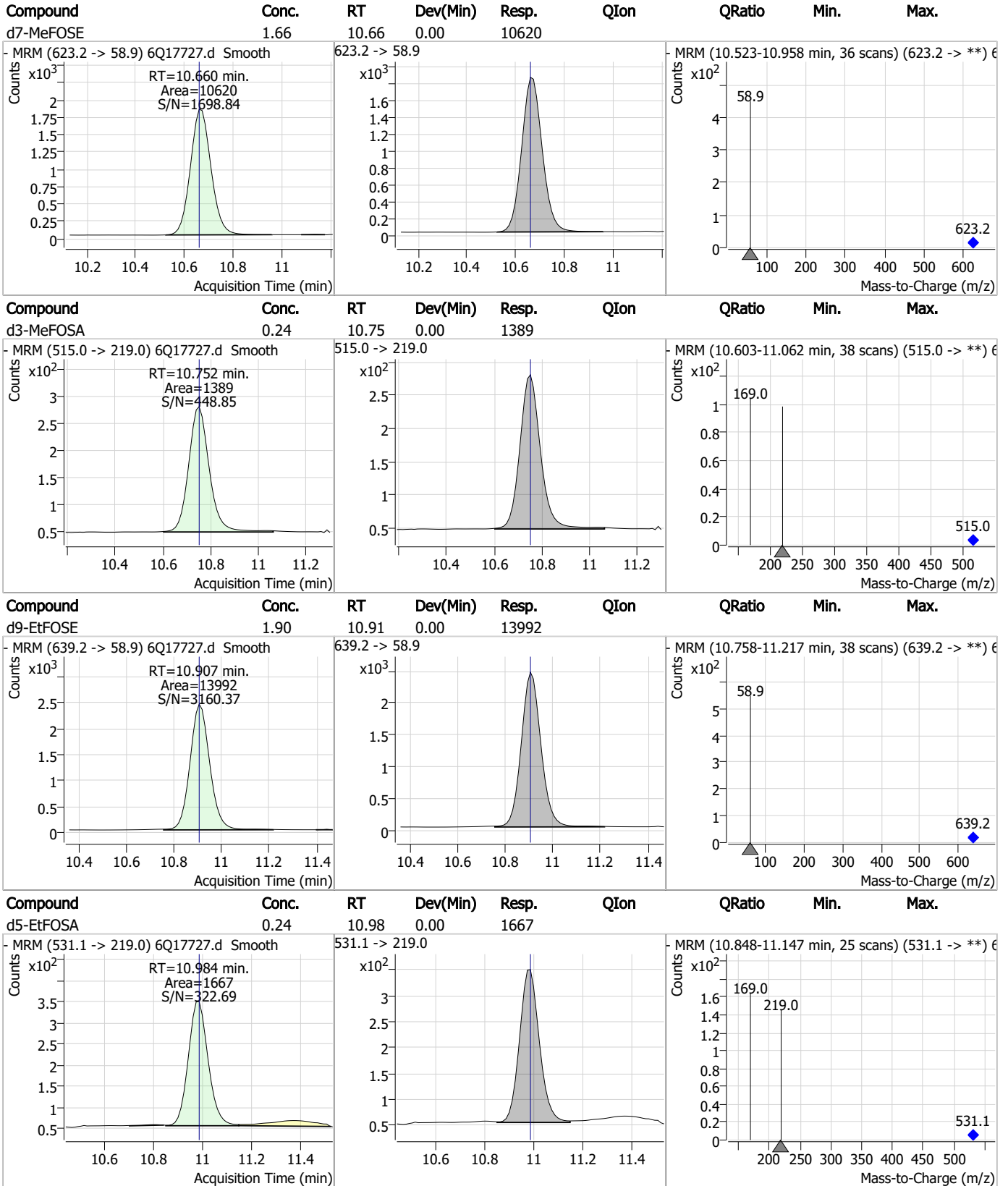
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Manual Integration Approval Summary

Sample Number: FC5818-3 Method: EPA DRAFT 1633
Lab FileID: 6Q17727.D Analyst approved: 05/11/23 14:19 Natasha Gumtie
Injection Time: 05/10/23 23:13 Supervisor approved: 05/11/23 14:22 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
7:3 Fluorotelomer carboxylate	812-70-4		7.54	Split peak

7.1.4.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44169.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 10:06:25 PM
 Sample Name : FC5818-4
 Vial : P3-C4
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96747,S4Q639,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	133379	10.00 µg/L	0.013
M5-PFPeA	4.387	268.3 -> 223.0	67811	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	45732	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	26762	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	43063	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	19802	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	17145	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	18243	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	17200	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	9963	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	13166	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	11004	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7558	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	8573	2.50 µg/L	0.000
M2-4:2FTS	5.260	329.1 -> 80.9	1271	5.00 µg/L	0.012
M2-6:2FTS	6.923	429.1 -> 80.9	2359	5.00 µg/L	0.000
M2-8:2FTS	8.003	529.1 -> 80.9	3630	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	13341	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	26023	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	10807	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	52406	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	80042	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	8941	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	7799	2.50 µg/L	-0.012
13C4-PFOS	8.354	502.8 -> 79.9	9787	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	62179	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4320	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	45998	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	16155	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	22526	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	38722	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.260	329.1 -> 80.9	1271	7.24 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 144.8%		
13C2-6:2FTS	6.923	429.1 -> 80.9	2359	7.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 149.1%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3630	7.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 147.0%		
13C2-PFDoDA	9.130	615.1 -> 570.0	17200	1.10 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C2-PFTeDA	9.924	715.2 -> 670.0	9963	0.78 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 62.6%		
13C3-PFBS	5.464	302.1 -> 79.9	11004	2.70 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C3-PFHxS	7.254	402.1 -> 79.9	7558	2.82 µg/L	0.012

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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 = 112.9%	
13C4-PFBA	2.936	216.8 -> 171.9	133379	11.40 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.0%	
13C4-PFHpA	6.492	367.1 -> 322.0	26762	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C5-PFHxA	5.559	318.0 -> 273.0	45732	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C5-PFPeA	4.387	268.3 -> 223.0	67811	5.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.7%	
13C6-PFDA	8.216	519.1 -> 474.1	17145	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C7-PFUnDA	8.685	570.0 -> 525.1	18243	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-FOSA	9.796	506.1 -> 77.8	13166	2.15 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.8%	
13C8-PFOA	7.163	421.1 -> 376.0	43063	2.85 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.0%	
13C8-PFOS	8.354	507.1 -> 79.9	8573	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C9-PFNA	7.709	472.1 -> 427.0	19802	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
d3-MeFOSAA	8.273	573.2 -> 419.0	13341	5.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	26023	10.22 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSA	11.076	515.0 -> 219.0	7799	2.03 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.3%	
d5-EtFOSAA	8.483	589.2 -> 419.0	10807	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
d7-MeFOSE	10.972	623.2 -> 58.9	52406	17.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.8%	
d9-EtFOSE	11.269	639.2 -> 58.9	80042	18.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	8941	2.19 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.7%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	Dev(Min)	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	9.786	498.1 -> 77.9	0	µg/L	m	1
		498.1 -> 478.0	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	7.921	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	8.934	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.644	630.0 -> 58.9	0	µg/L	m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

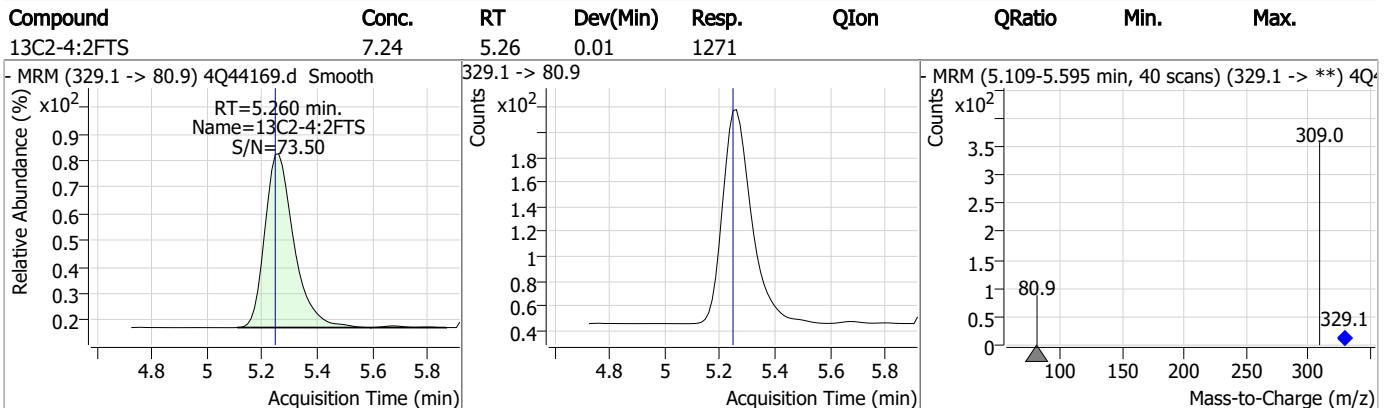
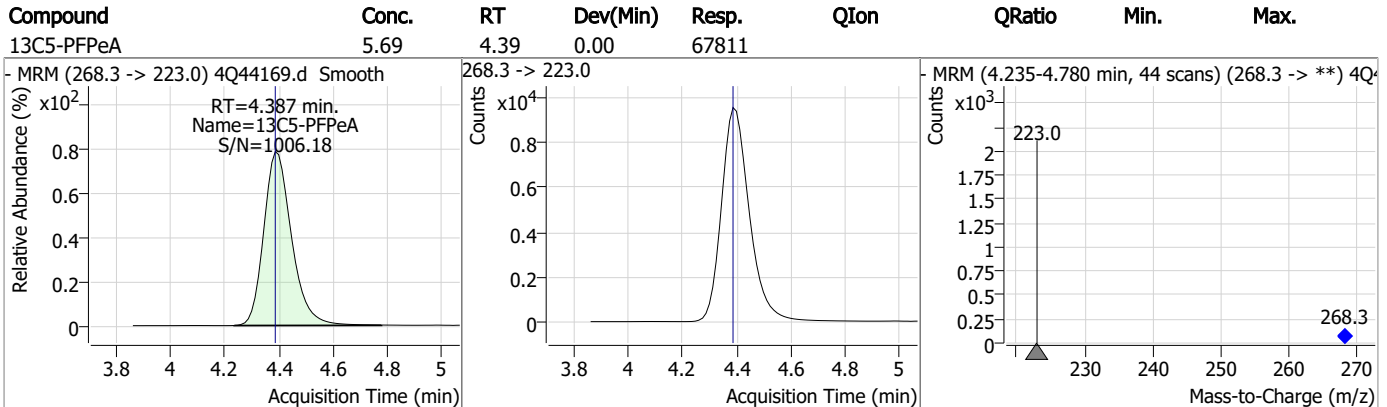
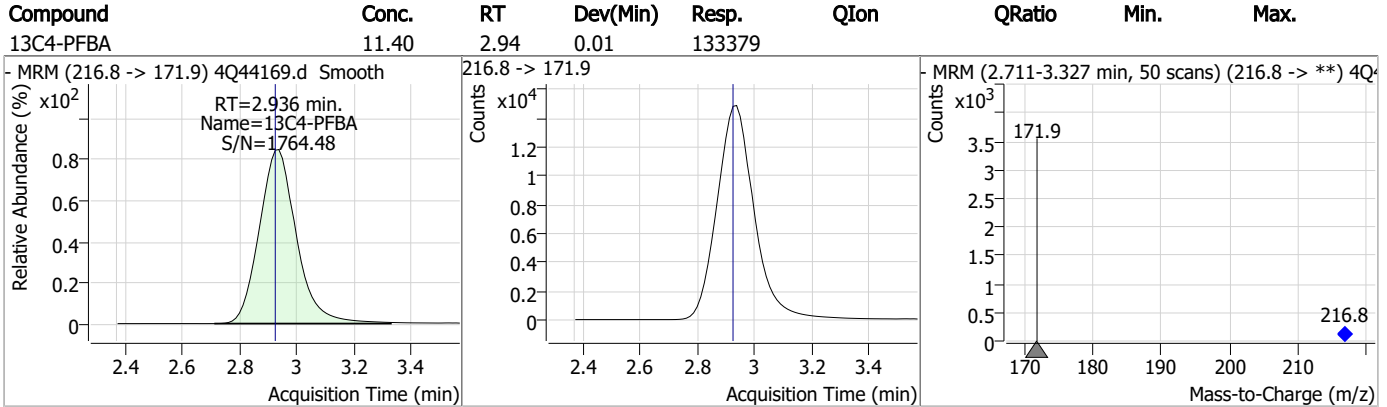
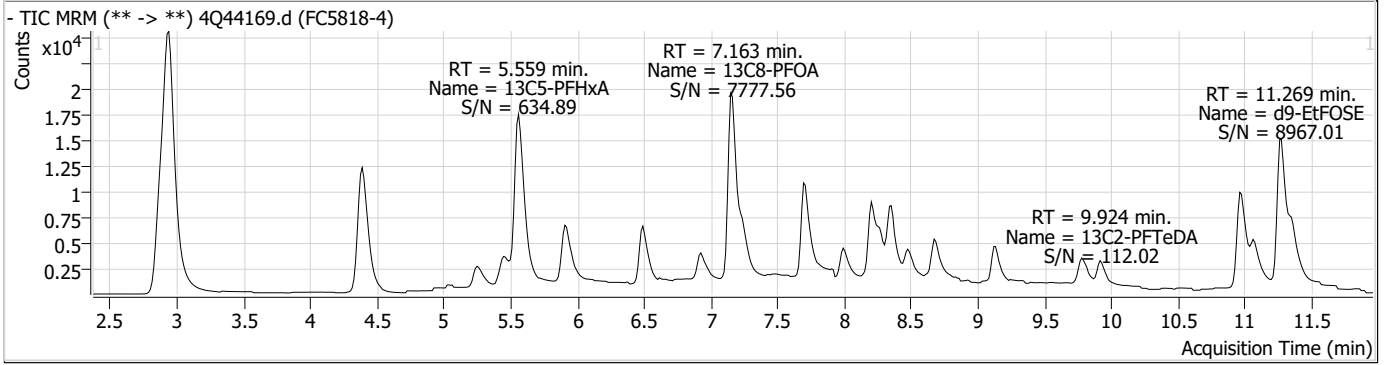
Perfluorinated Compounds by LC/MS/MS

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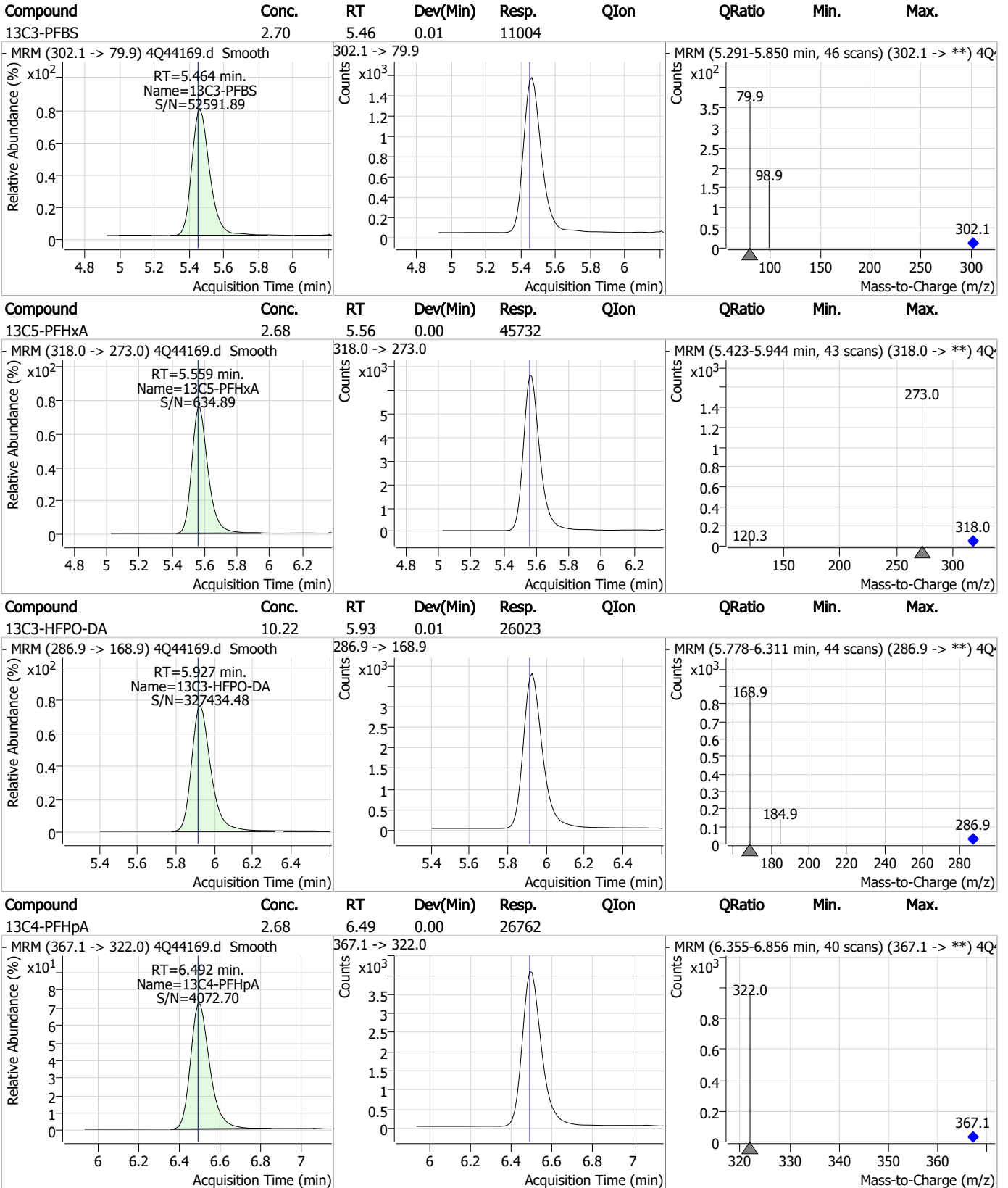
7.1.5
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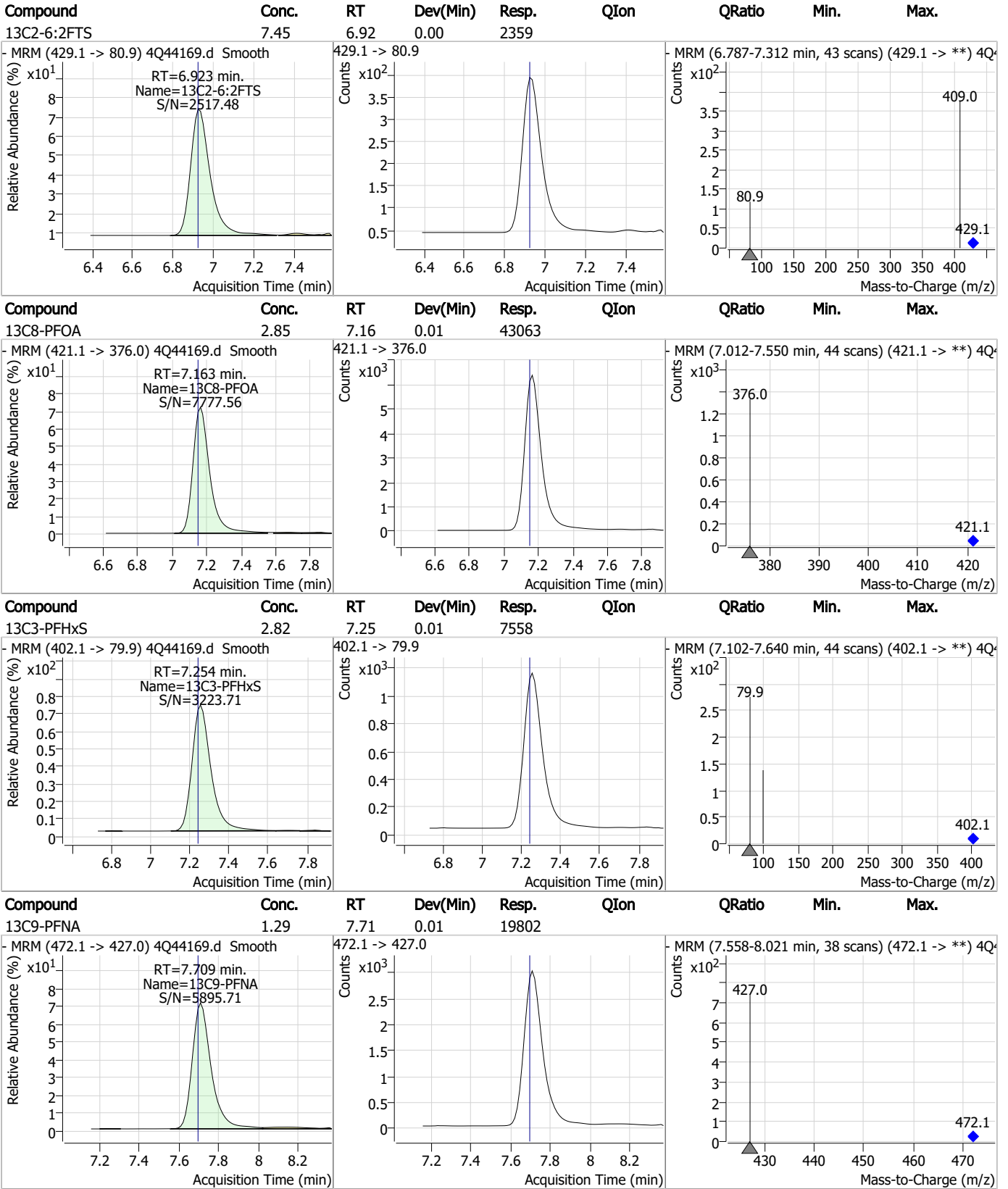
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



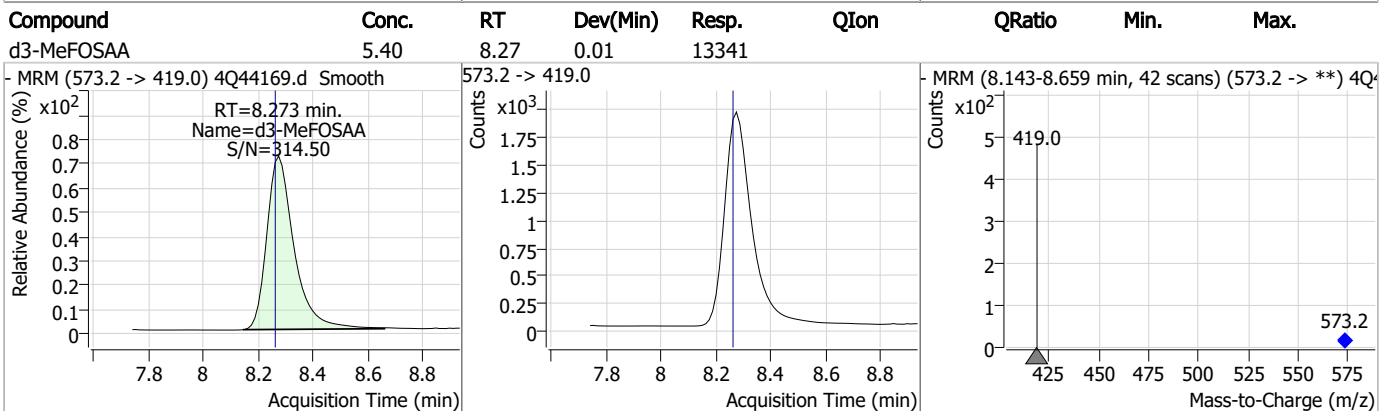
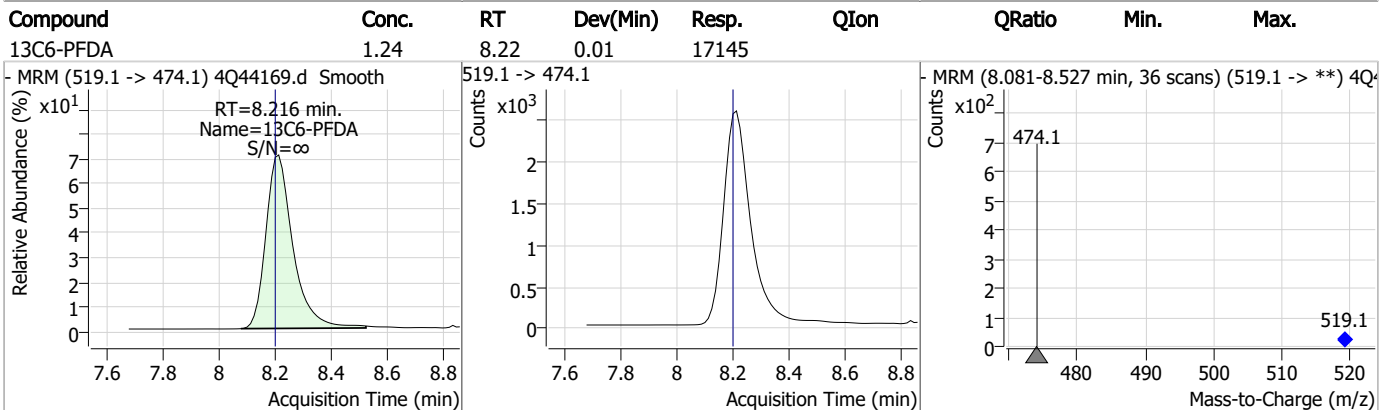
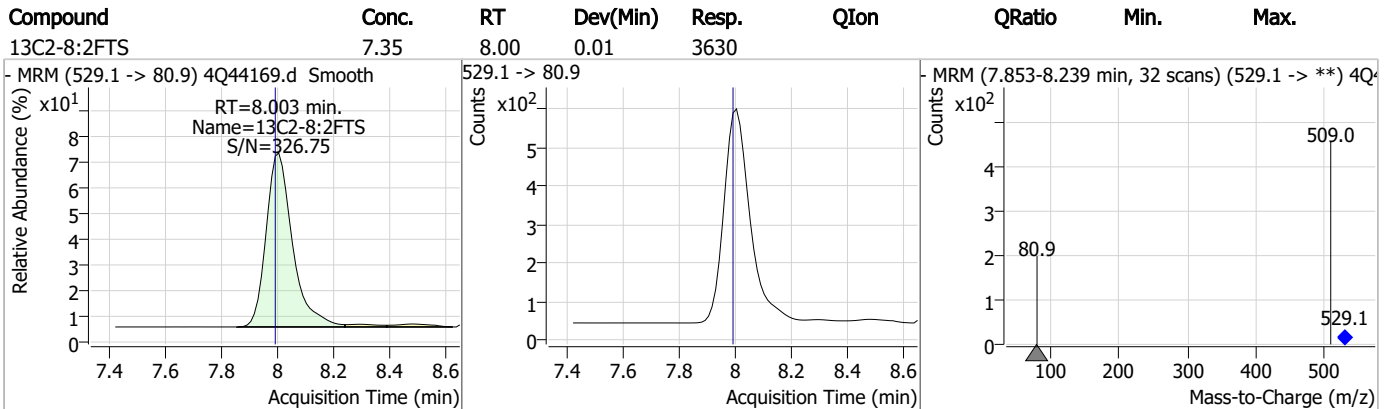
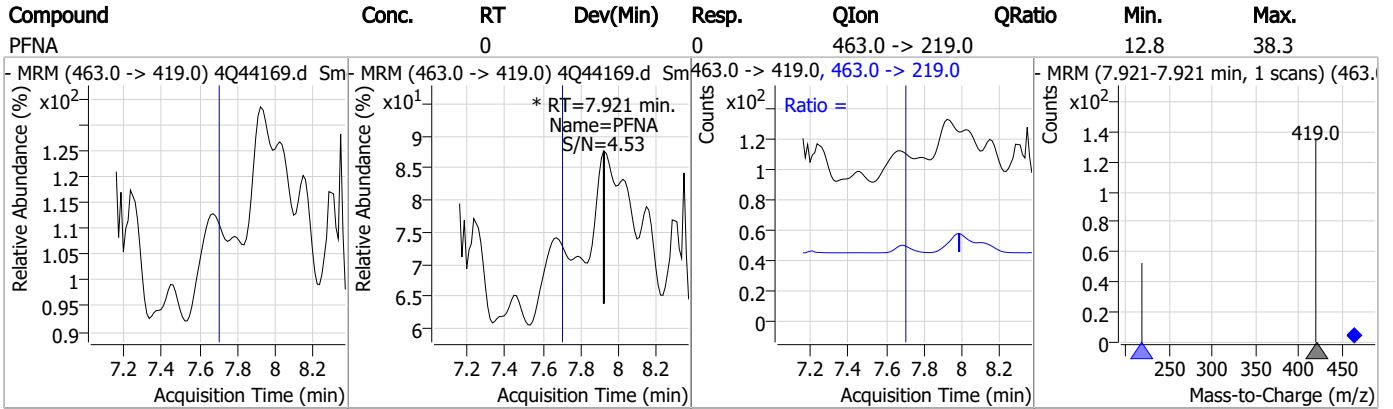
Perfluorinated Compounds by LC/MS/MS



7.1.5

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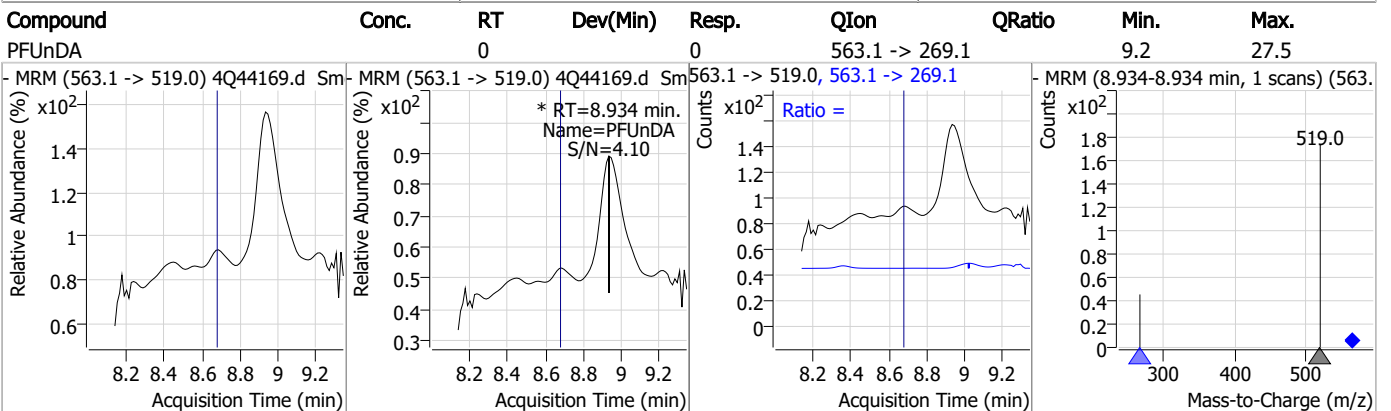
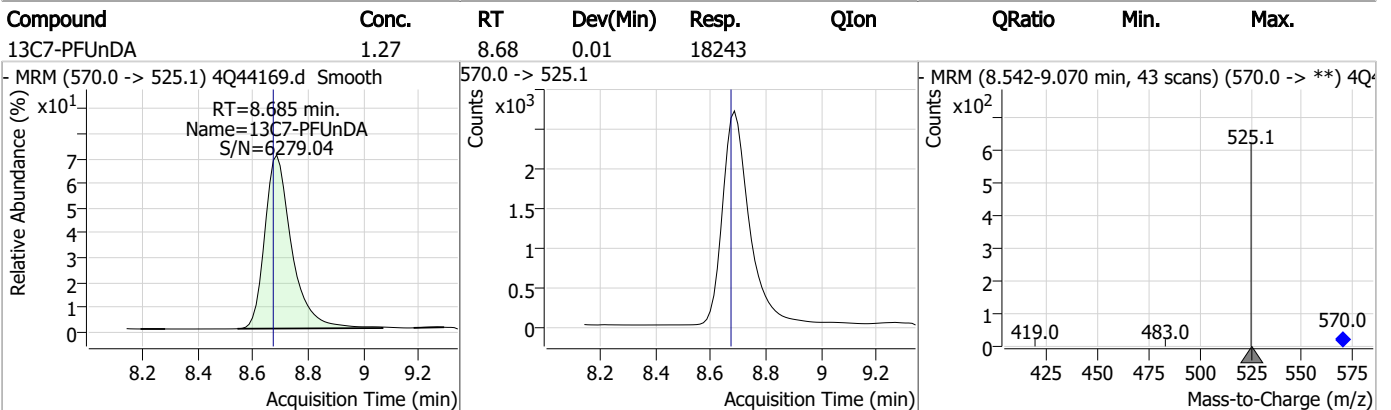
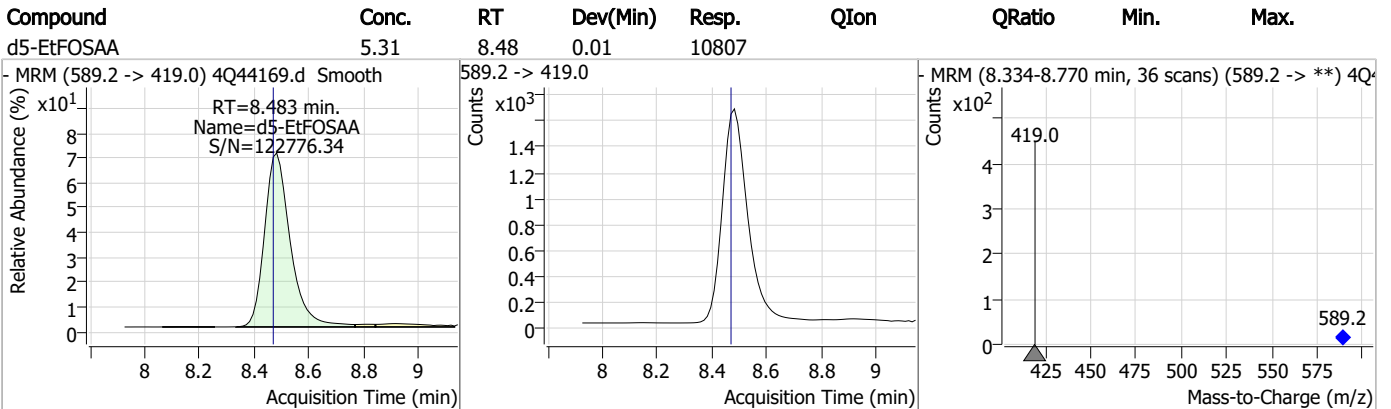
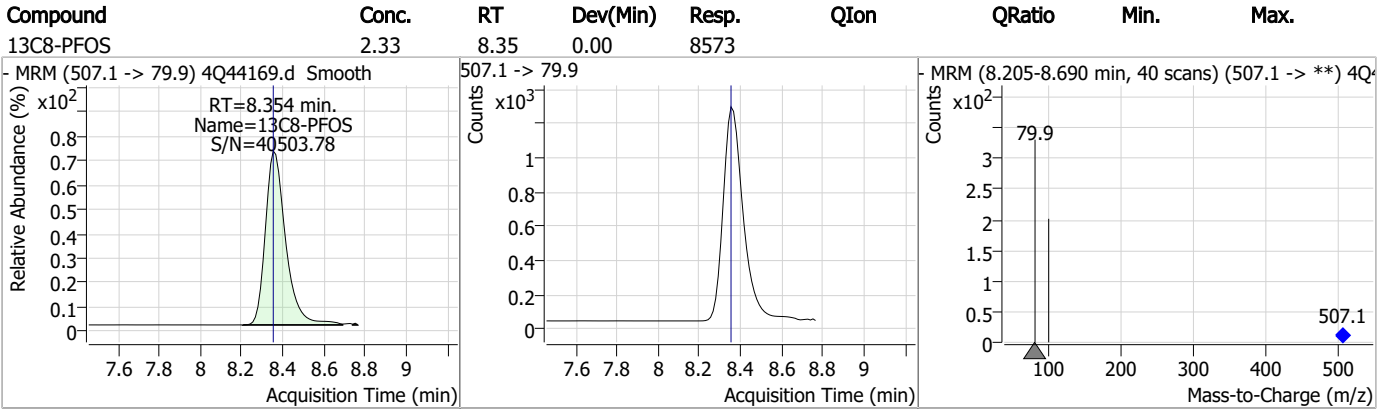
Perfluorinated Compounds by LC/MS/MS



7.1.5

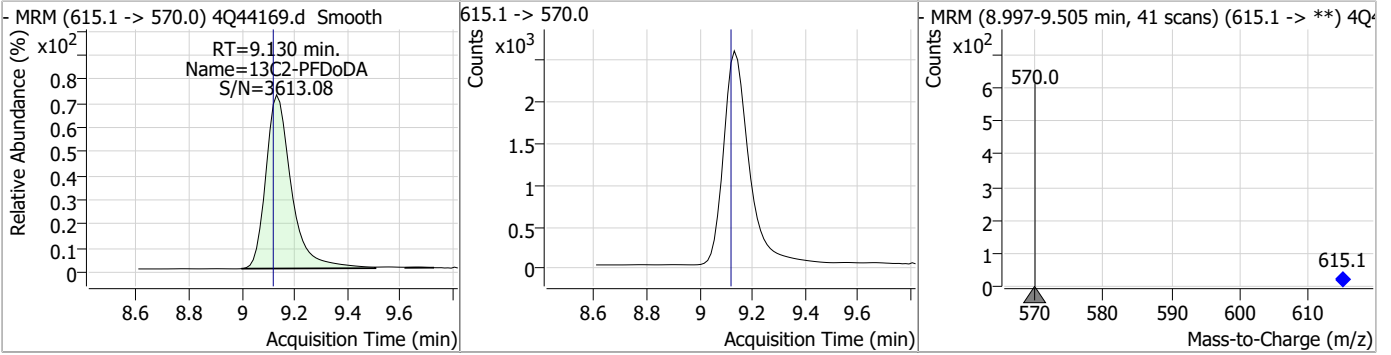
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Perfluorinated Compounds by LC/MS/MS

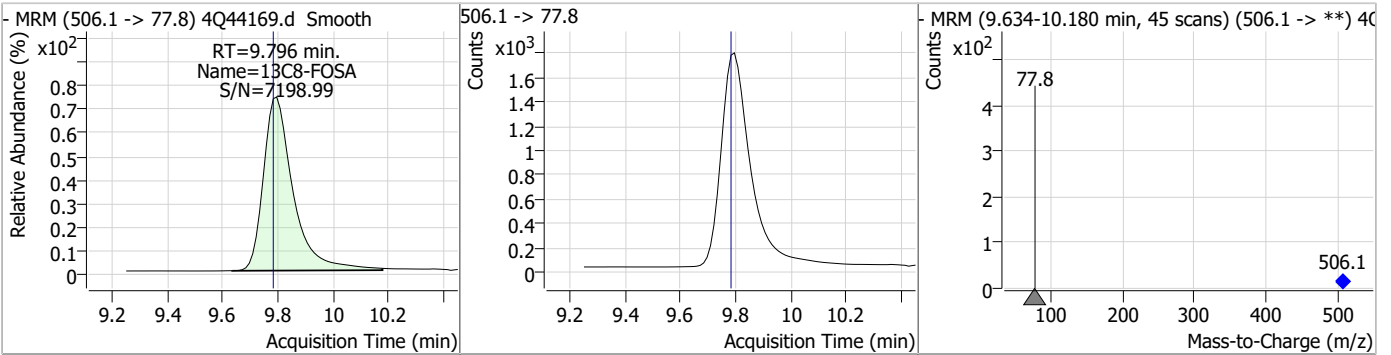


Perfluorinated Compounds by LC/MS/MS

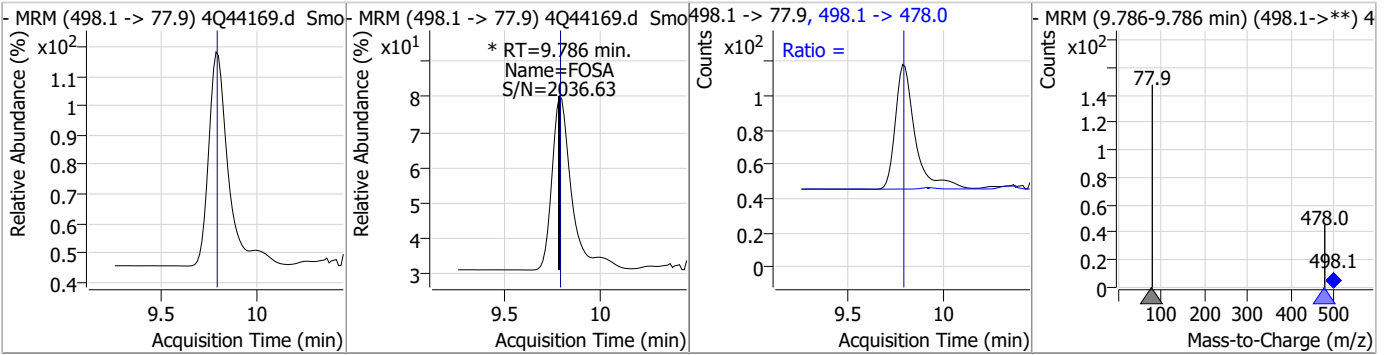
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.10	9.13	0.01	17200				



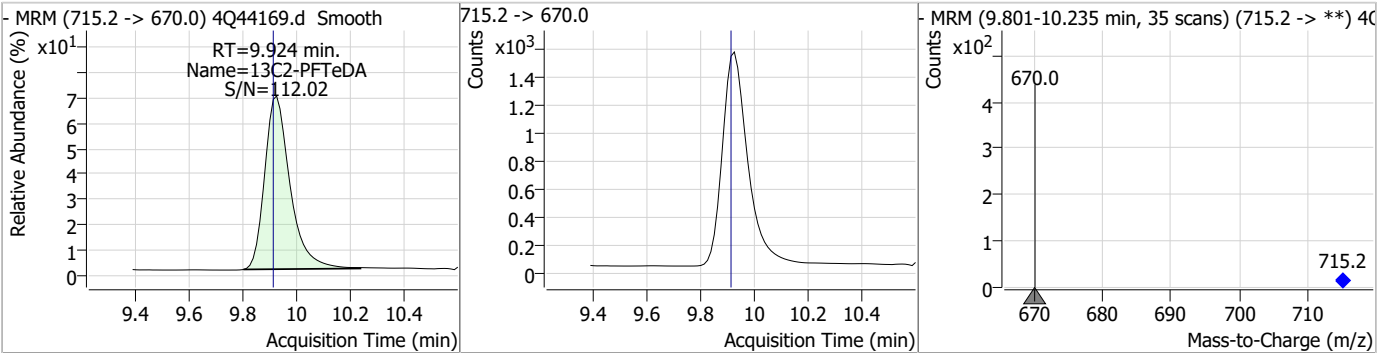
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.15	9.80	0.01	13166				



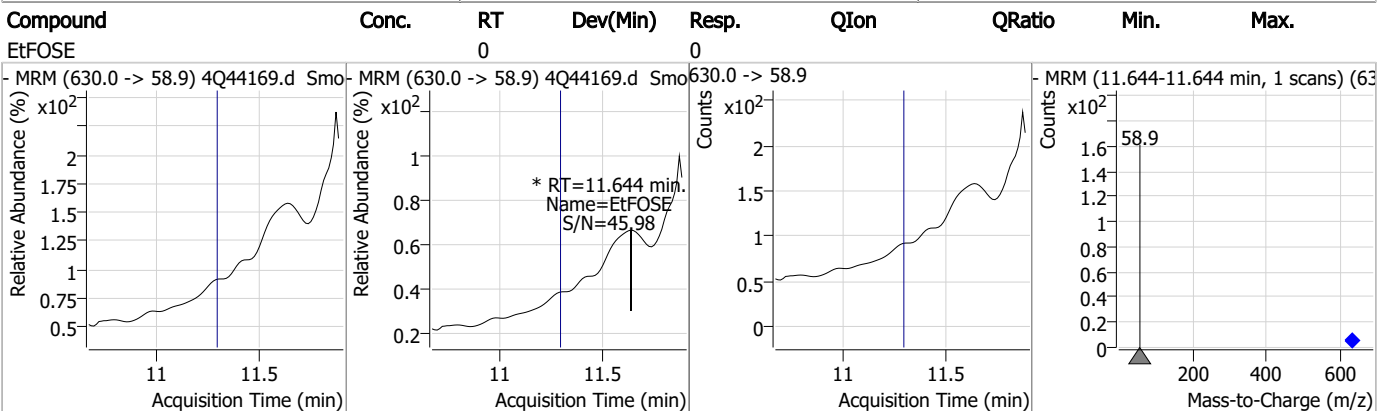
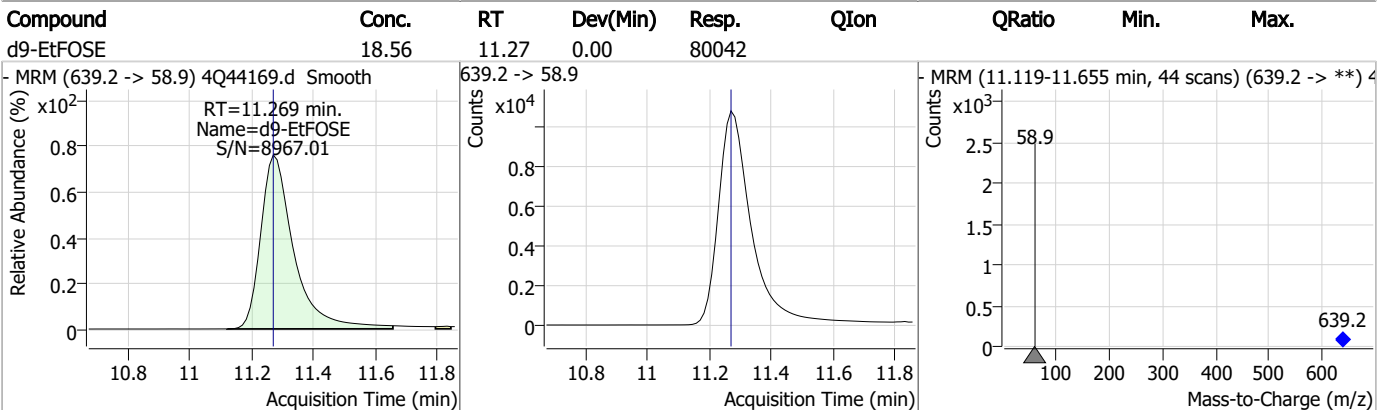
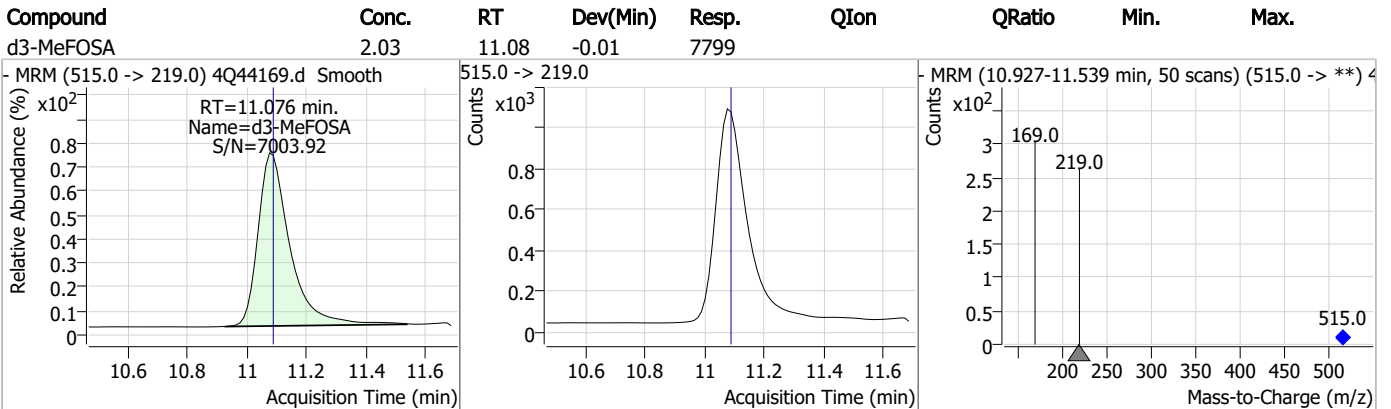
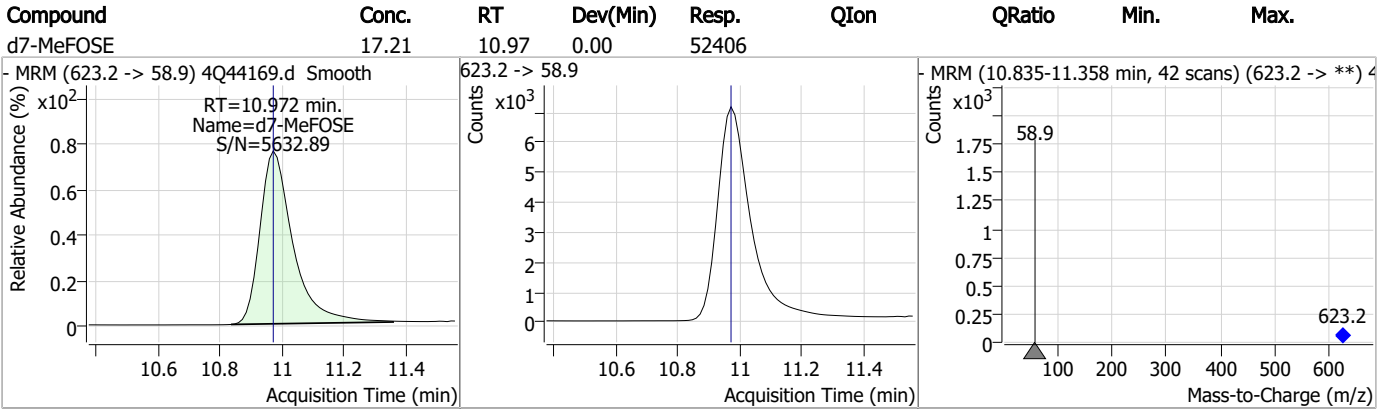
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0	0	0	0	498.1 -> 478.0		1.7	5.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.78	9.92	0.01	9963				



Perfluorinated Compounds by LC/MS/MS

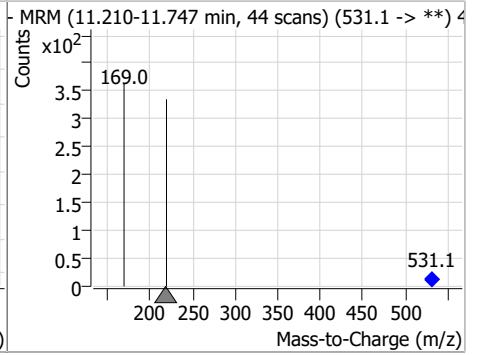
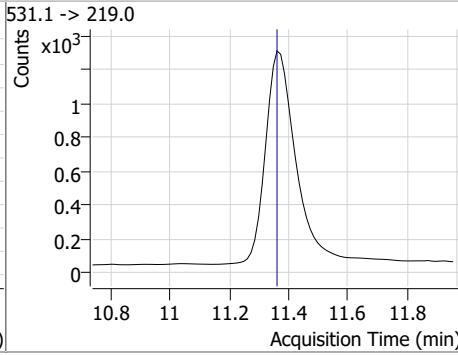
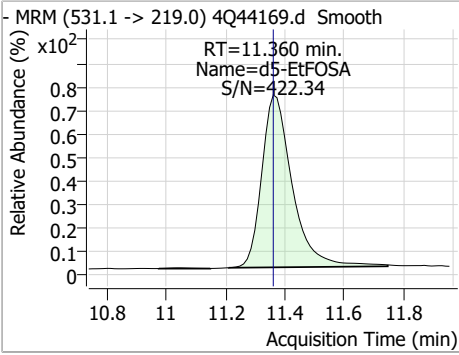


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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOA	2.19	11.36	0.00	8941				



7.1.5
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44170.d
Operator : marthav
Acq. Method : 1633full_4Q.m
Acq. Date-Time : 5/9/2023 10:20:30 PM
Sample Name : FC5818-5
Vial : P3-C5
DA Method File : 1633_050323_S4Q634.quantmethod.xml
Batch Name : s4q639.batch.bin
Sample Information : OP96747,S4Q639,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	115494	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	65569	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	45316	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	27740	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	41370	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	20153	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	17518	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	16067	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	13839	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	9092	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	15052	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	11339	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	6999	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	8145	2.50 µg/L	0.000
M2-4:2FTS	5.260	329.1 -> 80.9	1205	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	2162	5.00 µg/L	0.013
M2-8:2FTS	7.990	529.1 -> 80.9	2456	5.00 µg/L	0.000
M3-MeFOSAA	8.273	573.2 -> 419.0	13351	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	24090	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	11366	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	53654	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	73000	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	7904	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	7210	2.50 µg/L	-0.012
13C4-PFOS	8.354	502.8 -> 79.9	10530	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	65641	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4587	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	50244	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	17416	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	24737	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	40766	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.260	329.1 -> 80.9	1205	6.46 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.3%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2162	6.43 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.6%		
13C2-8:2FTS	7.990	529.1 -> 80.9	2456	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-PFDoDA	9.130	615.1 -> 570.0	13839	0.82 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 65.6%		
13C2-PFTeDA	9.924	715.2 -> 670.0	9092	0.66 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 53.0%		
13C3-PFBS	5.464	302.1 -> 79.9	11339	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C3-PFHxS	7.254	402.1 -> 79.9	6999	2.46 µg/L	0.012

7.1.6
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C4-PFBA	2.924	216.8 -> 171.9	115494	9.35 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C4-PFHpA	6.492	367.1 -> 322.0	27740	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C5-PFHxA	5.559	318.0 -> 273.0	45316	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFPeA	4.387	268.3 -> 223.0	65569	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C6-PFDA	8.216	519.1 -> 474.1	17518	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C7-PFUnDA	8.685	570.0 -> 525.1	16067	1.04 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 82.8%	
13C8-FOSA	9.796	506.1 -> 77.8	15052	2.28 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C8-PFOA	7.163	421.1 -> 376.0	41370	2.51 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-PFOS	8.354	507.1 -> 79.9	8145	2.05 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C9-PFNA	7.709	472.1 -> 427.0	20153	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
d3-MeFOSAA	8.273	573.2 -> 419.0	13351	5.02 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	24090	8.98 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.8%	
d3-MeFOSA	11.076	515.0 -> 219.0	7210	1.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 69.8%	
d5-EtFOSAA	8.483	589.2 -> 419.0	11366	5.19 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d7-MeFOSE	10.972	623.2 -> 58.9	53654	16.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 65.5%	
d9-EtFOSE	11.269	639.2 -> 58.9	73000	15.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 62.9%	
d5-EtFOSA	11.360	531.1 -> 219.0	7904	1.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.0%	

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	2.996	212.8 -> 168.9	1002	0.32 µg/L	100
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8				
		363.1 -> 319.0	1501	0.09	µg/L	93
PFHpS	-	363.1 -> 169.0	223			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.562	449.0 -> 98.9				
		313.0 -> 269.0	3813	0.21	µg/L	97
PFHxS	-	313.0 -> 118.9	154			
		398.7 -> 79.9	-	N.D.		
PFNA	8.121	398.7 -> 98.9				
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			1
		548.8 -> 79.9	-	N.D.		
PFOA	7.164	548.8 -> 98.9				
		413.0 -> 369.0	1557	0.07	µg/L	m
PFOS	-	413.0 -> 169.0	178			82
		498.9 -> 79.9	-	N.D.		
PFPeA	4.389	498.9 -> 98.8				
		263.0 -> 219.0	5315	0.34	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.656	630.0 -> 58.9	0		µg/L	m
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.6
7

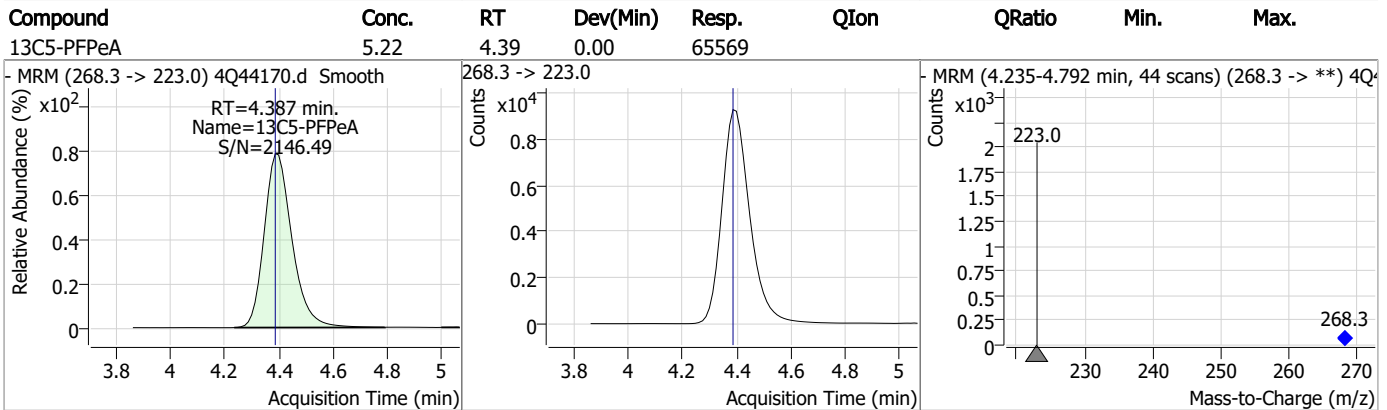
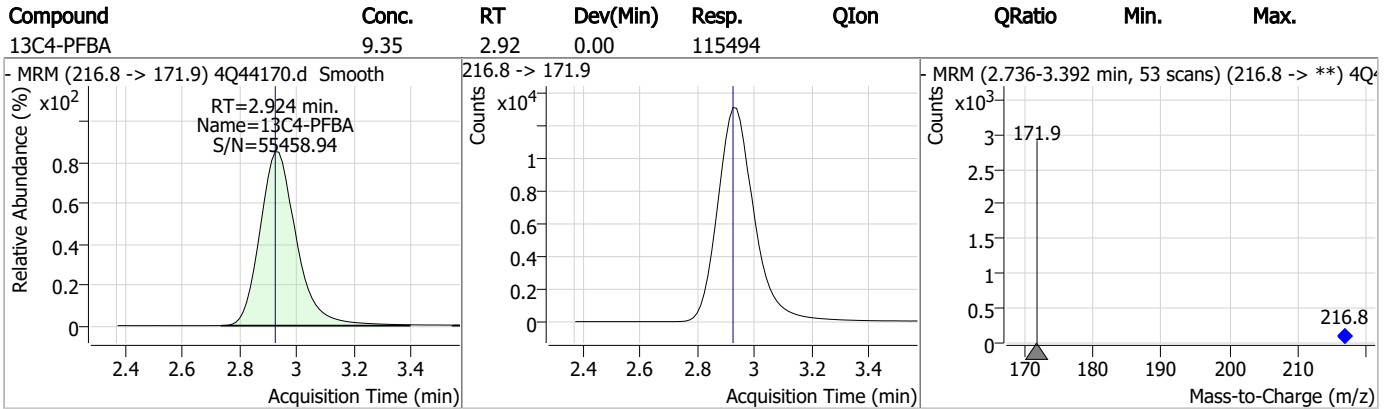
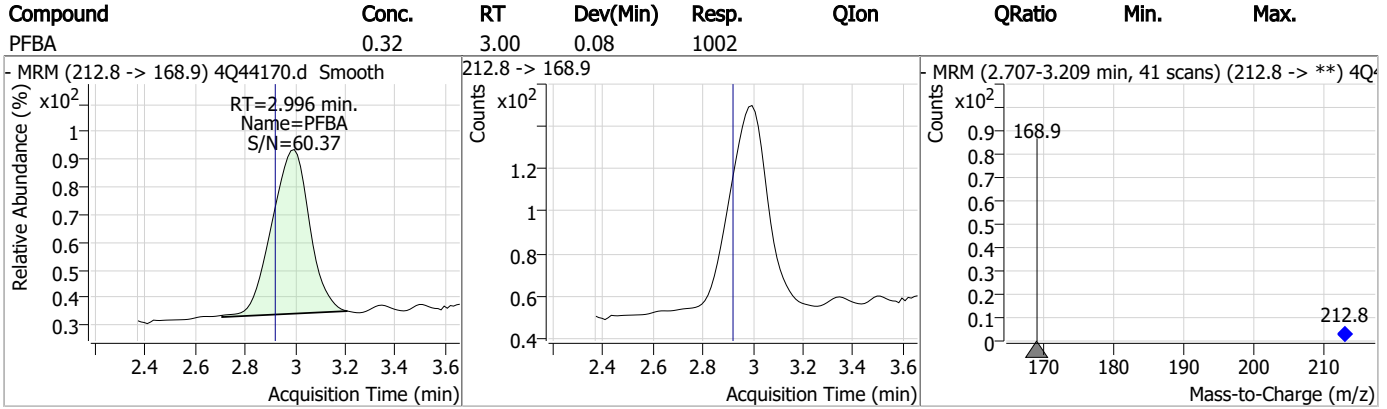
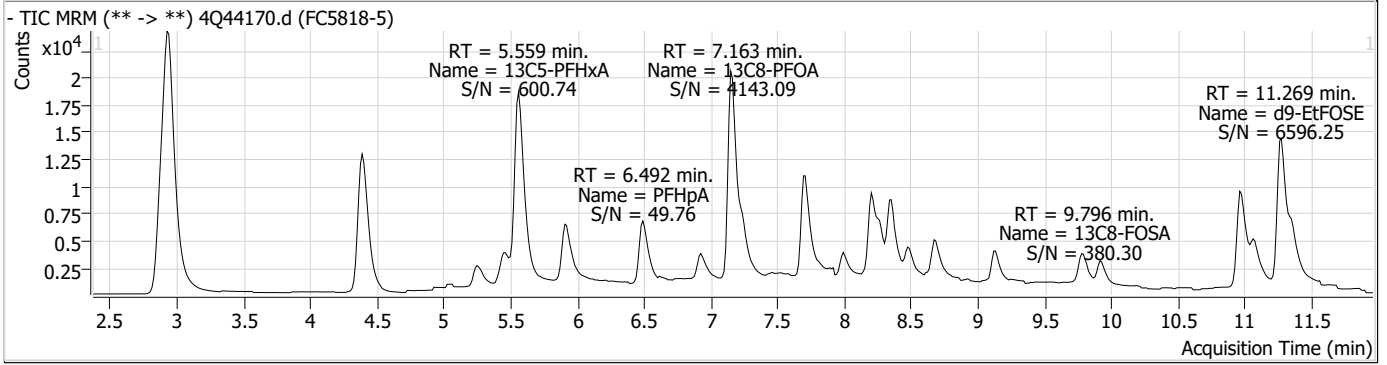
Perfluorinated Compounds by LC/MS/MS

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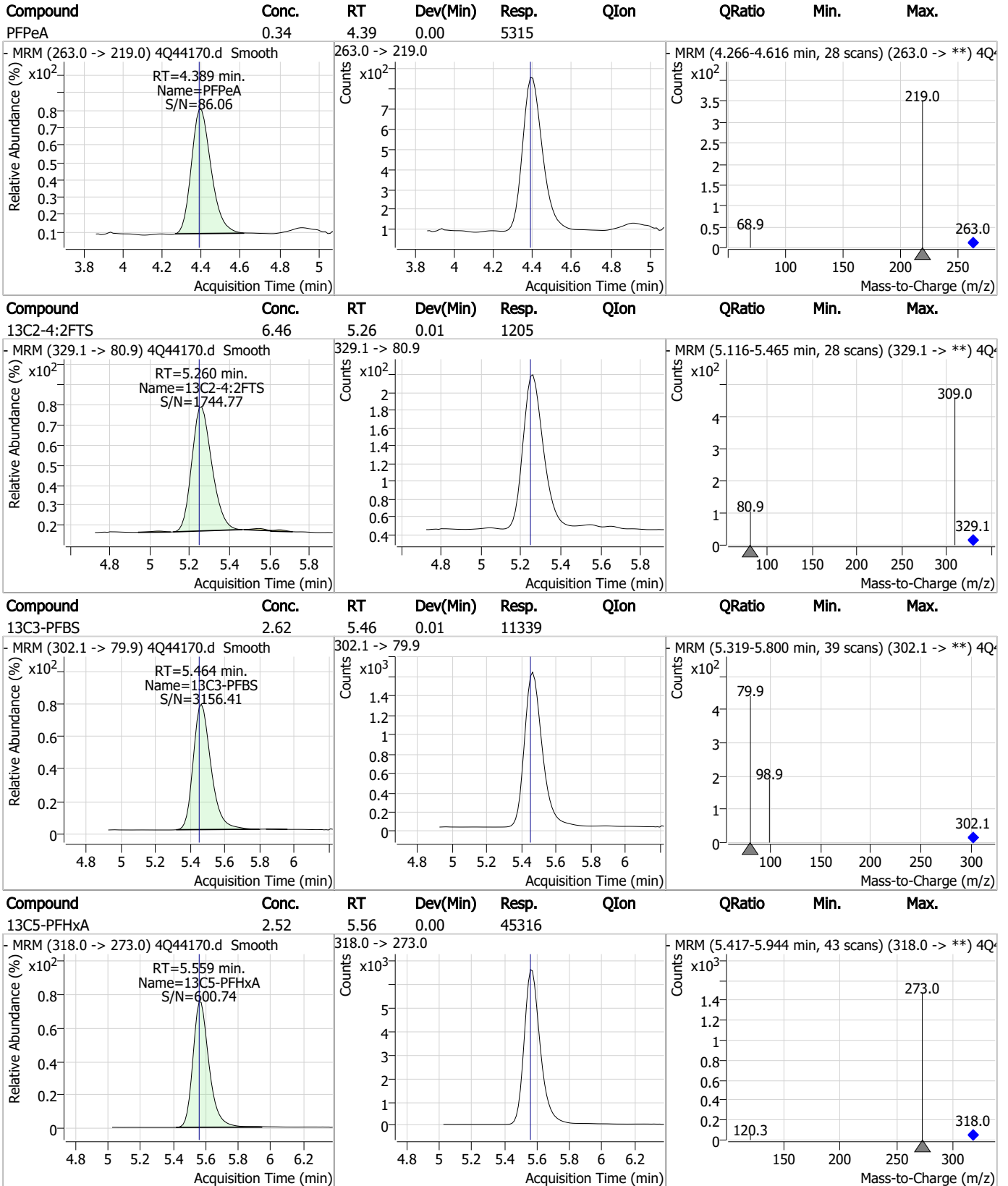
7.1.6
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Perfluorinated Compounds by LC/MS/MS

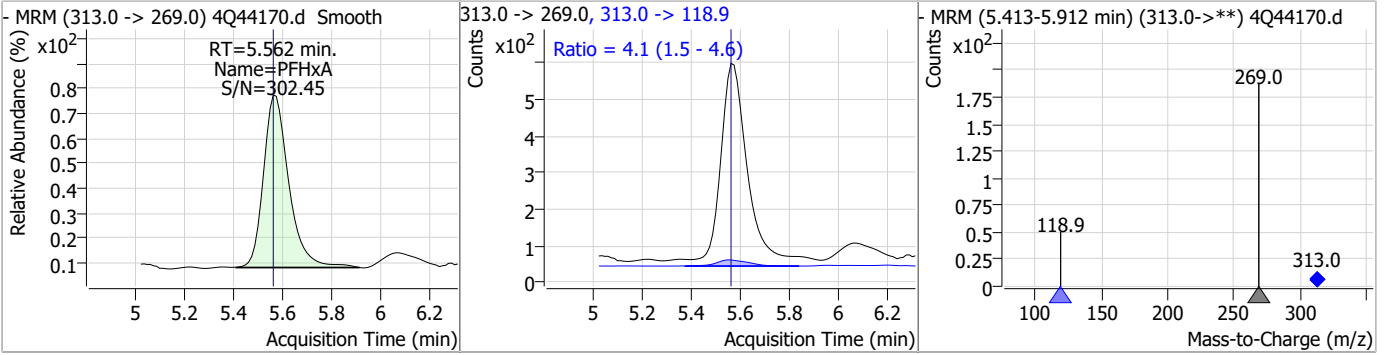


Perfluorinated Compounds by LC/MS/MS

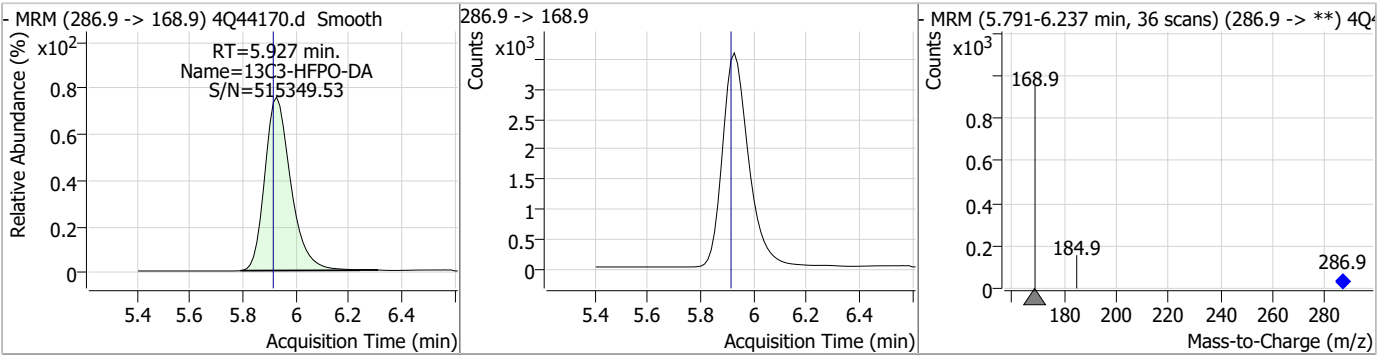


Perfluorinated Compounds by LC/MS/MS

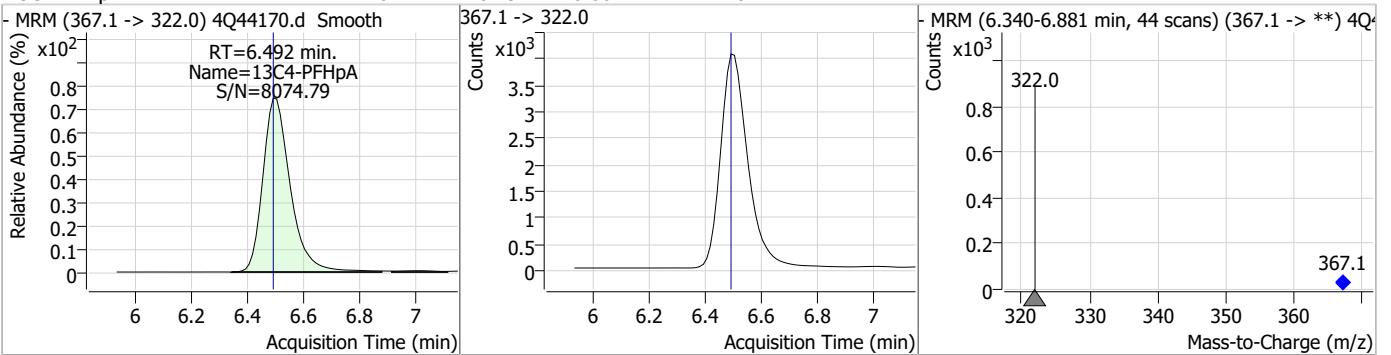
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.21	5.56	0.00	3813	313.0 -> 118.9	4.1	1.5	4.6



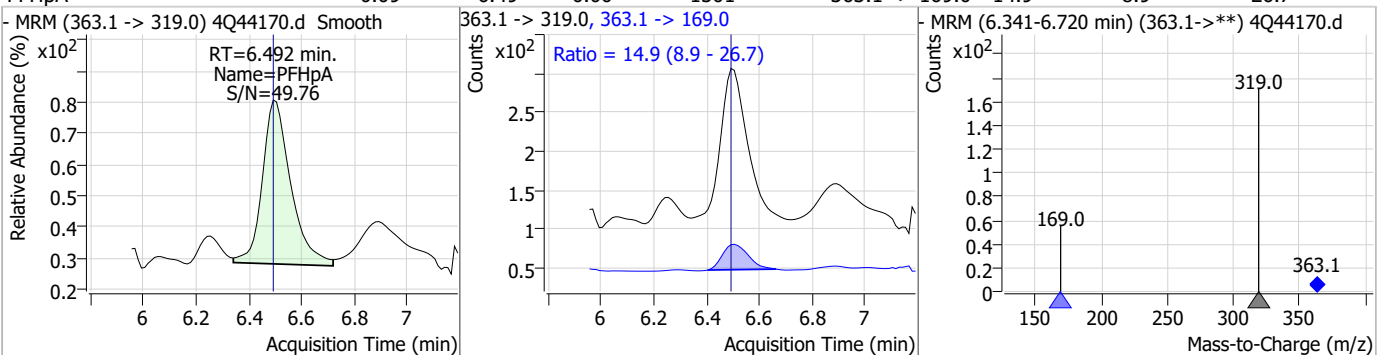
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.98	5.93	0.01	24090				



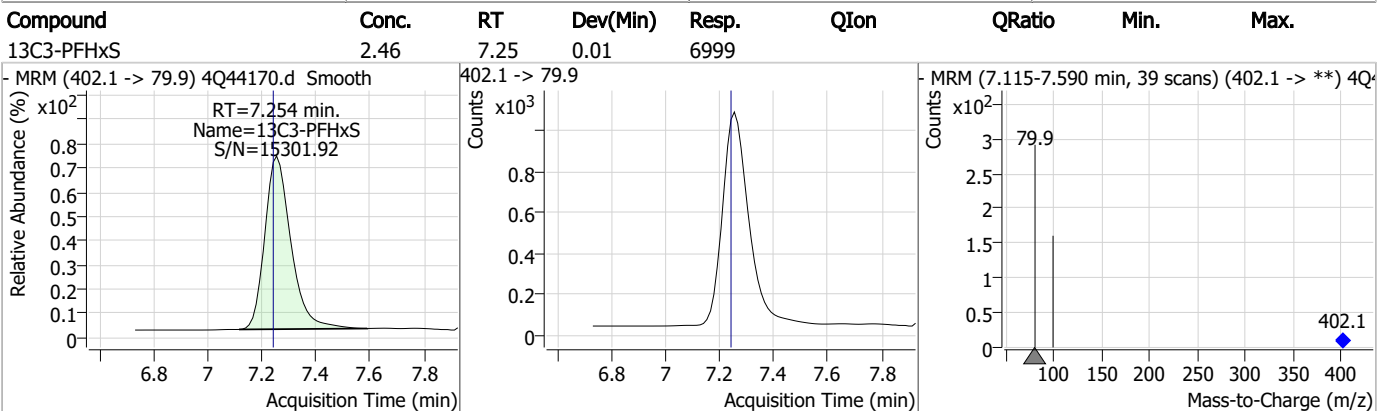
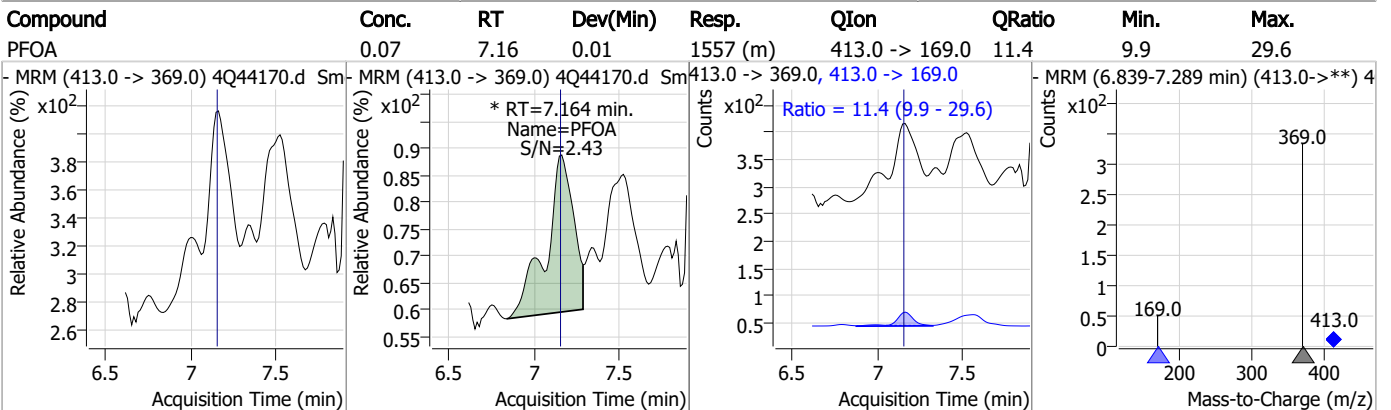
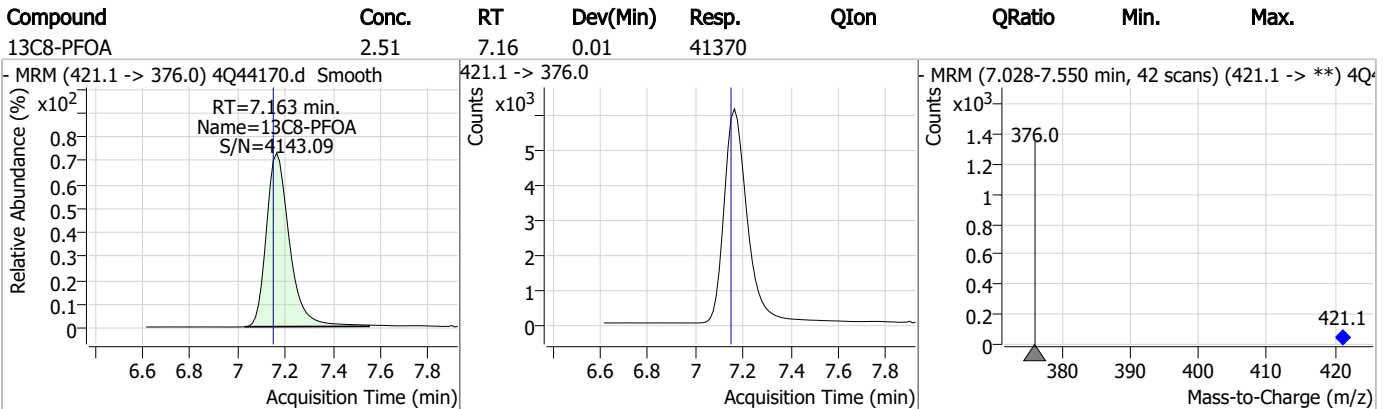
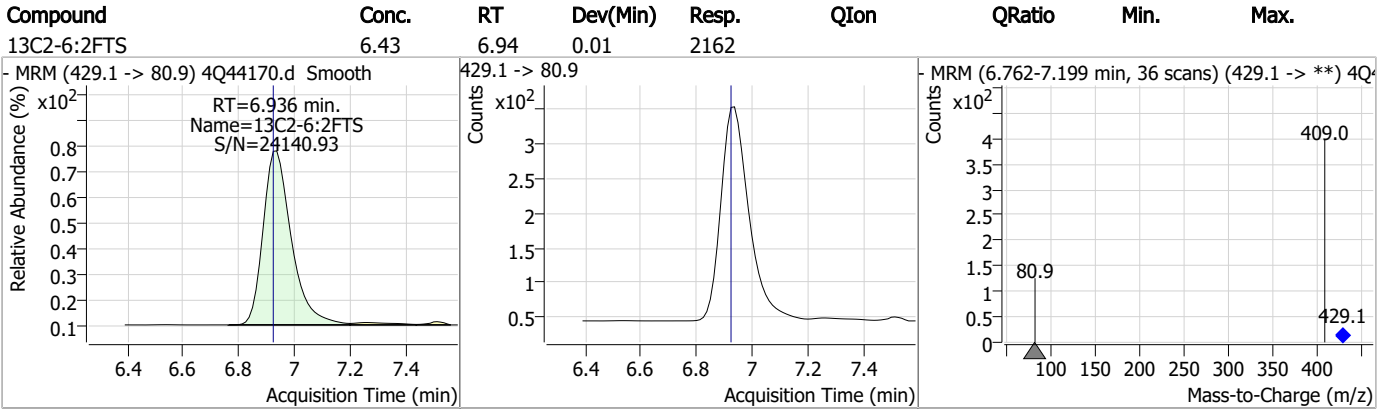
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.64	6.49	0.00	27740				



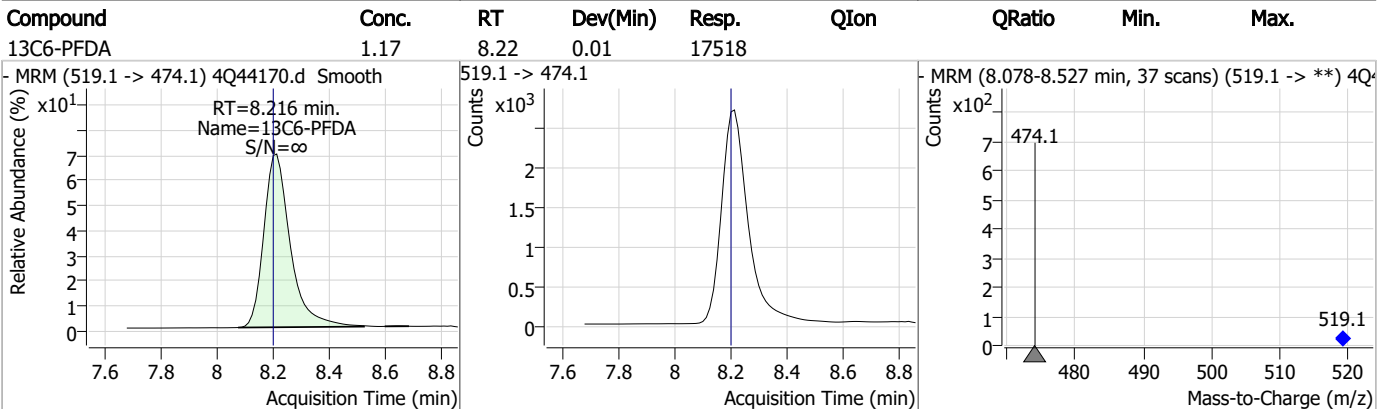
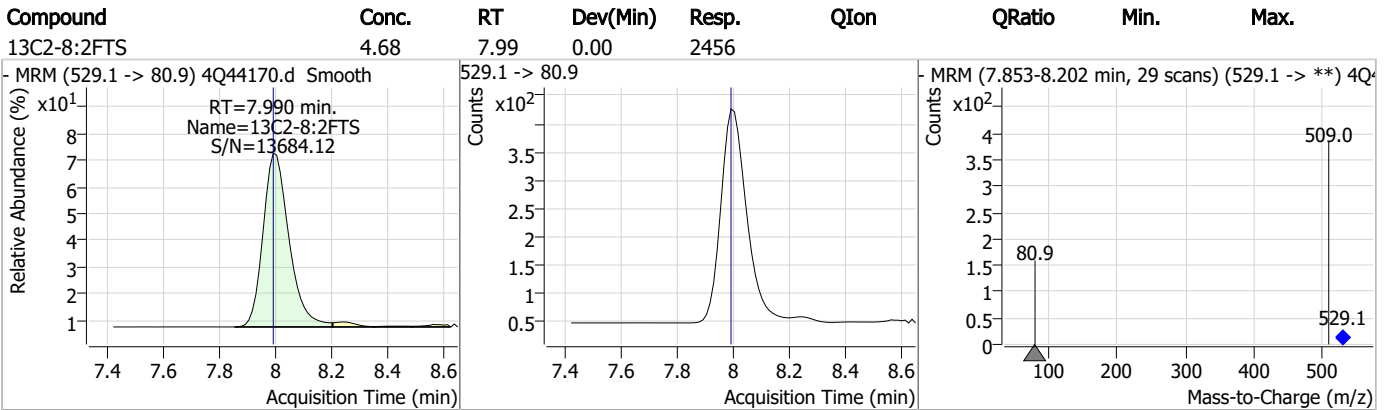
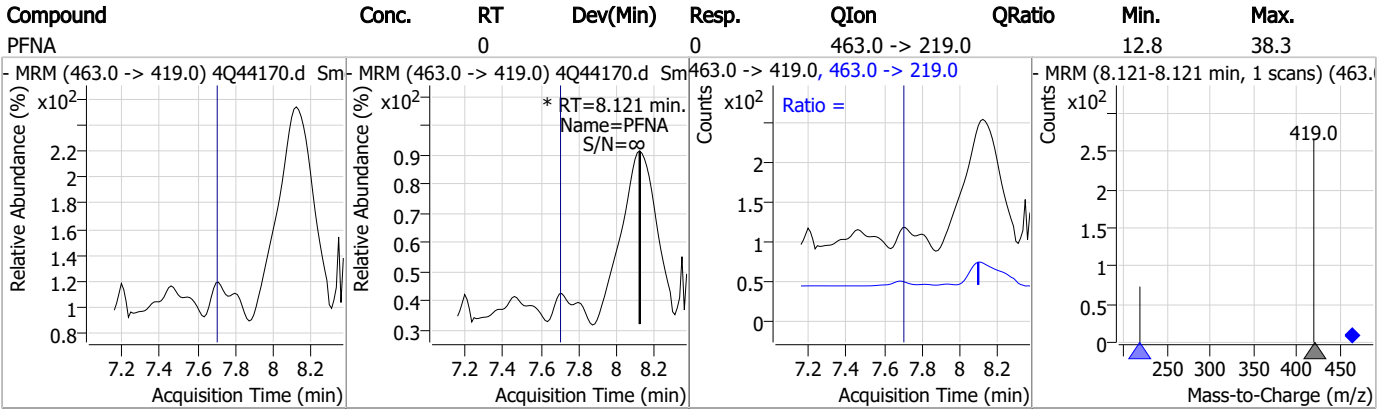
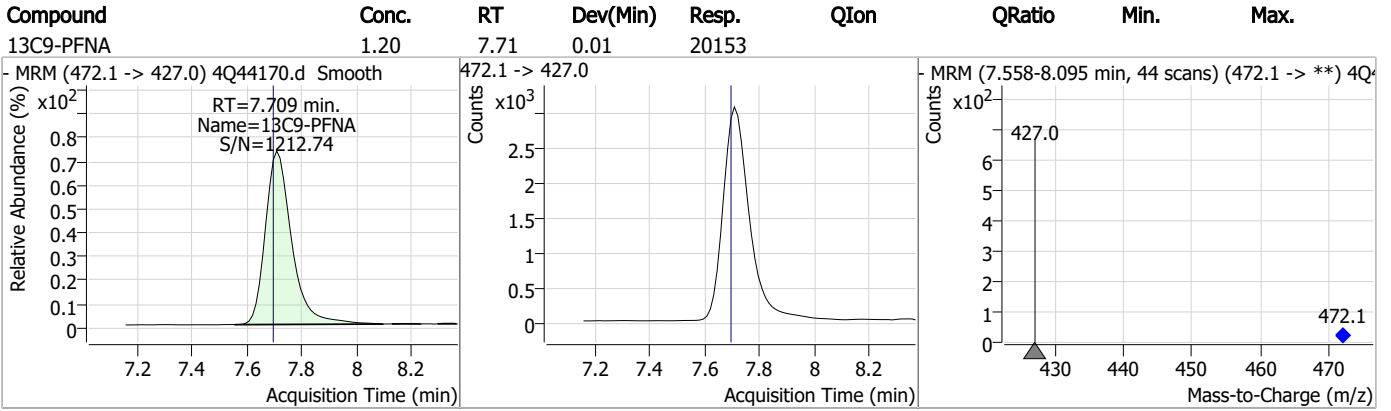
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.09	6.49	0.00	169.0	363.1 -> 169.0	14.9	8.9	26.7



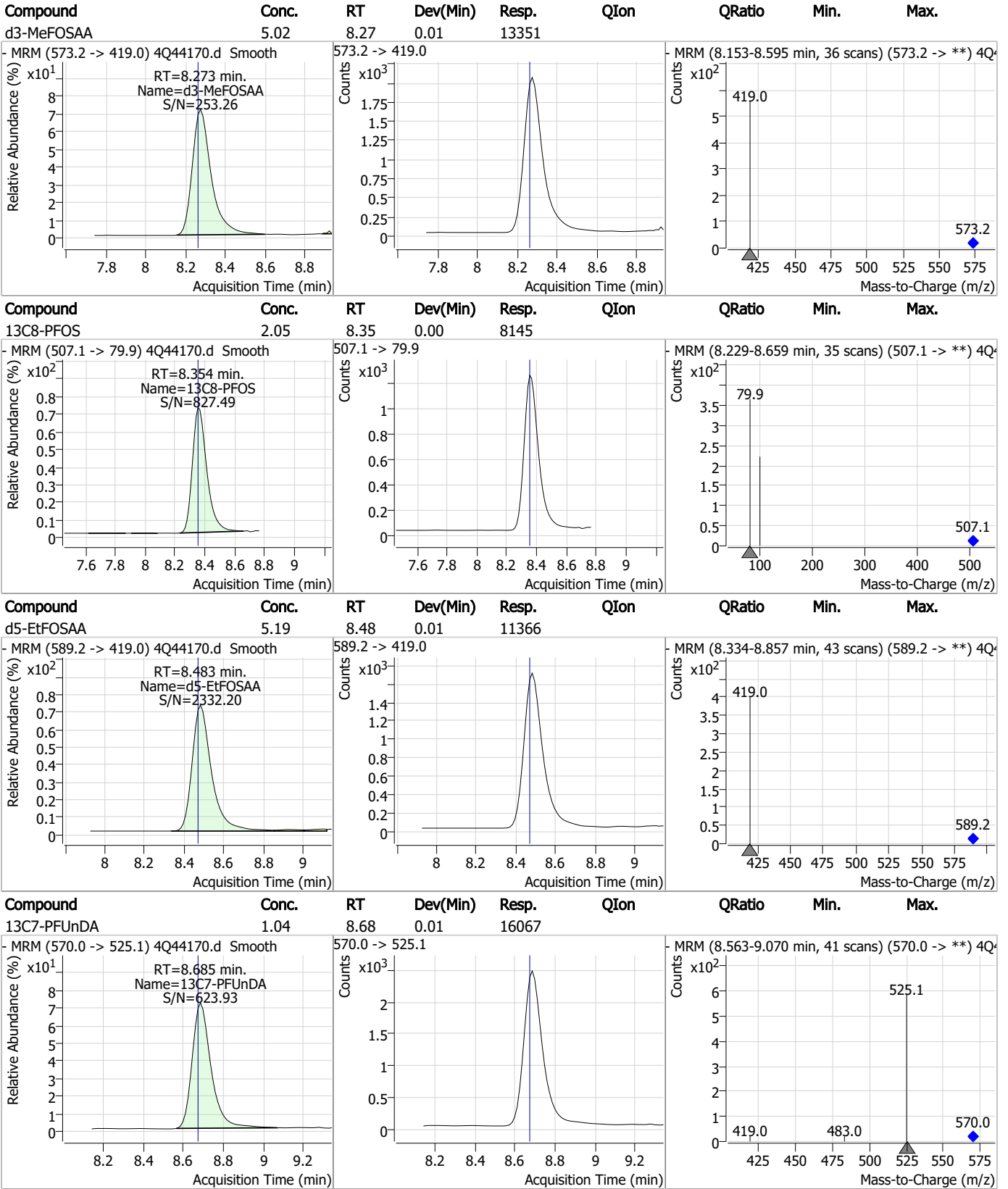
Perfluorinated Compounds by LC/MS/MS



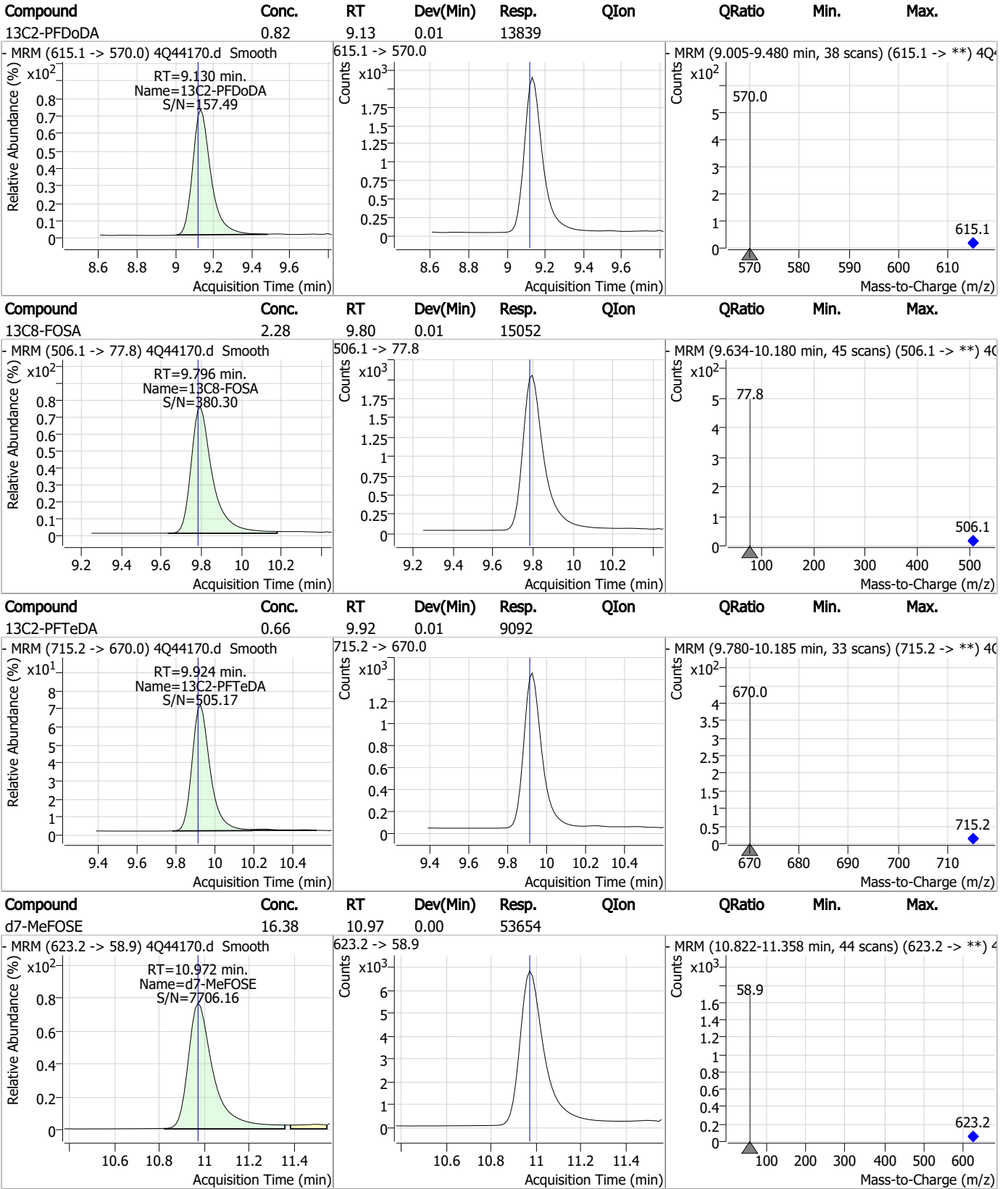
Perfluorinated Compounds by LC/MS/MS



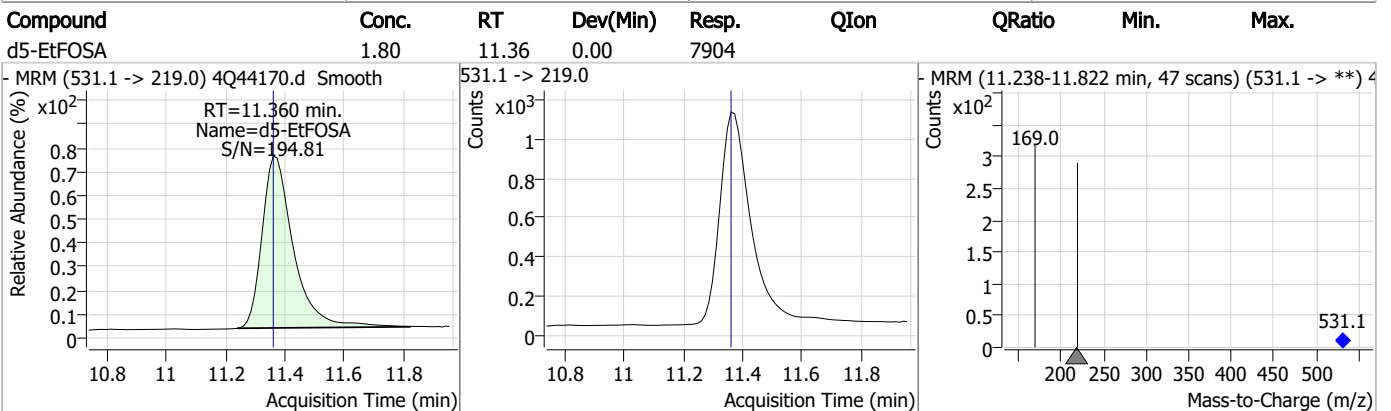
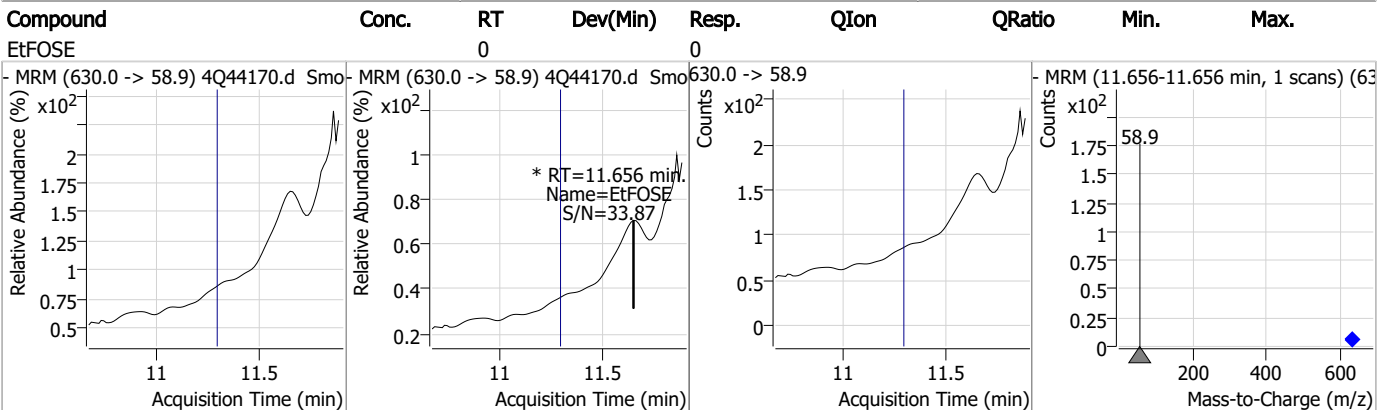
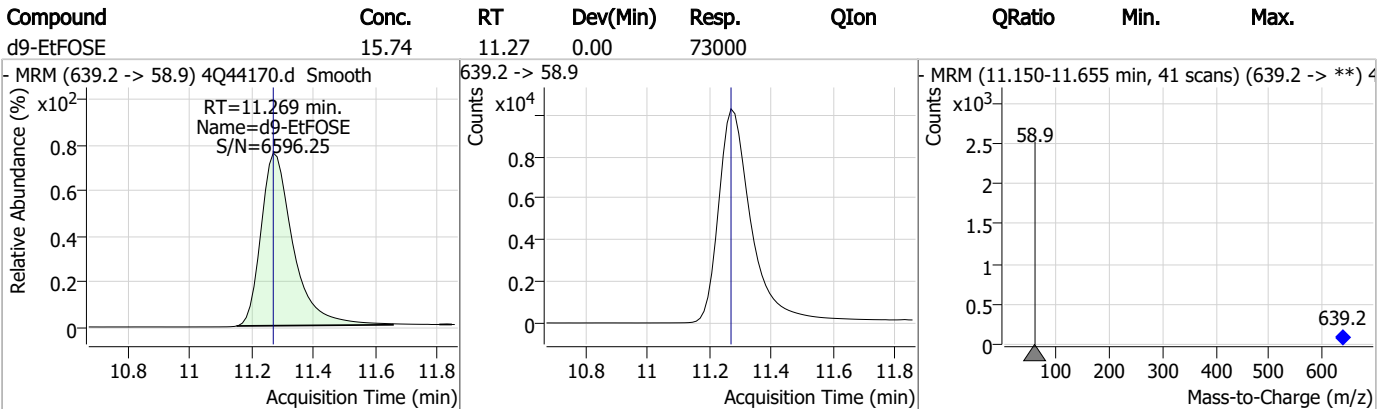
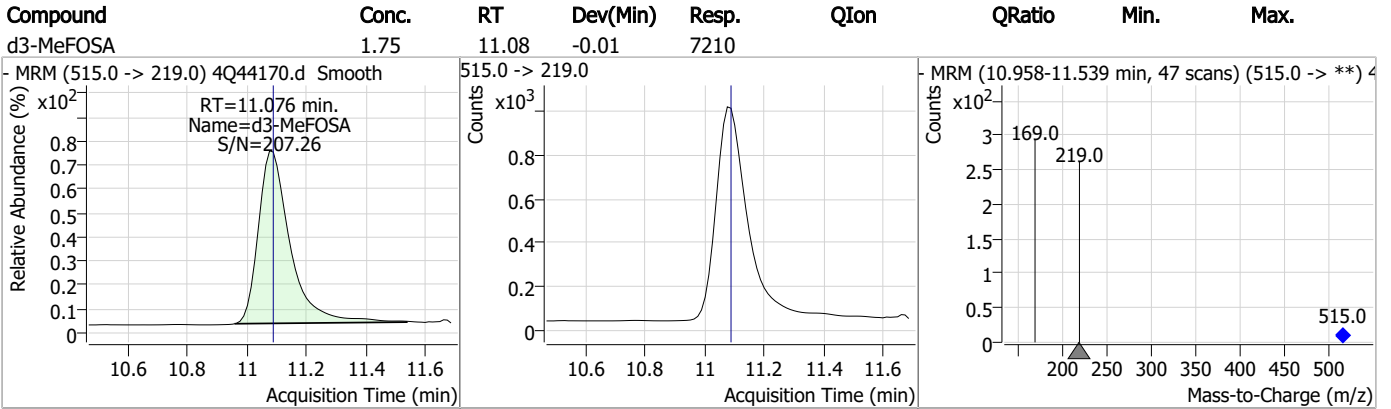
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.6

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Manual Integration Approval Summary

Sample Number: FC5818-5 Method: EPA DRAFT 1633
Lab FileID: 4Q44170.D Analyst approved: 05/10/23 11:51 Martha Valls
Injection Time: 05/09/23 22:20 Supervisor approved: 05/10/23 17:27 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.16	Split peak

7.1.6.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44162.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 8:28:01 PM
 Sample Name : op96747-mb
 Vial : P3-B8
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96747,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	132108	10.00 µg/L	0.013
M5-PFPeA	4.387	268.3 -> 223.0	65651	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	46714	2.50 µg/L	0.000
M4-PFHpA	6.504	367.1 -> 322.0	27581	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	42155	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	20584	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	17910	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	18322	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	15109	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	11373	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	11681	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	10900	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7474	2.50 µg/L	0.012
M8-PFOS	8.366	507.1 -> 79.9	9853	2.50 µg/L	0.012
M2-4:2FTS	5.260	329.1 -> 80.9	1211	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	2454	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3170	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	14133	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	24157	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	10628	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	43120	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	68445	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	7763	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	6699	2.50 µg/L	0.000
13C4-PFOS	8.367	502.8 -> 79.9	10413	2.50 µg/L	0.012
13C3-PFBA	2.941	216.0 -> 172.0	64357	5.00 µg/L	0.012
18O2-PFHxS	7.253	403.0 -> 83.9	4558	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	47049	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	15561	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	22937	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	39670	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.260	329.1 -> 80.9	1211	6.54 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.7%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2454	7.35 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 147.0%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3170	6.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.6%		
13C2-PFDoDA	9.130	615.1 -> 570.0	15109	1.00 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.2%		
13C2-PFTeDA	9.924	715.2 -> 670.0	11373	0.93 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 74.2%		
13C3-PFBS	5.464	302.1 -> 79.9	10900	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C3-PFHxS	7.254	402.1 -> 79.9	7474	2.65 µg/L	0.012

7.2.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C4-PFBA	2.936	216.8 -> 171.9	132108	10.91 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C4-PFHpA	6.504	367.1 -> 322.0	27581	2.70 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C5-PFHxA	5.559	318.0 -> 273.0	46714	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C5-PFPeA	4.387	268.3 -> 223.0	65651	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C6-PFDA	8.216	519.1 -> 474.1	17910	1.34 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C7-PFUnDA	8.685	570.0 -> 525.1	18322	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-FOSA	9.796	506.1 -> 77.8	11681	1.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.6%	
13C8-PFOA	7.163	421.1 -> 376.0	42155	2.73 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C8-PFOS	8.366	507.1 -> 79.9	9853	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C9-PFNA	7.709	472.1 -> 427.0	20584	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%	
d3-MeFOSAA	8.273	573.2 -> 419.0	14133	5.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	24157	9.26 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	6699	1.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 65.6%	
d5-EtFOSAA	8.483	589.2 -> 419.0	10628	4.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d7-MeFOSE	10.972	623.2 -> 58.9	43120	13.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 53.2%	
d9-EtFOSE	11.281	639.2 -> 58.9	68445	14.92 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 59.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	7763	1.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.5%	

7.2.1
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.528	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.096	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	7.514	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	8.947	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.707	630.0 -> 58.9	0	µg/L	m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.1
7

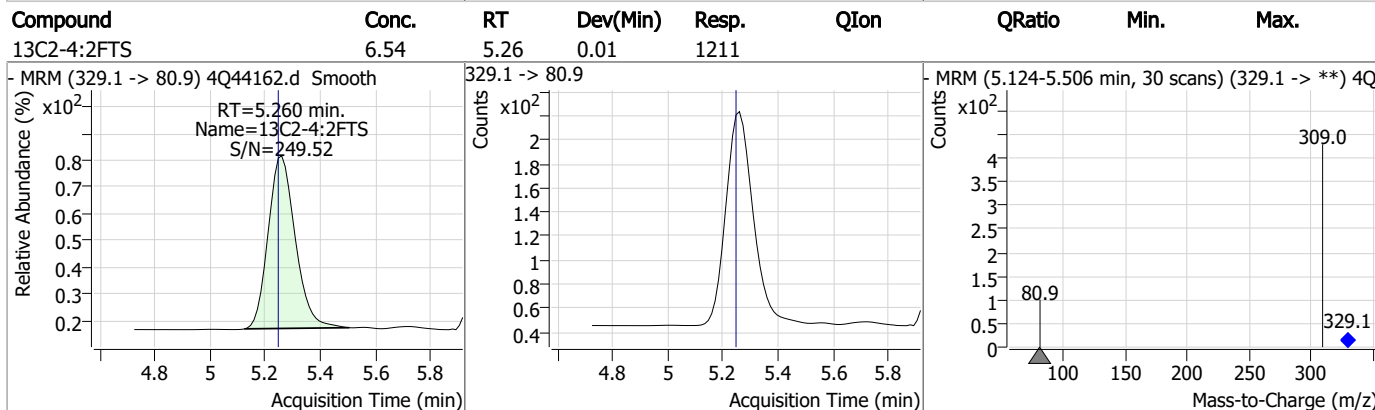
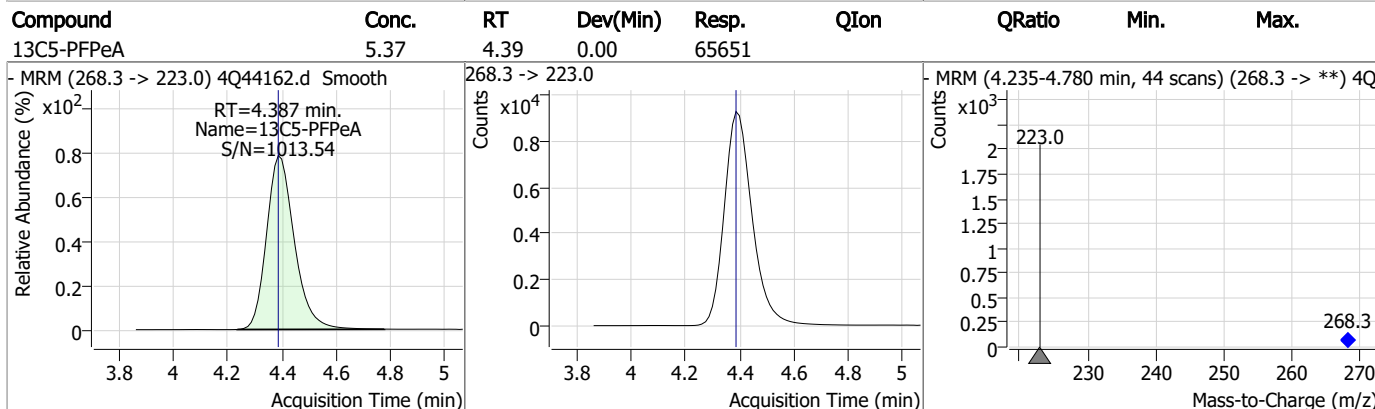
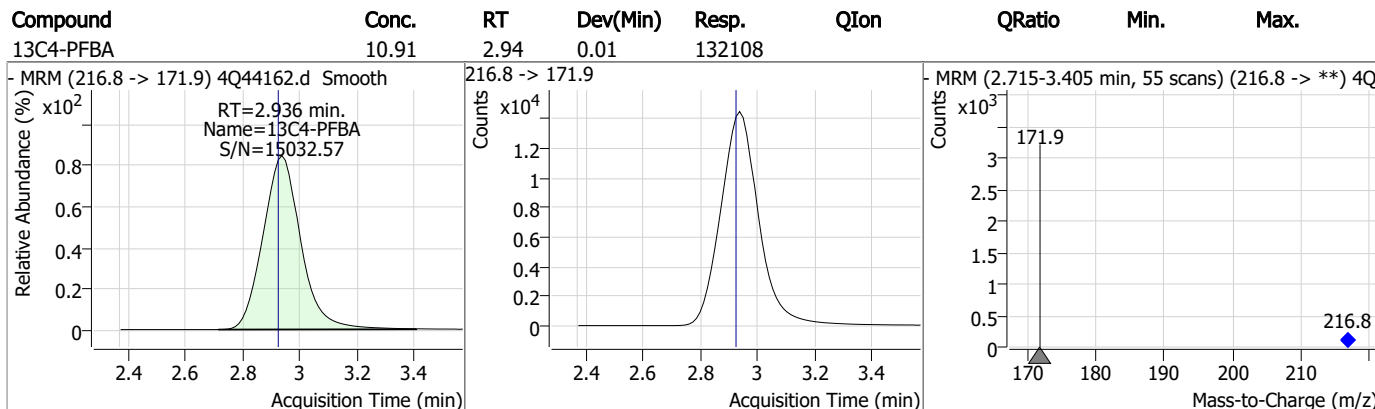
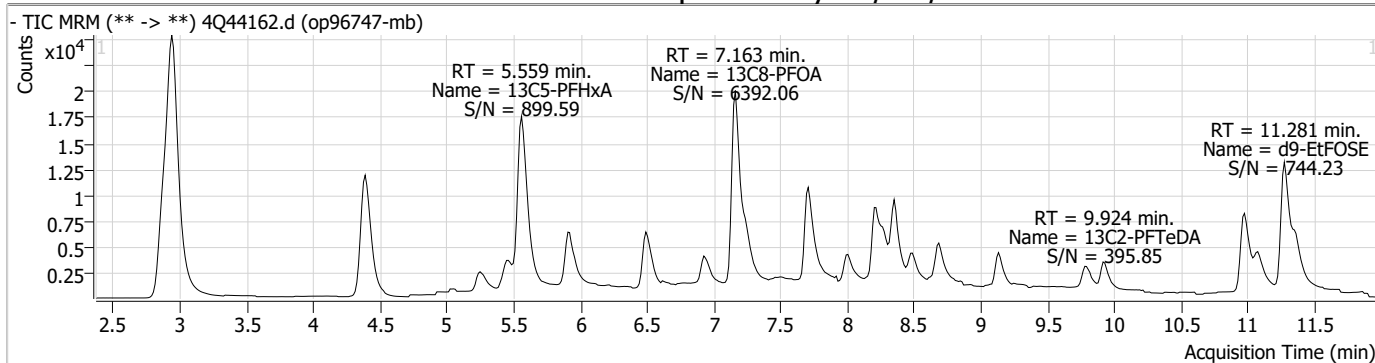
Perfluorinated Compounds by LC/MS/MS

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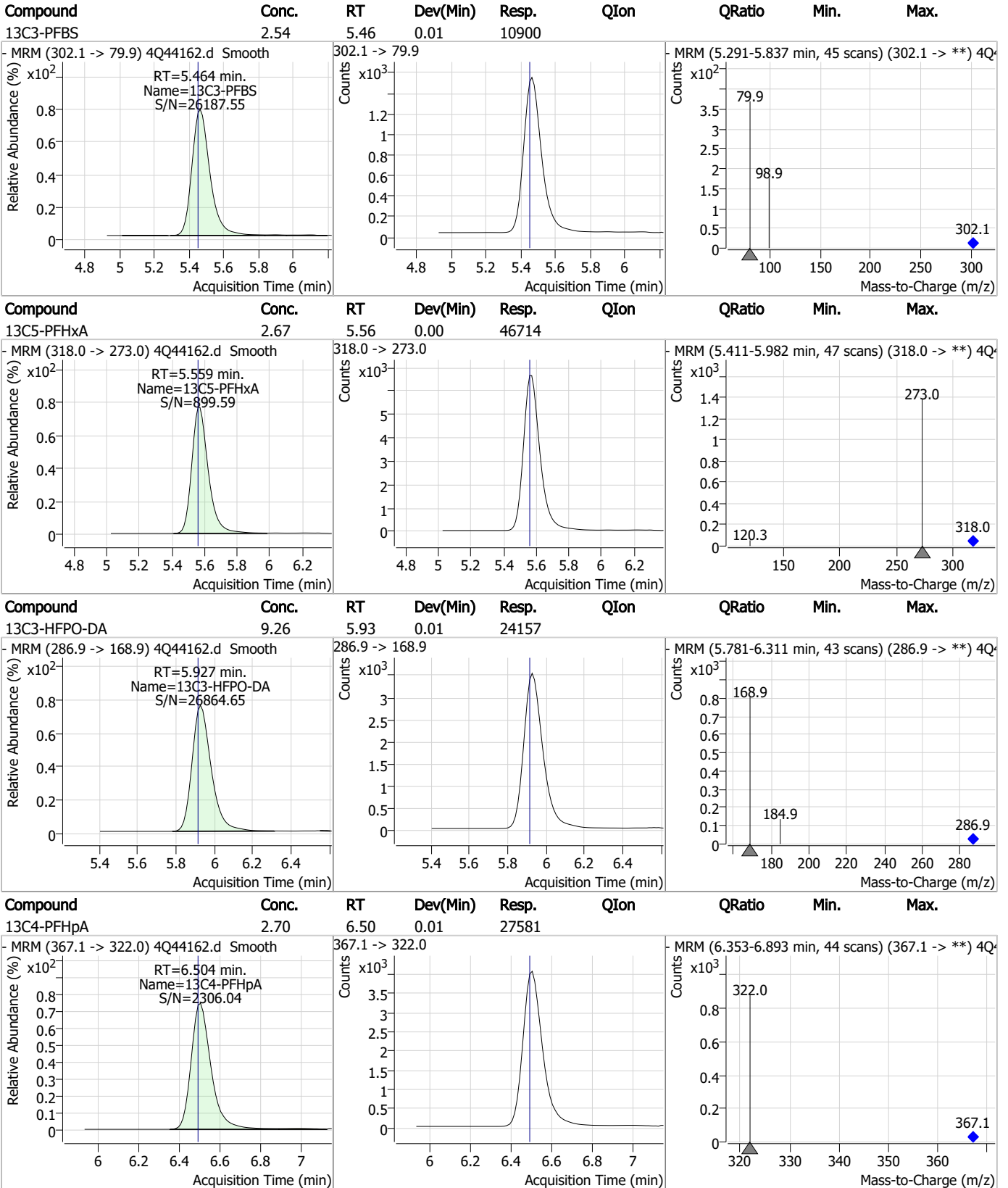
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

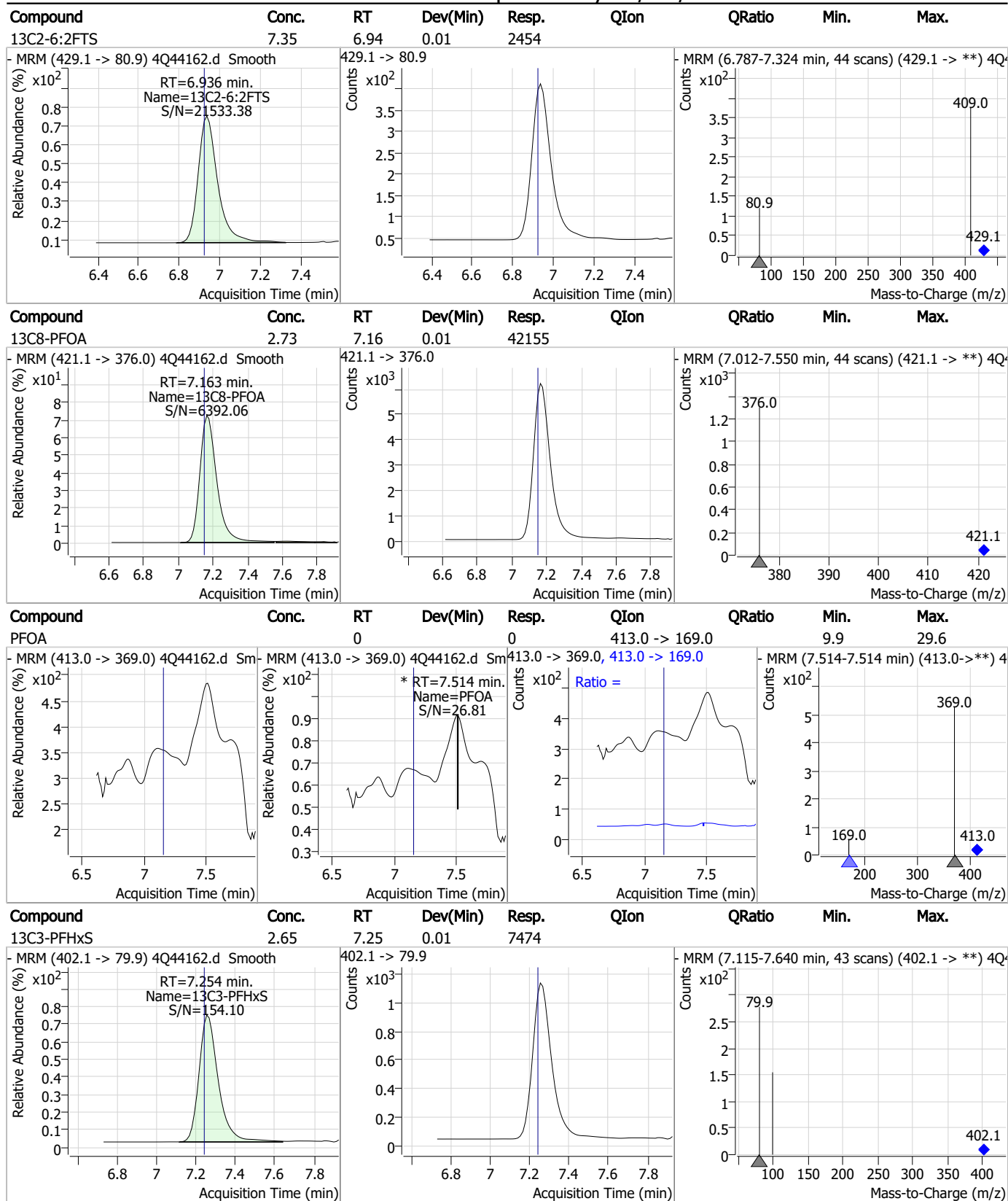


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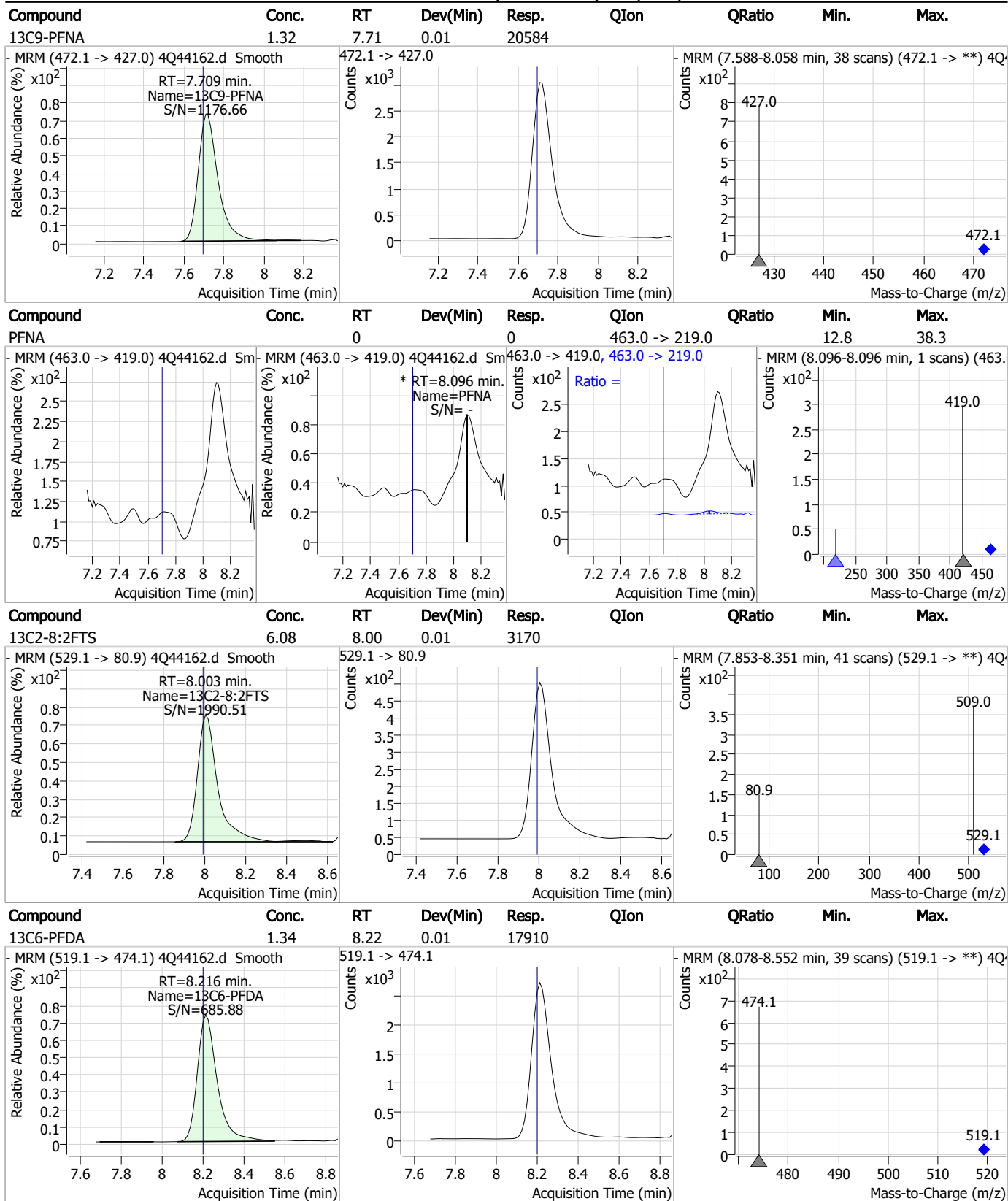


Perfluorinated Compounds by LC/MS/MS



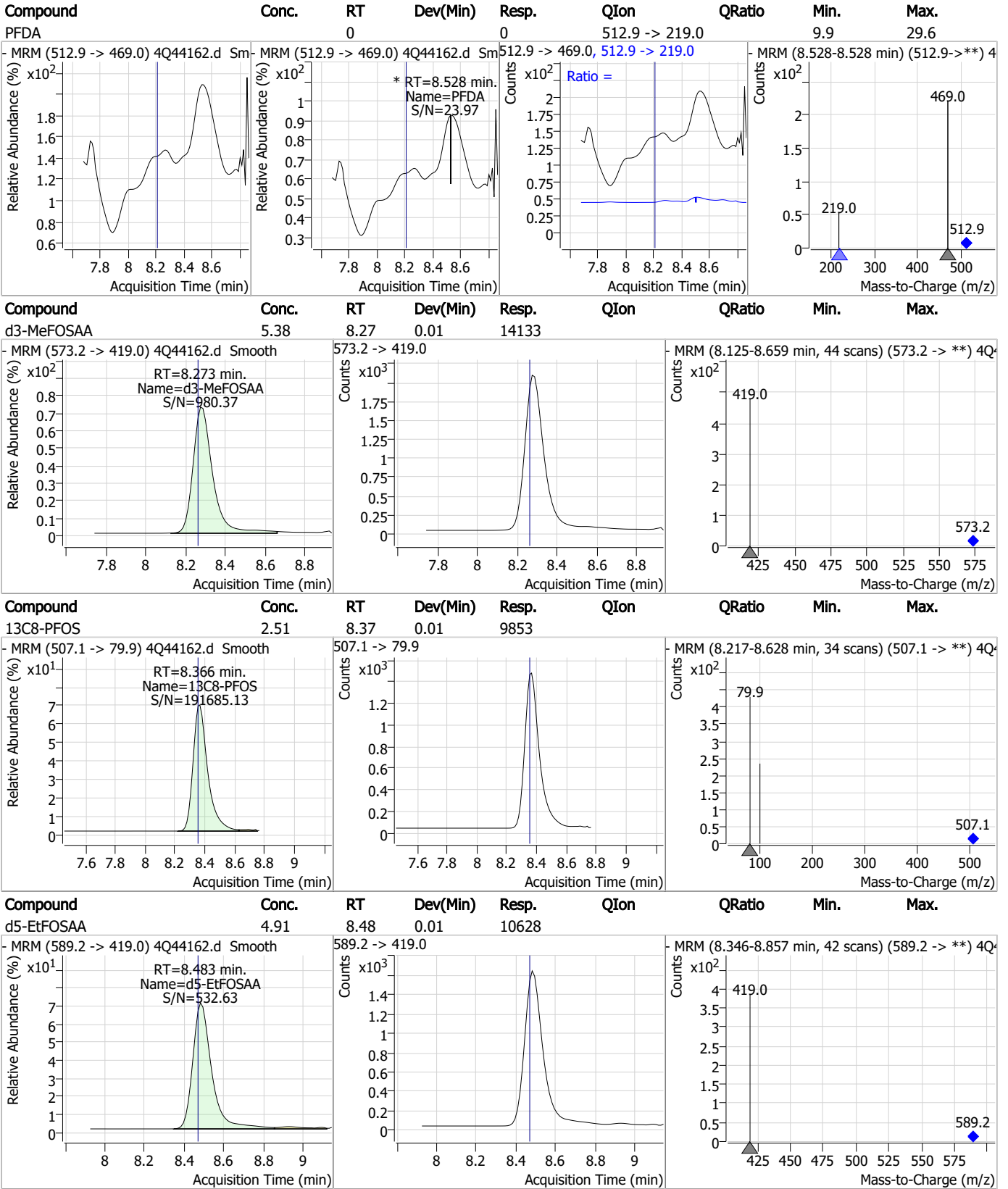
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Perfluorinated Compounds by LC/MS/MS



7.2.1
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Perfluorinated Compounds by LC/MS/MS

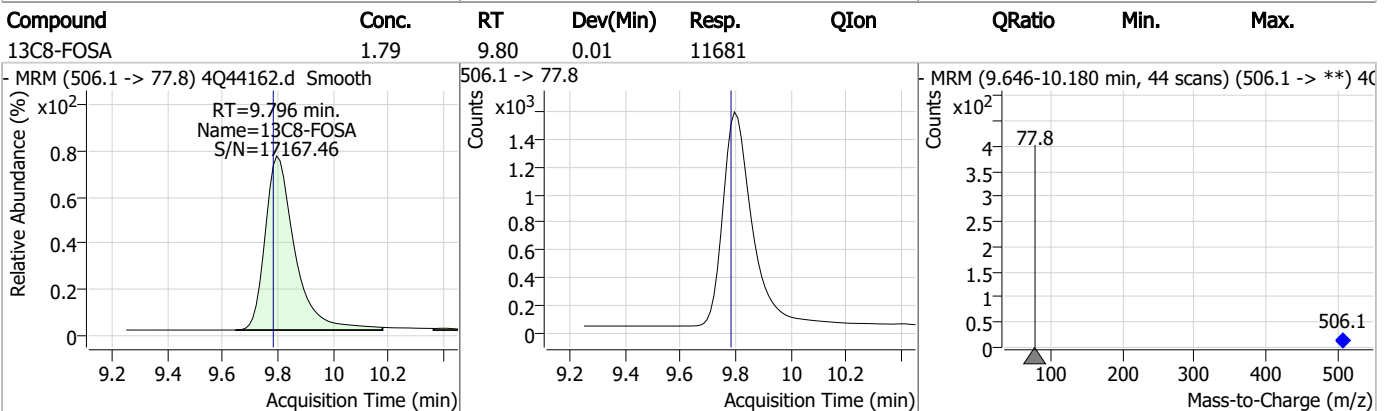
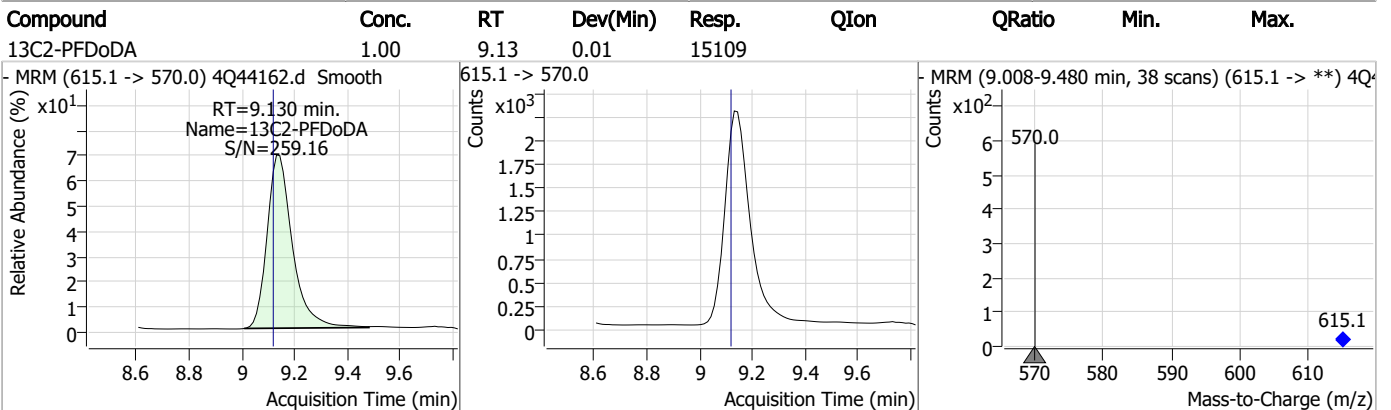
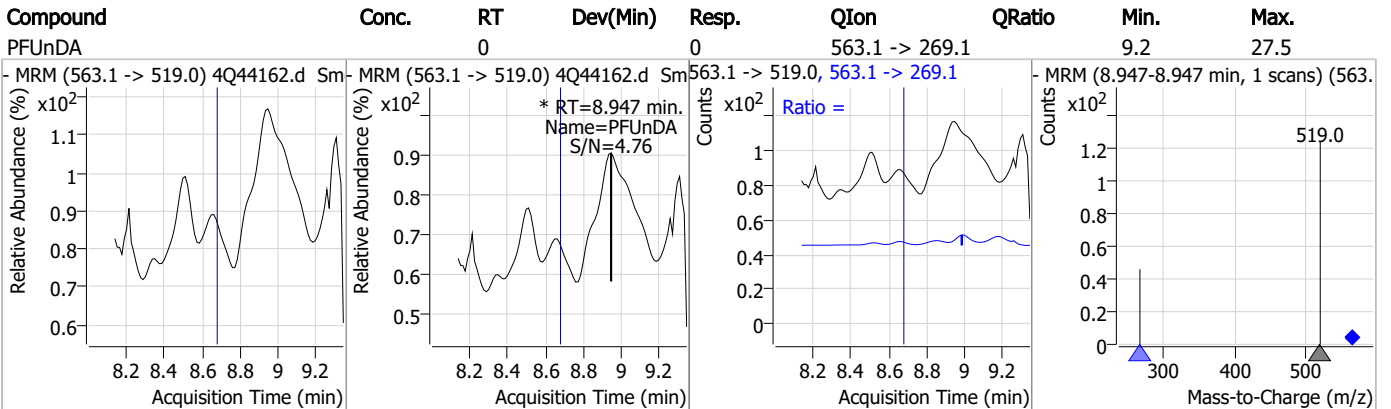
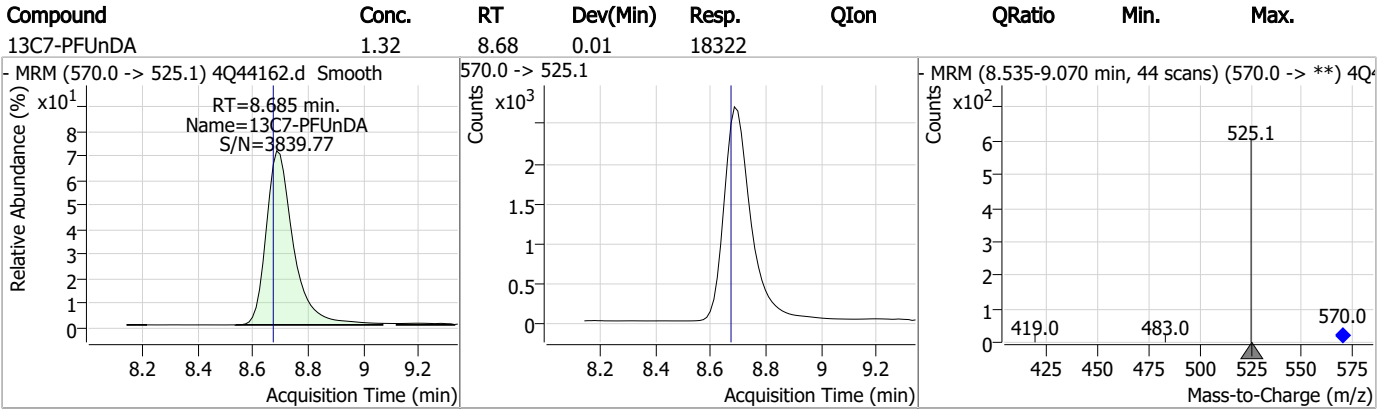


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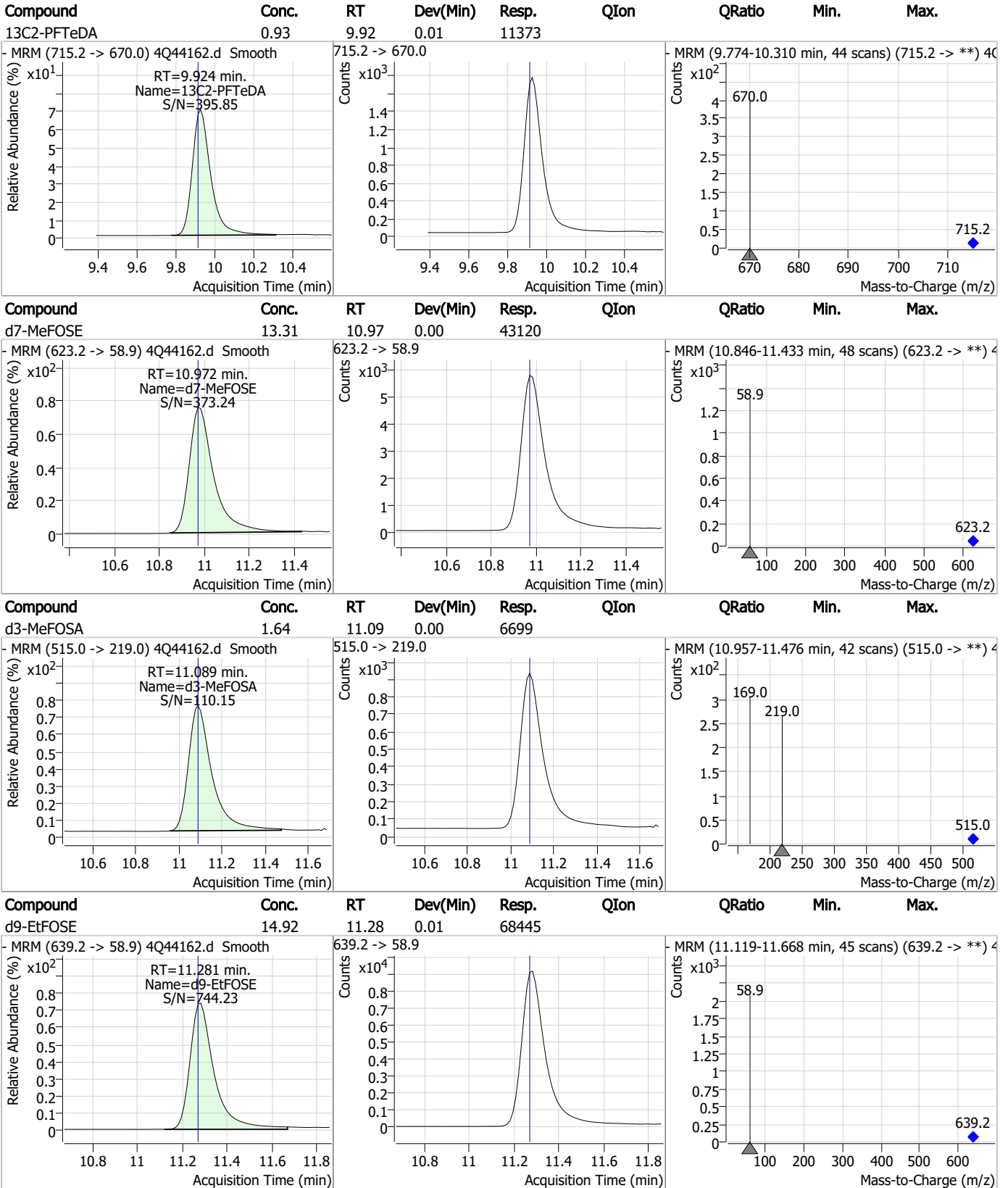
Perfluorinated Compounds by LC/MS/MS



7.2.1

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Perfluorinated Compounds by LC/MS/MS

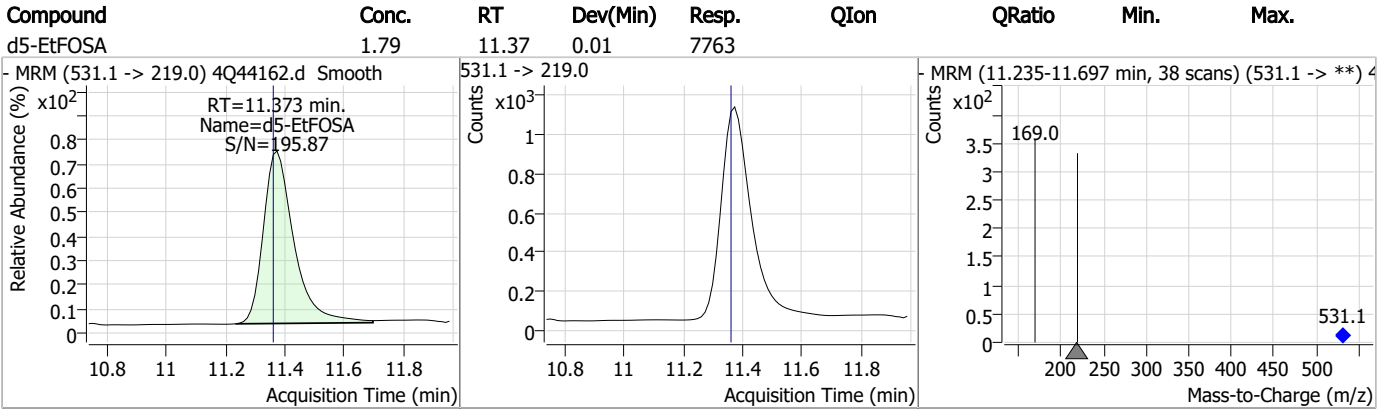
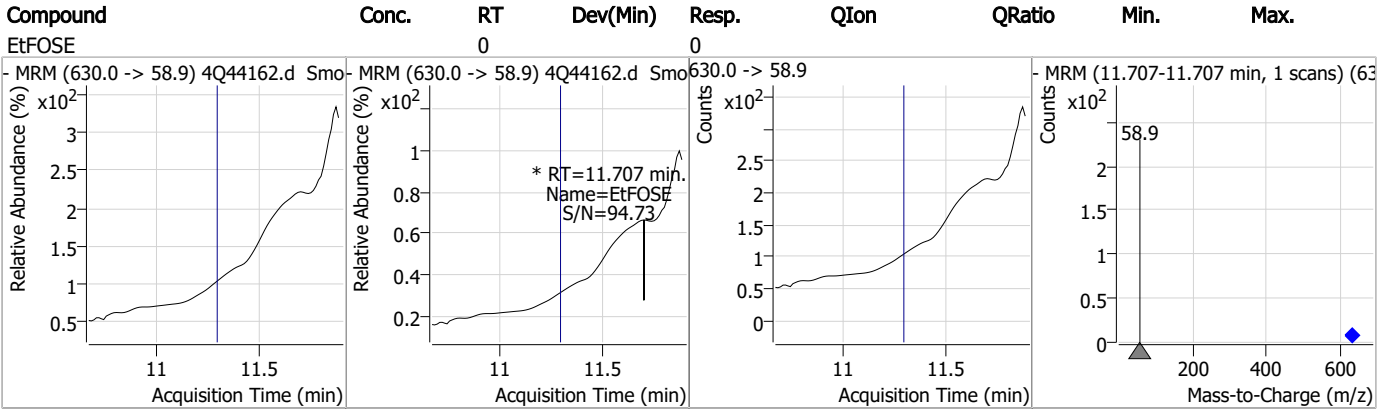


7.2.1

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Perfluorinated Compounds by LC/MS/MS



7.2.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44136.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 2:10:23 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.874	216.8 -> 171.9	117787	10.00 µg/L	-0.050
M5-PFPeA	4.375	268.3 -> 223.0	62360	5.00 µg/L	-0.012
M5-PFHxA	5.547	318.0 -> 273.0	41703	2.50 µg/L	-0.012
M4-PFHpA	6.479	367.1 -> 322.0	25609	2.50 µg/L	-0.012
M8-PFOA	7.148	421.1 -> 376.0	39325	2.50 µg/L	0.000
M9-PFNA	7.696	472.1 -> 427.0	19733	1.25 µg/L	0.000
M6-PFDA	8.203	519.1 -> 474.1	16408	1.25 µg/L	0.000
M7-PFUnDA	8.672	570.0 -> 525.1	17347	1.25 µg/L	0.000
M2-PFDoDA	9.118	615.1 -> 570.0	18464	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	14371	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	16283	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	10938	2.50 µg/L	-0.012
M3-PFHxS	7.242	402.1 -> 79.9	6676	2.50 µg/L	0.000
M8-PFOS	8.341	507.1 -> 79.9	9377	2.50 µg/L	-0.012
M2-4:2FTS	5.235	329.1 -> 80.9	968	5.00 µg/L	-0.012
M2-6:2FTS	6.911	429.1 -> 80.9	1885	5.00 µg/L	-0.012
M2-8:2FTS	7.990	529.1 -> 80.9	3068	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	11992	5.00 µg/L	0.000
M3-HFPO-DA	5.914	286.9 -> 168.9	23487	10.00 µg/L	0.000
M5-EtFOSAA	8.470	589.2 -> 419.0	10749	5.00 µg/L	0.000
M7-MeFOSE	10.972	623.2 -> 58.9	63050	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	94920	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	10199	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	8769	2.50 µg/L	-0.012
13C4-PFOS	8.342	502.8 -> 79.9	9542	2.50 µg/L	-0.012
13C3-PFBA	2.878	216.0 -> 172.0	61944	5.00 µg/L	-0.050
18O2-PFHxS	7.241	403.0 -> 83.9	4619	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	47066	2.50 µg/L	0.000
13C2-PFDA	8.204	515.1 -> 470.1	15763	1.25 µg/L	0.000
13C5-PFNA	7.697	468.0 -> 423.0	21697	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	38534	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.235	329.1 -> 80.9	968	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-6:2FTS	6.911	429.1 -> 80.9	1885	5.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C2-8:2FTS	7.990	529.1 -> 80.9	3068	5.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.2%		
13C2-PFDoDA	9.118	615.1 -> 570.0	18464	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-PFTeDA	9.911	715.2 -> 670.0	14371	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C3-PFBS	5.439	302.1 -> 79.9	10938	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.242	402.1 -> 79.9	6676	2.33 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 = 93.3%	
13C4-PFBA	2.874	216.8 -> 171.9	117787	10.10 µg/L	-0.050
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.479	367.1 -> 322.0	25609	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFHxA	5.547	318.0 -> 273.0	41703	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFPeA	4.375	268.3 -> 223.0	62360	5.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C6-PFDA	8.203	519.1 -> 474.1	16408	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C7-PFUnDA	8.672	570.0 -> 525.1	17347	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-FOSA	9.783	506.1 -> 77.8	16283	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C8-PFOA	7.148	421.1 -> 376.0	39325	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-PFOS	8.341	507.1 -> 79.9	9377	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C9-PFNA	7.696	472.1 -> 427.0	19733	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.0%	
d3-MeFOSAA	8.261	573.2 -> 419.0	11992	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	23487	9.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
d3-MeFOSA	11.076	515.0 -> 219.0	8769	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSAA	8.470	589.2 -> 419.0	10749	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
d7-MeFOSE	10.972	623.2 -> 58.9	63050	21.24 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.9%	
d9-EtFOSE	11.269	639.2 -> 58.9	94920	22.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	10199	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	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	7.539	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.295	630.0 -> 58.9	0	µg/L	m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.2
7

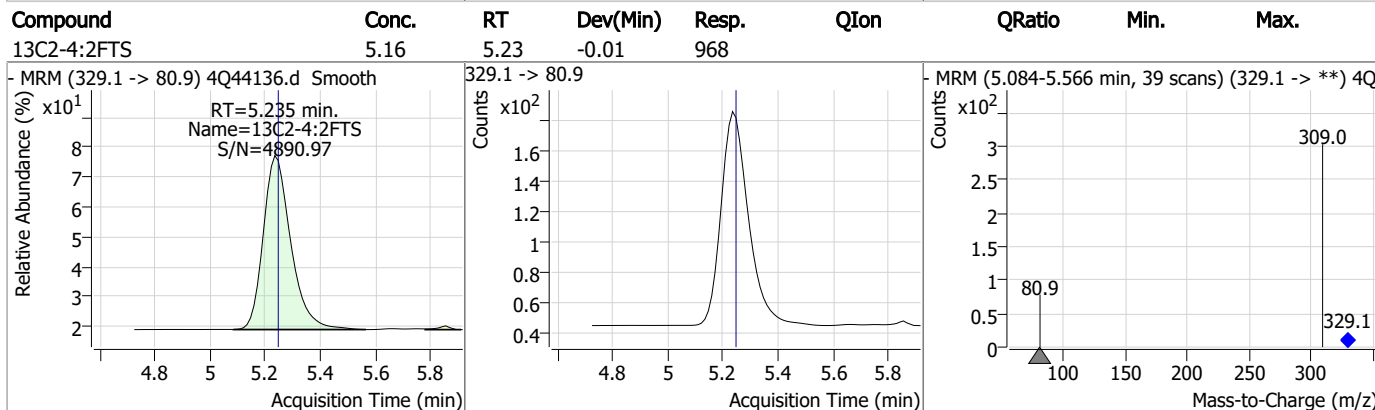
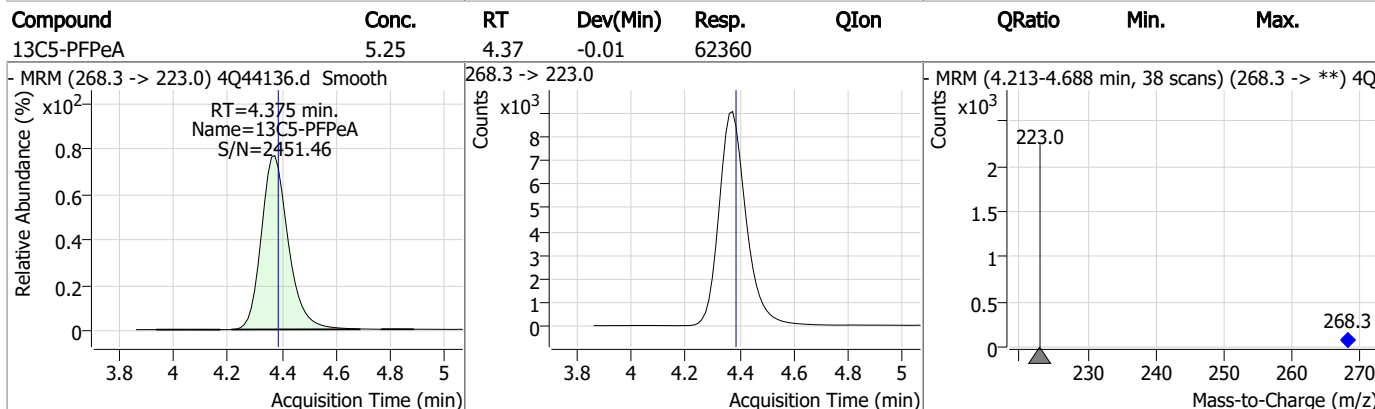
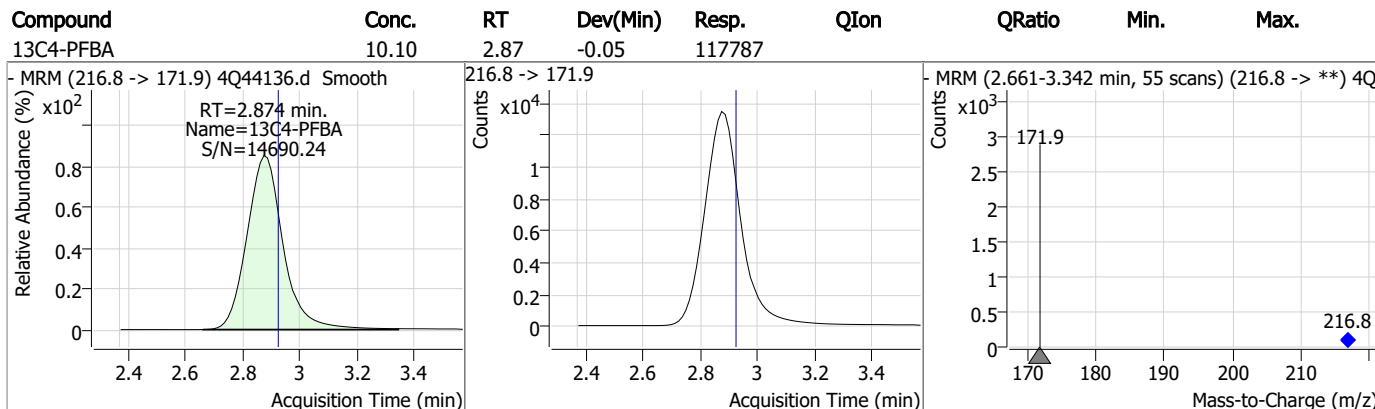
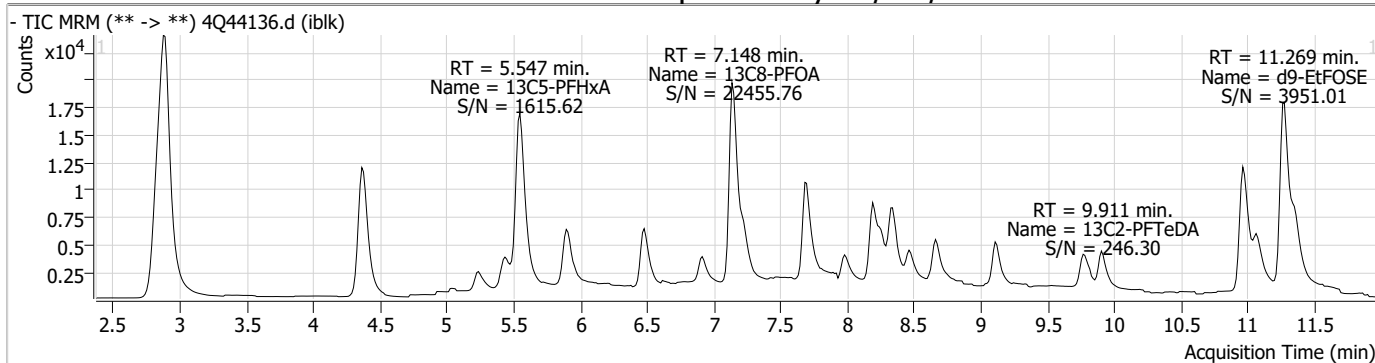
Perfluorinated Compounds by LC/MS/MS

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

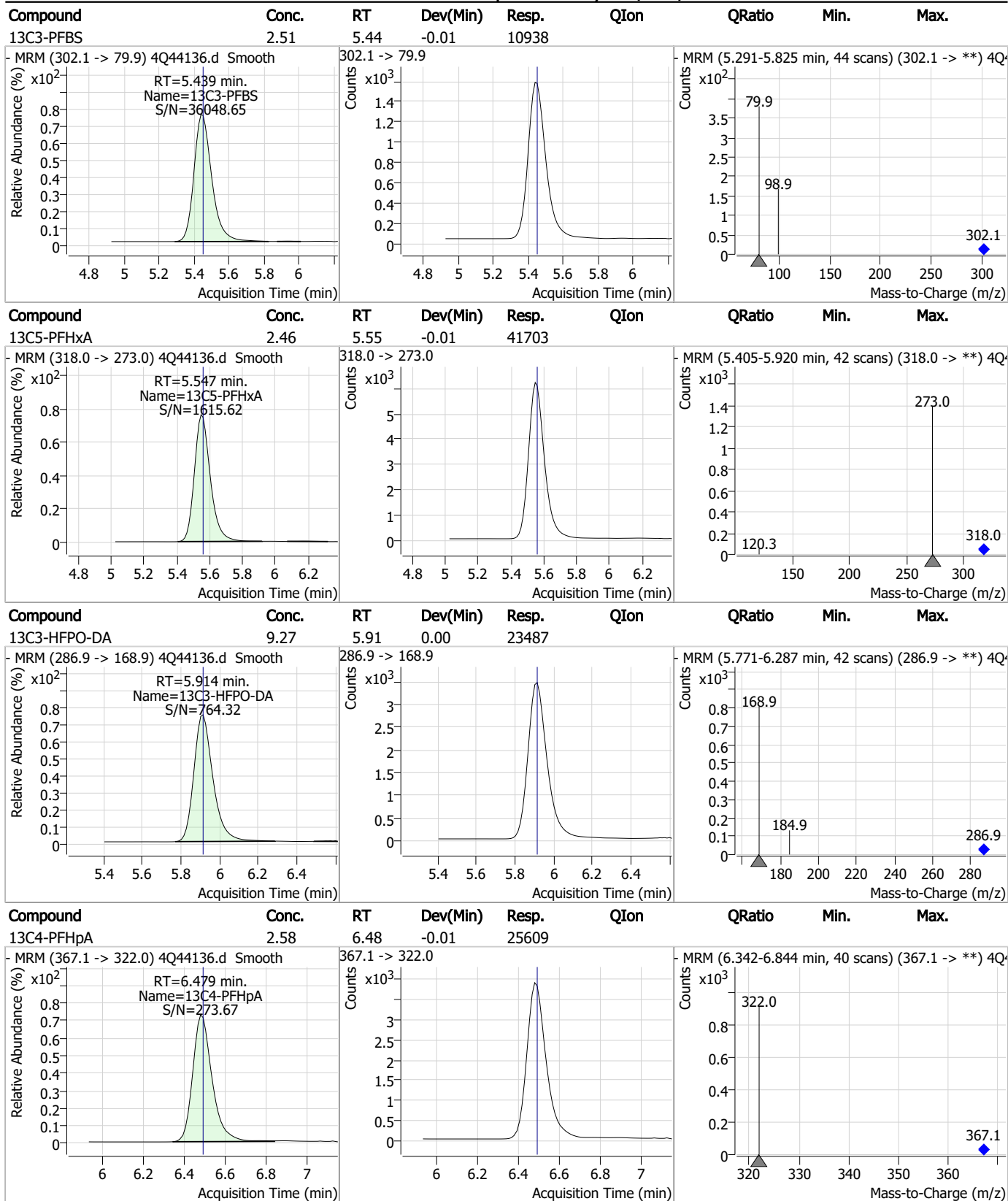
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Perfluorinated Compounds by LC/MS/MS



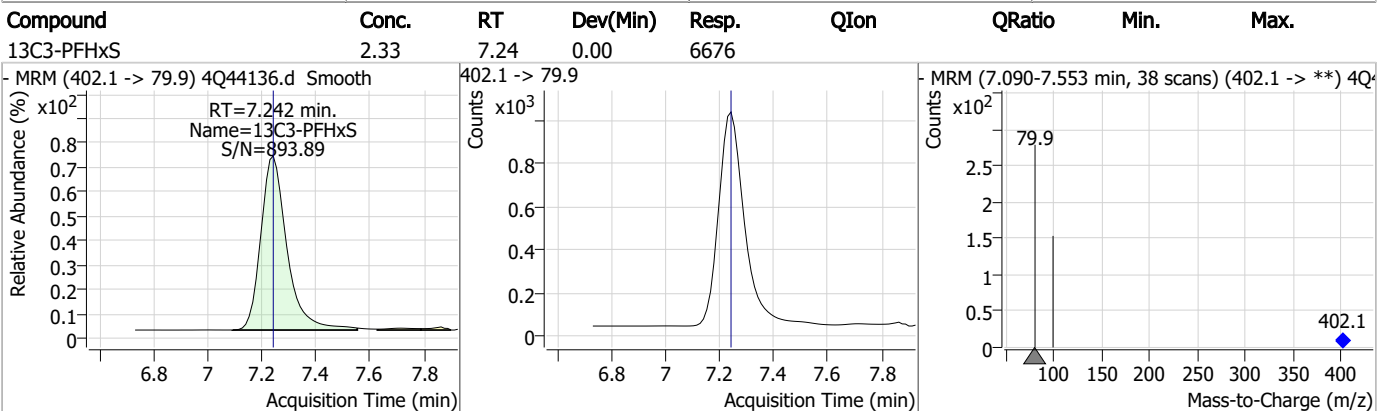
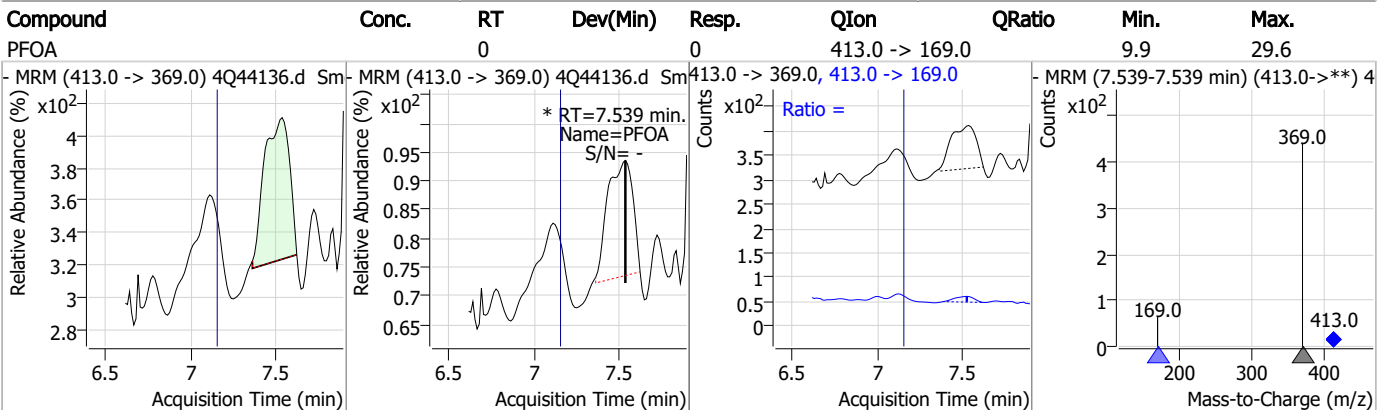
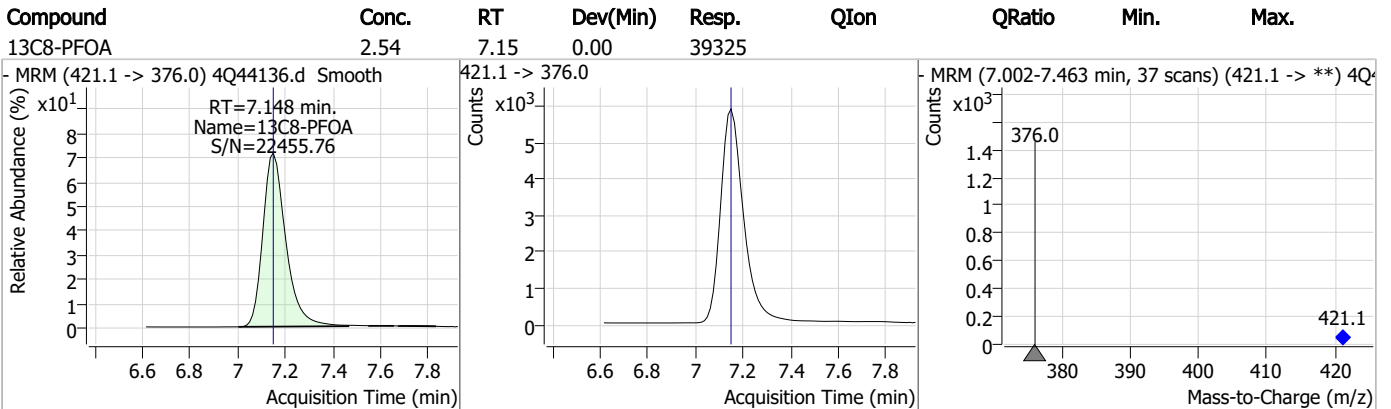
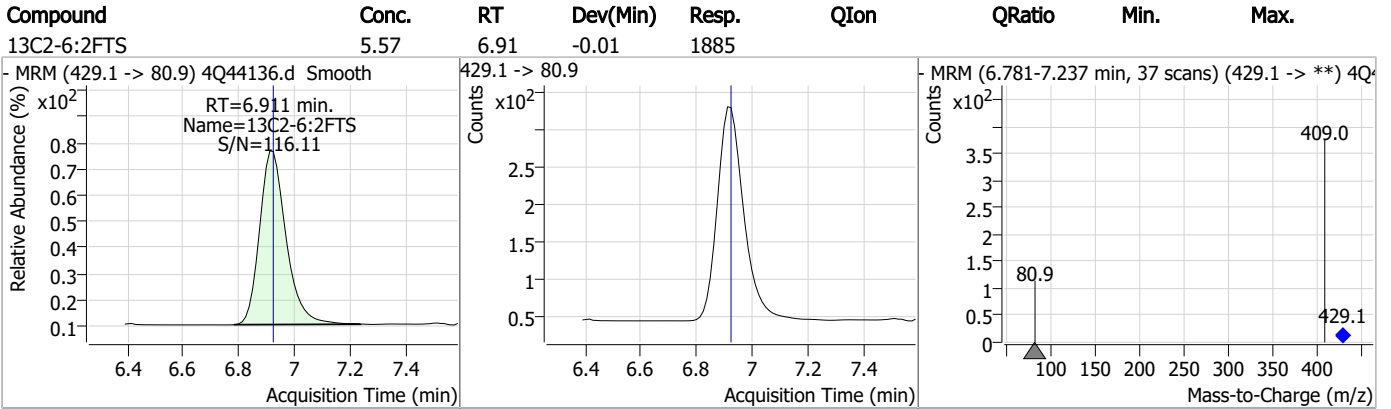
7.2.2
7

Perfluorinated Compounds by LC/MS/MS

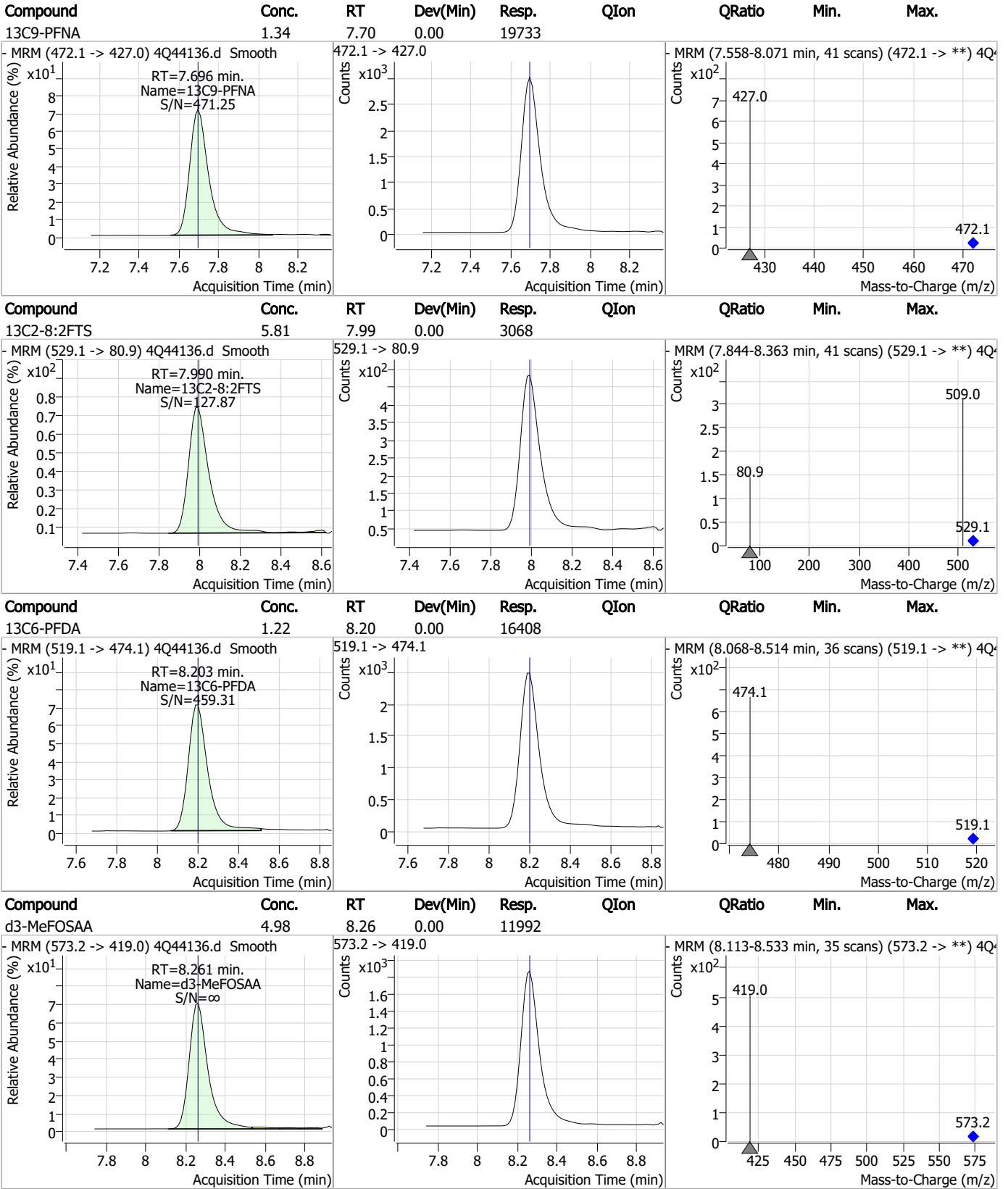


7.2.2
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Perfluorinated Compounds by LC/MS/MS



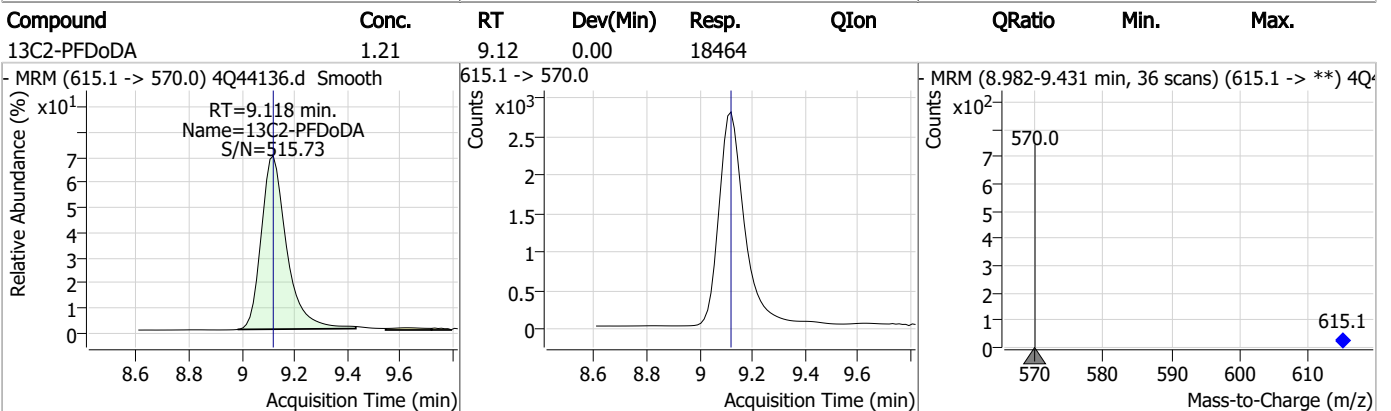
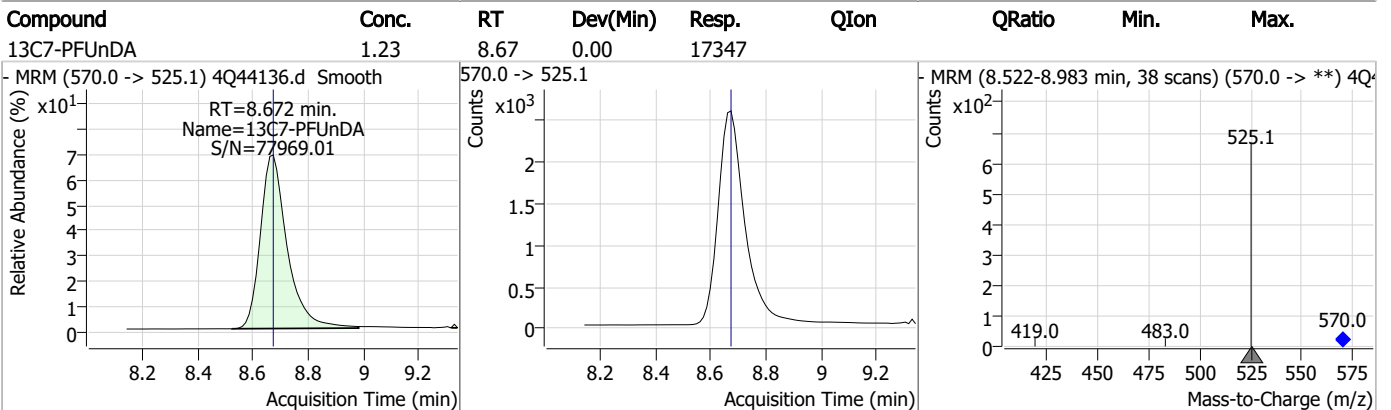
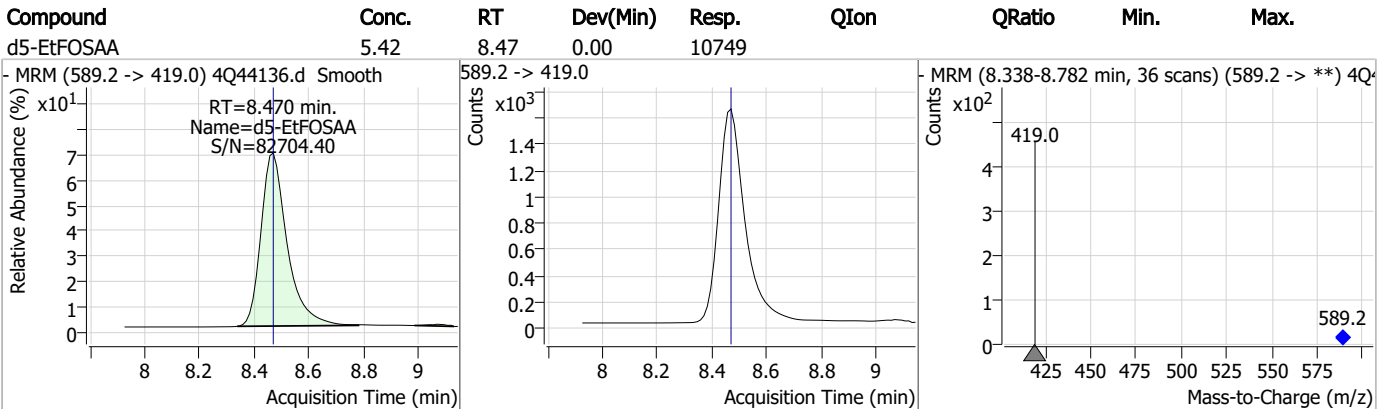
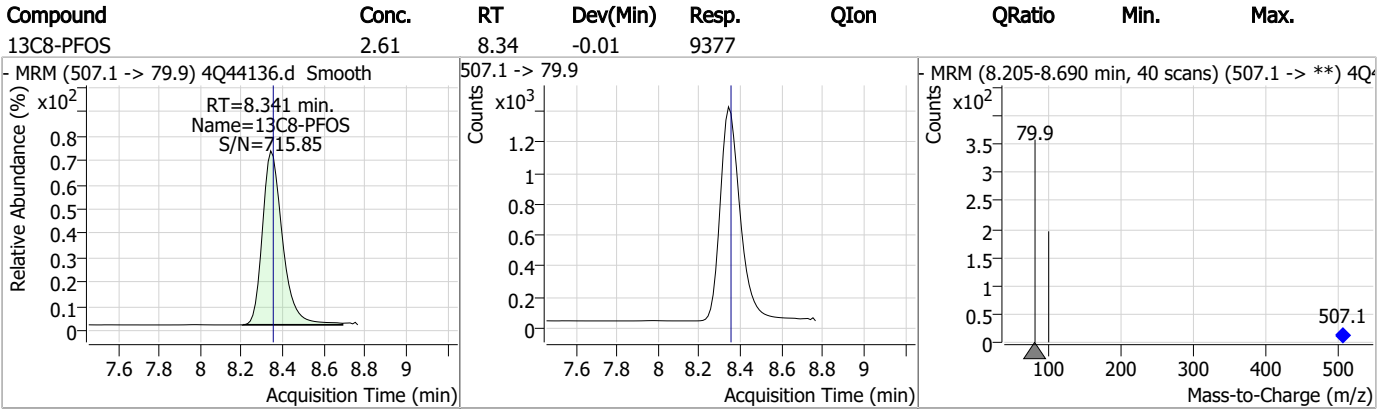
Perfluorinated Compounds by LC/MS/MS



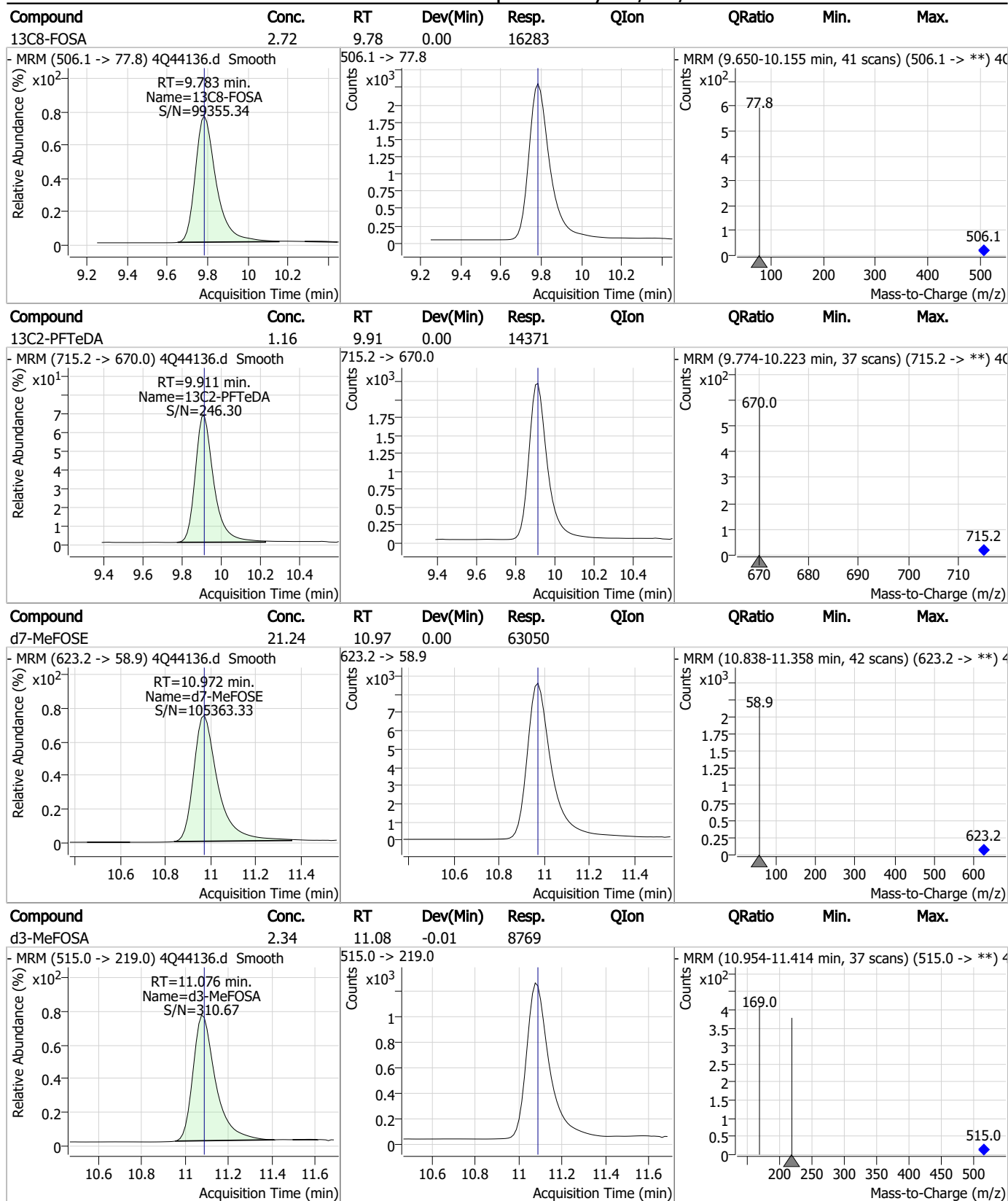
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Perfluorinated Compounds by LC/MS/MS

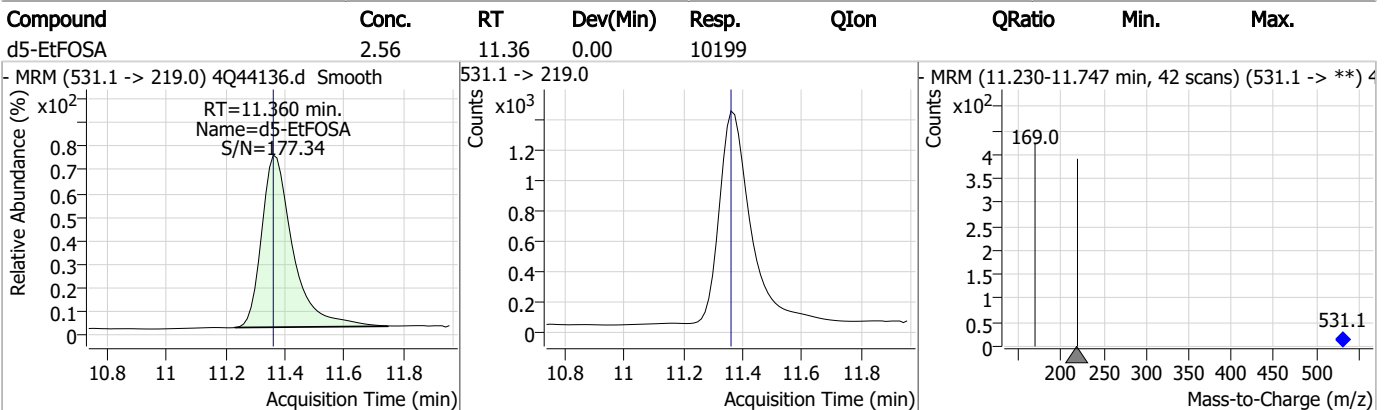
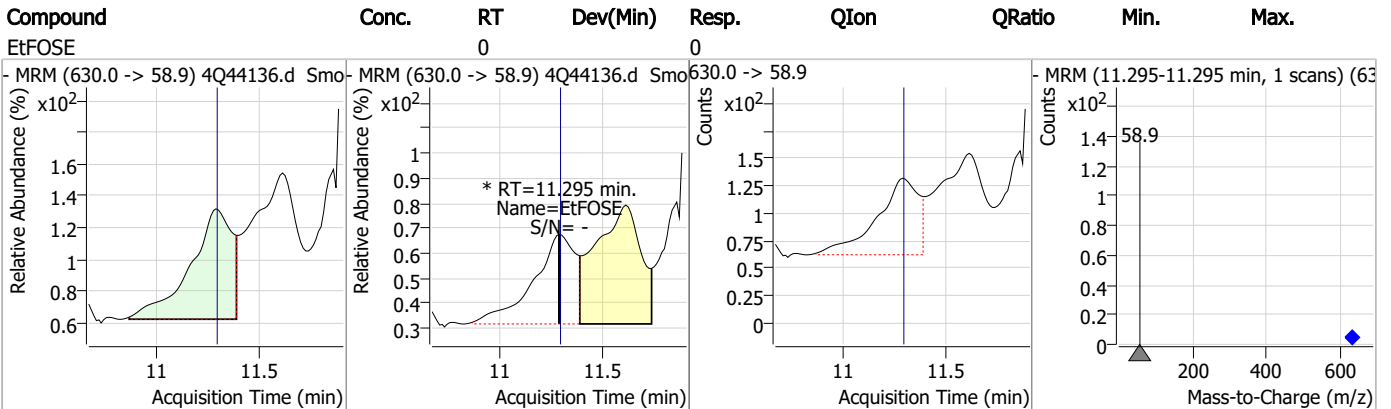
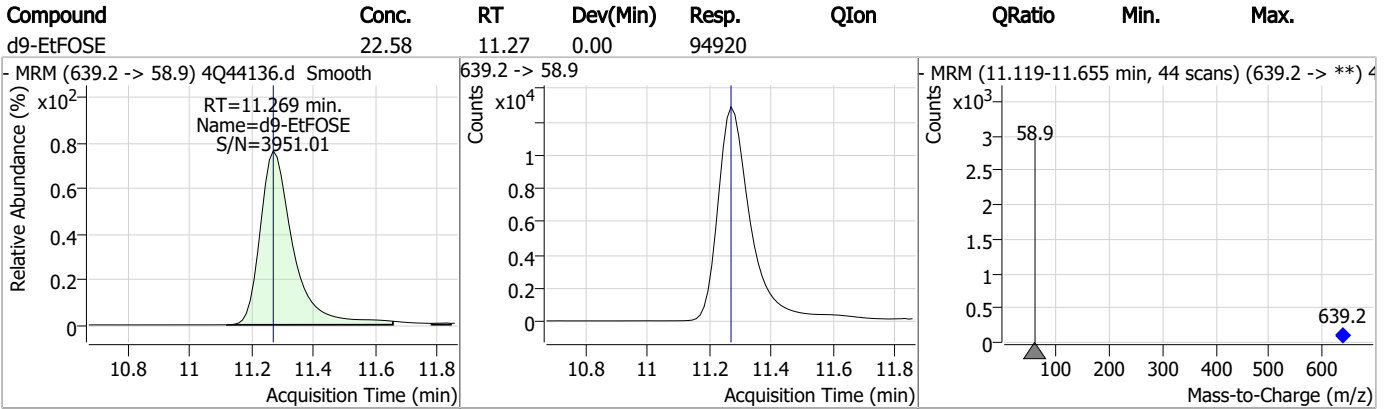


Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44159.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 7:45:48 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.886	216.8 -> 171.9	119833	10.00 µg/L	-0.037
M5-PFPeA	4.375	268.3 -> 223.0	64114	5.00 µg/L	-0.012
M5-PFHxA	5.559	318.0 -> 273.0	43496	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	26927	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	39528	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	18658	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	17456	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	18394	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	21124	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	14877	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	16718	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	10679	2.50 µg/L	0.000
M3-PFHxS	7.254	402.1 -> 79.9	6821	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	10284	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1086	5.00 µg/L	0.000
M2-6:2FTS	6.923	429.1 -> 80.9	2115	5.00 µg/L	0.000
M2-8:2FTS	8.003	529.1 -> 80.9	3743	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	13905	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	22907	10.00 µg/L	0.000
M5-EtFOSAA	8.483	589.2 -> 419.0	11415	5.00 µg/L	0.012
M7-MeFOSE	10.984	623.2 -> 58.9	67074	25.00 µg/L	0.012
M9-EtFOSE	11.281	639.2 -> 58.9	94486	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	10437	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	9750	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10440	2.50 µg/L	0.000
13C3-PFBA	2.878	216.0 -> 172.0	63969	5.00 µg/L	-0.050
18O2-PFHxS	7.253	403.0 -> 83.9	4663	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	47827	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	17090	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	22305	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	39979	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1086	5.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.6%		
13C2-6:2FTS	6.923	429.1 -> 80.9	2115	6.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.8%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3743	7.02 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 140.4%		
13C2-PFDoDA	9.130	615.1 -> 570.0	21124	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-PFTeDA	9.924	715.2 -> 670.0	14877	1.10 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C3-PFBS	5.452	302.1 -> 79.9	10679	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C3-PFHxS	7.254	402.1 -> 79.9	6821	2.36 µg/L	0.012

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C4-PFBA	2.886	216.8 -> 171.9	119833	9.95 µg/L	-0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.492	367.1 -> 322.0	26927	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C5-PFHxA	5.559	318.0 -> 273.0	43496	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFPeA	4.375	268.3 -> 223.0	64114	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C6-PFDA	8.216	519.1 -> 474.1	17456	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C7-PFUnDA	8.685	570.0 -> 525.1	18394	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C8-FOSA	9.796	506.1 -> 77.8	16718	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOA	7.163	421.1 -> 376.0	39528	2.52 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOS	8.354	507.1 -> 79.9	10284	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C9-PFNA	7.709	472.1 -> 427.0	18658	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
d3-MeFOSAA	8.273	573.2 -> 419.0	13905	5.28 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	22907	8.71 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.1%	
d3-MeFOSA	11.089	515.0 -> 219.0	9750	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSAA	8.483	589.2 -> 419.0	11415	5.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
d7-MeFOSE	10.984	623.2 -> 58.9	67074	20.65 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
d9-EtFOSE	11.281	639.2 -> 58.9	94486	20.54 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.2%	
d5-EtFOSA	11.373	531.1 -> 219.0	10437	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	

Target Compounds

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

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.254	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9				
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	7.539	548.8 -> 98.9				
		413.0 -> 369.0	0	µg/L	m	1
PFOS	-	413.0 -> 169.0	0			
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.606	630.0 -> 58.9	0	µg/L	m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.3
7

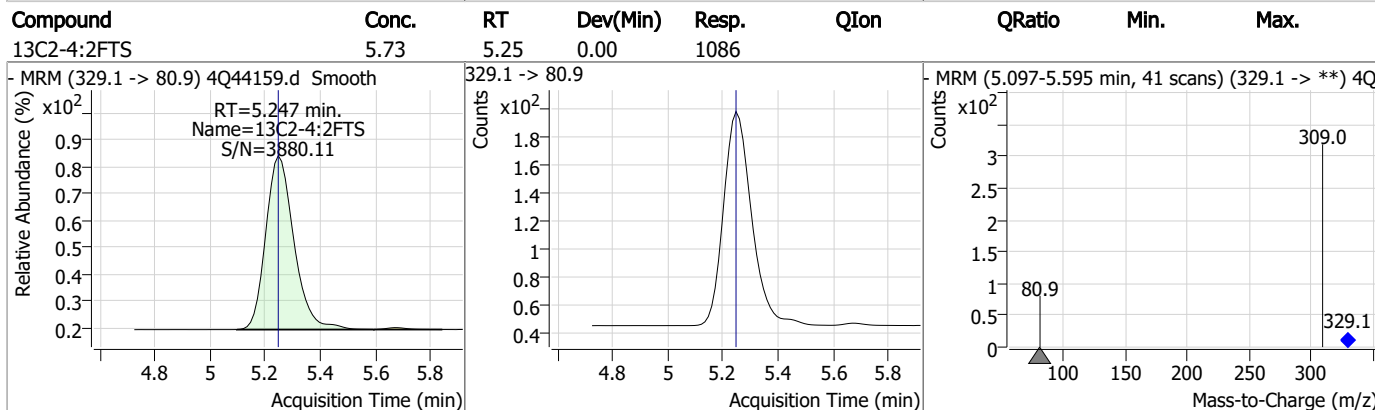
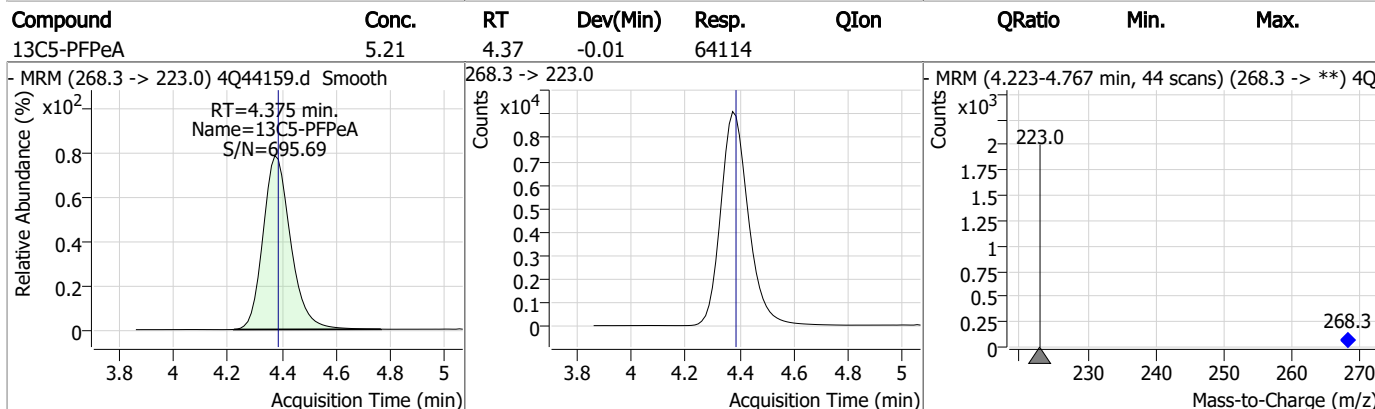
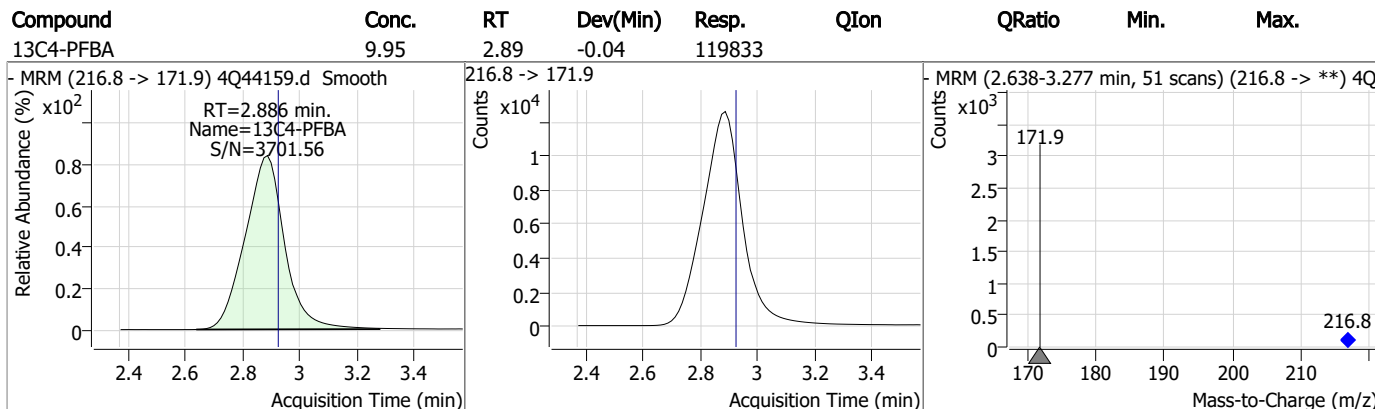
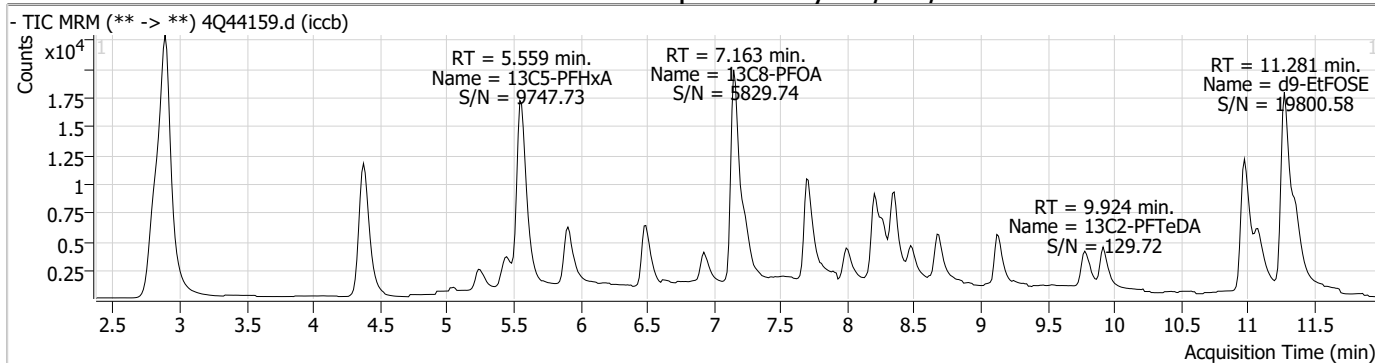
Perfluorinated Compounds by LC/MS/MS

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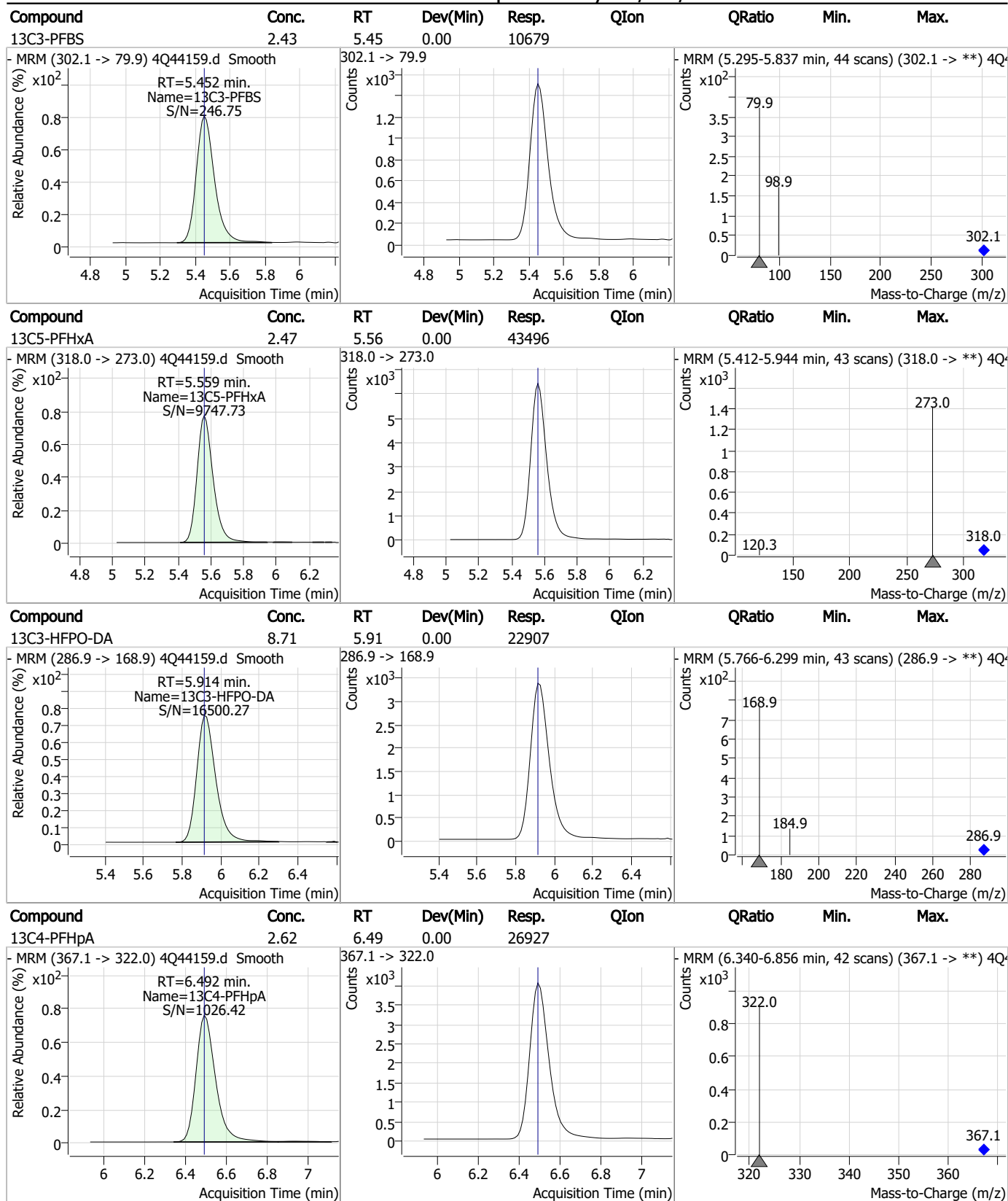
7.2.3

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Perfluorinated Compounds by LC/MS/MS

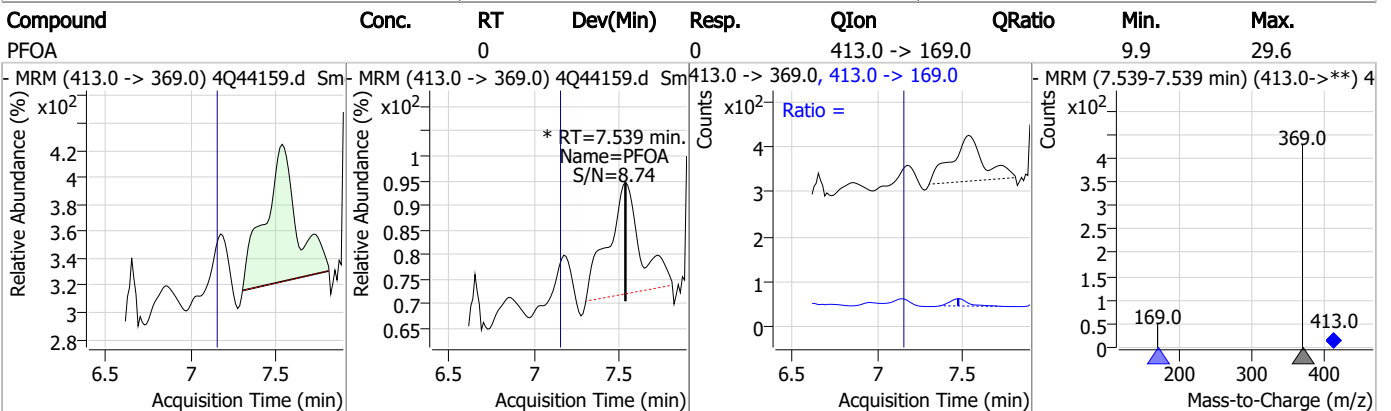
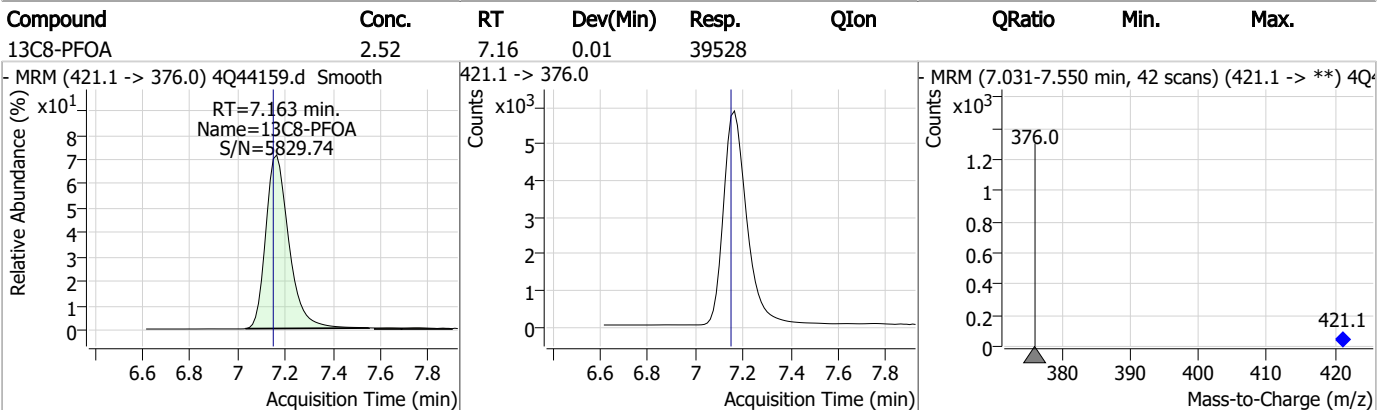
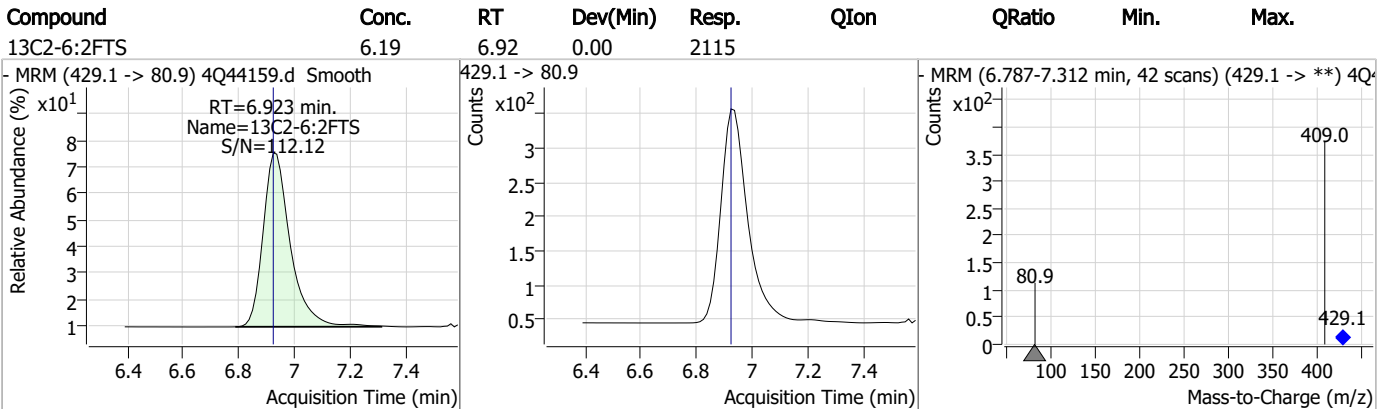
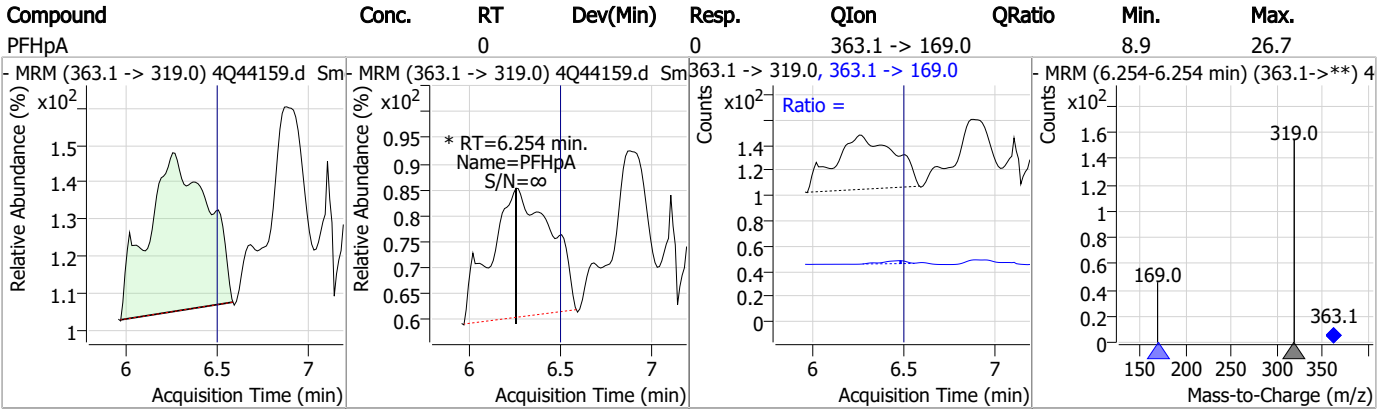


Perfluorinated Compounds by LC/MS/MS

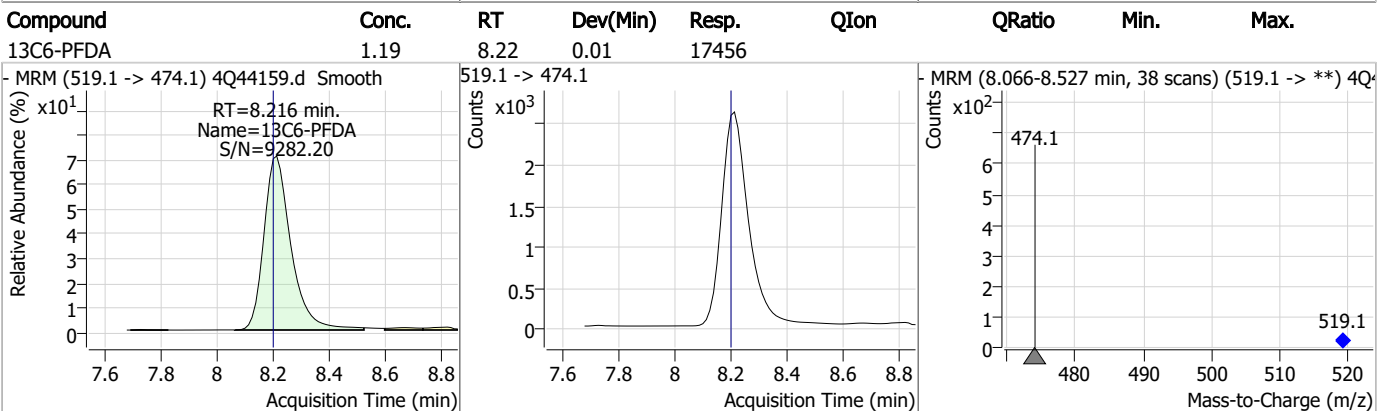
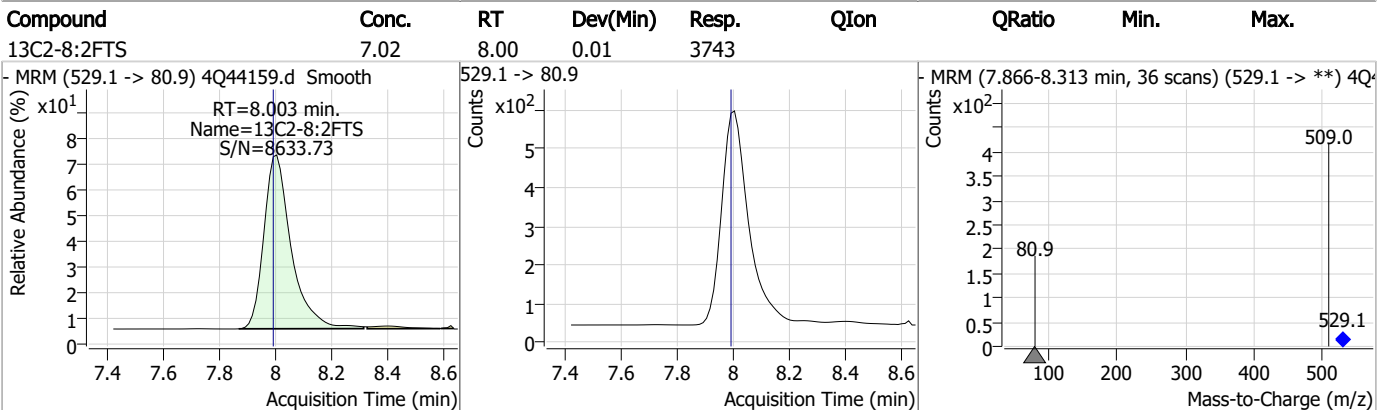
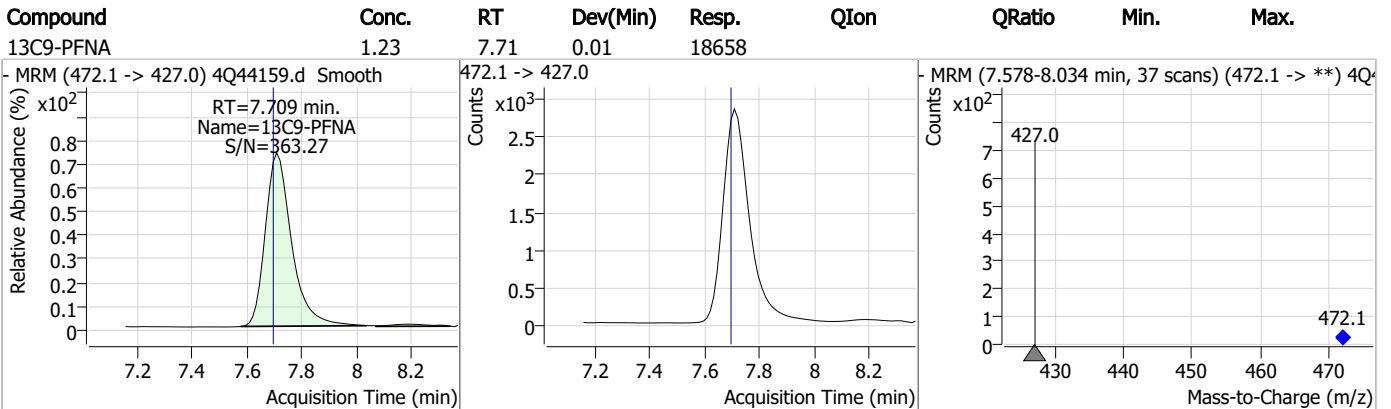
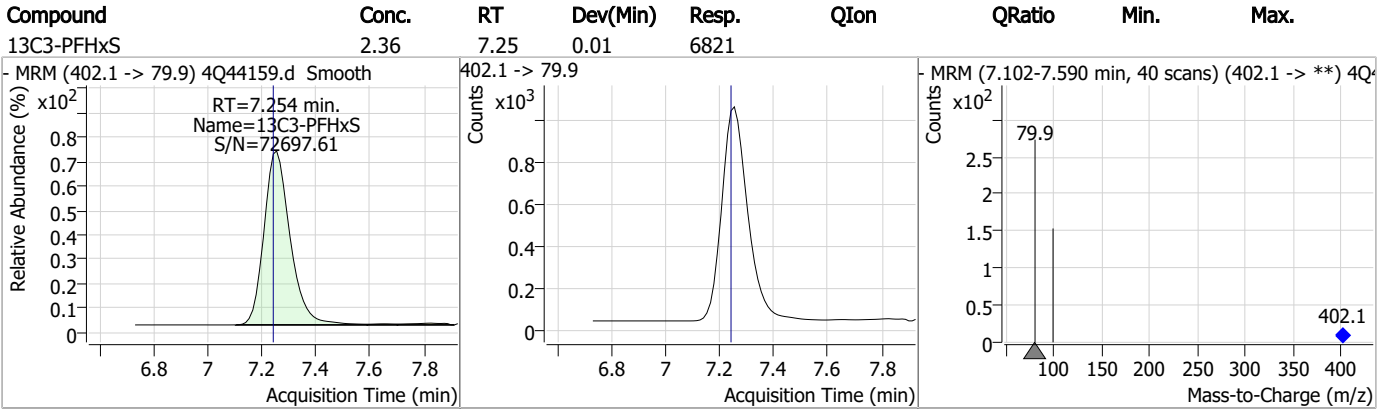


7.2.3
7

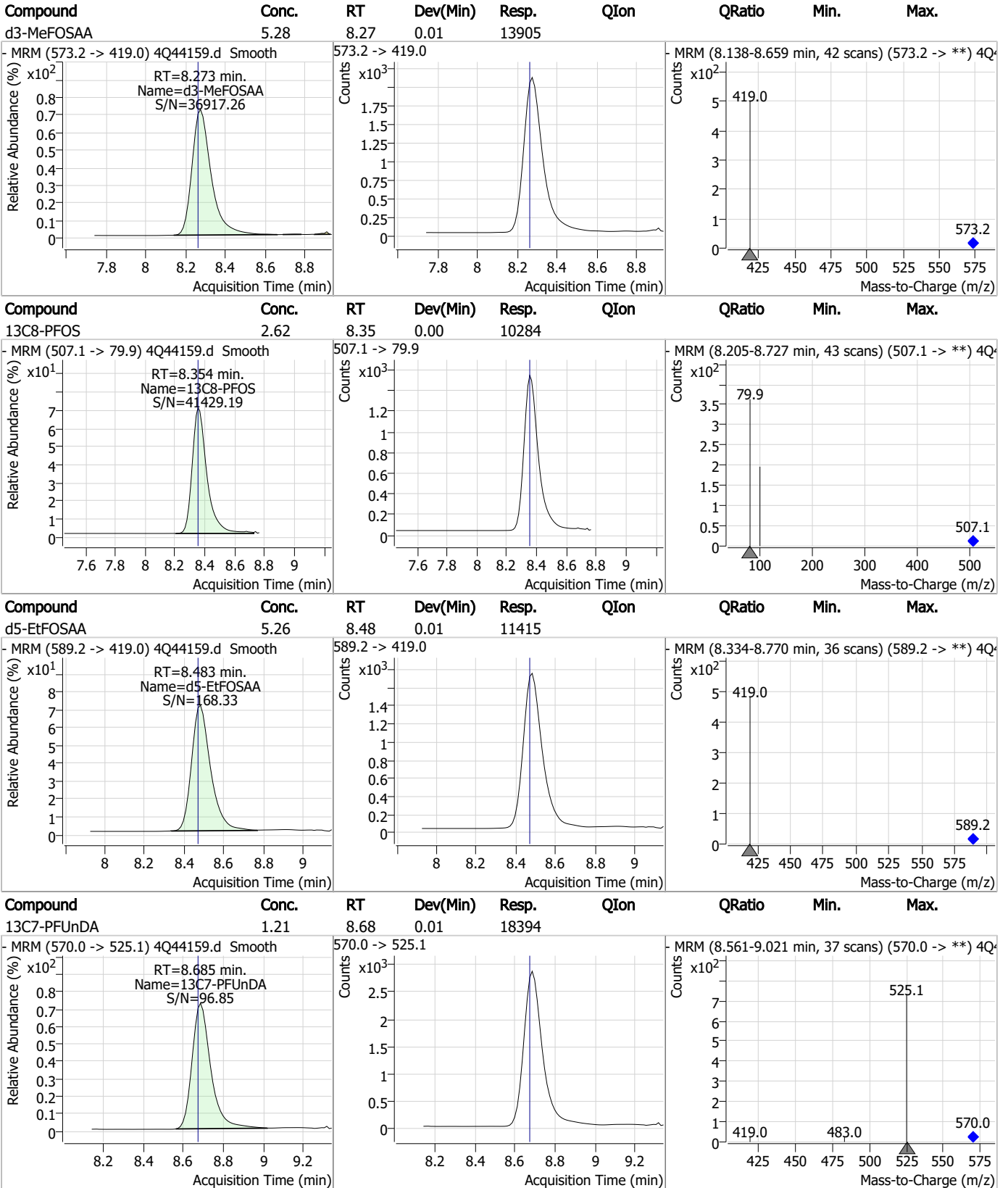
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



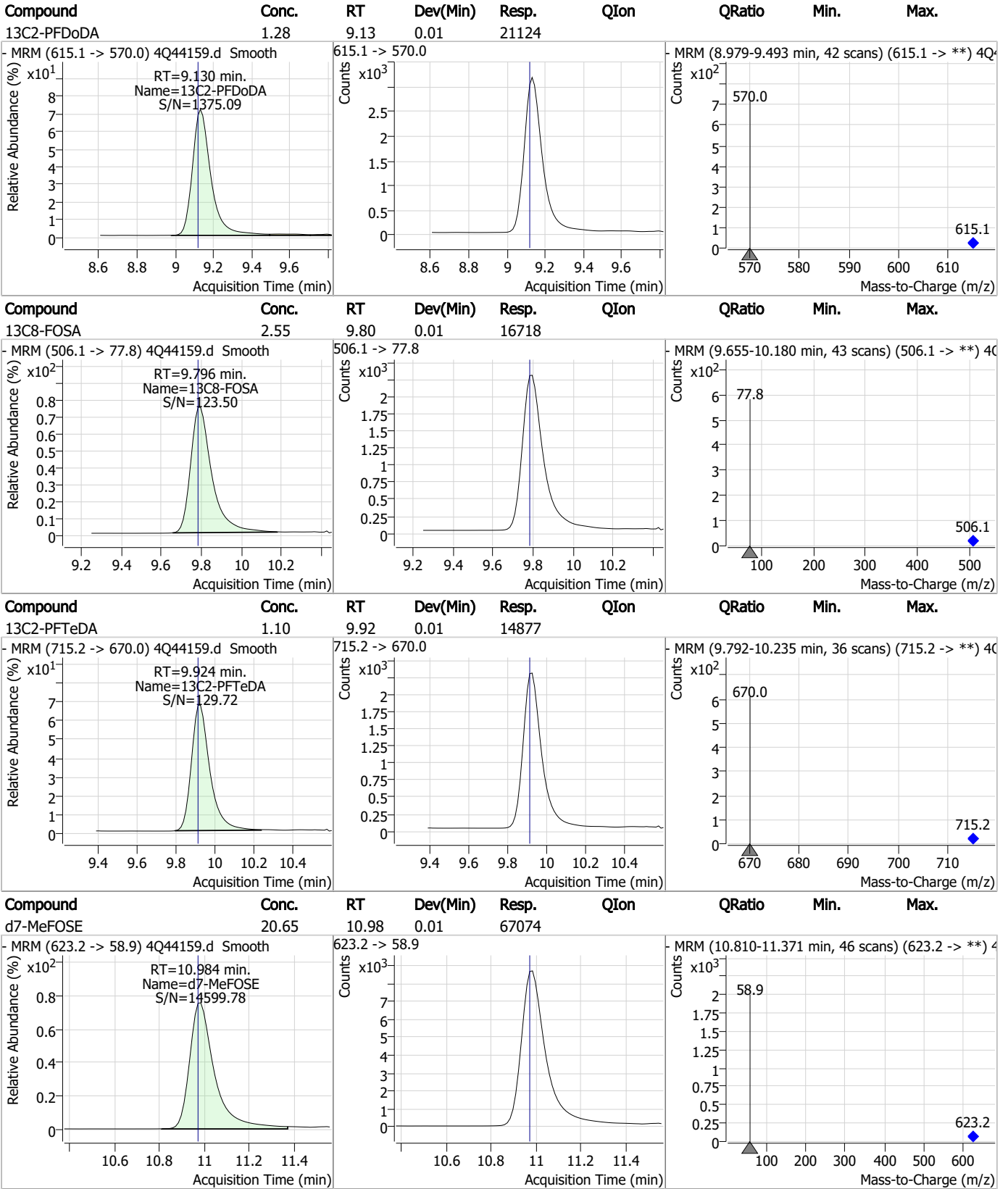
Perfluorinated Compounds by LC/MS/MS



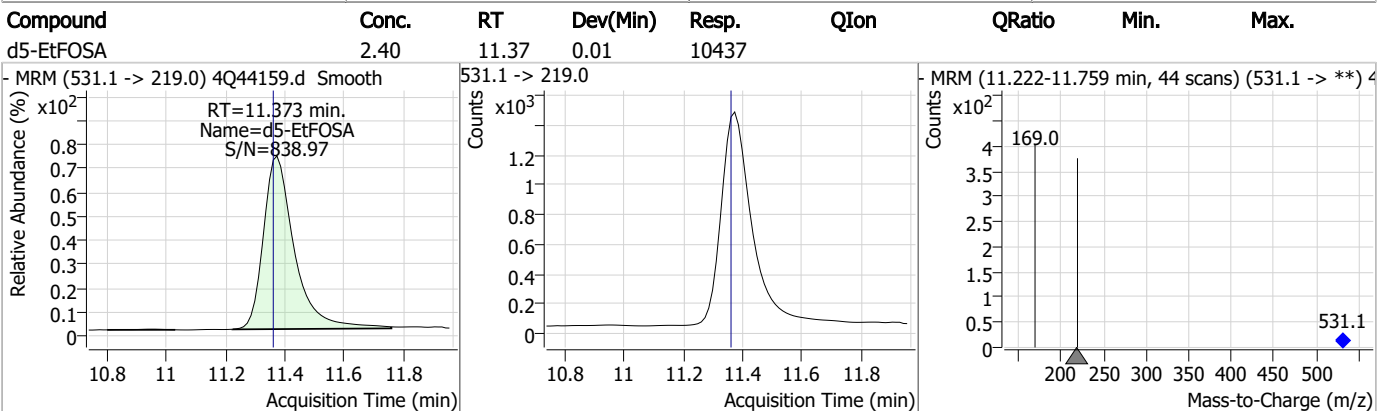
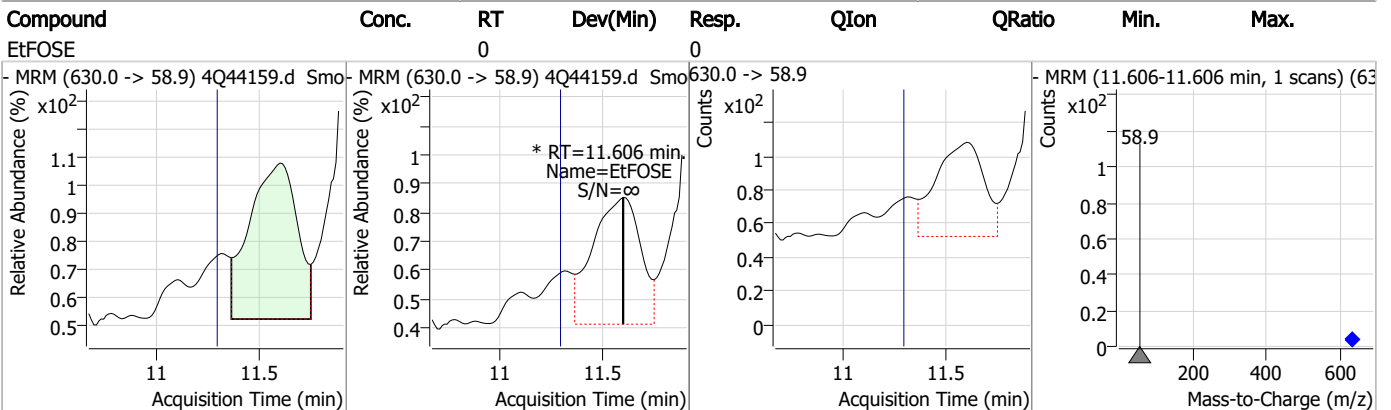
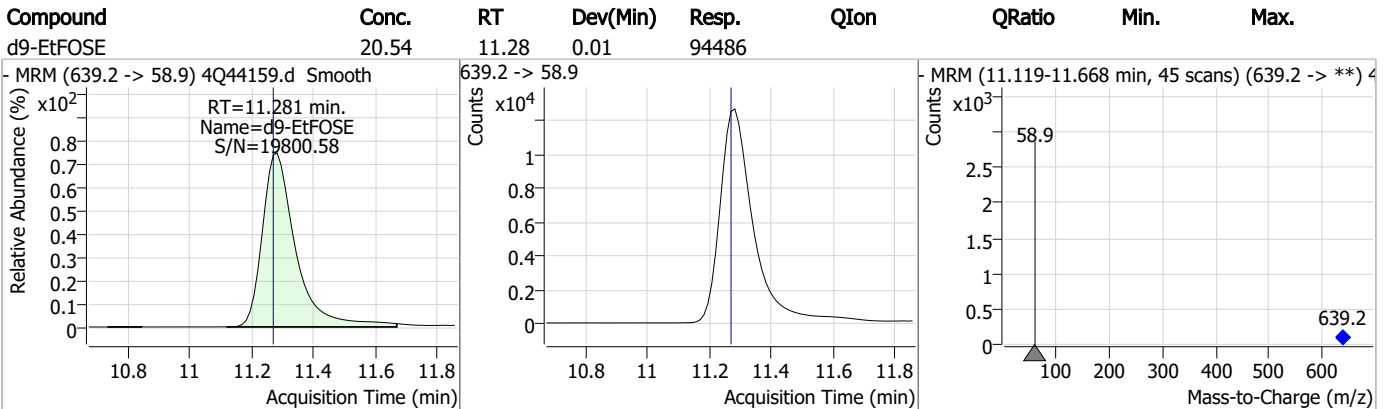
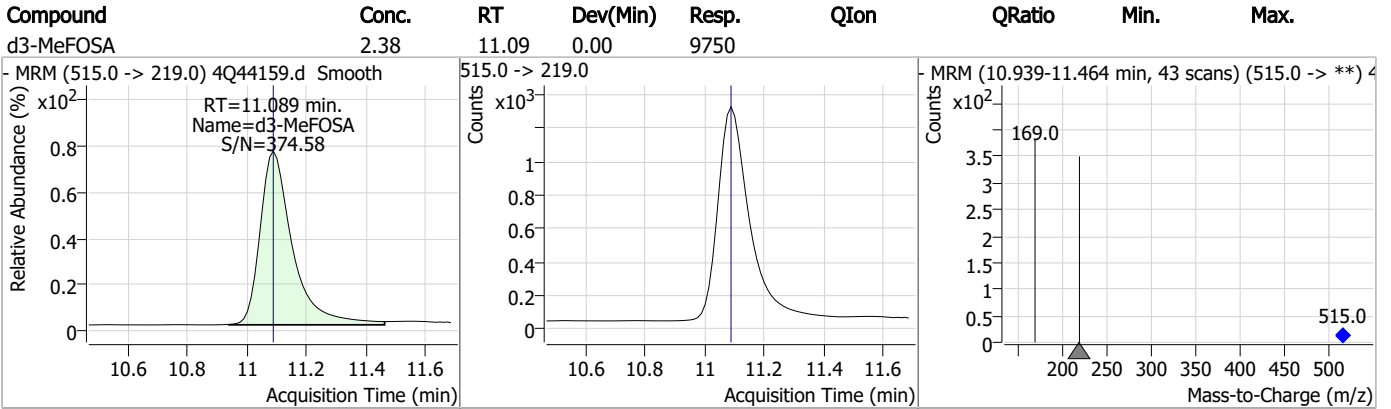
7.2.3

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44166.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 9:24:14 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.886	216.8 -> 171.9	119546	10.00 µg/L	-0.037
M5-PFPeA	4.375	268.3 -> 223.0	64005	5.00 µg/L	-0.012
M5-PFHxA	5.559	318.0 -> 273.0	42913	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	26041	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	40621	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	20915	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	17494	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	18230	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	19686	1.25 µg/L	0.012
M2-PFTeDA	9.911	715.2 -> 670.0	14789	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	17310	2.50 µg/L	0.000
M3-PFBS	5.452	302.1 -> 79.9	10762	2.50 µg/L	0.000
M3-PFHxS	7.254	402.1 -> 79.9	6827	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	9983	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1149	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2152	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3719	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	14533	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	23333	10.00 µg/L	0.000
M5-EtFOSAA	8.483	589.2 -> 419.0	12437	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	67486	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	94235	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	10240	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	9312	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10284	2.50 µg/L	0.000
13C3-PFBA	2.891	216.0 -> 172.0	63783	5.00 µg/L	-0.037
18O2-PFHxS	7.253	403.0 -> 83.9	4836	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	48894	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	17405	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	22605	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	40304	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1149	5.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.9%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2152	6.07 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.5%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3719	6.72 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 134.5%		
13C2-PFDoDA	9.130	615.1 -> 570.0	19686	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C2-PFTeDA	9.911	715.2 -> 670.0	14789	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.2%		
13C3-PFBS	5.452	302.1 -> 79.9	10762	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C3-PFHxS	7.254	402.1 -> 79.9	6827	2.28 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 = 91.1%	
13C4-PFBA	2.886	216.8 -> 171.9	119546	9.96 µg/L	-0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFHpA	6.492	367.1 -> 322.0	26041	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFHxA	5.559	318.0 -> 273.0	42913	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C5-PFPeA	4.375	268.3 -> 223.0	64005	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.216	519.1 -> 474.1	17494	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C7-PFUnDA	8.685	570.0 -> 525.1	18230	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C8-FOSA	9.783	506.1 -> 77.8	17310	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C8-PFOA	7.163	421.1 -> 376.0	40621	2.53 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.354	507.1 -> 79.9	9983	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C9-PFNA	7.709	472.1 -> 427.0	20915	1.36 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.9%	
d3-MeFOSAA	8.273	573.2 -> 419.0	14533	5.60 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	23333	8.80 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
d3-MeFOSA	11.089	515.0 -> 219.0	9312	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.4%	
d5-EtFOSAA	8.483	589.2 -> 419.0	12437	5.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.4%	
d7-MeFOSE	10.972	623.2 -> 58.9	67486	21.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.4%	
d9-EtFOSE	11.281	639.2 -> 58.9	94235	20.80 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.2%	
d5-EtFOSA	11.373	531.1 -> 219.0	10240	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	

7.2.4
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Target Compounds

QValue

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



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	7.884	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	7.189	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.4
7

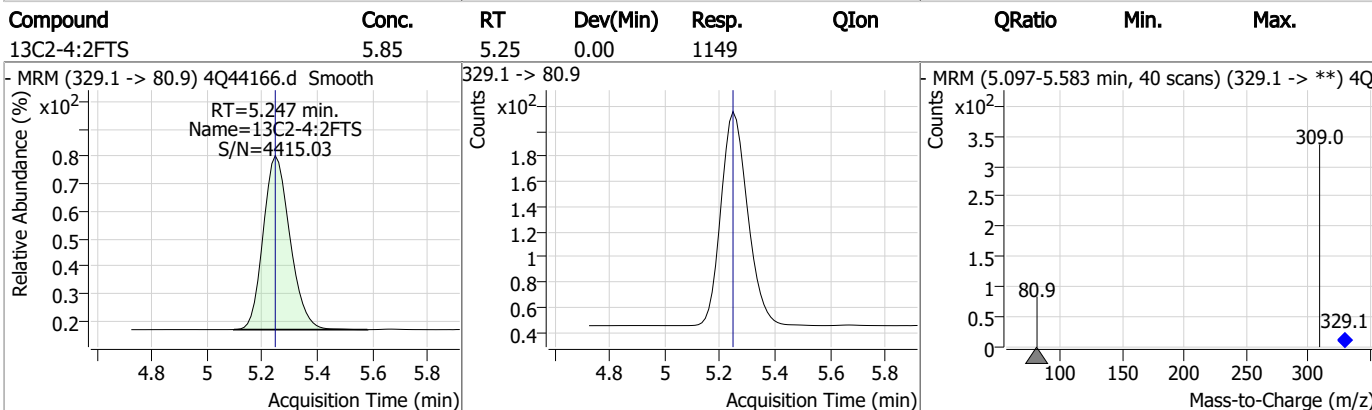
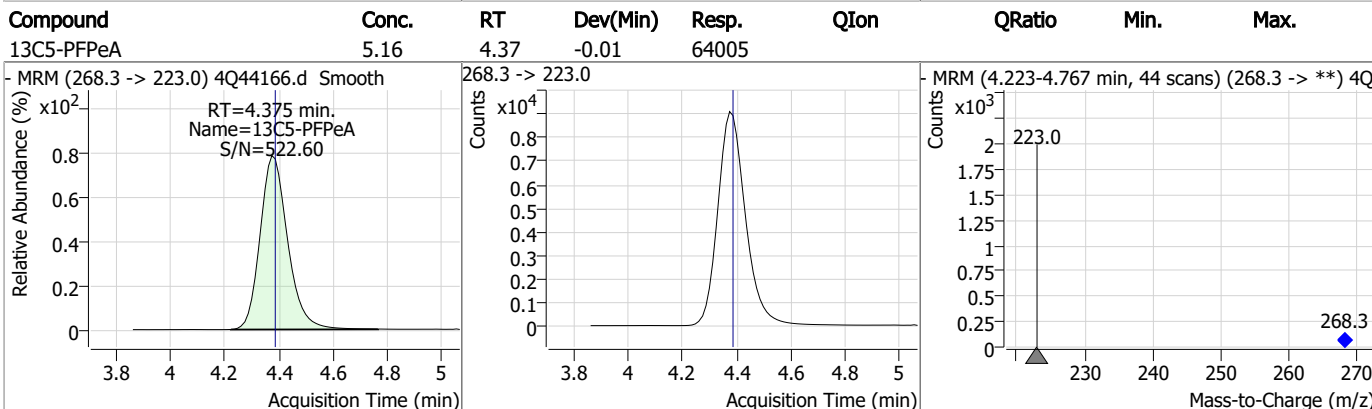
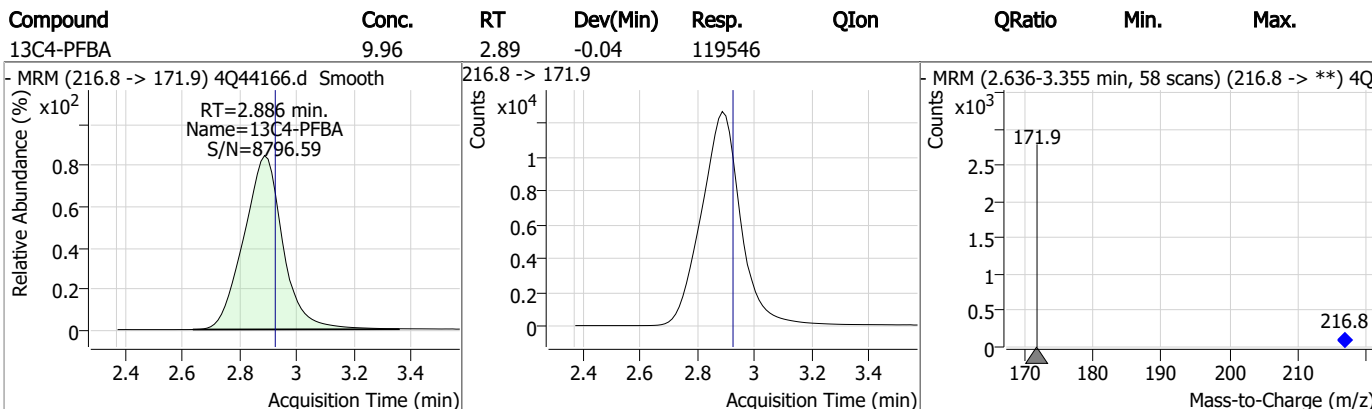
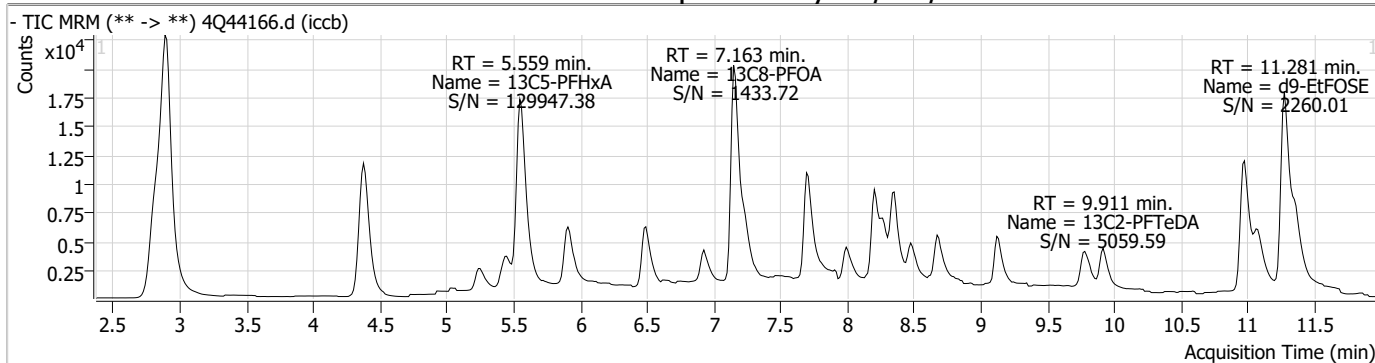
Perfluorinated Compounds by LC/MS/MS

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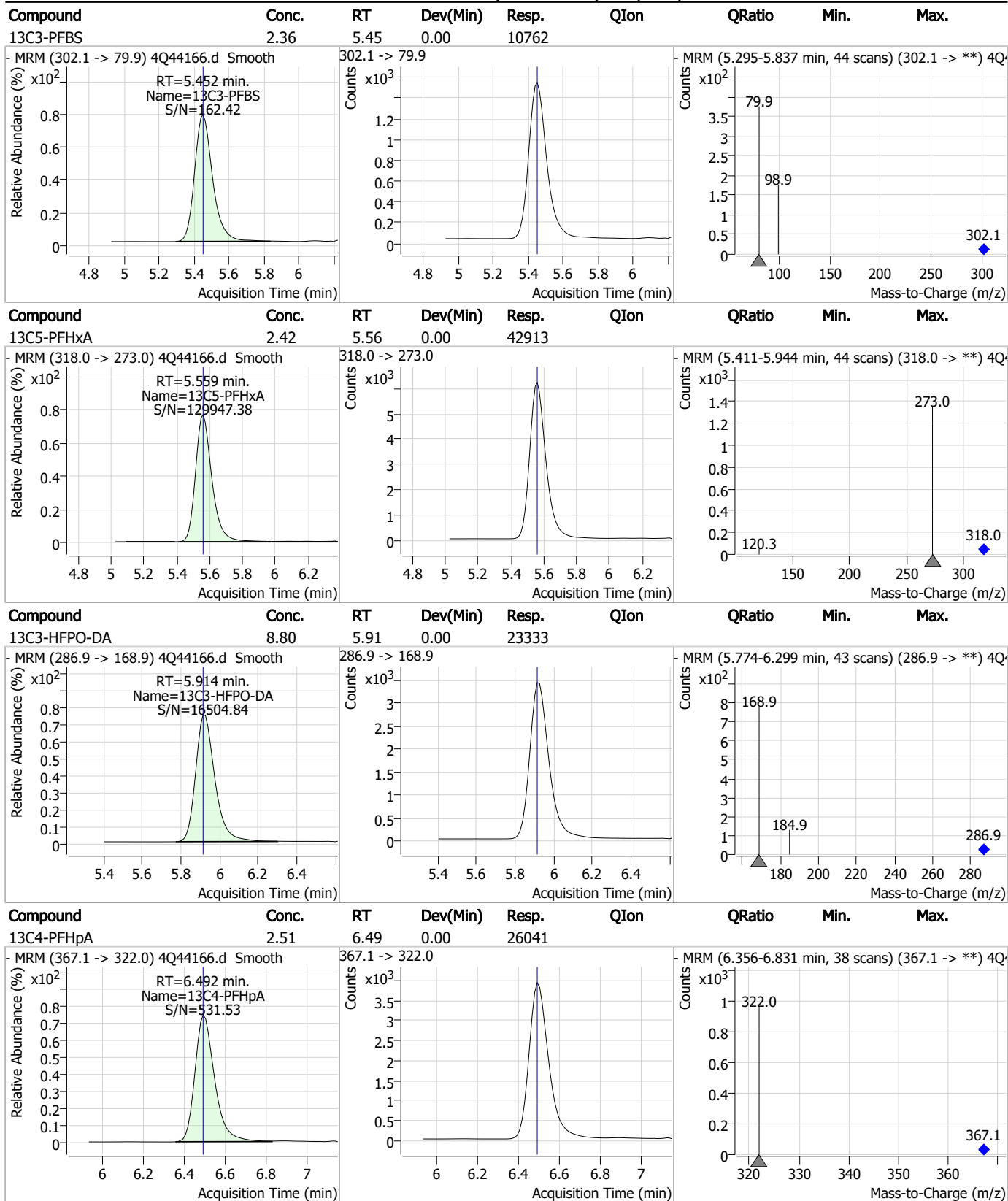
7.2.4

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Perfluorinated Compounds by LC/MS/MS

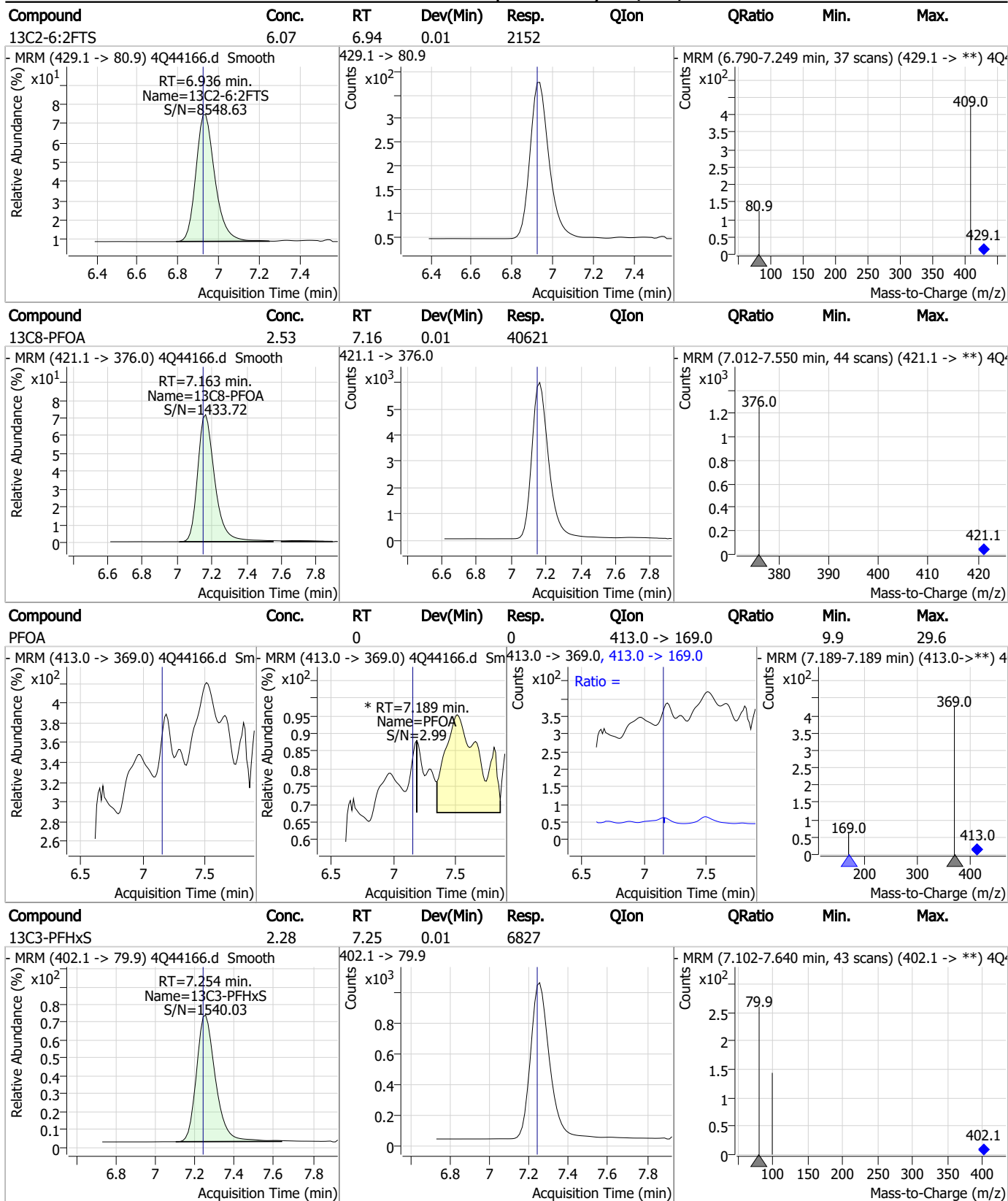


Perfluorinated Compounds by LC/MS/MS



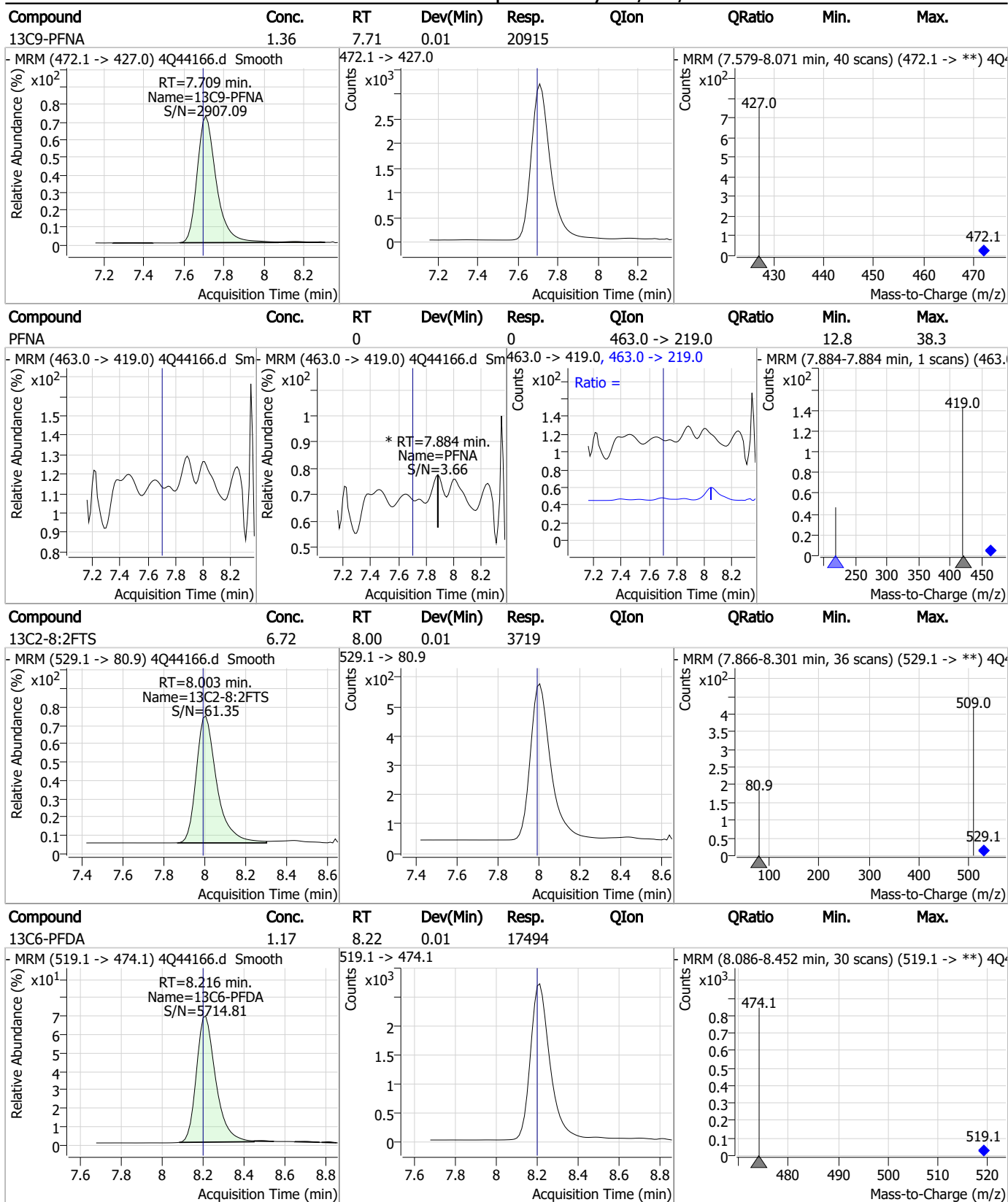
7.2.4
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Perfluorinated Compounds by LC/MS/MS



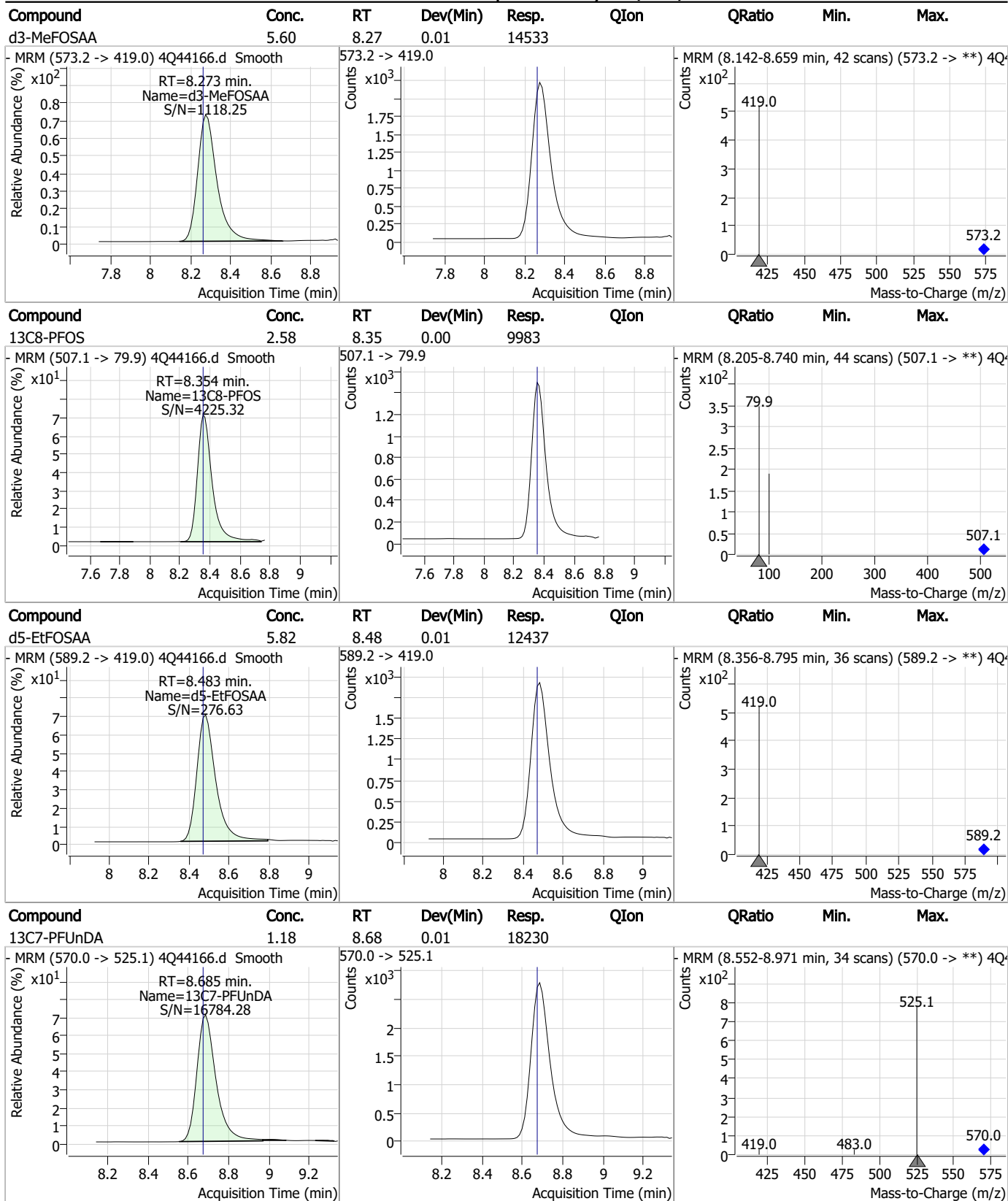
7.24
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Perfluorinated Compounds by LC/MS/MS



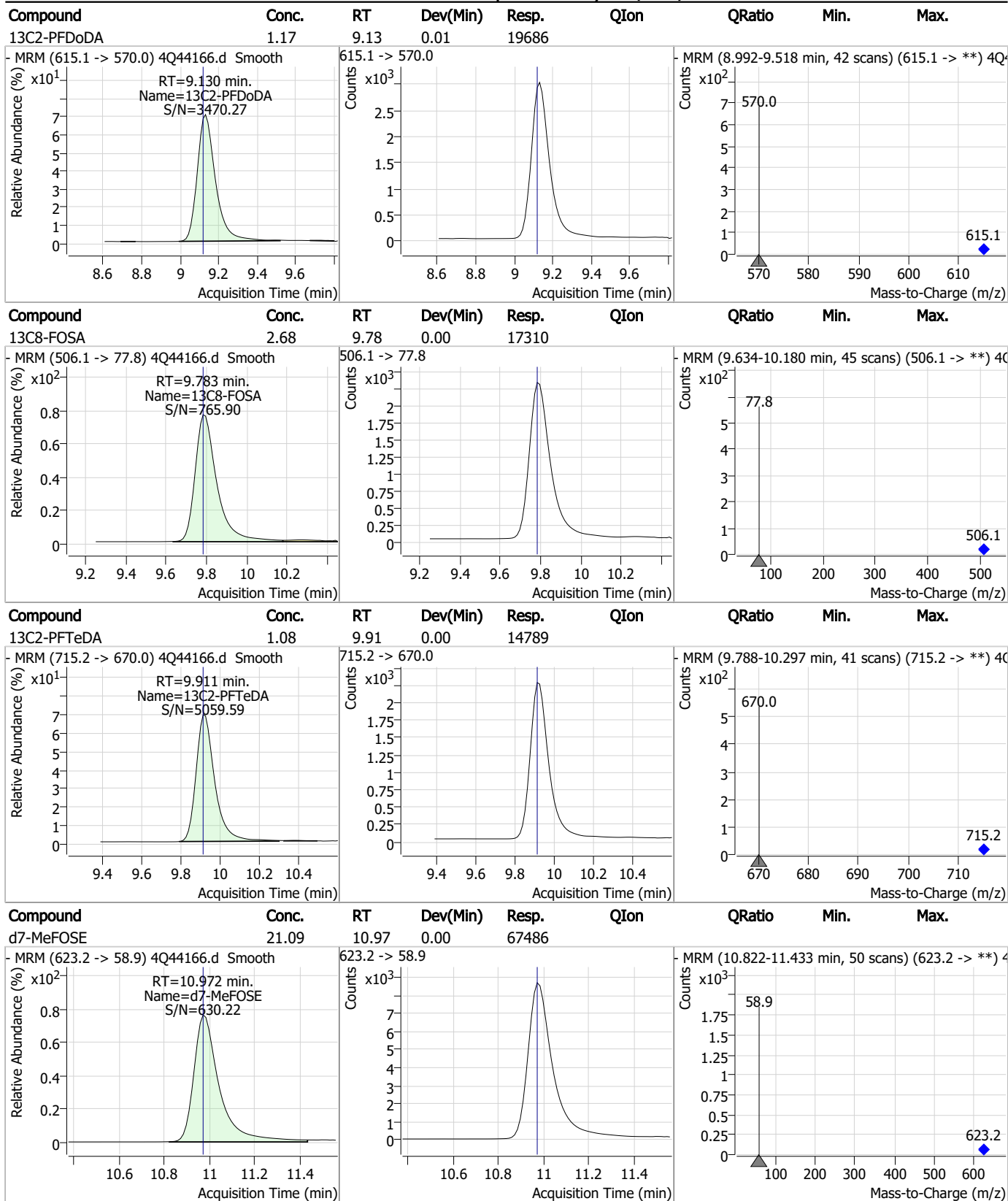
7.2.4
7

Perfluorinated Compounds by LC/MS/MS



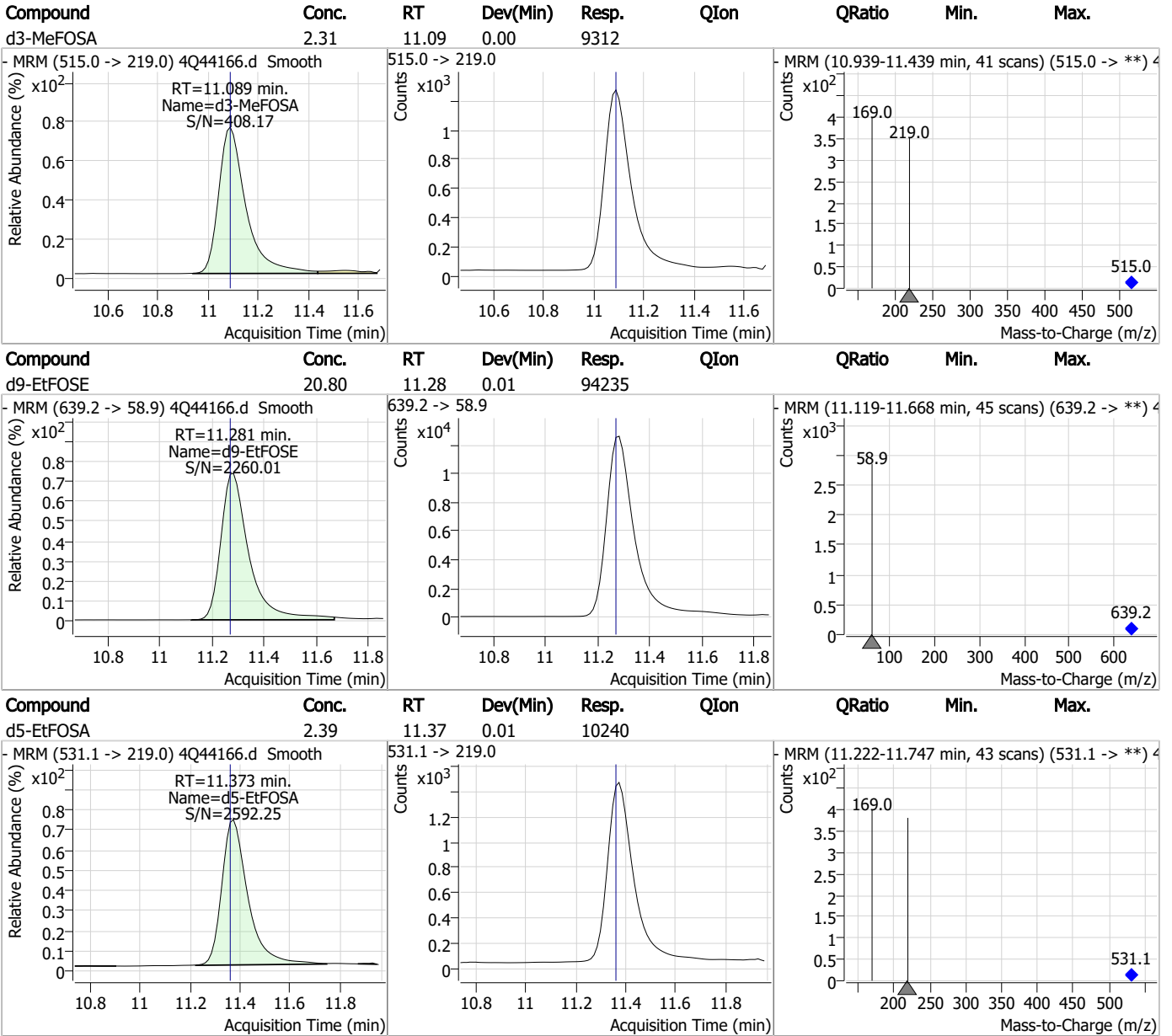
7.2.4
7

Perfluorinated Compounds by LC/MS/MS



7.2.4
7

Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17712.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/10/2023 7:35:54 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q267.batch.bin
 Sample Information : OP96663,S6Q267,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	149252	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	46687	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	54492	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	45161	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	71673	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	24171	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16600	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	21681	1.25 µg/L	0.012
M2-PFDoDA	8.949	615.1 -> 570.0	21544	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	13863	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	20315	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	16699	2.50 µg/L	-0.012
M3-PFHxS	7.179	402.1 -> 79.9	11417	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	9897	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1588	5.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	2035	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2229	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	19692	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	33269	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	16276	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	81131	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	92463	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9196	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7360	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13070	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	62570	5.00 µg/L	0.000
18O2-PFHxS	7.191	403.0 -> 83.9	8158	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	75422	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20171	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	23588	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	43090	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1588	5.27 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C2-6:2FTS	6.850	429.1 -> 80.9	2035	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2229	5.47 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-PFDoDA	8.949	615.1 -> 570.0	21544	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.677	715.2 -> 670.0	13863	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C3-PFBS	5.397	302.1 -> 79.9	16699	2.33 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	11417	2.69 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 = 107.5%	
13C4-PFBA	2.913	216.8 -> 171.9	149252	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.432	367.1 -> 322.0	45161	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFHxA	5.478	318.0 -> 273.0	54492	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C5-PFPeA	4.272	268.3 -> 223.0	46687	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C6-PFDA	8.076	519.1 -> 474.1	16600	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	21681	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-FOSA	9.636	506.1 -> 77.8	20315	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C8-PFOA	7.077	421.1 -> 376.0	71673	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-PFOS	8.239	507.1 -> 79.9	9897	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C9-PFNA	7.595	472.1 -> 427.0	24171	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
d3-MeFOSAA	8.133	573.2 -> 419.0	19692	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	33269	10.40 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d3-MeFOSA	10.752	515.0 -> 219.0	7360	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.7%	
d5-EtFOSAA	8.329	589.2 -> 419.0	16276	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d7-MeFOSE	10.660	623.2 -> 58.9	81131	22.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	92463	22.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.9%	
d5-EtFOSA	10.984	531.1 -> 219.0	9196	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	

Target Compounds

QValue

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

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.240	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.5
7

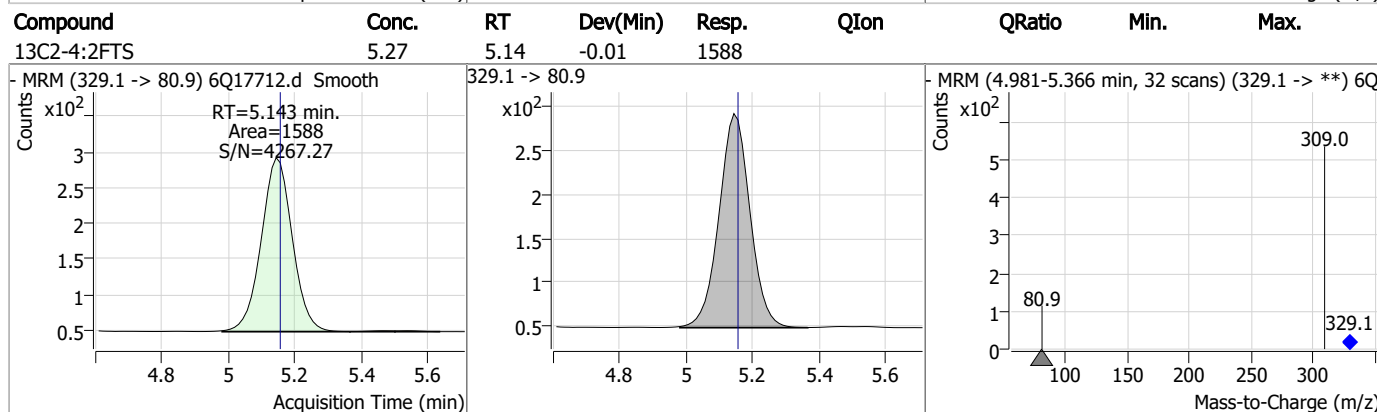
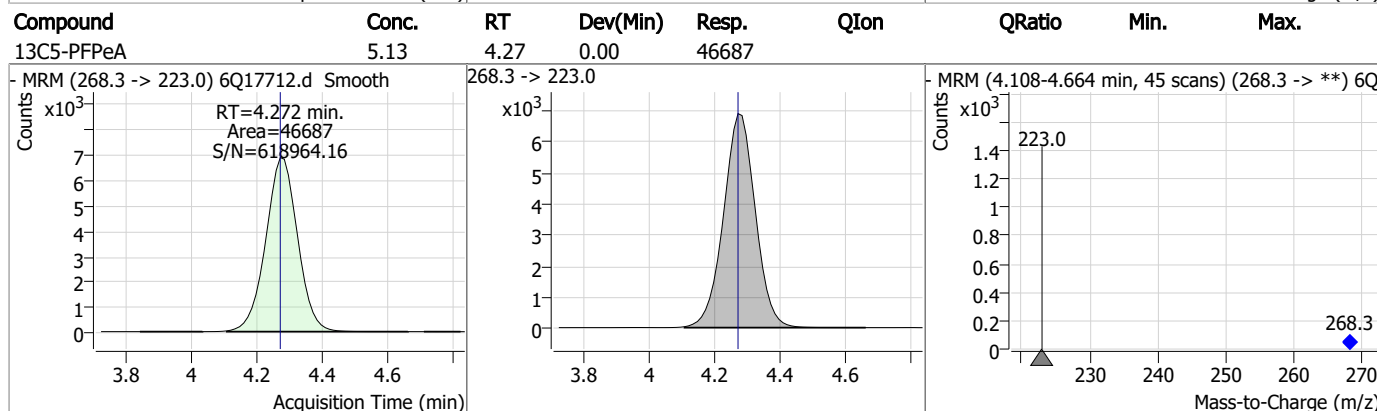
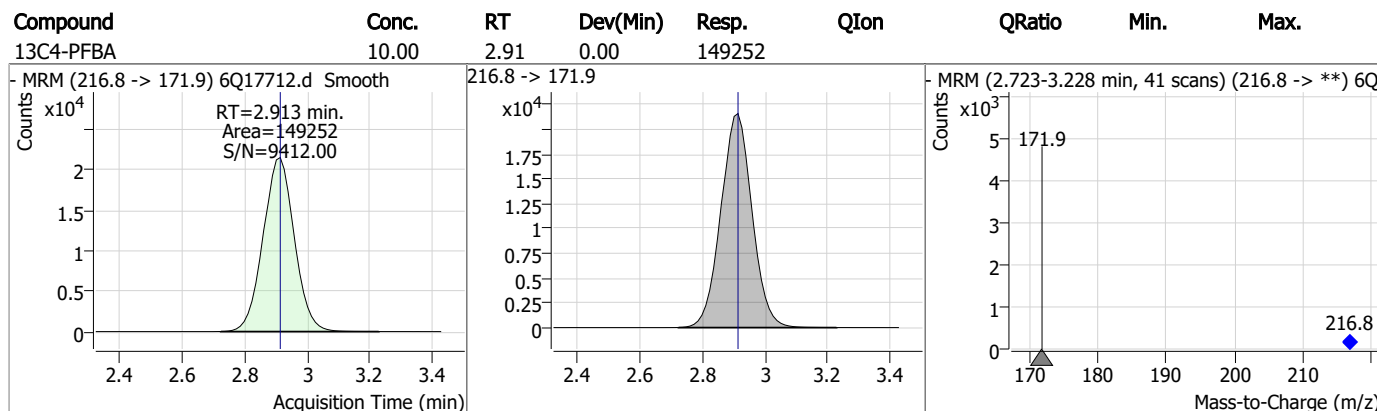
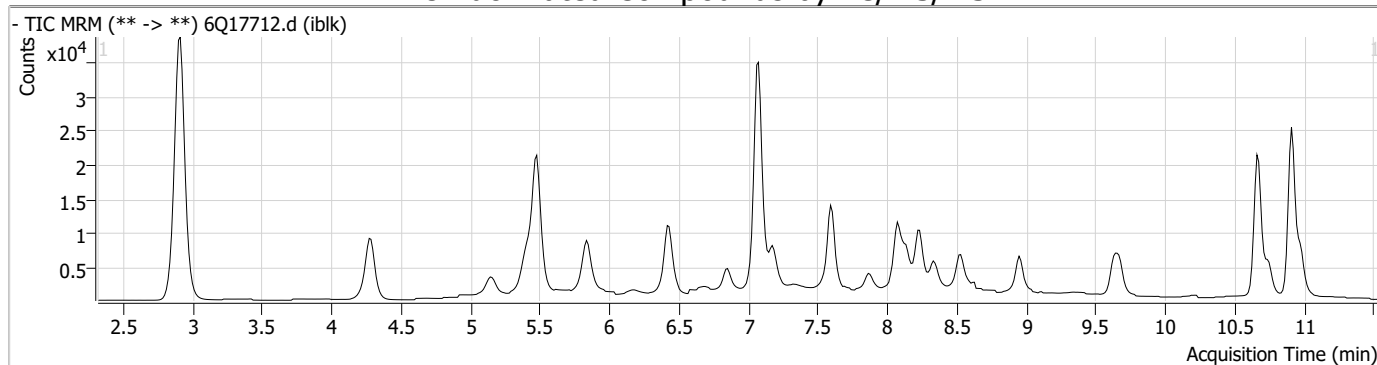
Perfluorinated Compounds by LC/MS/MS

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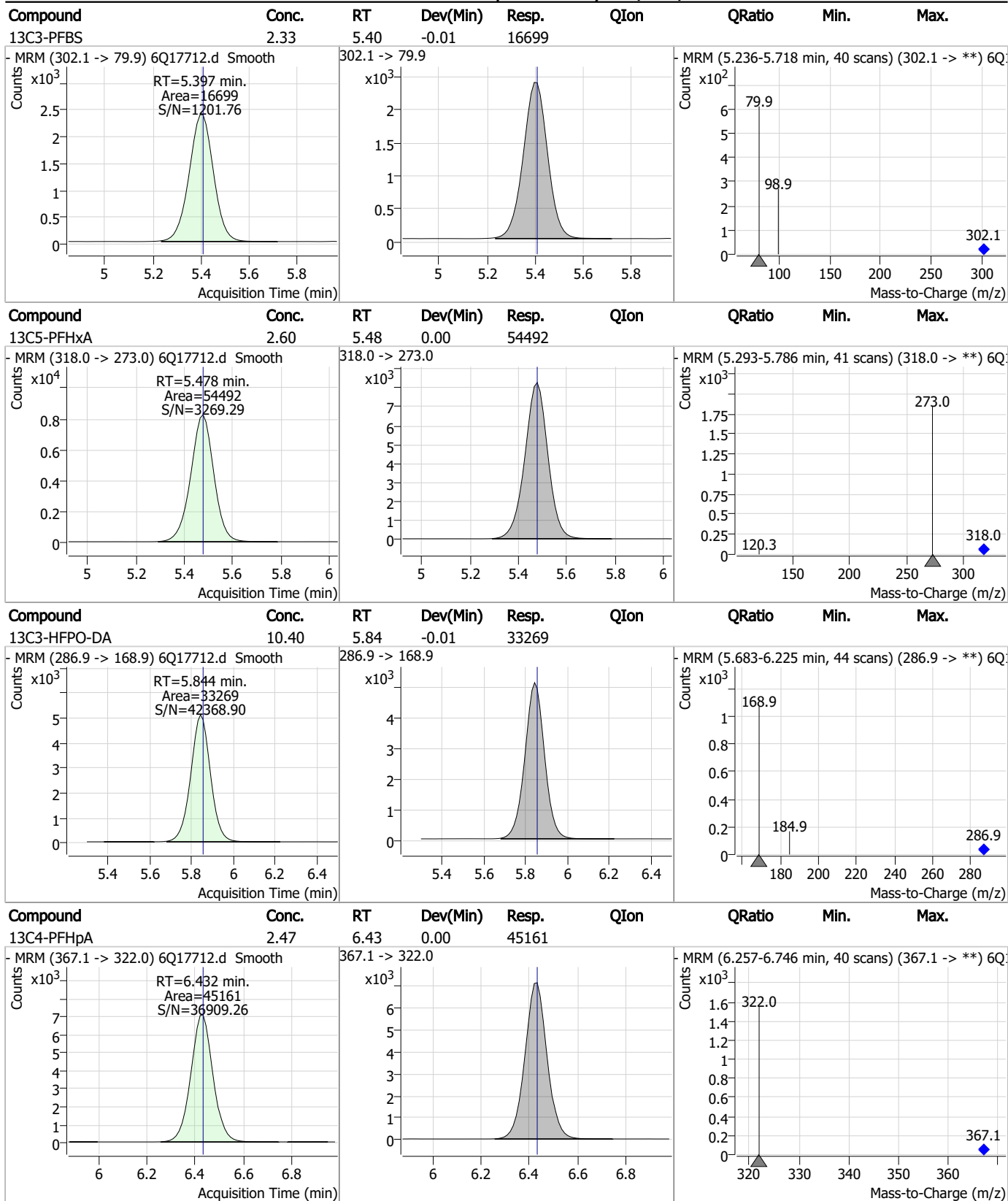
7.2.5

7

Perfluorinated Compounds by LC/MS/MS

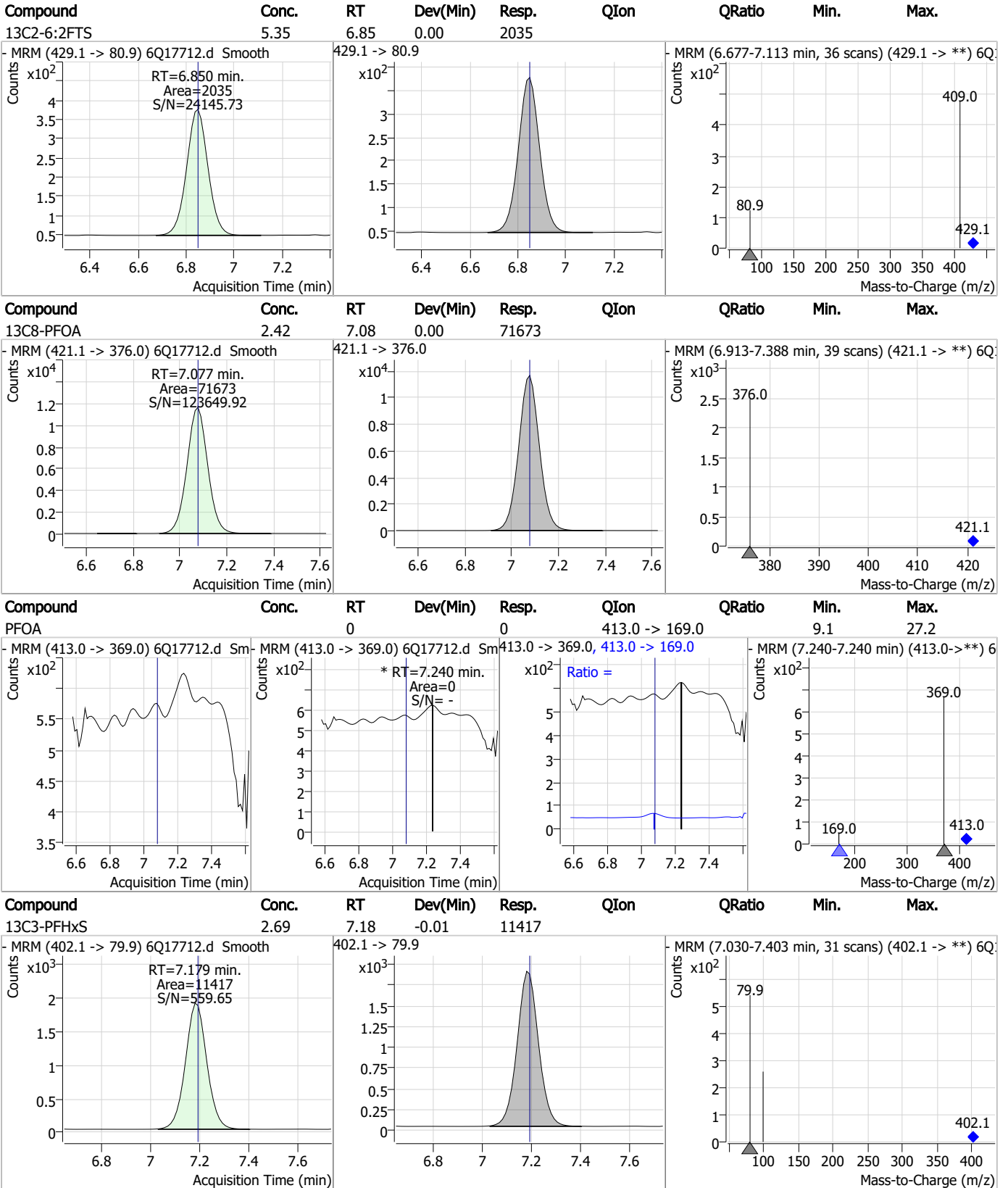


Perfluorinated Compounds by LC/MS/MS



7.25
7

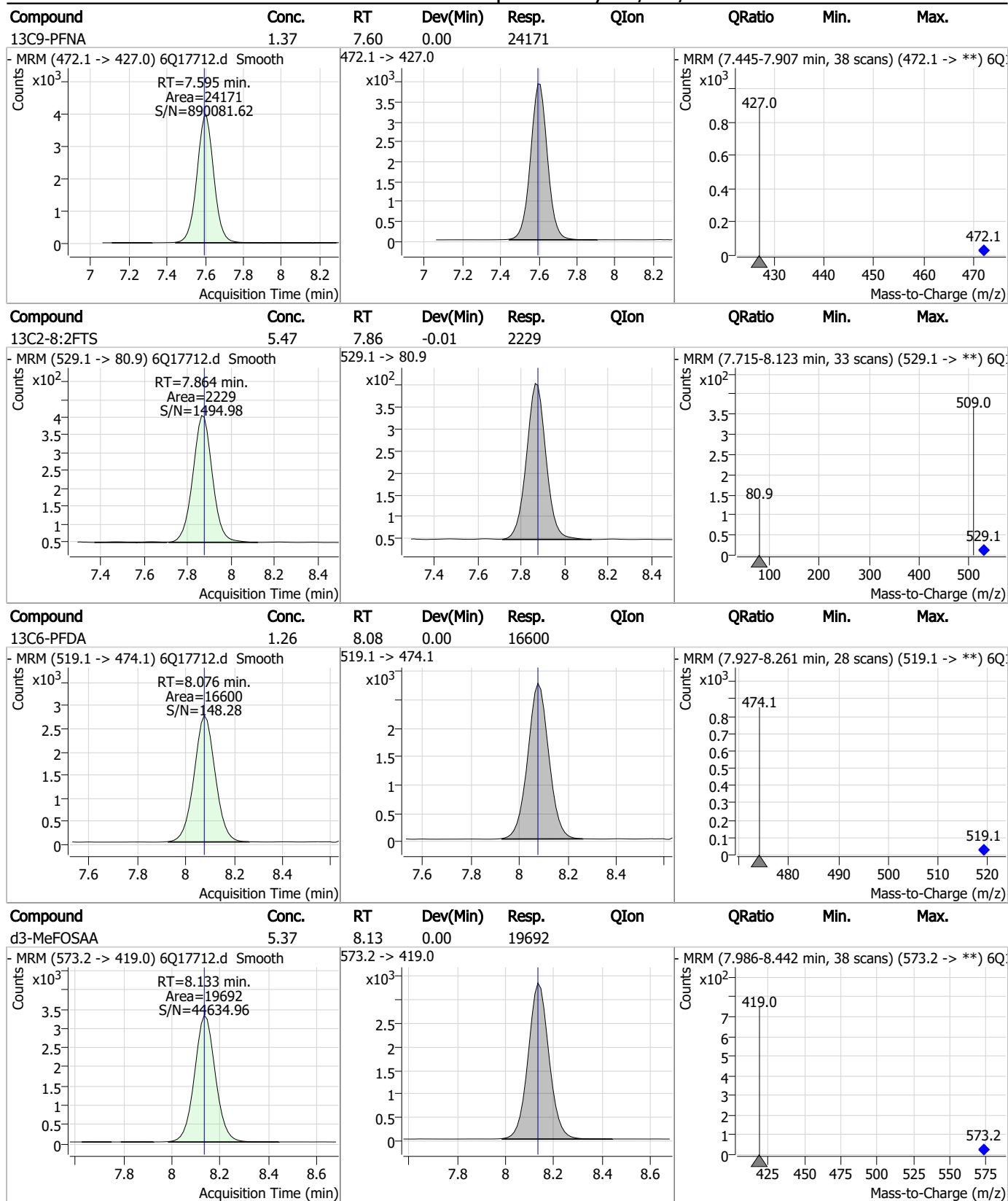
Perfluorinated Compounds by LC/MS/MS



7.25

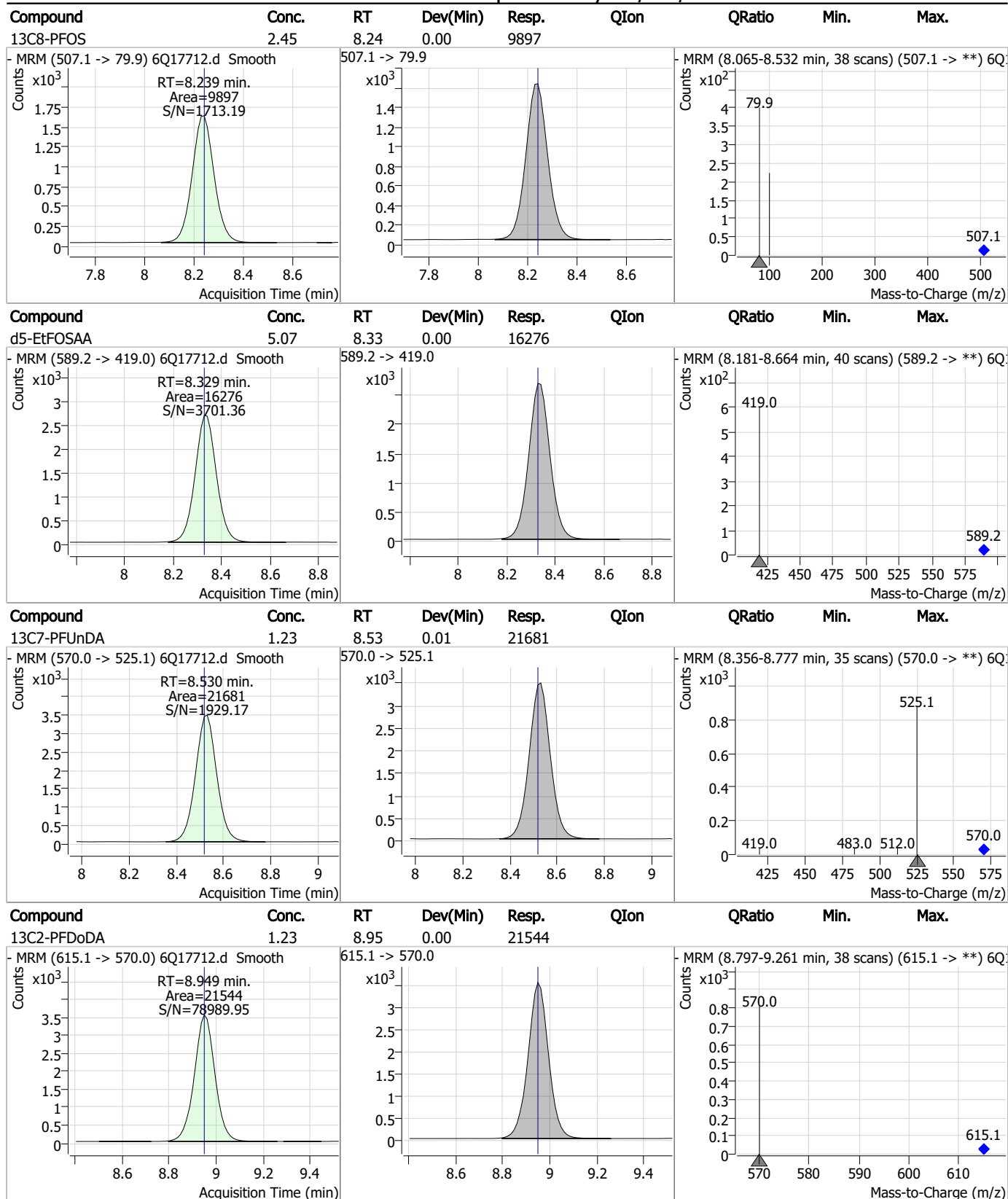
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Perfluorinated Compounds by LC/MS/MS



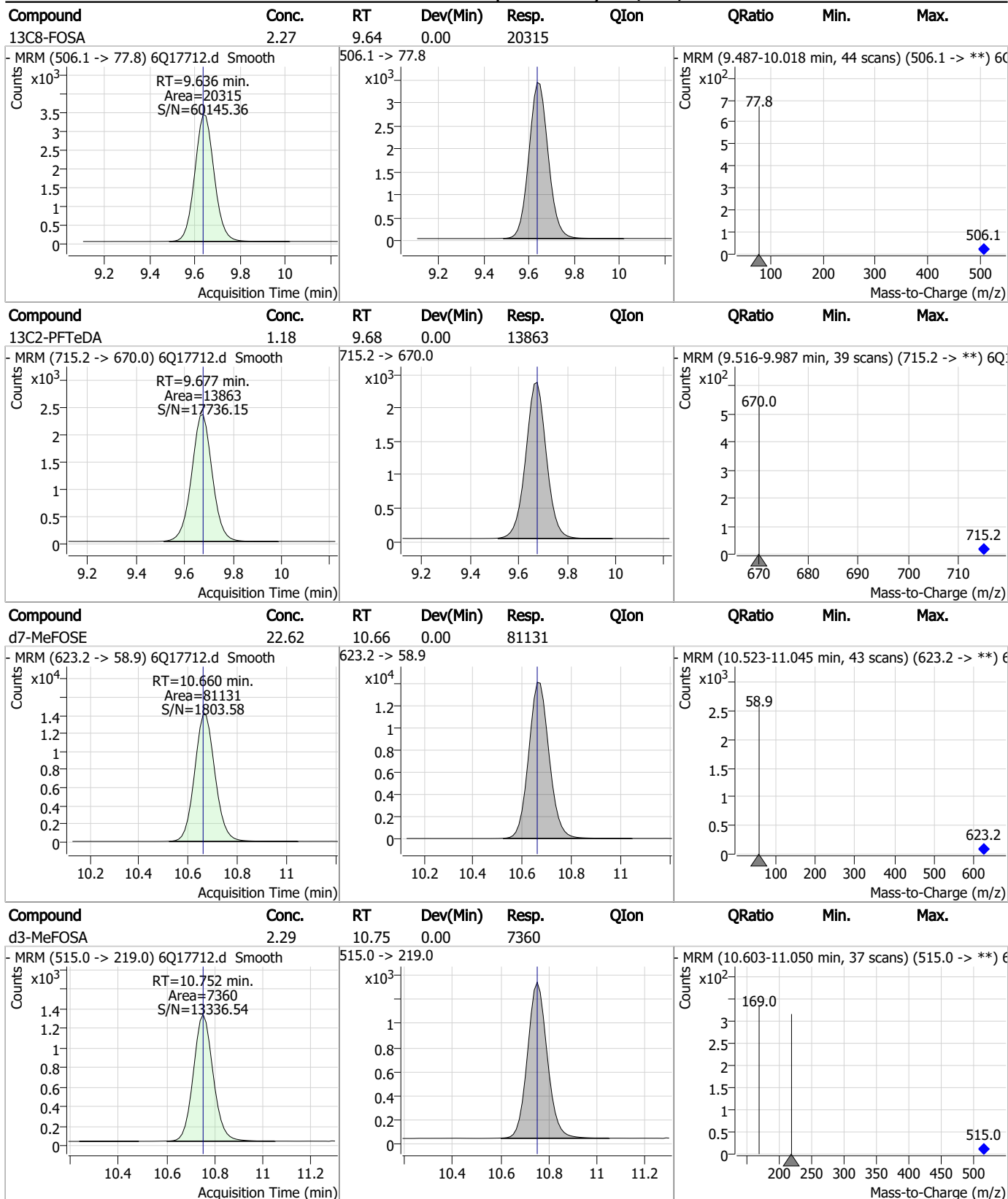
7.25
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Perfluorinated Compounds by LC/MS/MS



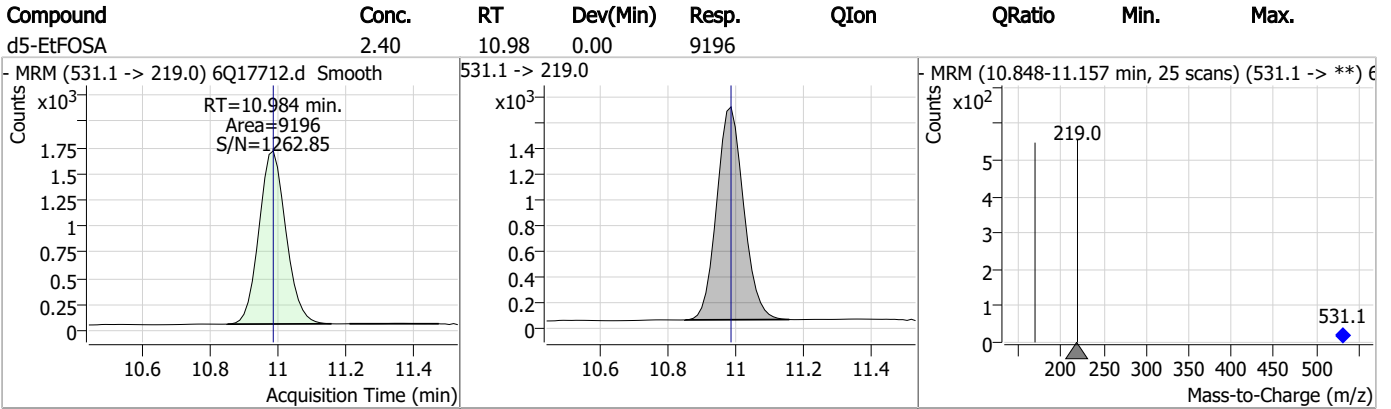
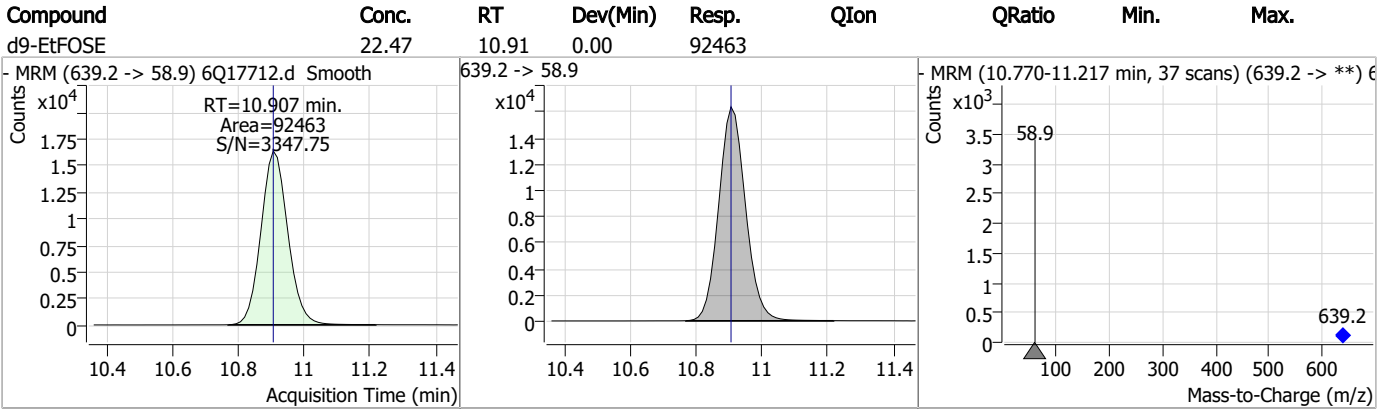
7.25
7

Perfluorinated Compounds by LC/MS/MS



7.2.5
7

Perfluorinated Compounds by LC/MS/MS



7.2.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17726.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/10/2023 10:58:49 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q267.batch.bin
 Sample Information : OP96663,S6Q267,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	150320	10.00 µg/L	0.000
M5-PFPeA	4.284	268.3 -> 223.0	47189	5.00 µg/L	0.012
M5-PFHxA	5.478	318.0 -> 273.0	55582	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	47236	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	68830	2.50 µg/L	0.000
M9-PFNA	7.608	472.1 -> 427.0	23279	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	16411	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	21359	1.25 µg/L	0.012
M2-PFDoDA	8.949	615.1 -> 570.0	20154	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	14617	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	20903	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	18343	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11242	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	8652	2.50 µg/L	0.000
M2-4:2FTS	5.156	329.1 -> 80.9	1490	5.00 µg/L	0.000
M2-6:2FTS	6.850	429.1 -> 80.9	1913	5.00 µg/L	0.000
M2-8:2FTS	7.876	529.1 -> 80.9	2143	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	18475	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	34575	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	16228	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	75926	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	92242	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8630	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7255	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	12459	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	62938	5.00 µg/L	0.012
18O2-PFHxS	7.191	403.0 -> 83.9	7817	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	73657	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20942	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	24720	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	41712	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.156	329.1 -> 80.9	1490	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1913	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-8:2FTS	7.876	529.1 -> 80.9	2143	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20154	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.9%		
13C2-PFTeDA	9.664	715.2 -> 670.0	14617	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-PFBS	5.409	302.1 -> 79.9	18343	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C3-PFHxS	7.179	402.1 -> 79.9	11242	2.76 µg/L	-0.012

7.2.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C4-PFBA	2.913	216.8 -> 171.9	150320	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.432	367.1 -> 322.0	47236	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C5-PFHxA	5.478	318.0 -> 273.0	55582	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C5-PFPeA	4.284	268.3 -> 223.0	47189	5.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C6-PFDA	8.076	519.1 -> 474.1	16411	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	21359	1.16 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C8-FOSA	9.636	506.1 -> 77.8	20903	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOA	7.077	421.1 -> 376.0	68830	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C8-PFOS	8.239	507.1 -> 79.9	8652	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C9-PFNA	7.608	472.1 -> 427.0	23279	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
d3-MeFOSAA	8.133	573.2 -> 419.0	18475	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	34575	11.16 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.6%	
d3-MeFOSA	10.752	515.0 -> 219.0	7255	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
d5-EtFOSAA	8.329	589.2 -> 419.0	16228	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
d7-MeFOSE	10.660	623.2 -> 58.9	75926	22.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.8%	
d9-EtFOSE	10.907	639.2 -> 58.9	92242	23.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
d5-EtFOSA	10.984	531.1 -> 219.0	8630	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	

7.2.6
7

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



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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



7.2.6
7

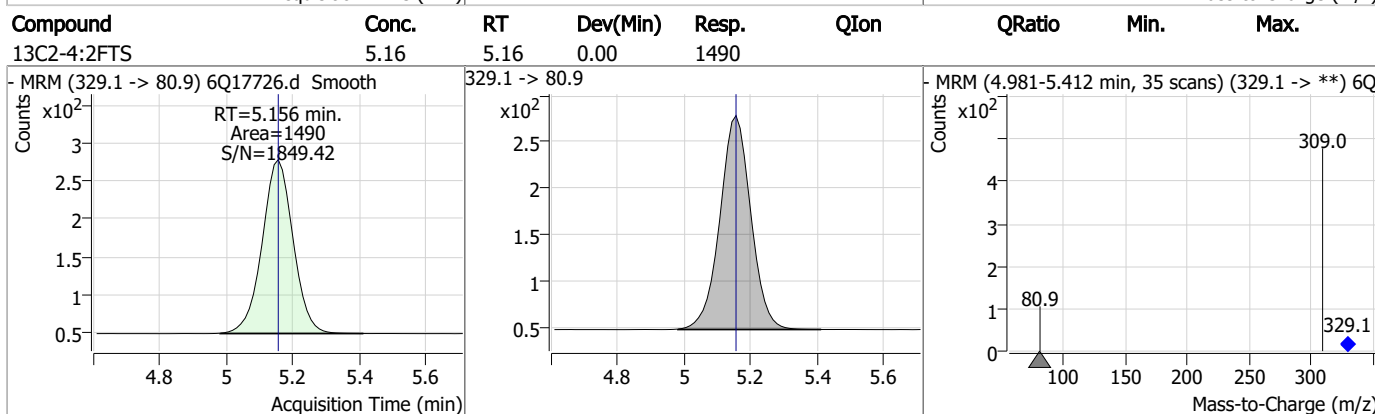
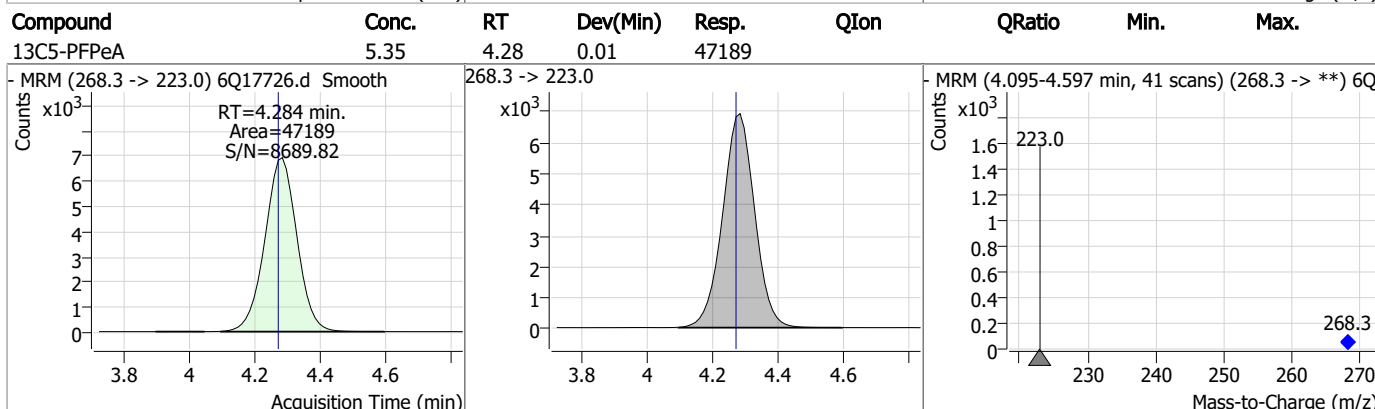
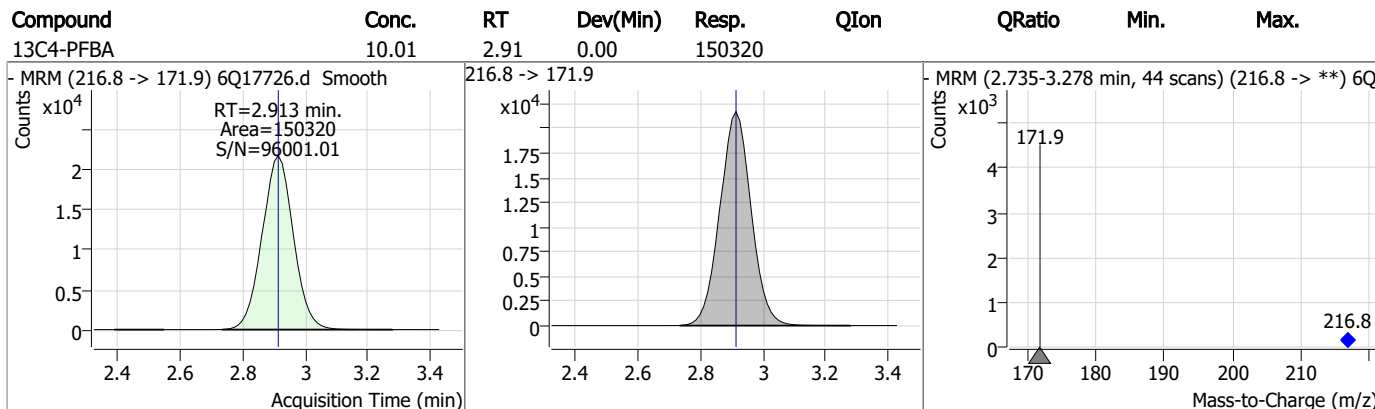
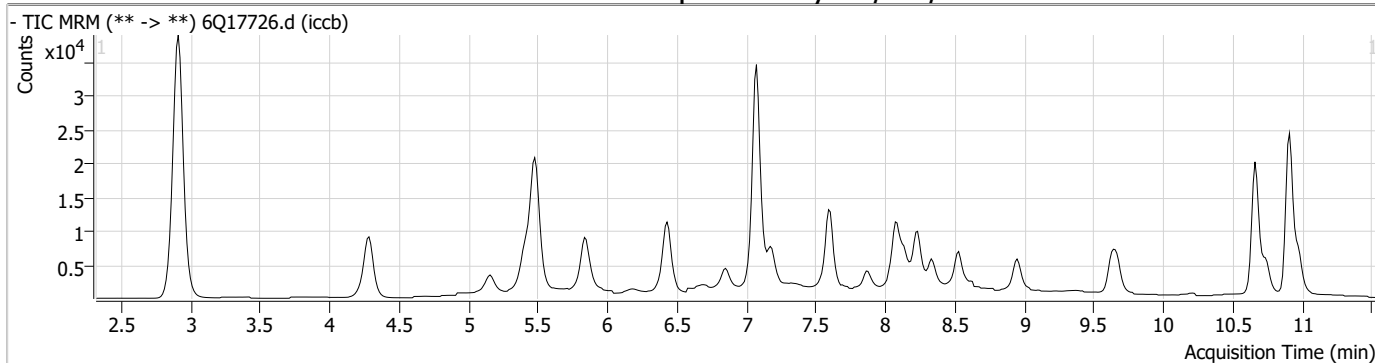
Perfluorinated Compounds by LC/MS/MS

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

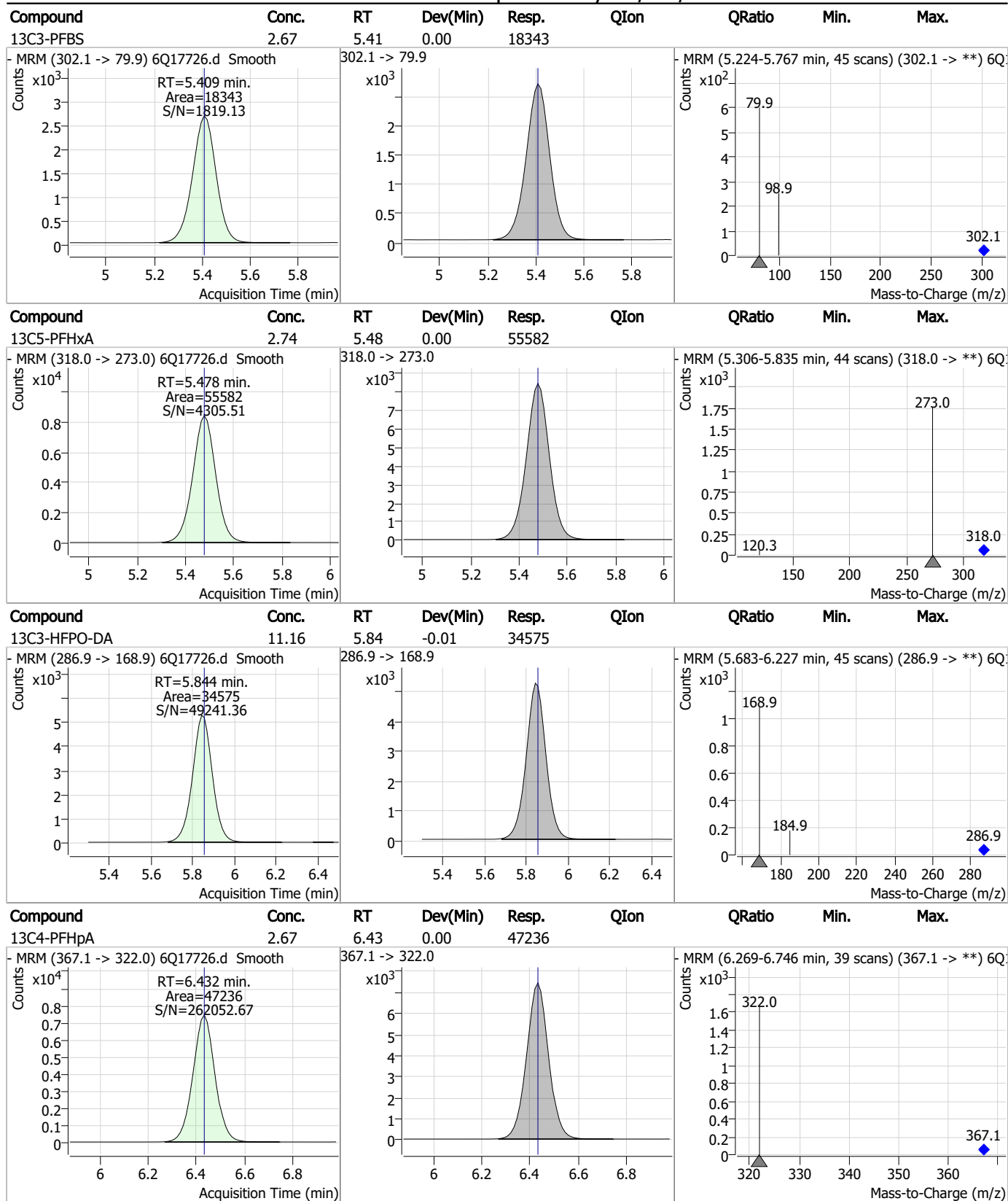
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Perfluorinated Compounds by LC/MS/MS



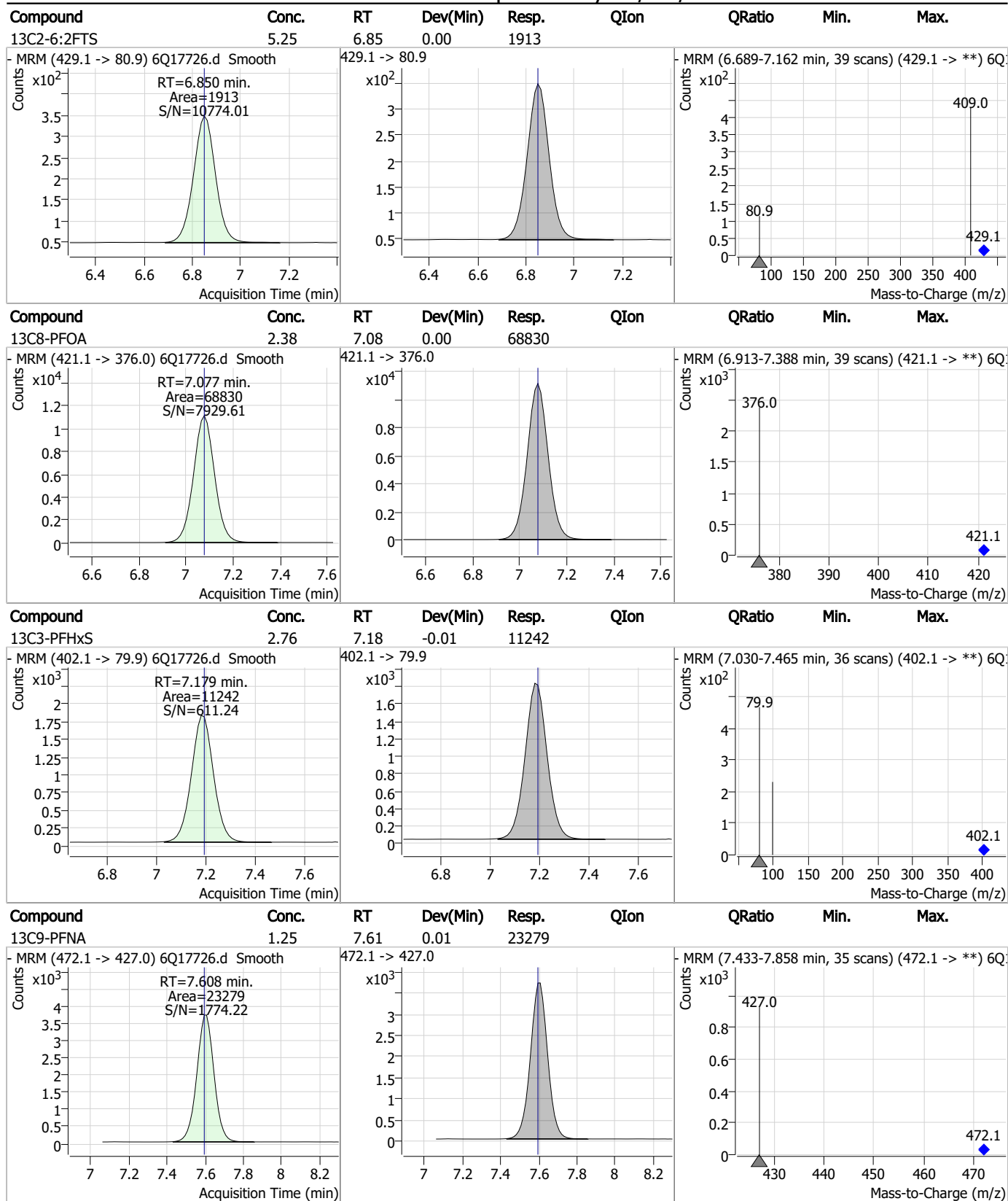
7.2.6
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Perfluorinated Compounds by LC/MS/MS



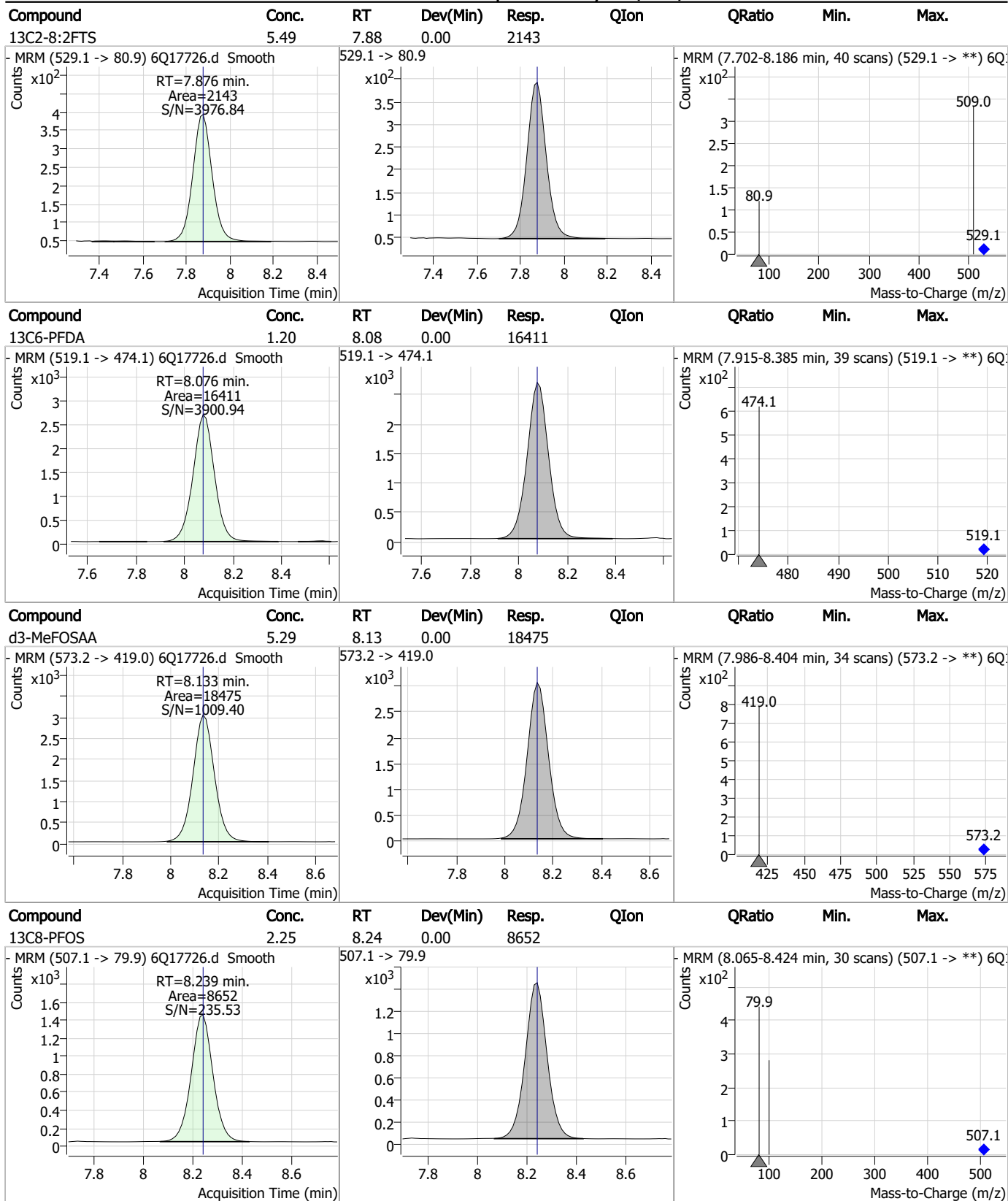
7.2.6
7

Perfluorinated Compounds by LC/MS/MS



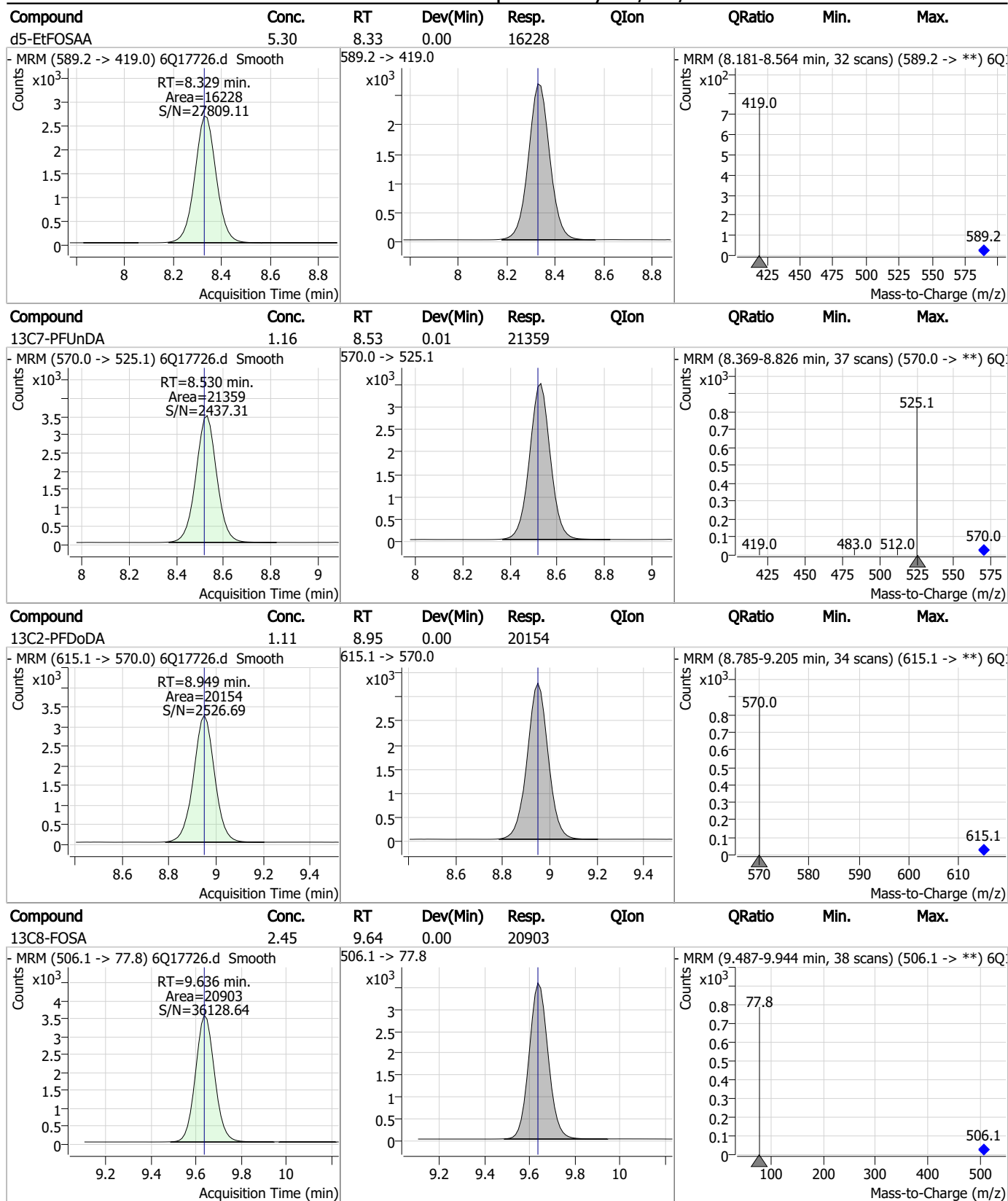
7.2.6
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Perfluorinated Compounds by LC/MS/MS



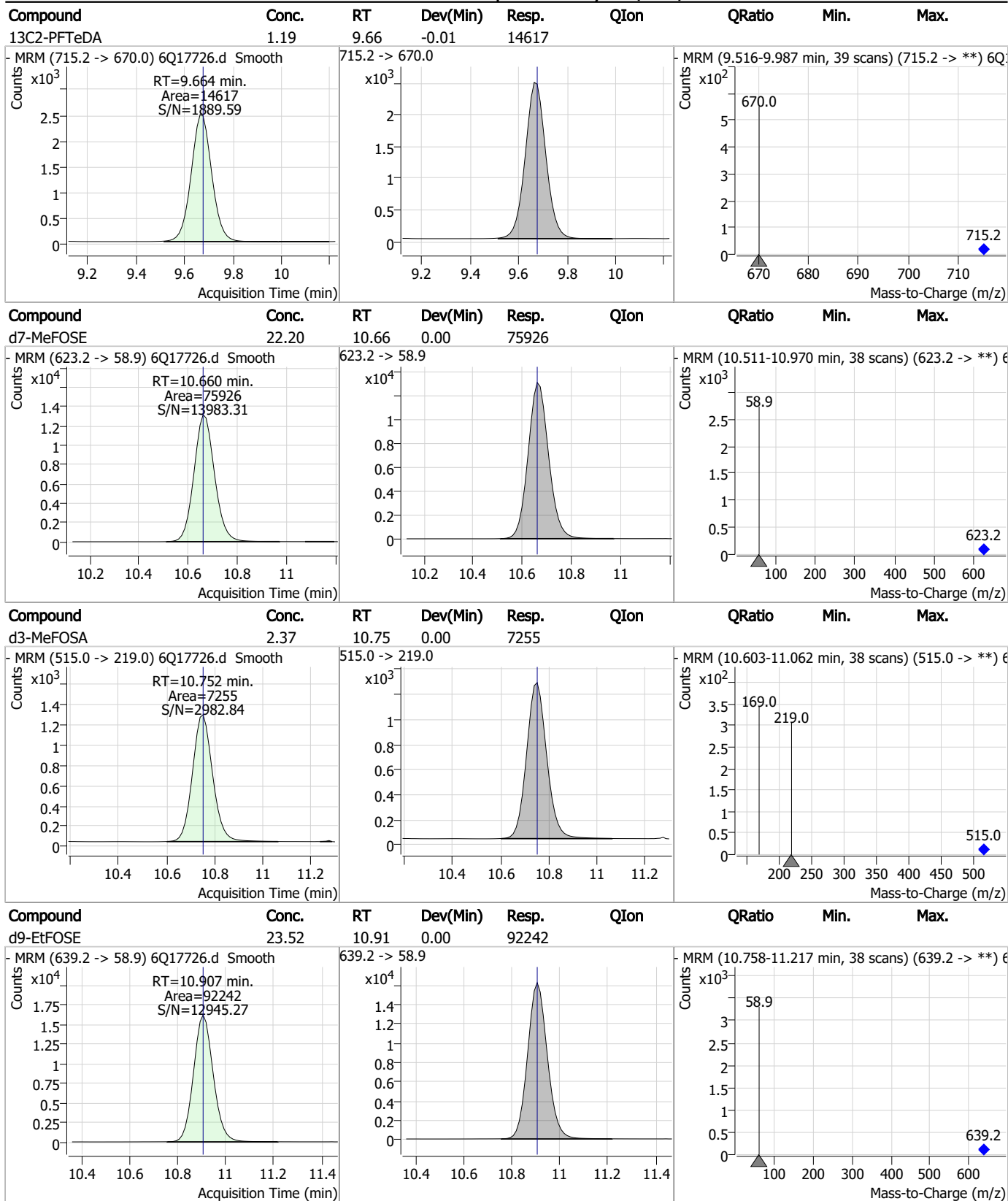
7.2.6
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Perfluorinated Compounds by LC/MS/MS



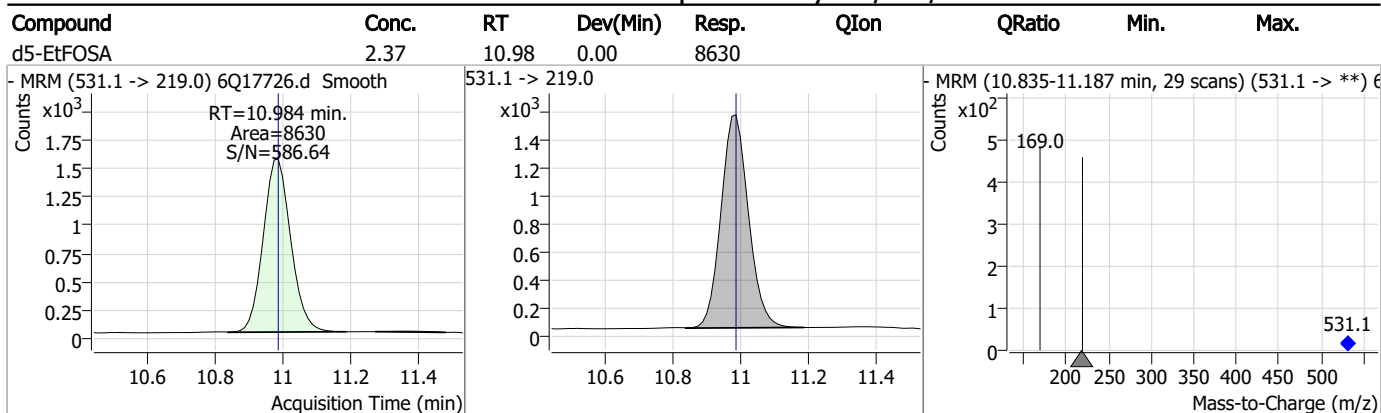
7.2.6
7

Perfluorinated Compounds by LC/MS/MS



7.2.6
7

Perfluorinated Compounds by LC/MS/MS



7.2.6
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17731.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/11/2023 12:11:14 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q267.batch.bin
 Sample Information : OP96663,S6Q267,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	154646	10.00 µg/L	0.000
M5-PFPeA	4.284	268.3 -> 223.0	47756	5.00 µg/L	0.012
M5-PFHxA	5.478	318.0 -> 273.0	54604	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	48173	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	72290	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	23695	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	17359	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	22144	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22098	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	13636	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	21533	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	17746	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11025	2.50 µg/L	-0.012
M8-PFOS	8.226	507.1 -> 79.9	9727	2.50 µg/L	-0.012
M2-4:2FTS	5.156	329.1 -> 80.9	1615	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2060	5.00 µg/L	-0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2285	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	20451	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	33761	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	14947	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	81681	25.00 µg/L	0.012
M9-EtFOSE	10.907	639.2 -> 58.9	93567	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8238	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7054	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12688	2.50 µg/L	-0.012
13C3-PFBA	2.916	216.0 -> 172.0	63023	5.00 µg/L	0.012
18O2-PFHxS	7.178	403.0 -> 83.9	8225	2.50 µg/L	-0.012
13C4-PFOA	7.077	417.1 -> 372.0	72599	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	19676	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	26554	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	44823	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.156	329.1 -> 80.9	1615	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2060	5.37 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2285	5.56 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.2%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22098	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-PFTeDA	9.677	715.2 -> 670.0	13636	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C3-PFBS	5.409	302.1 -> 79.9	17746	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	11025	2.57 µg/L	-0.012

7.27
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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 = 102.9%	
13C4-PFBA	2.913	216.8 -> 171.9	154646	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFHpA	6.432	367.1 -> 322.0	48173	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFHxA	5.478	318.0 -> 273.0	54604	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C5-PFPeA	4.284	268.3 -> 223.0	47756	5.04 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C6-PFDA	8.076	519.1 -> 474.1	17359	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C7-PFUnDA	8.518	570.0 -> 525.1	22144	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-FOSA	9.636	506.1 -> 77.8	21533	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.077	421.1 -> 376.0	72290	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOS	8.226	507.1 -> 79.9	9727	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C9-PFNA	7.595	472.1 -> 427.0	23695	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
d3-MeFOSAA	8.133	573.2 -> 419.0	20451	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	33761	10.14 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	7054	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%	
d5-EtFOSAA	8.329	589.2 -> 419.0	14947	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d7-MeFOSE	10.672	623.2 -> 58.9	81681	23.46 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d9-EtFOSE	10.907	639.2 -> 58.9	93567	23.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSA	10.984	531.1 -> 219.0	8238	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.7%	

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Target Compounds

QValue

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



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.078	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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



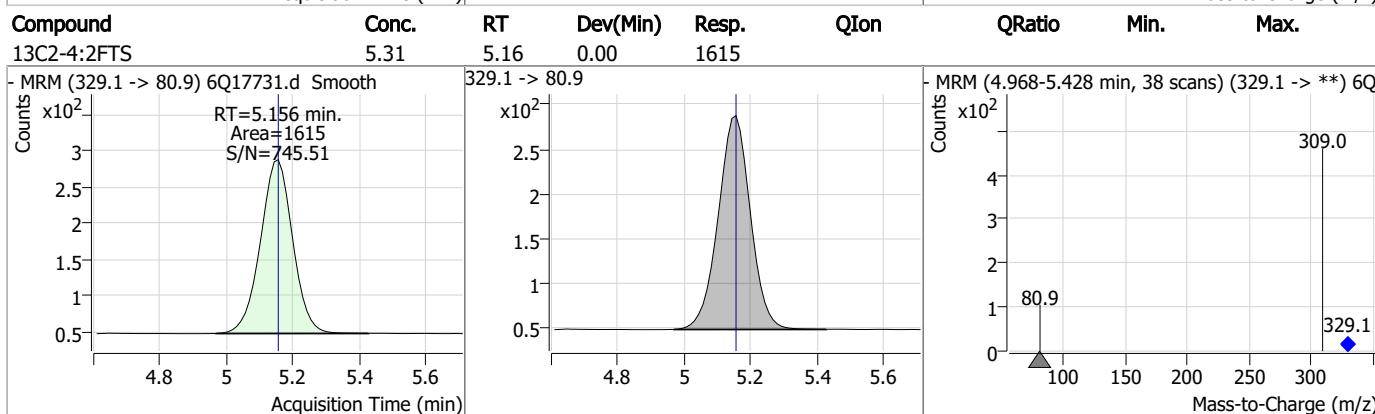
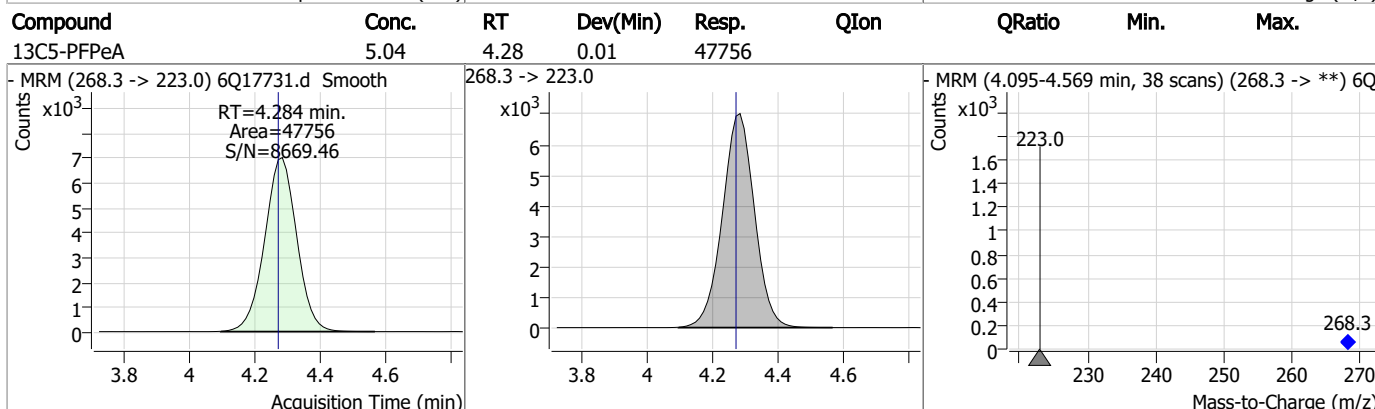
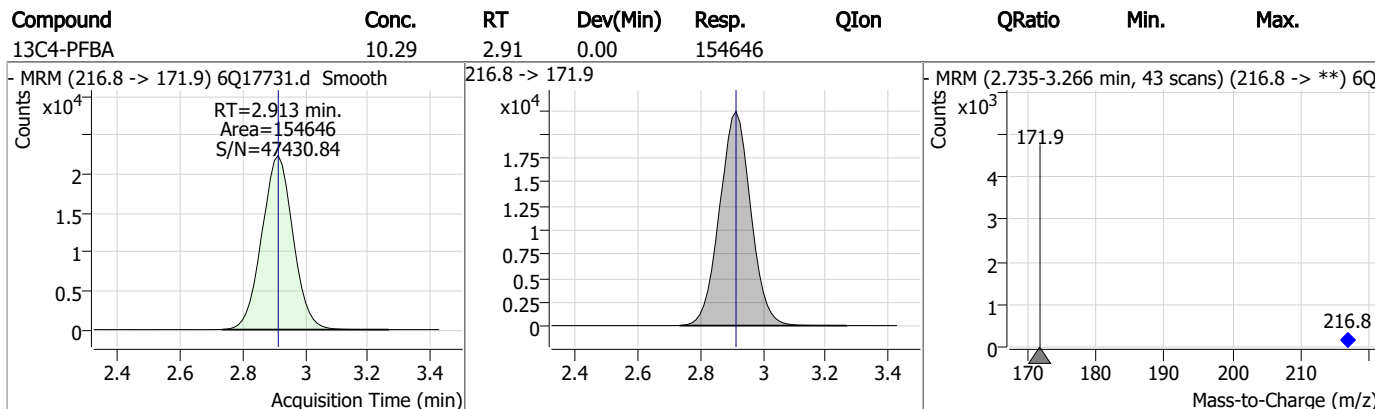
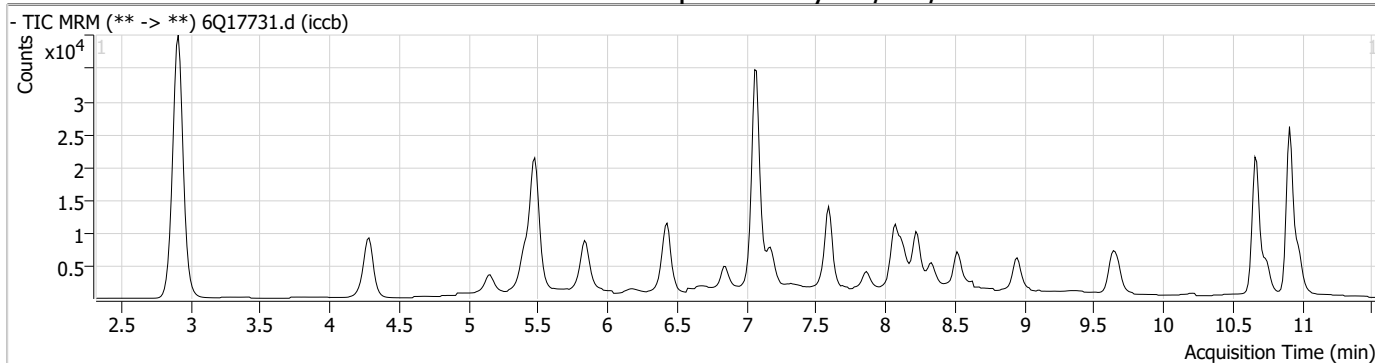
7.27
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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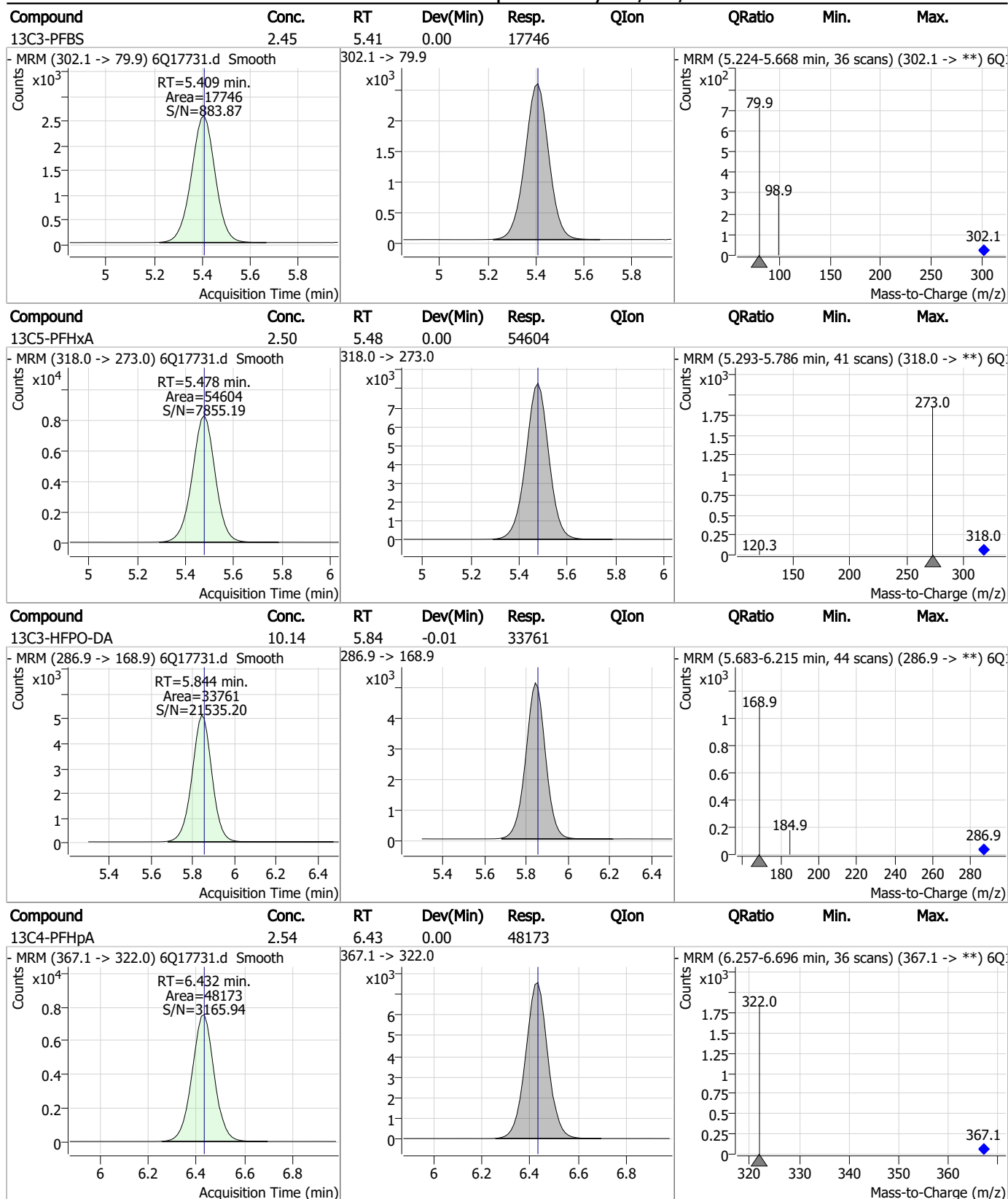
7.2.7
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Perfluorinated Compounds by LC/MS/MS



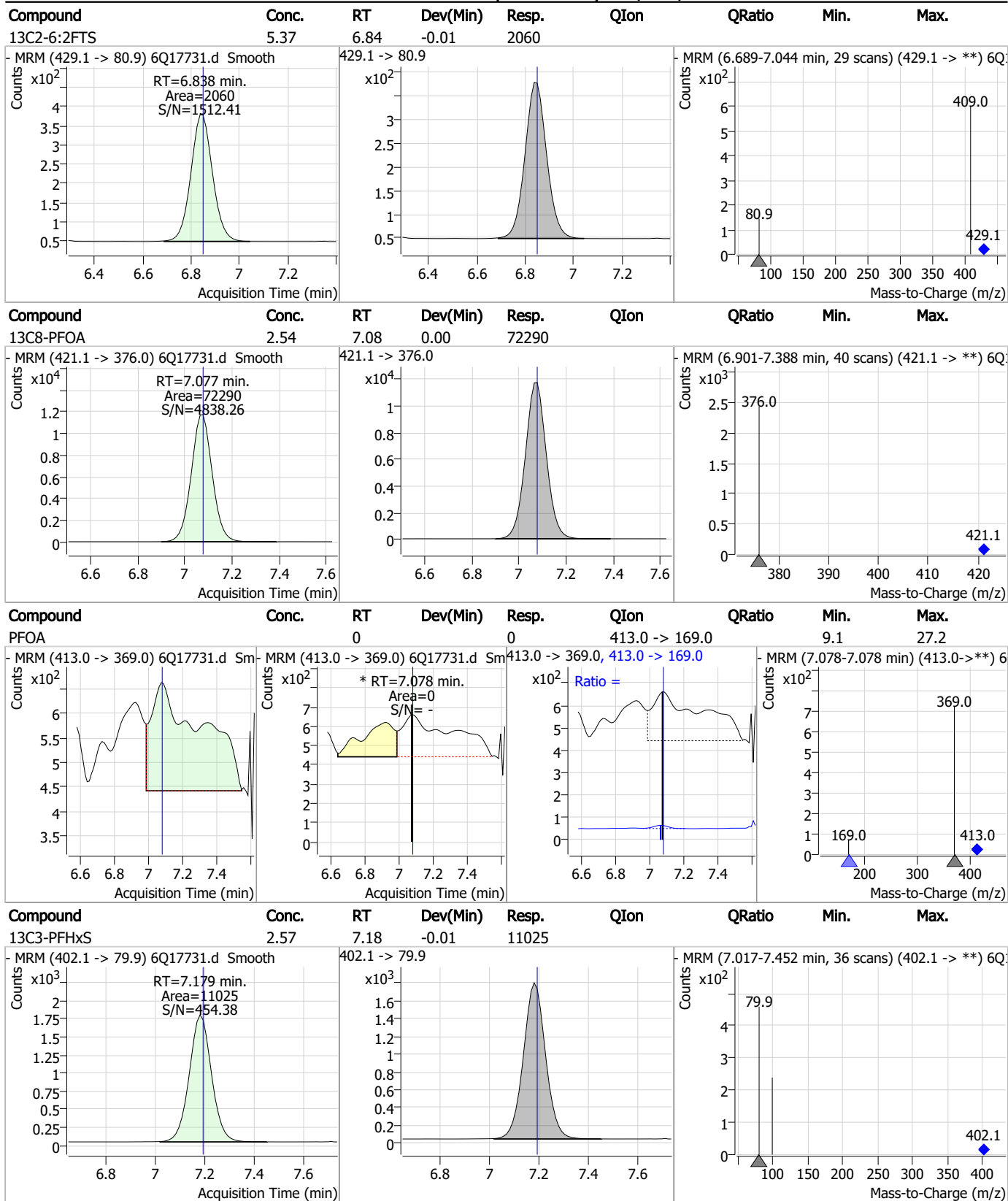
7.2.7
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Perfluorinated Compounds by LC/MS/MS



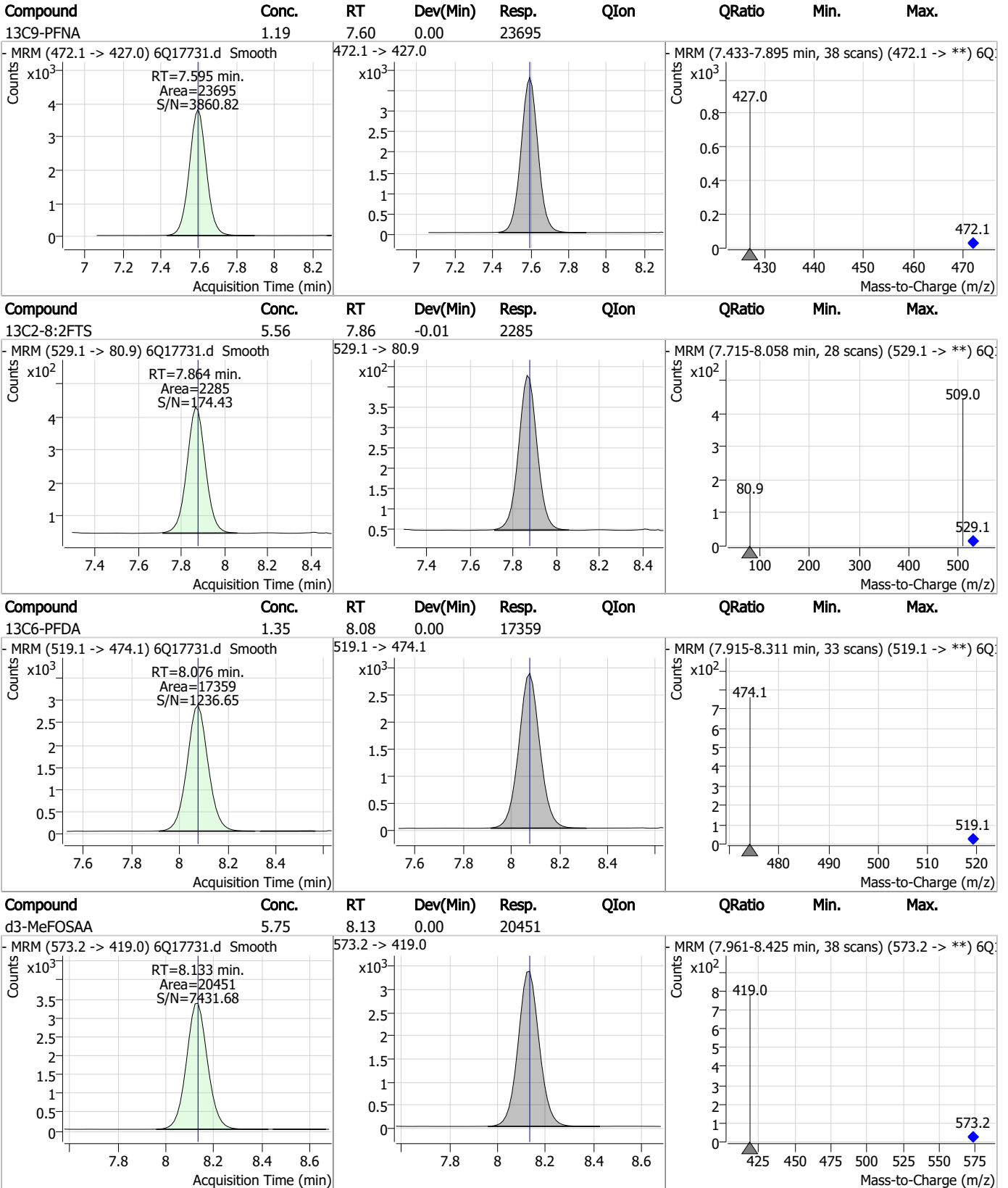
7.2.7
7

Perfluorinated Compounds by LC/MS/MS



7.27
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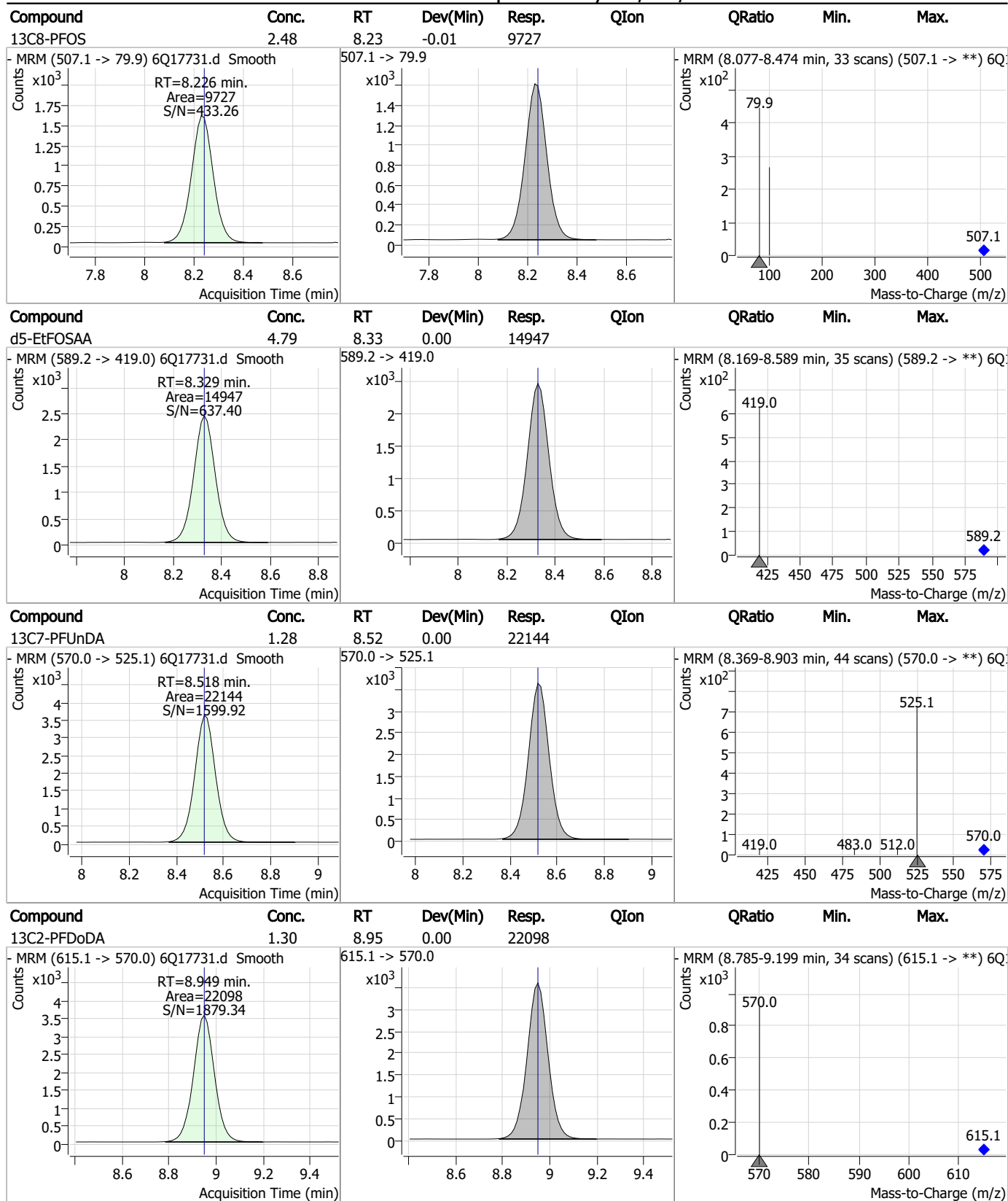
Perfluorinated Compounds by LC/MS/MS



7.27

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Perfluorinated Compounds by LC/MS/MS



7.2.7
7

Perfluorinated Compounds by LC/MS/MS

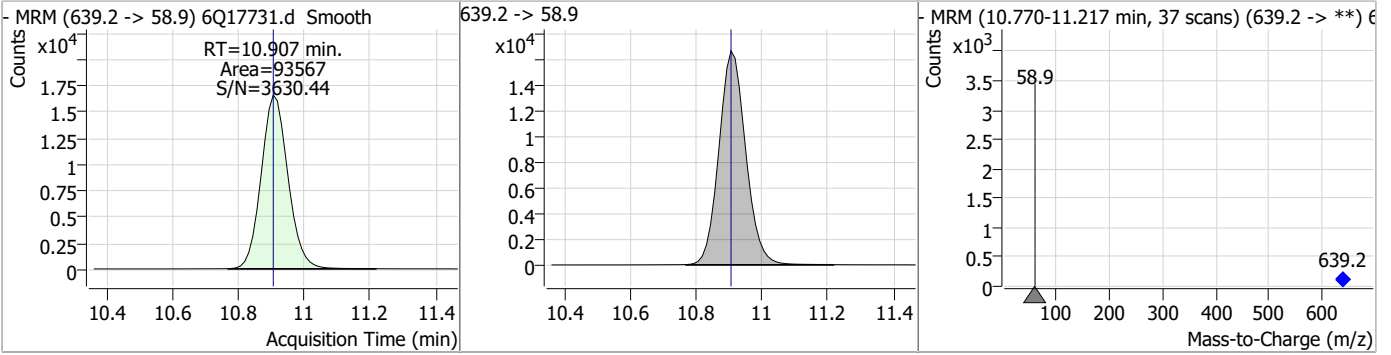
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.64	0.00	21533				
- MRM (506.1 -> 77.8) 6Q17731.d Smooth Counts x10 ³ RT=9.636 min. Area=21533 S/N=707230.74 Acquisition Time (min)			506.1 -> 77.8 Counts x10 ³ Acquisition Time (min)			- MRM (9.487-9.968 min, 40 scans) (506.1 -> **) 6Q17731.d Smooth Counts x10 ² 77.8 506.1 Mass-to-Charge (m/z)		
13C2-PFTeDA	1.19	9.68	0.00	13636				
- MRM (715.2 -> 670.0) 6Q17731.d Smooth Counts x10 ³ RT=9.677 min. Area=13636 S/N=3329.27 Acquisition Time (min)			715.2 -> 670.0 Counts x10 ³ Acquisition Time (min)			- MRM (9.503-9.937 min, 36 scans) (715.2 -> **) 6Q17731.d Smooth Counts x10 ² 670.0 715.2 Mass-to-Charge (m/z)		
d7-MeFOSE	23.46	10.67	0.01	81681				
- MRM (623.2 -> 58.9) 6Q17731.d Smooth Counts x10 ⁴ RT=10.672 min. Area=81681 S/N=5474.19 Acquisition Time (min)			623.2 -> 58.9 Counts x10 ⁴ Acquisition Time (min)			- MRM (10.523-10.946 min, 35 scans) (623.2 -> **) 6Q17731.d Smooth Counts x10 ³ 58.9 623.2 Mass-to-Charge (m/z)		
d3-MeFOSA	2.26	10.75	0.00	7054				
- MRM (515.0 -> 219.0) 6Q17731.d Smooth Counts x10 ³ RT=10.752 min. Area=7054 S/N=1098.07 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.603-11.052 min, 37 scans) (515.0 -> **) 6Q17731.d Smooth Counts x10 ² 169.0 219.0 515.0 Mass-to-Charge (m/z)		

7.27

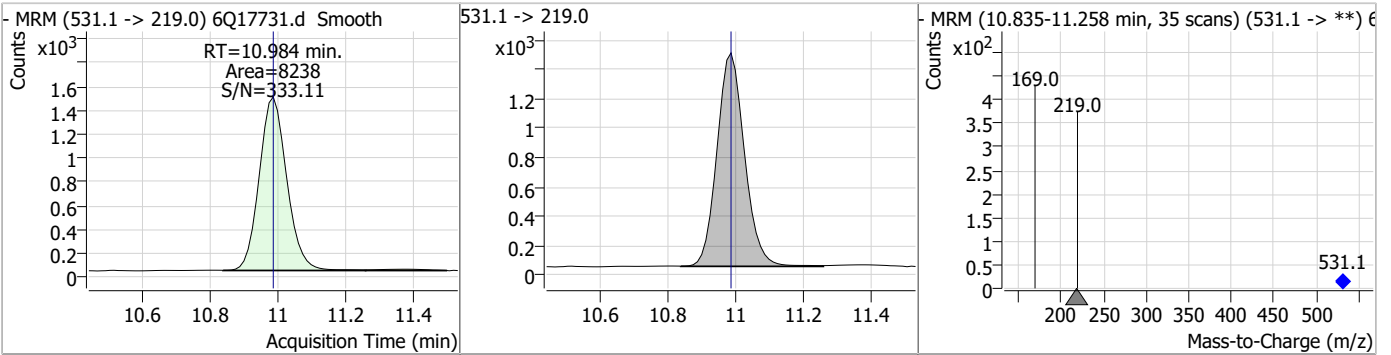
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.42	10.91	0.00	93567				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.22	10.98	0.00	8238				



Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44160.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 7:59:51 PM
 Sample Name : op96747-bs
 Vial : P3-B6
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96747,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	127227	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	65331	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	47017	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	26986	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	39785	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	20473	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	18190	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	18874	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	18410	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	12401	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	12102	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	10823	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7370	2.50 µg/L	0.012
M8-PFOS	8.366	507.1 -> 79.9	9842	2.50 µg/L	0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1103	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2290	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3186	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	13237	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	23408	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	10970	5.00 µg/L	0.012
M7-MeFOSE	10.984	623.2 -> 58.9	43809	25.00 µg/L	0.012
M9-EtFOSE	11.281	639.2 -> 58.9	65400	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	7347	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	6558	2.50 µg/L	0.000
13C4-PFOS	8.367	502.8 -> 79.9	9800	2.50 µg/L	0.012
13C3-PFBA	2.928	216.0 -> 172.0	61430	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4445	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	45324	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	16293	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	21301	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	37438	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1103	6.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.1%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2290	7.03 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 140.6%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3186	6.27 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.3%		
13C2-PFDoDA	9.130	615.1 -> 570.0	18410	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C2-PFTeDA	9.924	715.2 -> 670.0	12401	0.97 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.2%		
13C3-PFBS	5.464	302.1 -> 79.9	10823	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C3-PFHxS	7.254	402.1 -> 79.9	7370	2.67 µg/L	0.012

7.3.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C4-PFBA	2.924	216.8 -> 171.9	127227	11.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C4-PFHpA	6.492	367.1 -> 322.0	26986	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C5-PFHxA	5.559	318.0 -> 273.0	47017	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C5-PFPeA	4.387	268.3 -> 223.0	65331	5.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C6-PFDA	8.216	519.1 -> 474.1	18190	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C7-PFUnDA	8.685	570.0 -> 525.1	18874	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-FOSA	9.796	506.1 -> 77.8	12102	1.97 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.8%	
13C8-PFOA	7.163	421.1 -> 376.0	39785	2.67 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C8-PFOS	8.366	507.1 -> 79.9	9842	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C9-PFNA	7.709	472.1 -> 427.0	20473	1.41 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.1%	
d3-MeFOSAA	8.273	573.2 -> 419.0	13237	5.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	23408	9.50 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
d3-MeFOSA	11.089	515.0 -> 219.0	6558	1.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 68.3%	
d5-EtFOSAA	8.483	589.2 -> 419.0	10970	5.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.7%	
d7-MeFOSE	10.984	623.2 -> 58.9	43809	14.37 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 57.5%	
d9-EtFOSE	11.281	639.2 -> 58.9	65400	15.15 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 60.6%	
d5-EtFOSA	11.373	531.1 -> 219.0	7347	1.80 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.9%	
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	16523	9.31 µg/L	100
		327.1 -> 80.9	7027		
6:2FTS	6.936	427.1 -> 407.0	18691	8.45 µg/L	99
		427.1 -> 80.9	7903		
8:2FTS	8.003	527.1 -> 507.0	17520	9.86 µg/L	92
		527.1 -> 80.8	6705		
EtFOSAA	8.496	584.2 -> 419.1	4819	2.29 µg/L	m 98
		584.2 -> 526.0	2561		
FOSA	9.799	498.1 -> 77.9	11433	2.25 µg/L	99
		498.1 -> 478.0	348		
MeFOSAA	8.286	570.1 -> 419.0	5259	2.28 µg/L	91
		570.1 -> 483.0	1181		
PFBA	2.932	212.8 -> 168.9	31512	9.25 µg/L	100
PFBS	5.465	298.7 -> 79.9	9321	2.10 µg/L	97
		298.7 -> 98.8	3504		
PFDA	8.216	512.9 -> 469.0	31904	2.31 µg/L	99
		512.9 -> 219.0	6109		
PFDODA	9.131	613.1 -> 569.0	33273	2.25 µg/L	98
		613.1 -> 319.0	4915		
PFDS	9.294	599.0 -> 79.9	5017	2.06 µg/L	97

7.3.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2487			
PFHpA	6.492	363.1 -> 319.0	39007	2.29	µg/L	100
		363.1 -> 169.0	6894			
PFHpS	7.836	449.0 -> 79.9	8573	2.42	µg/L	100
		449.0 -> 98.9	4468			
PFHxA	5.562	313.0 -> 269.0	40431	2.19	µg/L	100
		313.0 -> 118.9	1218			
PFHxS	7.255	398.7 -> 79.9	5246	1.74	µg/L	95
		398.7 -> 98.9	2831			
PFNA	7.709	463.0 -> 419.0	26812	1.77	µg/L	91
		463.0 -> 219.0	8054			
PFNS	8.848	548.8 -> 79.9	4706	2.19	µg/L	97
		548.8 -> 98.9	2154			
PFOA	7.164	413.0 -> 369.0	54764	2.39	µg/L	98
		413.0 -> 169.0	10389			
PFOS	8.367	498.9 -> 79.9	10284	2.14	µg/L	m 85
		498.9 -> 98.8	5086			
PFPeA	4.389	263.0 -> 219.0	71408	4.54	µg/L	100
PFPeS	6.531	349.1 -> 79.9	5301	2.05	µg/L	98
		349.1 -> 98.9	2452			
PFTeDA	9.924	713.1 -> 669.0	29082	2.40	µg/L	98
		713.1 -> 168.9	2576			
PFTrDA	9.554	663.0 -> 619.0	43190	2.19	µg/L	98
		663.0 -> 168.9	4296			
PFUnDA	8.685	563.1 -> 519.0	30337	2.37	µg/L	100
		563.1 -> 269.1	5564			
11CI-PF3OUdS	9.593	630.9 -> 450.9	40303	4.79	µg/L	99
		632.9 -> 452.9	12244			
9CI-PF3ONS	8.712	530.8 -> 351.0	52914	4.94	µg/L	98
		532.8 -> 353.0	16144			
ADONA	6.756	376.9 -> 250.9	119673	5.08	µg/L	99
		376.9 -> 84.8	31069			
HFPO-DA	5.928	284.9 -> 168.9	10716	4.79	µg/L	100
		284.9 -> 184.9	1354			
3:3FTCA	3.867	241.0 -> 177.0	5970	8.63	µg/L	99
		241.0 -> 117.0	568			
5:3FTCA	6.231	341.0 -> 237.1	145212	58.09	µg/L	100
		341.0 -> 217.0	99872			
7:3FTCA	7.686	441.0 -> 316.9	84374	64.96	µg/L	99
		441.0 -> 336.9	199401			
EtFOSA	11.375	526.0 -> 219.0	14808	4.81	µg/L	70
		526.0 -> 169.0	20592			
EtFOSE	11.295	630.0 -> 58.9	27566	10.89	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	11735	4.75	µg/L	m 78
		511.9 -> 169.0	17644			
MeFOSE	10.997	616.1 -> 58.9	20802	11.56	µg/L	m 100
PFDoDS	10.064	699.1 -> 79.9	4030	1.85	µg/L	99
		699.1 -> 98.8	2239			
NFDHA	5.453	295.0 -> 201.0	4802	3.65	µg/L	99
		295.0 -> 84.9	1256			
PFMBA	4.791	279.0 -> 85.1	39668	4.52	µg/L	100
PFMPA	3.540	229.0 -> 84.9	38450	4.68	µg/L	100
PFEESA	5.997	314.8 -> 134.9	53943	3.87	µg/L	99
		314.8 -> 82.9	1895			

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

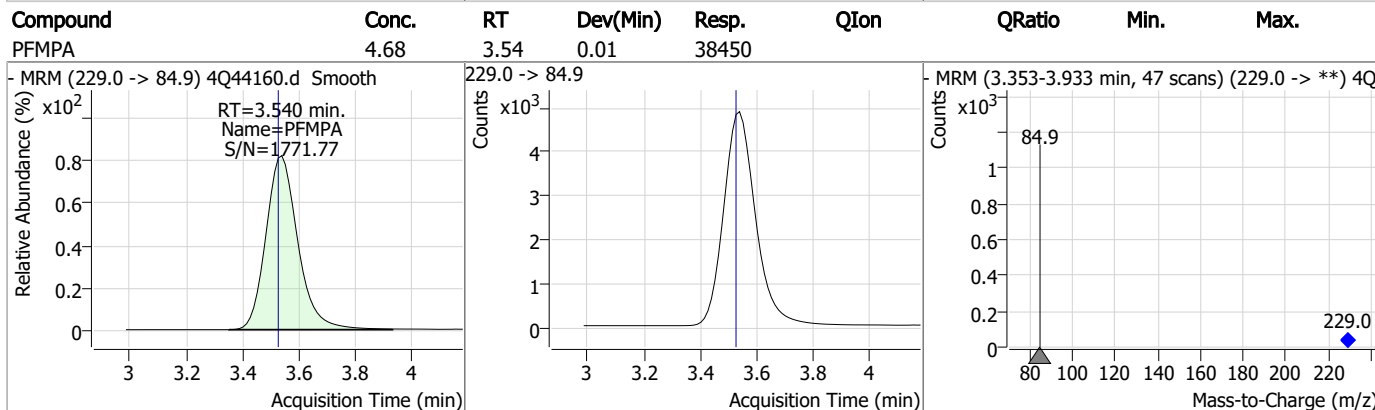
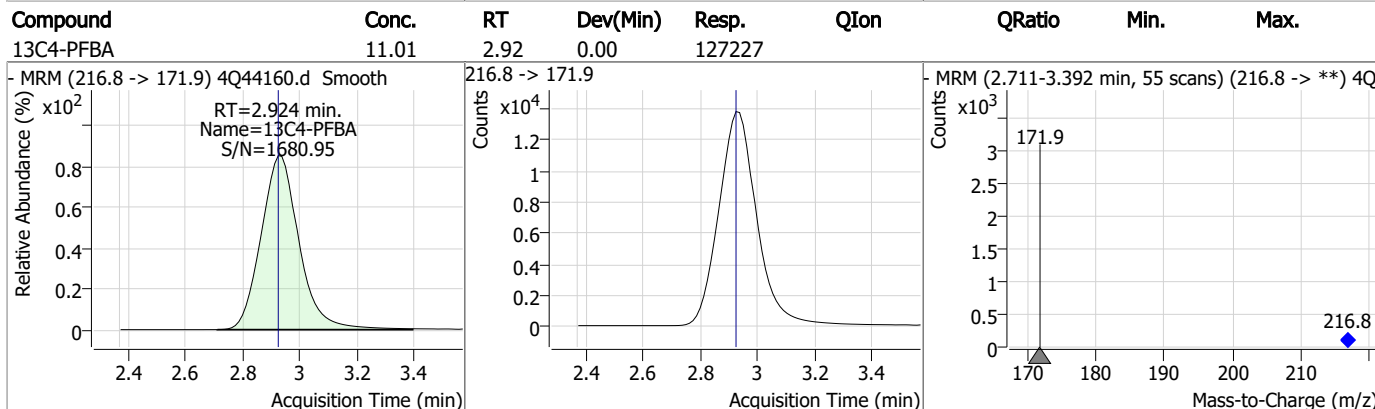
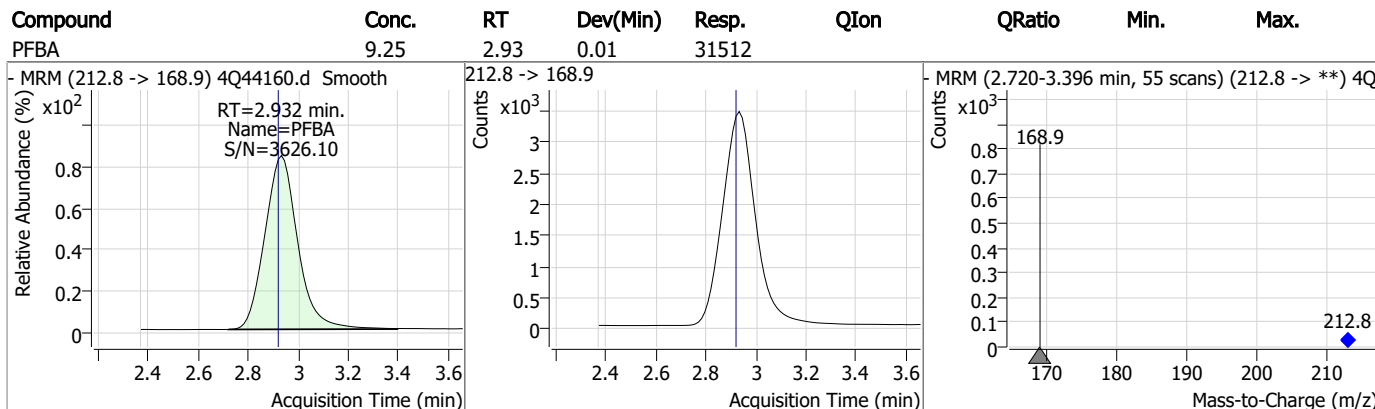
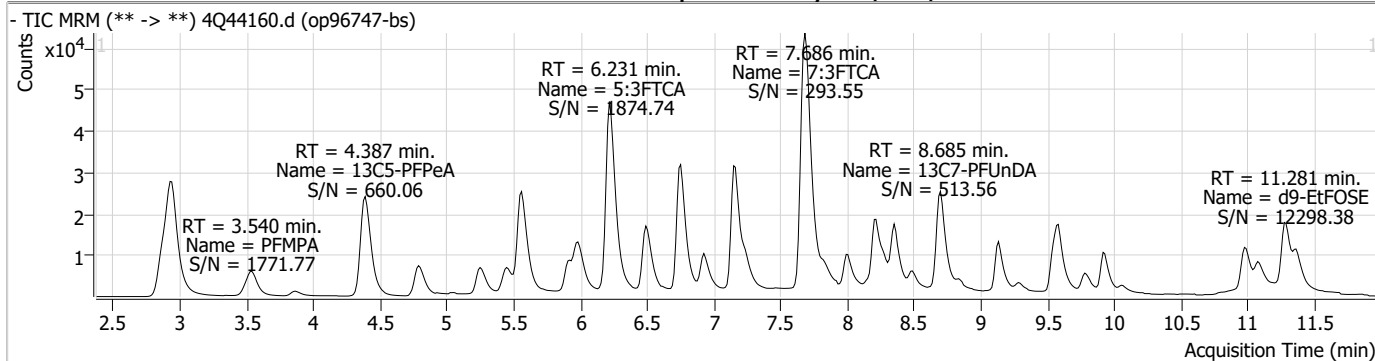
Perfluorinated Compounds by LC/MS/MS

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

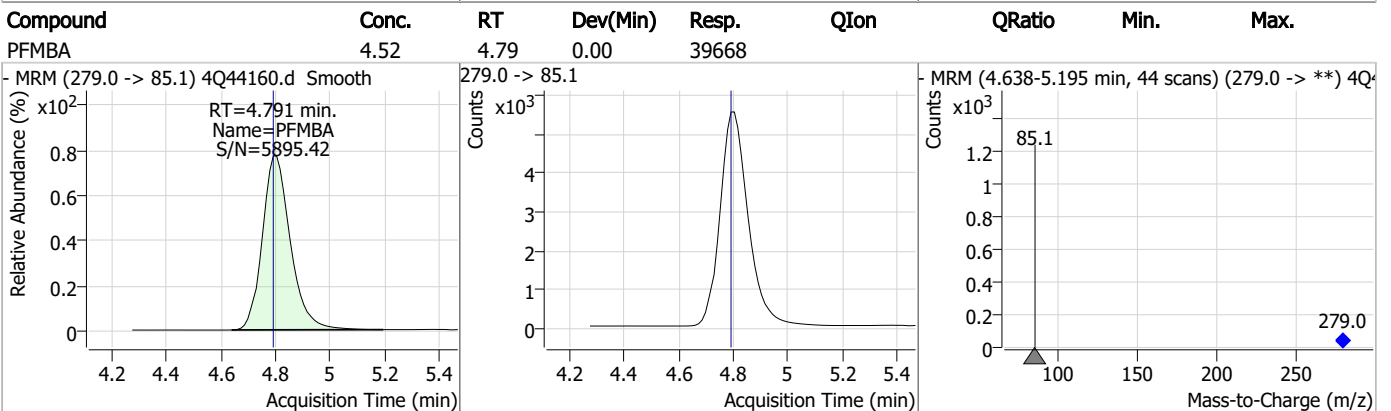
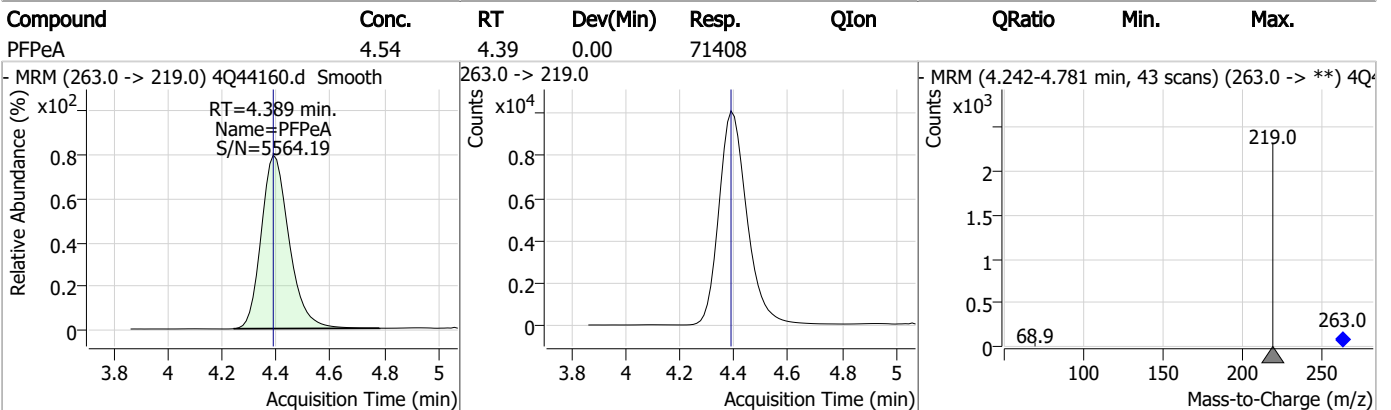
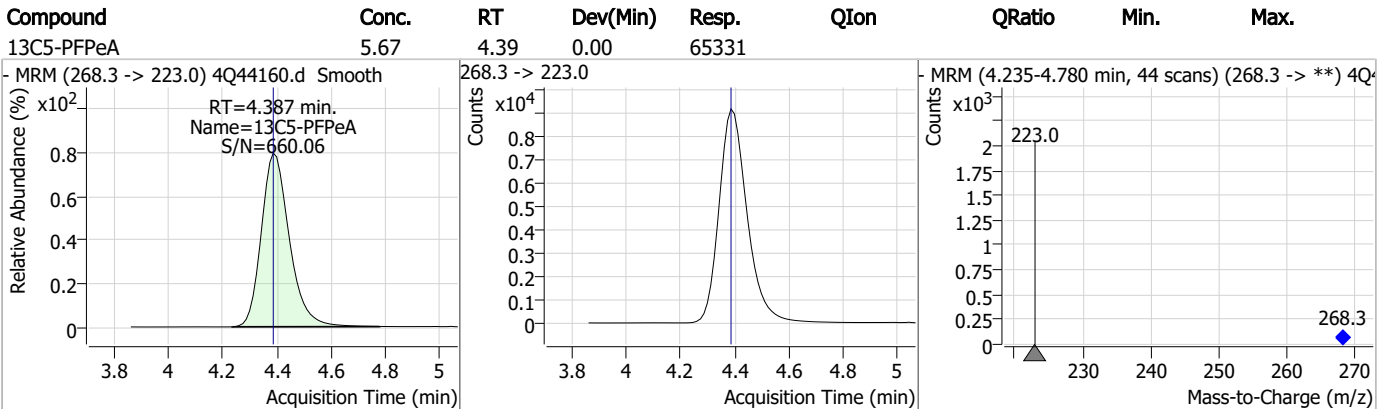
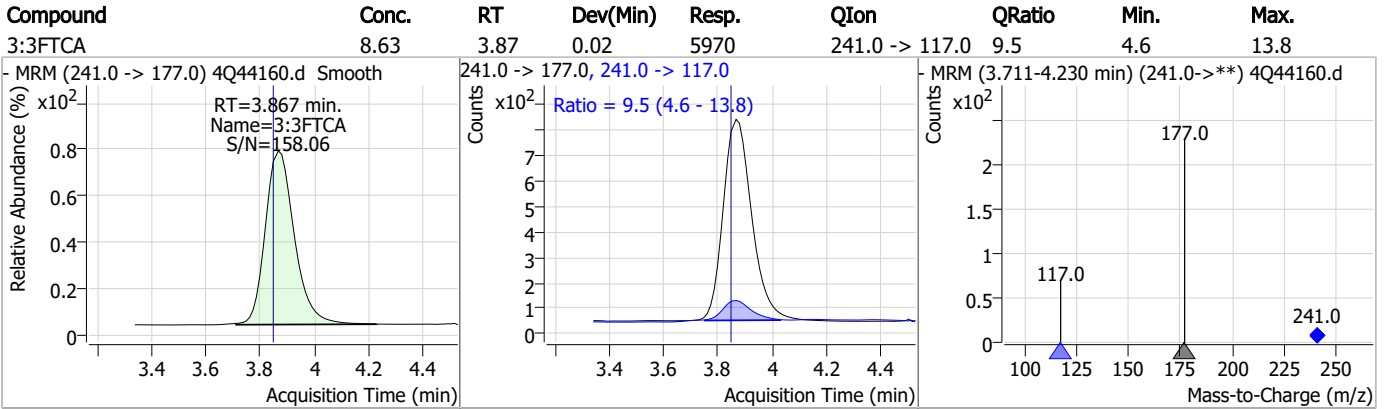
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Perfluorinated Compounds by LC/MS/MS



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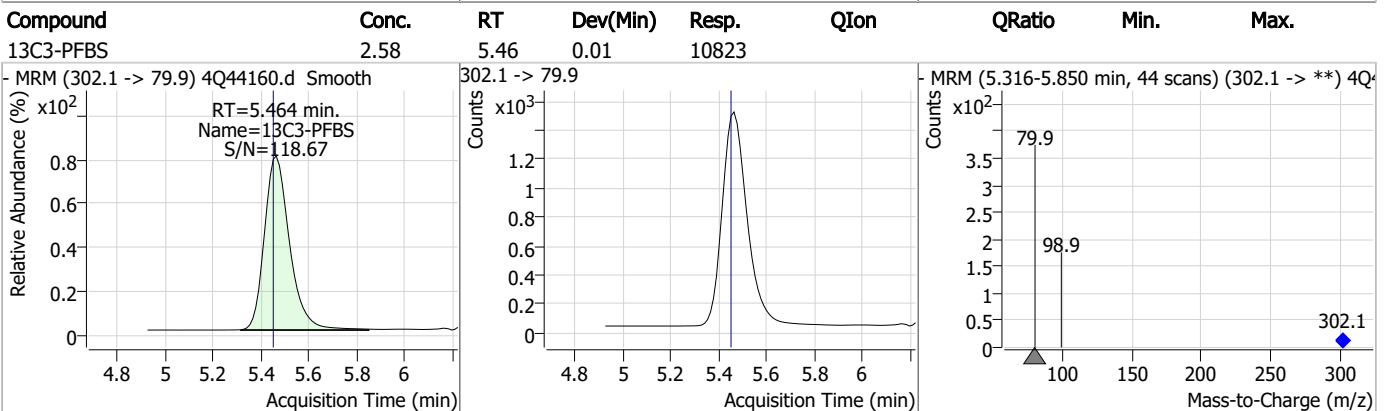
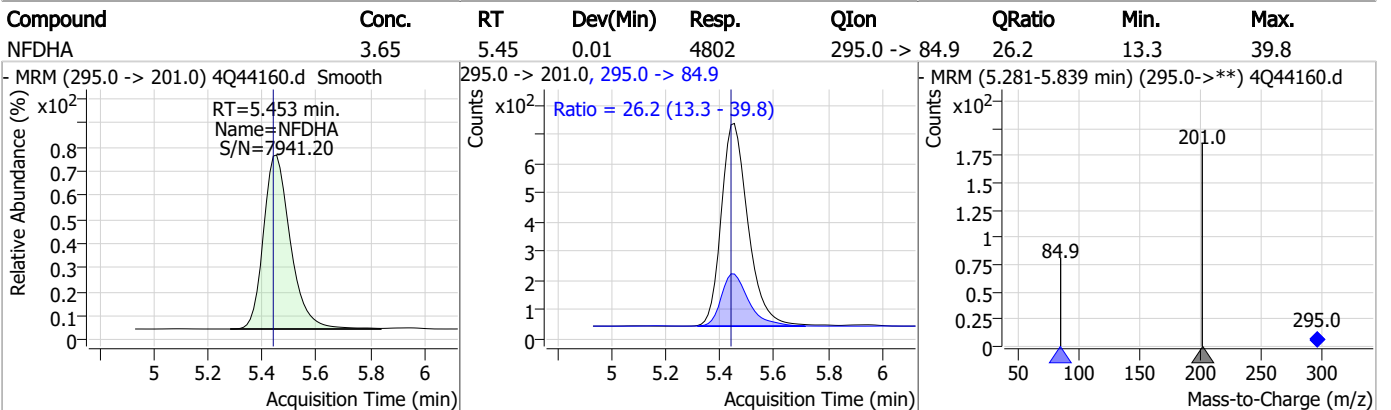
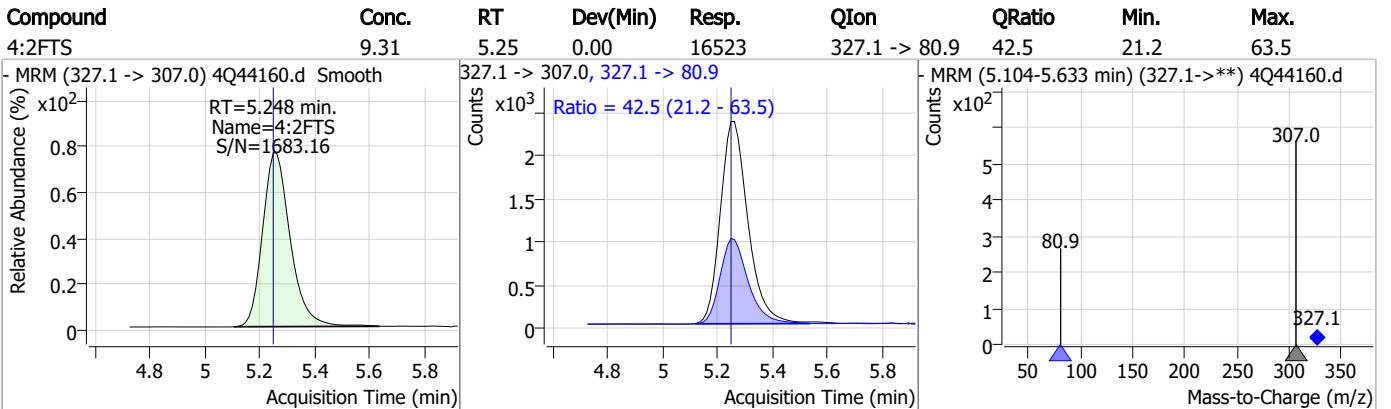
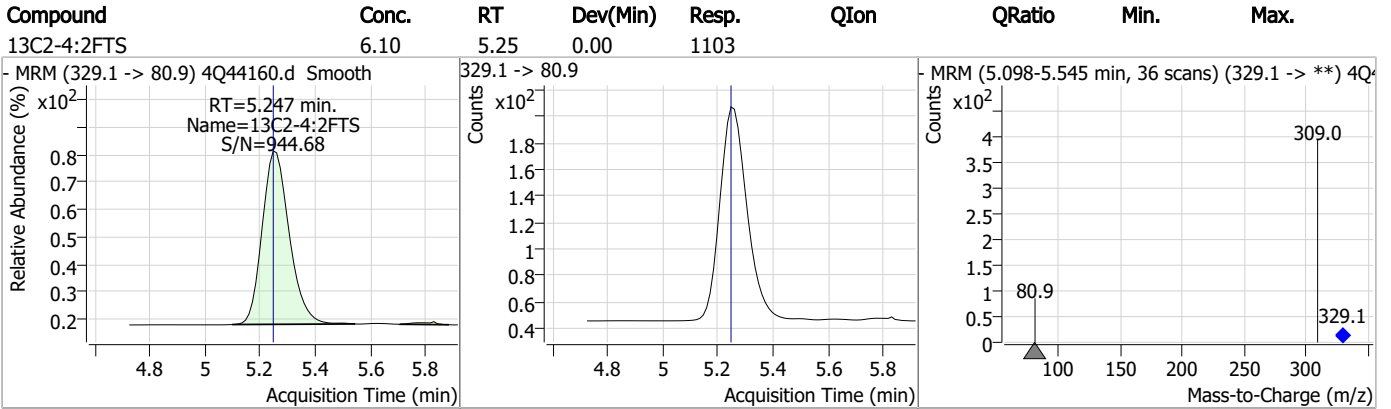
Perfluorinated Compounds by LC/MS/MS



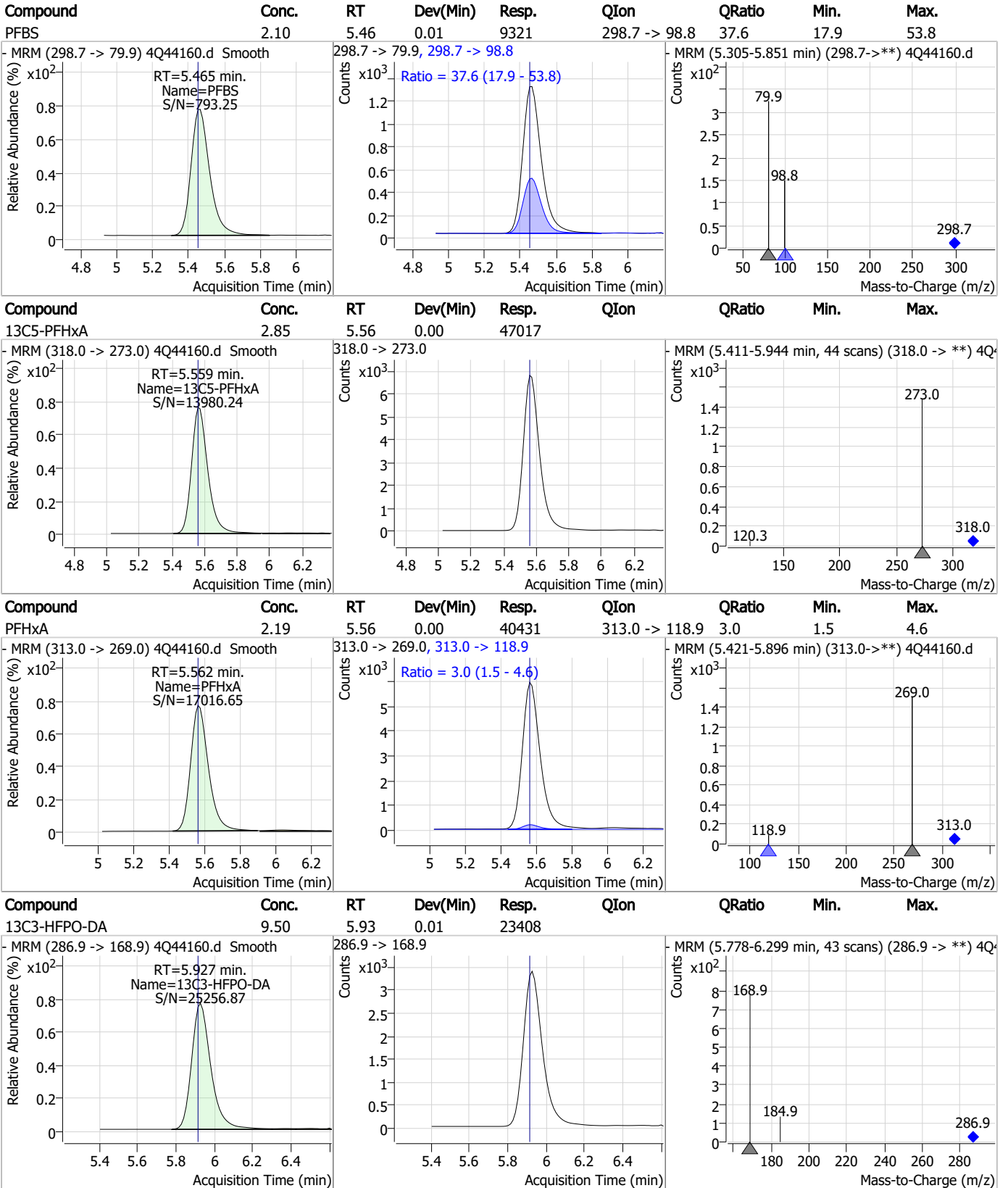
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Perfluorinated Compounds by LC/MS/MS



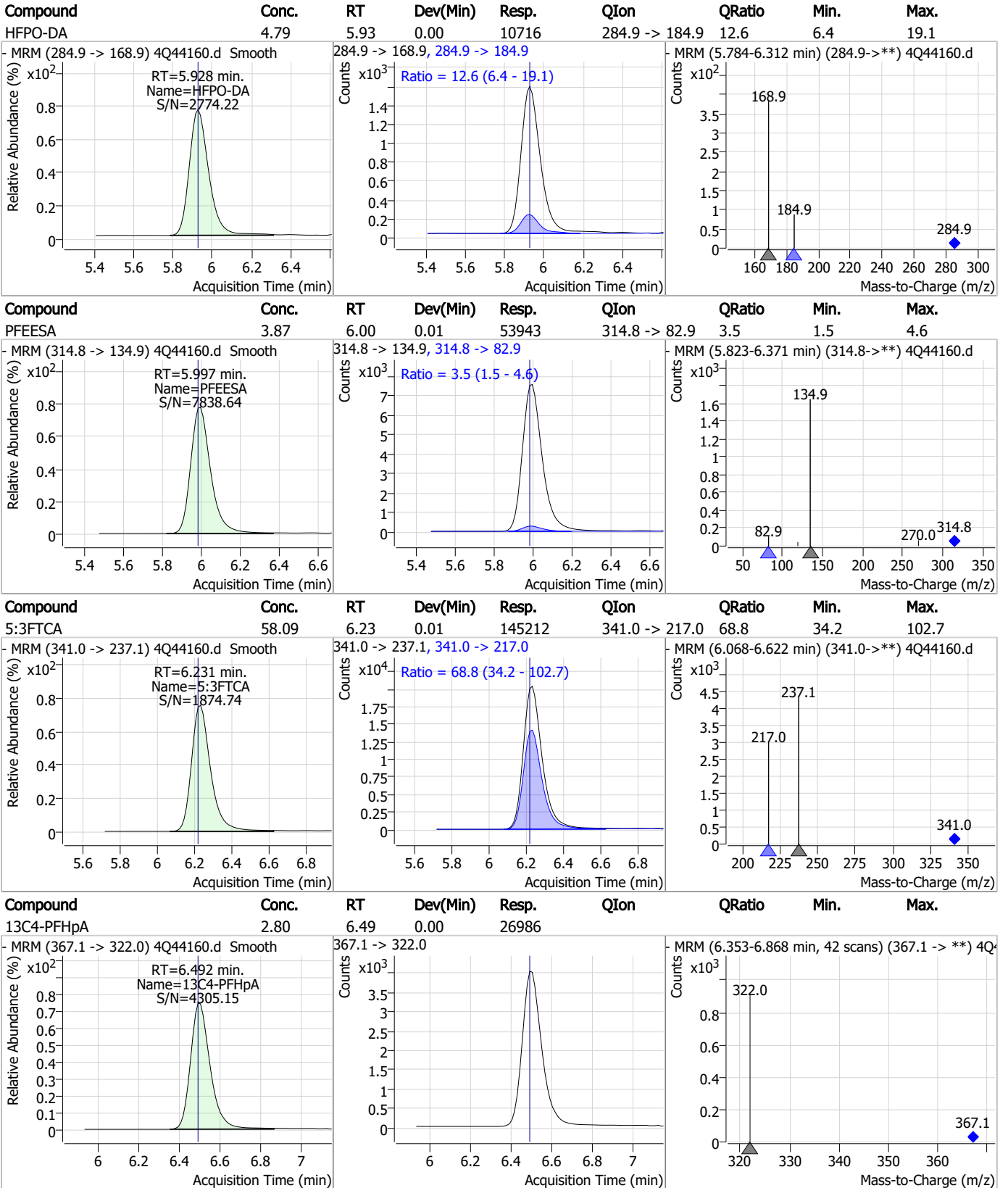
Perfluorinated Compounds by LC/MS/MS



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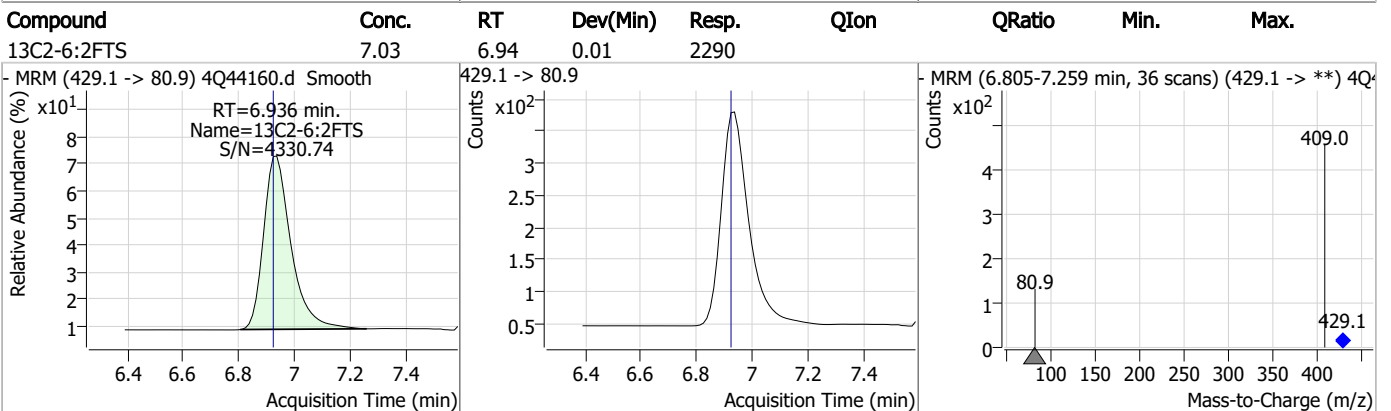
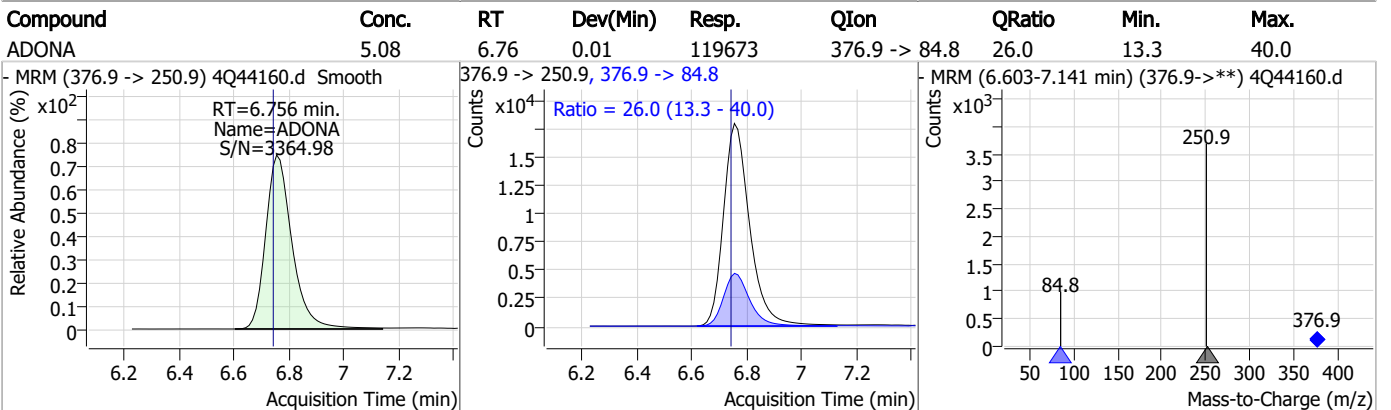
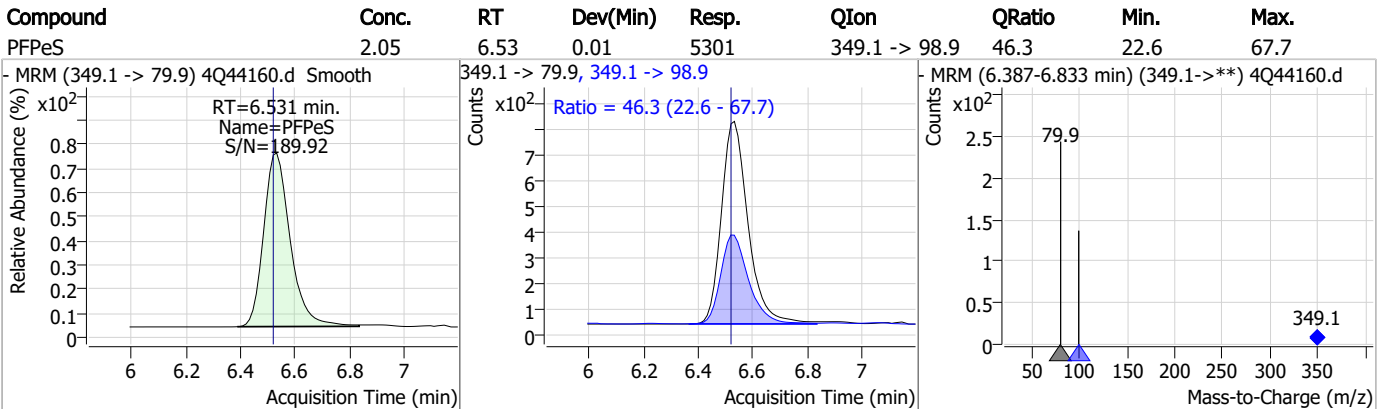
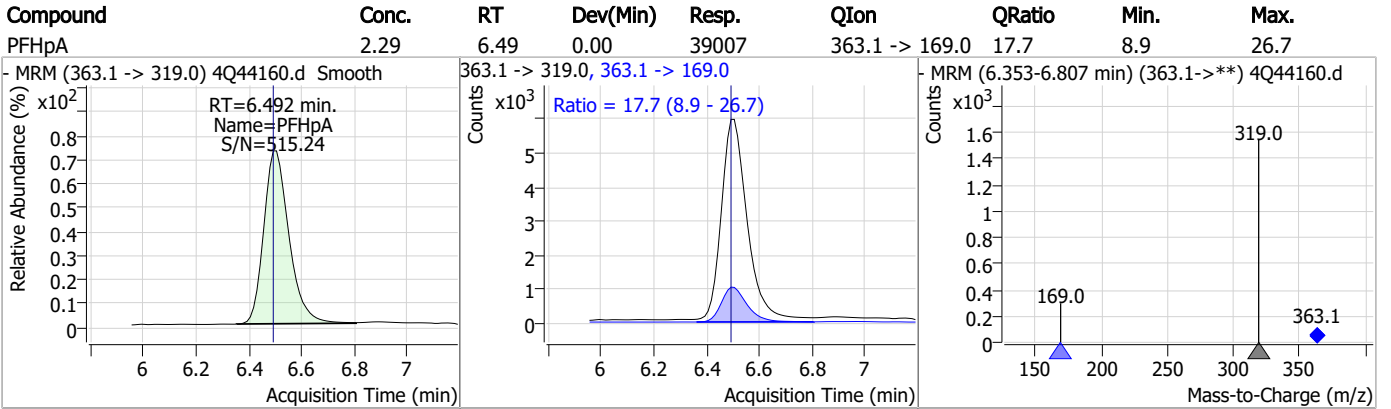
Perfluorinated Compounds by LC/MS/MS



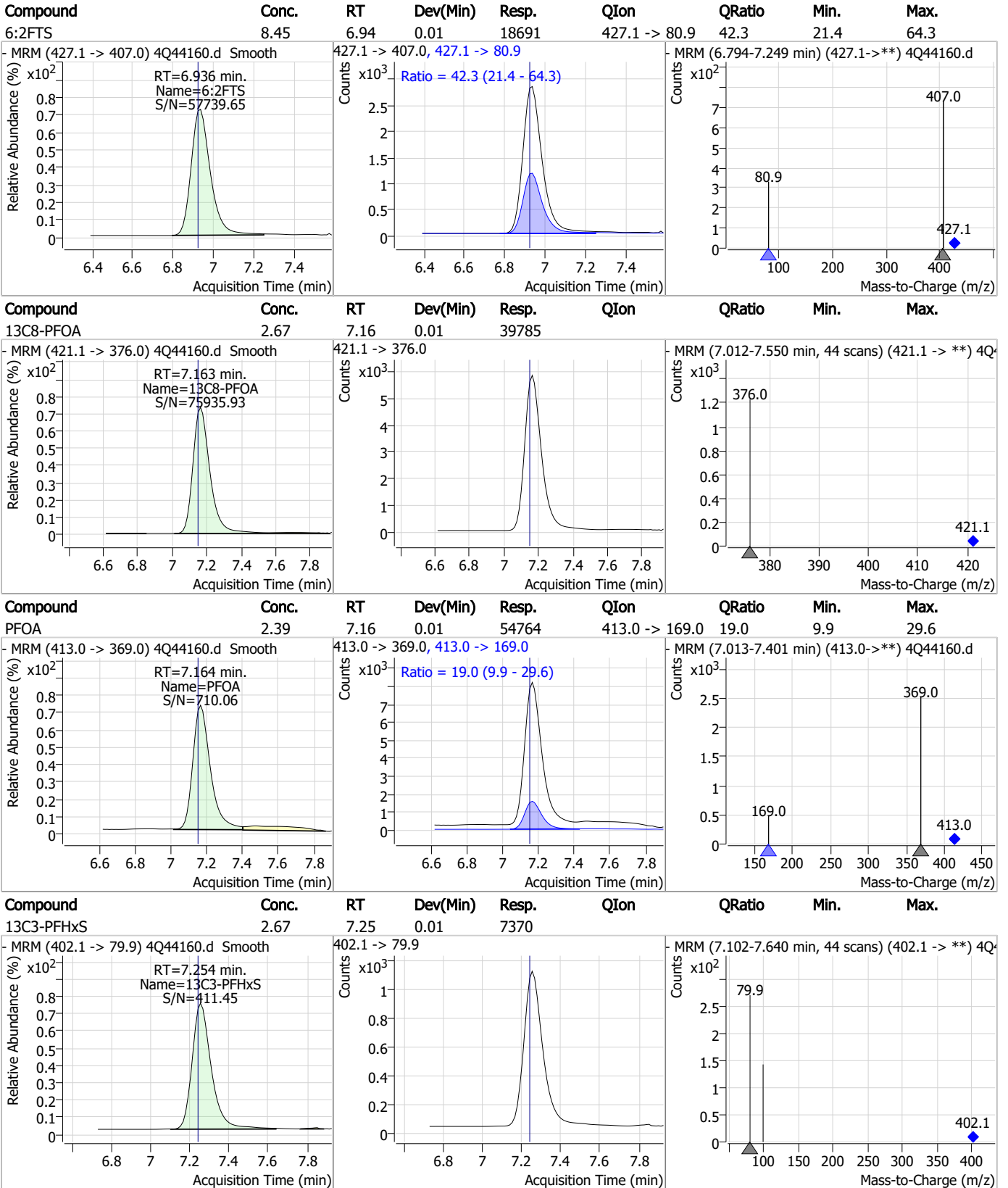
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Perfluorinated Compounds by LC/MS/MS



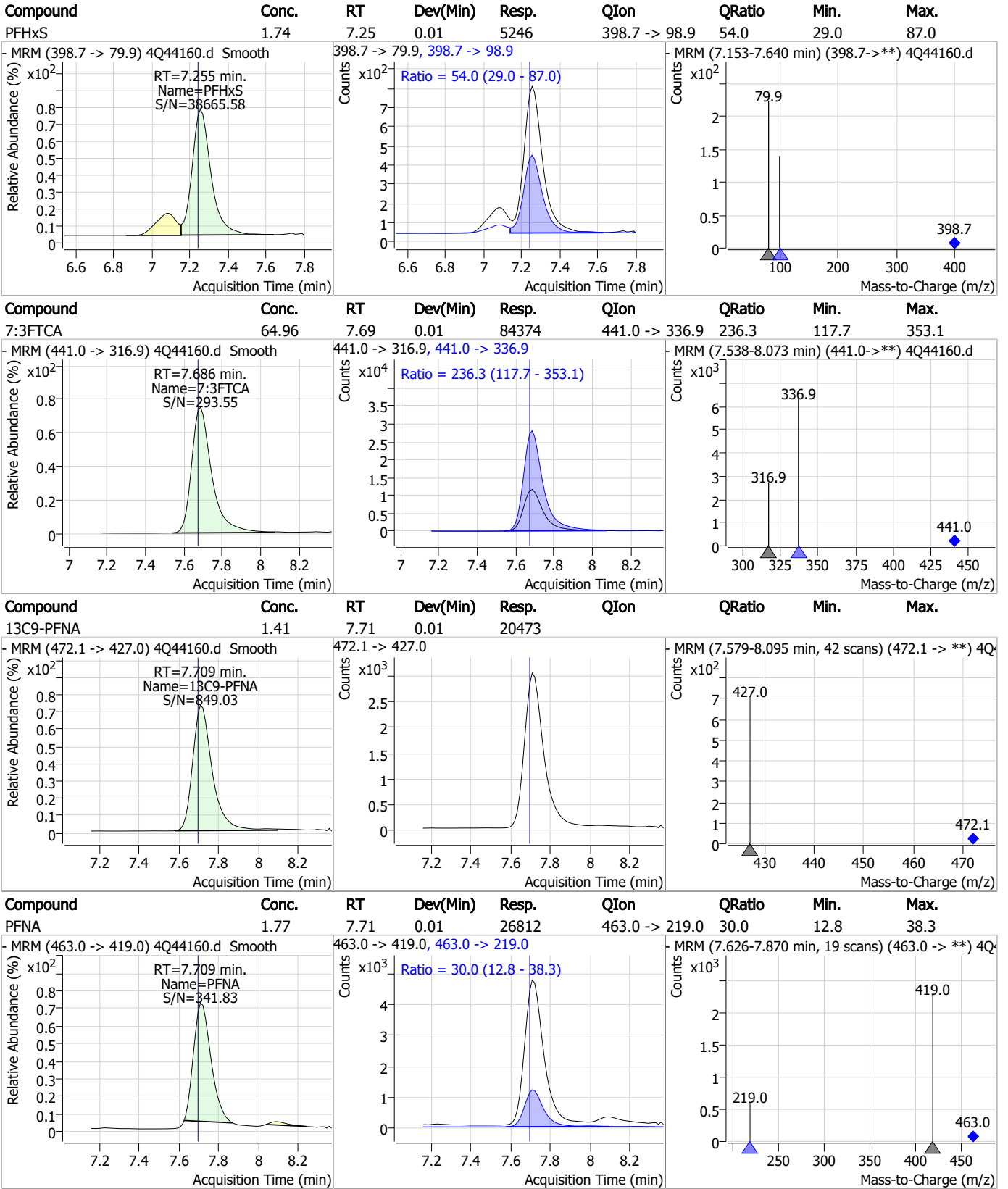
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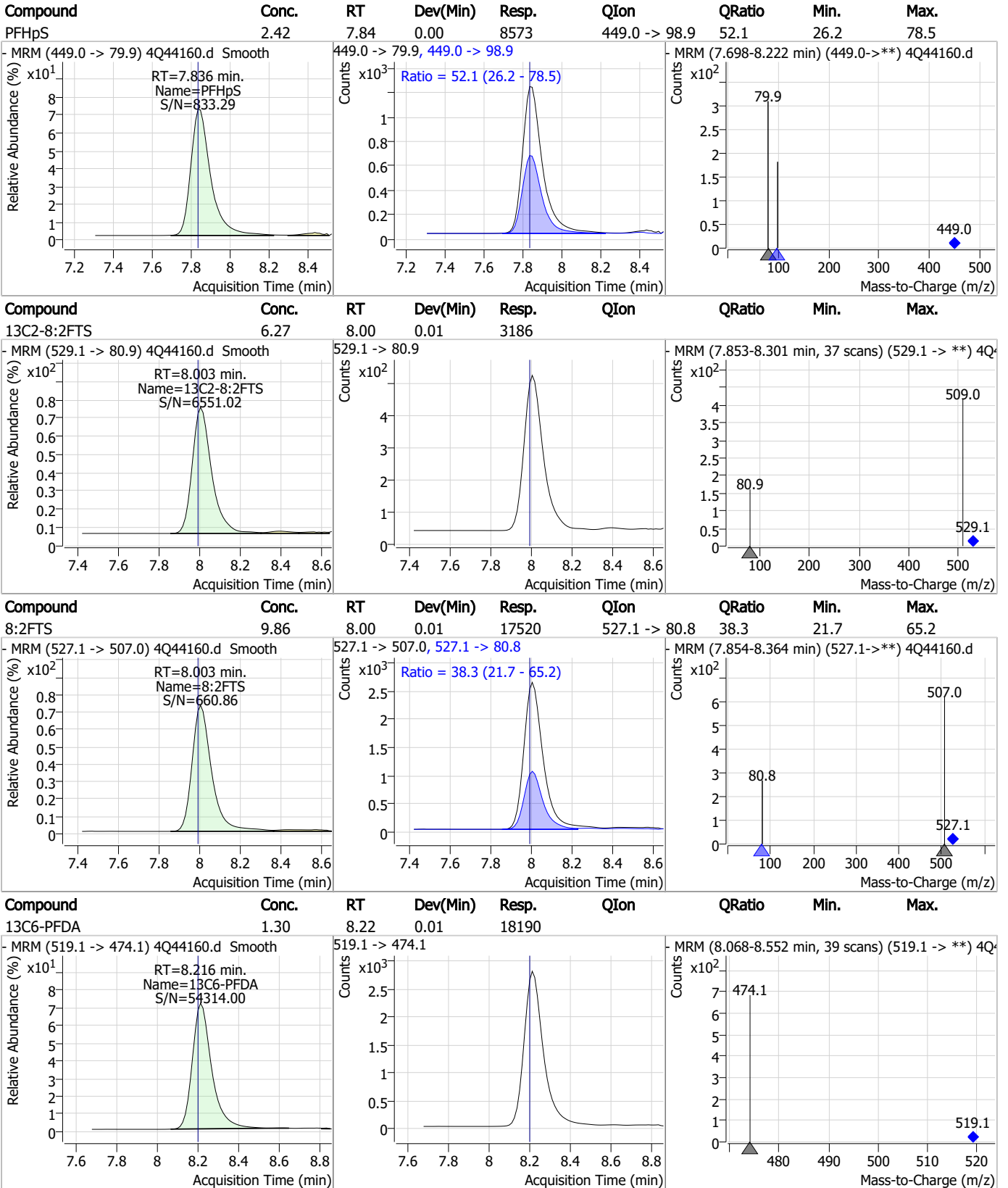
Perfluorinated Compounds by LC/MS/MS



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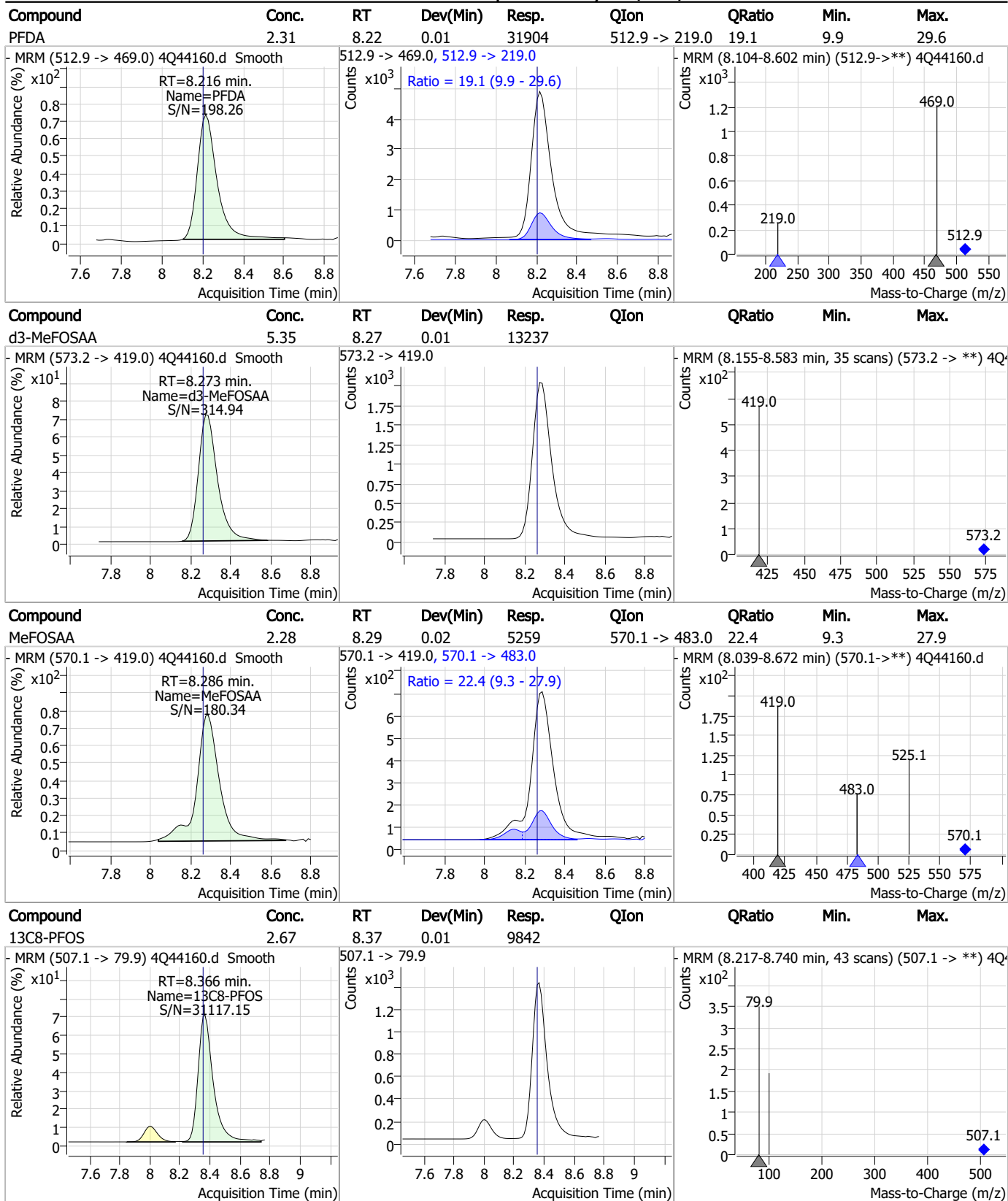
Perfluorinated Compounds by LC/MS/MS



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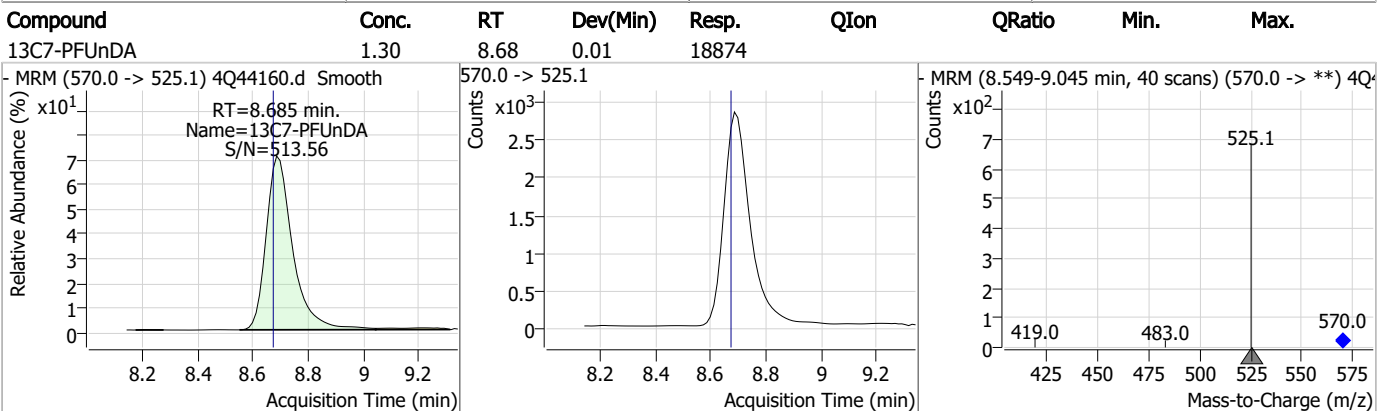
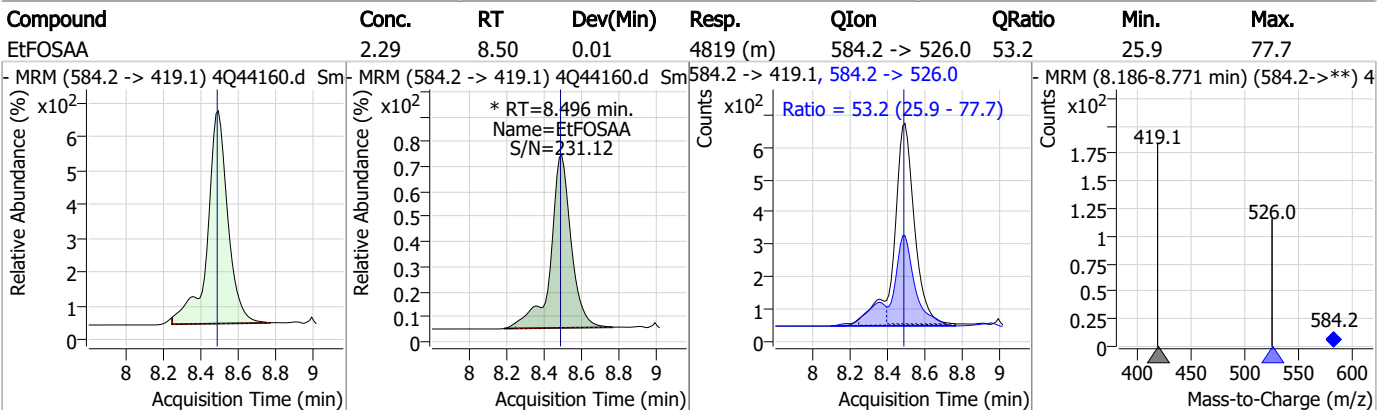
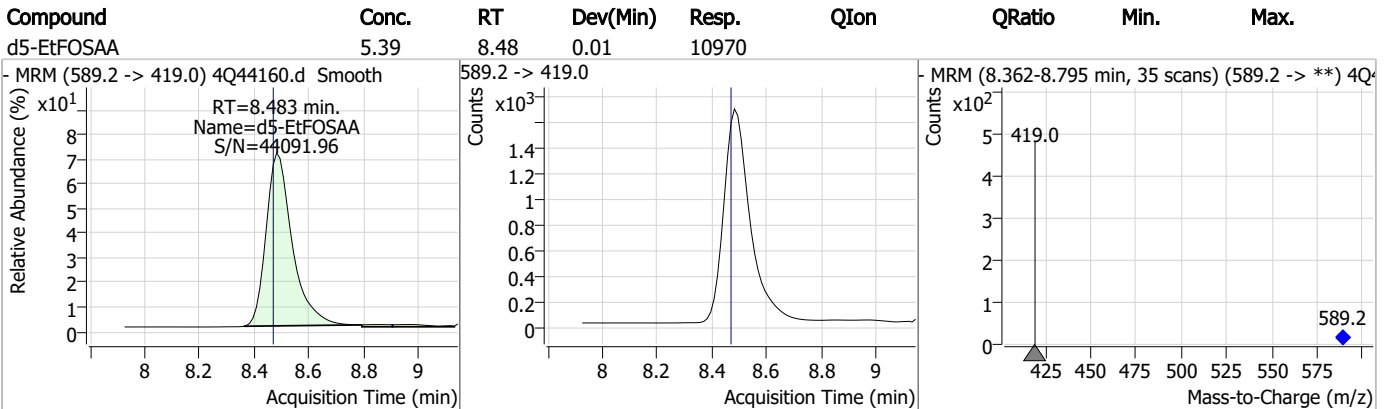
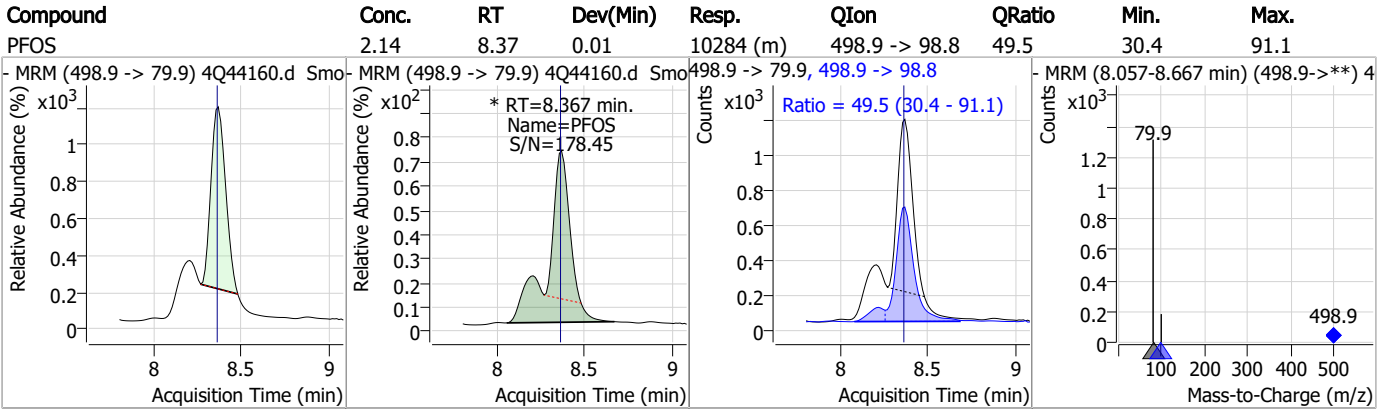
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Perfluorinated Compounds by LC/MS/MS

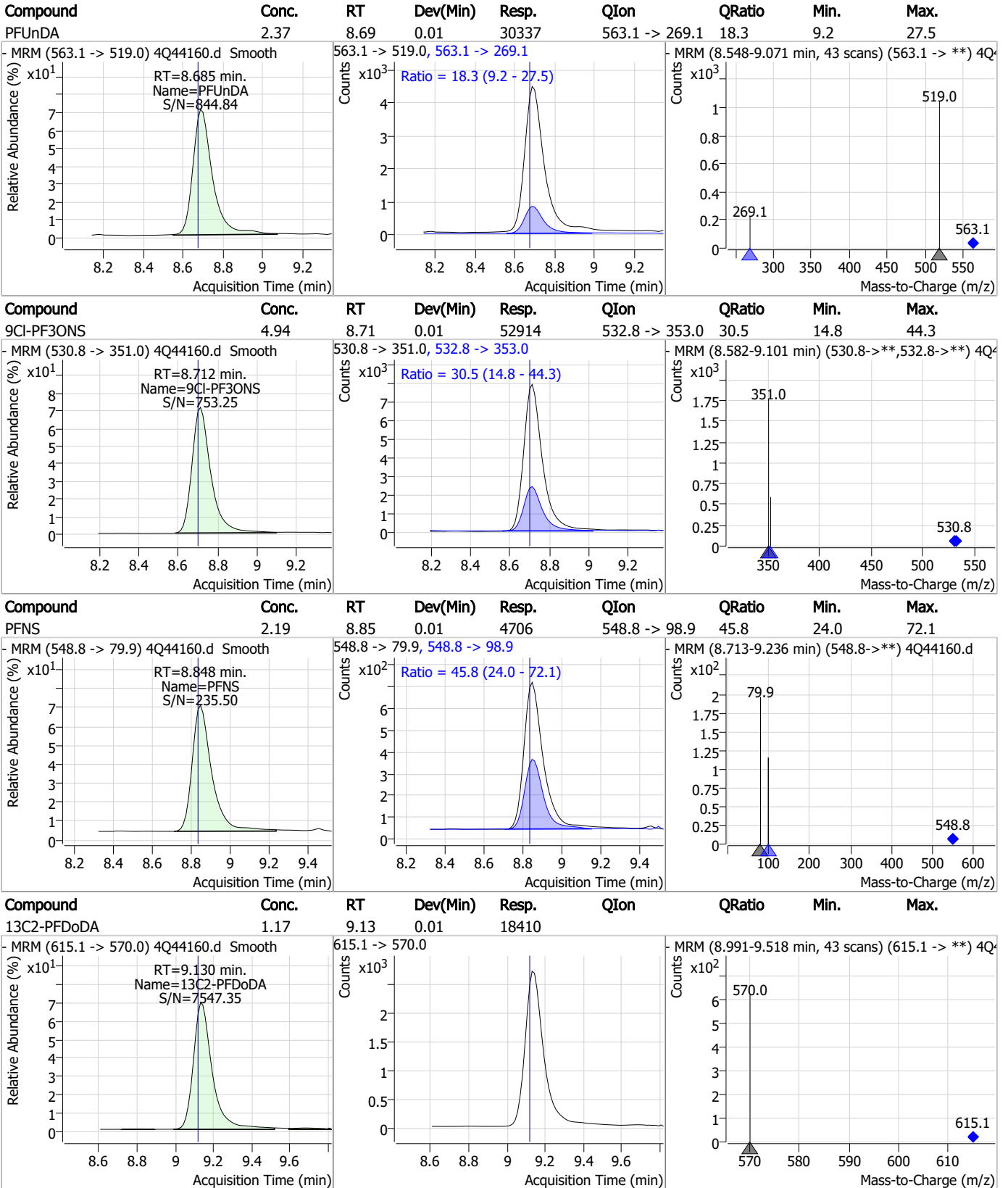


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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

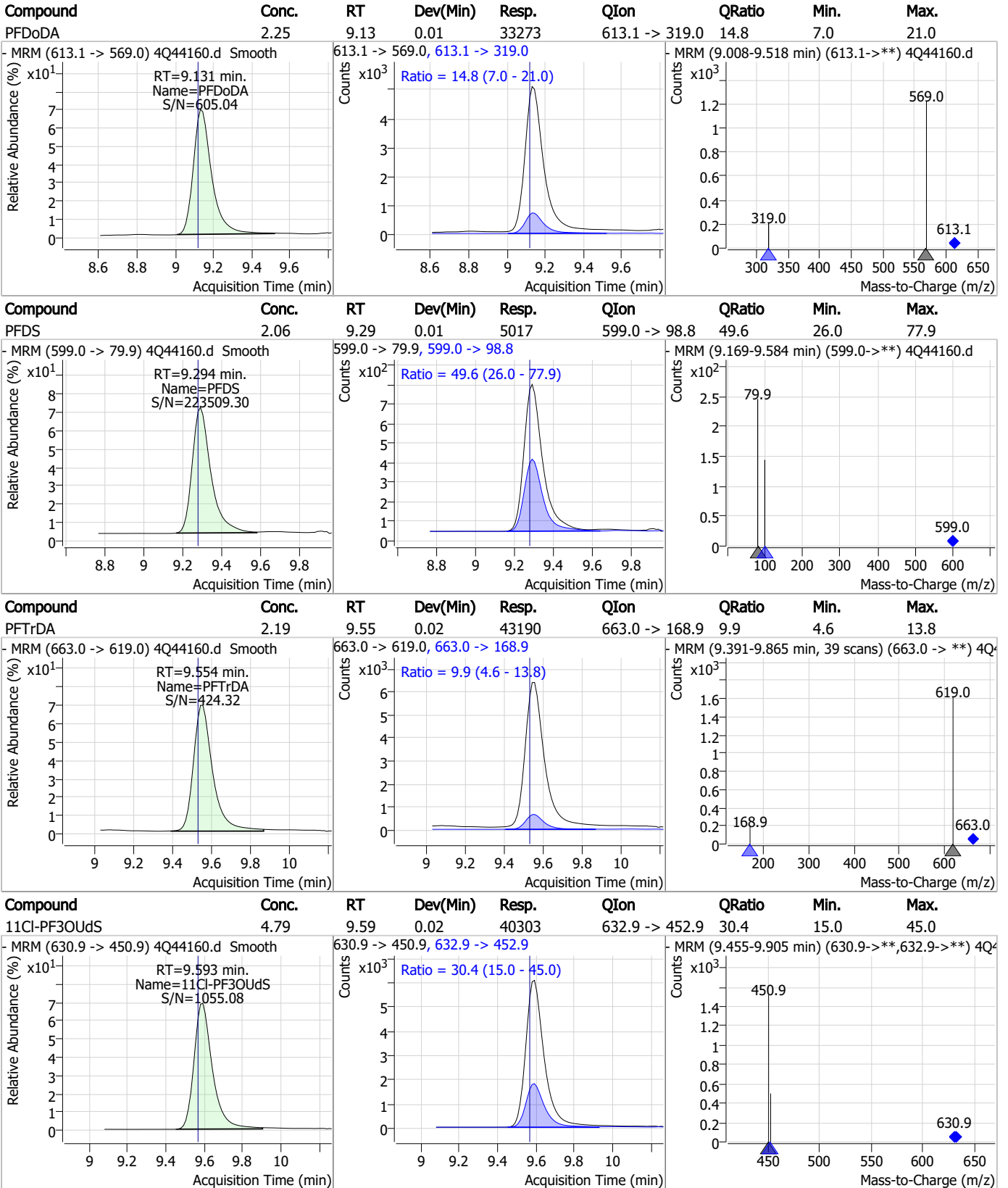


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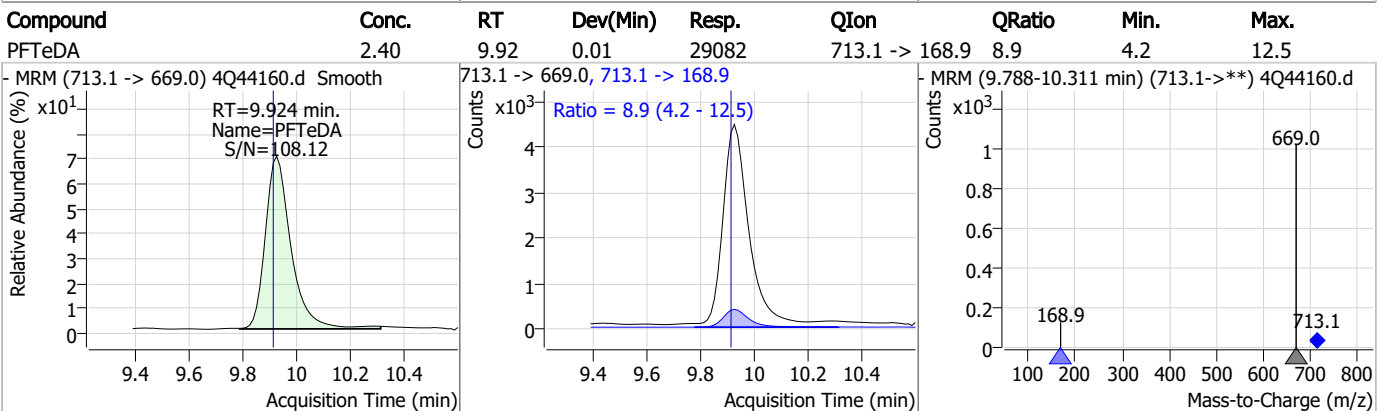
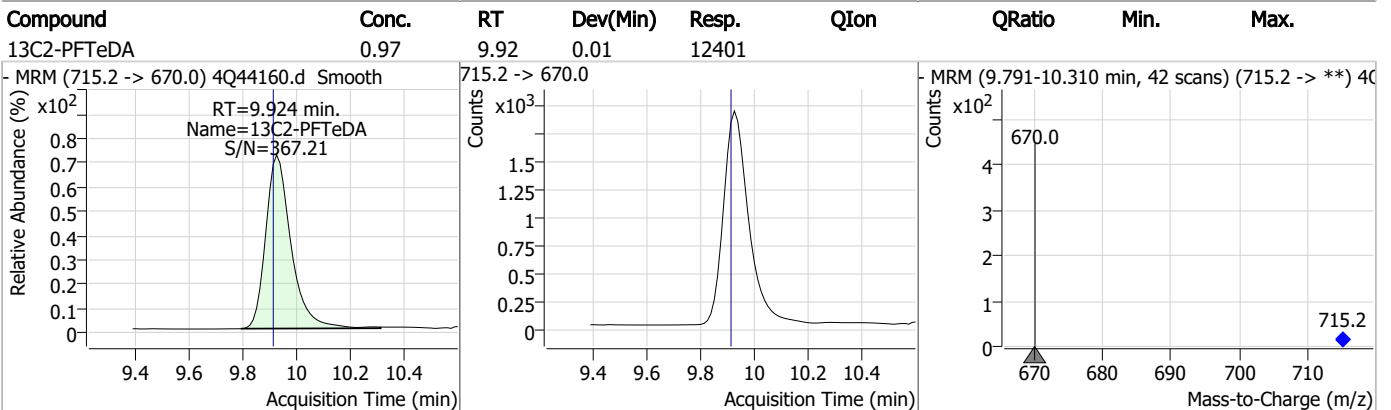
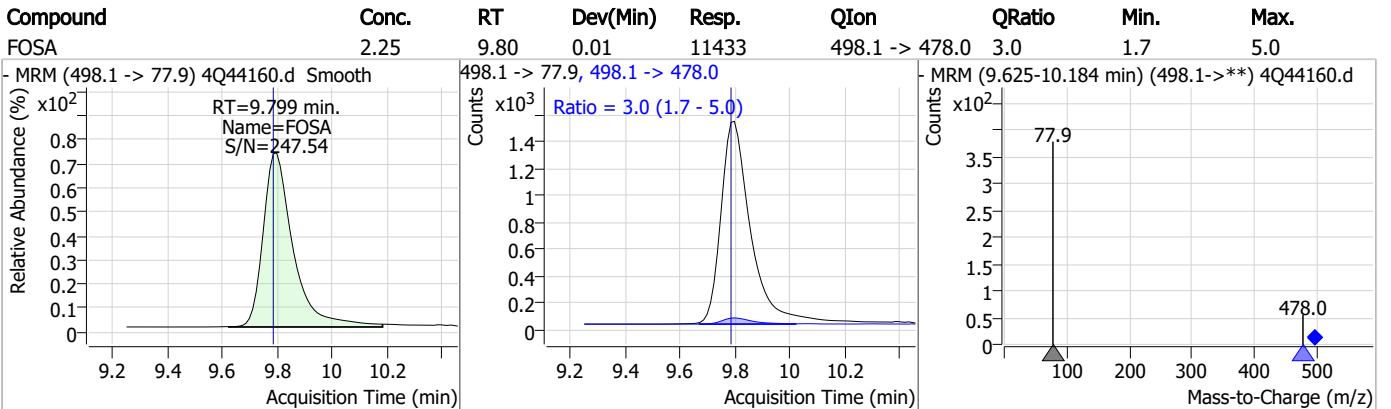
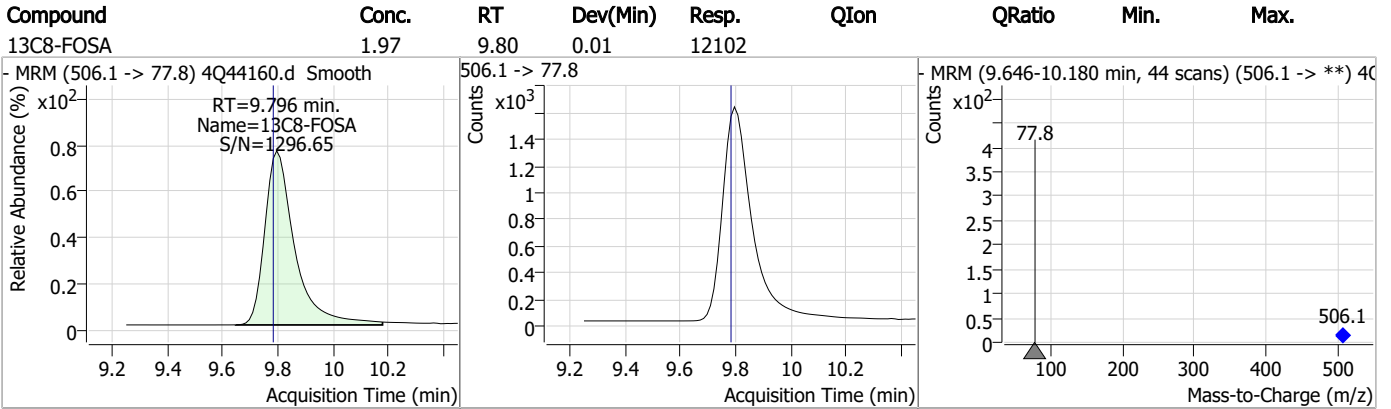
Perfluorinated Compounds by LC/MS/MS



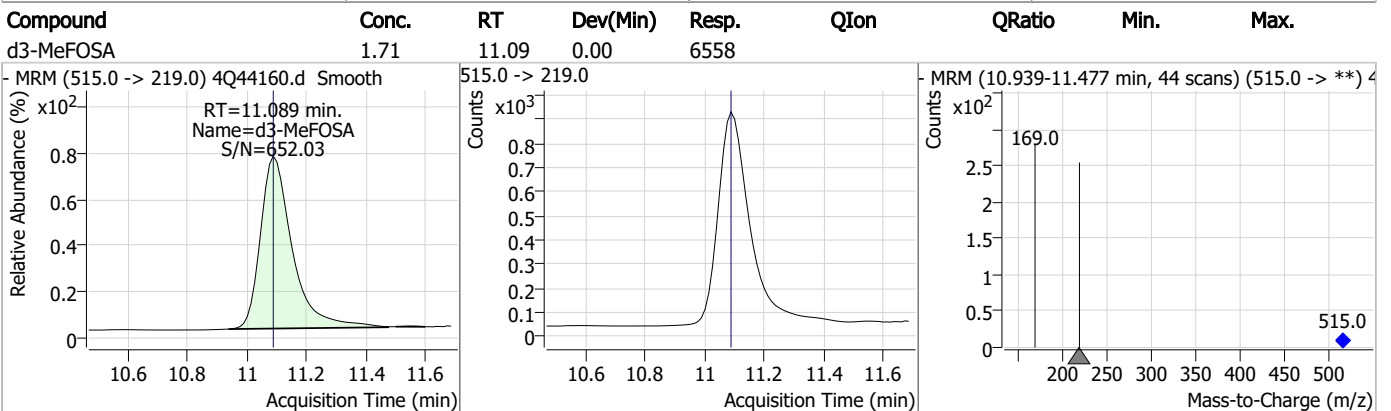
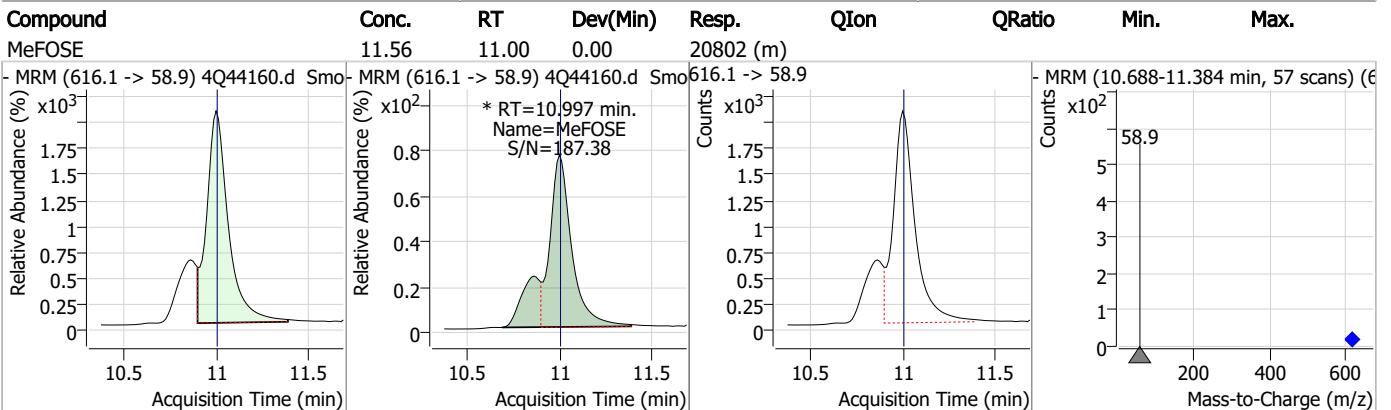
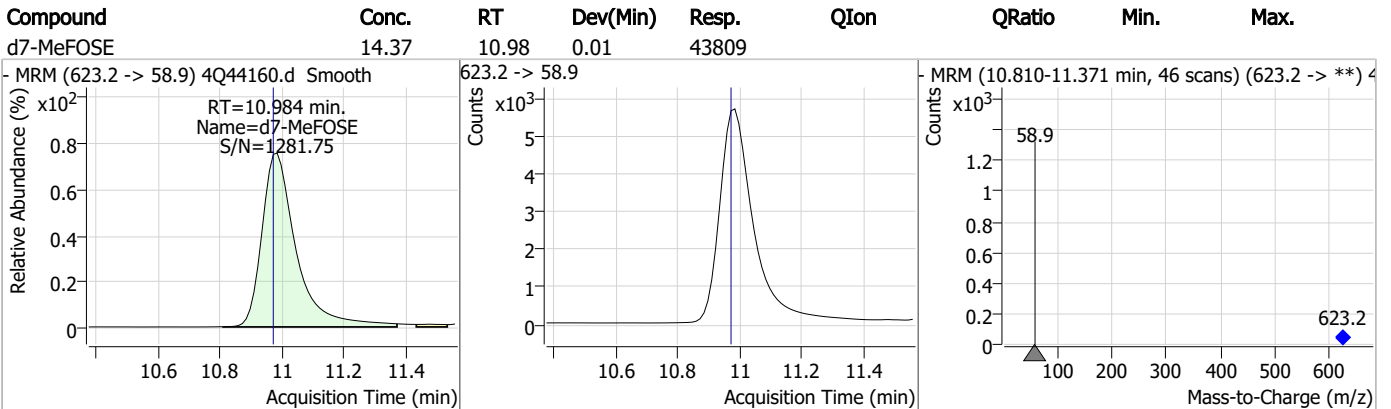
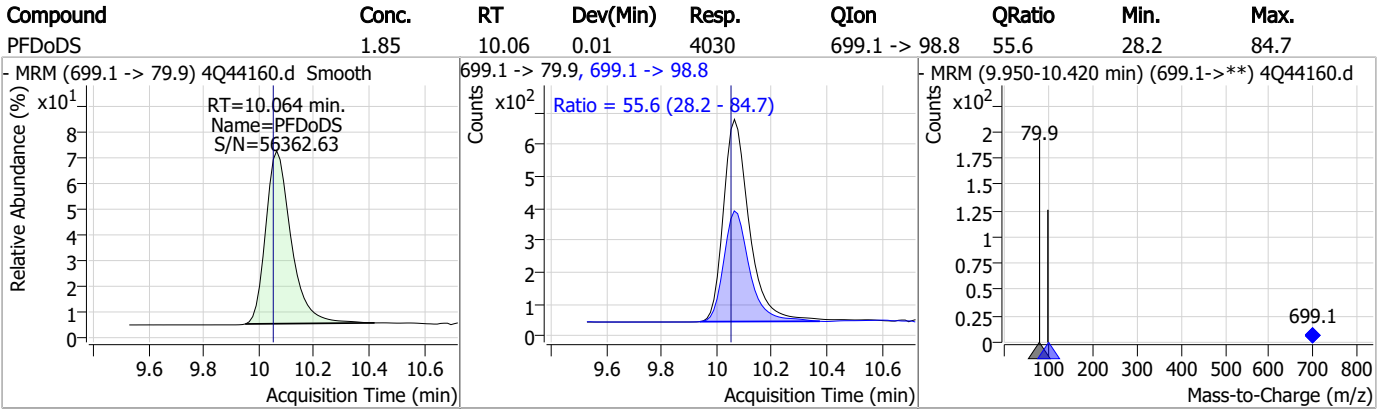
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Perfluorinated Compounds by LC/MS/MS



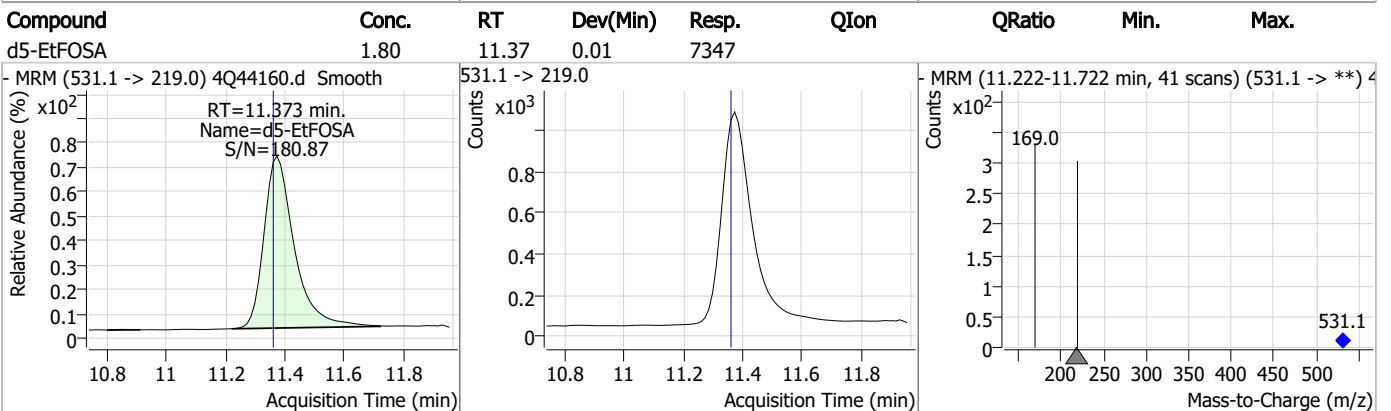
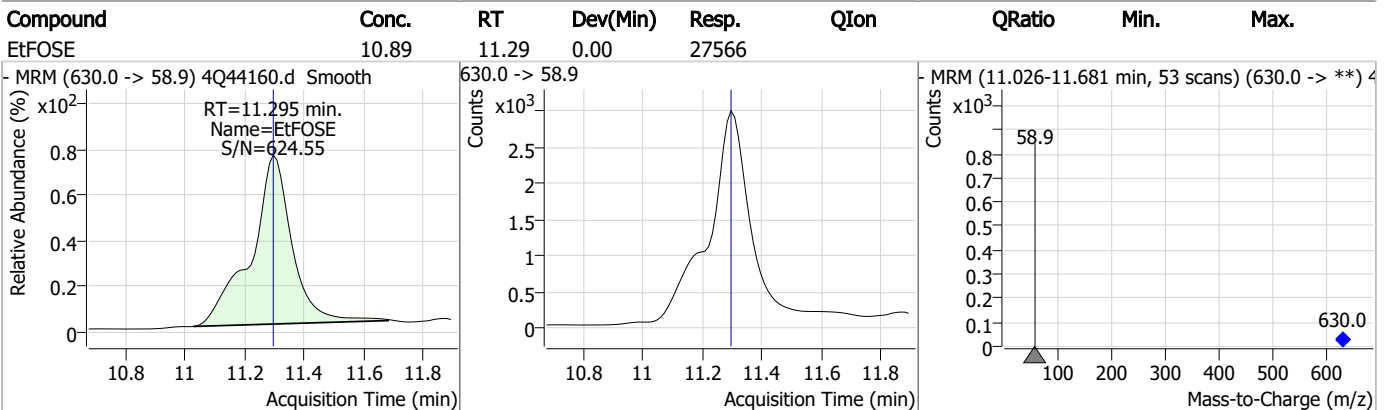
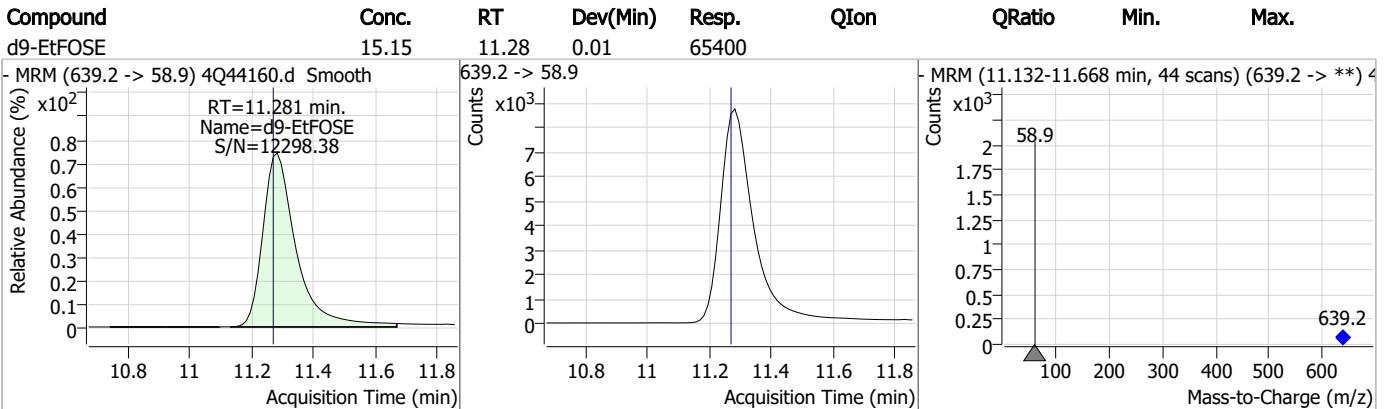
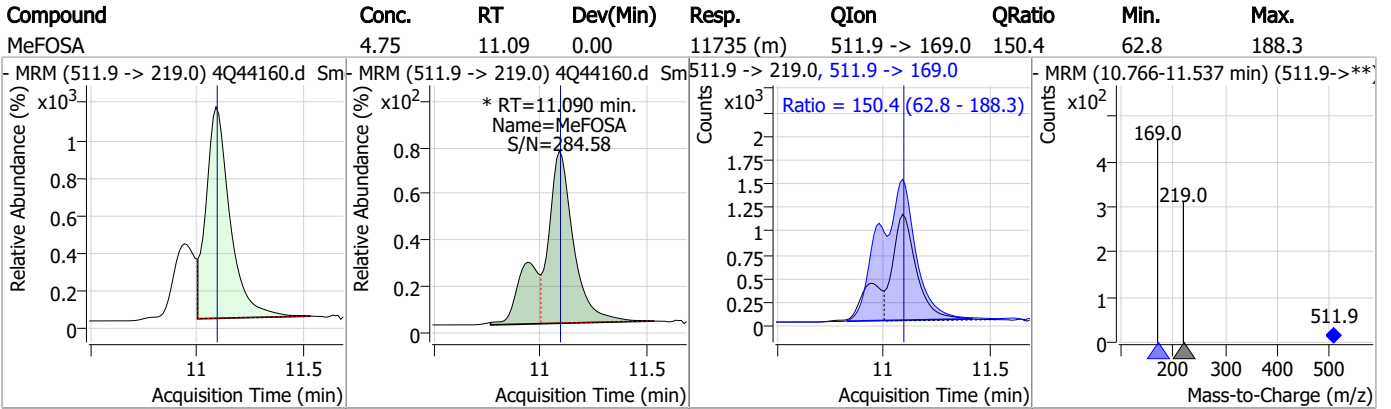
Perfluorinated Compounds by LC/MS/MS



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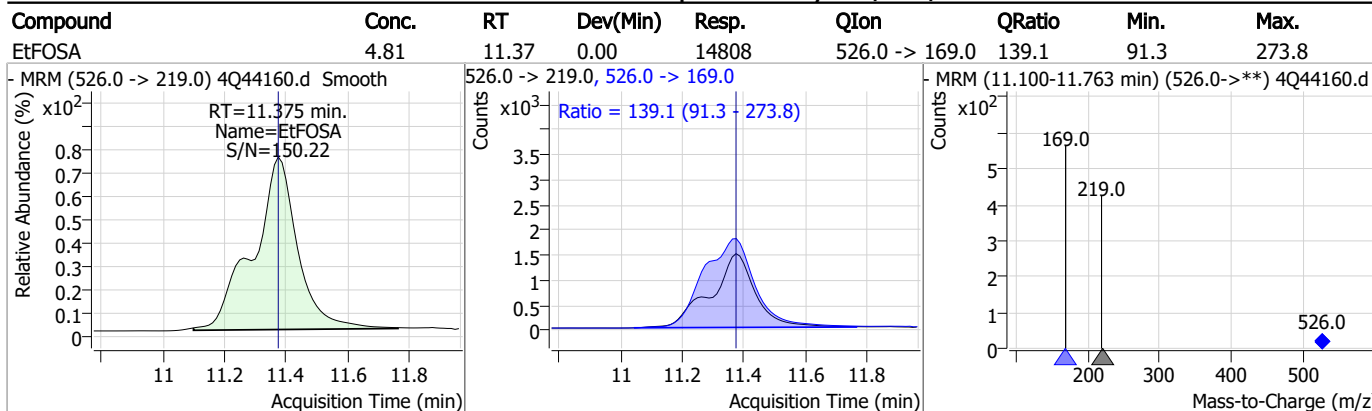
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS



7.3.1
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Manual Integration Approval Summary

Sample Number: OP96747-BS Method: EPA DRAFT 1633
Lab FileID: 4Q44160.D Analyst approved: 05/10/23 11:10 Martha Valls
Injection Time: 05/09/23 19:59 Supervisor approved: 05/10/23 17:27 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.50	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44161.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 8:13:55 PM
 Sample Name : op96747-llbs:3
 Vial : P3-B7
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96747,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	129063	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	65817	5.00 µg/L	0.000
M5-PFHxA	5.572	318.0 -> 273.0	45955	2.50 µg/L	0.012
M4-PFHpA	6.504	367.1 -> 322.0	27596	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	40680	2.50 µg/L	0.014
M9-PFNA	7.721	472.1 -> 427.0	20641	1.25 µg/L	0.025
M6-PFDA	8.216	519.1 -> 474.1	18654	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	18557	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	19150	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	13366	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	12994	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	10750	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7345	2.50 µg/L	0.012
M8-PFOS	8.366	507.1 -> 79.9	10082	2.50 µg/L	0.012
M2-4:2FTS	5.260	329.1 -> 80.9	1226	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	2259	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3304	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	13736	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	23716	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	11755	5.00 µg/L	0.012
M7-MeFOSE	10.984	623.2 -> 58.9	50835	25.00 µg/L	0.012
M9-EtFOSE	11.281	639.2 -> 58.9	78907	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	8423	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	7523	2.50 µg/L	0.000
13C4-PFOS	8.367	502.8 -> 79.9	9126	2.50 µg/L	0.012
13C3-PFBA	2.928	216.0 -> 172.0	60551	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4152	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	44588	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	15183	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	21970	1.25 µg/L	0.012
13C2-PFHxA	5.573	315.1 -> 270.0	38793	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.260	329.1 -> 80.9	1226	7.27 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 145.3%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2259	7.43 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 148.5%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3304	6.96 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 139.2%		
13C2-PFDoDA	9.130	615.1 -> 570.0	19150	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-PFTeDA	9.924	715.2 -> 670.0	13366	1.12 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.3%		
13C3-PFBS	5.464	302.1 -> 79.9	10750	2.75 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C3-PFHxS	7.254	402.1 -> 79.9	7345	2.85 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 = 114.2%	
13C4-PFBA	2.924	216.8 -> 171.9	129063	11.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C4-PFHpA	6.504	367.1 -> 322.0	27596	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C5-PFHxA	5.572	318.0 -> 273.0	45955	2.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C5-PFPeA	4.387	268.3 -> 223.0	65817	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C6-PFDA	8.216	519.1 -> 474.1	18654	1.43 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.8%	
13C7-PFUnDA	8.685	570.0 -> 525.1	18557	1.37 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C8-FOSA	9.796	506.1 -> 77.8	12994	2.27 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C8-PFOA	7.163	421.1 -> 376.0	40680	2.78 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.1%	
13C8-PFOS	8.366	507.1 -> 79.9	10082	2.93 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.4%	
13C9-PFNA	7.721	472.1 -> 427.0	20641	1.38 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.6%	
d3-MeFOSAA	8.273	573.2 -> 419.0	13736	5.96 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.3%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	23716	9.29 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
d3-MeFOSA	11.089	515.0 -> 219.0	7523	2.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.1%	
d5-EtFOSAA	8.483	589.2 -> 419.0	11755	6.20 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 123.9%	
d7-MeFOSE	10.984	623.2 -> 58.9	50835	17.90 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 71.6%	
d9-EtFOSE	11.281	639.2 -> 58.9	78907	19.63 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.5%	
d5-EtFOSA	11.373	531.1 -> 219.0	8423	2.21 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.6%	
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	5241	2.66 µg/L	95
		327.1 -> 80.9	2054		
6:2FTS	6.936	427.1 -> 407.0	5587	2.56 µg/L	99
		427.1 -> 80.9	2445		
8:2FTS	8.003	527.1 -> 507.0	4877	2.65 µg/L	95
		527.1 -> 80.8	1974		
EtFOSAA	8.483	584.2 -> 419.1	1108	0.49 µg/L	m 81
		584.2 -> 526.0	719		
FOSA	9.799	498.1 -> 77.9	3752	0.69 µg/L	96
		498.1 -> 478.0	169		
MeFOSAA	8.286	570.1 -> 419.0	1439	0.60 µg/L	m 96
		570.1 -> 483.0	296		
PFBA	2.932	212.8 -> 168.9	9194	2.66 µg/L	100
PFBS	5.465	298.7 -> 79.9	2635	0.60 µg/L	96
		298.7 -> 98.8	1015		
PFDA	8.216	512.9 -> 469.0	9979	0.71 µg/L	97
		512.9 -> 219.0	2092		
PFDODA	9.131	613.1 -> 569.0	10337	0.67 µg/L	100
		613.1 -> 319.0	1458		
PFDS	9.294	599.0 -> 79.9	1548	0.62 µg/L	98

7.3.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	786			
PFHpA	6.505	363.1 -> 319.0	11193	0.64	µg/L	99
		363.1 -> 169.0	1965			
PFHpS	7.848	449.0 -> 79.9	2469	0.68	µg/L	96
		449.0 -> 98.9	1360			
PFHxA	5.575	313.0 -> 269.0	12387	0.69	µg/L	98
		313.0 -> 118.9	465			
PFHxS	7.255	398.7 -> 79.9	1738	0.58	µg/L	m 90
		398.7 -> 98.9	880			
PFNA	7.709	463.0 -> 419.0	8287	0.54	µg/L	92
		463.0 -> 219.0	2444			
PFNS	8.848	548.8 -> 79.9	1249	0.57	µg/L	90
		548.8 -> 98.9	681			
PFOA	7.164	413.0 -> 369.0	14650	0.62	µg/L	92
		413.0 -> 169.0	3426			
PFOS	8.367	498.9 -> 79.9	3228	0.65	µg/L	m 88
		498.9 -> 98.8	1654			
PFPeA	4.389	263.0 -> 219.0	20357	1.29	µg/L	100
PFPeS	6.531	349.1 -> 79.9	1628	0.63	µg/L	89
		349.1 -> 98.9	615			
PFTeDA	9.924	713.1 -> 669.0	9237	0.71	µg/L	97
		713.1 -> 168.9	856			
PFTrDA	9.541	663.0 -> 619.0	12958	0.63	µg/L	98
		663.0 -> 168.9	1300			
PFUnDA	8.685	563.1 -> 519.0	8138	0.65	µg/L	94
		563.1 -> 269.1	1702			
11CI-PF3OUdS	9.593	630.9 -> 450.9	11819	1.39	µg/L	99
		632.9 -> 452.9	3614			
9CI-PF3ONS	8.712	530.8 -> 351.0	14691	1.35	µg/L	96
		532.8 -> 353.0	4633			
ADONA	6.768	376.9 -> 250.9	33497	1.40	µg/L	98
		376.9 -> 84.8	9255			
HFPO-DA	5.928	284.9 -> 168.9	3051	1.35	µg/L	94
		284.9 -> 184.9	313			
3:3FTCA	3.867	241.0 -> 177.0	1719	2.47	µg/L	93
		241.0 -> 117.0	204			
5:3FTCA	6.231	341.0 -> 237.1	41398	16.94	µg/L	96
		341.0 -> 217.0	26967			
7:3FTCA	7.686	441.0 -> 316.9	24763	19.51	µg/L	98
		441.0 -> 336.9	59227			
EtFOSA	11.375	526.0 -> 219.0	4533	1.28	µg/L	m 76
		526.0 -> 169.0	6747			
EtFOSE	11.295	630.0 -> 58.9	11387	3.73	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	3866	1.36	µg/L	m 75
		511.9 -> 169.0	5940			
MeFOSE	10.997	616.1 -> 58.9	7282	3.49	µg/L	m 100
PFDoDS	10.064	699.1 -> 79.9	1236	0.55	µg/L	99
		699.1 -> 98.8	711			
NFDHA	5.453	295.0 -> 201.0	1273	0.99	µg/L	89
		295.0 -> 84.9	408			
PFMBA	4.791	279.0 -> 85.1	11557	1.31	µg/L	100
PFMPA	3.540	229.0 -> 84.9	11023	1.33	µg/L	100
PFEESA	5.997	314.8 -> 134.9	15121	1.11	µg/L	97
		314.8 -> 82.9	625			

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

7.3.2
7

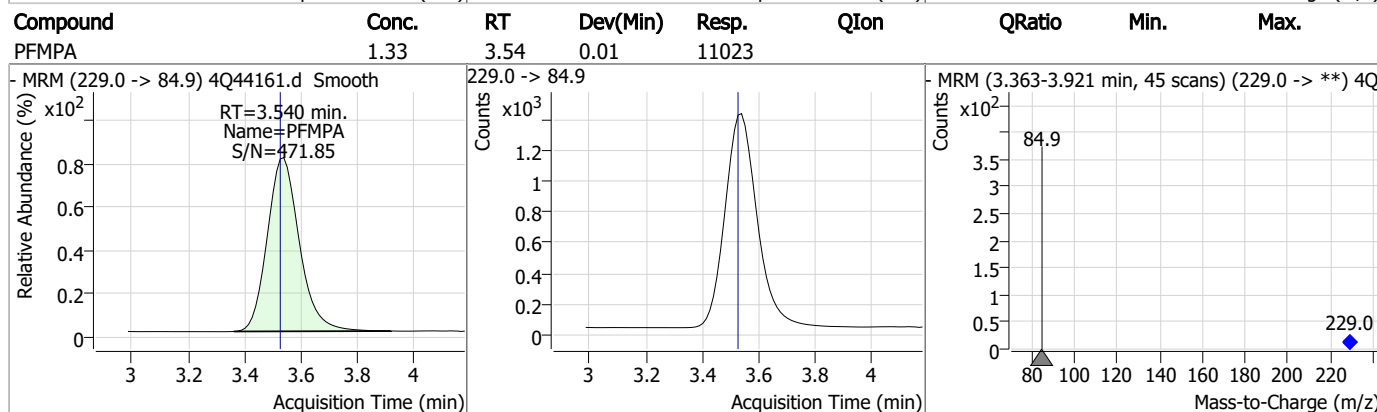
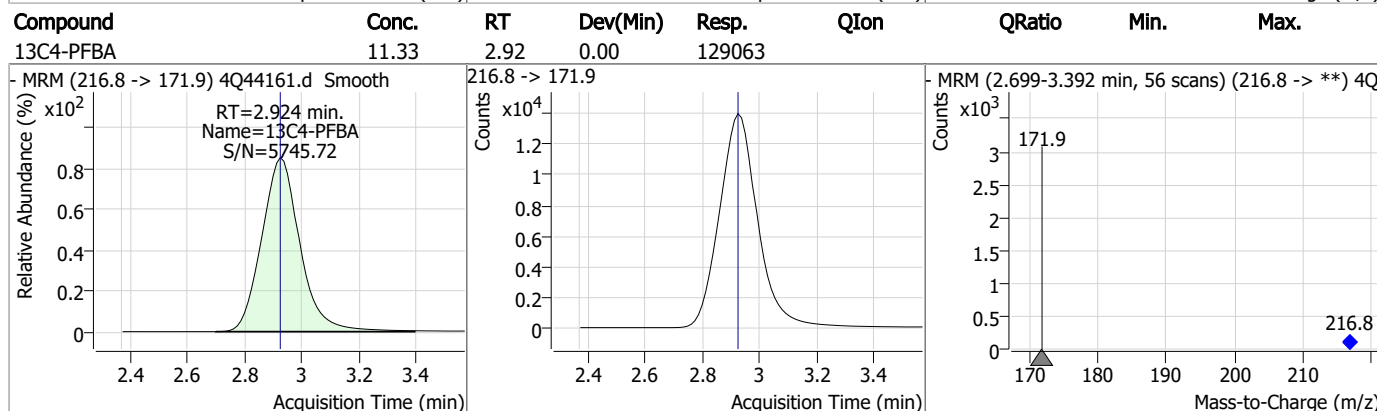
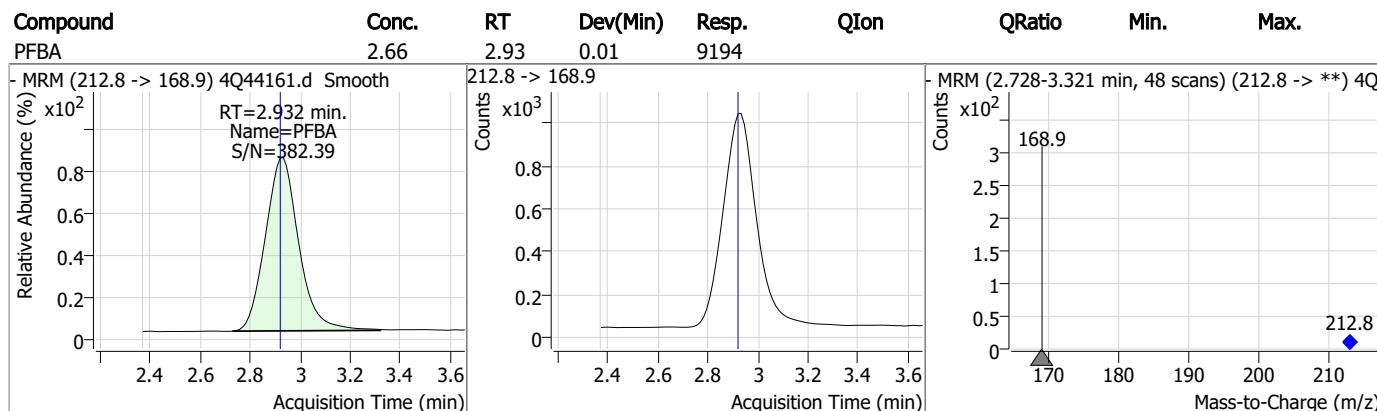
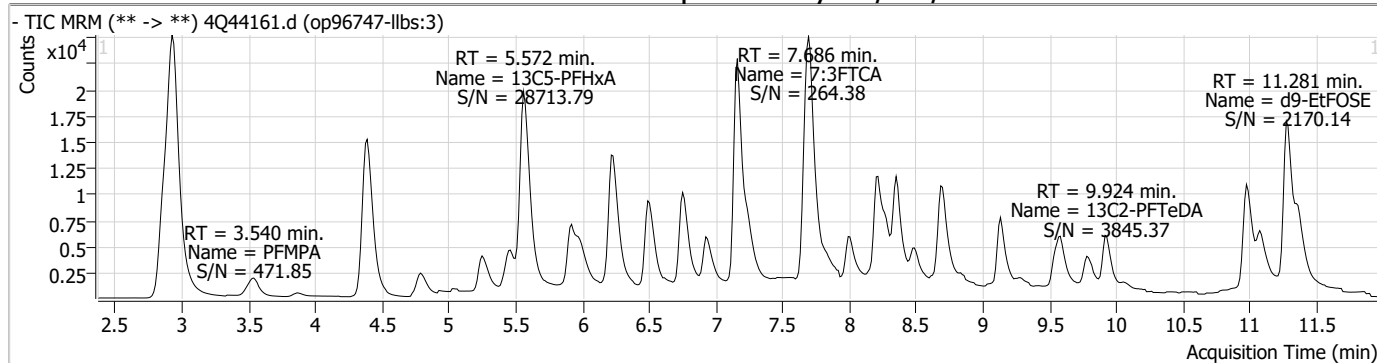
Perfluorinated Compounds by LC/MS/MS

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

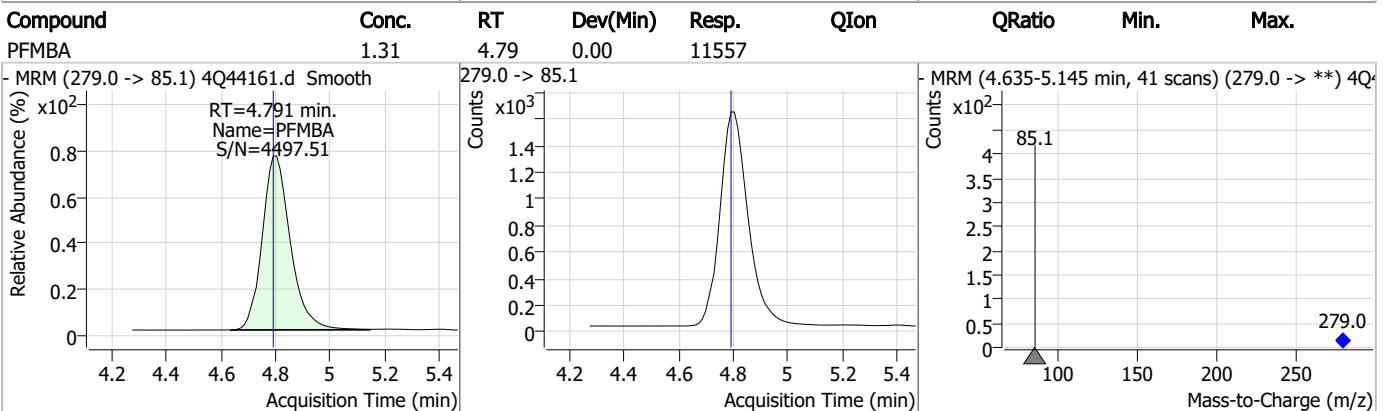
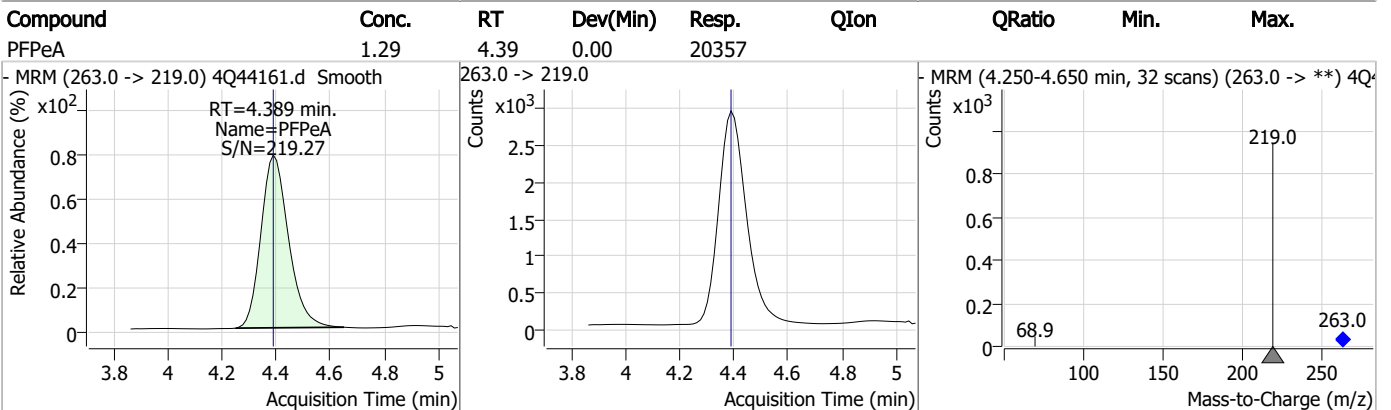
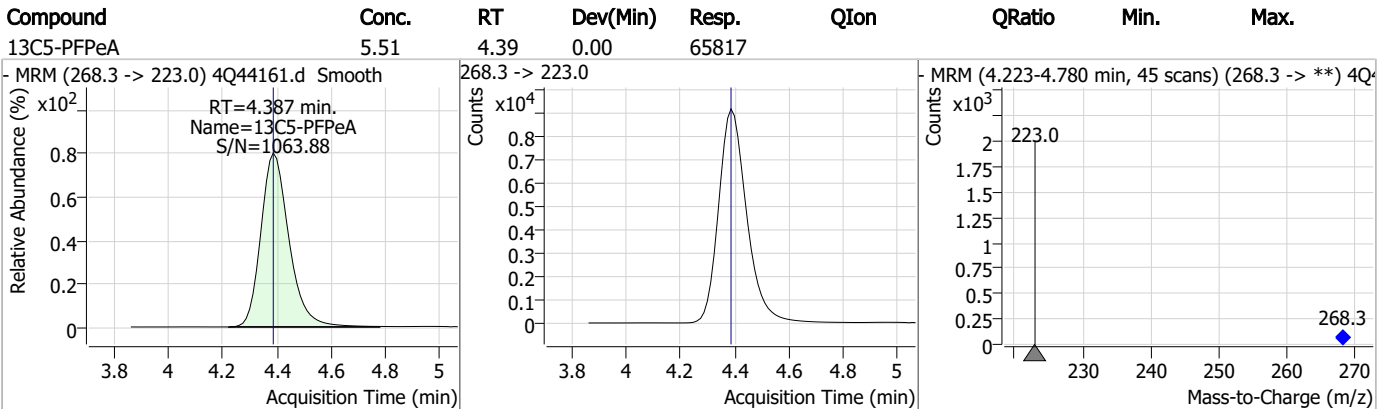
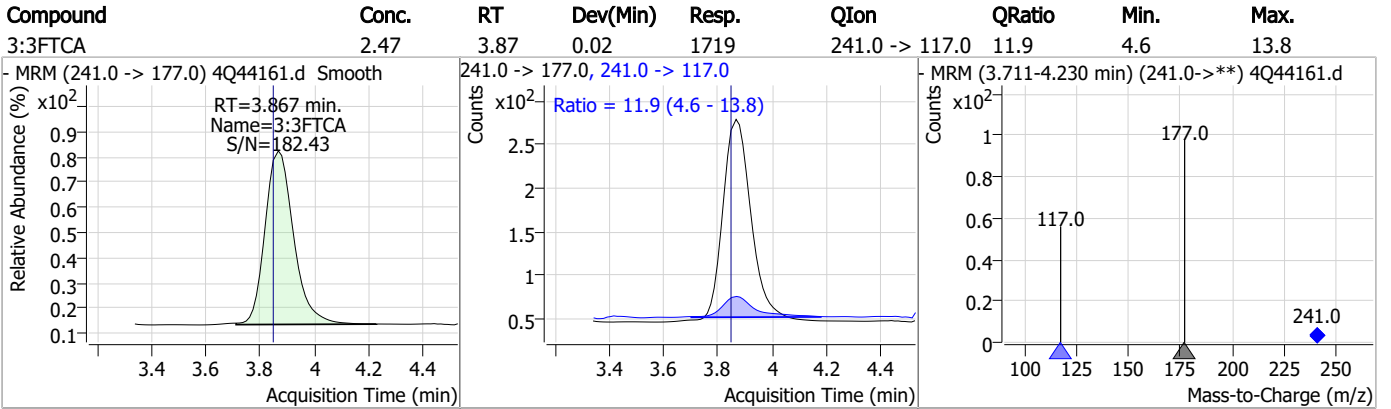
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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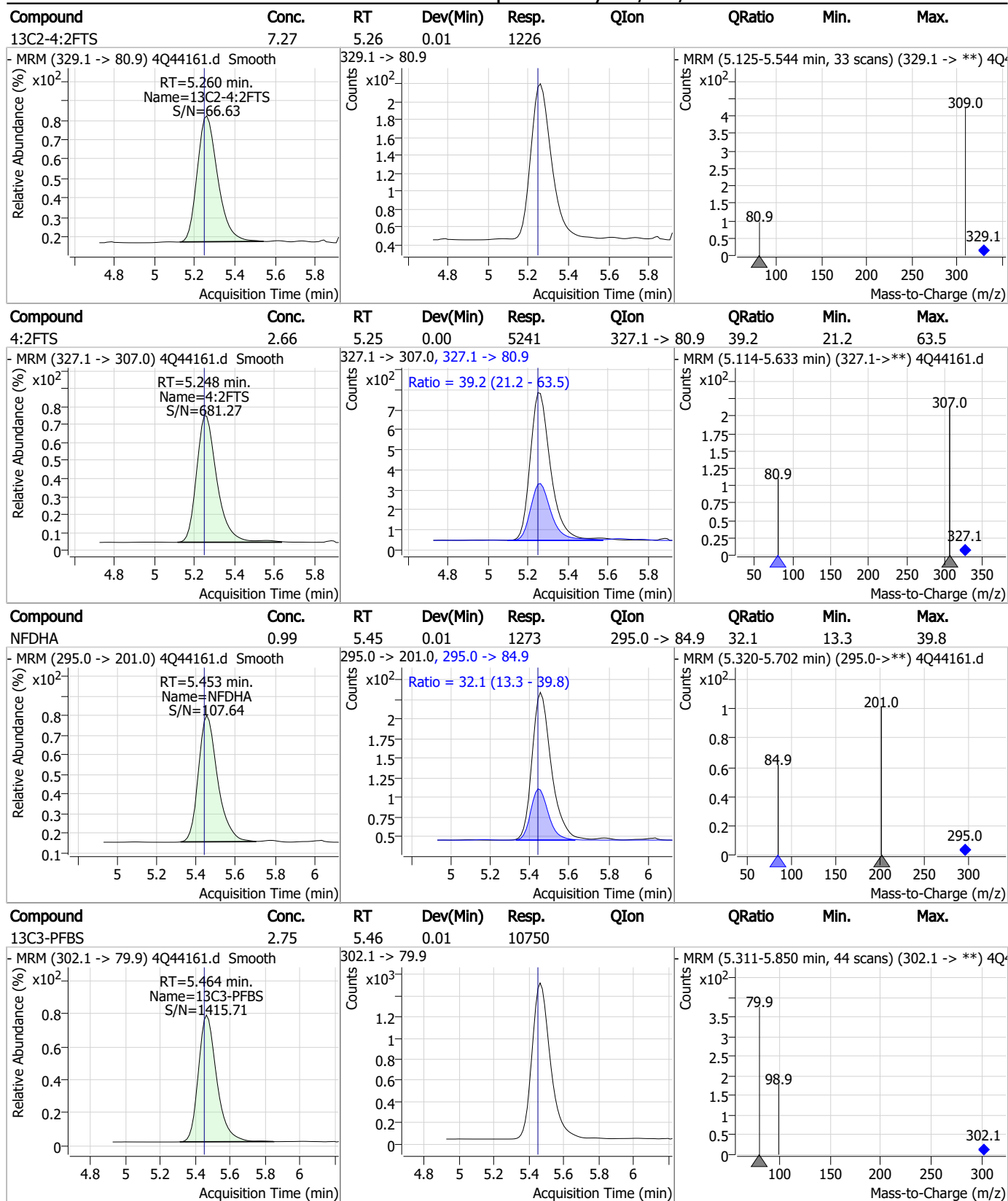
Perfluorinated Compounds by LC/MS/MS



7.3.2

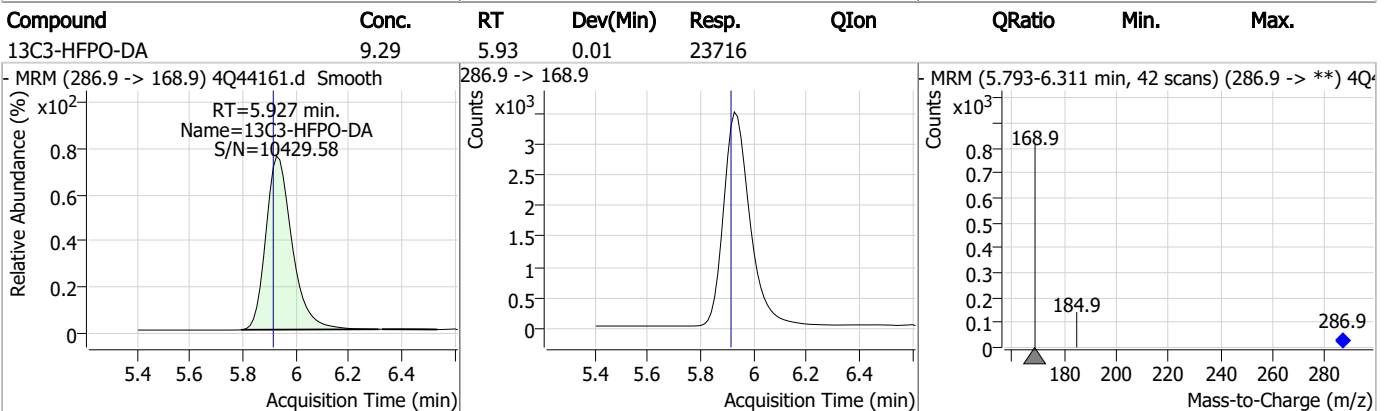
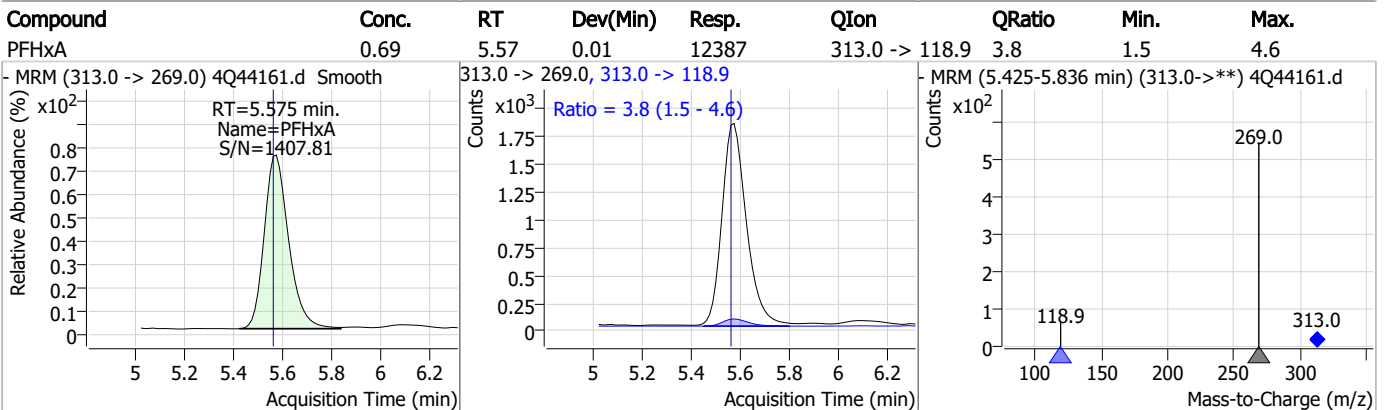
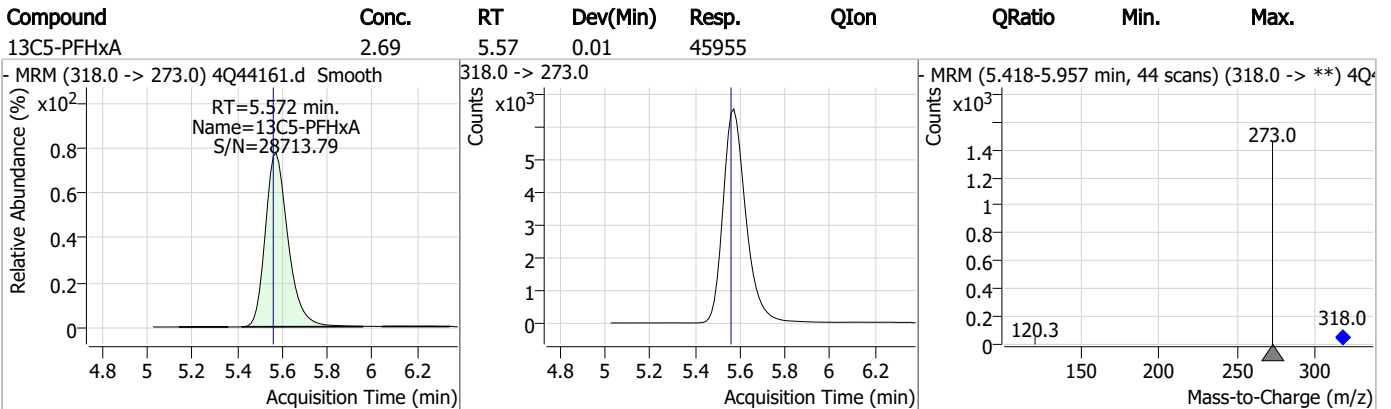
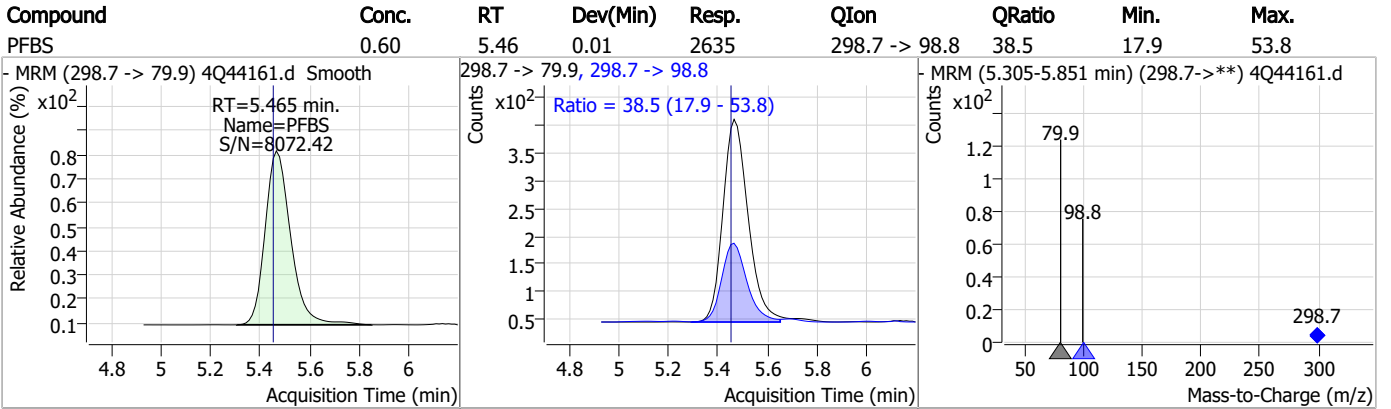
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Perfluorinated Compounds by LC/MS/MS

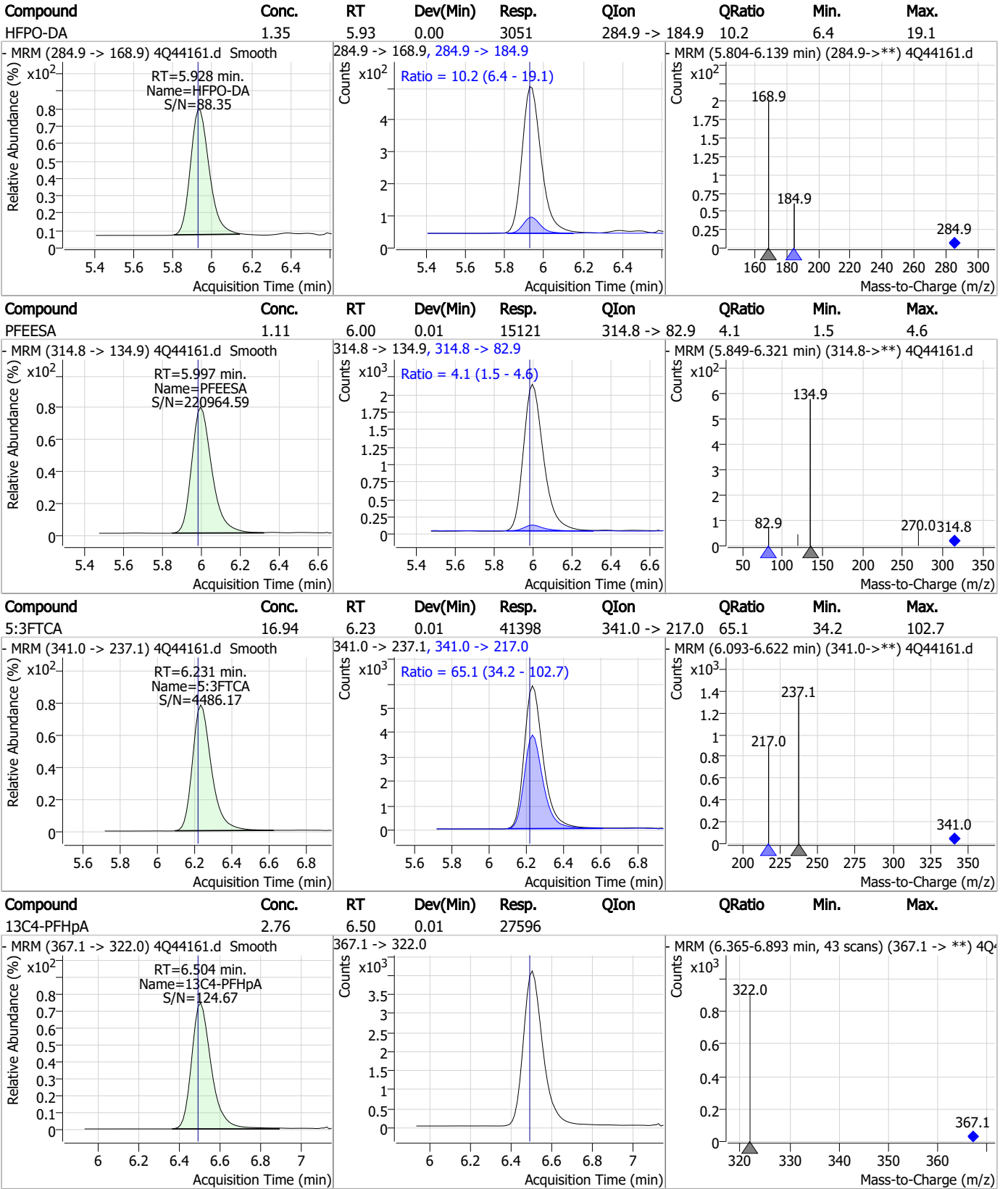


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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

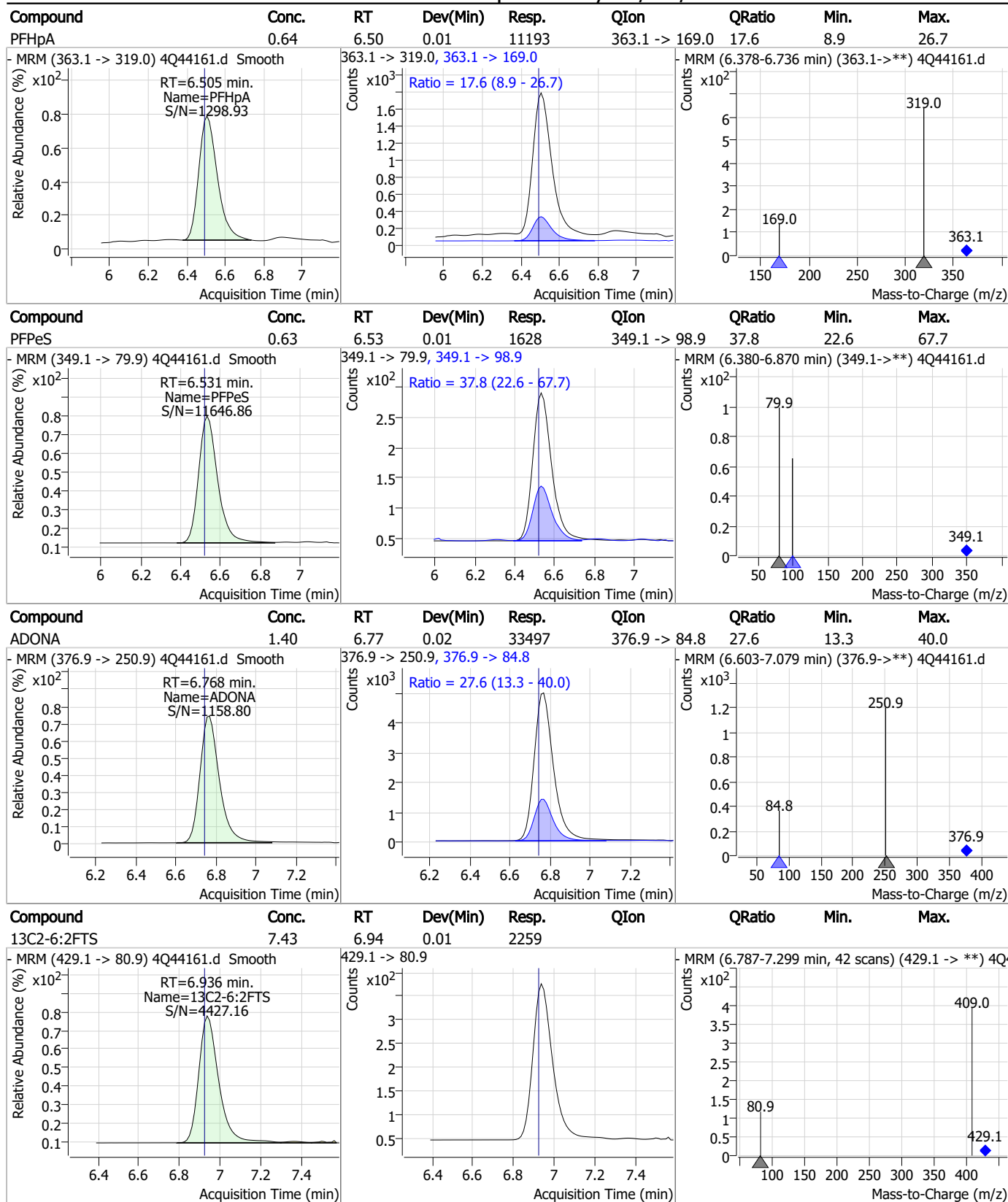


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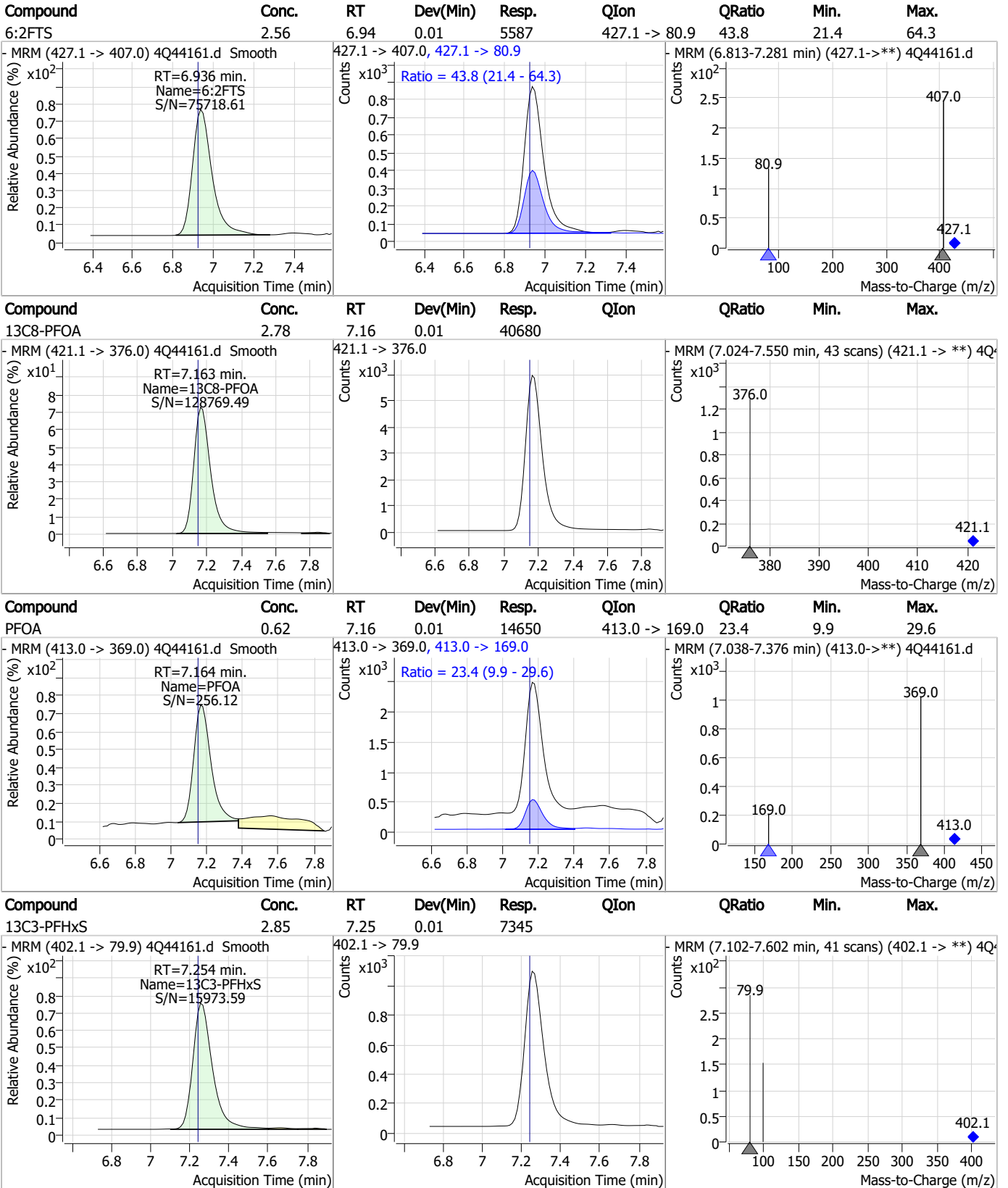


Perfluorinated Compounds by LC/MS/MS



7.3.2
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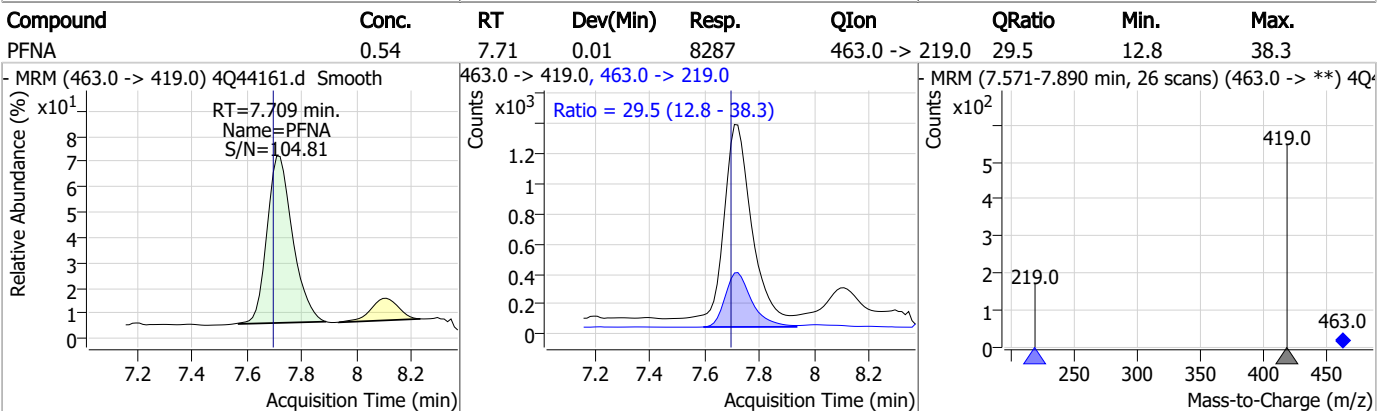
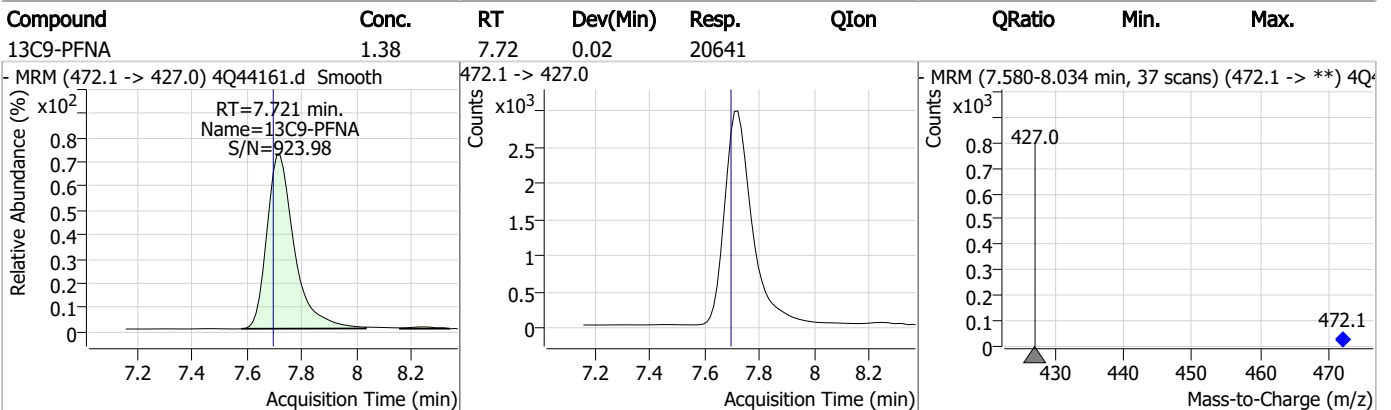
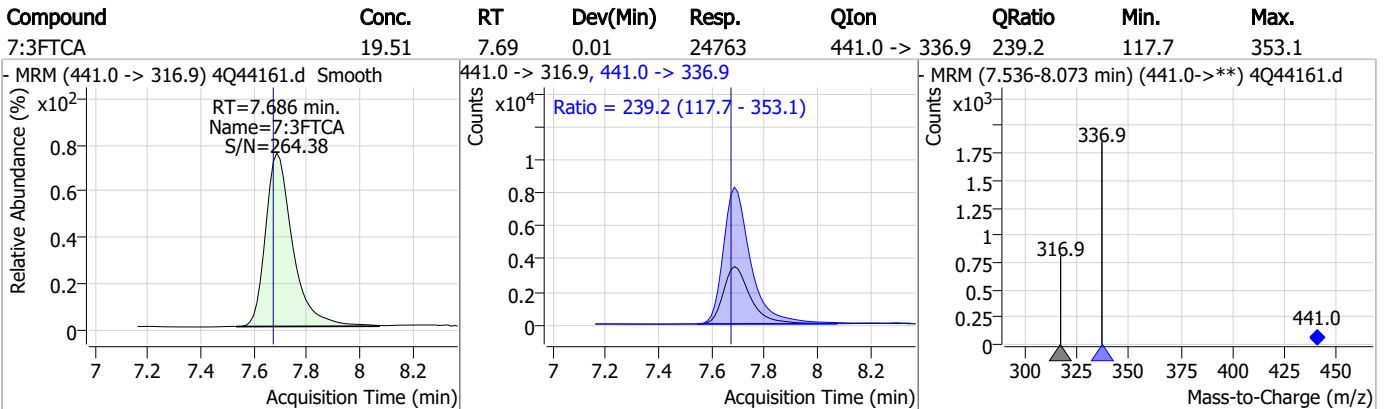
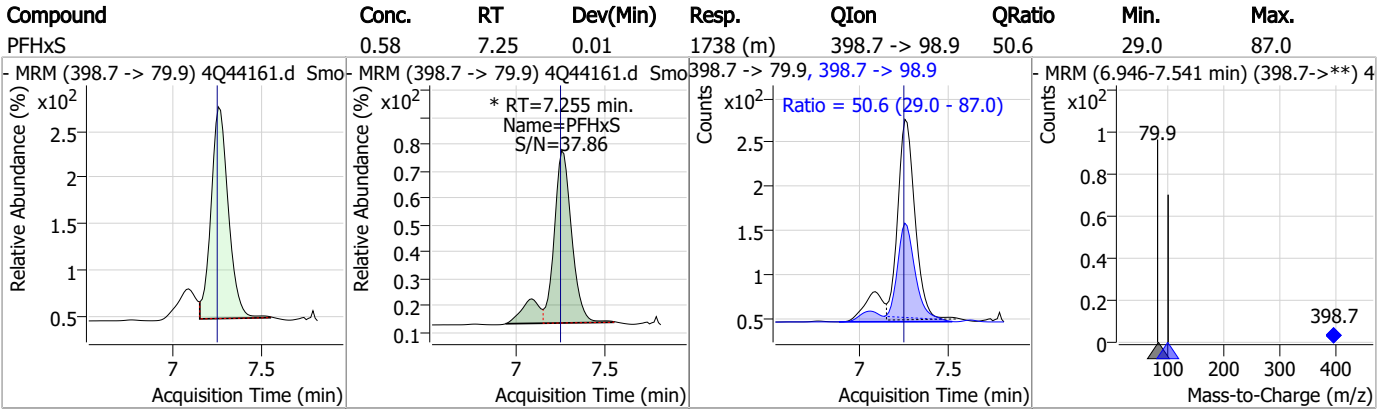
Perfluorinated Compounds by LC/MS/MS



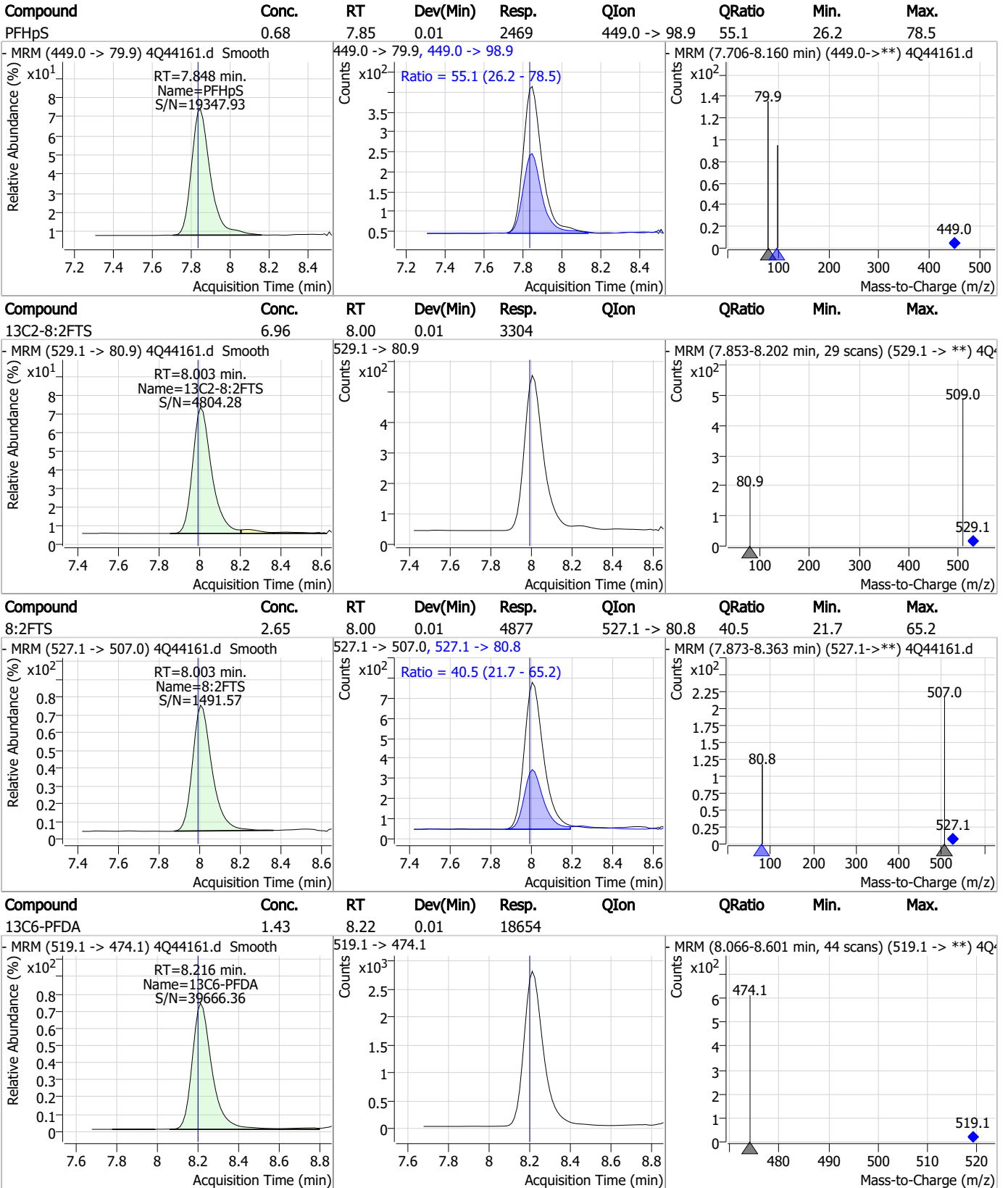
7.3.2
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

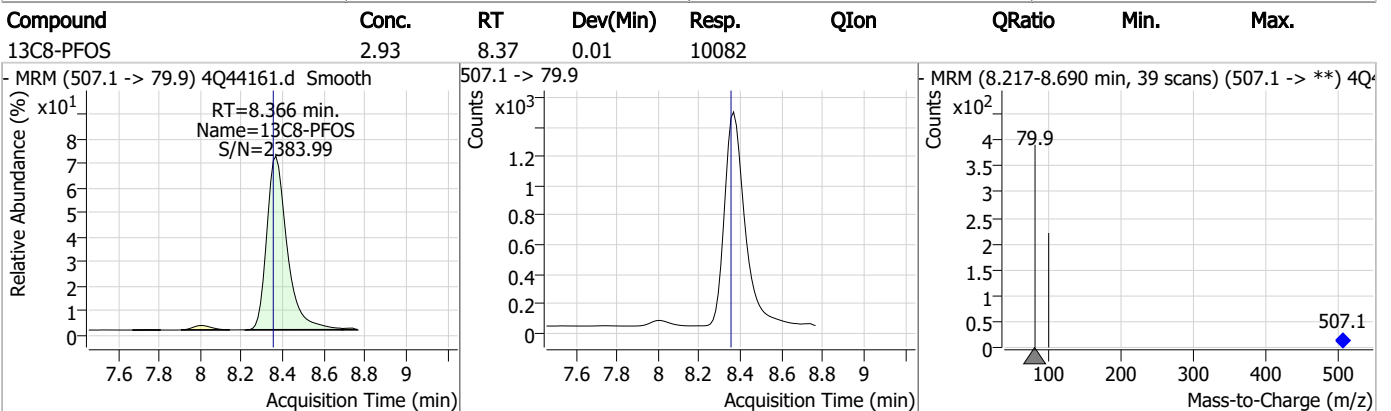
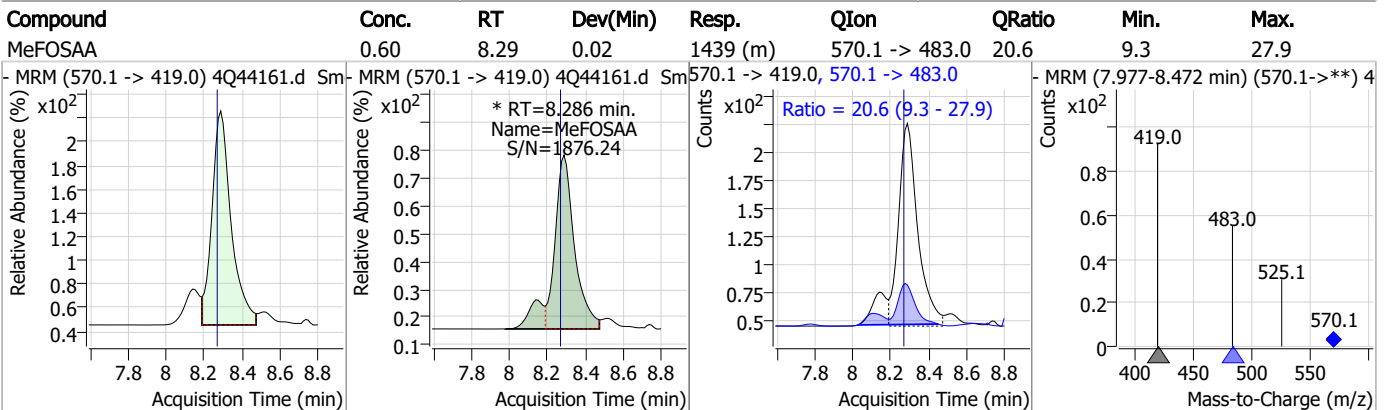
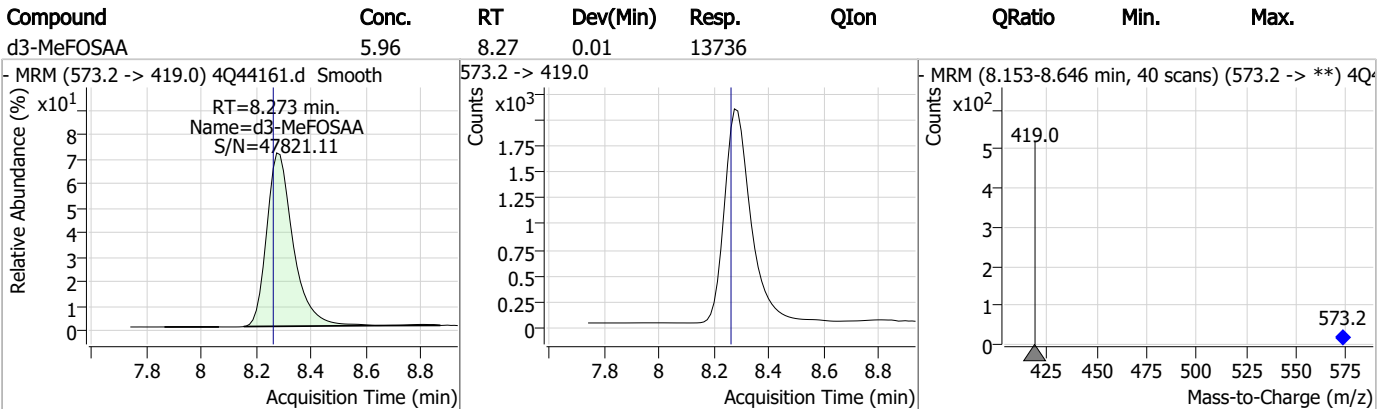
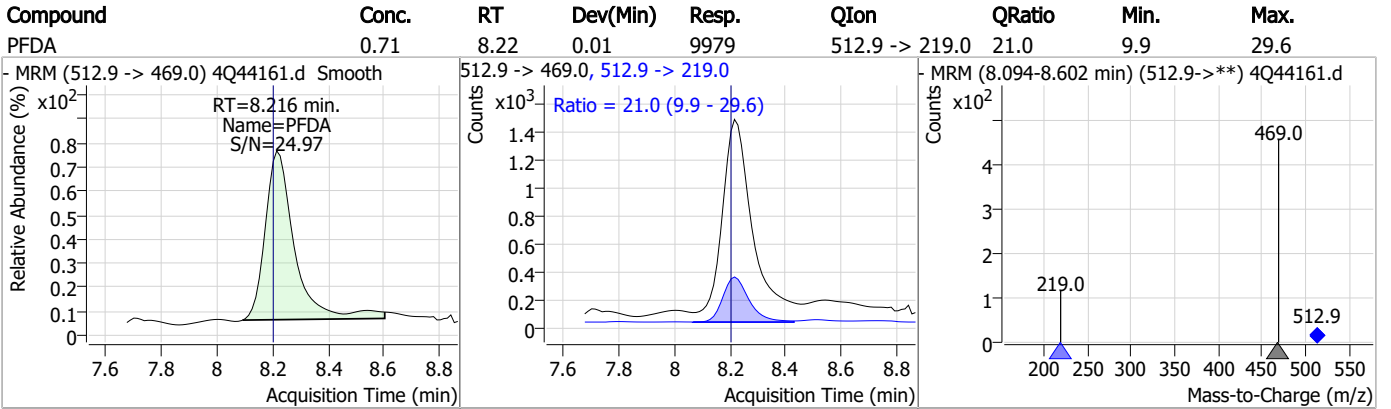


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Perfluorinated Compounds by LC/MS/MS

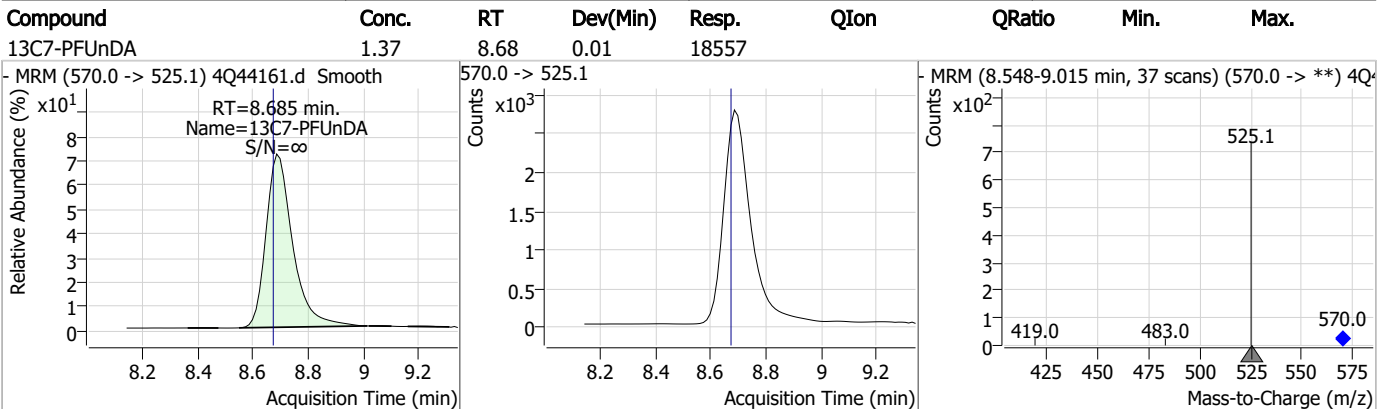
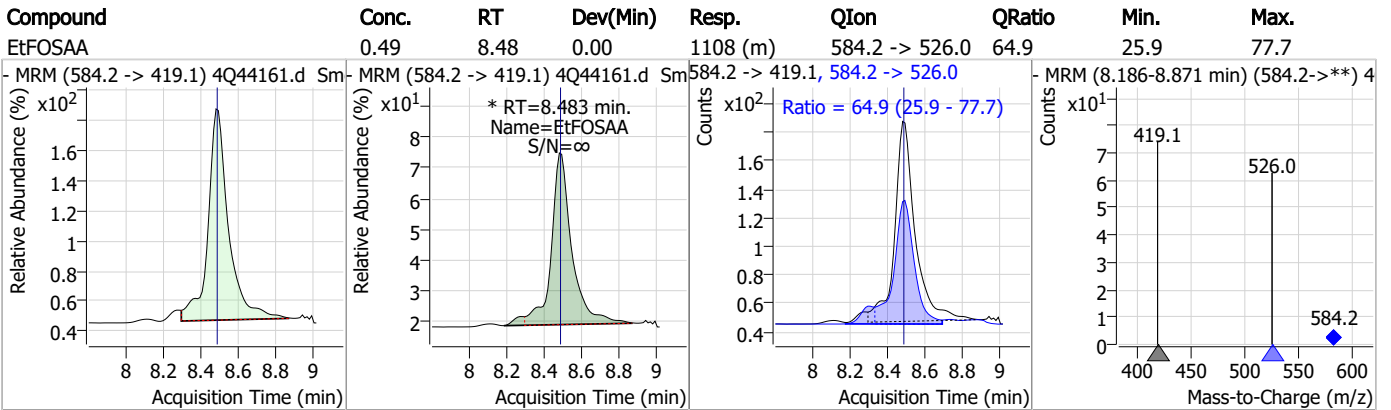
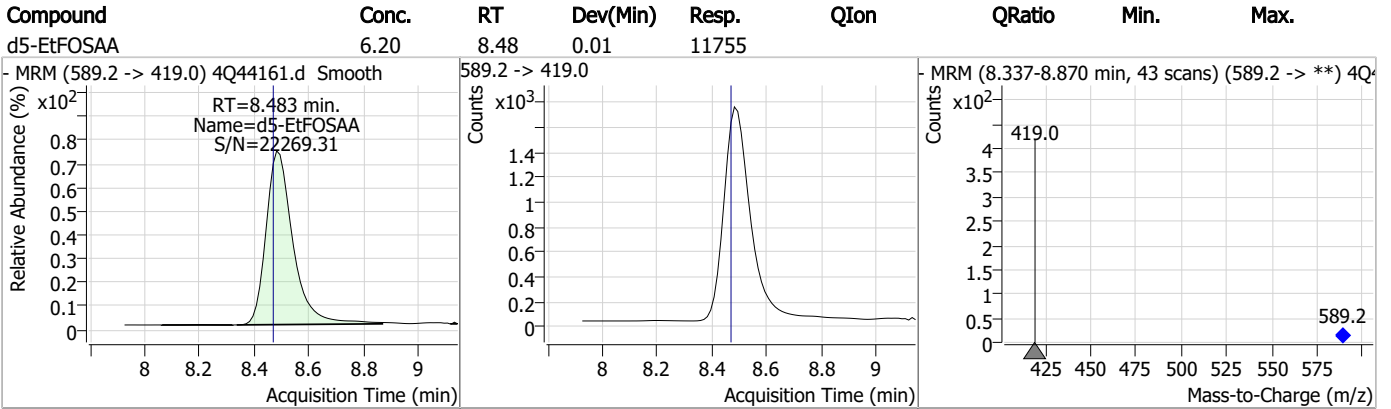
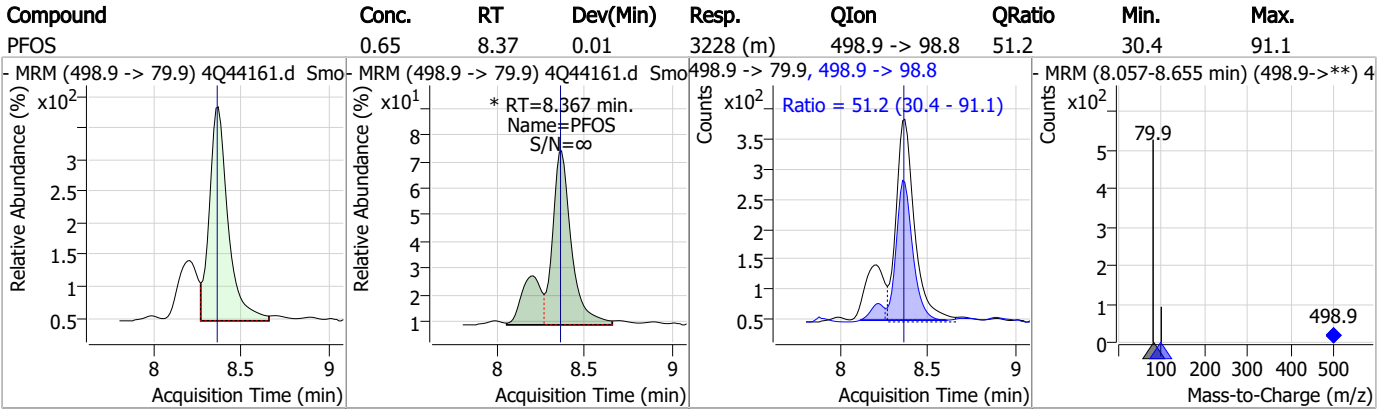


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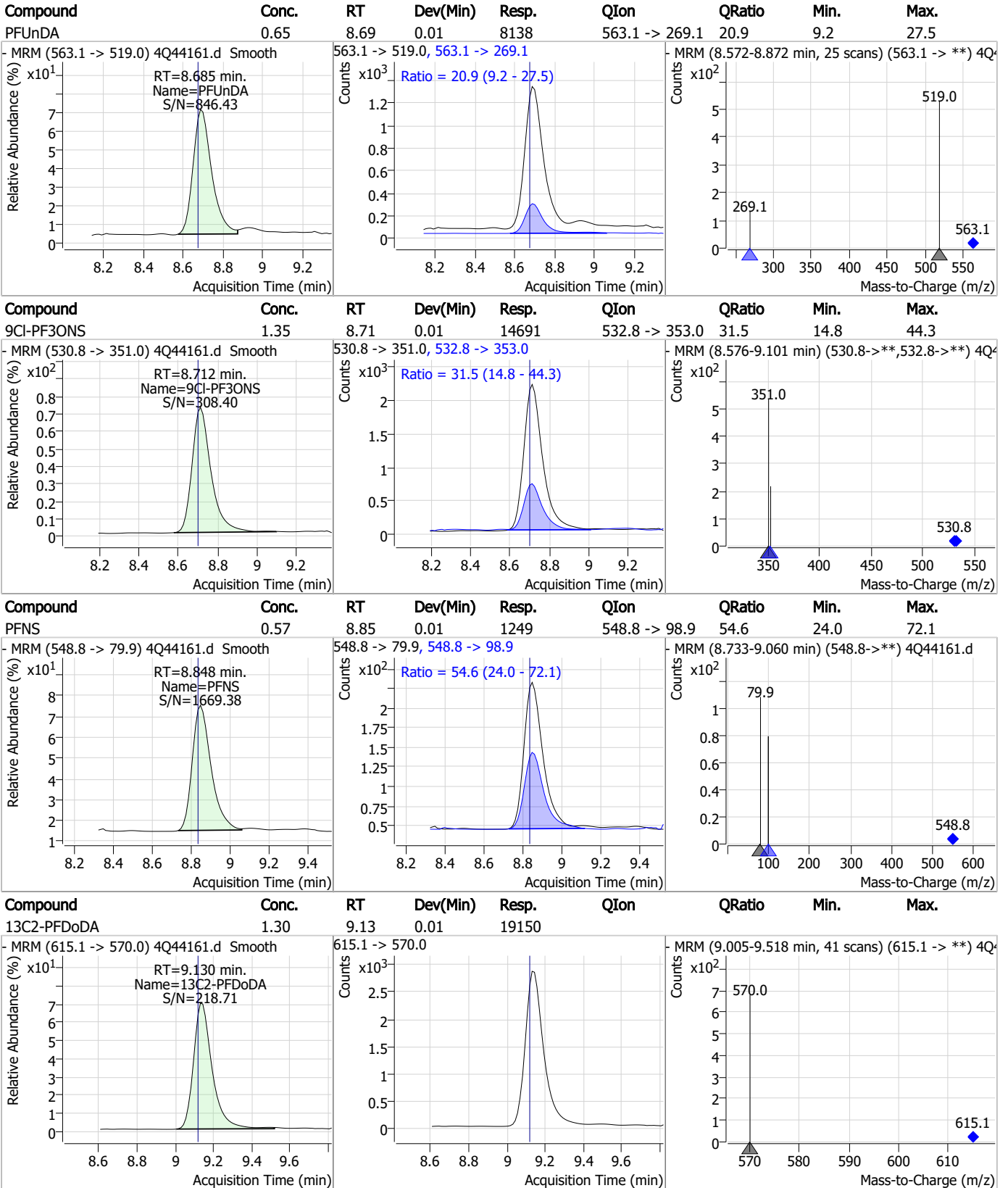
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

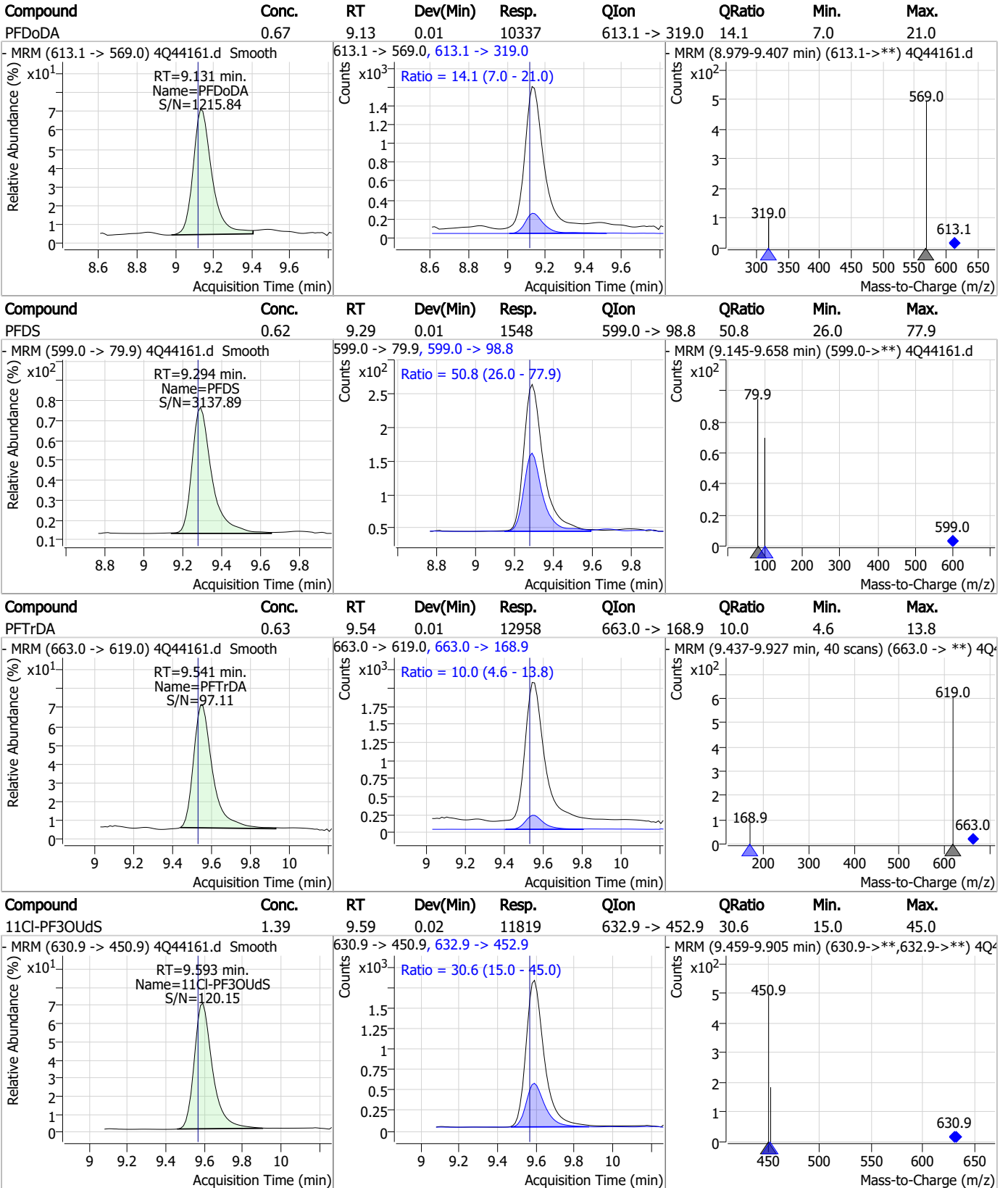


7.3.2

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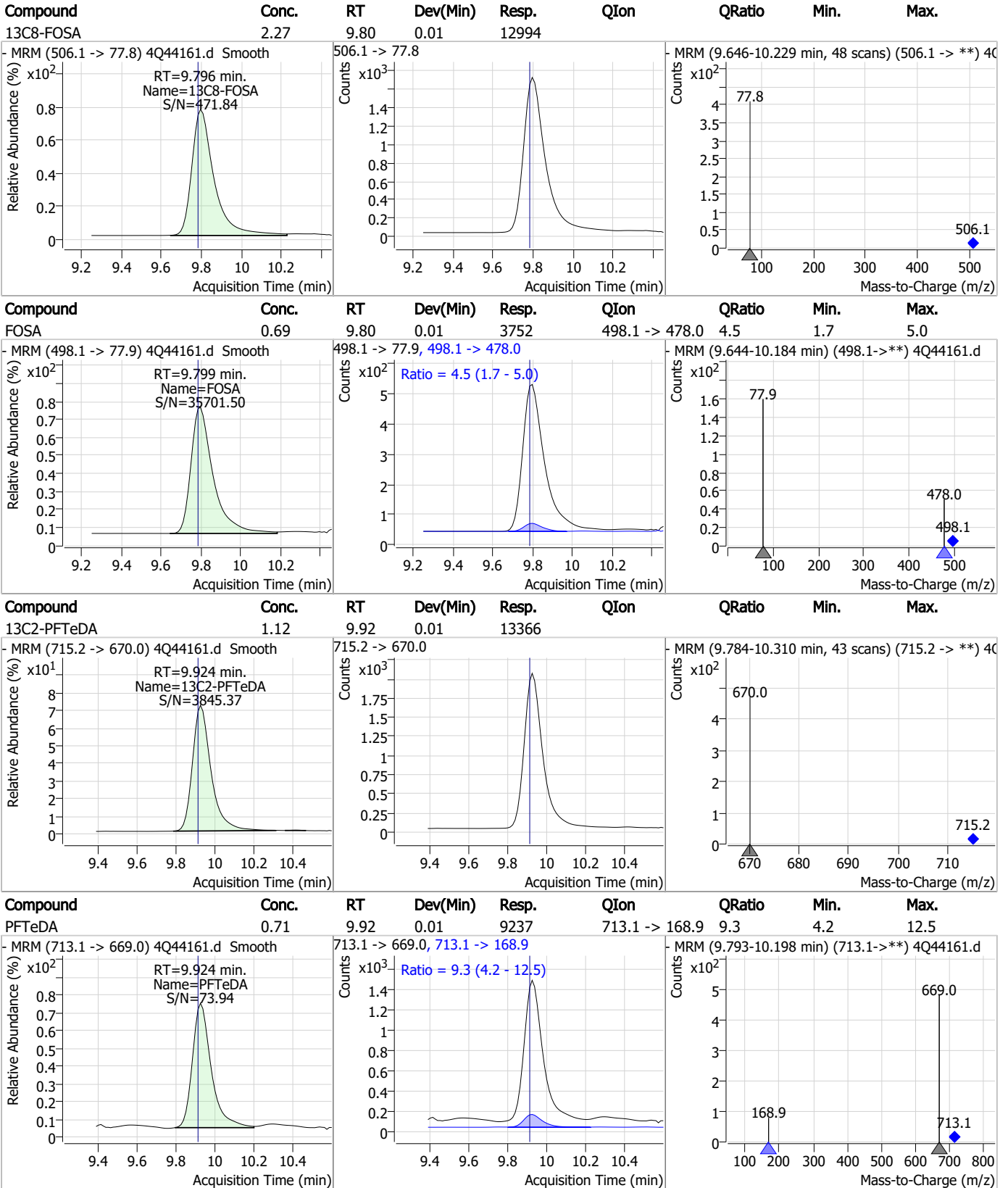
Perfluorinated Compounds by LC/MS/MS



7.3.2

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Perfluorinated Compounds by LC/MS/MS

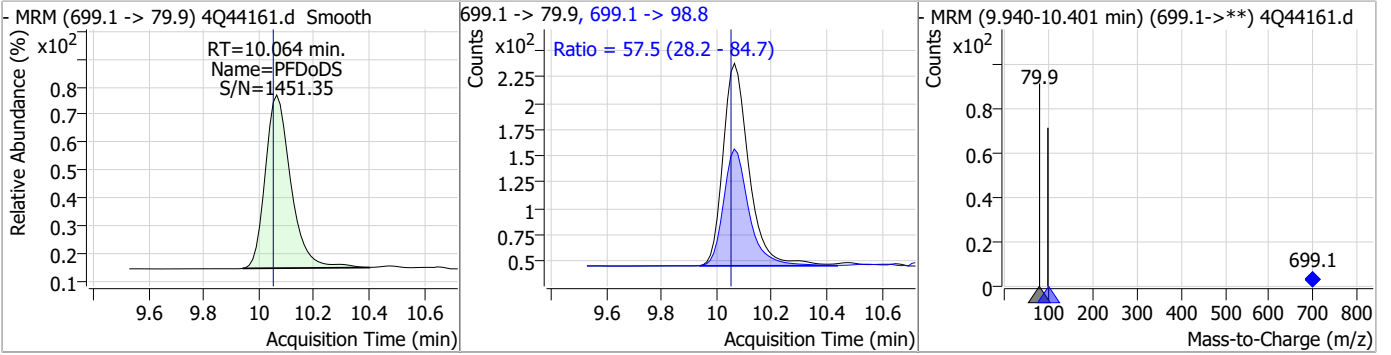


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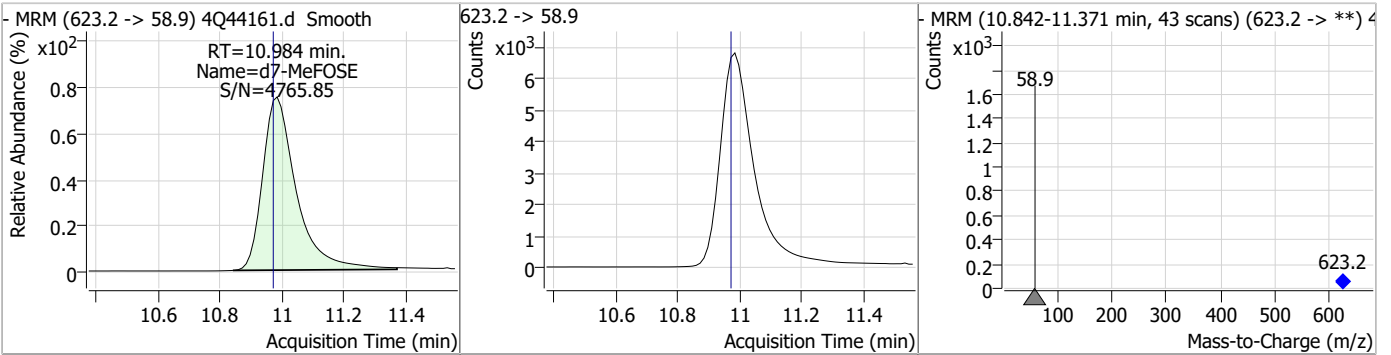
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Perfluorinated Compounds by LC/MS/MS

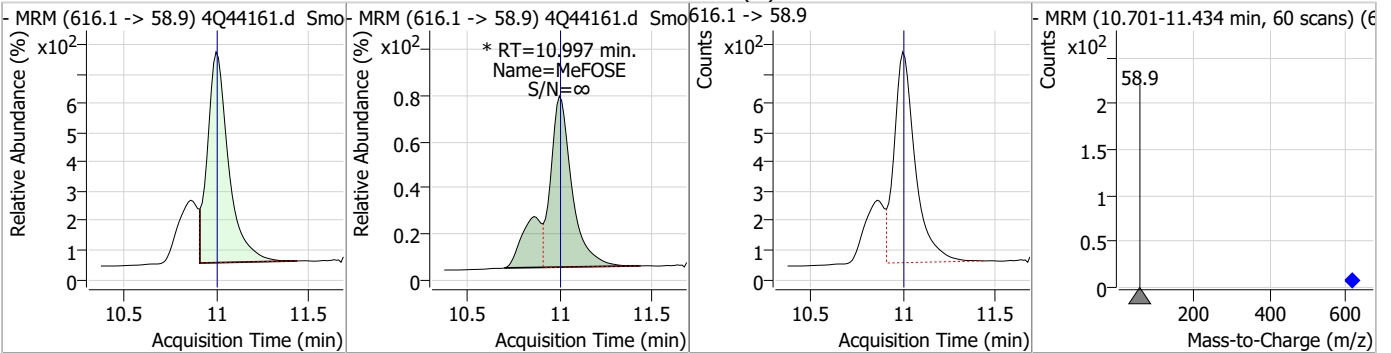
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.55	10.06	0.01	1236	699.1 -> 98.8	57.5	28.2	84.7



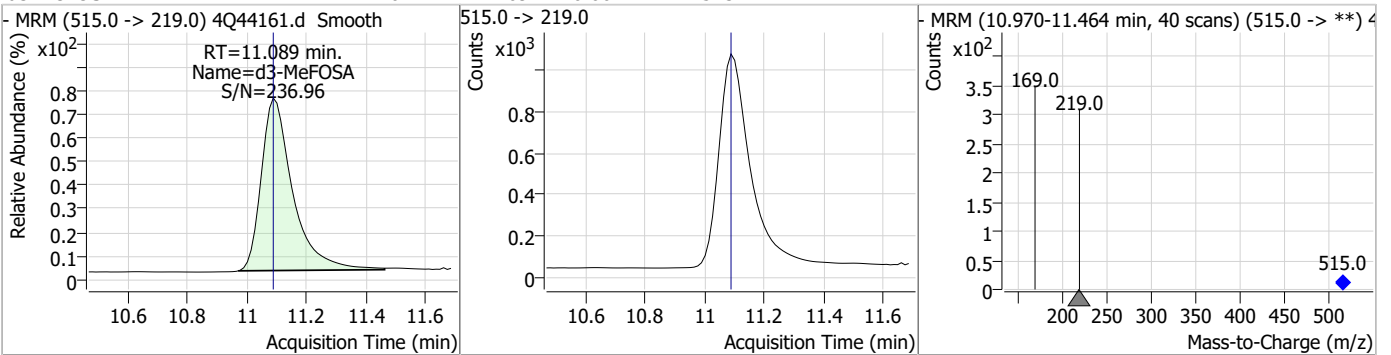
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	17.90	10.98	0.01	50835				



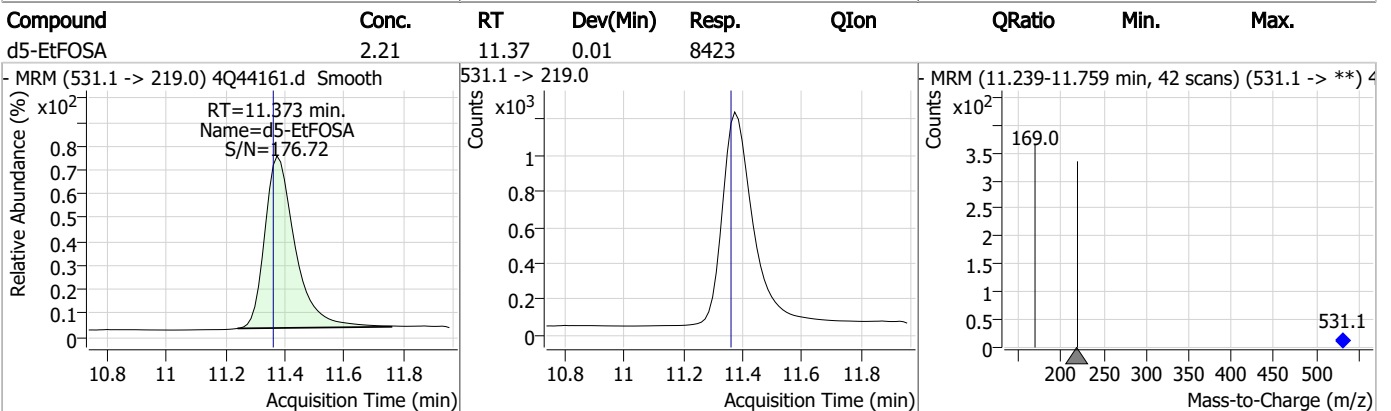
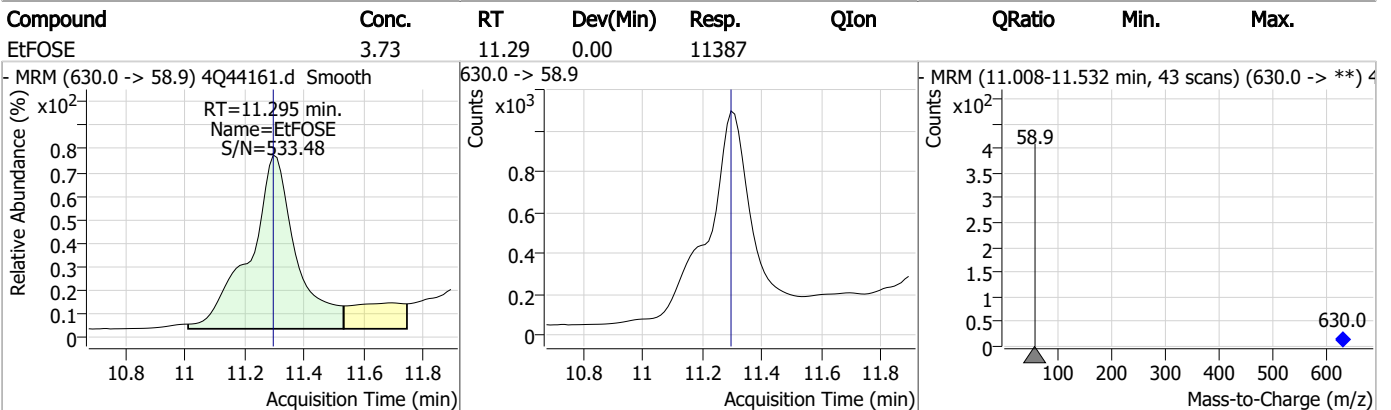
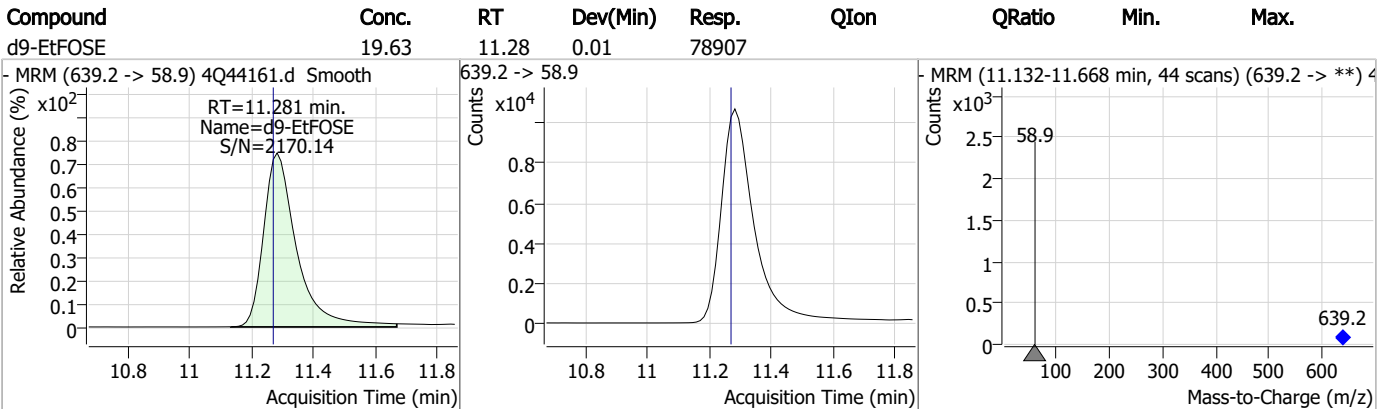
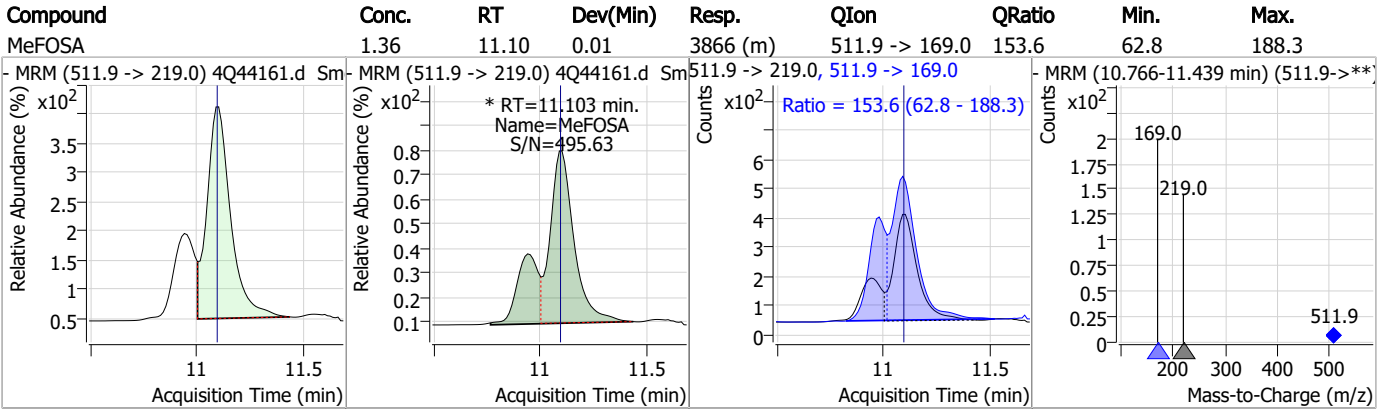
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.49	11.00	0.00	7282 (m)				



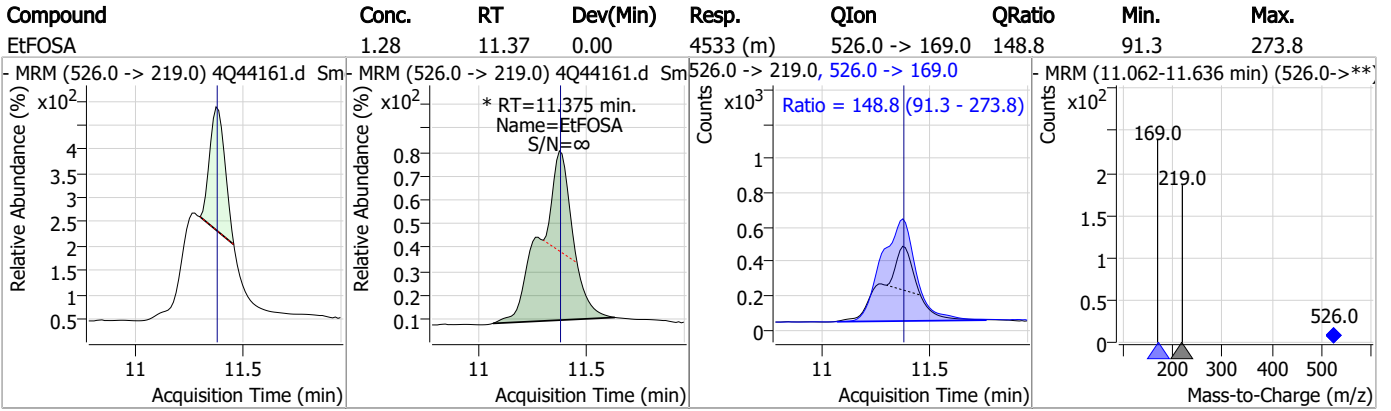
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.10	11.09	0.00	7523				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Manual Integration Approval Summary

Sample Number: OP96747-LLBS
Lab FileID: 4Q44161.D
Injection Time: 05/09/23 20:13

Method: EPA DRAFT 1633
Analyst approved: 05/10/23 11:10 Martha Valls
Supervisor approved: 05/10/23 17:27 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
MeFOSAA	2355-31-9		8.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44168.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 9:52:21 PM
 Sample Name : op96747-ms
 Vial : P3-C3
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96747,S4Q639,560,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	3784	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	13638	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	40335	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	27988	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	43553	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	23497	1.25 µg/L	0.012
M6-PFDA	8.203	519.1 -> 474.1	20997	1.25 µg/L	0.000
M7-PFUnDA	8.685	570.0 -> 525.1	20415	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	19009	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	8246	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	13711	2.50 µg/L	0.000
M3-PFBS	5.464	302.1 -> 79.9	9837	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7009	2.50 µg/L	0.012
M8-PFOS	8.341	507.1 -> 79.9	8968	2.50 µg/L	-0.012
M2-4:2FTS	5.260	329.1 -> 80.9	1176	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	1917	5.00 µg/L	0.013
M2-8:2FTS	7.990	529.1 -> 80.9	3047	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	16307	5.00 µg/L	0.000
M3-HFPO-DA	5.927	286.9 -> 168.9	19518	10.00 µg/L	0.012
M5-EtFOSAA	8.470	589.2 -> 419.0	15329	5.00 µg/L	0.000
M7-MeFOSE	10.972	623.2 -> 58.9	47871	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	68159	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9622	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	8639	2.50 µg/L	0.000
13C4-PFOS	8.342	502.8 -> 79.9	8282	2.50 µg/L	-0.012
13C3-PFBA	2.928	216.0 -> 172.0	63257	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4859	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	50036	2.50 µg/L	0.014
13C2-PFDA	8.204	515.1 -> 470.1	19024	1.25 µg/L	0.000
13C5-PFNA	7.709	468.0 -> 423.0	24678	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	41940	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.260	329.1 -> 80.9	1176	5.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-6:2FTS	6.936	429.1 -> 80.9	1917	5.38 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-8:2FTS	7.990	529.1 -> 80.9	3047	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-PFDoDA	9.130	615.1 -> 570.0	19009	1.03 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.5%		
13C2-PFTeDA	9.924	715.2 -> 670.0	8246	0.55 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 44.0%		
13C3-PFBS	5.464	302.1 -> 79.9	9837	2.15 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.9%		
13C3-PFHxS	7.254	402.1 -> 79.9	7009	2.33 µg/L	0.012

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C4-PFBA	2.924	216.8 -> 171.9	3784	0.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 3.2%		
13C4-PFHpA	6.492	367.1 -> 322.0	27988	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C5-PFHxA	5.559	318.0 -> 273.0	40335	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 87.3%		
13C5-PFPeA	4.387	268.3 -> 223.0	13638	1.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 21.1%		
13C6-PFDA	8.203	519.1 -> 474.1	20997	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C7-PFUnDA	8.685	570.0 -> 525.1	20415	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C8-FOSA	9.783	506.1 -> 77.8	13711	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C8-PFOA	7.163	421.1 -> 376.0	43553	2.65 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C8-PFOS	8.341	507.1 -> 79.9	8968	2.88 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C9-PFNA	7.709	472.1 -> 427.0	23497	1.40 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.1%		
d3-MeFOSAA	8.261	573.2 -> 419.0	16307	7.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 156.0%		
13C3-HFPO-DA	5.927	286.9 -> 168.9	19518	7.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 70.7%		
d3-MeFOSA	11.089	515.0 -> 219.0	8639	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.4%		
d5-EtFOSAA	8.470	589.2 -> 419.0	15329	8.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 178.1%		
d7-MeFOSE	10.972	623.2 -> 58.9	47871	18.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 74.3%		
d9-EtFOSE	11.269	639.2 -> 58.9	68159	18.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 74.7%		
d5-EtFOSA	11.373	531.1 -> 219.0	9622	2.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.5%		
Target Compounds					QValue
4:2FTS	5.260	327.1 -> 307.0	17379	9.19 µg/L	98
		327.1 -> 80.9	7103		
6:2FTS	6.936	427.1 -> 407.0	17611	9.51 µg/L	94
		427.1 -> 80.9	6906		
8:2FTS	7.991	527.1 -> 507.0	17672	10.40 µg/L	91
		527.1 -> 80.8	6664		
EtFOSAA	8.471	584.2 -> 419.1	6506	2.21 µg/L	m 99
		584.2 -> 526.0	3309		
FOSA	9.786	498.1 -> 77.9	13679	2.38 µg/L	98
		498.1 -> 478.0	371		
MeFOSAA	8.262	570.1 -> 419.0	6884	2.42 µg/L	96
		570.1 -> 483.0	1397		
PFBA	2.932	212.8 -> 168.9	826	8.16 µg/L	100
PFBS	5.465	298.7 -> 79.9	8292	2.05 µg/L	96
		298.7 -> 98.8	3180		
PFDA	8.204	512.9 -> 469.0	35842	2.25 µg/L	99
		512.9 -> 219.0	7146		
PFDoDA	9.131	613.1 -> 569.0	35968	2.36 µg/L	98
		613.1 -> 319.0	4692		
PFDS	9.282	599.0 -> 79.9	4347	1.96 µg/L	86

7.4.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1819			
PFHpA	6.492	363.1 -> 319.0	40410	2.28	µg/L	99
		363.1 -> 169.0	7027			
PFHpS	7.836	449.0 -> 79.9	8610	2.67	µg/L	94
		449.0 -> 98.9	4162			
PFHxA	5.562	313.0 -> 269.0	34775	2.20	µg/L	98
		313.0 -> 118.9	1253			
PFHxS	7.255	398.7 -> 79.9	6146	2.14	µg/L	m 96
		398.7 -> 98.9	3371			
PFNA	7.709	463.0 -> 419.0	36157	2.08	µg/L	98
		463.0 -> 219.0	8810			
PFNS	8.836	548.8 -> 79.9	3712	1.90	µg/L	87
		548.8 -> 98.9	2104			
PFOA	7.164	413.0 -> 369.0	54202	2.16	µg/L	98
		413.0 -> 169.0	11052			
PFOS	8.343	498.9 -> 79.9	9596	2.19	µg/L	m 91
		498.9 -> 98.8	5135			
PFPeA	4.389	263.0 -> 219.0	14531	4.43	µg/L	100
PFPeS	6.531	349.1 -> 79.9	5275	2.14	µg/L	99
		349.1 -> 98.9	2422			
PFTeDA	9.912	713.1 -> 669.0	18167	2.25	µg/L	98
		713.1 -> 168.9	1611			
PFTrDA	9.541	663.0 -> 619.0	34786	1.71	µg/L	97
		663.0 -> 168.9	3545			
PFUnDA	8.685	563.1 -> 519.0	32551	2.35	µg/L	97
		563.1 -> 269.1	6445			
11CI-PF3OUdS	9.581	630.9 -> 450.9	29157	4.15	µg/L	99
		632.9 -> 452.9	8871			
9CI-PF3ONS	8.700	530.8 -> 351.0	53073	5.94	µg/L	99
		532.8 -> 353.0	15980			
ADONA	6.756	376.9 -> 250.9	121408	6.19	µg/L	99
		376.9 -> 84.8	32960			
HFPO-DA	5.928	284.9 -> 168.9	8800	4.72	µg/L	97
		284.9 -> 184.9	1027			
3:3FTCA	3.879	241.0 -> 177.0	286	1.98	µg/L	88
		241.0 -> 117.0	14			
5:3FTCA	6.231	341.0 -> 237.1	148853	69.42	µg/L	98
		341.0 -> 217.0	99686			
7:3FTCA	7.673	441.0 -> 316.9	90277	81.02	µg/L	95
		441.0 -> 336.9	219686			
EtFOSA	11.375	526.0 -> 219.0	18292	4.54	µg/L	68
		526.0 -> 169.0	25136			
EtFOSE	11.295	630.0 -> 58.9	30842	11.69	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	15462	4.75	µg/L	m 79
		511.9 -> 169.0	23084			
MeFOSE	10.997	616.1 -> 58.9	22168	11.27	µg/L	m 100
PFDoDS	10.052	699.1 -> 79.9	2133	1.08	µg/L	92
		699.1 -> 98.8	1323			
NFDHA	5.453	295.0 -> 201.0	3058	2.71	µg/L	97
		295.0 -> 84.9	763			
PFMBA	4.803	279.0 -> 85.1	13814	7.54	µg/L	100
PFMPA	3.540	229.0 -> 84.9	2071	1.21	µg/L	100
PFEESA	5.997	314.8 -> 134.9	51540	4.31	µg/L	99
		314.8 -> 82.9	1751			

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

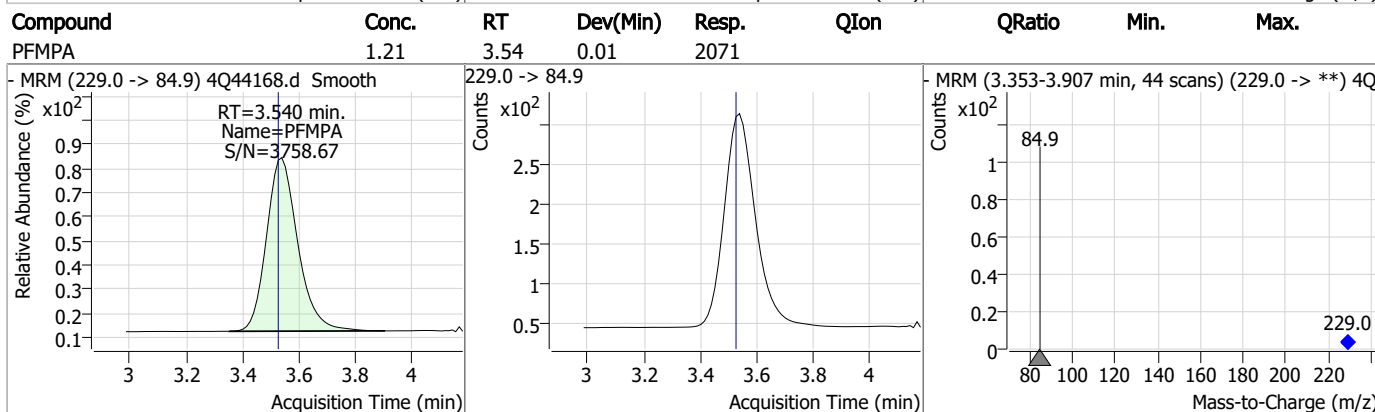
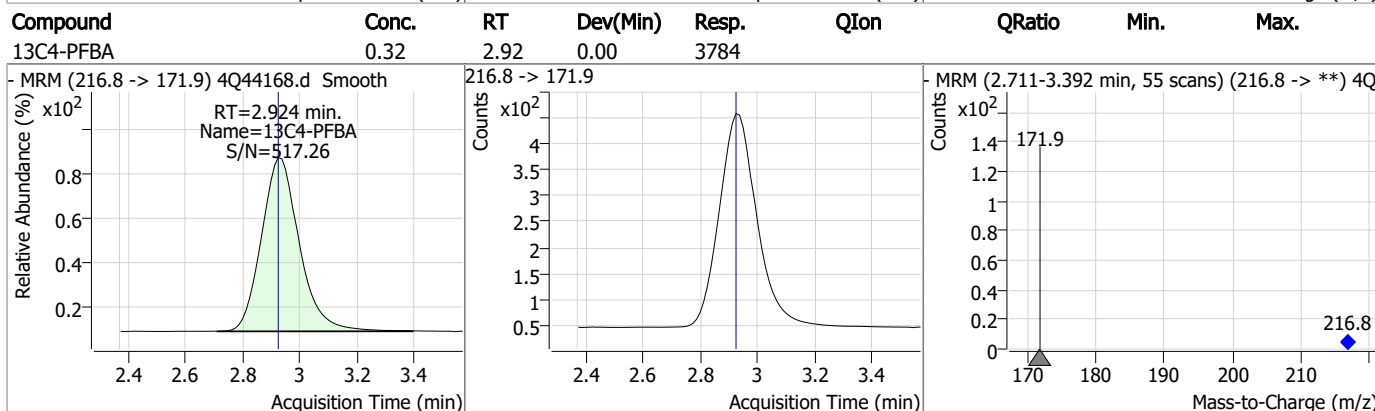
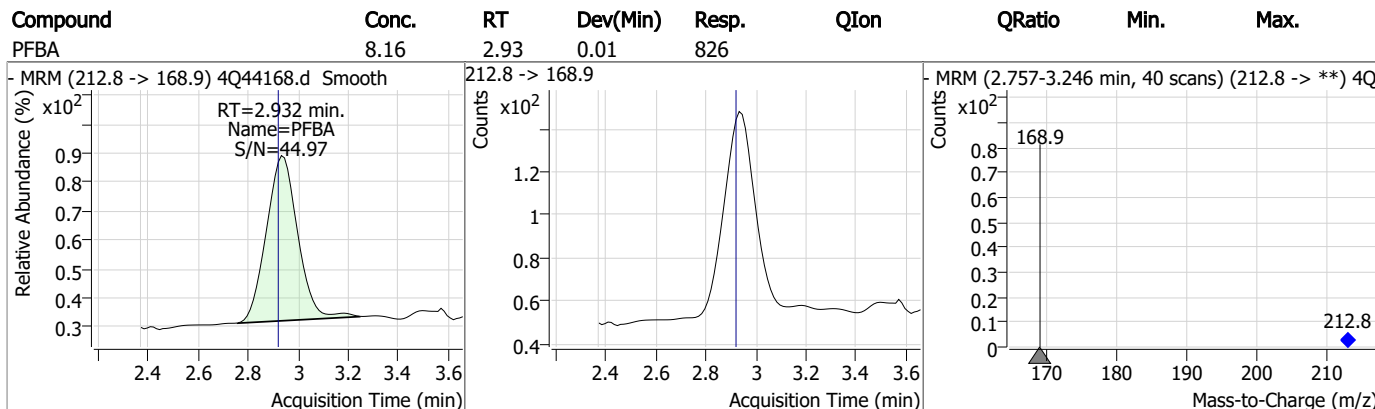
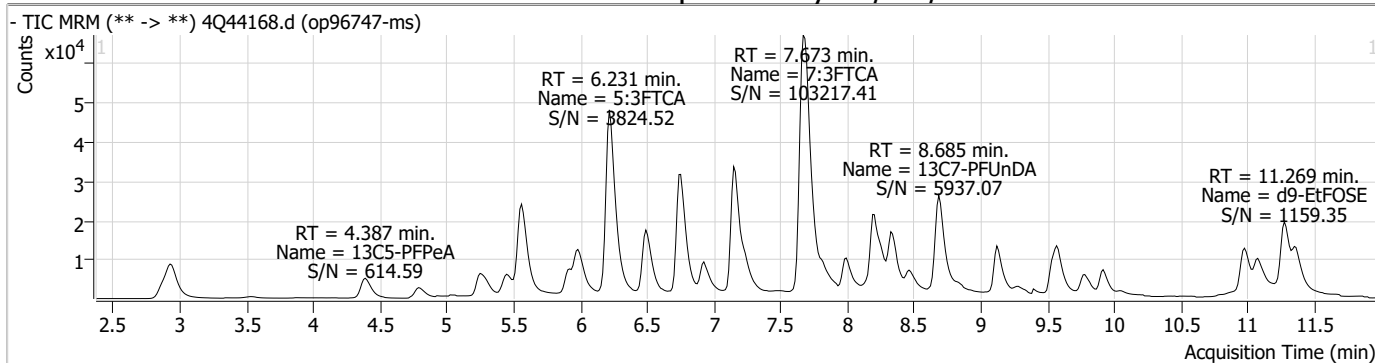
Perfluorinated Compounds by LC/MS/MS

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

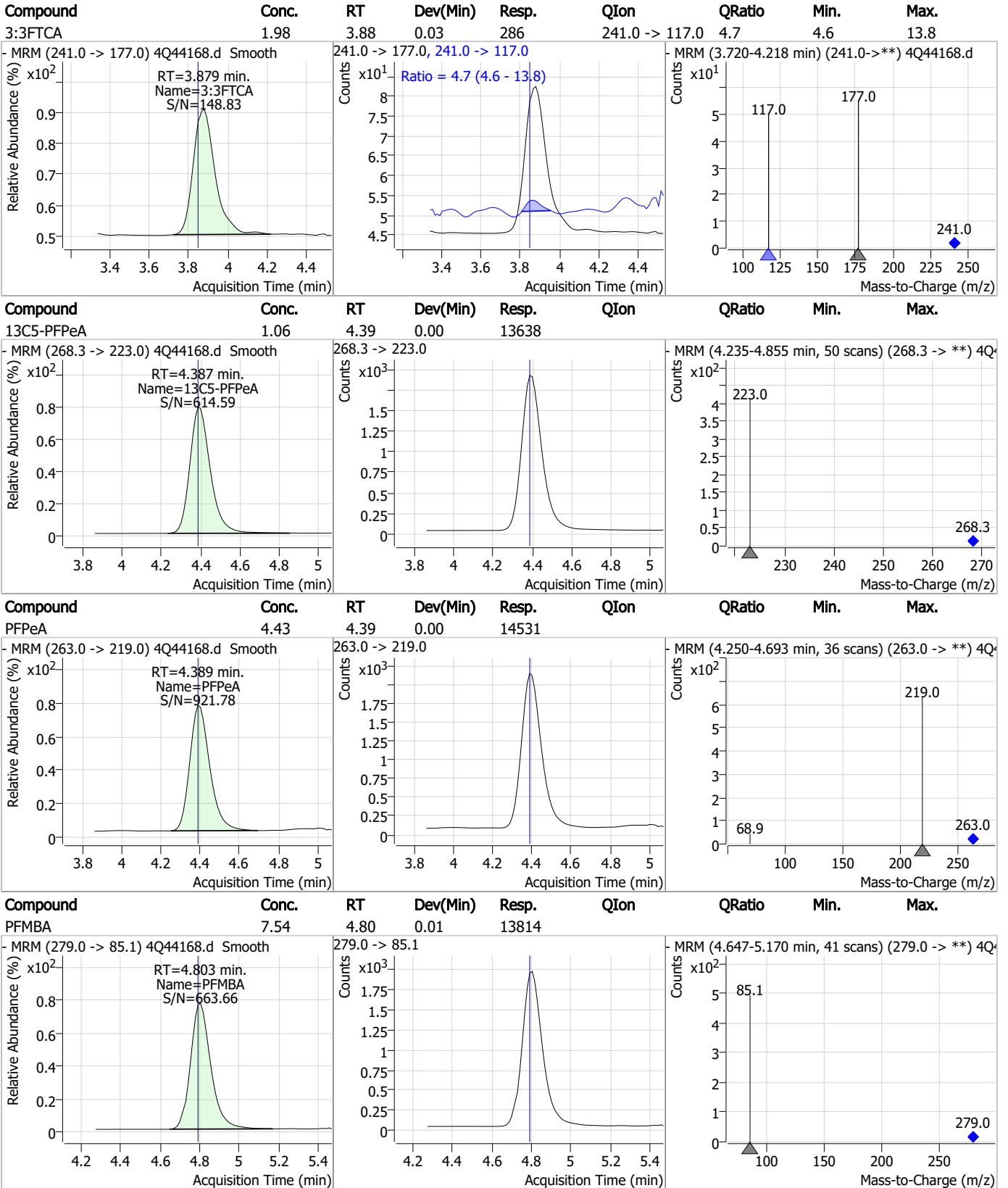
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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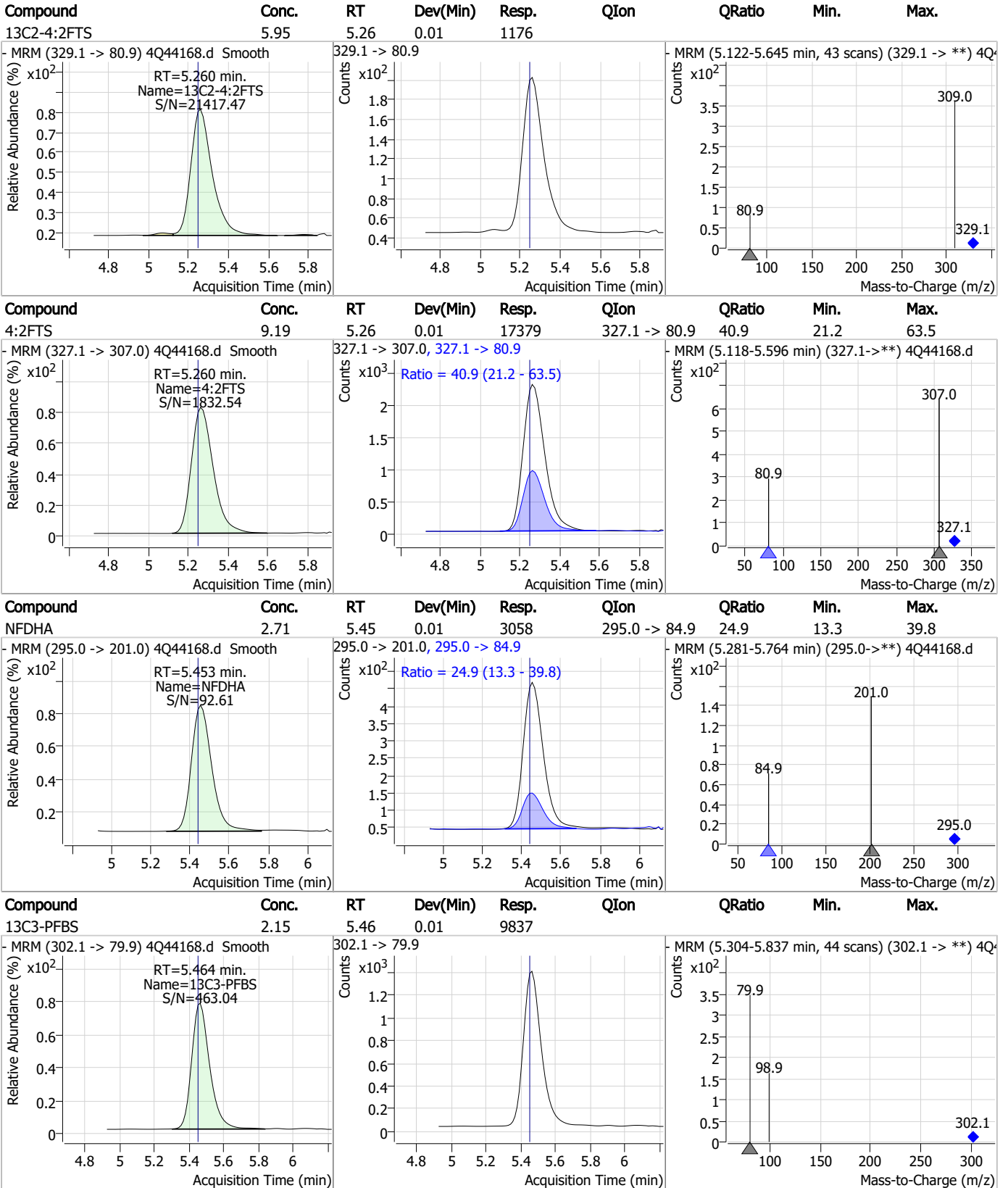
Perfluorinated Compounds by LC/MS/MS



7.4.1

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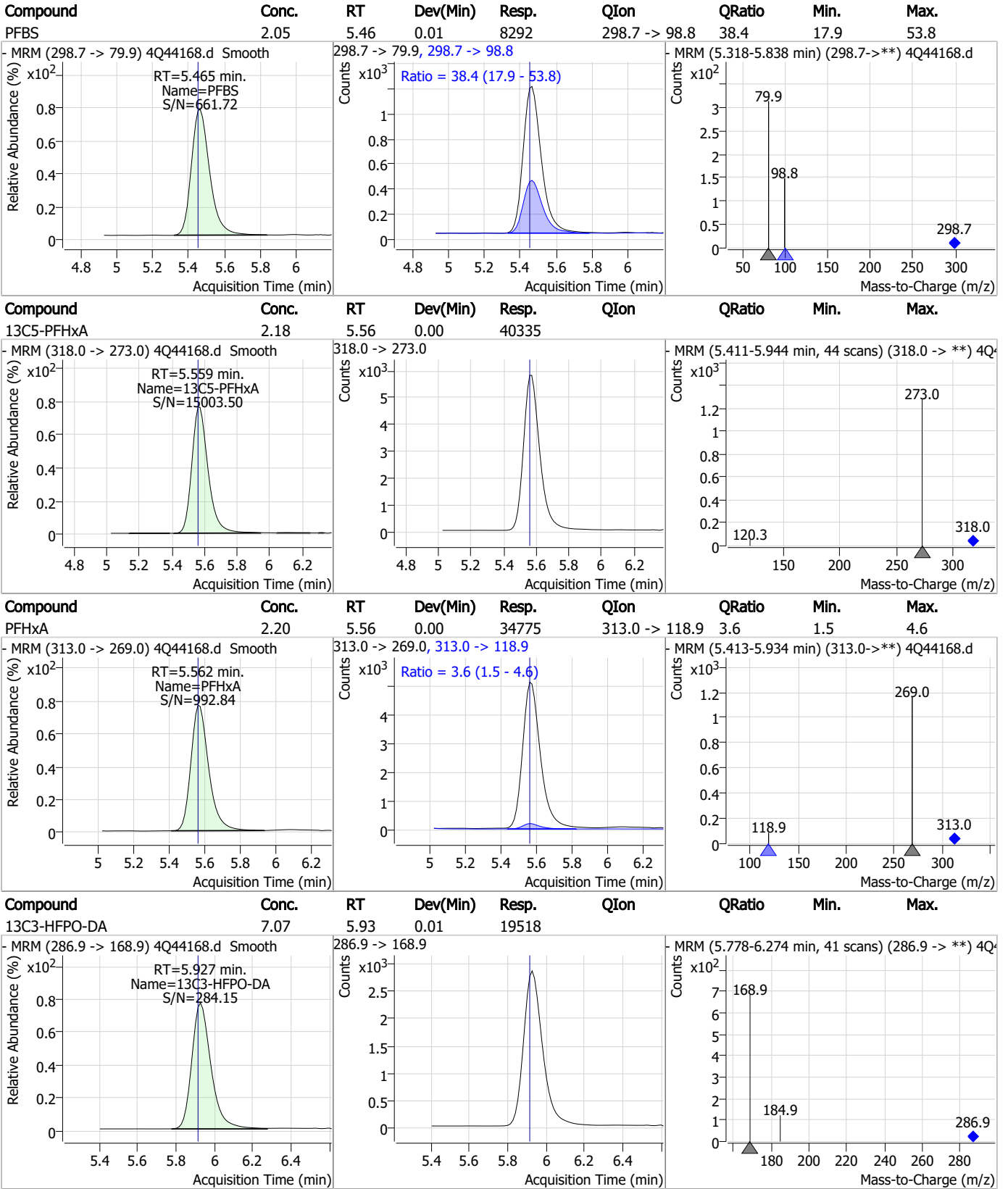
Perfluorinated Compounds by LC/MS/MS



7.4.1

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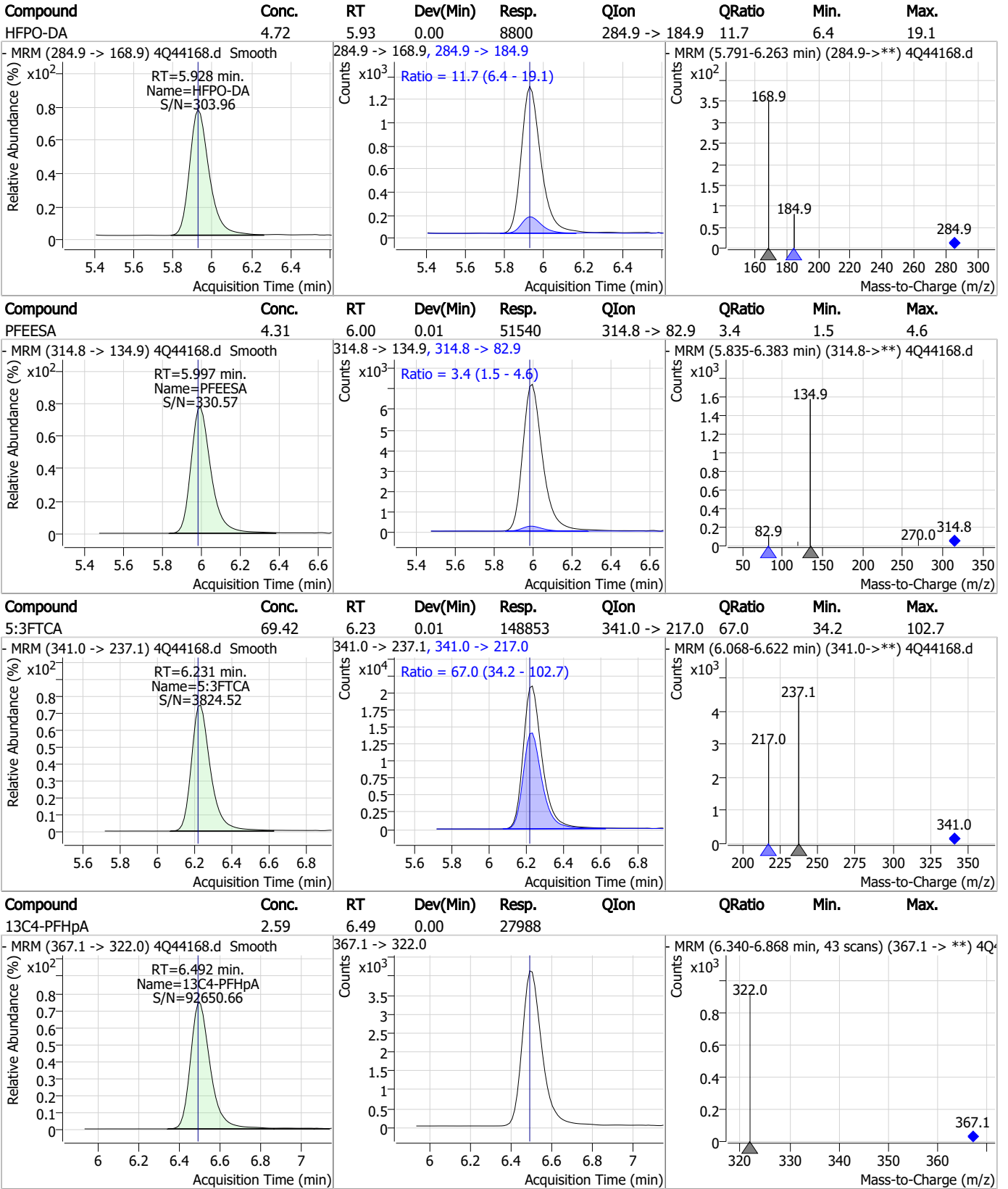
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS

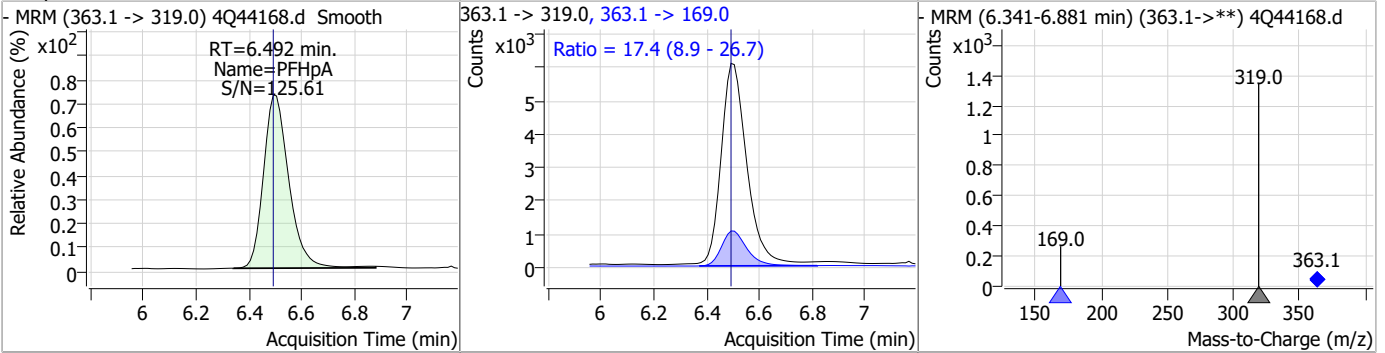


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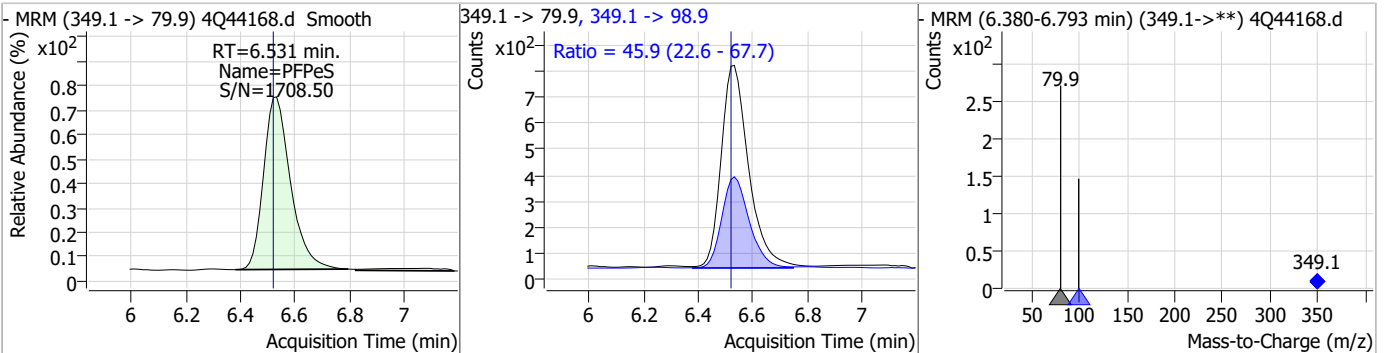
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Perfluorinated Compounds by LC/MS/MS

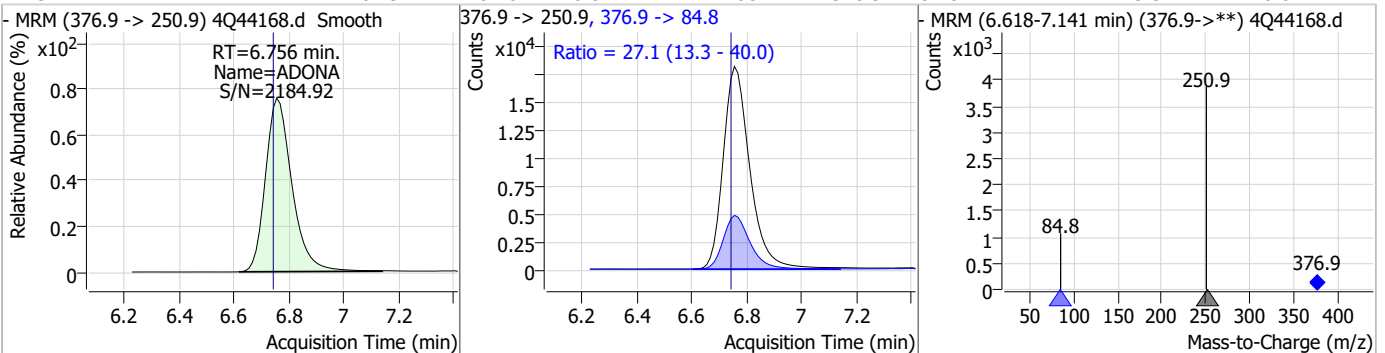
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.28	6.49	0.00	40410	363.1 -> 169.0	17.4	8.9	26.7



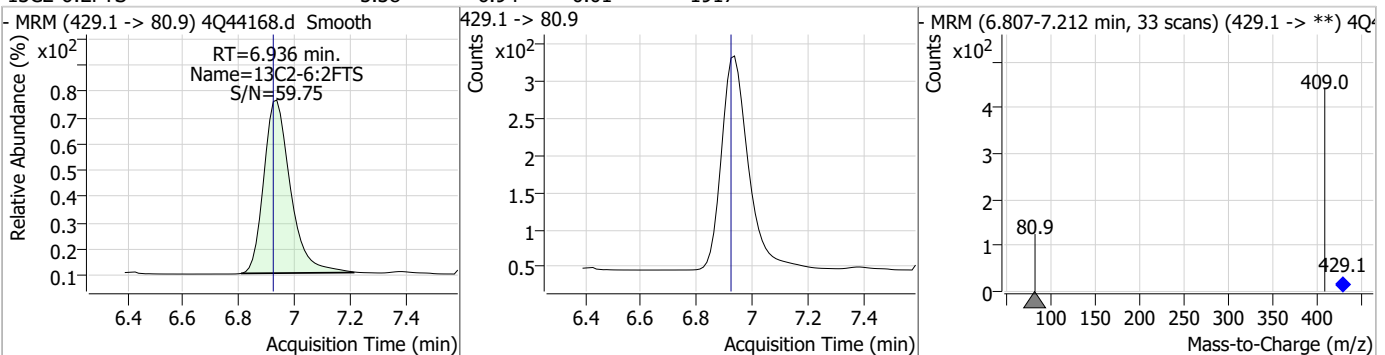
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.14	6.53	0.01	5275	349.1 -> 98.9	45.9	22.6	67.7



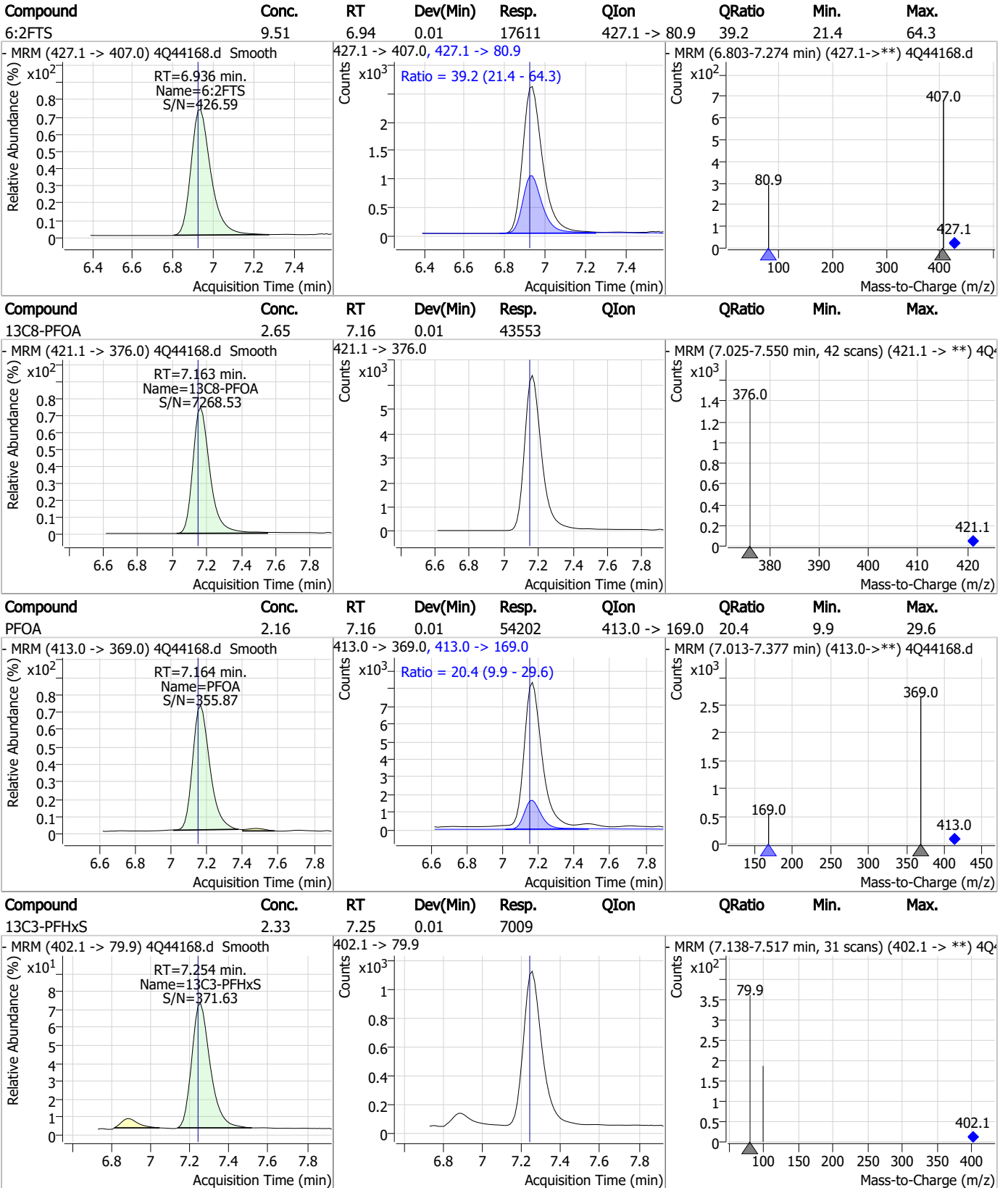
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	6.19	6.76	0.01	121408	376.9 -> 84.8	27.1	13.3	40.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.38	6.94	0.01	1917	429.1 -> 80.9			



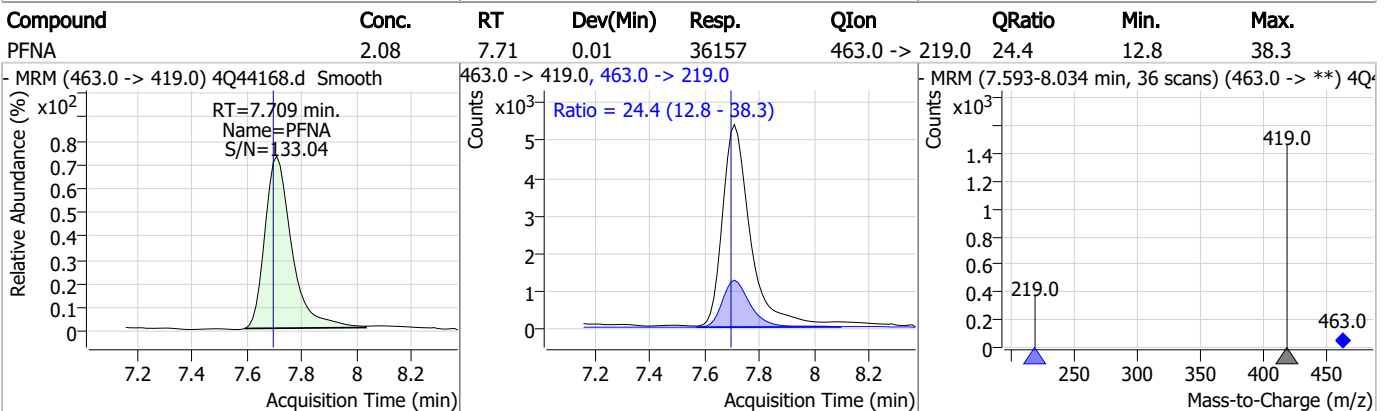
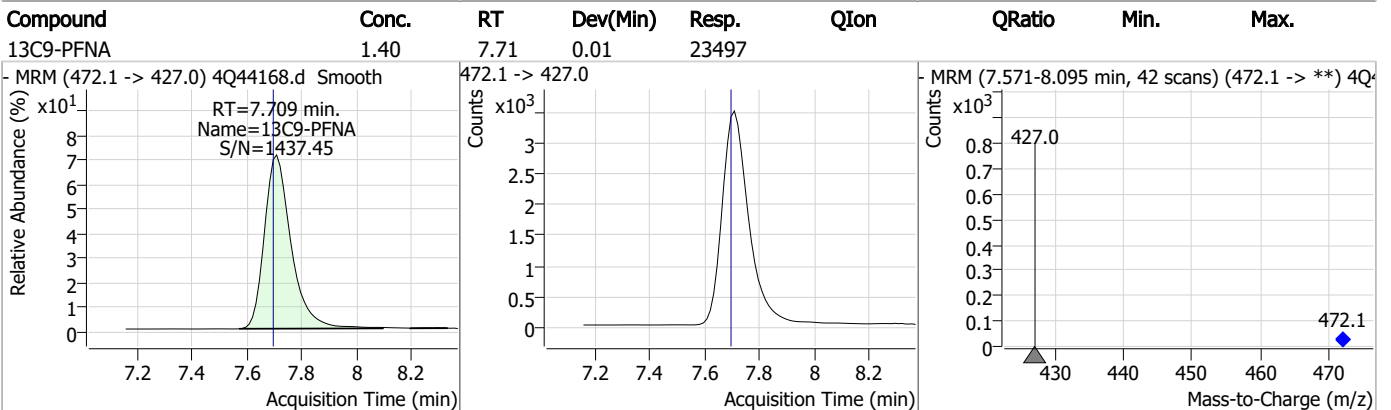
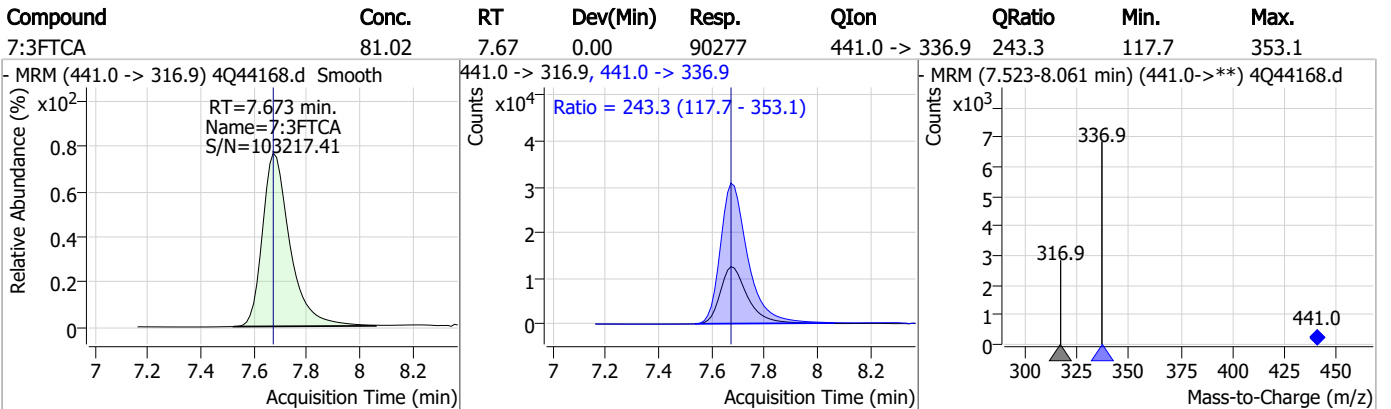
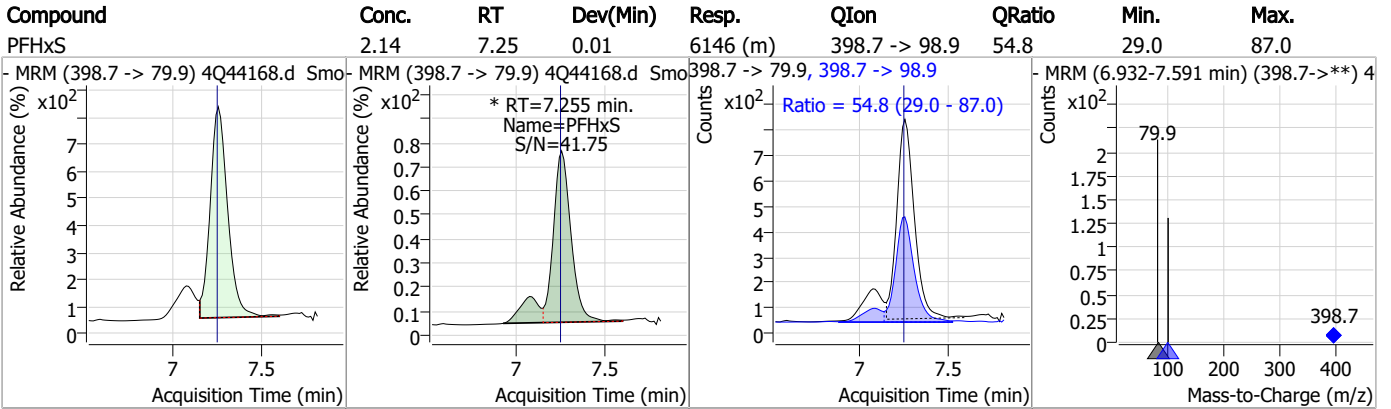
Perfluorinated Compounds by LC/MS/MS



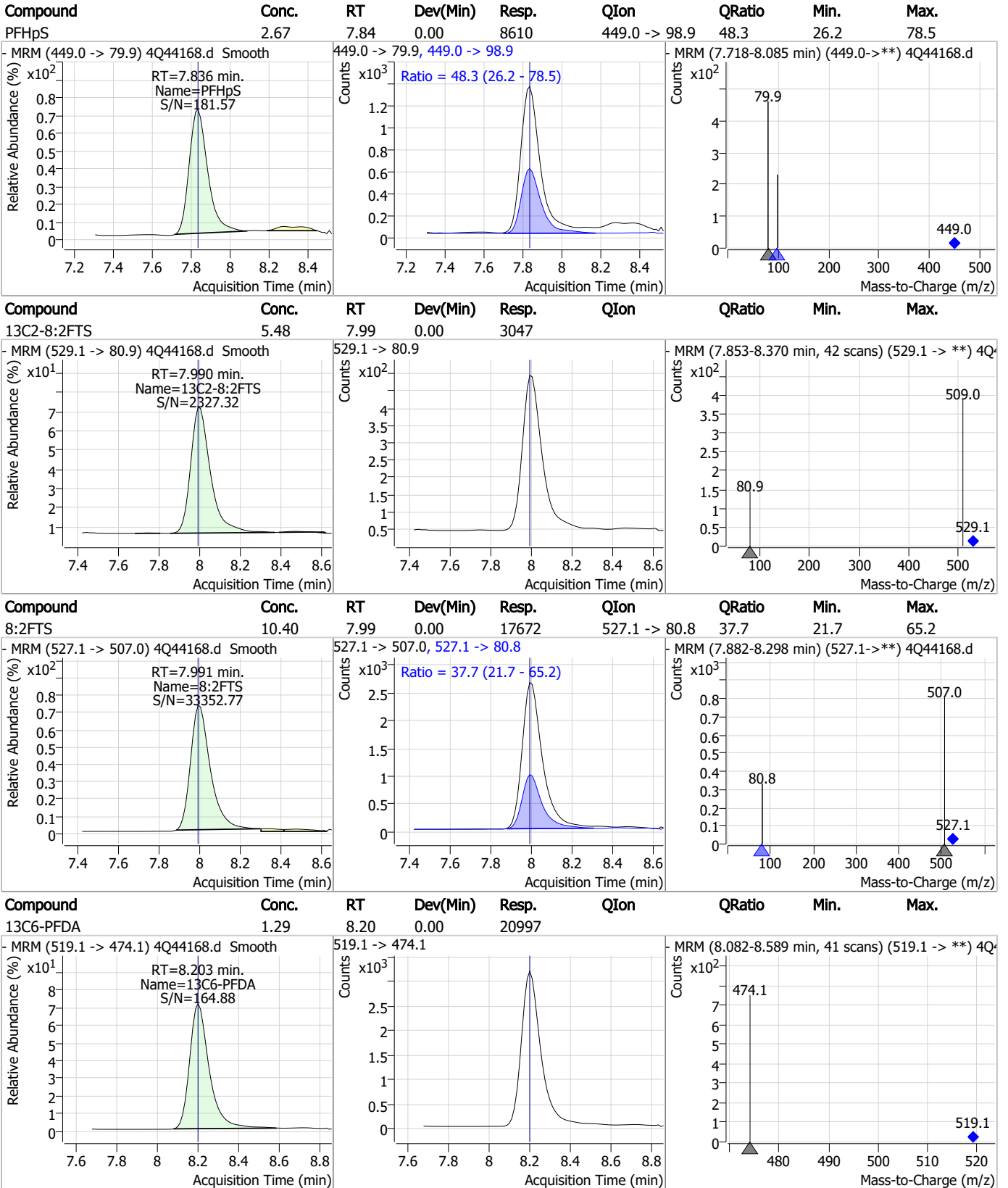
7.4.1

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Perfluorinated Compounds by LC/MS/MS



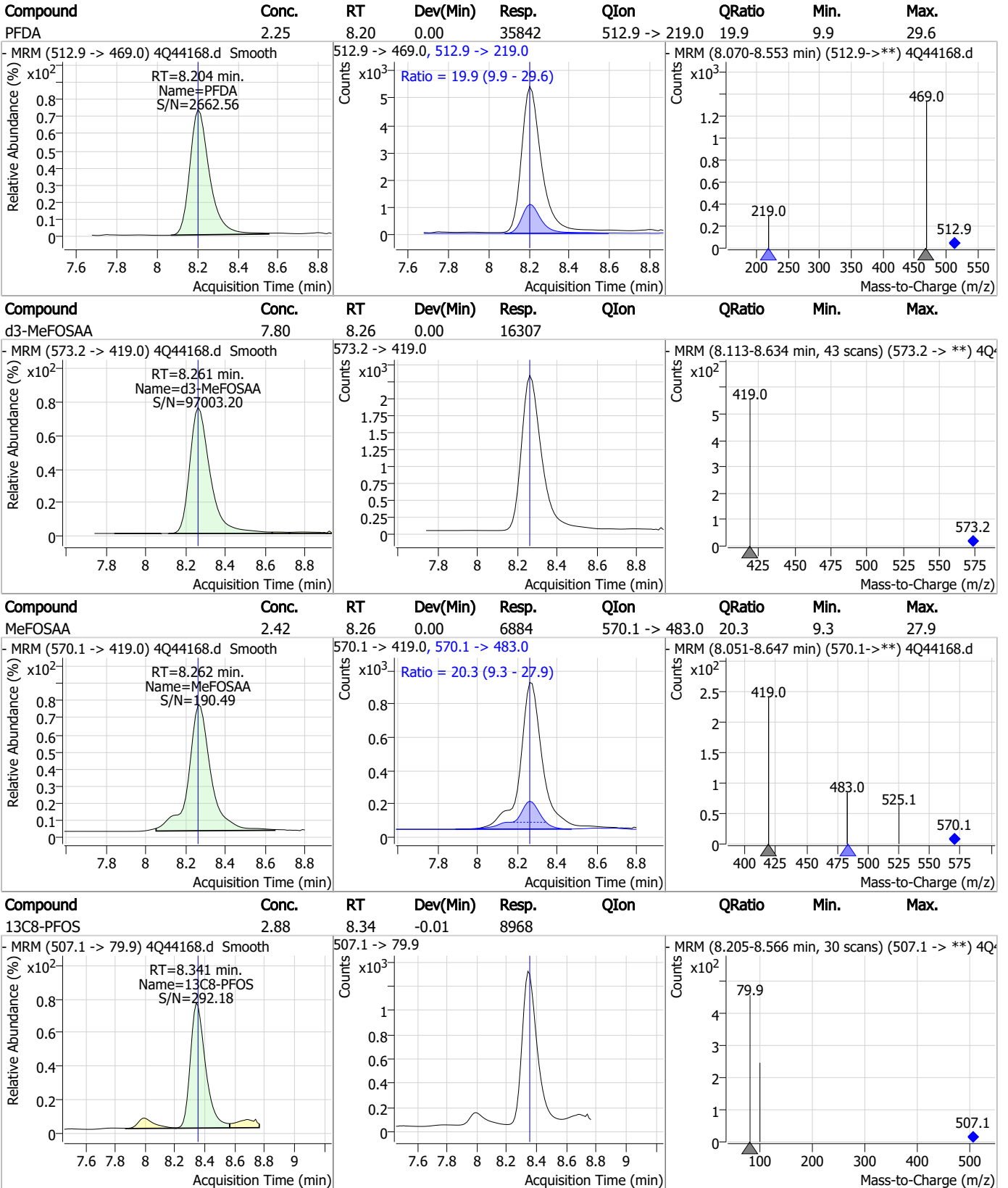
Perfluorinated Compounds by LC/MS/MS



7.4.1

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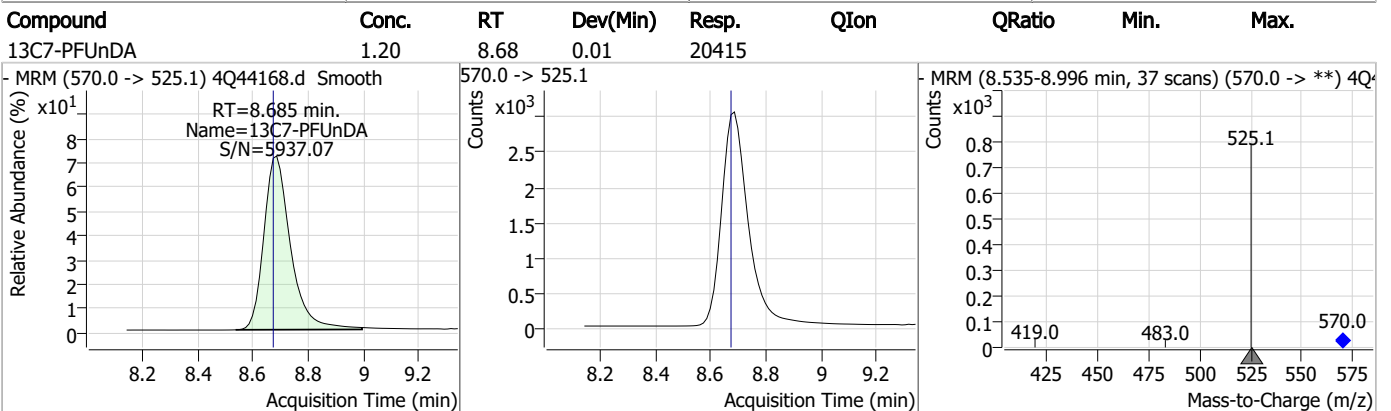
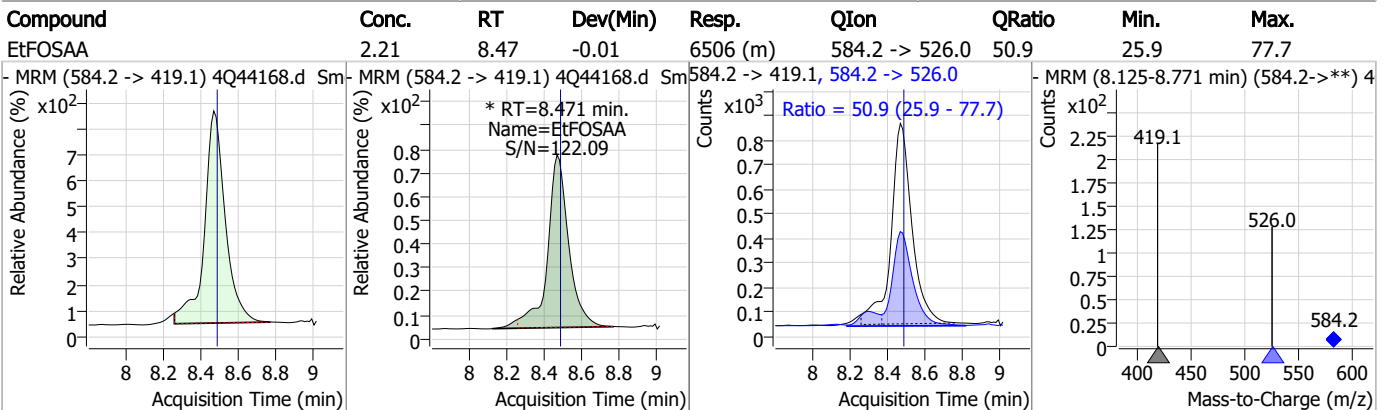
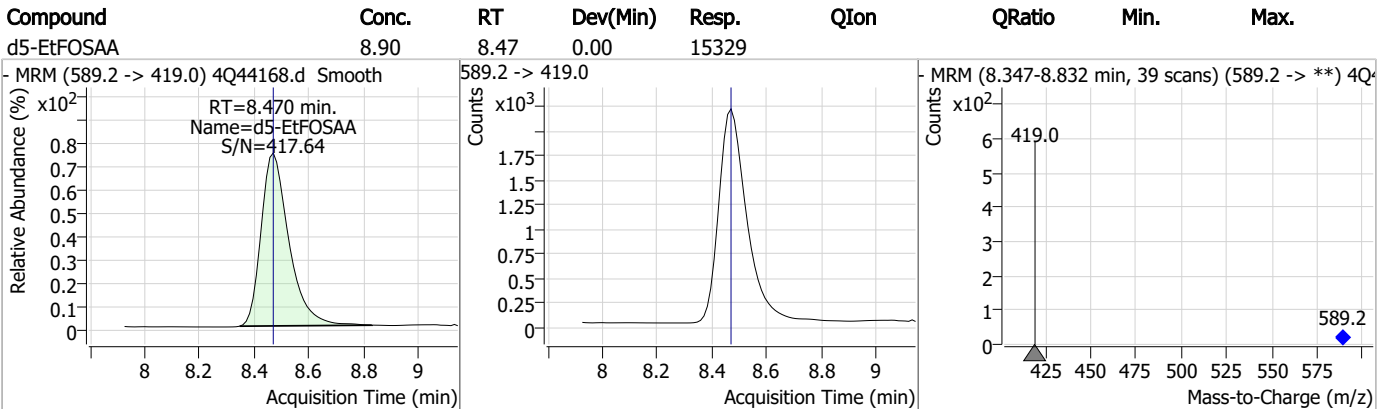
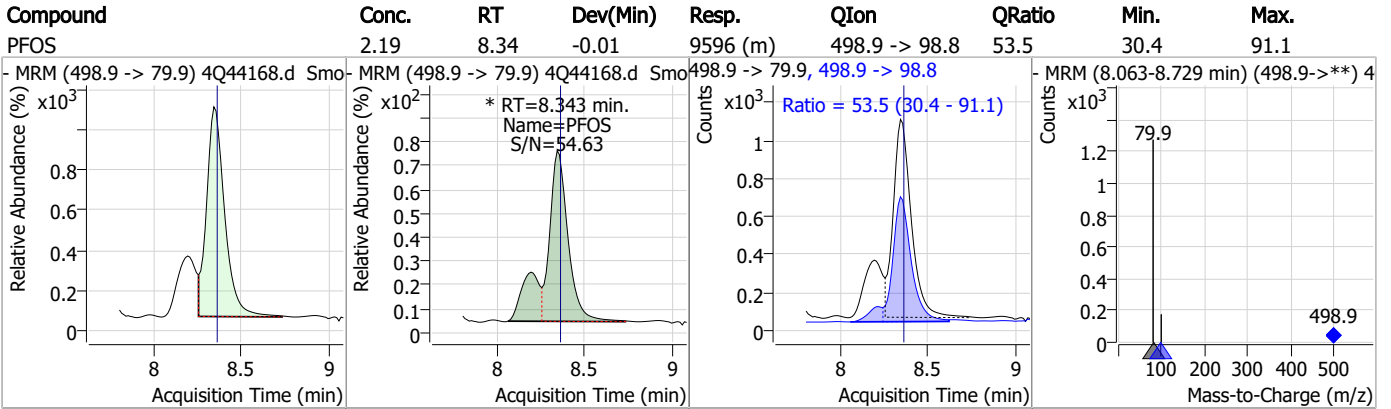
Perfluorinated Compounds by LC/MS/MS



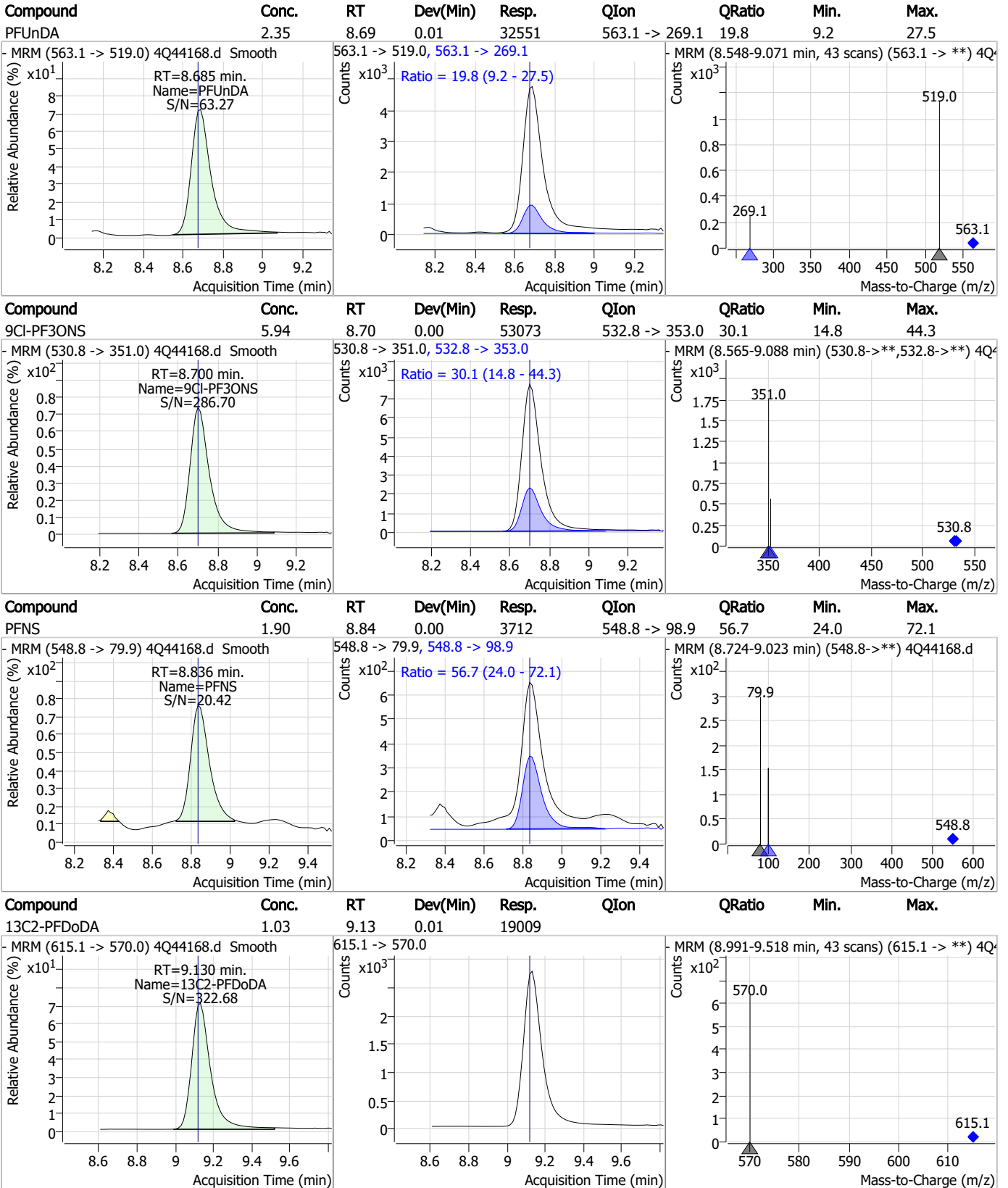
7.4.1

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

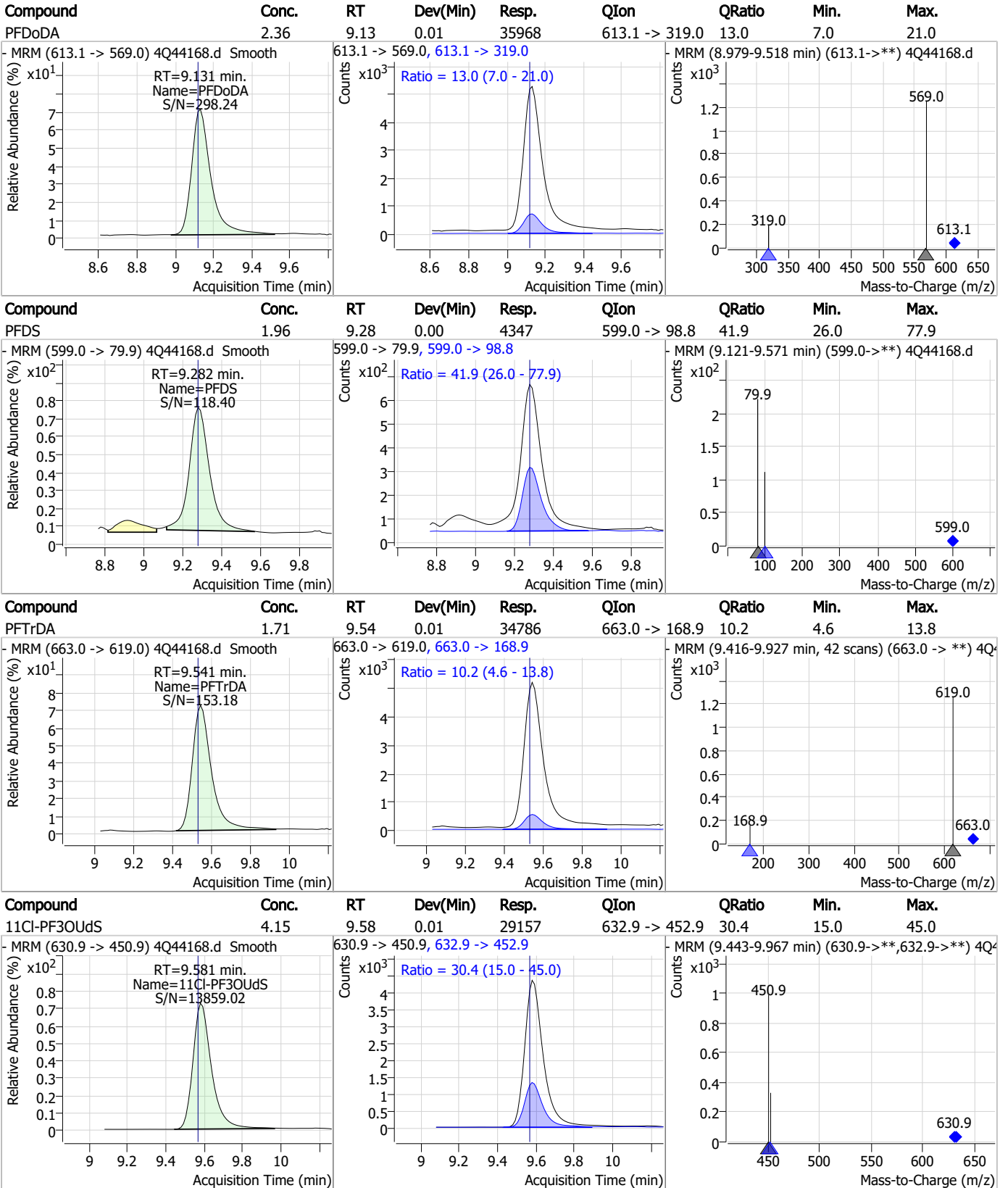


7.4.1

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Perfluorinated Compounds by LC/MS/MS

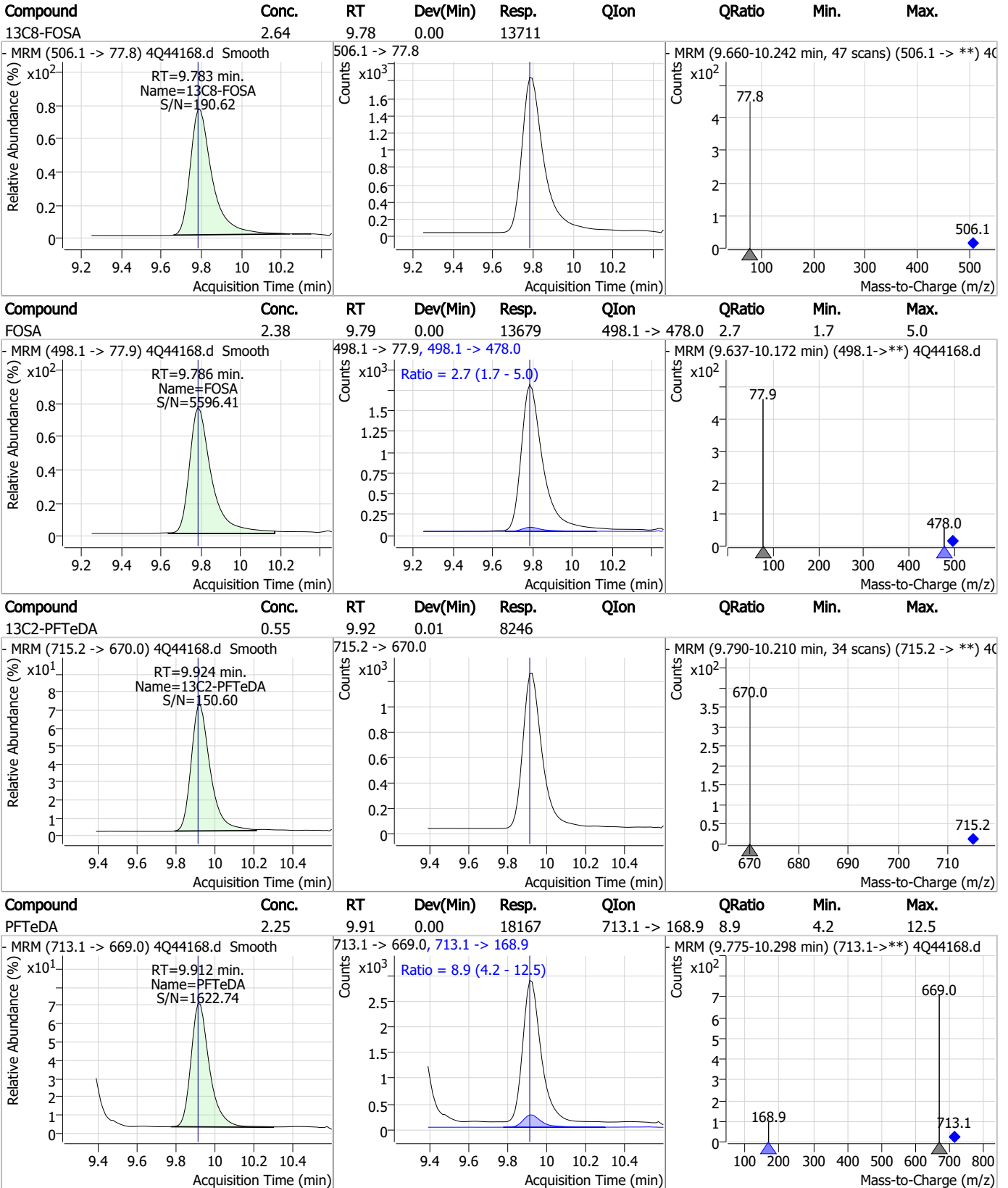


7.4.1

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Perfluorinated Compounds by LC/MS/MS

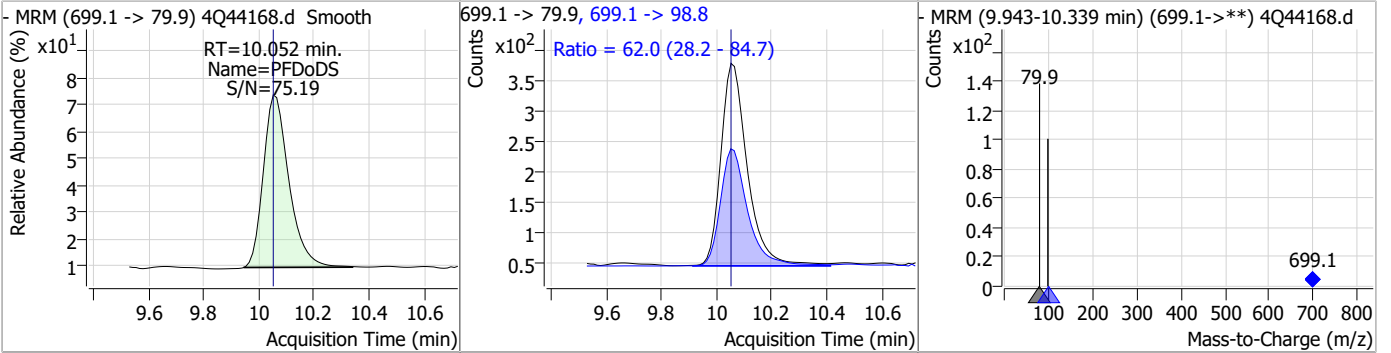


7.4.1

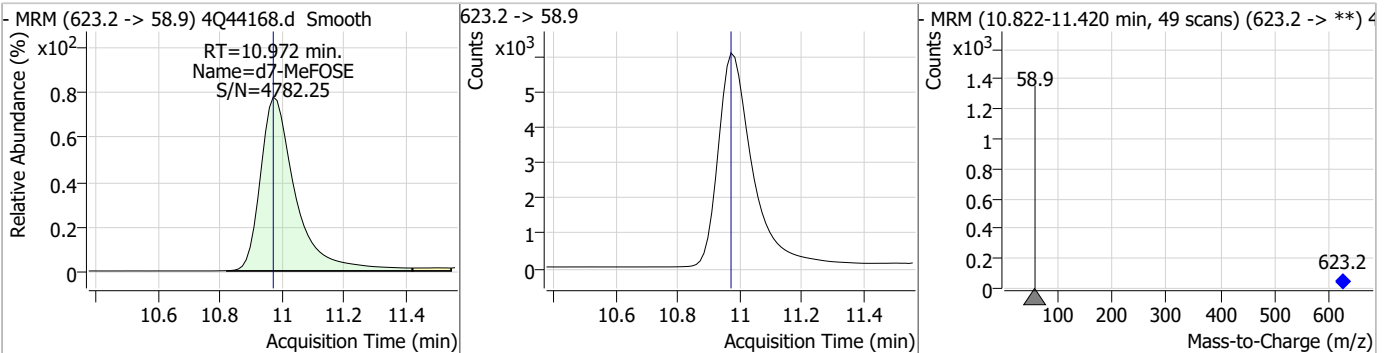
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Perfluorinated Compounds by LC/MS/MS

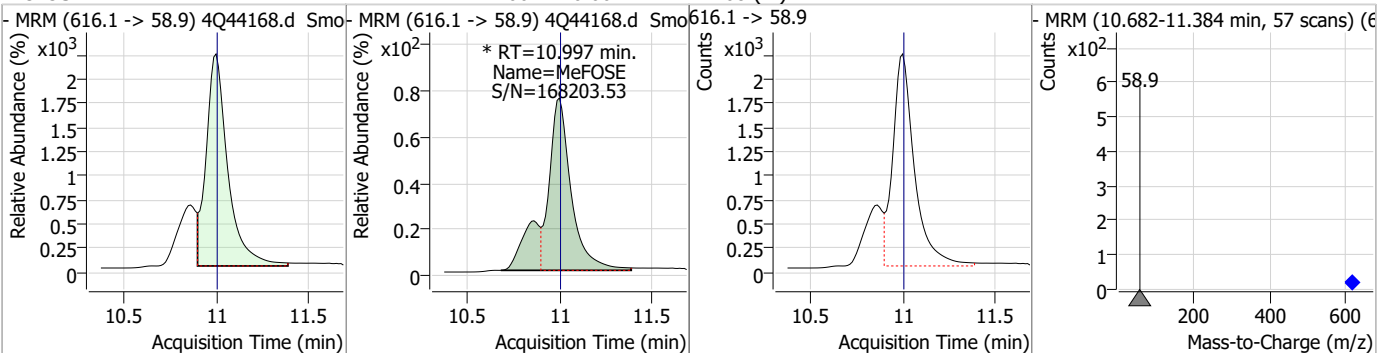
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	1.08	10.05	0.00	2133	699.1 -> 98.8	62.0	28.2	84.7



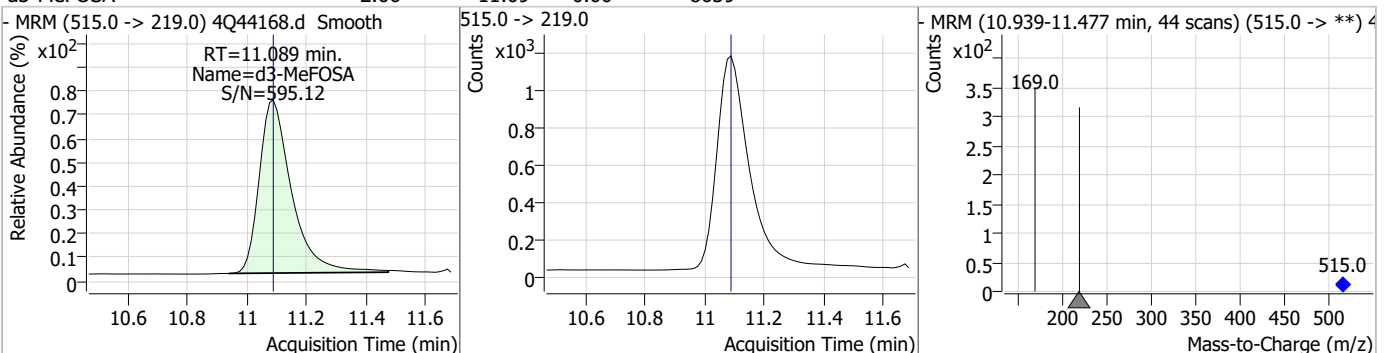
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.58	10.97	0.00	47871				



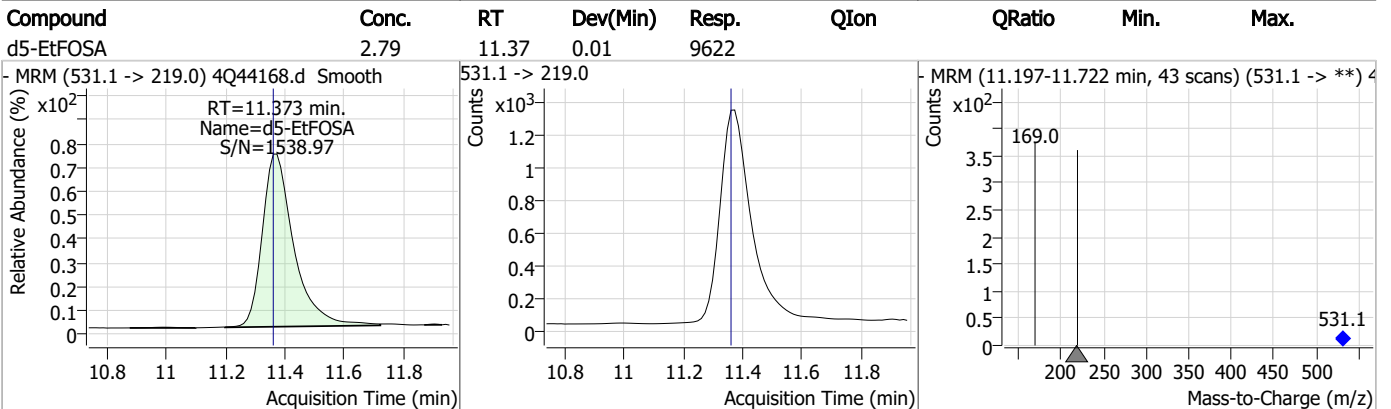
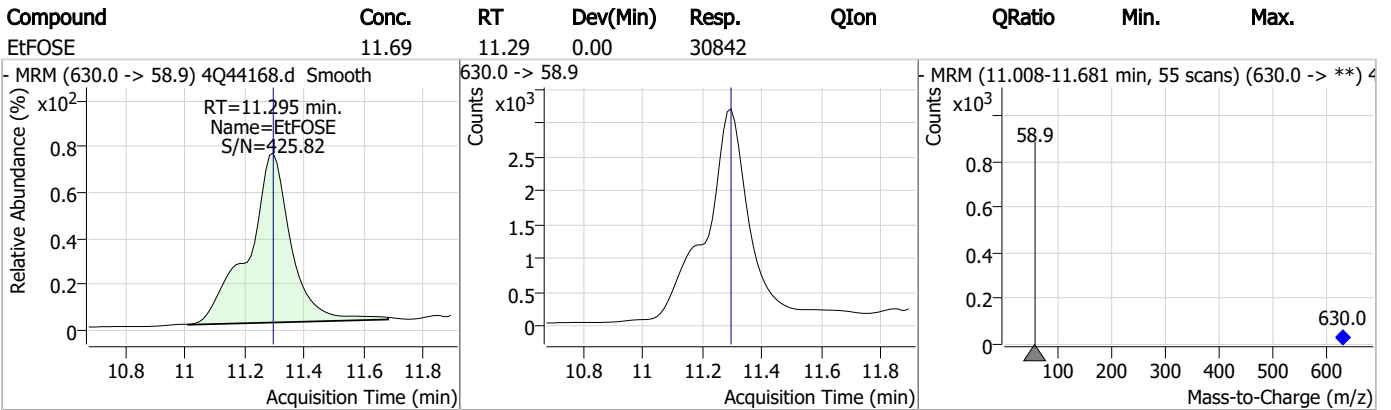
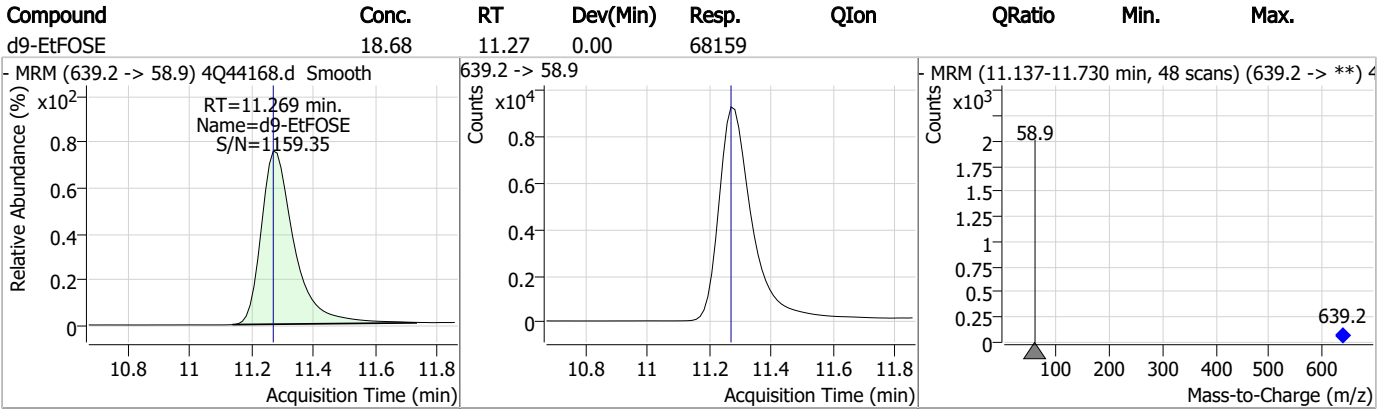
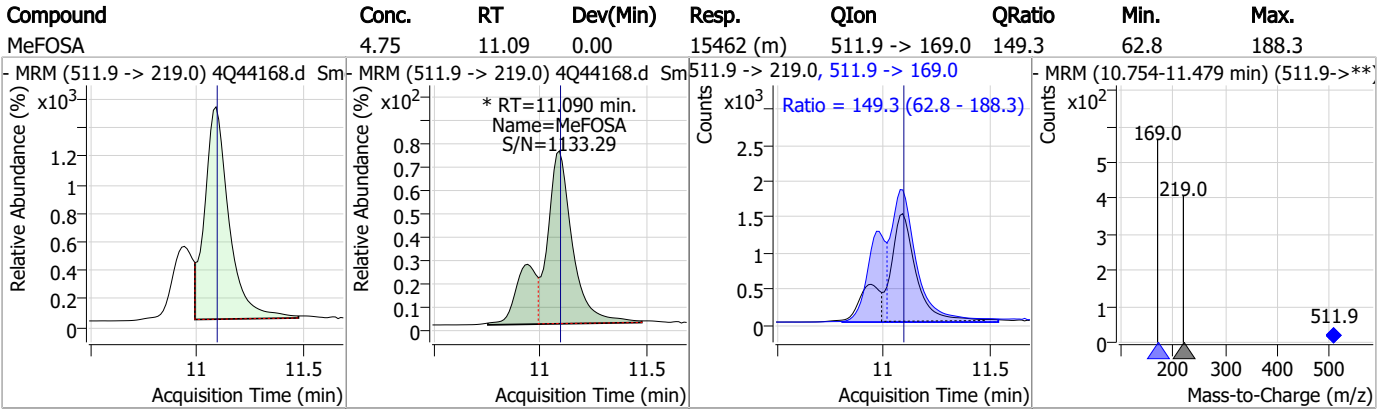
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.27	11.00	0.00	22168 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.66	11.09	0.00	8639				

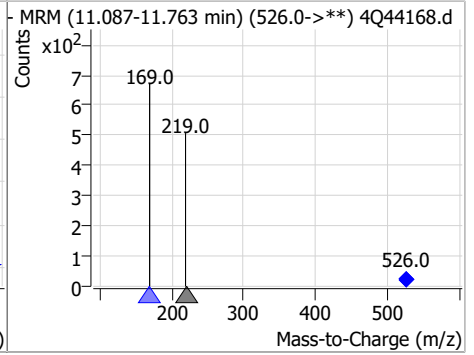
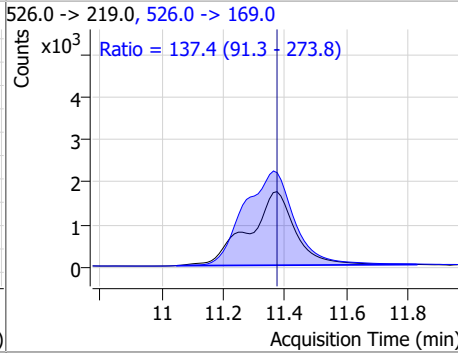
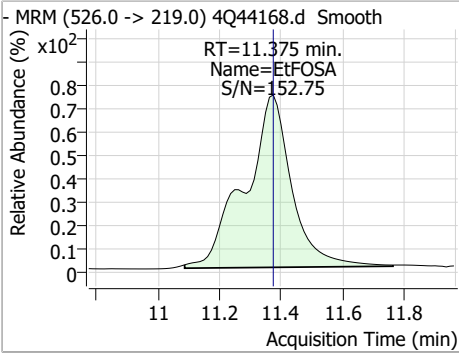


Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.54	11.37	0.00	18292	526.0 -> 169.0	137.4	91.3	273.8



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP96747-MS Method: EPA DRAFT 1633
Lab FileID: 4Q44168.D Analyst approved: 05/11/23 14:20 Natasha Gumtie
Injection Time: 05/09/23 21:52 Supervisor approved: 05/11/23 14:22 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44171.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 10:34:32 PM
 Sample Name : op96747-dup
 Vial : P3-C6
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96747,S4Q639,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	108806	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	66776	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	45884	2.50 µg/L	0.000
M4-PFHpA	6.504	367.1 -> 322.0	27681	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	41628	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	20660	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	17447	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	16211	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	14812	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	10968	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	14465	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	11047	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7365	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	9124	2.50 µg/L	0.000
M2-4:2FTS	5.260	329.1 -> 80.9	1189	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	2096	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	2691	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	13353	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	23967	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	10772	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	51630	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	72904	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	7814	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	7275	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	10025	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	61284	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	4636	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	48569	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	16587	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	23500	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	39679	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.260	329.1 -> 80.9	1189	6.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.2%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2096	6.17 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.4%		
13C2-8:2FTS	8.003	529.1 -> 80.9	2691	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFDoDA	9.130	615.1 -> 570.0	14812	0.92 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.7%		
13C2-PFTeDA	9.924	715.2 -> 670.0	10968	0.84 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 67.1%		
13C3-PFBS	5.464	302.1 -> 79.9	11047	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C3-PFHxS	7.254	402.1 -> 79.9	7365	2.56 µg/L	0.012

7.5.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50 13C4-PFBA	Range: 50.0 - 150.0% 2.924	216.8 -> 171.9	108806	Recovery = 102.5% 9.43 µg/L	0.000
Spiked Amount: 10.00 13C4-PFHpA	Range: 50.0 - 150.0% 6.504	367.1 -> 322.0	27681	Recovery = 94.3% 2.71 µg/L	0.012
Spiked Amount: 2.50 13C5-PFHxA	Range: 50.0 - 150.0% 5.559	318.0 -> 273.0	45884	Recovery = 108.4% 2.63 µg/L	0.000
Spiked Amount: 2.50 13C5-PFPeA	Range: 50.0 - 150.0% 4.387	268.3 -> 223.0	66776	Recovery = 105.0% 5.46 µg/L	0.000
Spiked Amount: 5.00 13C6-PFDA	Range: 50.0 - 150.0% 8.216	519.1 -> 474.1	17447	Recovery = 109.3% 1.23 µg/L	0.012
Spiked Amount: 1.25 13C7-PFUnDA	Range: 50.0 - 150.0% 8.685	570.0 -> 525.1	16211	Recovery = 98.3% 1.10 µg/L	0.012
Spiked Amount: 1.25 13C8-FOSA	Range: 50.0 - 150.0% 9.796	506.1 -> 77.8	14465	Recovery = 87.7% 2.30 µg/L	0.012
Spiked Amount: 2.50 13C8-PFOA	Range: 50.0 - 150.0% 7.163	421.1 -> 376.0	41628	Recovery = 92.0% 2.61 µg/L	0.014
Spiked Amount: 2.50 13C8-PFOS	Range: 50.0 - 150.0% 8.354	507.1 -> 79.9	9124	Recovery = 104.4% 2.42 µg/L	0.000
Spiked Amount: 2.50 13C9-PFNA	Range: 50.0 - 150.0% 7.709	472.1 -> 427.0	20660	Recovery = 96.7% 1.29 µg/L	0.012
Spiked Amount: 1.25 d3-MeFOSAA	Range: 50.0 - 150.0% 8.273	573.2 -> 419.0	13353	Recovery = 103.5% 5.28 µg/L	0.012
Spiked Amount: 5.00 13C3-HFPO-DA	Range: 50.0 - 150.0% 5.927	286.9 -> 168.9	23967	Recovery = 105.5% 9.18 µg/L	0.012
Spiked Amount: 10.00 d3-MeFOSA	Range: 50.0 - 150.0% 11.089	515.0 -> 219.0	7275	Recovery = 91.8% 1.85 µg/L	0.000
Spiked Amount: 2.50 d5-EtFOSAA	Range: 50.0 - 150.0% 8.483	589.2 -> 419.0	10772	Recovery = 74.0% 5.17 µg/L	0.012
Spiked Amount: 5.00 d7-MeFOSE	Range: 50.0 - 150.0% 10.972	623.2 -> 58.9	51630	Recovery = 103.4% 16.55 µg/L	0.000
Spiked Amount: 25.00 d9-EtFOSE	Range: 50.0 - 150.0% 11.269	639.2 -> 58.9	72904	Recovery = 66.2% 16.51 µg/L	0.000
Spiked Amount: 25.00 d5-EtFOSA	Range: 50.0 - 150.0% 11.373	531.1 -> 219.0	7814	Recovery = 66.0% 1.87 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.8%	

7.5.1
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	2.982	212.8 -> 168.9	927	0.32 µg/L	100
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.505	599.0 -> 98.8				
		363.1 -> 319.0	1254	0.07	µg/L	97
PFHpS	-	363.1 -> 169.0	240			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.562	449.0 -> 98.9				
		313.0 -> 269.0	3487	0.19	µg/L	97
PFHxS	-	313.0 -> 118.9	142			
		398.7 -> 79.9	-	N.D.		
PFNA	8.146	398.7 -> 98.9				
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.176	548.8 -> 98.9				
		413.0 -> 369.0	1294	0.05	µg/L	m
PFOS	-	413.0 -> 169.0	201			
		498.9 -> 79.9	-	N.D.		
PFPeA	4.389	498.9 -> 98.8				
		263.0 -> 219.0	5364	0.33	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.681	630.0 -> 58.9	0		µg/L	m
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

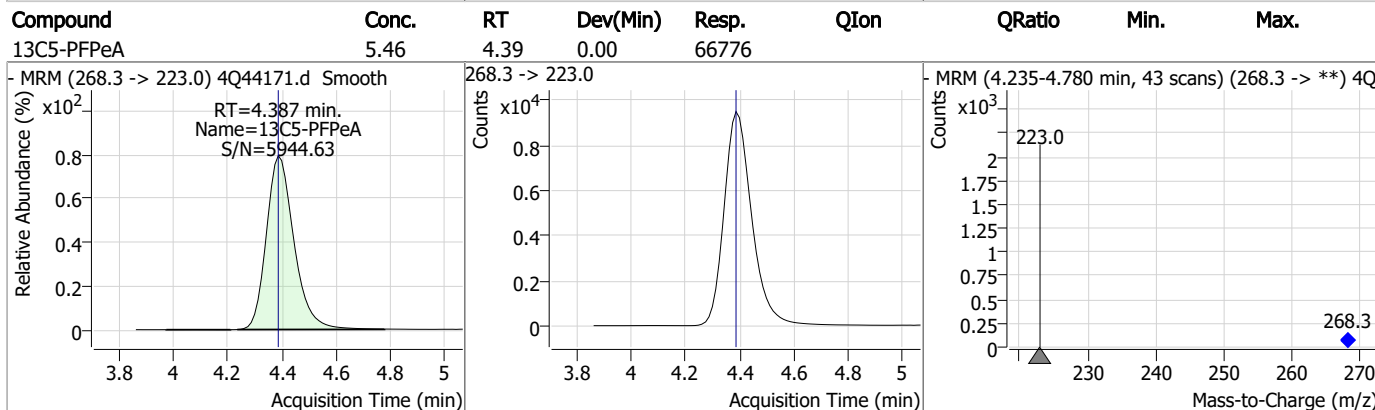
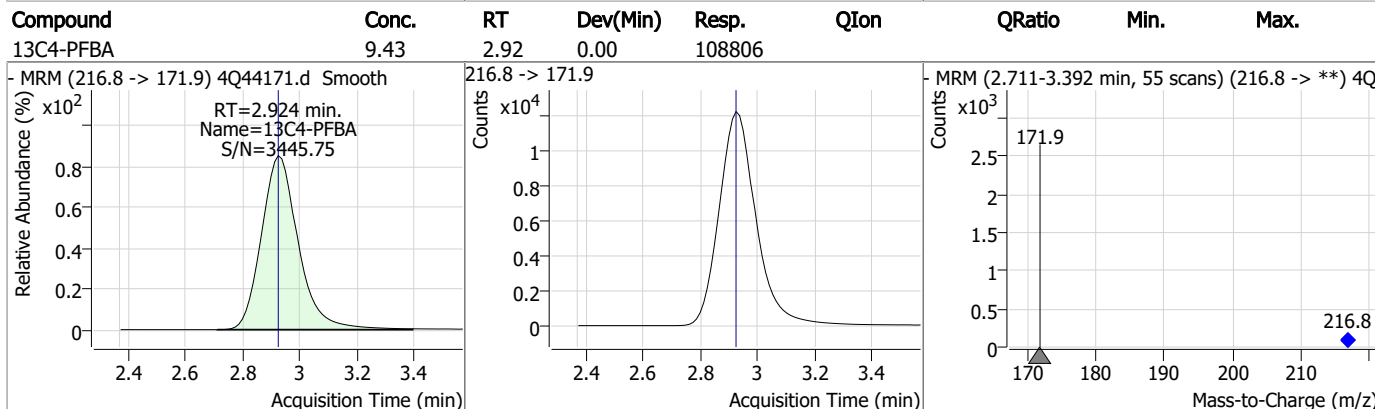
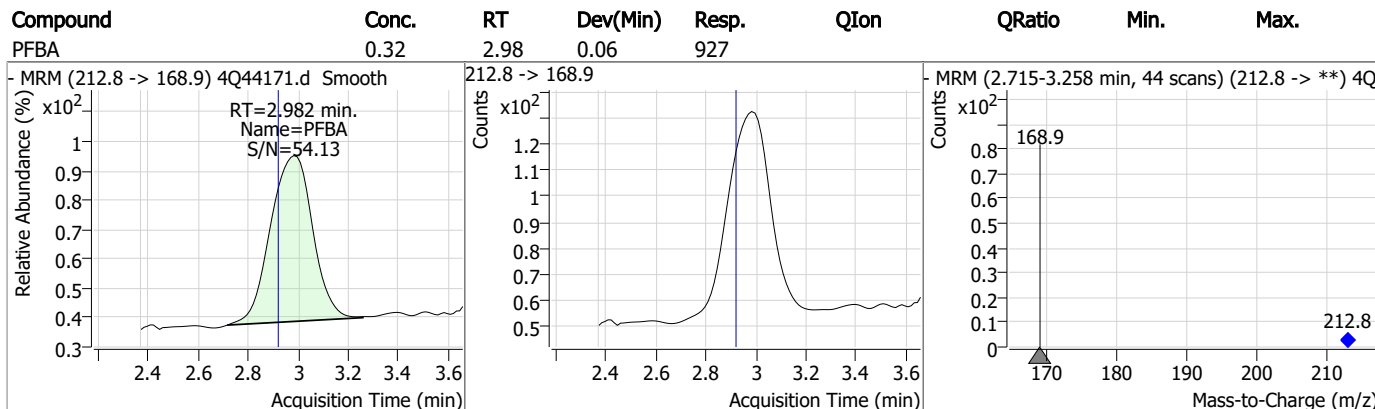
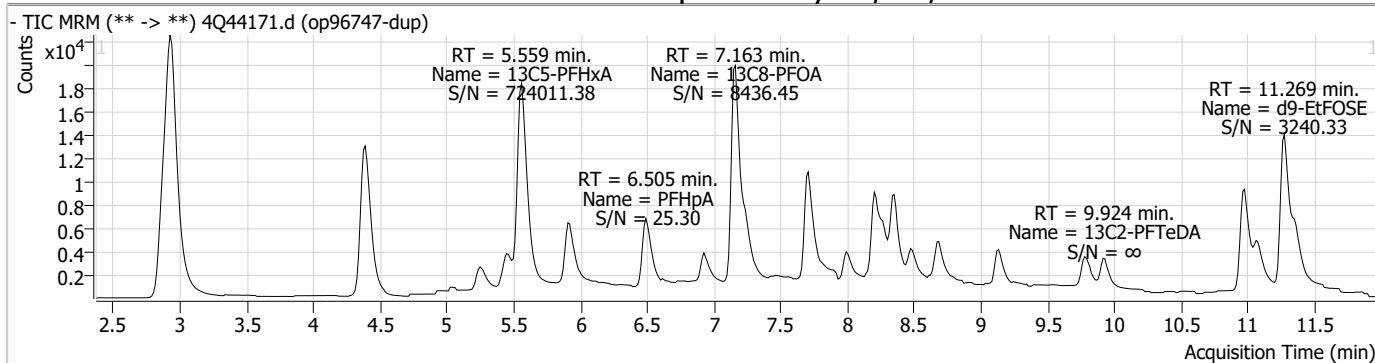
Perfluorinated Compounds by LC/MS/MS

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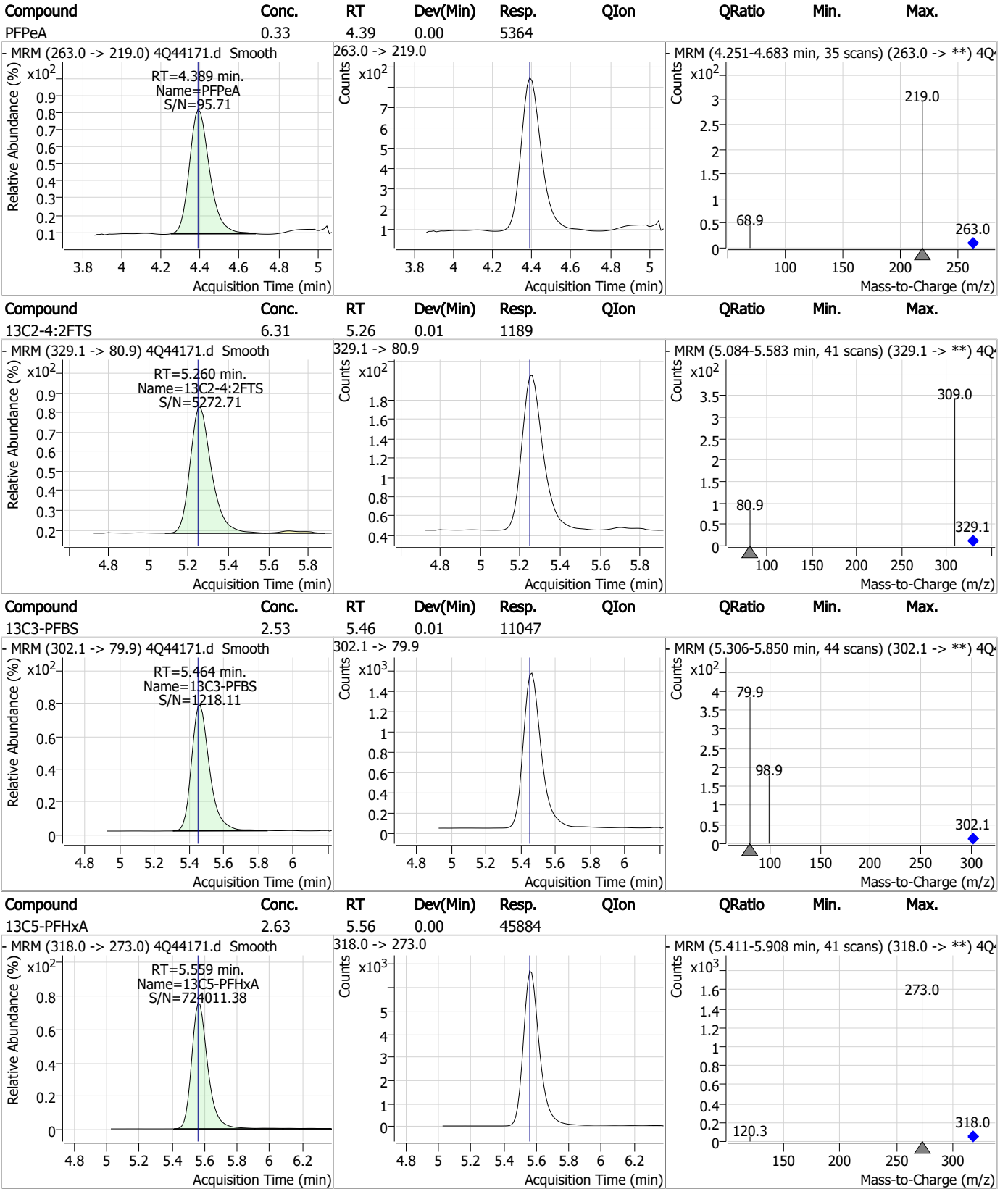
7.5.1

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

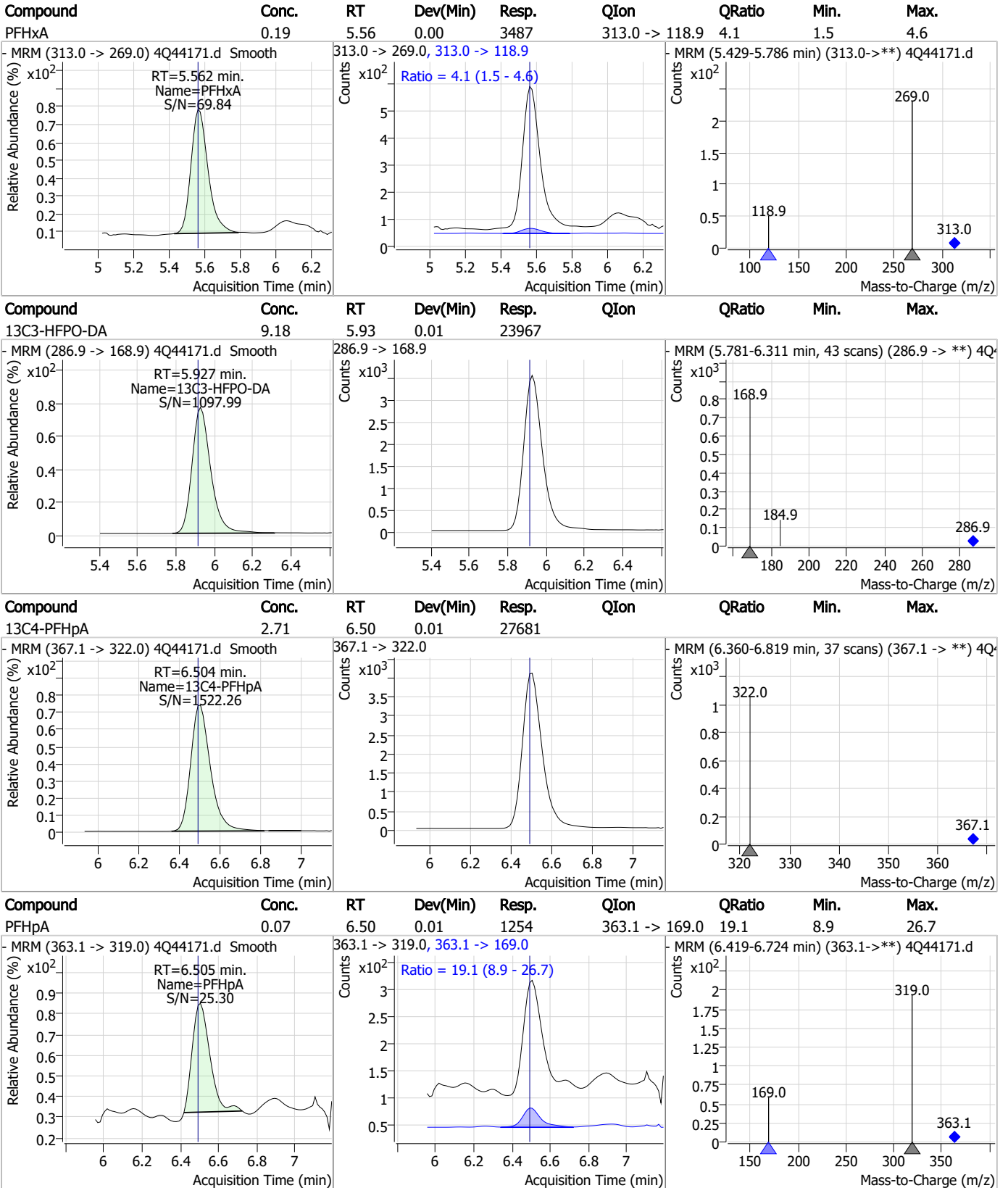


7.5.1

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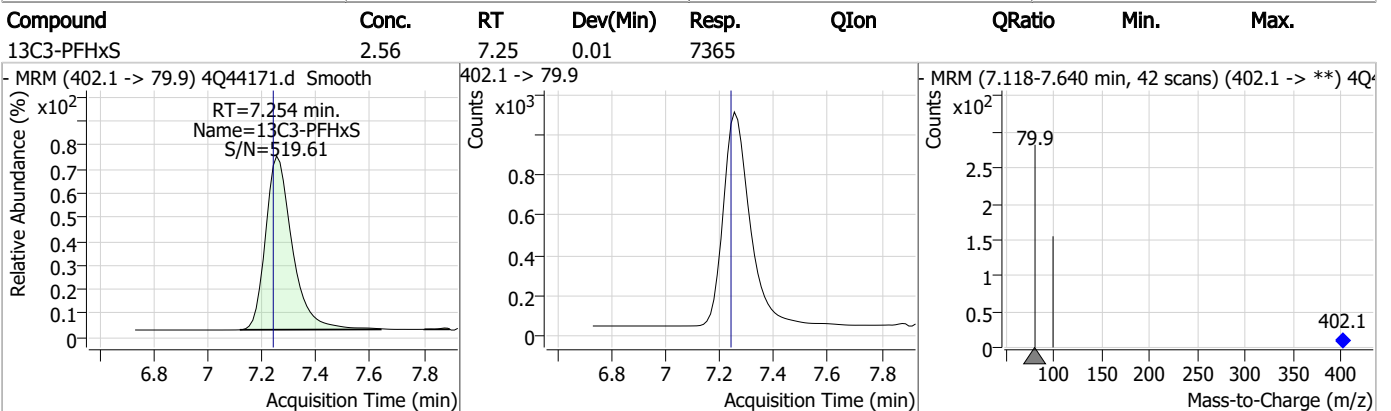
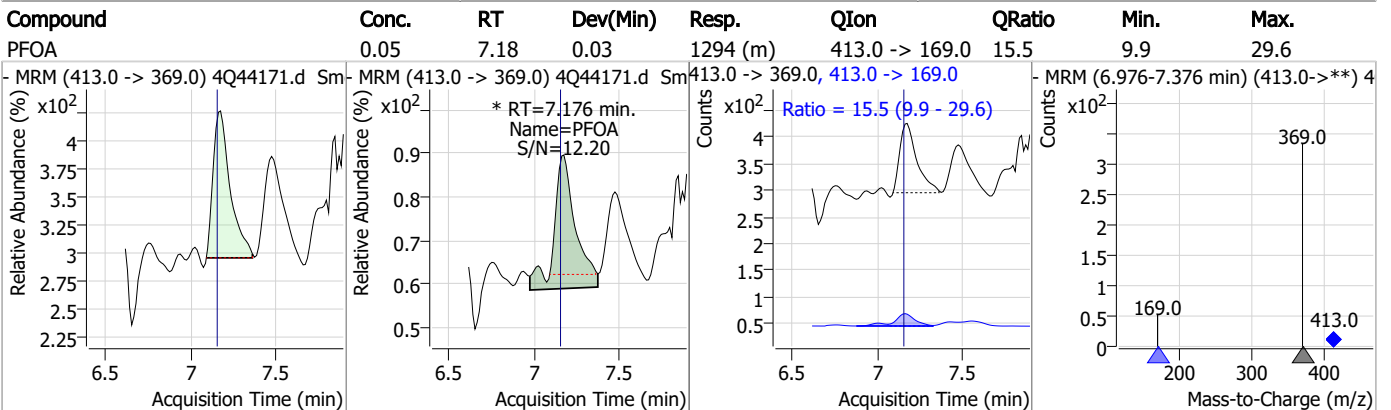
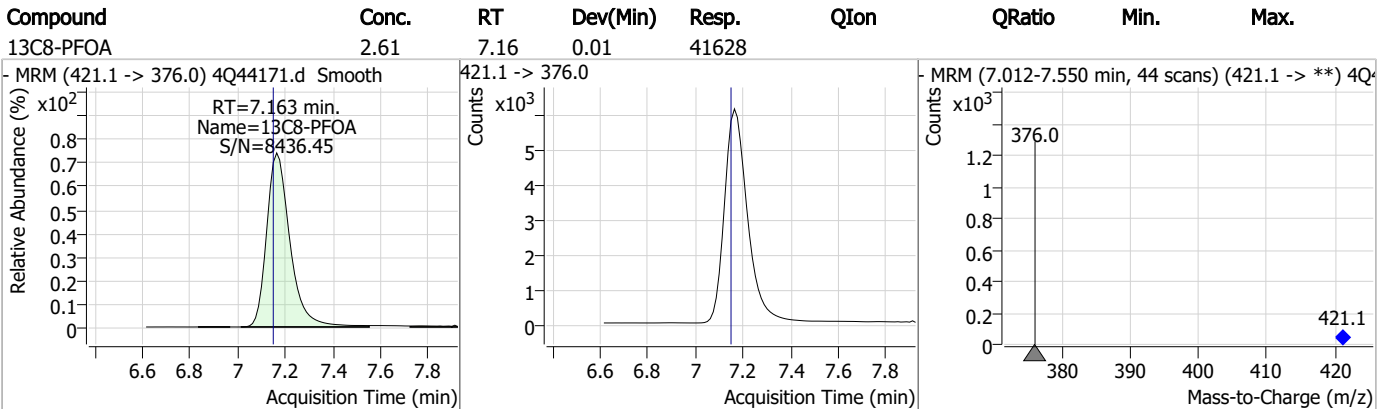
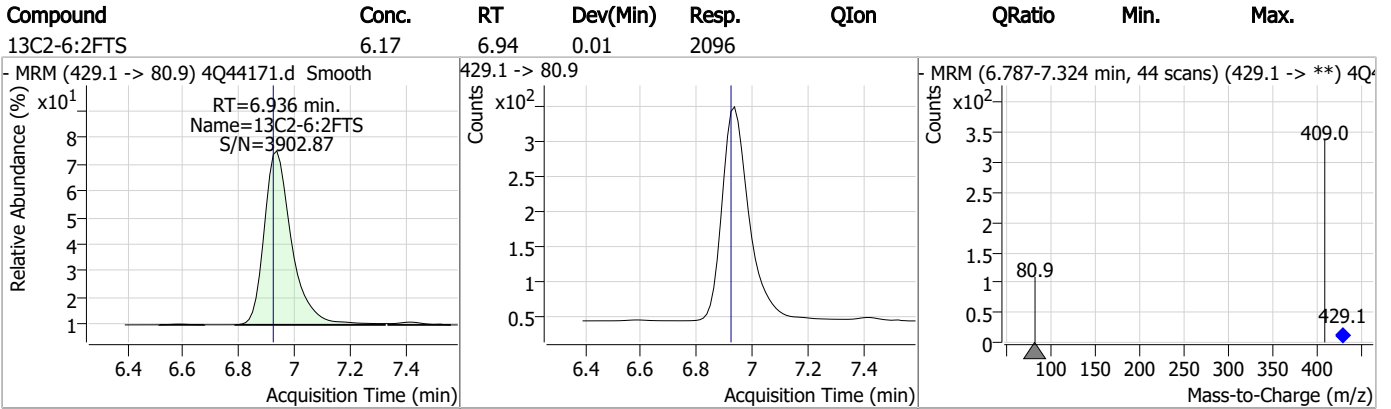
Perfluorinated Compounds by LC/MS/MS



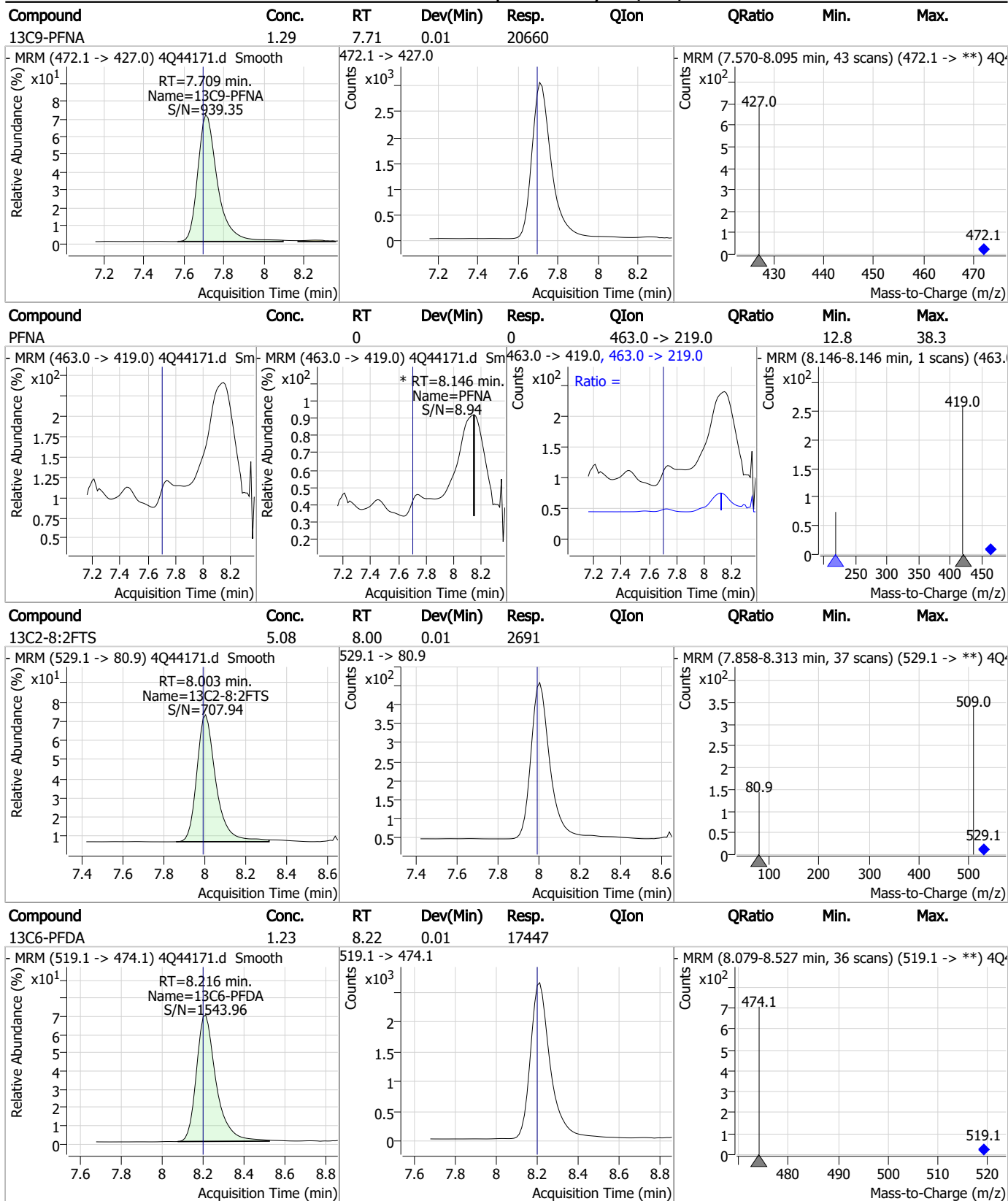
7.5.1

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Perfluorinated Compounds by LC/MS/MS

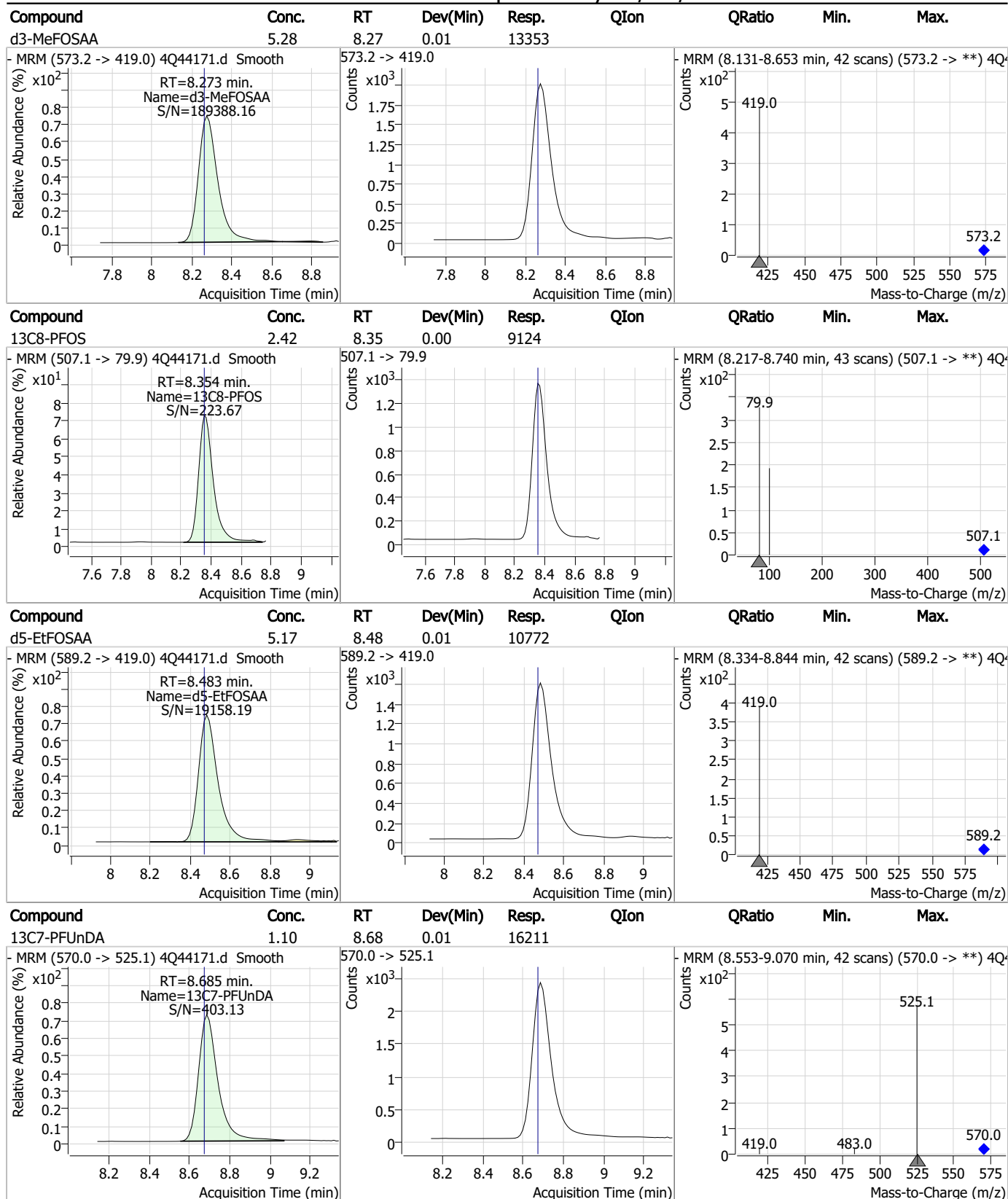


Perfluorinated Compounds by LC/MS/MS



7.5.1
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Perfluorinated Compounds by LC/MS/MS



7.5.1
7

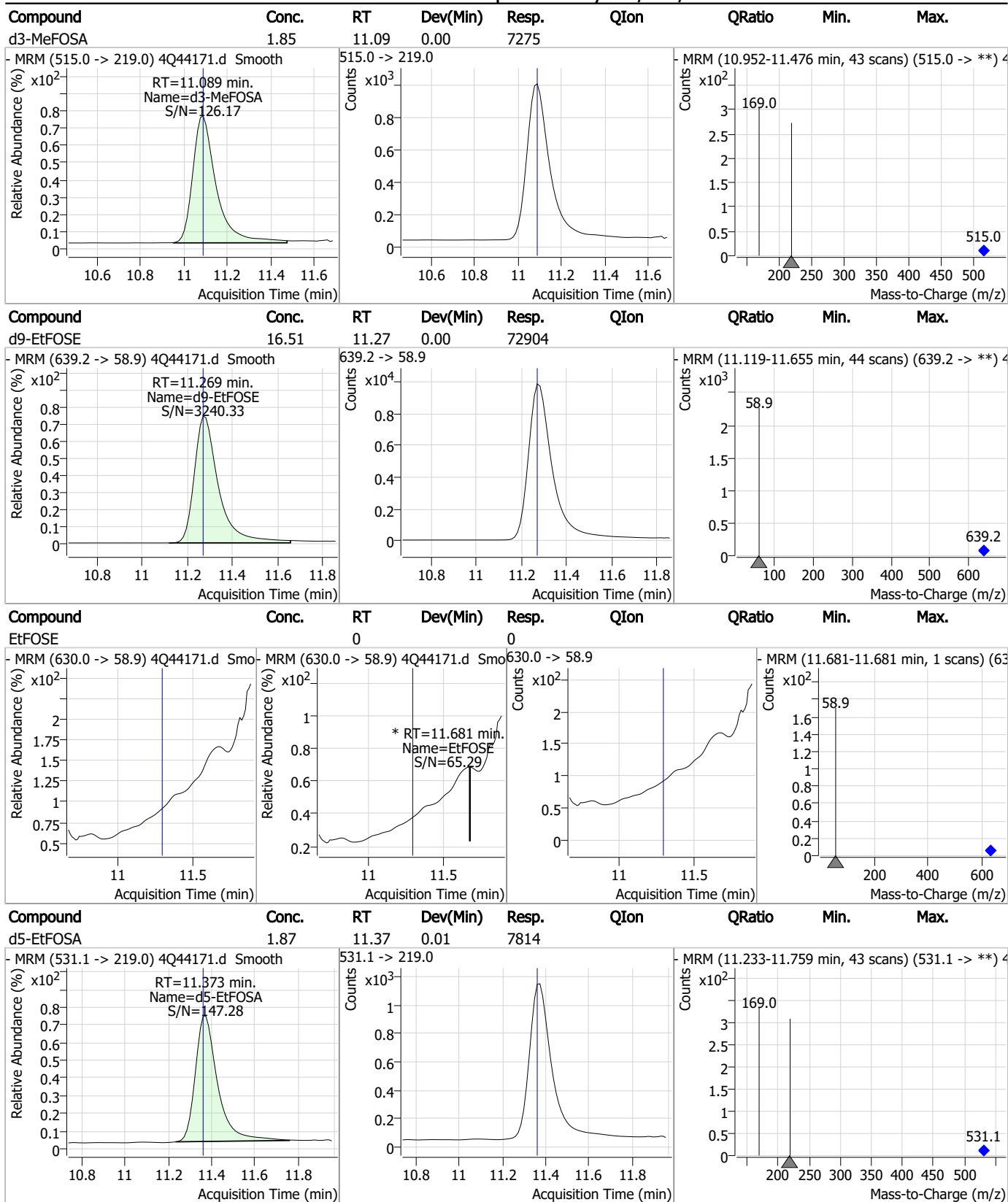
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	0.92	9.13	0.01	14812				
<p>MRM (615.1 -> 570.0) 4Q44171.d Smooth RT=9.130 min. Name=13C2-PFDoDA S/N=3133.45</p>			<p>615.1 -> 570.0</p>		<p>MRM (8.991-9.481 min, 40 scans) (615.1 -> **) 4Q</p>			
13C8-FOSA	2.30	9.80	0.01	14465				
<p>MRM (506.1 -> 77.8) 4Q44171.d Smooth RT=9.796 min. Name=13C8-FOSA S/N=∞</p>			<p>506.1 -> 77.8</p>		<p>MRM (9.634-10.180 min, 45 scans) (506.1 -> **) 4Q</p>			
13C2-PFTeDA	0.84	9.92	0.01	10968				
<p>MRM (715.2 -> 670.0) 4Q44171.d Smooth RT=9.924 min. Name=13C2-PFTeDA S/N=∞</p>			<p>715.2 -> 670.0</p>		<p>MRM (9.774-10.310 min, 44 scans) (715.2 -> **) 4Q</p>			
d7-MeFOSE	16.55	10.97	0.00	51630				
<p>MRM (623.2 -> 58.9) 4Q44171.d Smooth RT=10.972 min. Name=d7-MeFOSE S/N=2103.40</p>			<p>623.2 -> 58.9</p>		<p>MRM (10.822-11.358 min, 44 scans) (623.2 -> **) 4Q</p>			

7.5.1

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Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Manual Integration Approval Summary

Sample Number: OP96747-DUP Method: EPA DRAFT 1633
Lab FileID: 4Q44171.D Analyst approved: 05/10/23 11:51 Martha Valls
Injection Time: 05/09/23 22:34 Supervisor approved: 05/10/23 17:27 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.18	Split peak

7.5.1.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 05/04/23 17:44

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43881.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 10:23:06 AM
 Sample Name : RT TDCA
 Vial : P1-B1
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q634_TDCA.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

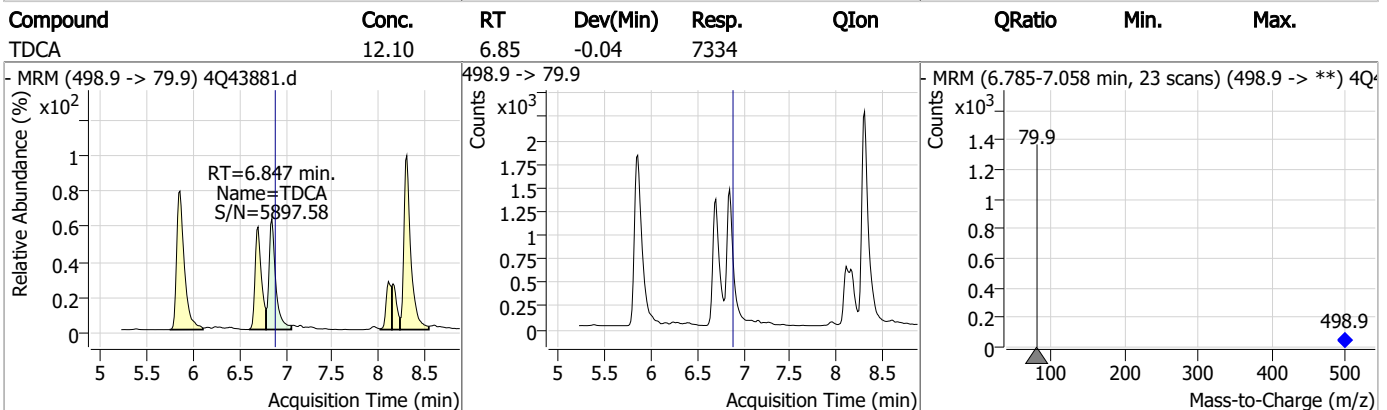
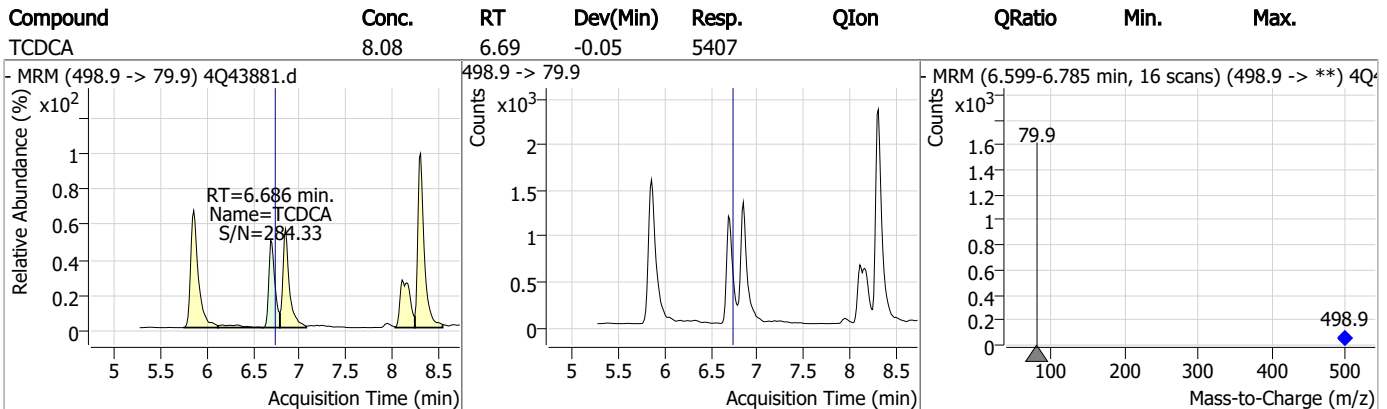
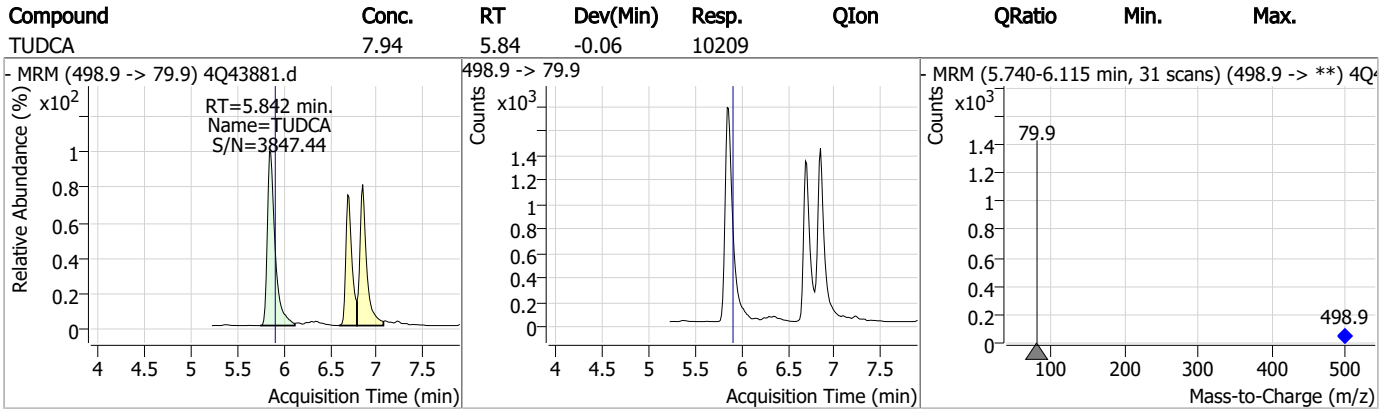
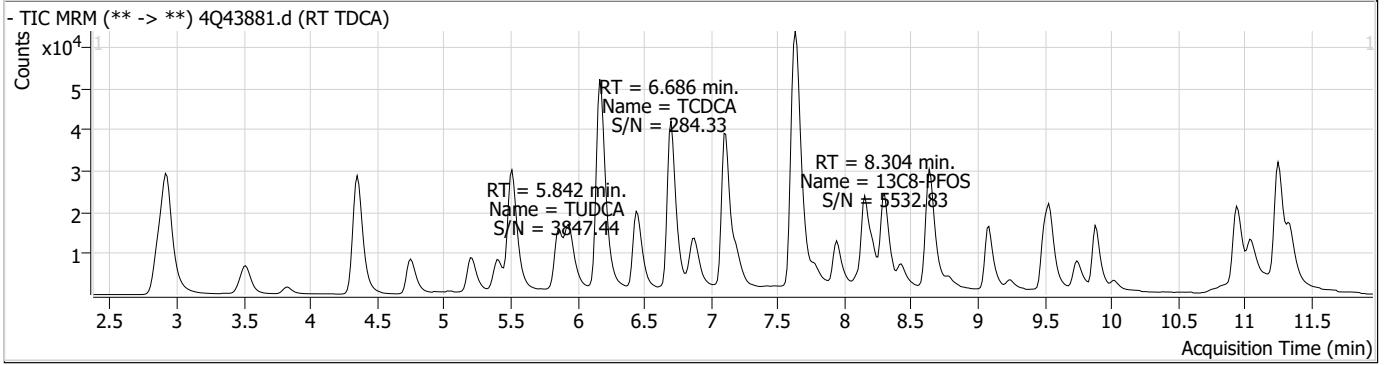
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.304	507.1 -> 79.9	14500	2.50	µg/L	-0.062	
13C4-PFOS	8.305	502.8 -> 79.9	17051	2.50	µg/L	-0.062	
System Monitoring Compounds							
13C8-PFOS	8.304	507.1 -> 79.9	14500	2.16	µg/L	-0.062	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.3%				
Target Compounds							
PFOS	8.305	498.9 -> 79.9 498.9 -> 98.8	15511 7886	3.13	µg/L	m	96
TCDCa	6.686	498.9 -> 79.9	5407	8.08	ng/ml		100
TDCA	6.847	498.9 -> 79.9	7334	12.10	ng/ml		100
TUDCA	5.842	498.9 -> 79.9	10209	7.94	ng/ml		100

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

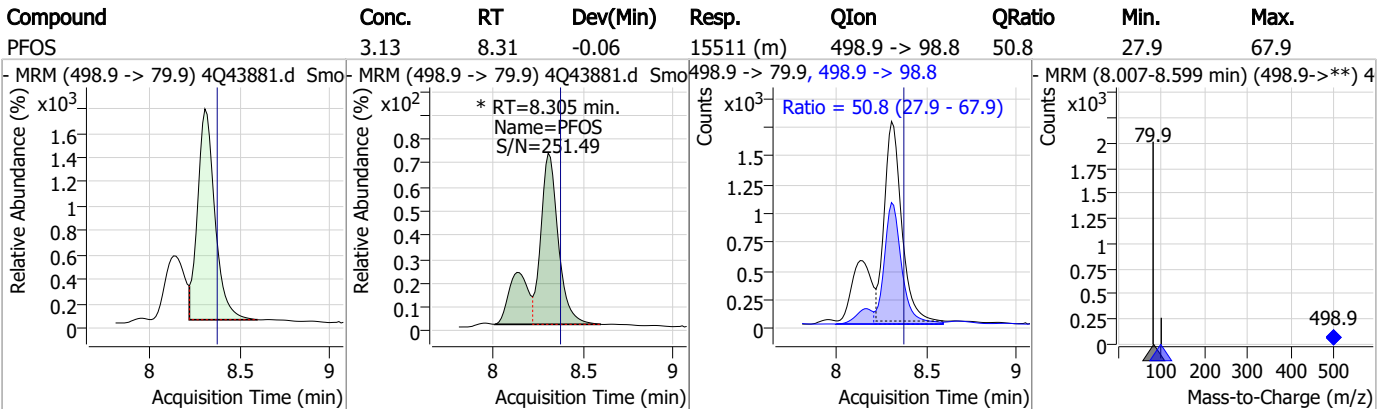
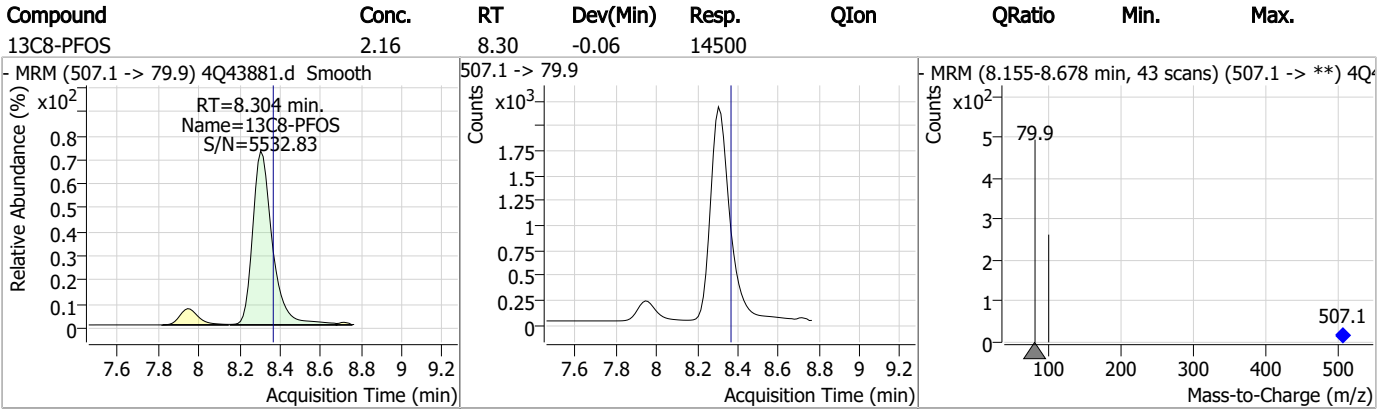
7.6.1
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.1
7



Manual Integration Approval Summary

Sample Number: S4Q634-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43881.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 10:23 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43882.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 10:37:09 AM
 Sample Name : RT br/lr
 Vial : P1-B2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.911	216.8 -> 171.9	119654	10.00 µg/L	-0.012
M5-PFPeA	4.350	268.3 -> 223.0	67757	5.00 µg/L	-0.012
M5-PFHxA	5.510	318.0 -> 273.0	49354	2.50 µg/L	-0.025
M4-PFHpA	6.455	367.1 -> 322.0	29875	2.50 µg/L	-0.012
M8-PFOA	7.111	421.1 -> 376.0	43497	2.50 µg/L	-0.012
M9-PFNA	7.658	472.1 -> 427.0	20317	1.25 µg/L	-0.012
M6-PFDA	8.166	519.1 -> 474.1	20346	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	21156	1.25 µg/L	-0.012
M2-PFDoDA	9.081	615.1 -> 570.0	22468	1.25 µg/L	-0.025
M2-PFTeDA	9.886	715.2 -> 670.0	18596	1.25 µg/L	-0.012
M8-FOSA	9.758	506.1 -> 77.8	16919	2.50 µg/L	-0.012
M3-PFBS	5.414	302.1 -> 79.9	11687	2.50 µg/L	-0.012
M3-PFHxS	7.217	402.1 -> 79.9	7599	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	10335	2.50 µg/L	-0.013
M2-4:2FTS	5.209	329.1 -> 80.9	1135	5.00 µg/L	-0.014
M2-6:2FTS	6.886	429.1 -> 80.9	1876	5.00 µg/L	-0.012
M2-8:2FTS	7.953	529.1 -> 80.9	3057	5.00 µg/L	-0.012
M3-MeFOSAA	8.224	573.2 -> 419.0	15580	5.00 µg/L	-0.012
M3-HFPO-DA	5.877	286.9 -> 168.9	30253	10.00 µg/L	-0.012
M5-EtFOSAA	8.433	589.2 -> 419.0	12098	5.00 µg/L	-0.012
M7-MeFOSE	10.947	623.2 -> 58.9	80643	25.00 µg/L	0.000
M9-EtFOSE	11.244	639.2 -> 58.9	119872	25.00 µg/L	-0.012
M5-EtFOSA	11.348	531.1 -> 219.0	11379	2.50 µg/L	0.000
M3-MeFOSA	11.051	515.0 -> 219.0	10964	2.50 µg/L	-0.012
13C4-PFOS	8.317	502.8 -> 79.9	10254	2.50 µg/L	-0.013
13C3-PFBA	2.916	216.0 -> 172.0	63918	5.00 µg/L	-0.013
18O2-PFHxS	7.216	403.0 -> 83.9	5128	2.50 µg/L	-0.012
13C4-PFOA	7.112	417.1 -> 372.0	52496	2.50 µg/L	-0.012
13C2-PFDA	8.166	515.1 -> 470.1	18252	1.25 µg/L	-0.012
13C5-PFNA	7.658	468.0 -> 423.0	24666	1.25 µg/L	-0.026
13C2-PFHxA	5.511	315.1 -> 270.0	43755	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.209	329.1 -> 80.9	1135	5.44 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-6:2FTS	6.886	429.1 -> 80.9	1876	4.99 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3057	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-PFDoDA	9.081	615.1 -> 570.0	22468	1.27 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFTeDA	9.886	715.2 -> 670.0	18596	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C3-PFBS	5.414	302.1 -> 79.9	11687	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFHxS	7.217	402.1 -> 79.9	7599	2.39 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 = 95.6%	
13C4-PFBA	2.911	216.8 -> 171.9	119654	9.95 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.455	367.1 -> 322.0	29875	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C5-PFHxA	5.510	318.0 -> 273.0	49354	2.56 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.350	268.3 -> 223.0	67757	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.166	519.1 -> 474.1	20346	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C7-PFUnDA	8.635	570.0 -> 525.1	21156	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-FOSA	9.758	506.1 -> 77.8	16919	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-PFOA	7.111	421.1 -> 376.0	43497	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-PFOS	8.316	507.1 -> 79.9	10335	2.68 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C9-PFNA	7.658	472.1 -> 427.0	20317	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSAA	8.224	573.2 -> 419.0	15580	6.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.4%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	30253	10.51 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
d3-MeFOSA	11.051	515.0 -> 219.0	10964	2.73 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
d5-EtFOSAA	8.433	589.2 -> 419.0	12098	5.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
d7-MeFOSE	10.947	623.2 -> 58.9	80643	25.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d9-EtFOSE	11.244	639.2 -> 58.9	119872	26.54 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
d5-EtFOSA	11.348	531.1 -> 219.0	11379	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
Target Compounds					QValue
4:2FTS	5.210	327.1 -> 307.0	91008	49.85 µg/L	93
		327.1 -> 80.9	38405		
6:2FTS	6.886	427.1 -> 407.0	96692	53.36 µg/L	97
		427.1 -> 80.9	39102		
8:2FTS	7.954	527.1 -> 507.0	91390	53.63 µg/L	95
		527.1 -> 80.8	35708		
EtFOSAA	8.434	584.2 -> 419.1	29724	12.79 µg/L	m 97
		584.2 -> 526.0	14584		
FOSA	9.761	498.1 -> 77.9	215824	30.44 µg/L	m 99
		498.1 -> 478.0	6518		
MeFOSAA	8.225	570.1 -> 419.0	32953	12.14 µg/L	m 94
		570.1 -> 483.0	6799		
PFBA	2.907	212.8 -> 168.9	172708	53.90 µg/L	100
PFBS	5.415	298.7 -> 79.9	57018	11.89 µg/L	97
		298.7 -> 98.8	22261		
PFDA	8.166	512.9 -> 469.0	205207	13.29 µg/L	97
		512.9 -> 219.0	41256		
PFDoDA	9.094	613.1 -> 569.0	229603	12.74 µg/L	100
		613.1 -> 319.0	33205		
PFDS	9.244	599.0 -> 79.9	32797	12.81 µg/L	93

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	16772			
PFHpA	6.455	363.1 -> 319.0	251318	13.31	µg/L	98
		363.1 -> 169.0	43064			
PFHpS	7.797	449.0 -> 79.9	47137	12.66	µg/L	99
		449.0 -> 98.9	24887			
PFHxA	5.513	313.0 -> 269.0	252397	13.05	µg/L	99
		313.0 -> 118.9	7767			
PFHxS	7.218	398.7 -> 79.9	37325	11.98	µg/L	m 97
		398.7 -> 98.9	19559			
PFNA	7.659	463.0 -> 419.0	399781	26.55	µg/L	m 96
		463.0 -> 219.0	107916			
PFNS	8.799	548.8 -> 79.9	29412	13.04	µg/L	98
		548.8 -> 98.9	14968			
PFOA	7.113	413.0 -> 369.0	661230	26.35	µg/L	m 93
		413.0 -> 169.0	150084			
PFOS	8.318	498.9 -> 79.9	60984	12.06	µg/L	m 93
		498.9 -> 98.8	32611			
PFPeA	4.352	263.0 -> 219.0	435219	26.70	µg/L	100
PFPeS	6.482	349.1 -> 79.9	34058	12.75	µg/L	96
		349.1 -> 98.9	14905			
PFTeDA	9.887	713.1 -> 669.0	247298	13.59	µg/L	100
		713.1 -> 168.9	20837			
PFTrDA	9.503	663.0 -> 619.0	322406	13.38	µg/L	97
		663.0 -> 168.9	31668			
PFUnDA	8.635	563.1 -> 519.0	186826	13.00	µg/L	96
		563.1 -> 269.1	36943			
11CI-PF3OUdS	9.556	630.9 -> 450.9	263768	24.24	µg/L	96
		632.9 -> 452.9	82123			
9CI-PF3ONS	8.663	530.8 -> 351.0	338021	24.40	µg/L	99
		532.8 -> 353.0	101547			
ADONA	6.718	376.9 -> 250.9	728297	23.94	µg/L	99
		376.9 -> 84.8	194611			
HFPO-DA	5.878	284.9 -> 168.9	76483	26.46	µg/L	99
		284.9 -> 184.9	9054			
3:3FTCA	3.823	241.0 -> 177.0	45775	63.82	µg/L	99
		241.0 -> 117.0	4083			
5:3FTCA	6.180	341.0 -> 237.1	841708	320.79	µg/L	100
		341.0 -> 217.0	575949			
7:3FTCA	7.636	441.0 -> 316.9	430006	315.39	µg/L	96
		441.0 -> 336.9	997461			
EtFOSA	11.350	526.0 -> 219.0	225204	47.24	µg/L	m 99
		526.0 -> 169.0	309822			
EtFOSE	11.270	630.0 -> 58.9	402929	86.83	µg/L	100
MeFOSA	11.053	511.9 -> 219.0	191225	46.30	µg/L	m 98
		511.9 -> 169.0	278854			
MeFOSE	10.960	616.1 -> 58.9	287291	86.73	µg/L	m 100
PFDoDS	10.027	699.1 -> 79.9	29285	12.82	µg/L	98
		699.1 -> 98.8	16233			
NFDHA	5.403	295.0 -> 201.0	37035	26.82	µg/L	95
		295.0 -> 84.9	9242			
PFMBA	4.753	279.0 -> 85.1	239209	26.29	µg/L	100
PFMPA	3.515	229.0 -> 84.9	222443	26.10	µg/L	100
PFEESA	5.946	314.8 -> 134.9	340737	23.28	µg/L	100
		314.8 -> 82.9	12053			

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

7.6.2
7

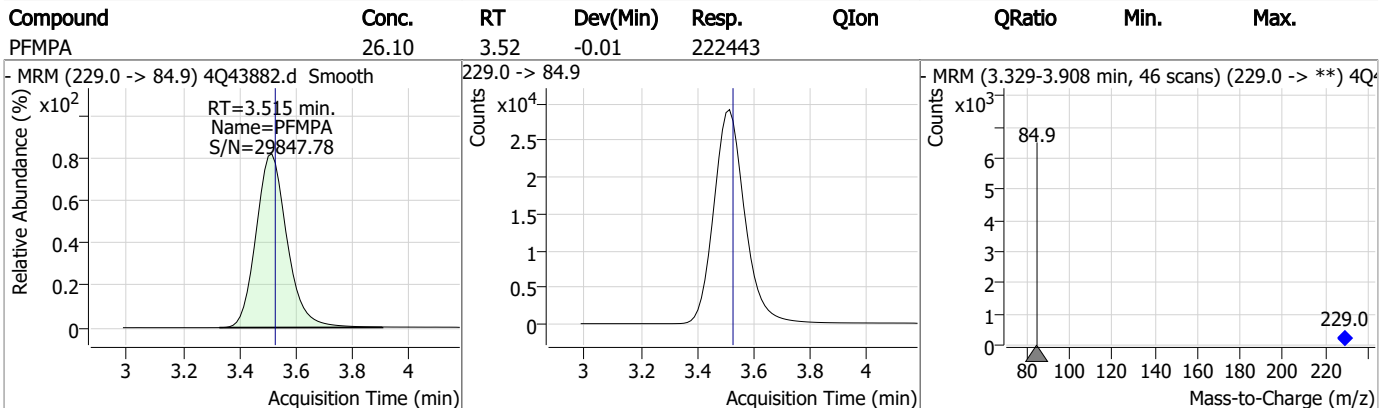
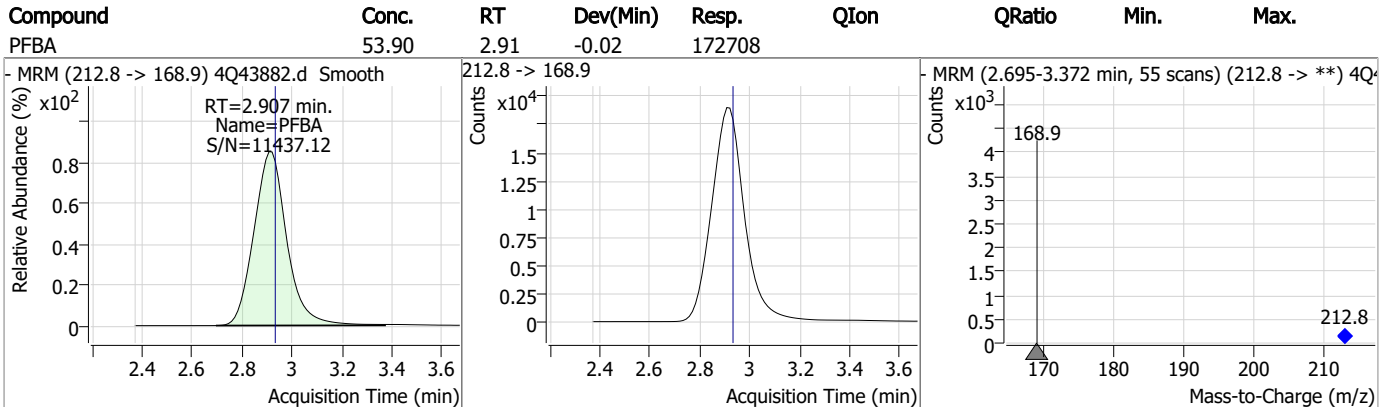
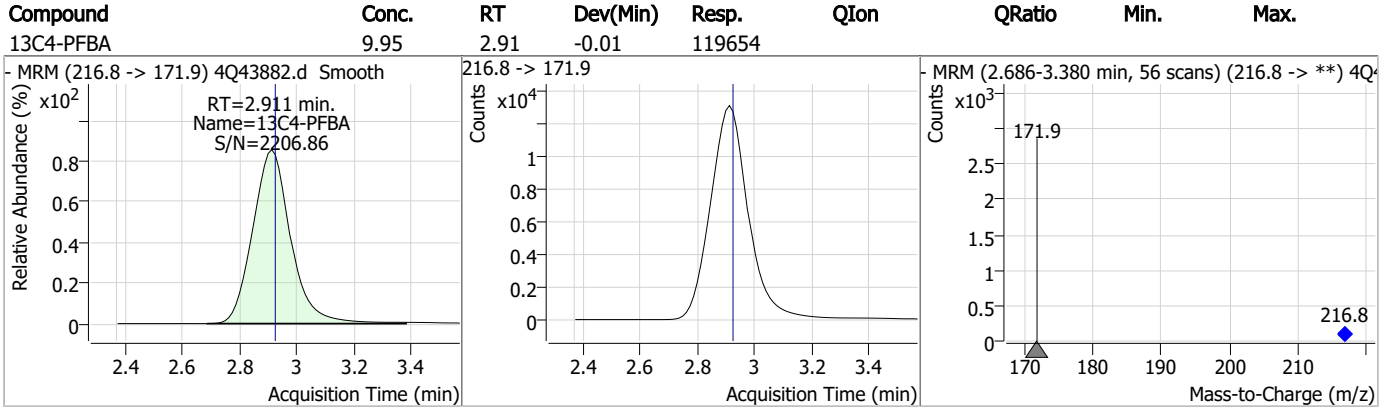
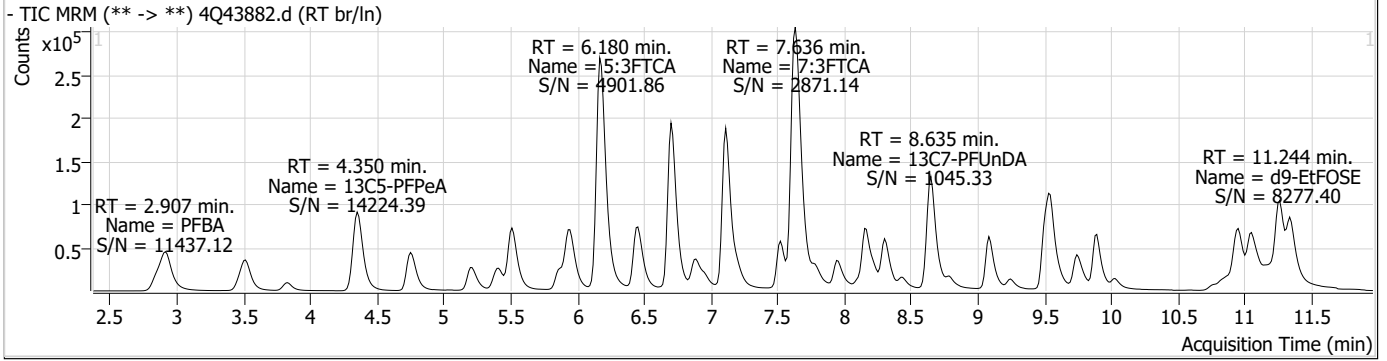
Perfluorinated Compounds by LC/MS/MS

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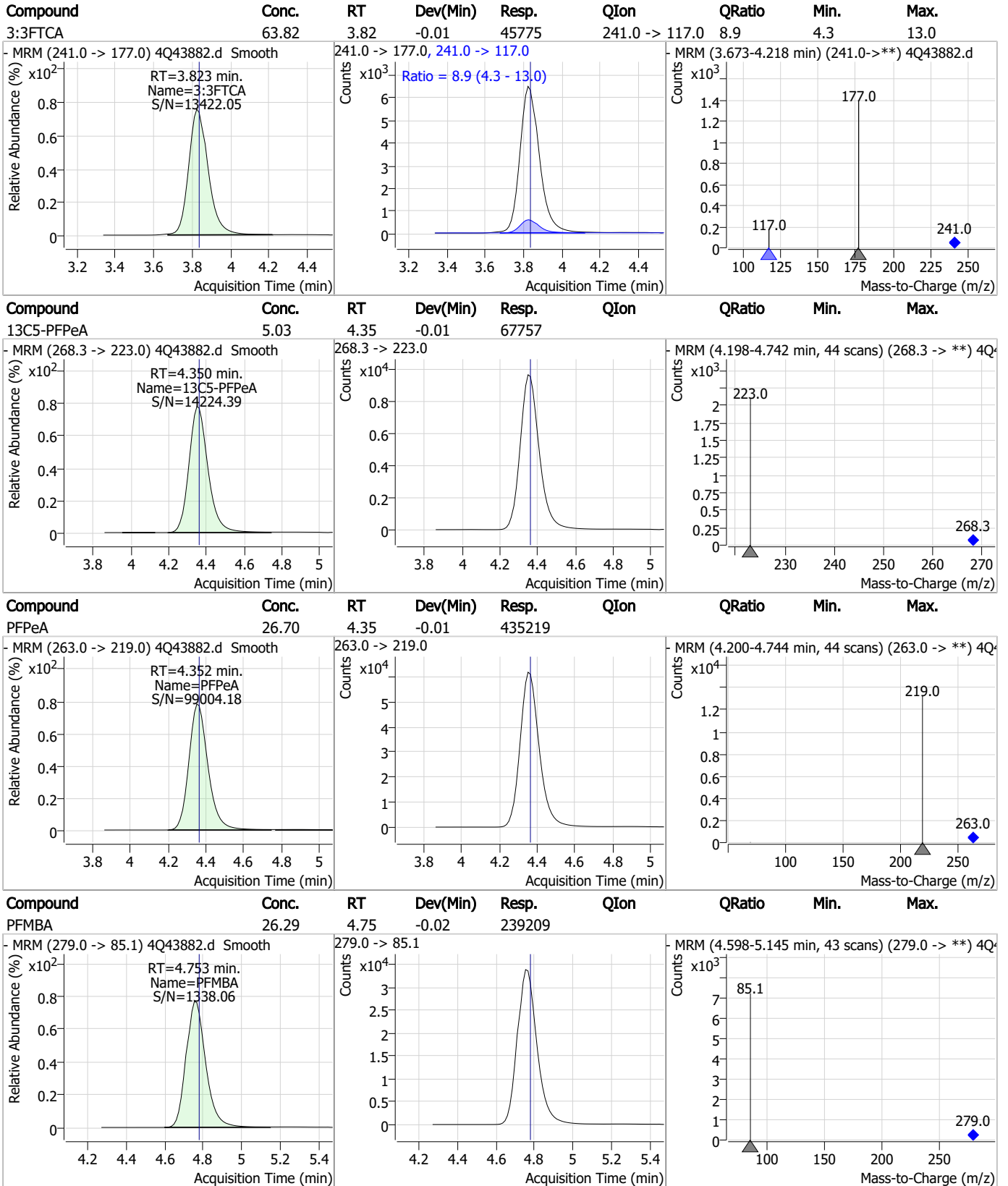
7.6.2

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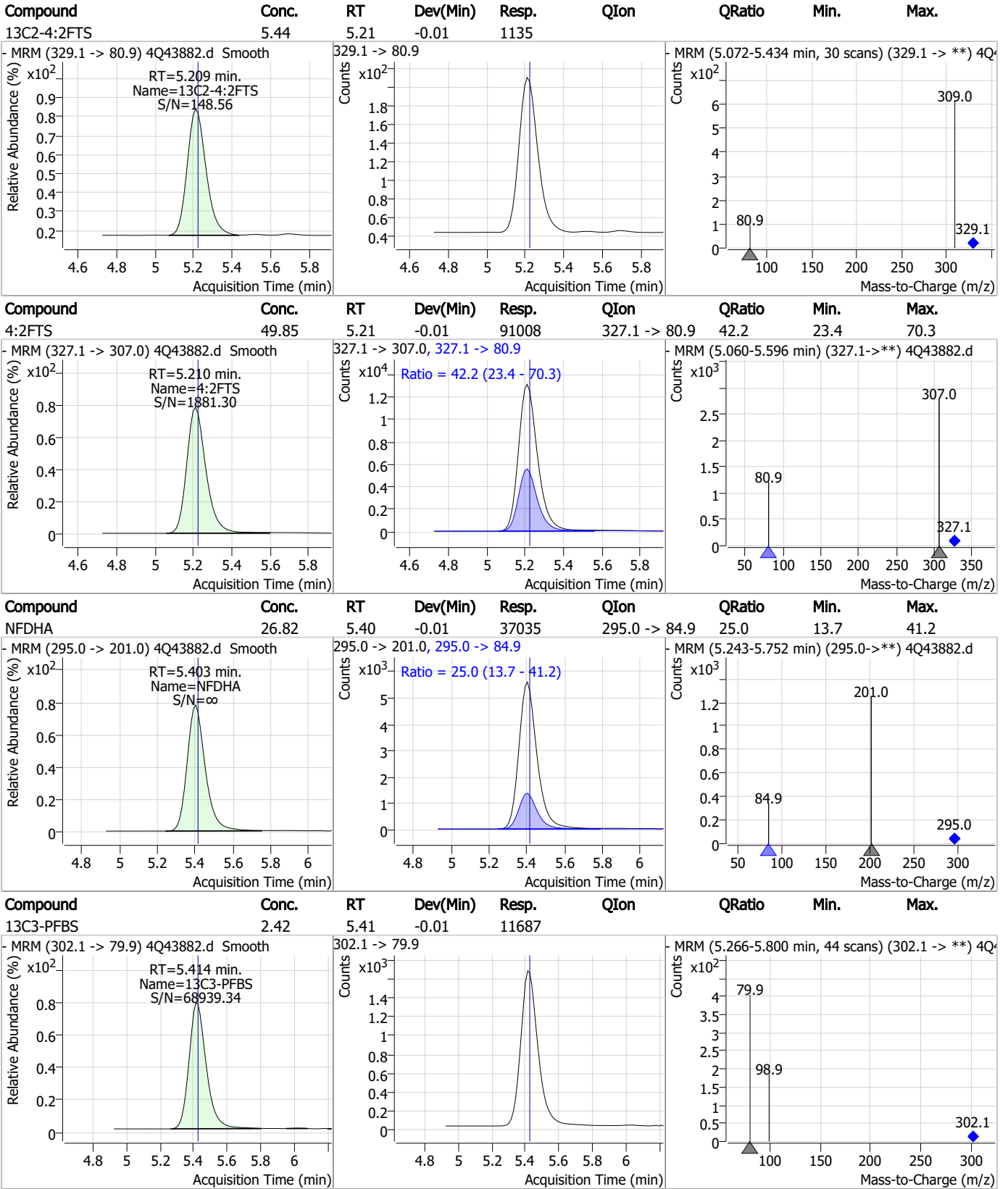
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

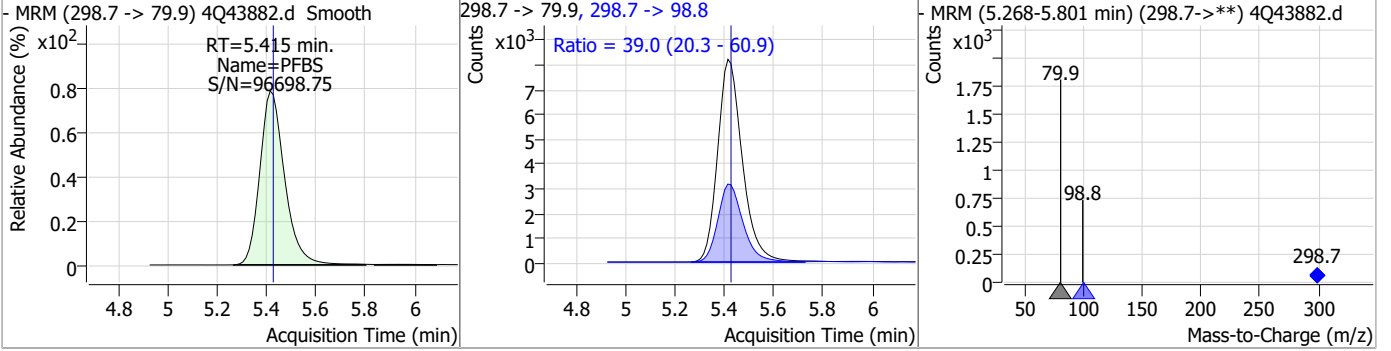


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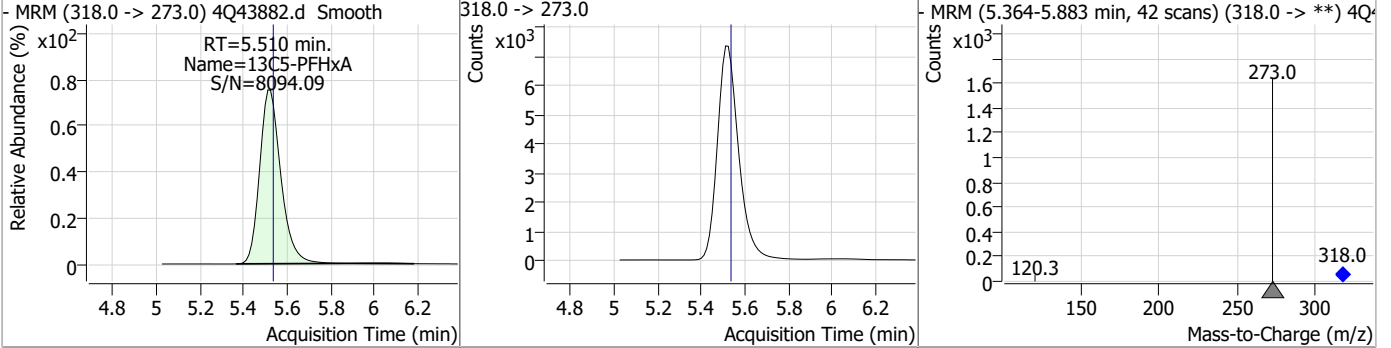
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Perfluorinated Compounds by LC/MS/MS

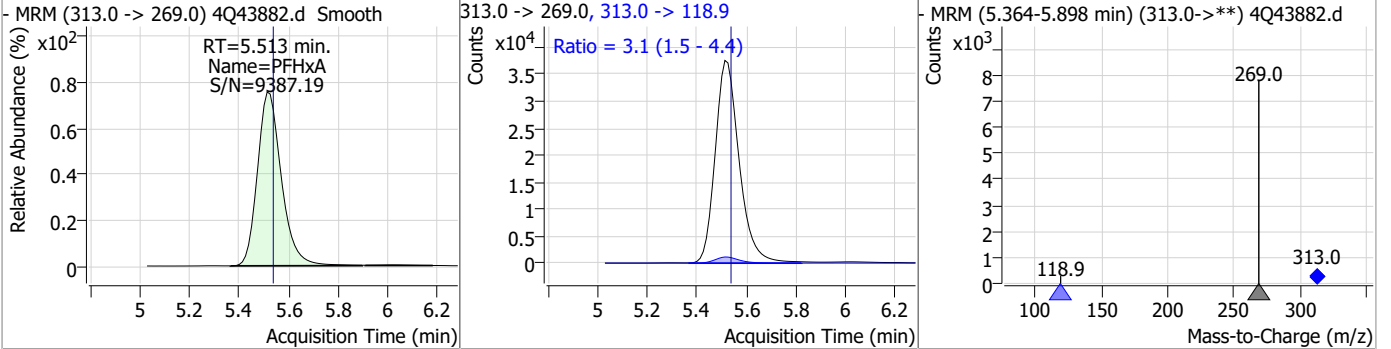
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.89	5.42	-0.01	57018	298.7 -> 98.8	39.0	20.3	60.9



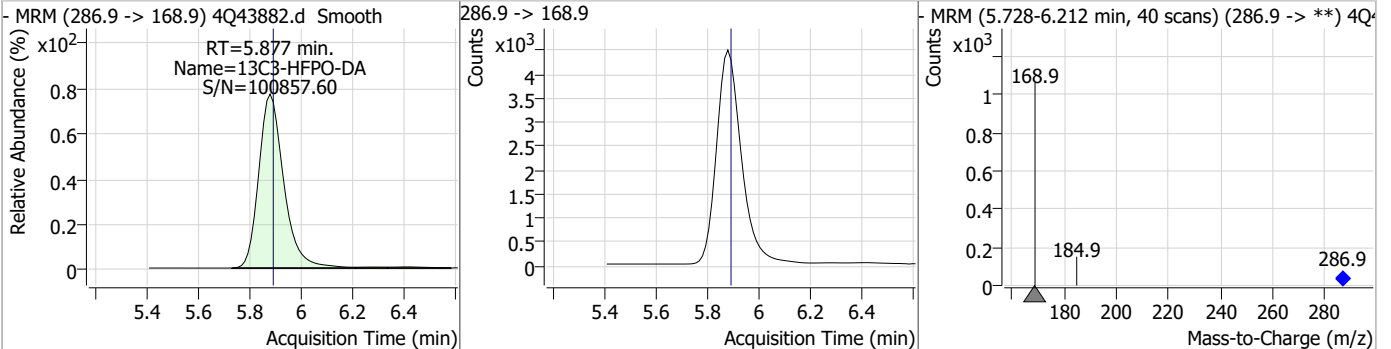
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.51	-0.02	49354				



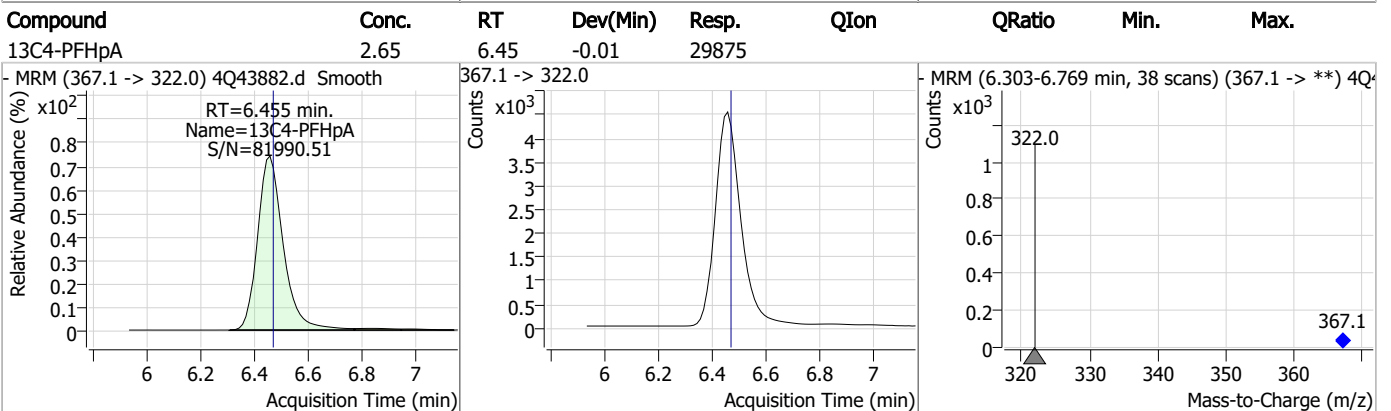
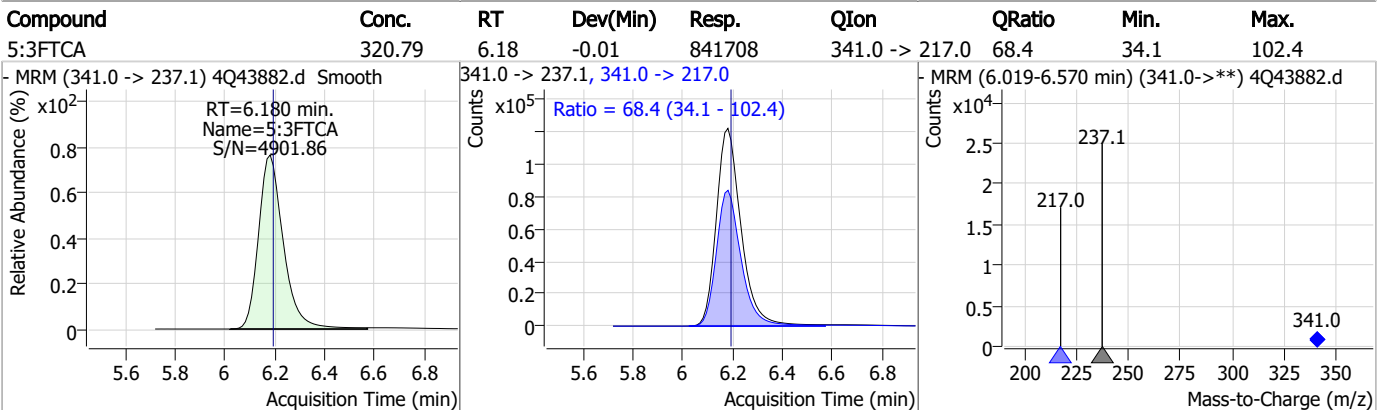
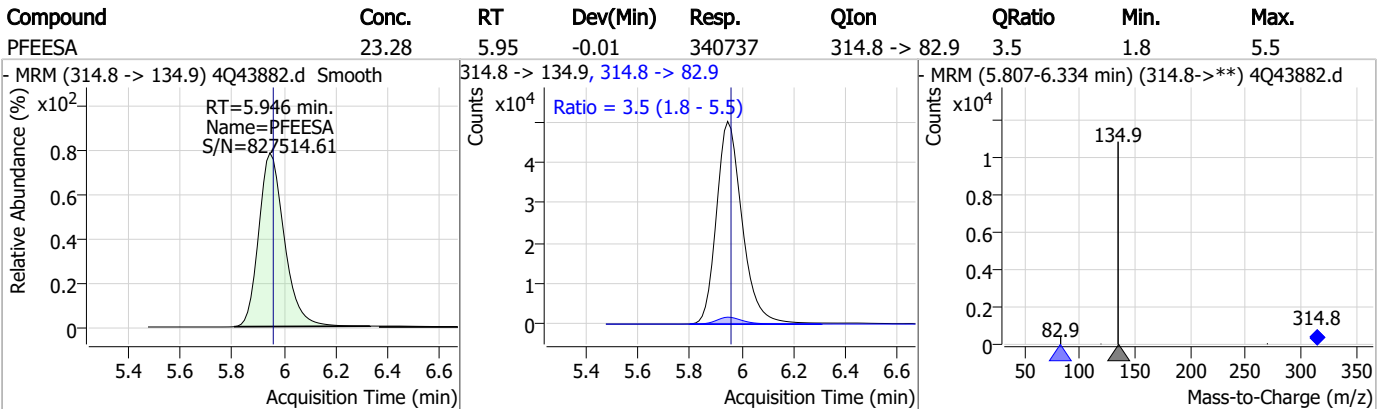
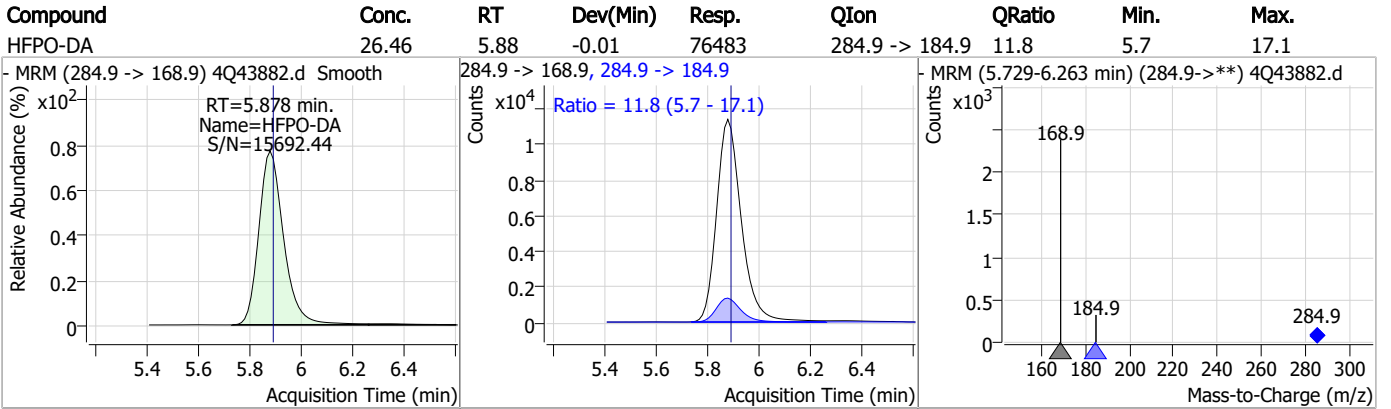
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.05	5.51	-0.02	252397	313.0 -> 118.9	3.1	1.5	4.4



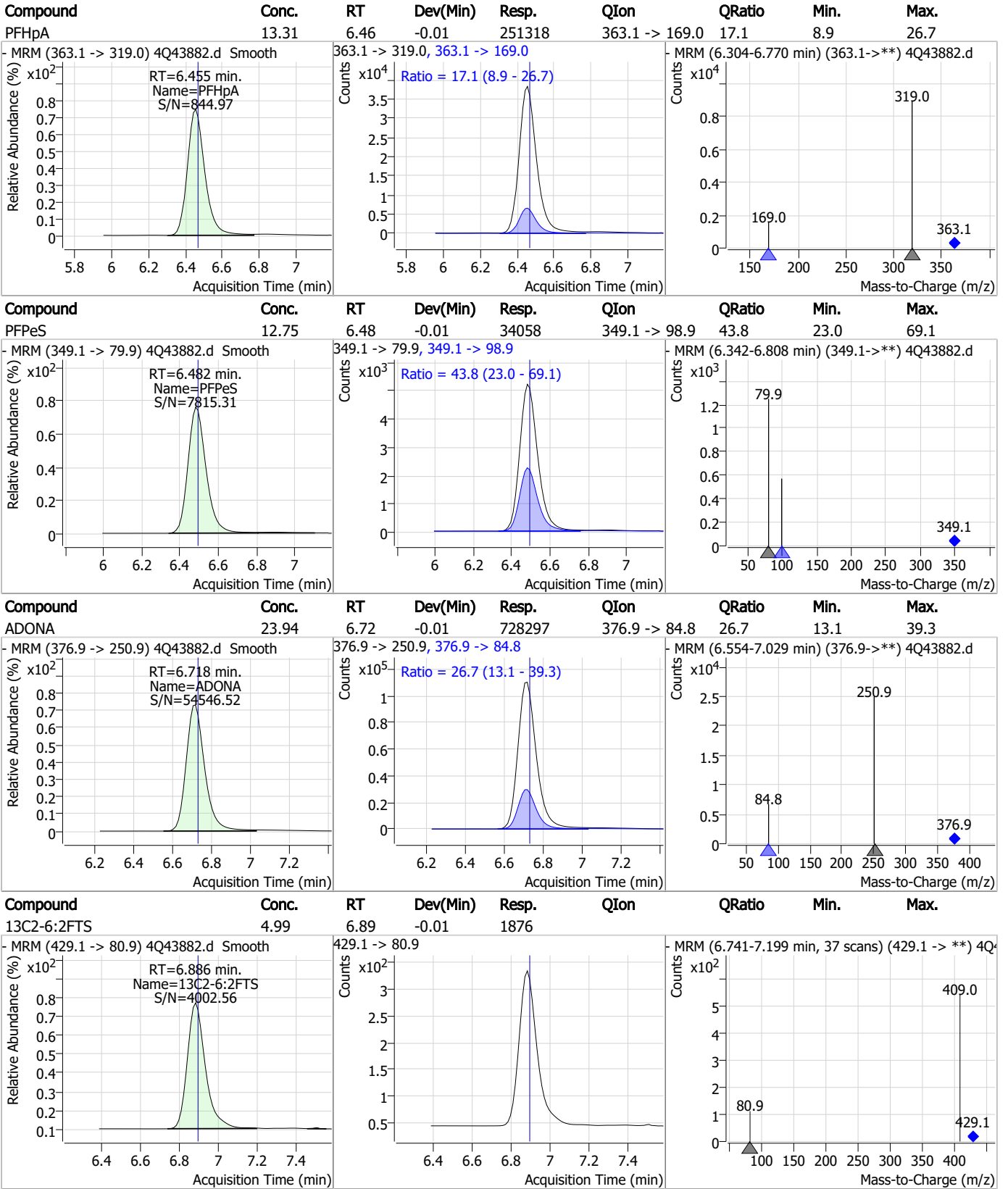
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.51	5.88	-0.01	30253				



Perfluorinated Compounds by LC/MS/MS

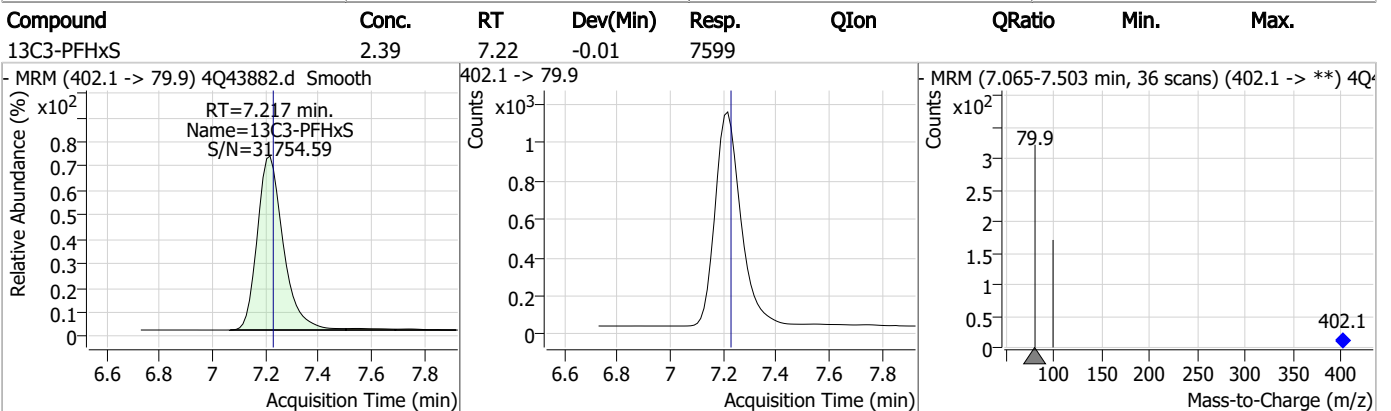
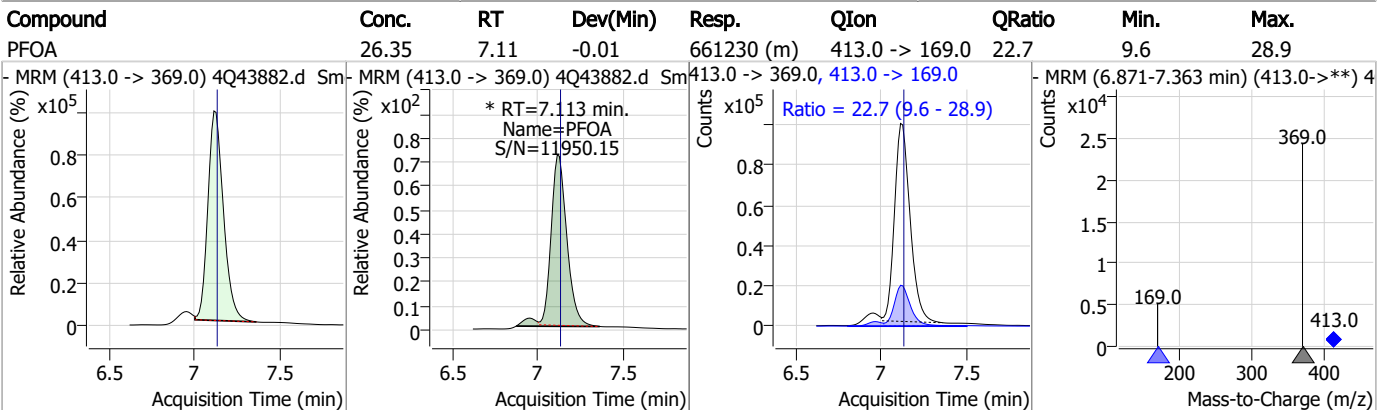
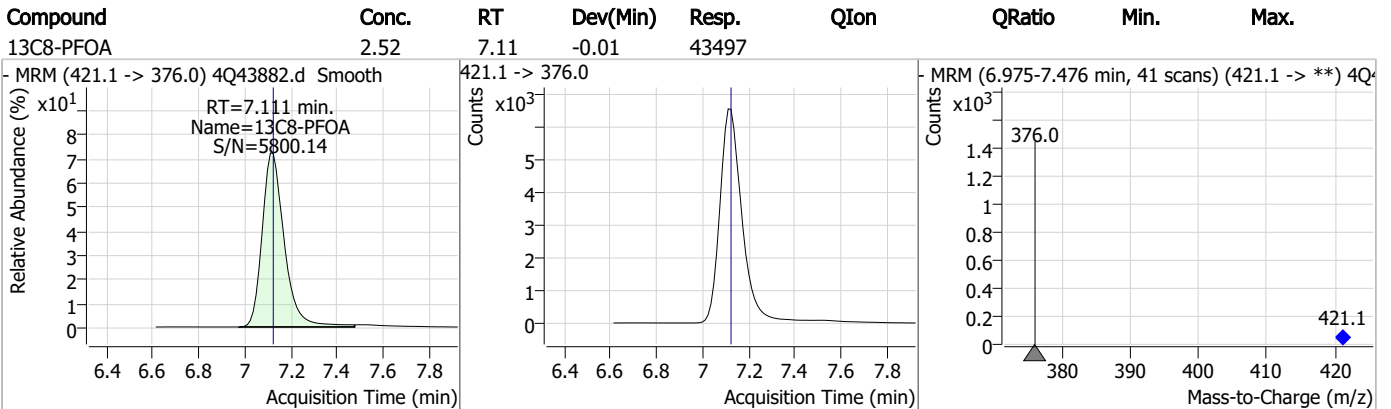
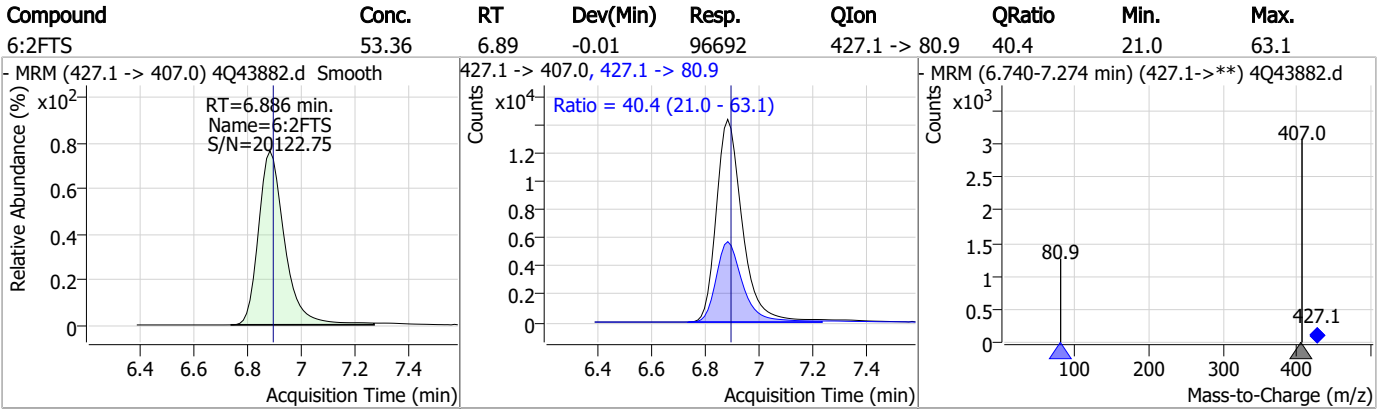


Perfluorinated Compounds by LC/MS/MS

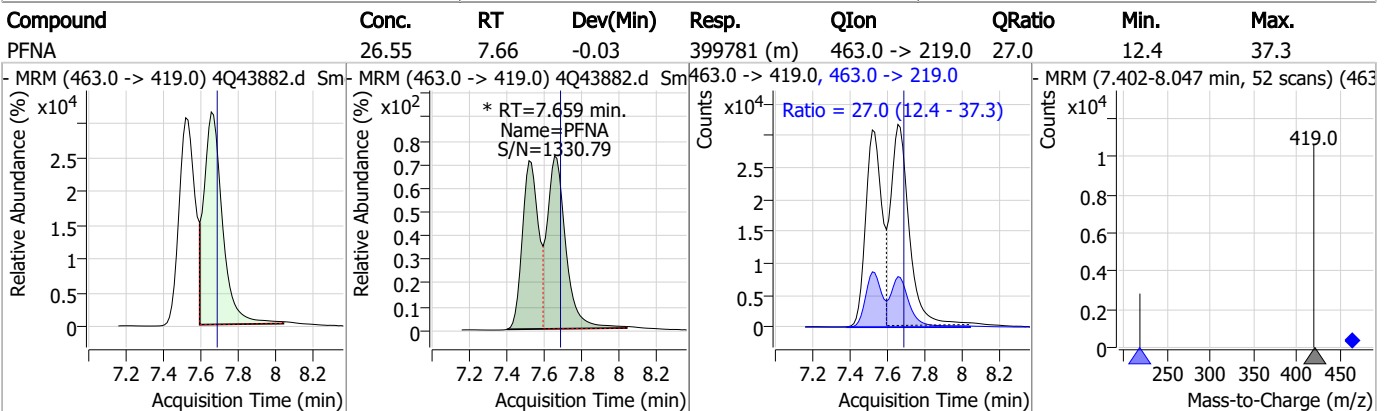
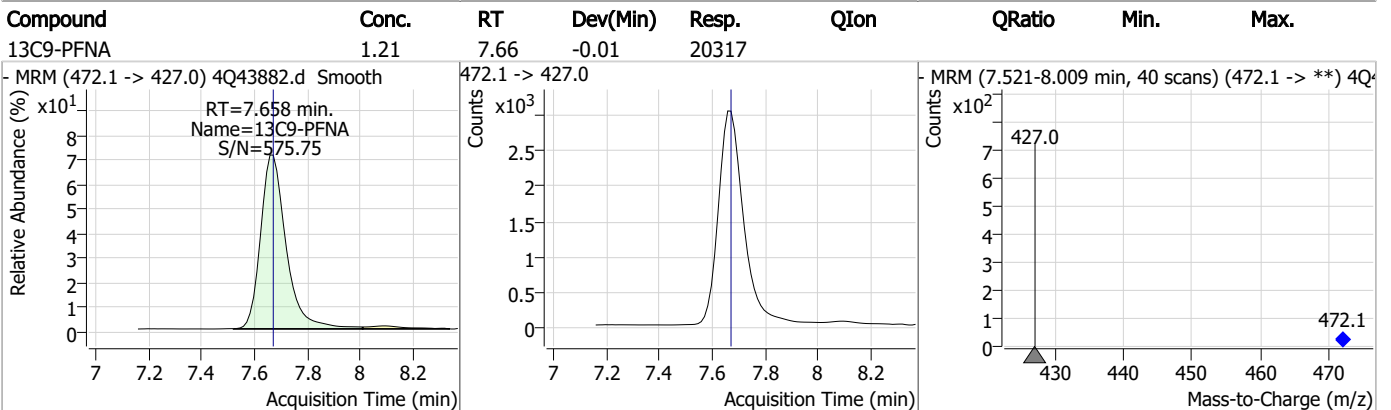
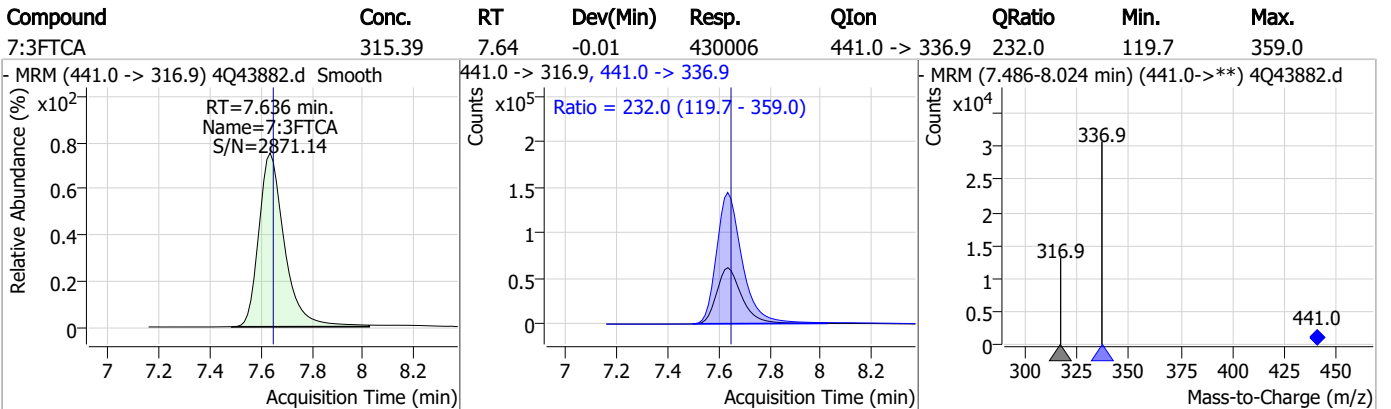
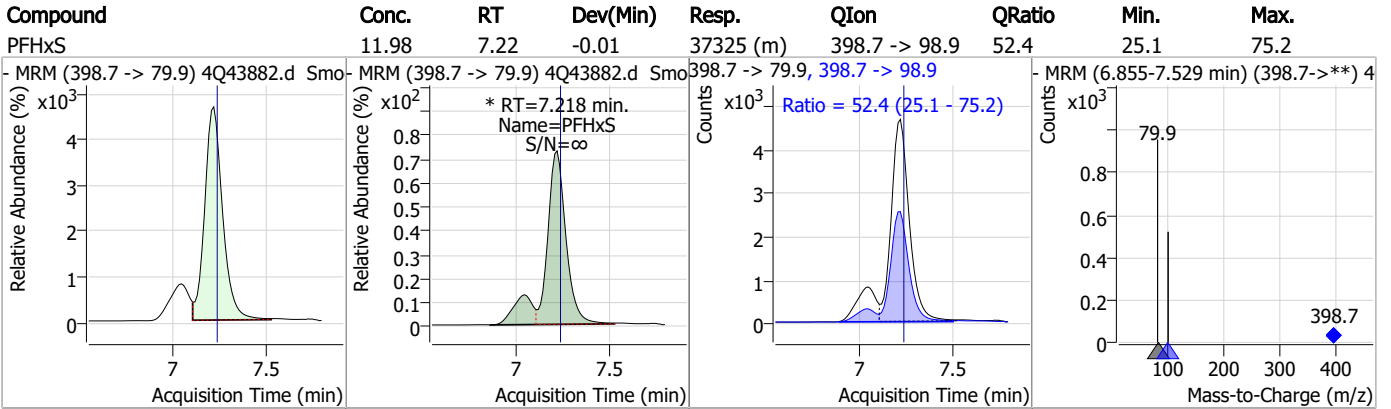


7.6.2
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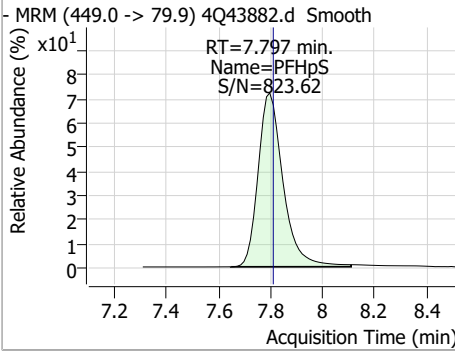
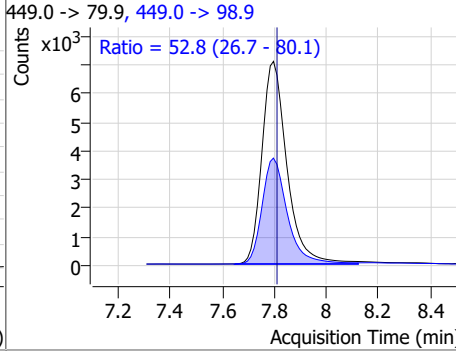
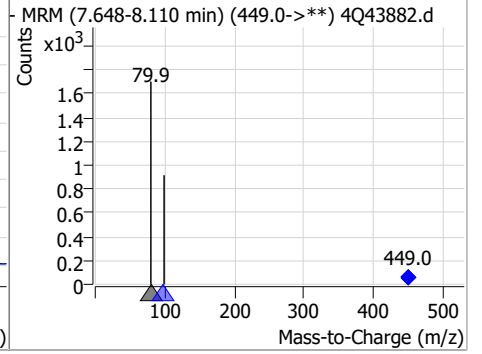
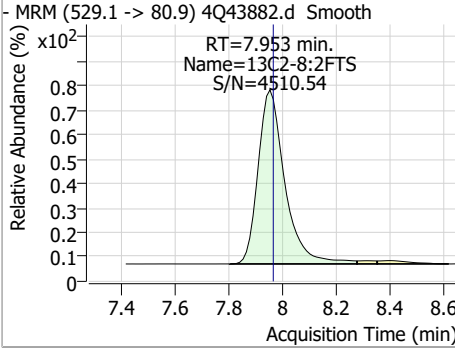
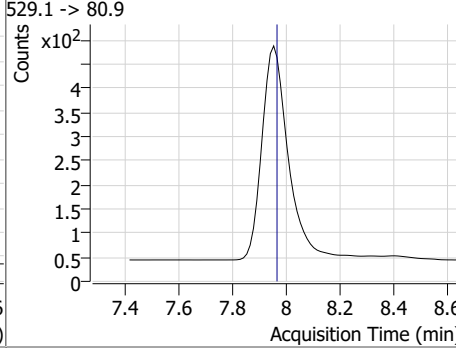
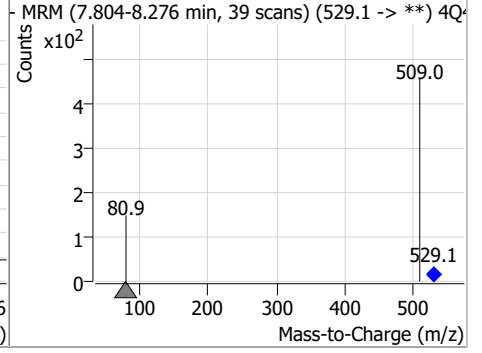
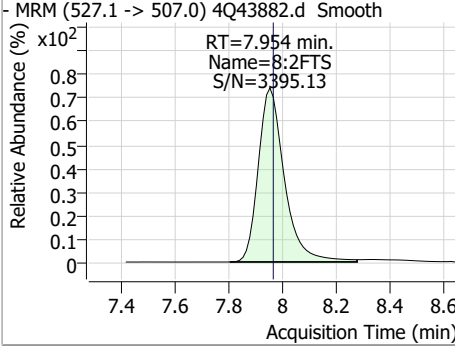
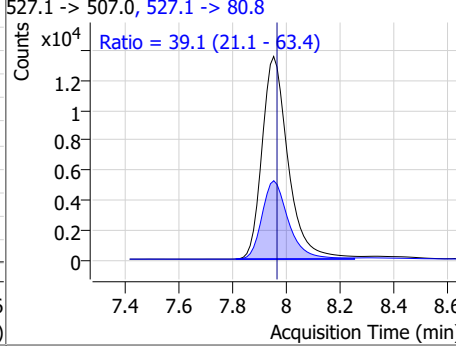
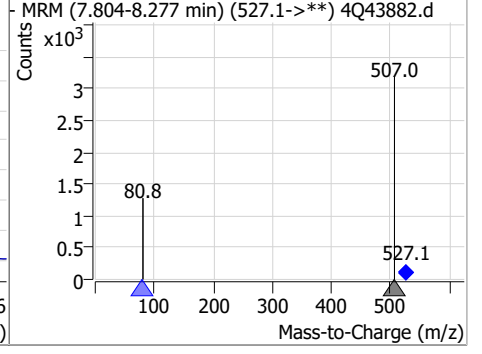
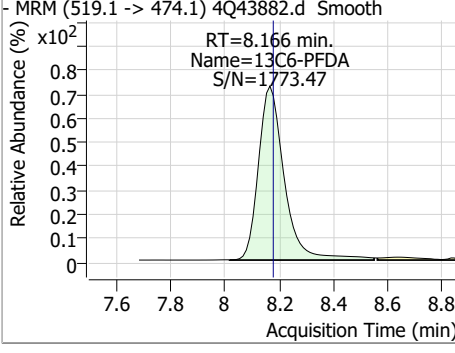
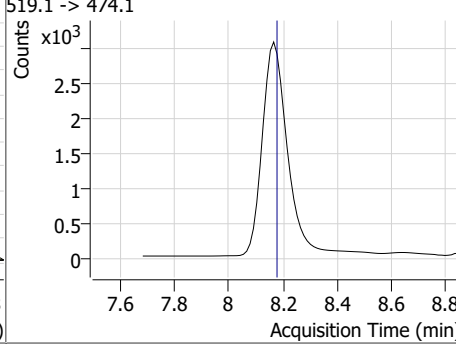
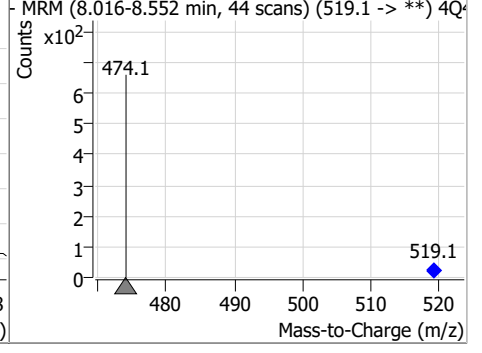
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

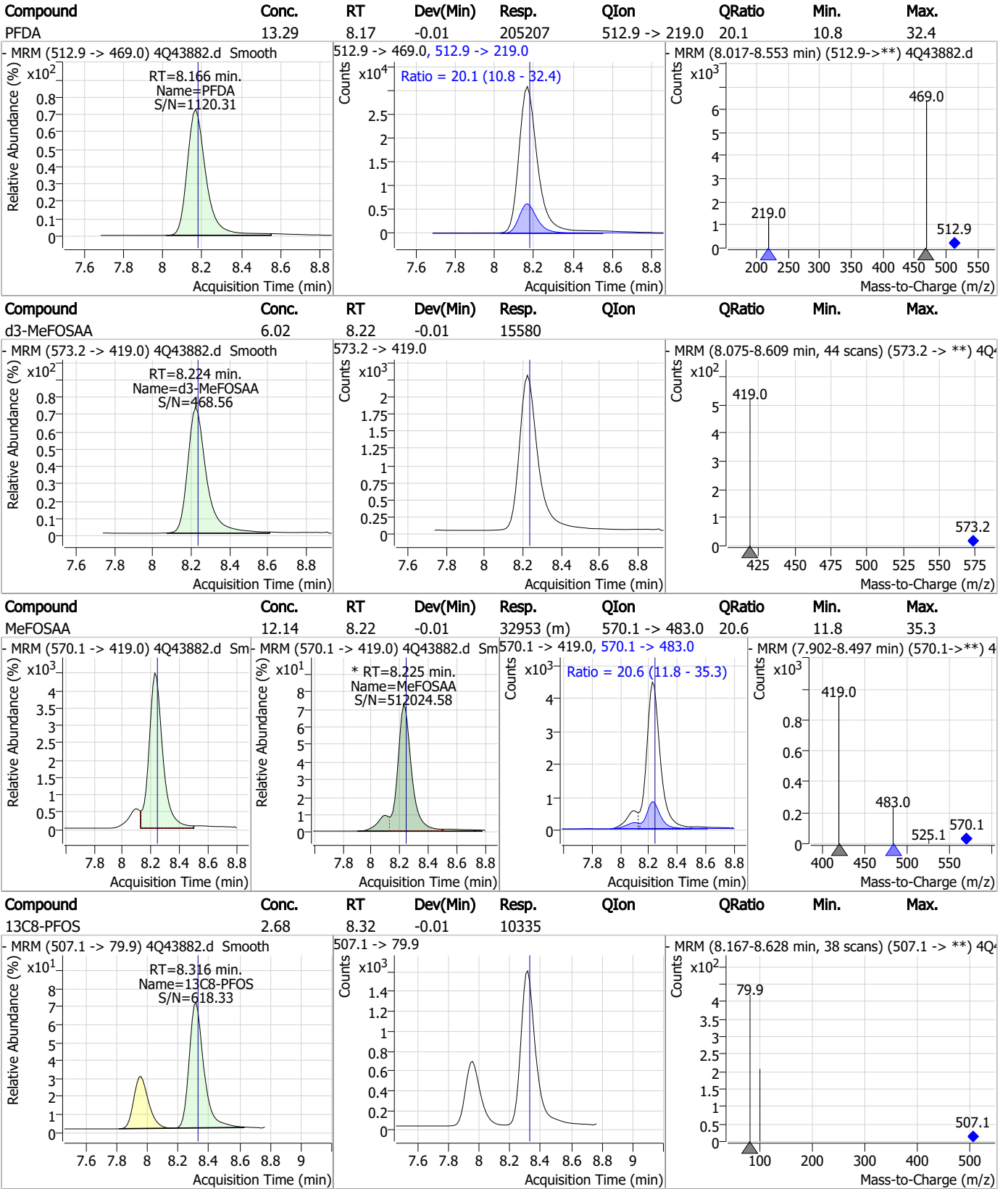
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	12.66	7.80	-0.01	47137	449.0 -> 98.9	52.8	26.7	80.1
								
13C2-8:2FTS	5.21	7.95	-0.01	3057	529.1 -> 80.9			
								
8:2FTS	53.63	7.95	-0.01	91390	527.1 -> 80.8	39.1	21.1	63.4
								
13C6-PFDA	1.30	8.17	-0.01	20346	519.1 -> 474.1			
								

7.6.2

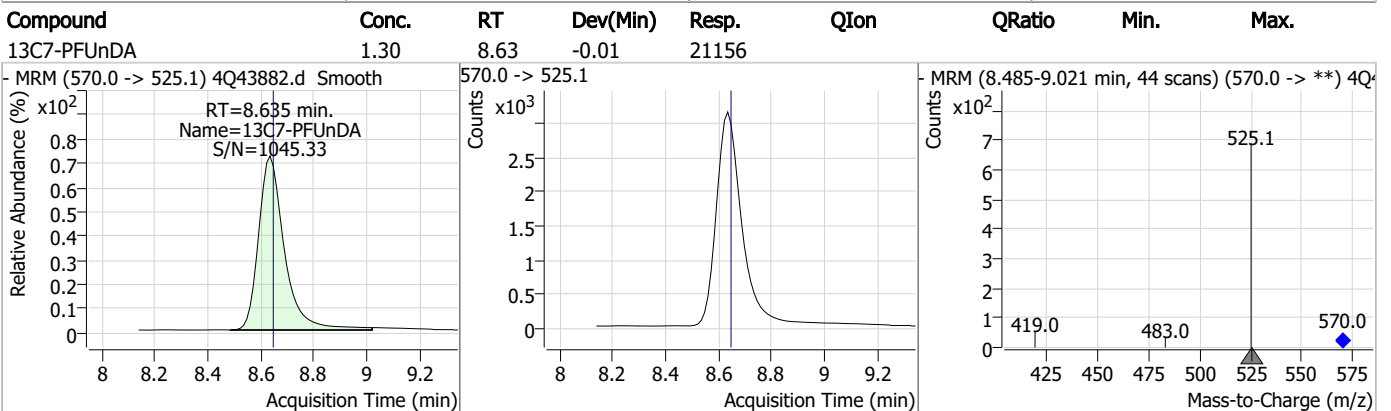
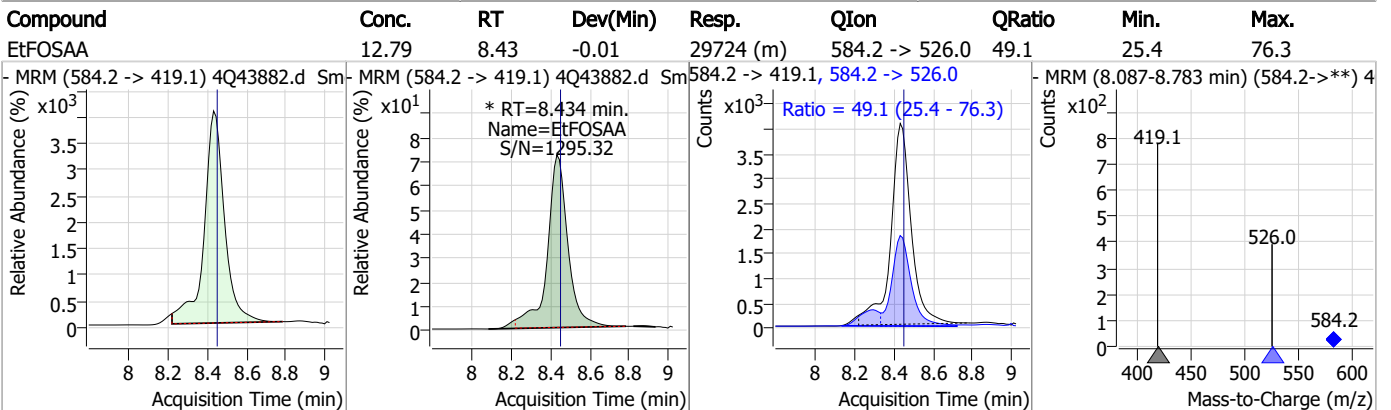
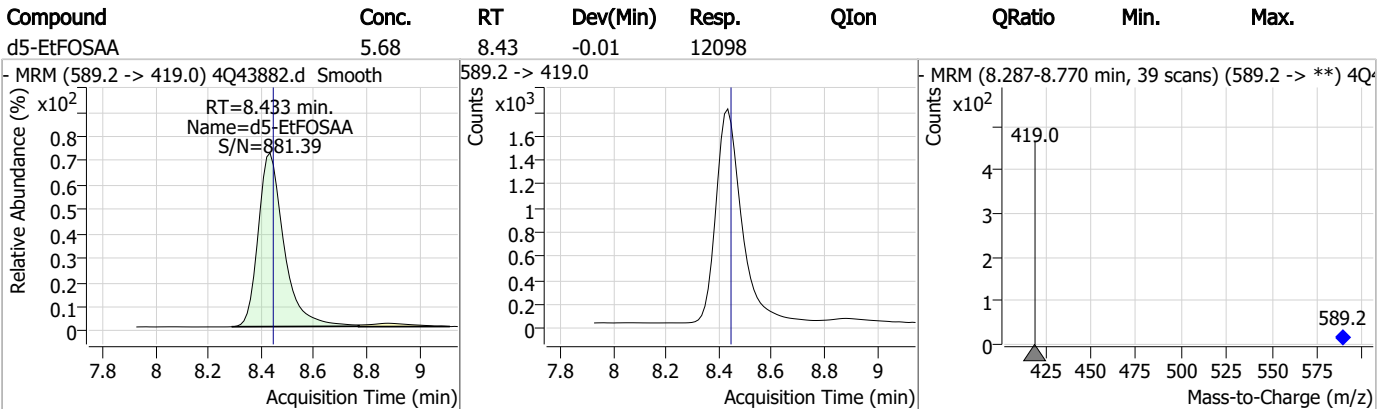
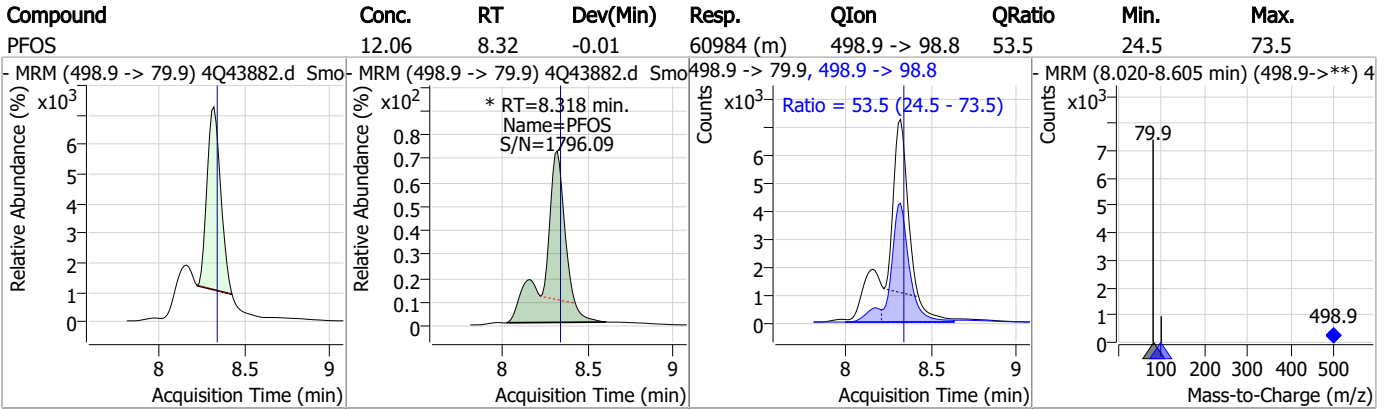
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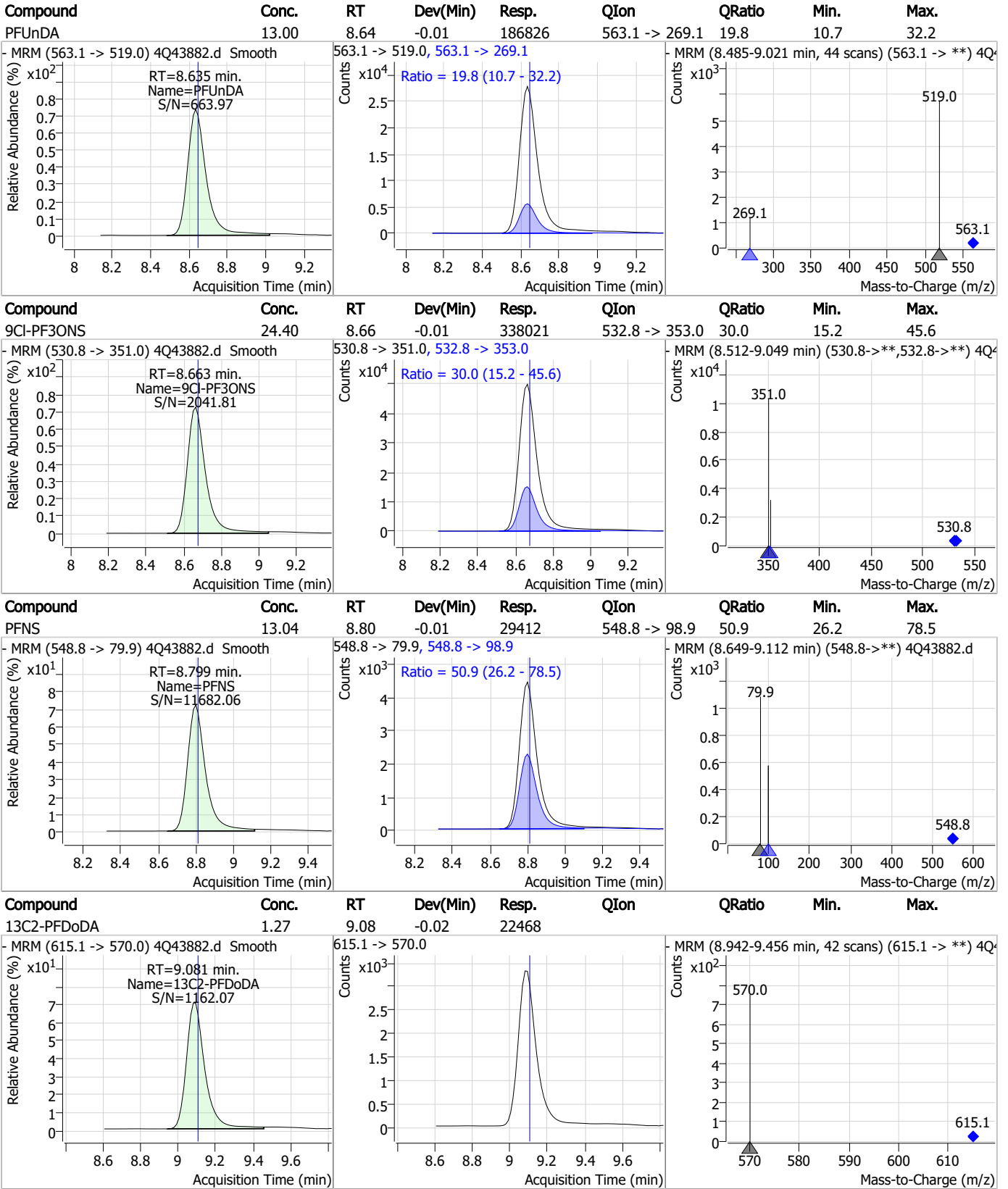
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

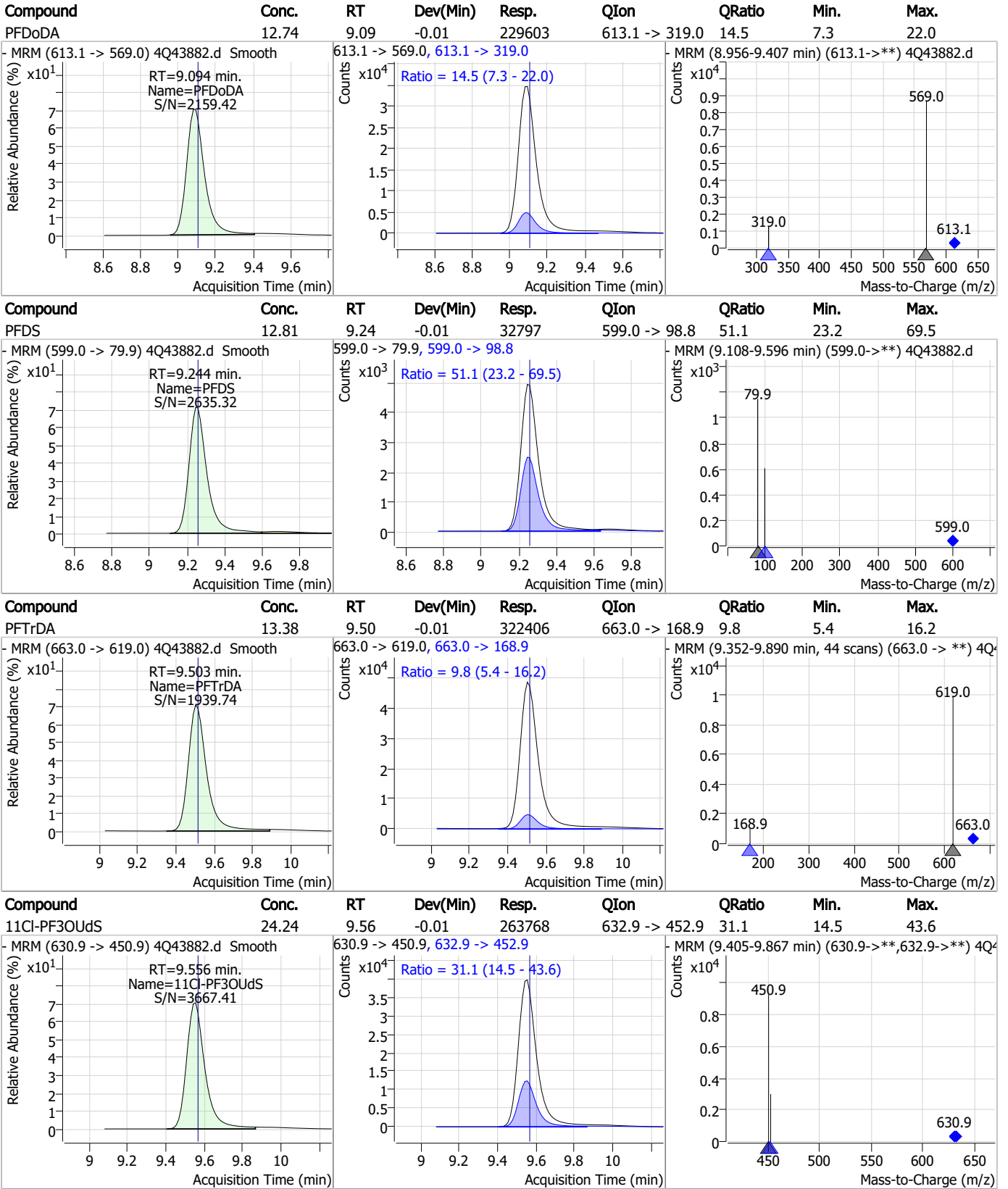


7.6.2

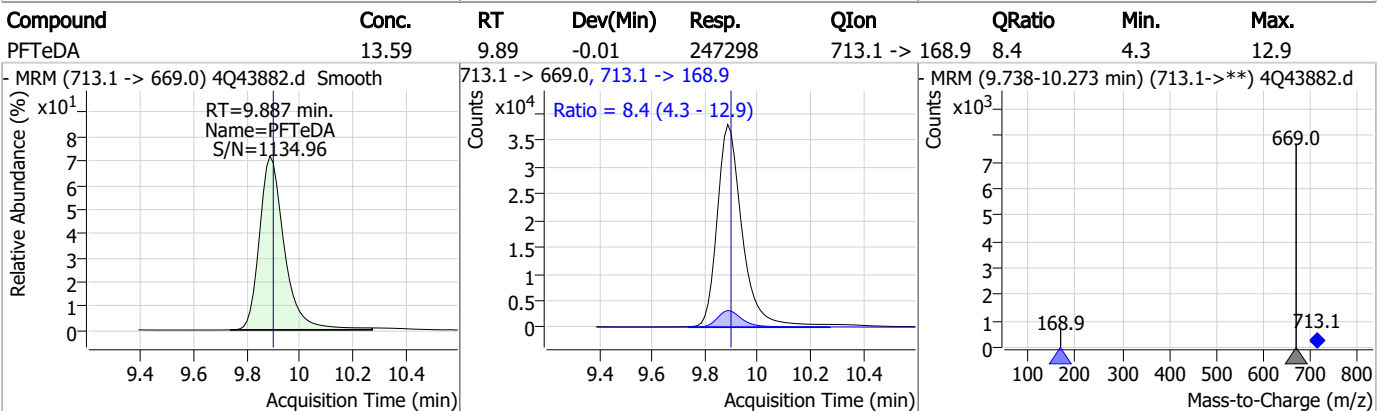
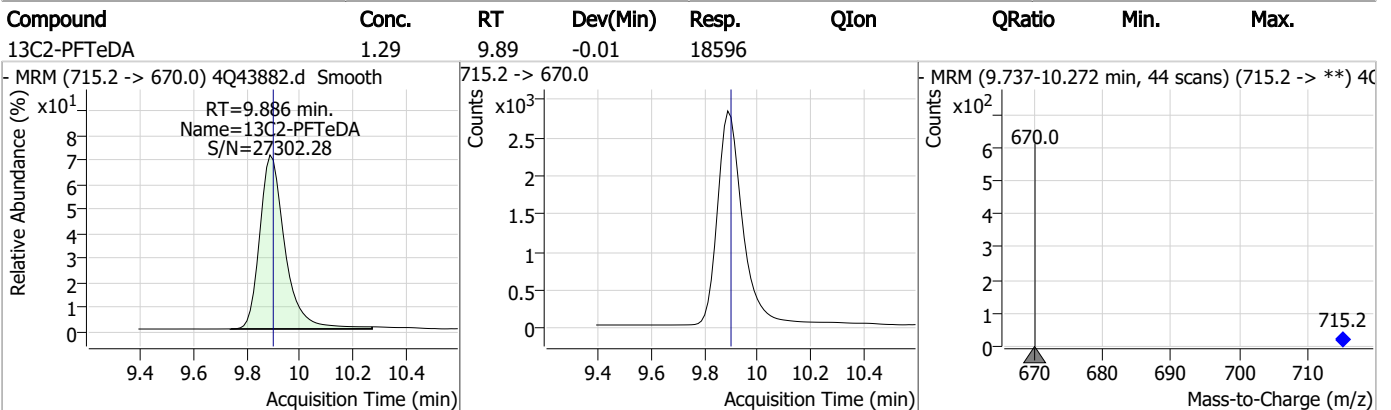
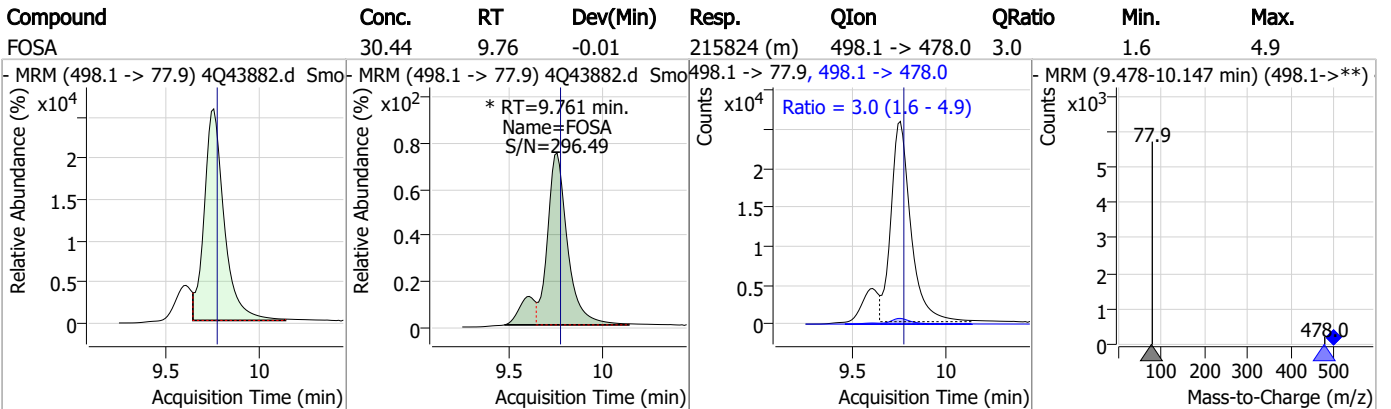
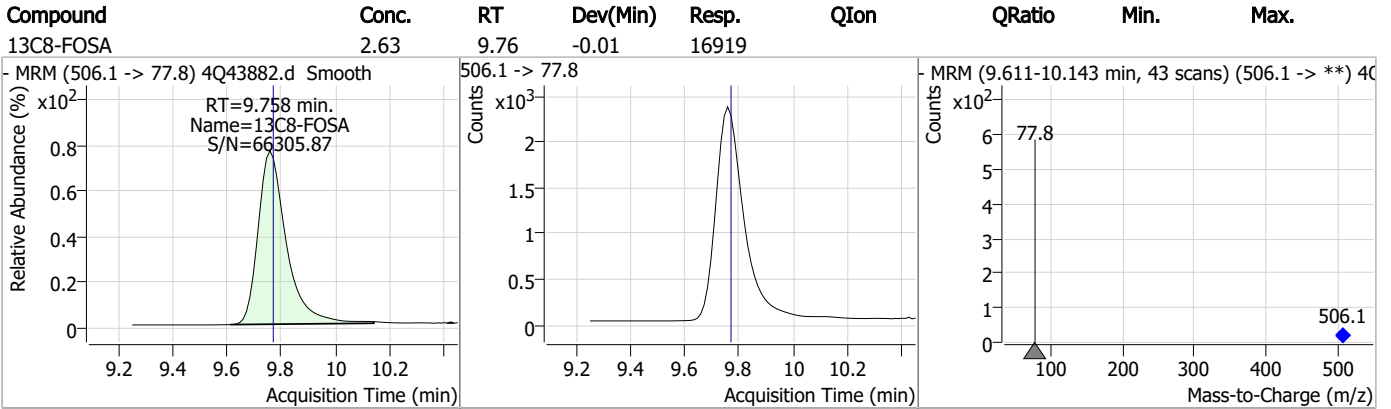
7



Perfluorinated Compounds by LC/MS/MS

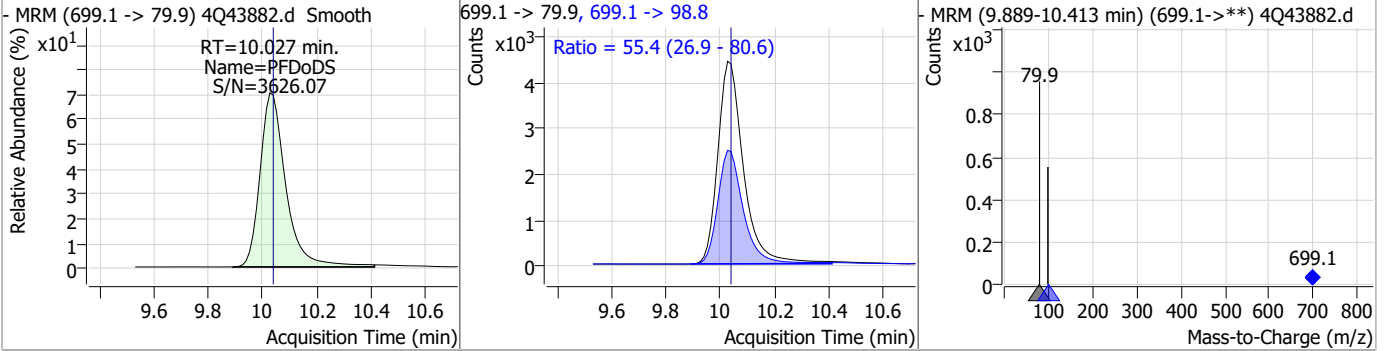


Perfluorinated Compounds by LC/MS/MS

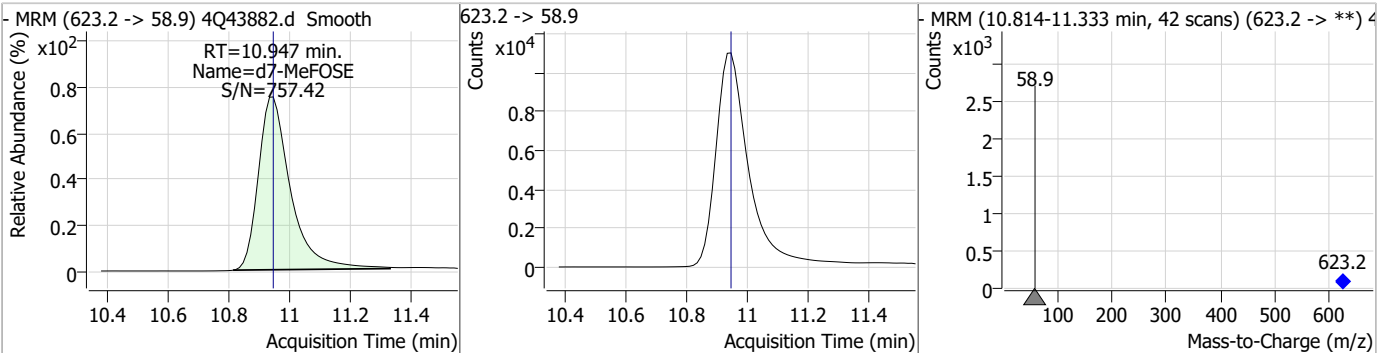


Perfluorinated Compounds by LC/MS/MS

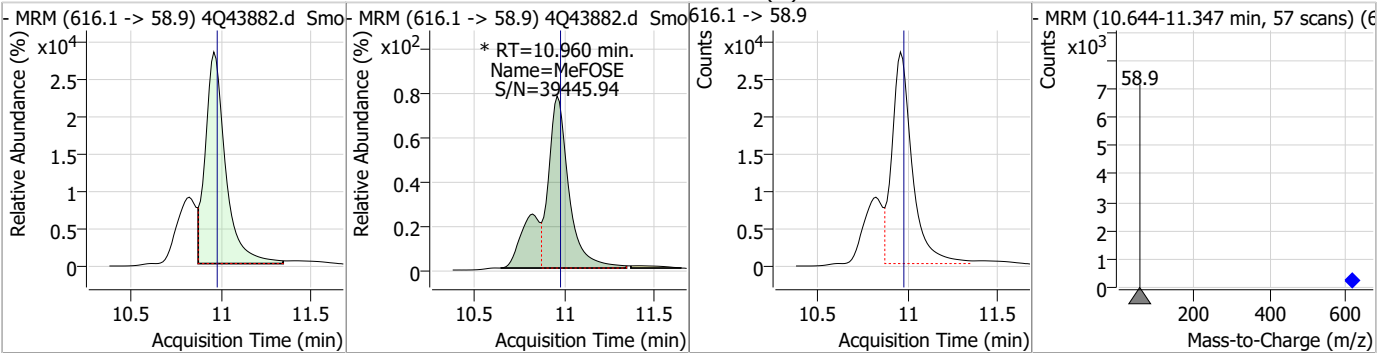
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	12.82	10.03	-0.01	29285	699.1 -> 98.8	55.4	26.9	80.6



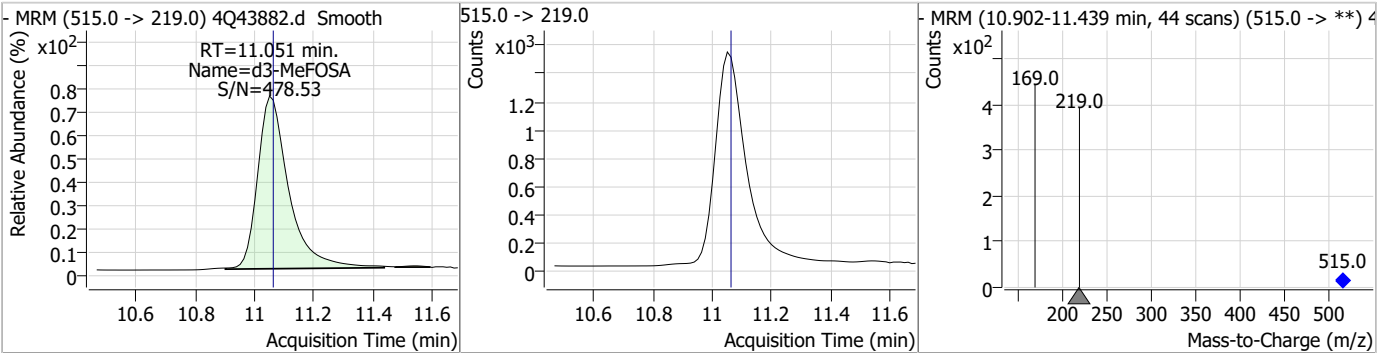
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.28	10.95	0.00	80643				



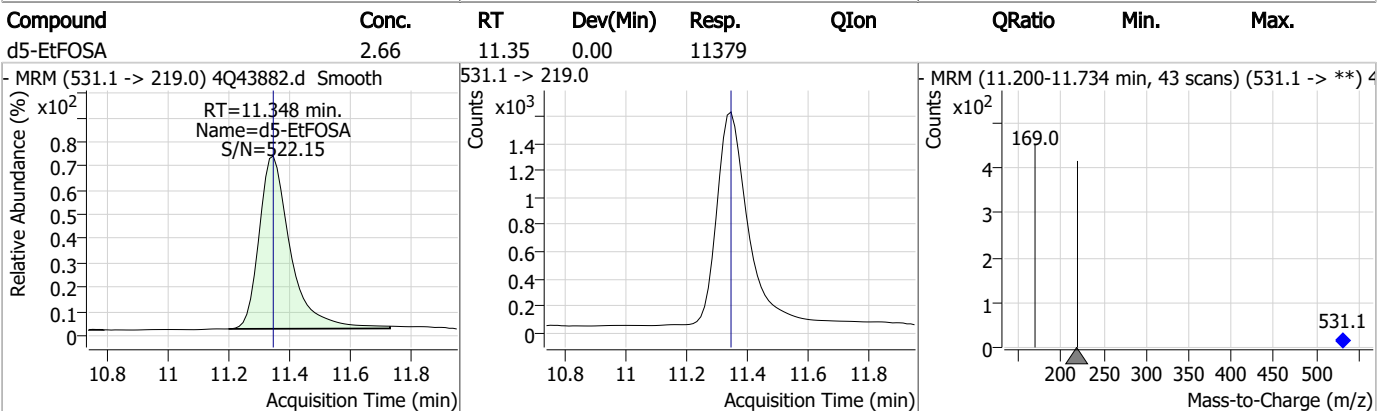
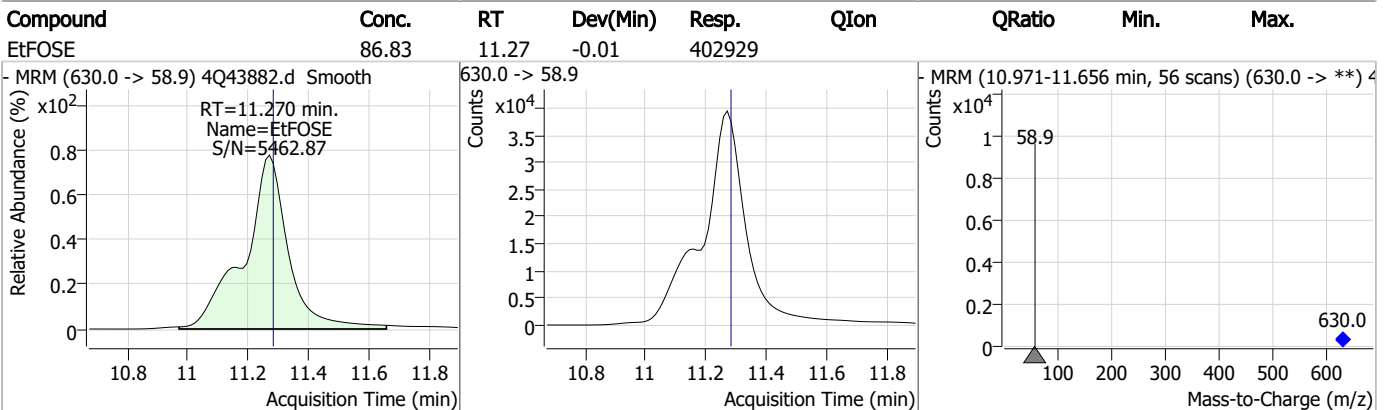
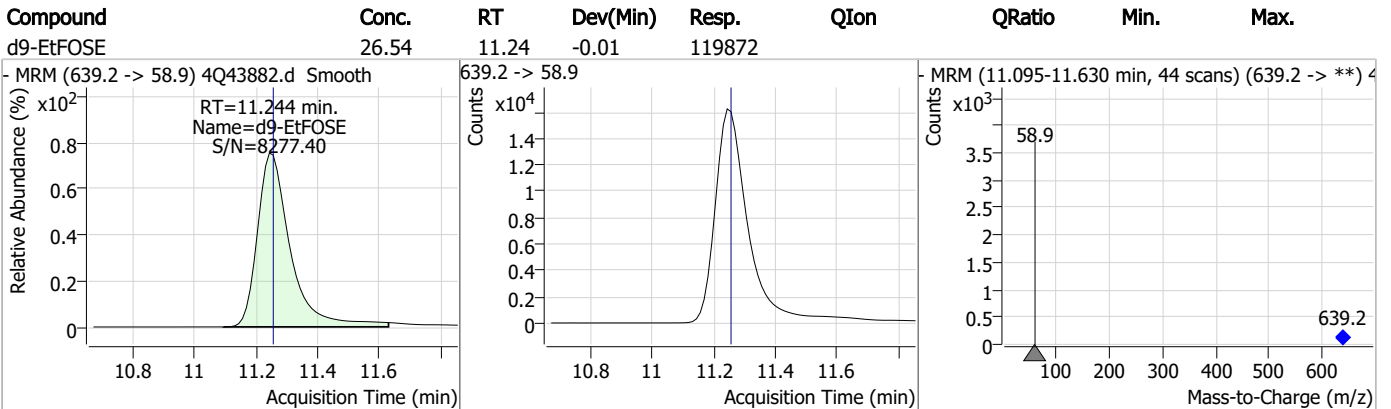
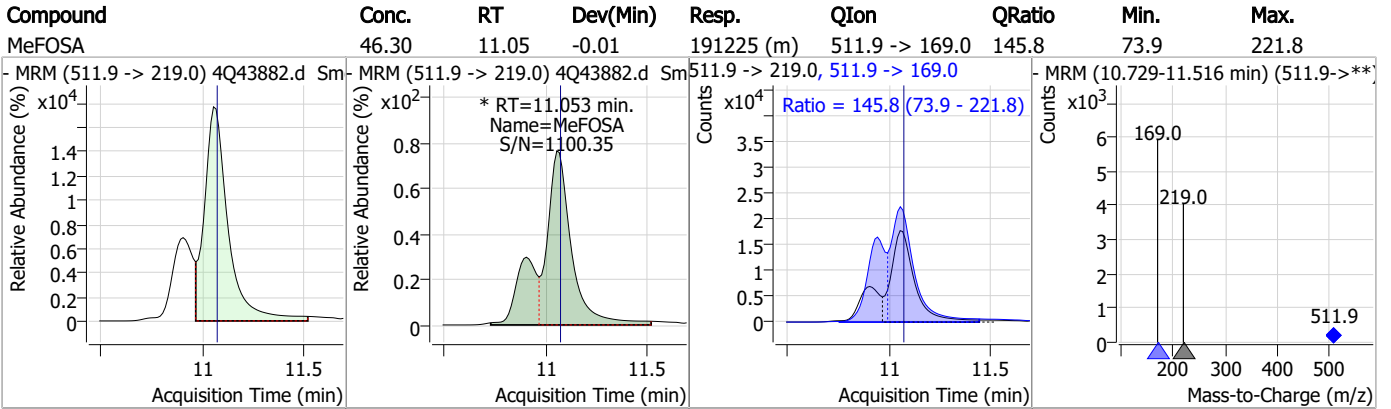
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	86.73	10.96	-0.01	287291 (m)				



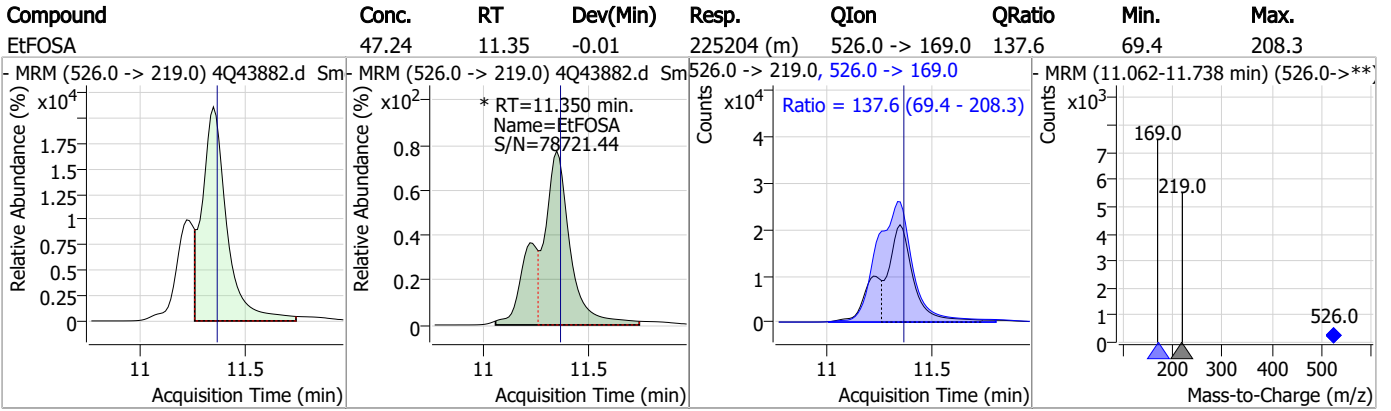
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.73	11.05	-0.01	10964				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S4Q634-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43882.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 10:37 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.11	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorononanoic acid	375-95-1		7.66	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.43	Split peak
PFOSA	754-91-6		9.76	Split peak
MeFOSE	24448-09-7		10.96	Split peak
MeFOSA	31506-32-8		11.05	Split peak
EtFOSA	4151-50-2		11.35	Split peak

7.6.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 05/10/23 17:21

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44133.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 1:28:14 PM
 Sample Name : RT TDCA
 Vial : P1-B1
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q639 TDCA.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

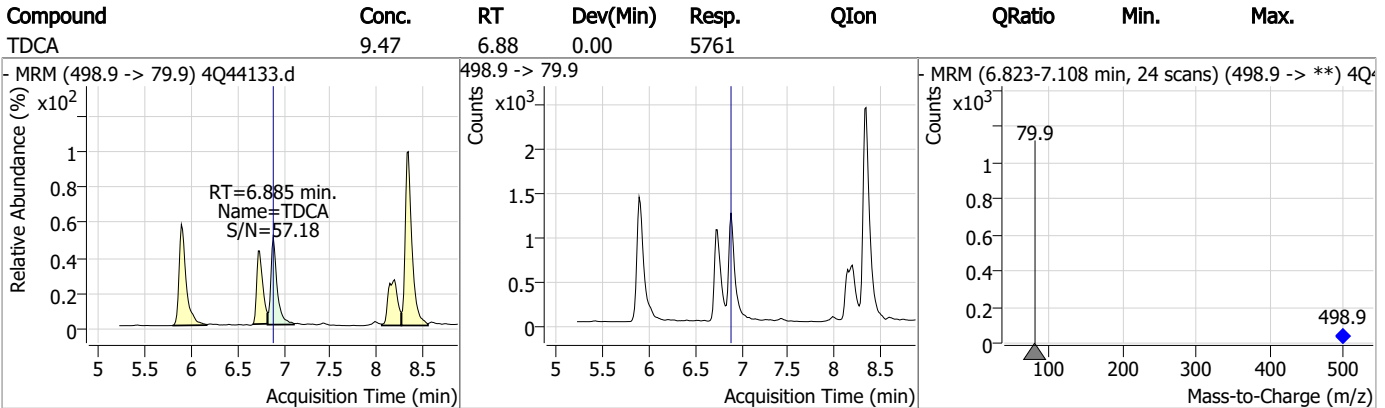
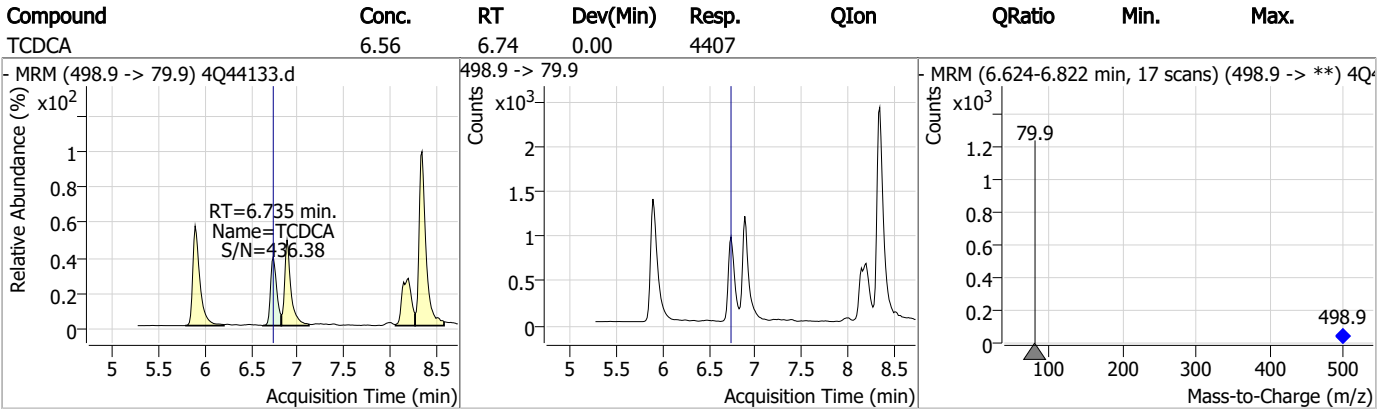
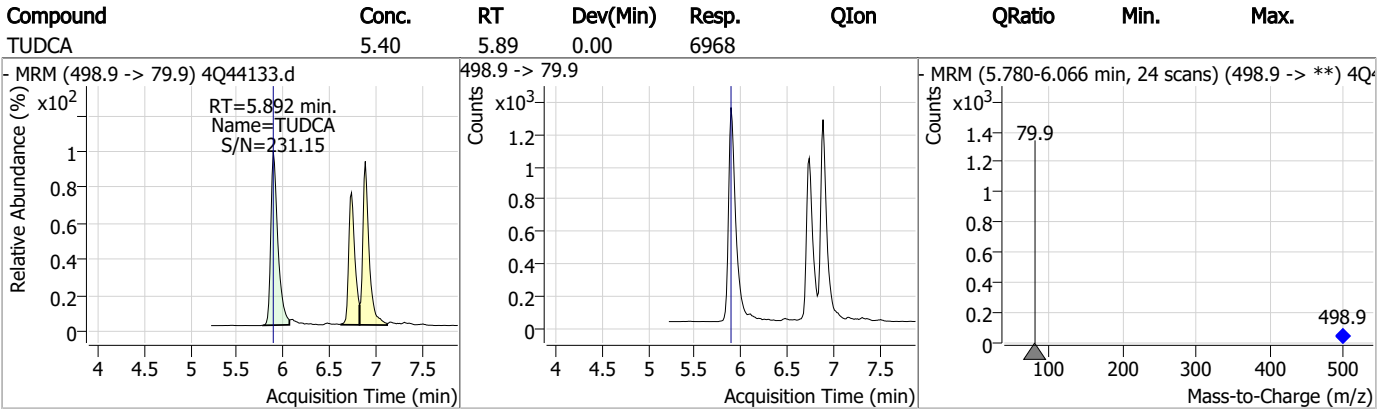
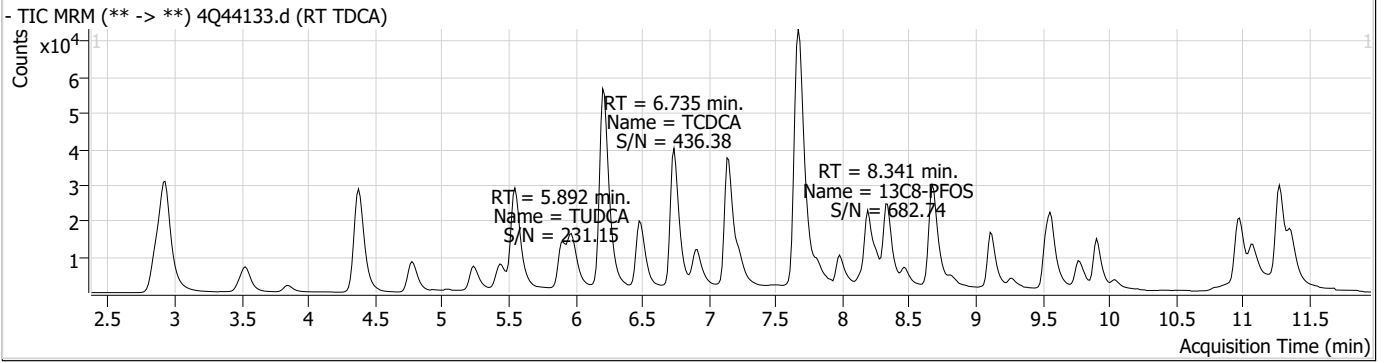
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.341	507.1 -> 79.9	14559	2.50	µg/L	0.000	
13C4-PFOS	8.342	502.8 -> 79.9	15675	2.50	µg/L	0.000	
System Monitoring Compounds							
13C8-PFOS	8.341	507.1 -> 79.9	14559	2.36	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.2%				
Target Compounds							
PFOS	8.343	498.9 -> 79.9 498.9 -> 98.8	17216 8109	3.46	µg/L	m	100
TCDCa	6.735	498.9 -> 79.9	4407	6.56	ng/ml		100
TDCA	6.885	498.9 -> 79.9	5761	9.47	ng/ml		100
TUDCA	5.892	498.9 -> 79.9	6968	5.40	ng/ml		100

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

7.6.3

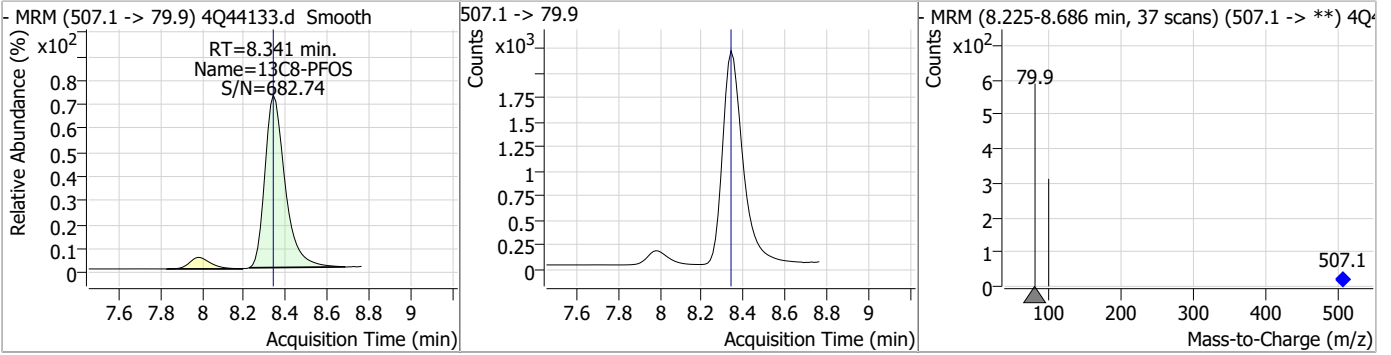
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Perfluorinated Compounds by LC/MS/MS

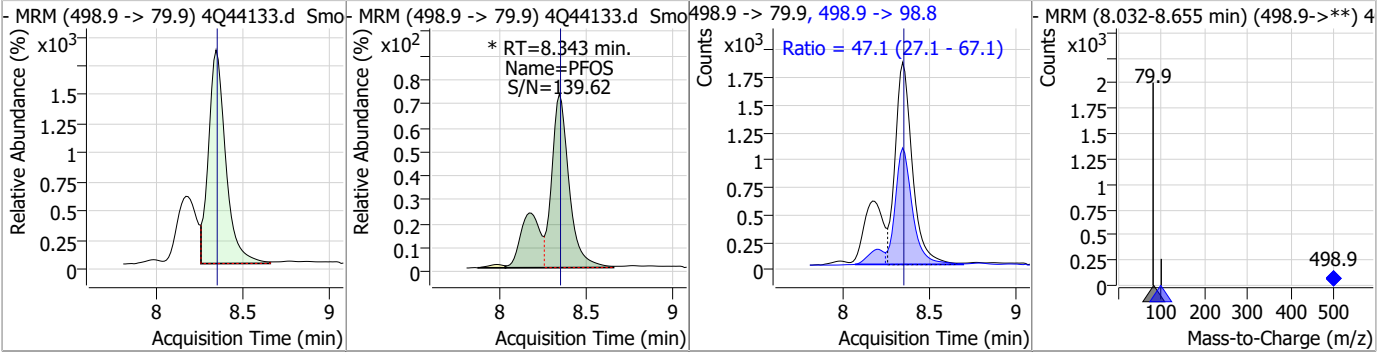


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.36	8.34	0.00	14559				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.46	8.34	0.00	17216 (m)	498.9 -> 98.8	47.1	27.1	67.1



7.6.3
7



Manual Integration Approval Summary

Sample Number: S4Q639-RT Method: EPA DRAFT 1633
Lab FileID: 4Q44133.D Analyst approved: 05/10/23 11:10 Martha Valls
Injection Time: 05/09/23 13:28 Supervisor approved: 05/10/23 17:21 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44134.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 1:42:17 PM
 Sample Name : RT br/ln
 Vial : P1-B2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.911	216.8 -> 171.9	126170	10.00 µg/L	-0.012
M5-PFPeA	4.375	268.3 -> 223.0	69483	5.00 µg/L	-0.012
M5-PFHxA	5.559	318.0 -> 273.0	47203	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	28669	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	41049	2.50 µg/L	0.000
M9-PFNA	7.696	472.1 -> 427.0	20558	1.25 µg/L	0.000
M6-PFDA	8.203	519.1 -> 474.1	20151	1.25 µg/L	0.000
M7-PFUnDA	8.672	570.0 -> 525.1	19570	1.25 µg/L	0.000
M2-PFDoDA	9.118	615.1 -> 570.0	21690	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	16079	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	18380	2.50 µg/L	0.000
M3-PFBS	5.452	302.1 -> 79.9	11512	2.50 µg/L	0.000
M3-PFHxS	7.242	402.1 -> 79.9	7517	2.50 µg/L	0.000
M8-PFOS	8.341	507.1 -> 79.9	10850	2.50 µg/L	-0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1117	5.00 µg/L	0.000
M2-6:2FTS	6.923	429.1 -> 80.9	1749	5.00 µg/L	0.000
M2-8:2FTS	7.990	529.1 -> 80.9	2994	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	13632	5.00 µg/L	0.000
M3-HFPO-DA	5.914	286.9 -> 168.9	26832	10.00 µg/L	0.000
M5-EtFOSAA	8.470	589.2 -> 419.0	11716	5.00 µg/L	0.000
M7-MeFOSE	10.972	623.2 -> 58.9	71352	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	102479	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11496	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	10806	2.50 µg/L	-0.012
13C4-PFOS	8.342	502.8 -> 79.9	11784	2.50 µg/L	-0.012
13C3-PFBA	2.916	216.0 -> 172.0	67561	5.00 µg/L	-0.013
18O2-PFHxS	7.241	403.0 -> 83.9	5329	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	50322	2.50 µg/L	0.000
13C2-PFDA	8.204	515.1 -> 470.1	17380	1.25 µg/L	0.000
13C5-PFNA	7.697	468.0 -> 423.0	23690	1.25 µg/L	0.000
13C2-PFHxA	5.560	315.1 -> 270.0	42830	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1117	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-6:2FTS	6.923	429.1 -> 80.9	1749	4.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.6%		
13C2-8:2FTS	7.990	529.1 -> 80.9	2994	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFDoDA	9.118	615.1 -> 570.0	21690	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFTeDA	9.911	715.2 -> 670.0	16079	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFBS	5.452	302.1 -> 79.9	11512	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C3-PFHxS	7.242	402.1 -> 79.9	7517	2.28 µg/L	0.000

7.6.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.0%	
13C4-PFBA	2.911	216.8 -> 171.9	126170	9.92 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C4-PFHpA	6.492	367.1 -> 322.0	28669	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C5-PFHxA	5.559	318.0 -> 273.0	47203	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFPeA	4.375	268.3 -> 223.0	69483	5.27 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C6-PFDA	8.203	519.1 -> 474.1	20151	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C7-PFUnDA	8.672	570.0 -> 525.1	19570	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-FOSA	9.783	506.1 -> 77.8	18380	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-PFOA	7.148	421.1 -> 376.0	41049	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-PFOS	8.341	507.1 -> 79.9	10850	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C9-PFNA	7.696	472.1 -> 427.0	20558	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
d3-MeFOSAA	8.261	573.2 -> 419.0	13632	4.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	26832	9.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d3-MeFOSA	11.076	515.0 -> 219.0	10806	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
d5-EtFOSAA	8.470	589.2 -> 419.0	11716	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d7-MeFOSE	10.972	623.2 -> 58.9	71352	19.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.8%	
d9-EtFOSE	11.269	639.2 -> 58.9	102479	19.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
d5-EtFOSA	11.360	531.1 -> 219.0	11496	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	81840	45.54 µg/L	99
		327.1 -> 80.9	33974		
6:2FTS	6.924	427.1 -> 407.0	89142	52.76 µg/L	96
		427.1 -> 80.9	36047		
8:2FTS	7.991	527.1 -> 507.0	83407	49.97 µg/L	98
		527.1 -> 80.8	35106		
EtFOSAA	8.471	584.2 -> 419.1	28676	12.74 µg/L	m 90
		584.2 -> 526.0	12905		
FOSA	9.786	498.1 -> 77.9	242817	31.53 µg/L	m 99
		498.1 -> 478.0	6996		
MeFOSAA	8.262	570.1 -> 419.0	29876	12.57 µg/L	m 94
		570.1 -> 483.0	6332		
PFBA	2.920	212.8 -> 168.9	180996	53.57 µg/L	100
PFBS	5.453	298.7 -> 79.9	53374	11.30 µg/L	96
		298.7 -> 98.8	20561		
PFDA	8.204	512.9 -> 469.0	188039	12.30 µg/L	99
		512.9 -> 219.0	38252		
PFDoDA	9.119	613.1 -> 569.0	225889	12.98 µg/L	100
		613.1 -> 319.0	31670		
PFDS	9.282	599.0 -> 79.9	31535	11.73 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8	16858	13.09	µg/L	99
		363.1 -> 319.0	237258			
PFHpS	7.823	363.1 -> 169.0	41082	12.10	µg/L	98
		449.0 -> 79.9	47301			
PFHxA	5.550	449.0 -> 98.9	25377	13.10	µg/L	100
		313.0 -> 269.0	242218			
PFHxS	7.243	313.0 -> 118.9	7272	11.60	µg/L	93
		398.7 -> 79.9	35726			
PFNA	7.697	398.7 -> 98.9	18731	25.77	µg/L	98
		463.0 -> 419.0	392620			
PFNS	8.823	463.0 -> 219.0	104078	11.80	µg/L	94
		548.8 -> 79.9	27959			
PFOA	7.150	548.8 -> 98.9	14490	28.29	µg/L	97
		413.0 -> 369.0	670070			
PFOS	8.343	413.0 -> 169.0	141169	12.21	µg/L	87
		498.9 -> 79.9	64859			
PFPeA	4.377	498.9 -> 98.8	33145	25.64	µg/L	100
		263.0 -> 219.0	428622			
PFPeS	6.519	349.1 -> 79.9	33094	12.52	µg/L	96
		349.1 -> 98.9	14008			
PFTeDA	9.912	713.1 -> 669.0	215098	13.67	µg/L	100
		713.1 -> 168.9	17559			
PFTrDA	9.529	663.0 -> 619.0	293707	12.63	µg/L	98
		663.0 -> 168.9	29177			
PFUnDA	8.673	563.1 -> 519.0	179283	13.49	µg/L	99
		563.1 -> 269.1	33714			
11CI-PF3OUdS	9.568	630.9 -> 450.9	263464	27.30	µg/L	99
		632.9 -> 452.9	80126			
9CI-PF3ONS	8.687	530.8 -> 351.0	332037	27.02	µg/L	99
		532.8 -> 353.0	99748			
ADONA	6.743	376.9 -> 250.9	680078	25.20	µg/L	100
		376.9 -> 84.8	179974			
HFPO-DA	5.915	284.9 -> 168.9	68636	26.77	µg/L	97
		284.9 -> 184.9	7839			
3:3FTCA	3.848	241.0 -> 177.0	49717	67.59	µg/L	100
		241.0 -> 117.0	4646			
5:3FTCA	6.217	341.0 -> 237.1	904267	360.33	µg/L	99
		341.0 -> 217.0	627498			
7:3FTCA	7.673	441.0 -> 316.9	491619	377.02	µg/L	100
		441.0 -> 336.9	1160343			
EtFOSA	11.375	526.0 -> 219.0	215616	44.77	µg/L	72
		526.0 -> 169.0	307237			
EtFOSE	11.295	630.0 -> 58.9	322867	81.38	µg/L	100
		511.9 -> 219.0	180575			
MeFOSA	11.078	511.9 -> 169.0	268275	44.36	µg/L	80
		616.1 -> 58.9	251690			
MeFOSE	10.985	699.1 -> 79.9	28924	85.88	µg/L	100
		699.1 -> 98.8	16282			
PFDoDS	10.052	295.0 -> 201.0	27199	12.06	µg/L	100
		295.0 -> 84.9	6700			
NFDHA	5.441	279.0 -> 85.1	236941	20.60	µg/L	96
		229.0 -> 84.9	227706			
PFMBA	4.791	314.8 -> 134.9	325858	23.28	µg/L	99
		314.8 -> 82.9	11580			

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

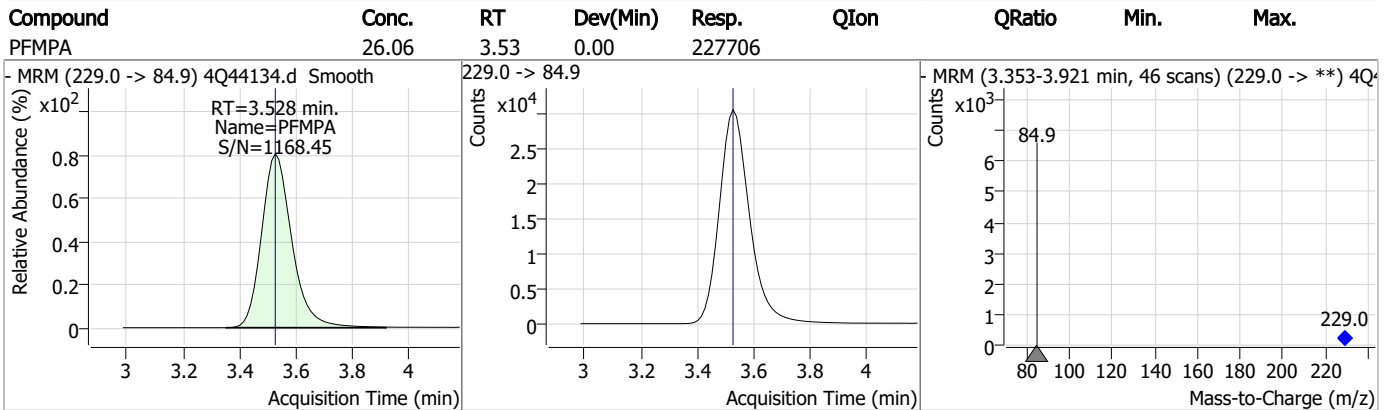
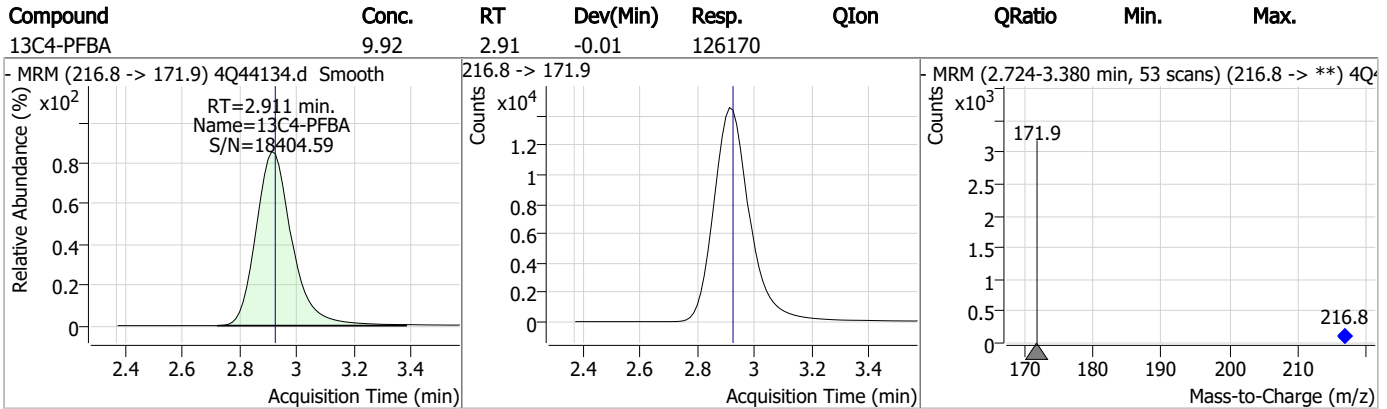
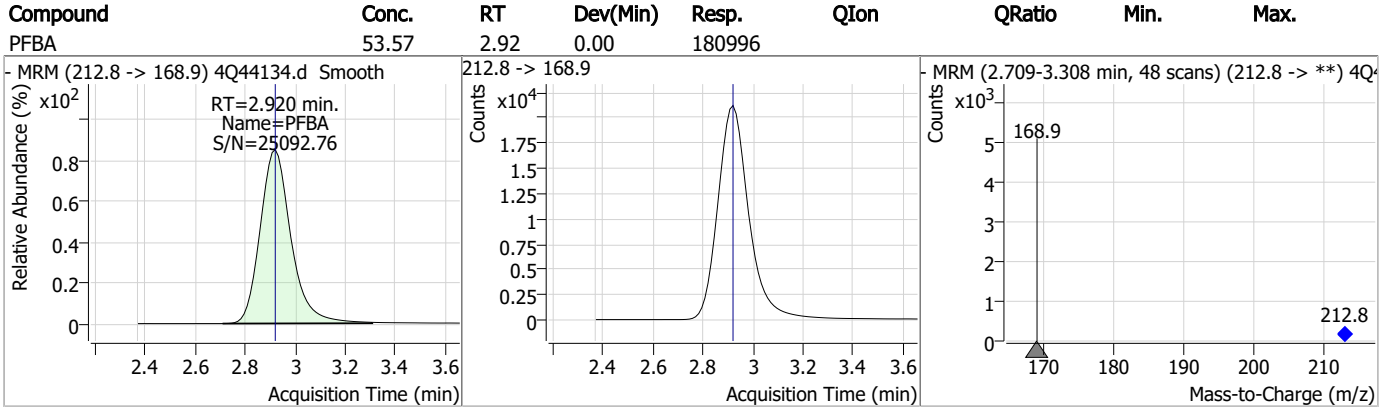
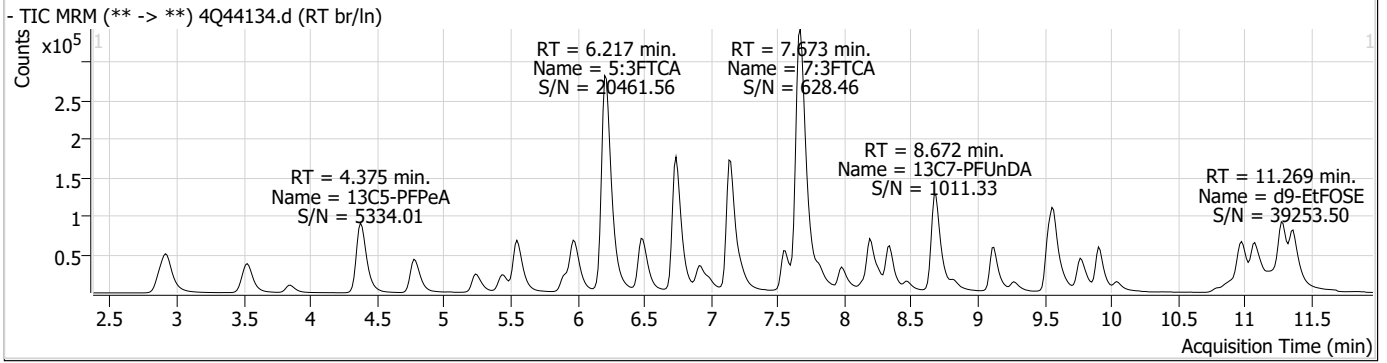
Perfluorinated Compounds by LC/MS/MS

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

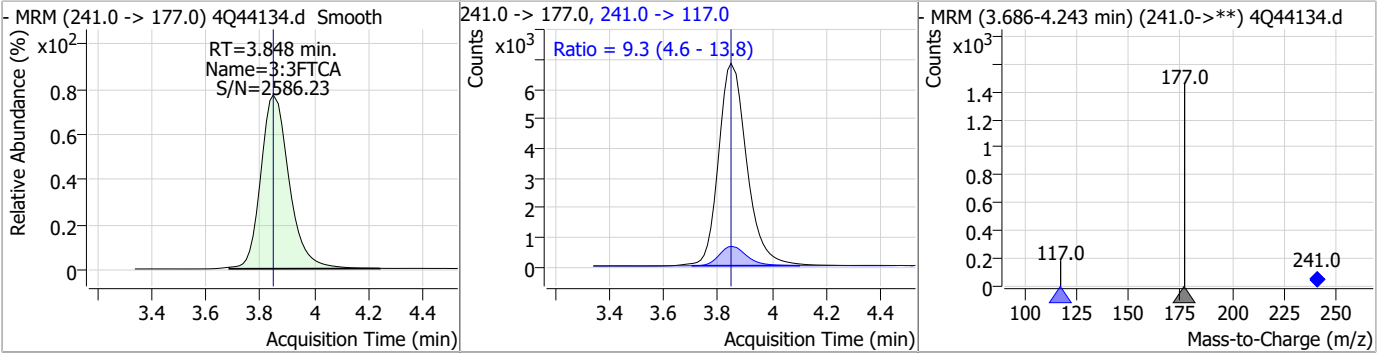
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Perfluorinated Compounds by LC/MS/MS

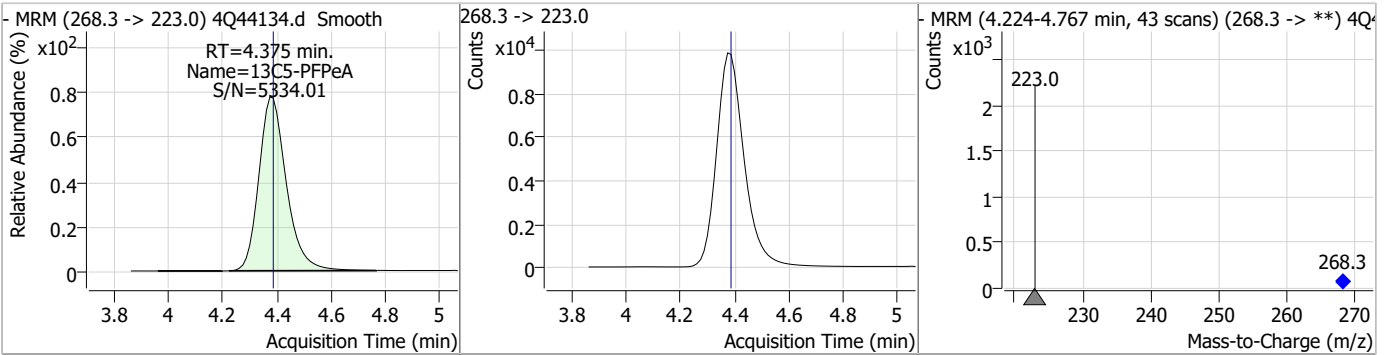


Perfluorinated Compounds by LC/MS/MS

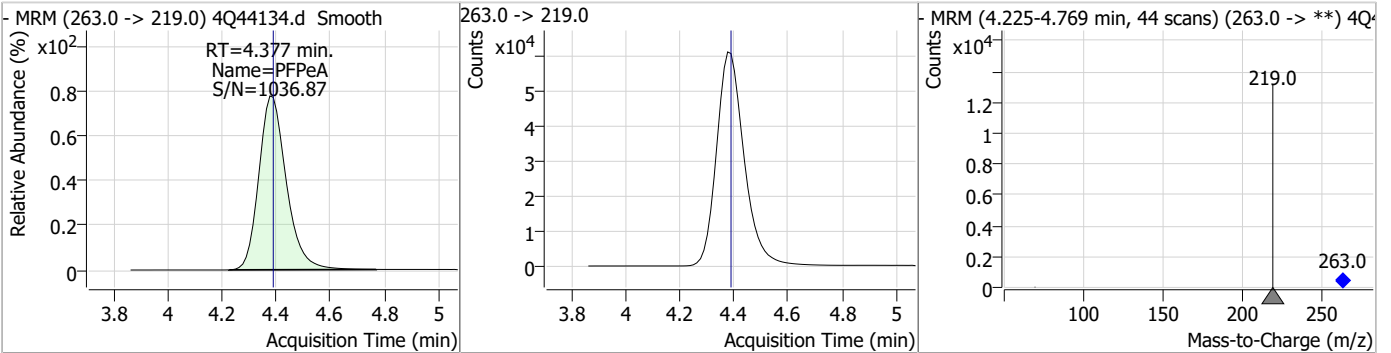
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	67.59	3.85	0.00	49717	241.0 -> 117.0	9.3	4.6	13.8



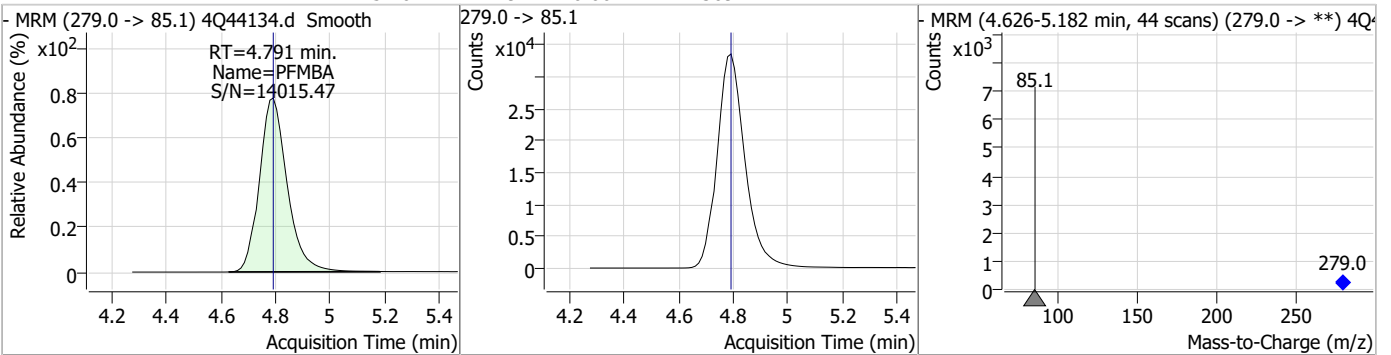
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.27	4.37	-0.01	69483				



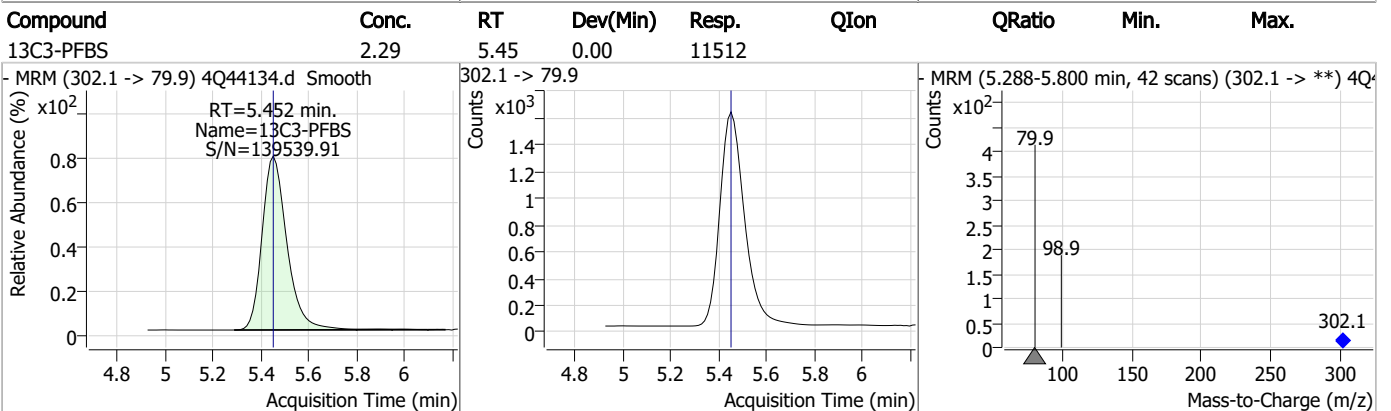
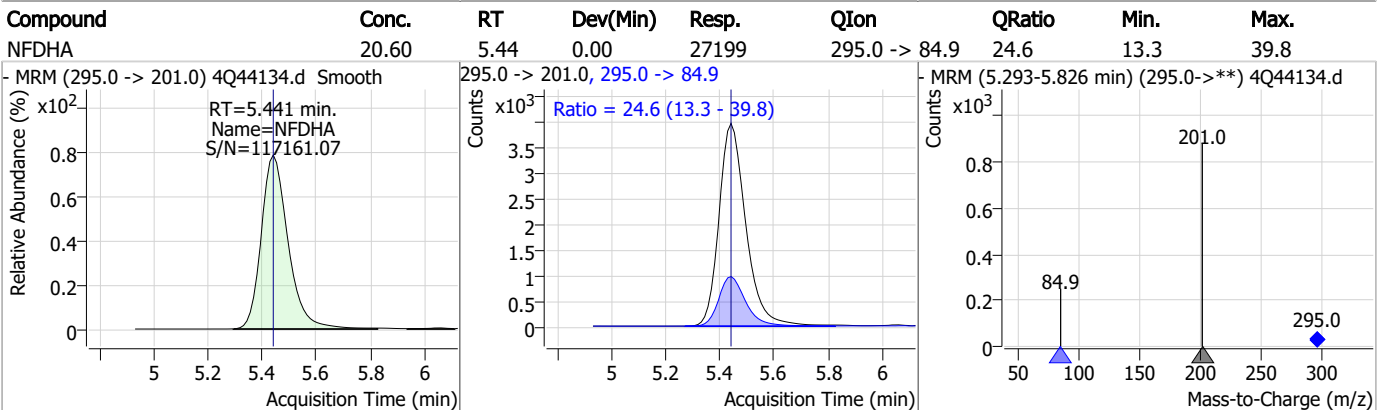
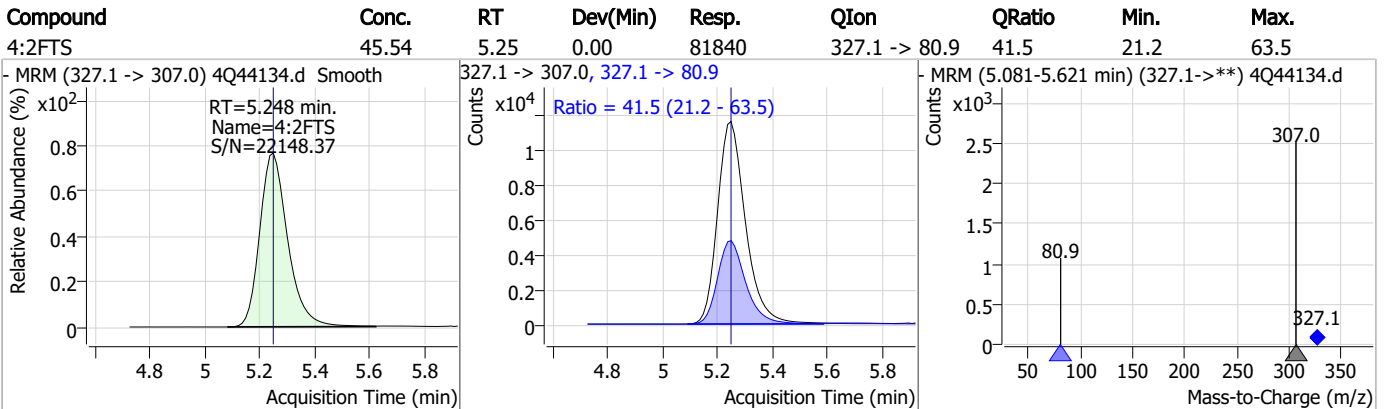
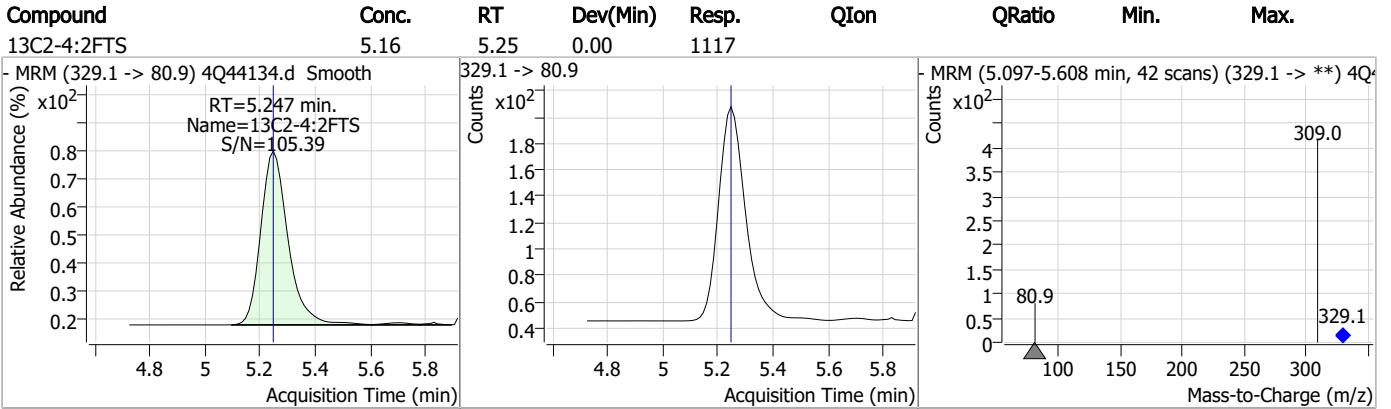
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	25.64	4.38	-0.01	428622				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	25.40	4.79	0.00	236941				

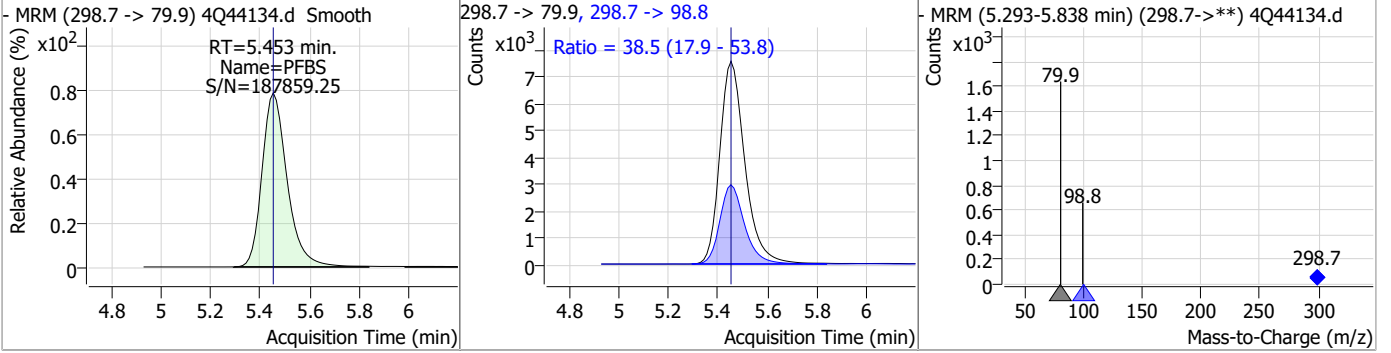


Perfluorinated Compounds by LC/MS/MS

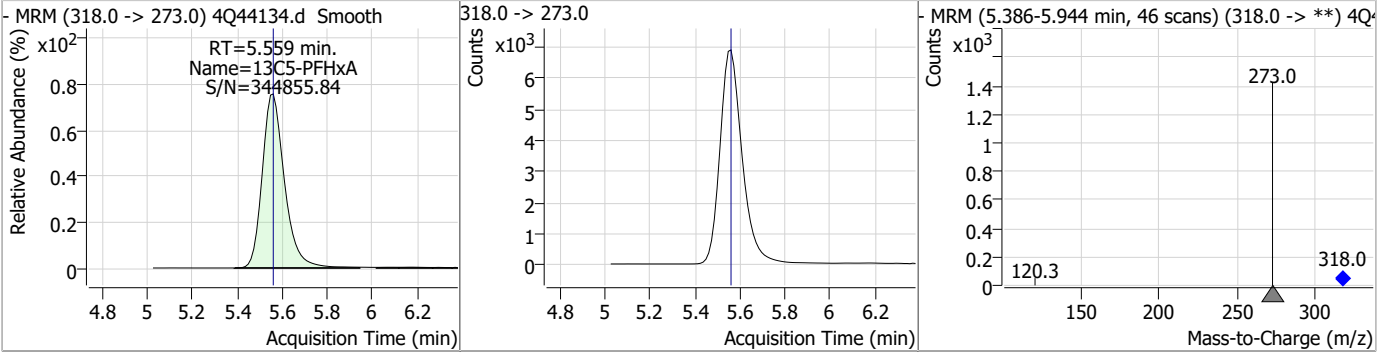


Perfluorinated Compounds by LC/MS/MS

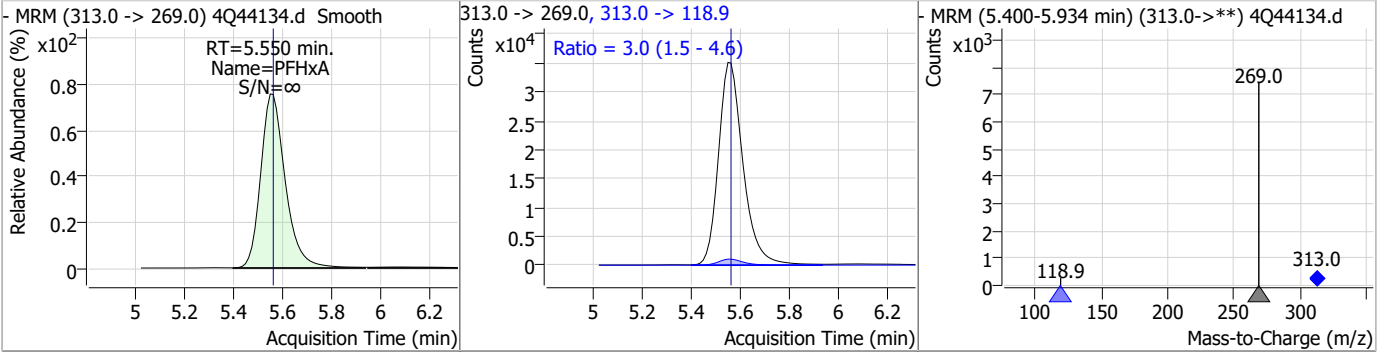
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.30	5.45	0.00	53374	298.7 -> 98.8	38.5	17.9	53.8



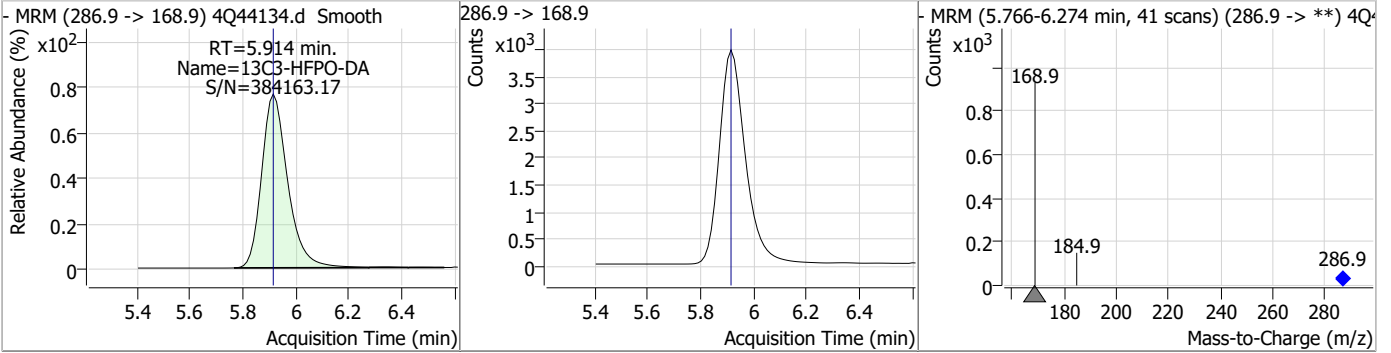
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.56	0.00	47203				



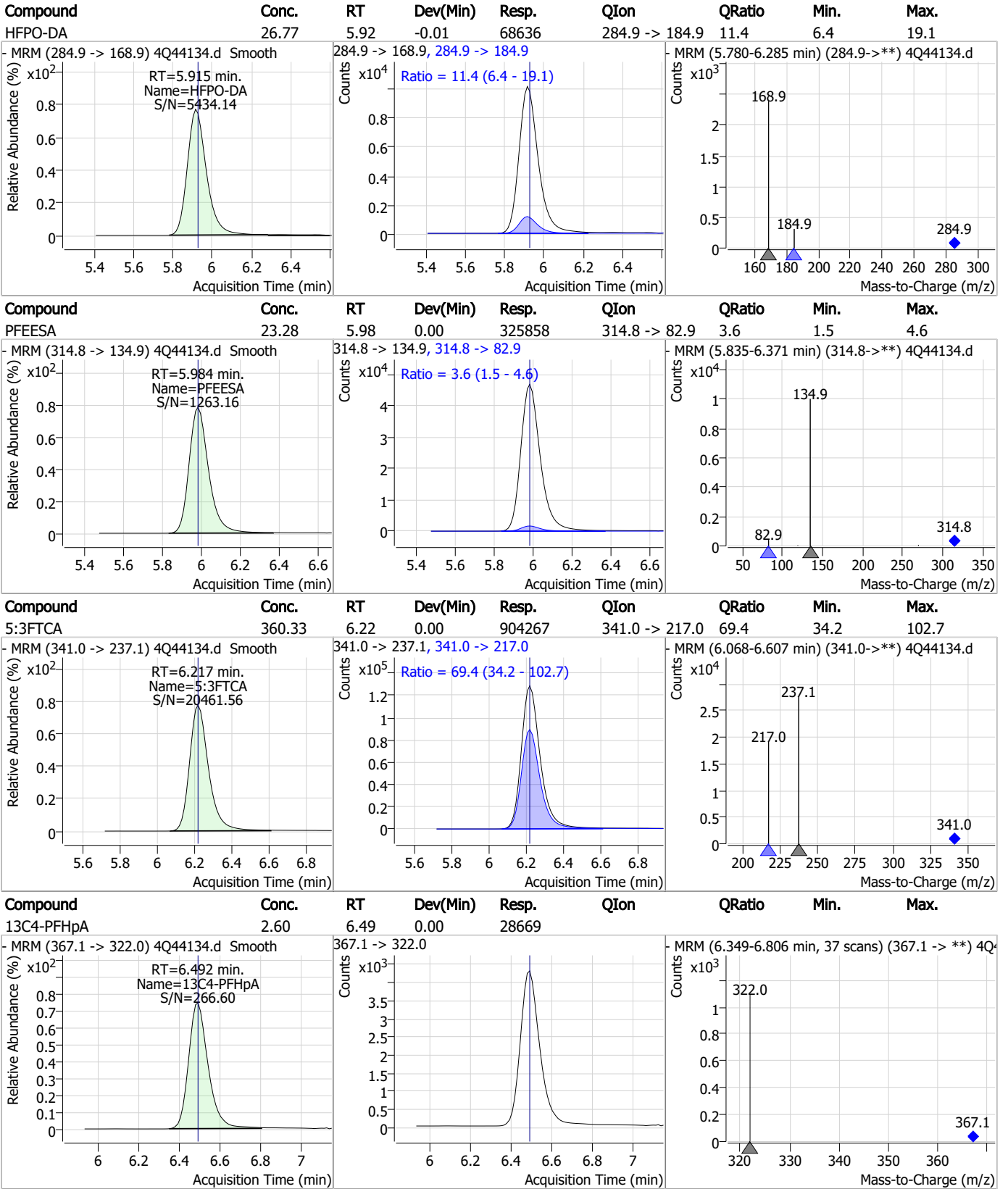
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.10	5.55	-0.01	242218	313.0 -> 118.9	3.0	1.5	4.6



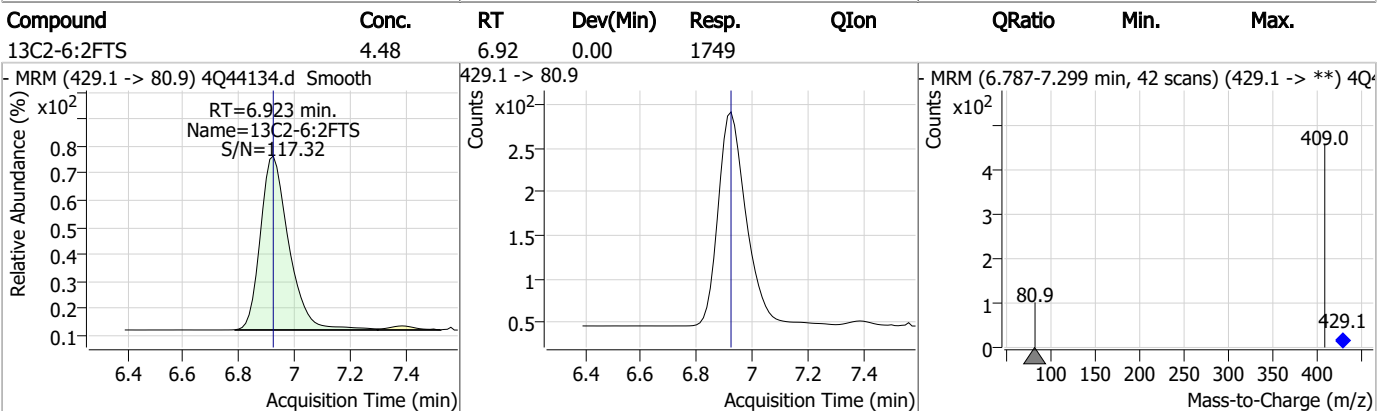
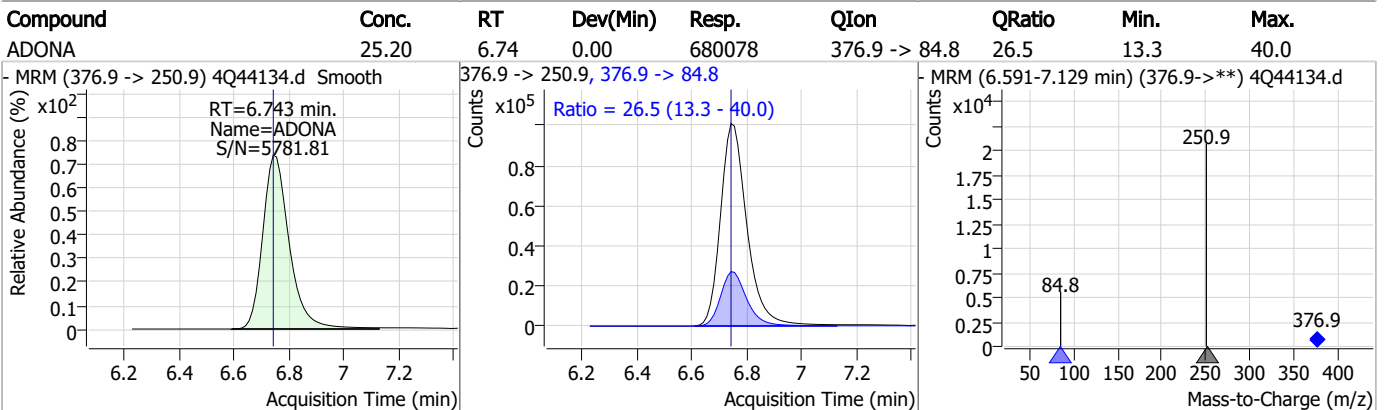
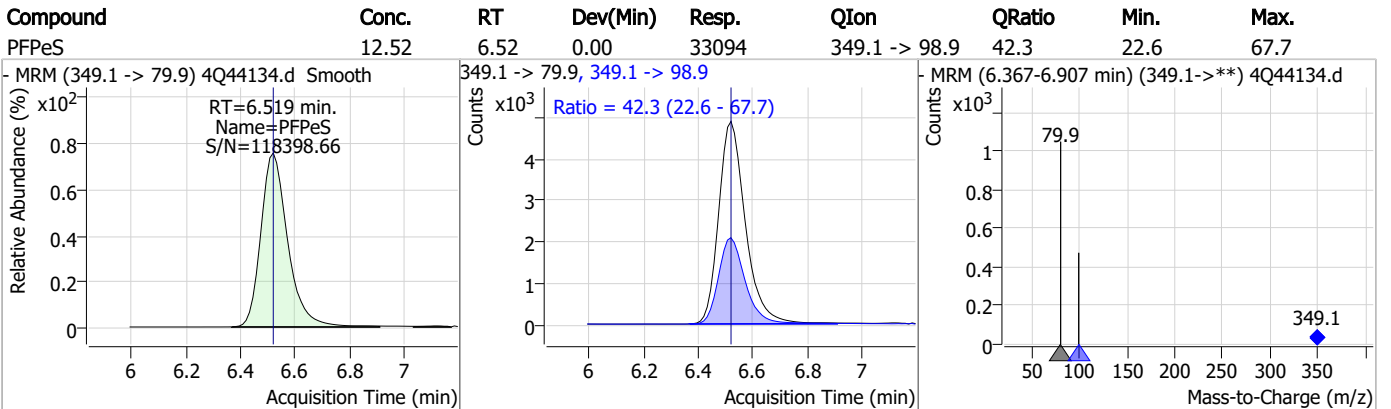
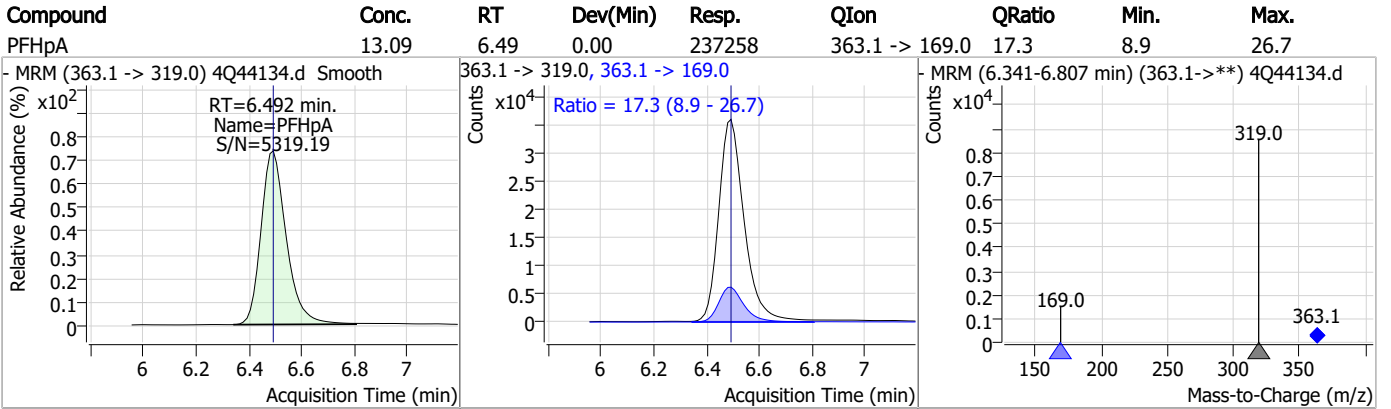
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.52	5.91	0.00	26832				



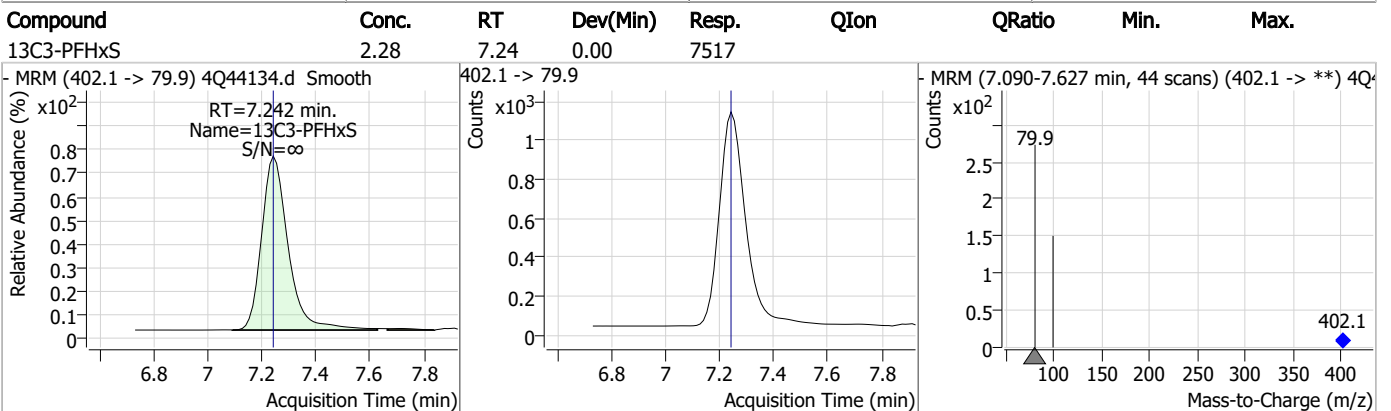
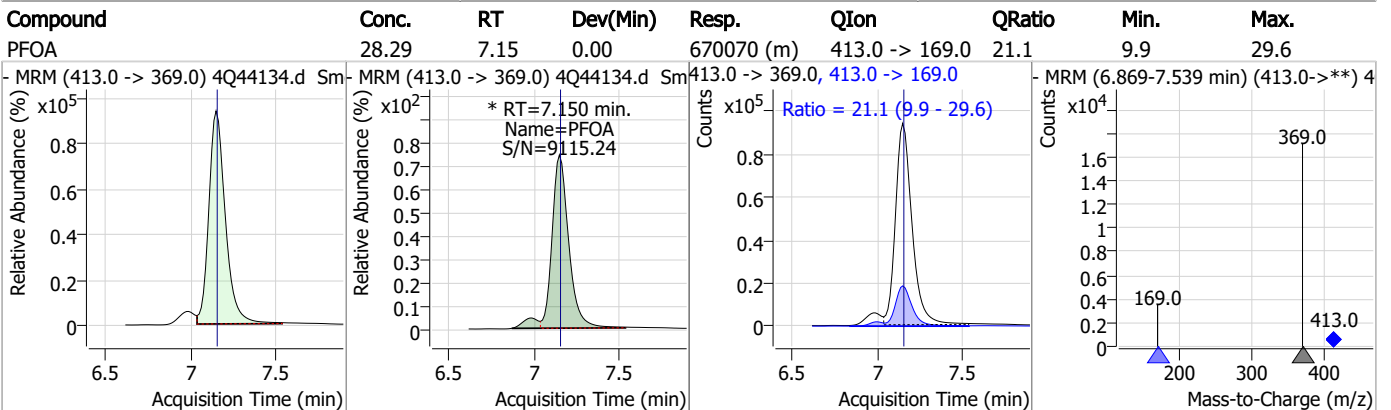
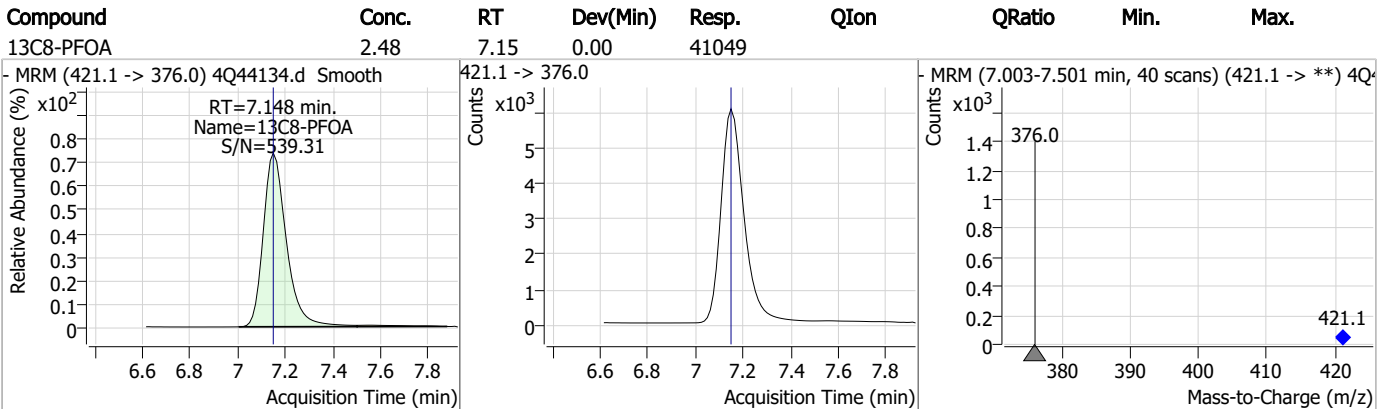
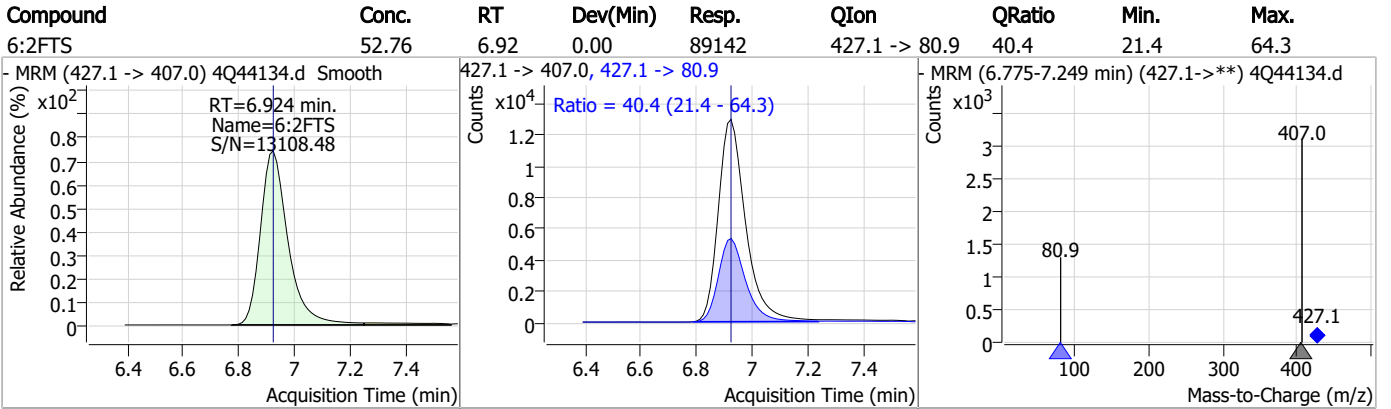
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

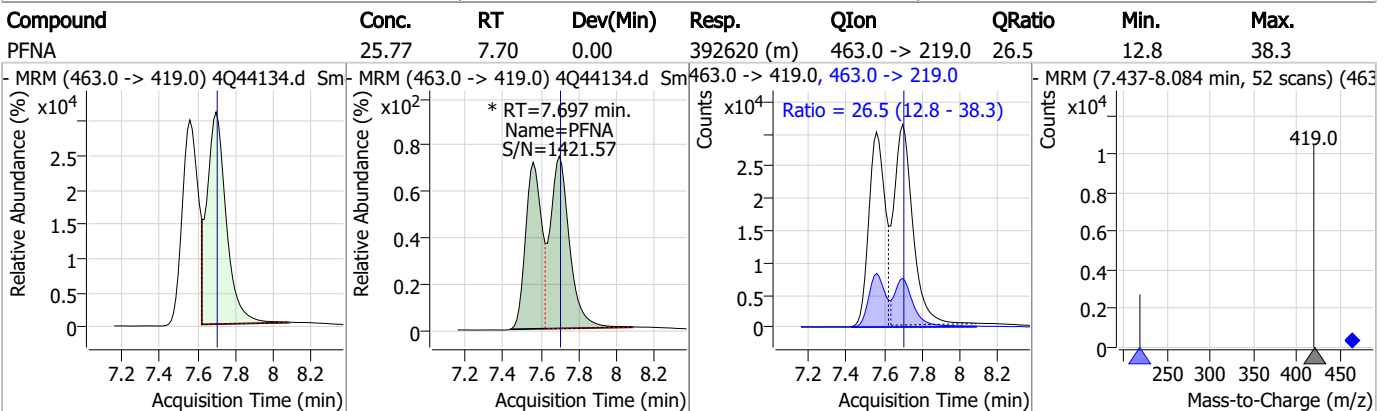
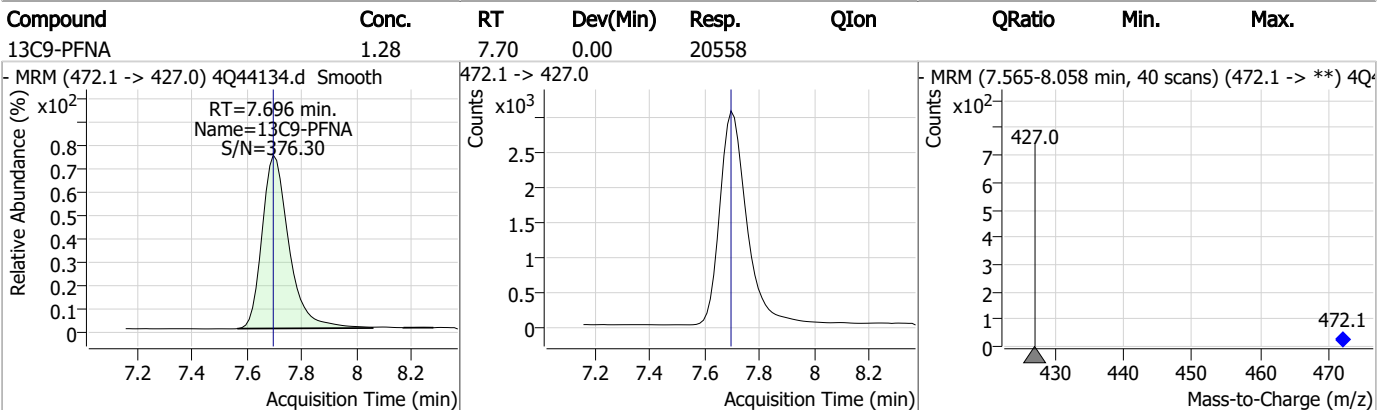
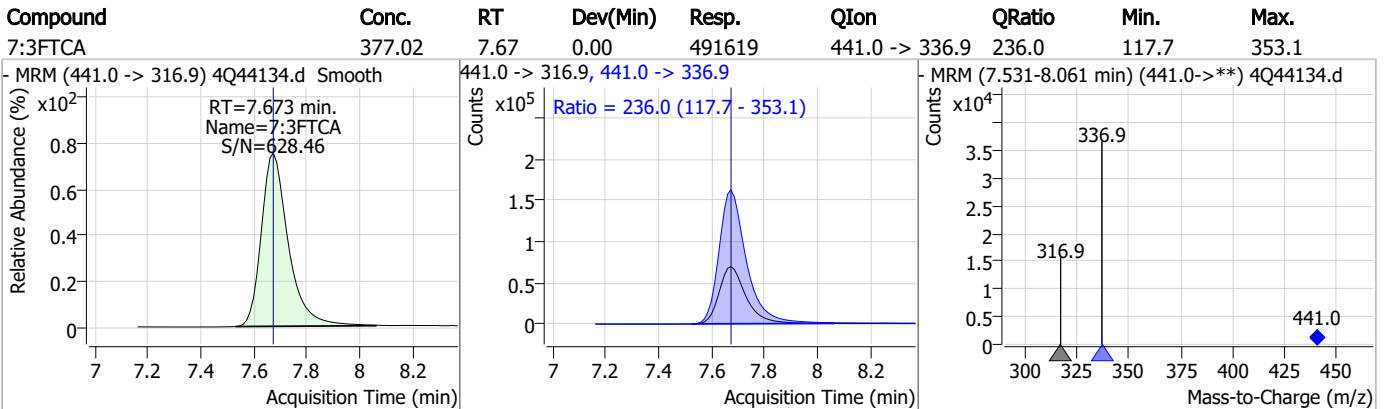
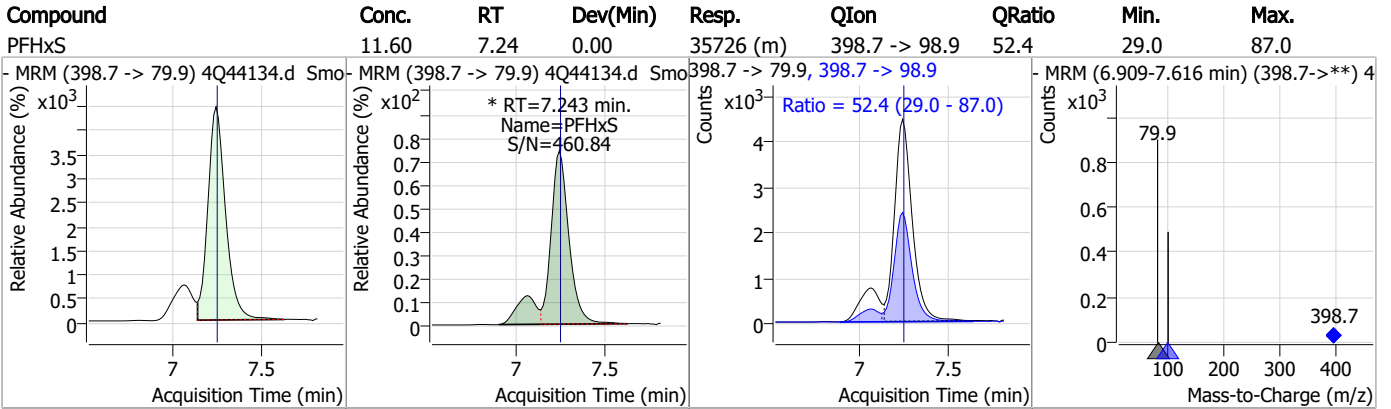


7.6.4

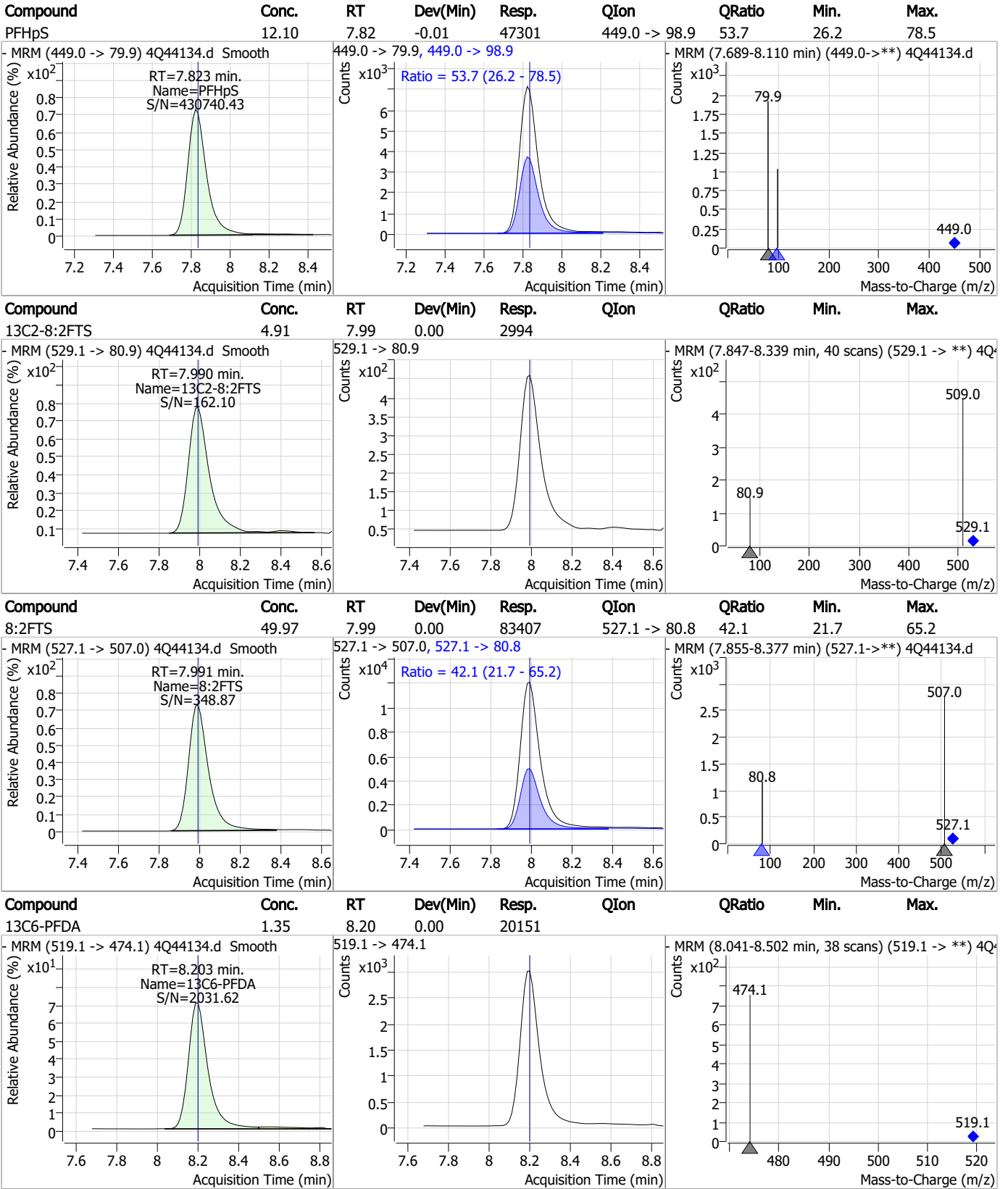
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

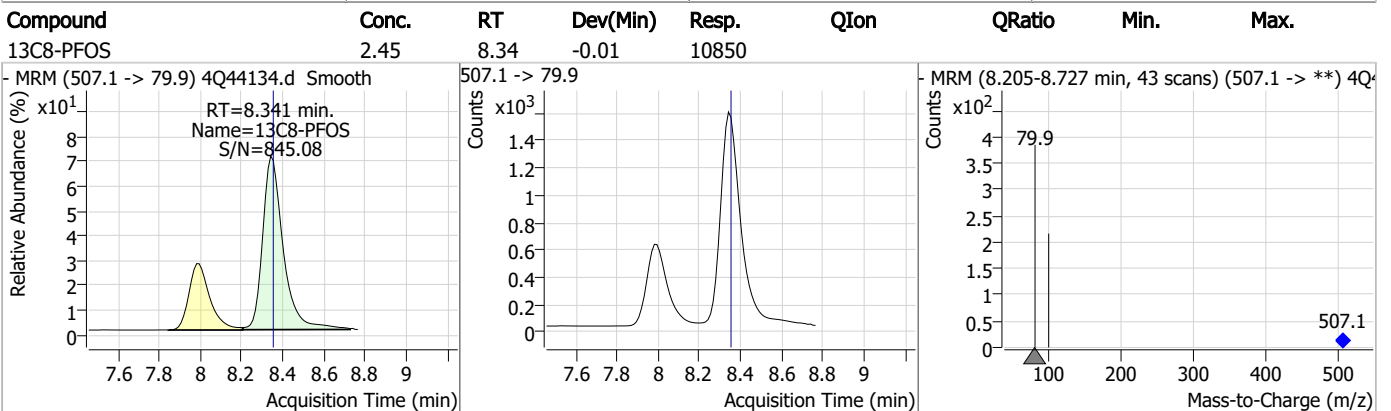
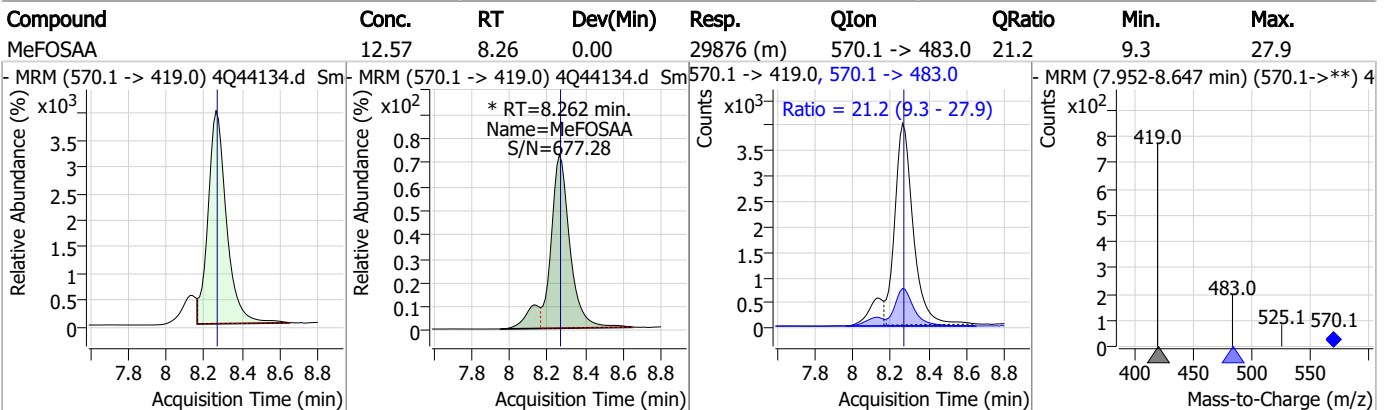
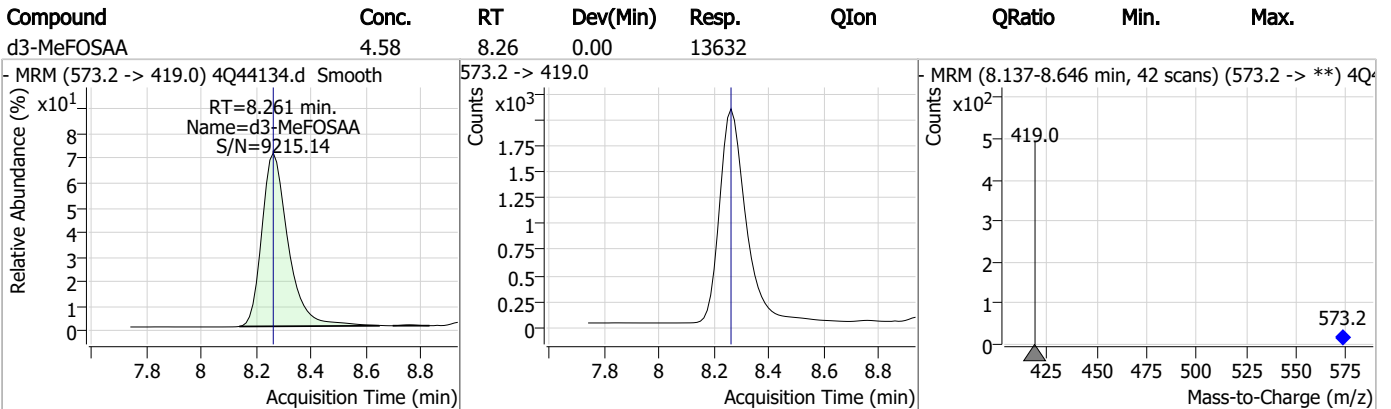
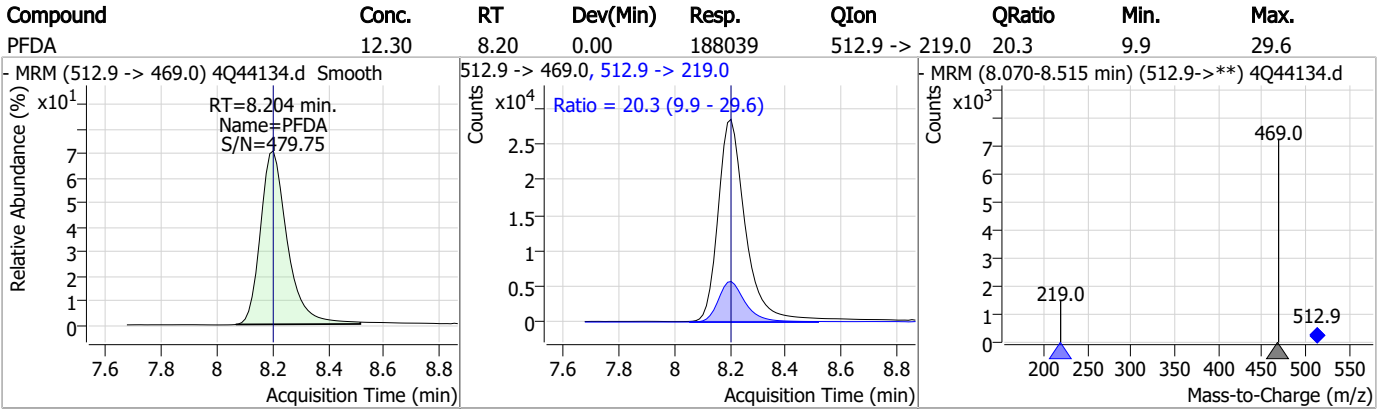


7.6.4

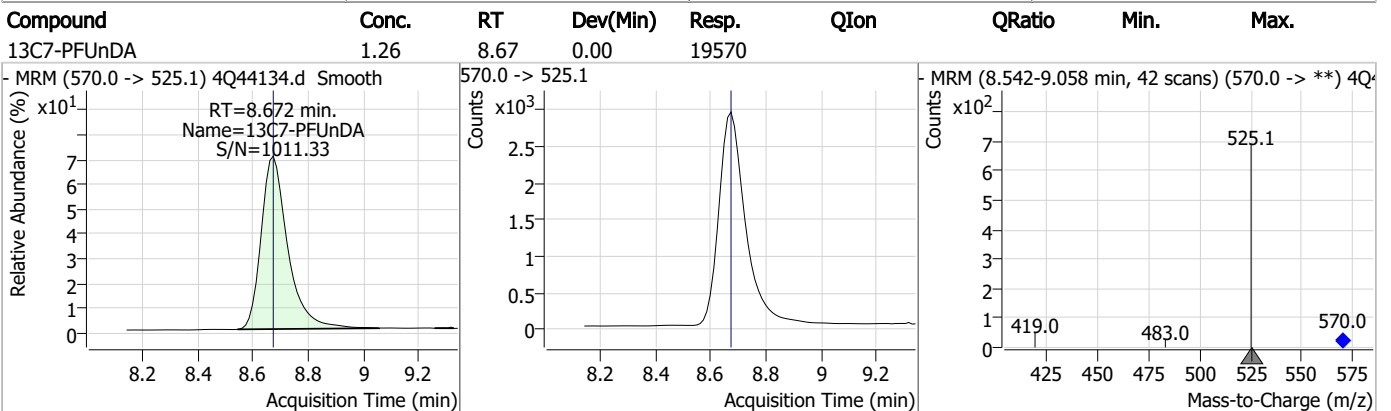
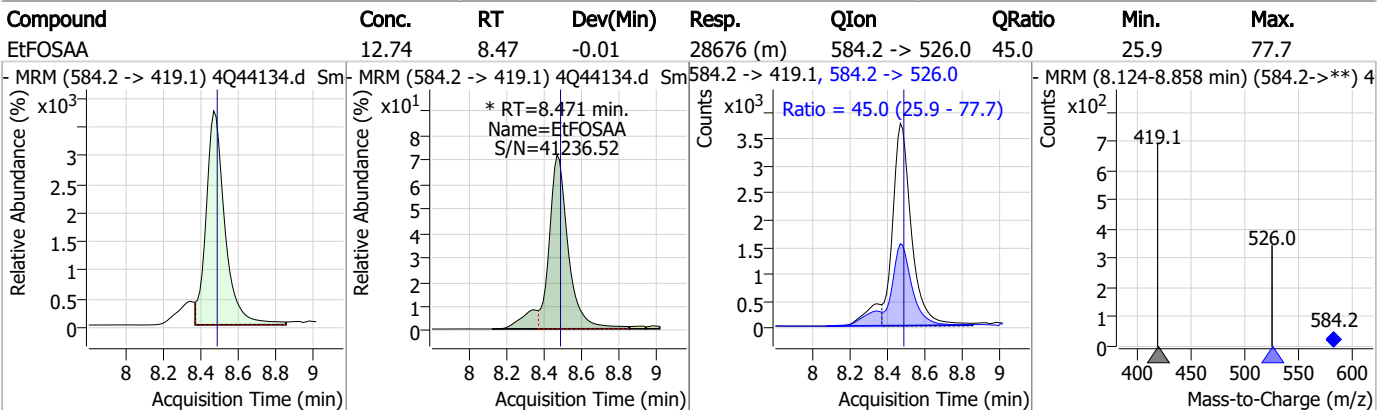
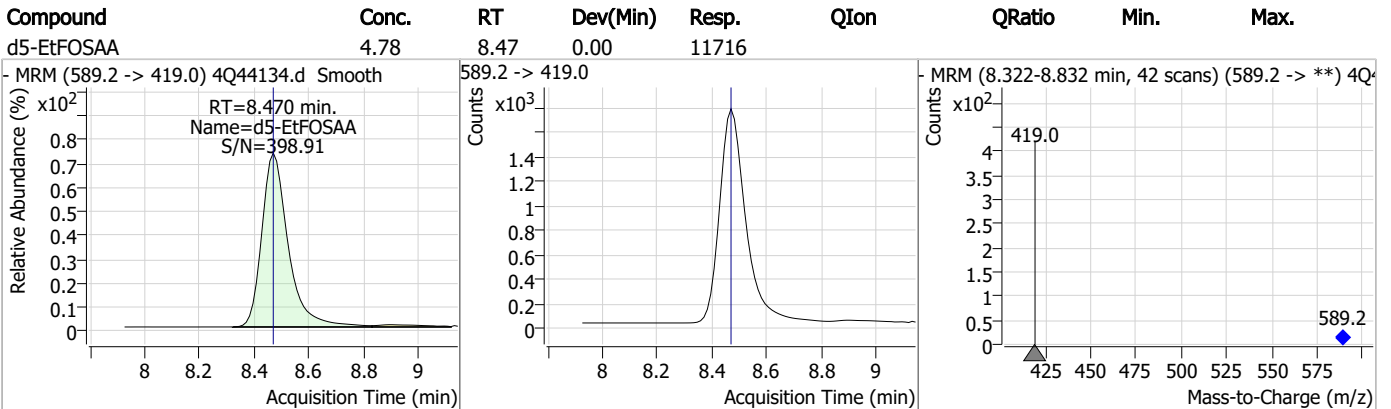
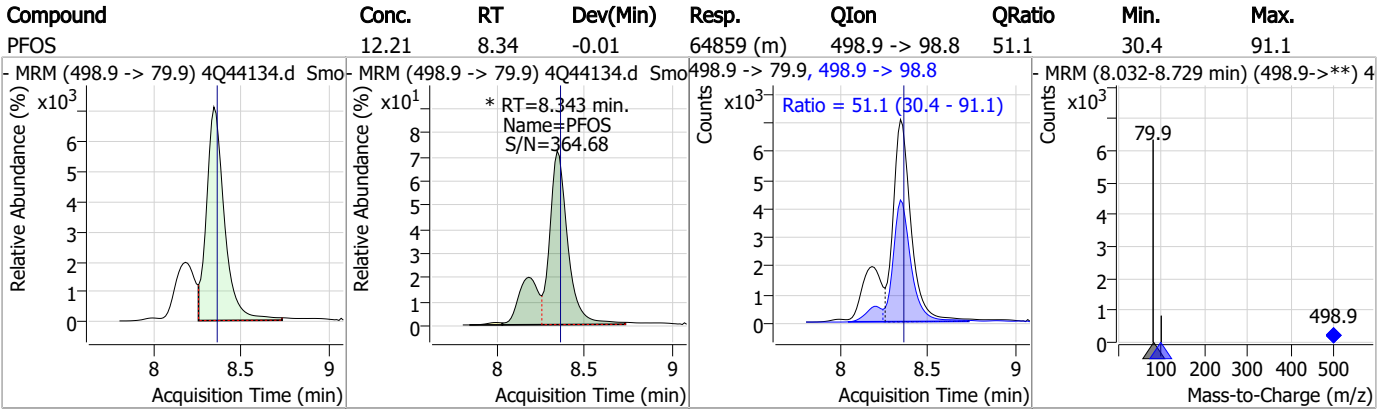
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Perfluorinated Compounds by LC/MS/MS

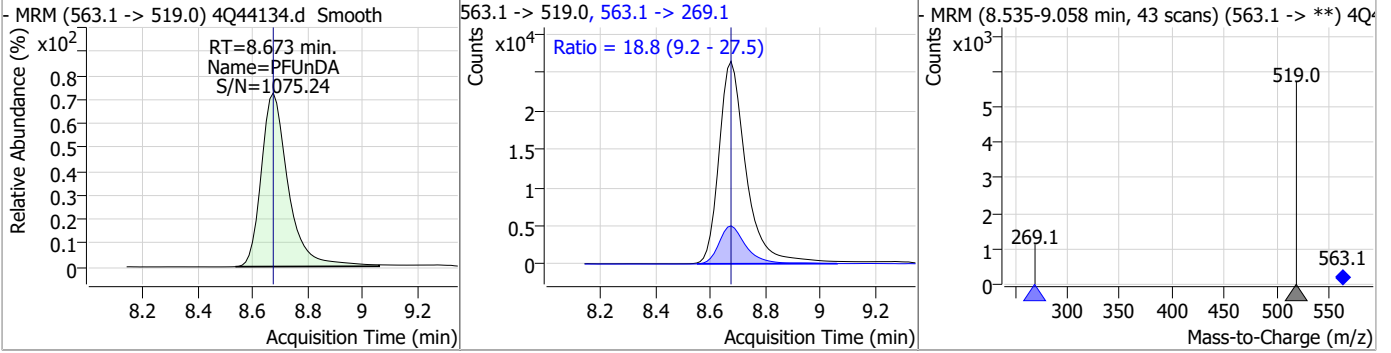


Perfluorinated Compounds by LC/MS/MS

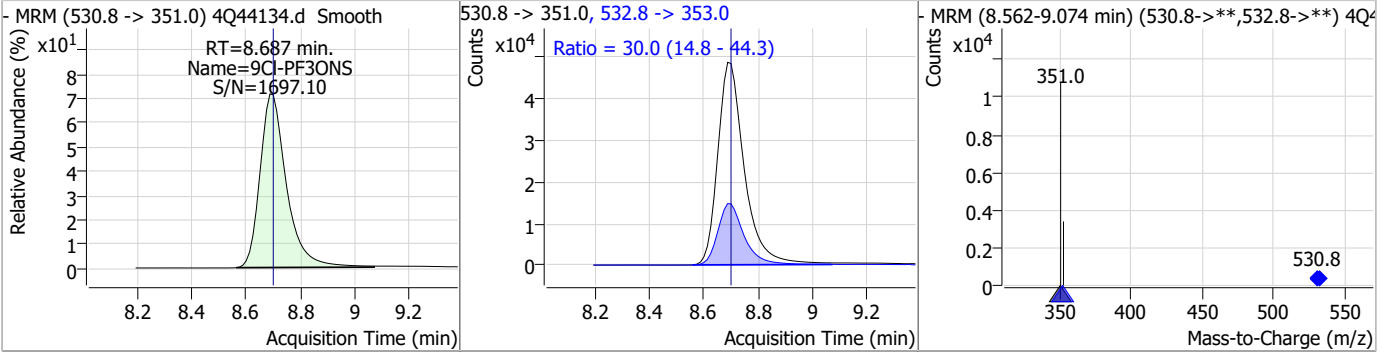


Perfluorinated Compounds by LC/MS/MS

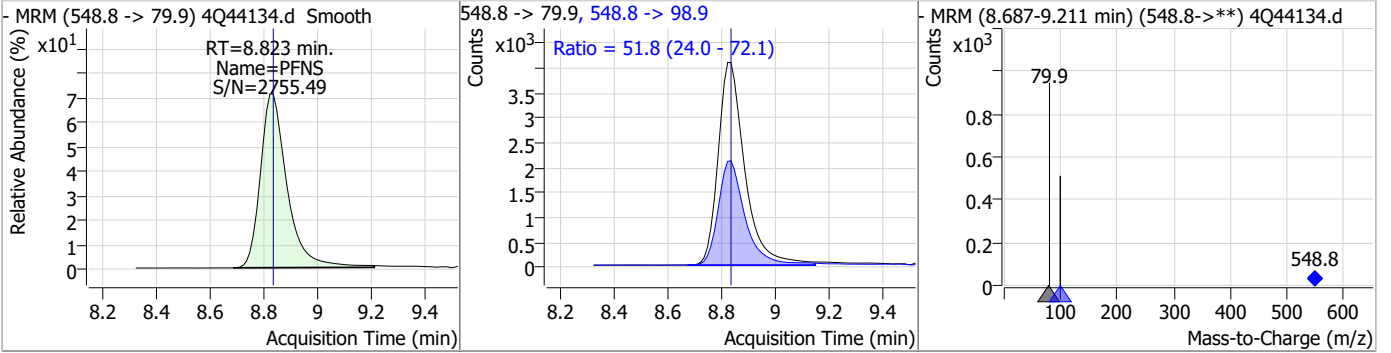
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.49	8.67	0.00	179283	563.1 -> 269.1	18.8	9.2	27.5



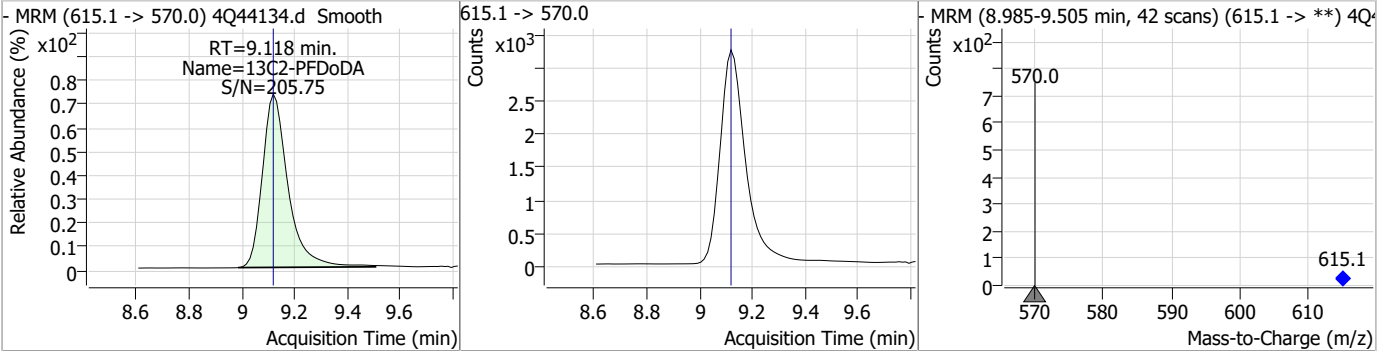
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	27.02	8.69	-0.01	332037	532.8 -> 353.0	30.0	14.8	44.3



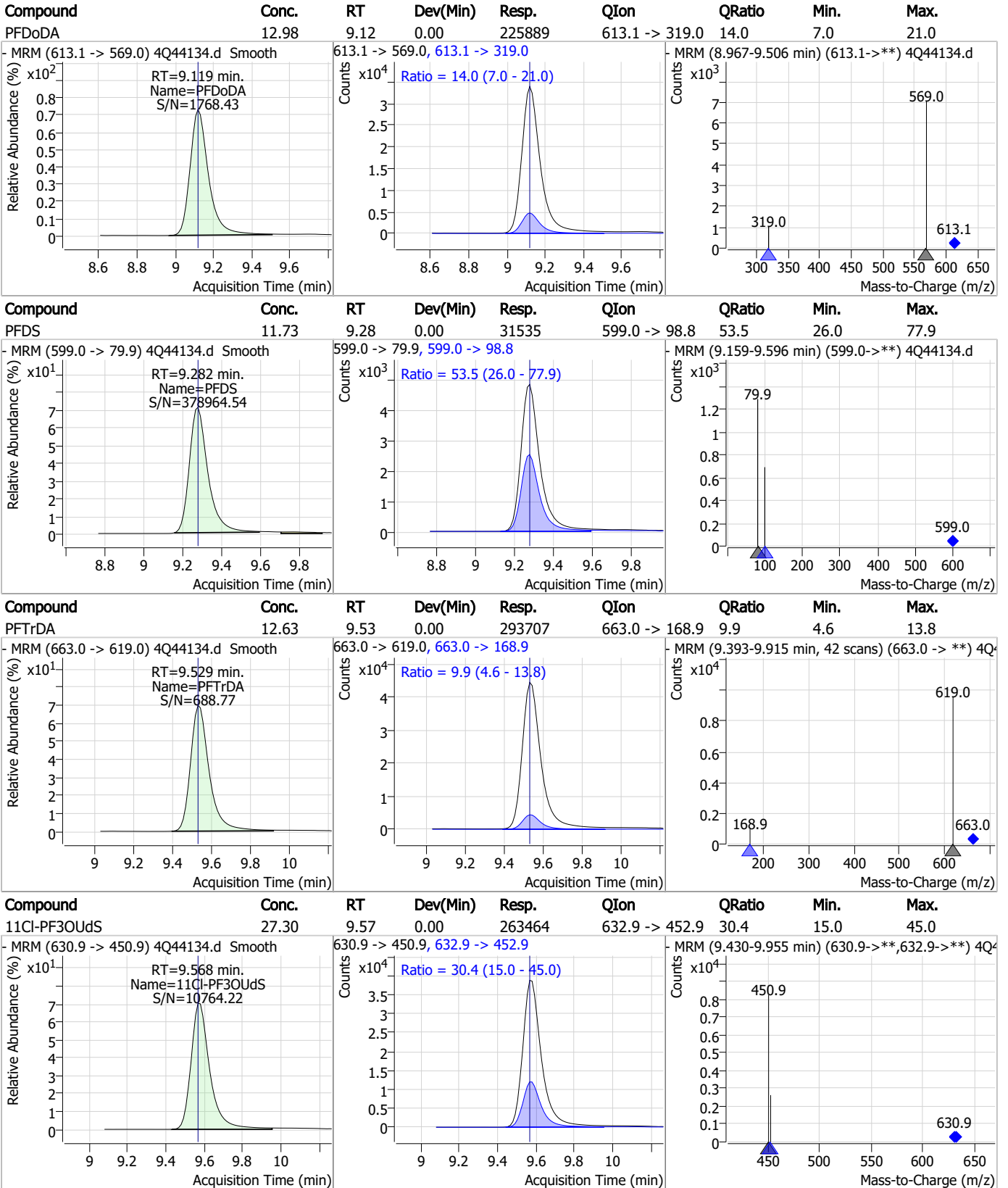
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	11.80	8.82	-0.01	27959	548.8 -> 98.9	51.8	24.0	72.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.29	9.12	0.00	21690				

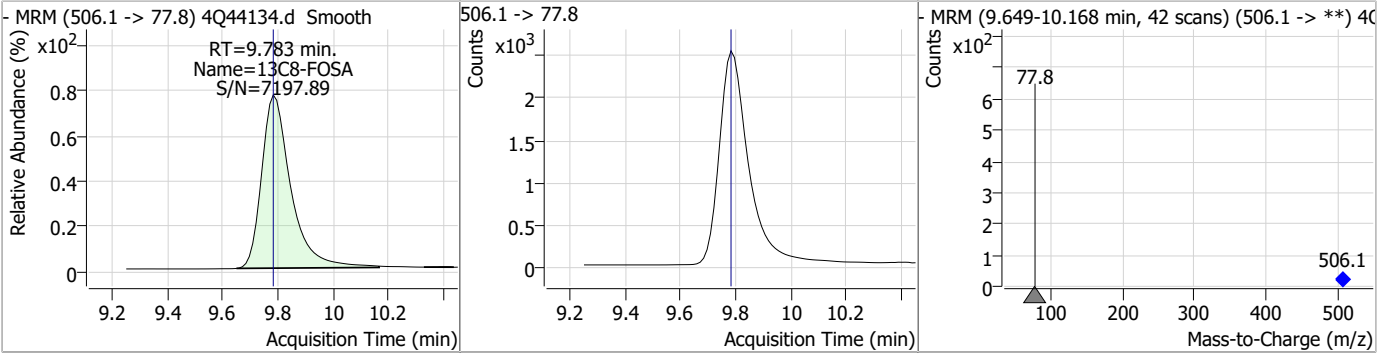


Perfluorinated Compounds by LC/MS/MS

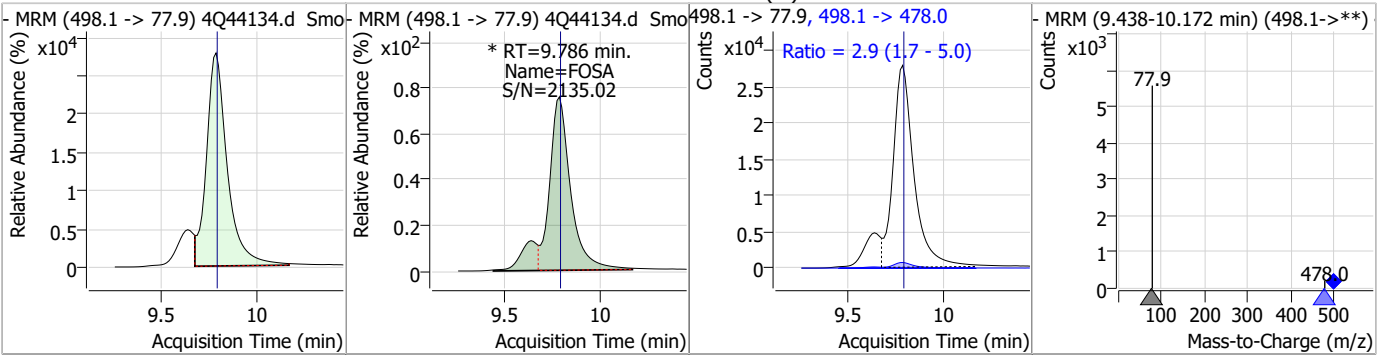


Perfluorinated Compounds by LC/MS/MS

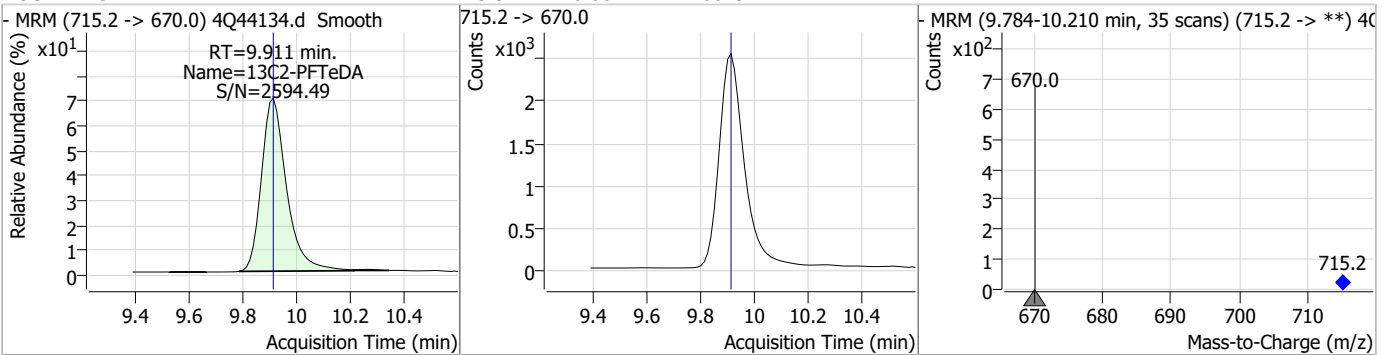
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.49	9.78	0.00	18380				



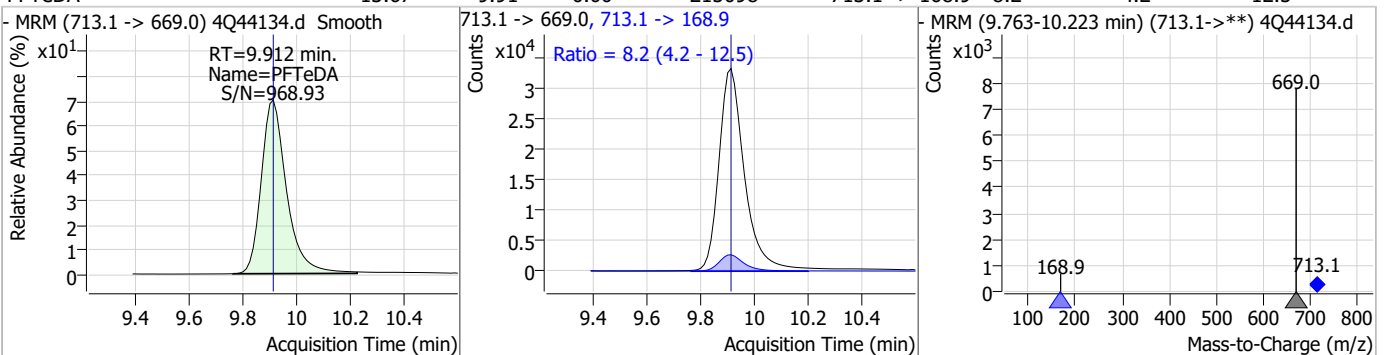
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	31.53	9.79	0.00	242817 (m)	498.1 -> 478.0	2.9	1.7	5.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.91	0.00	16079				

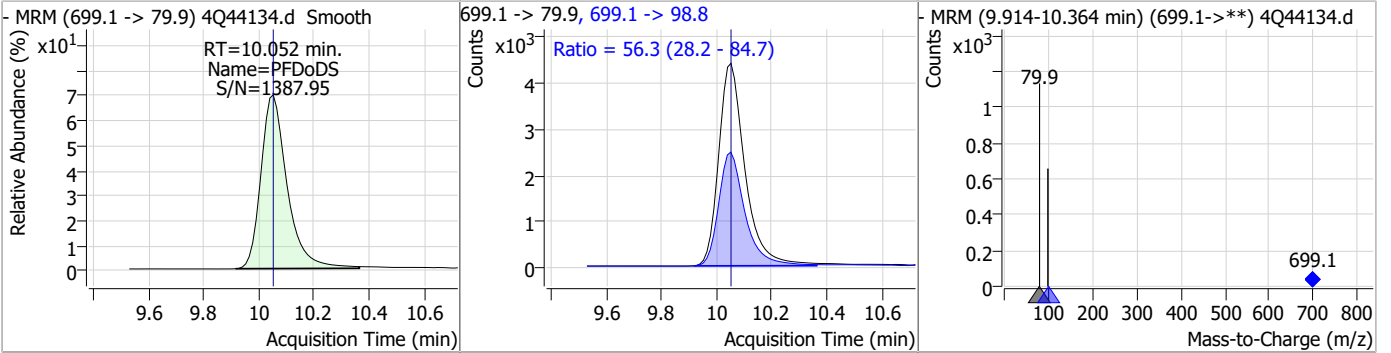


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.67	9.91	0.00	215098	713.1 -> 168.9	8.2	4.2	12.5

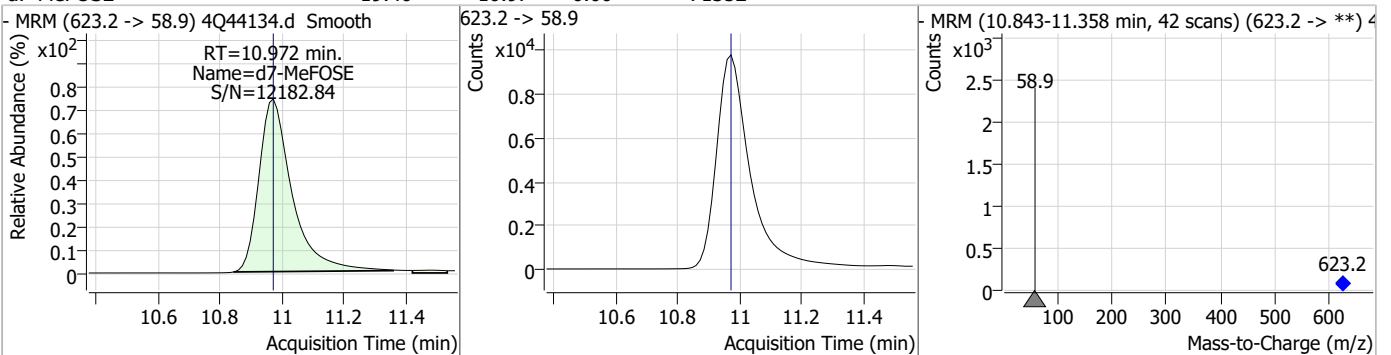


Perfluorinated Compounds by LC/MS/MS

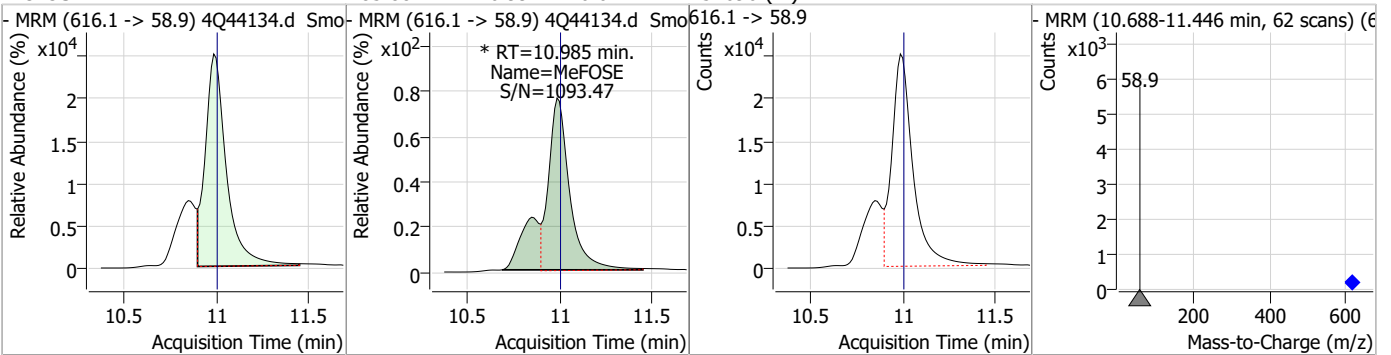
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	12.06	10.05	0.00	28924	699.1 -> 98.8	56.3	28.2	84.7



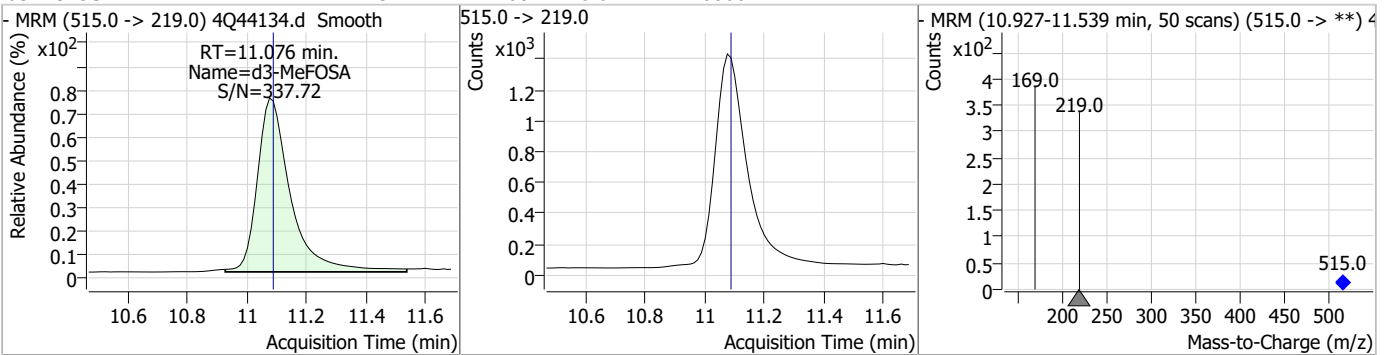
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.46	10.97	0.00	71352				



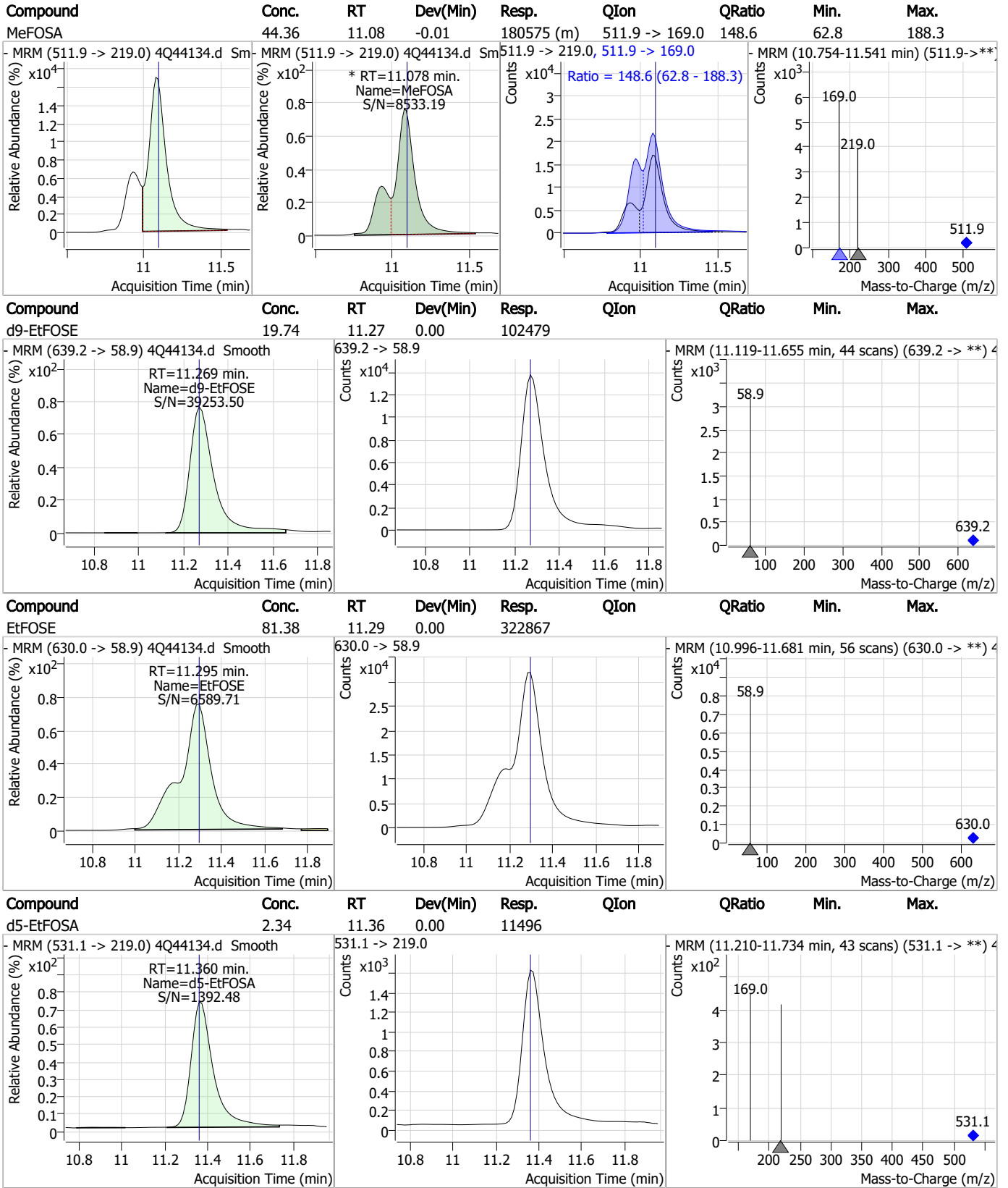
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	85.88	10.99	-0.01	251690 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.34	11.08	-0.01	10806				



Perfluorinated Compounds by LC/MS/MS

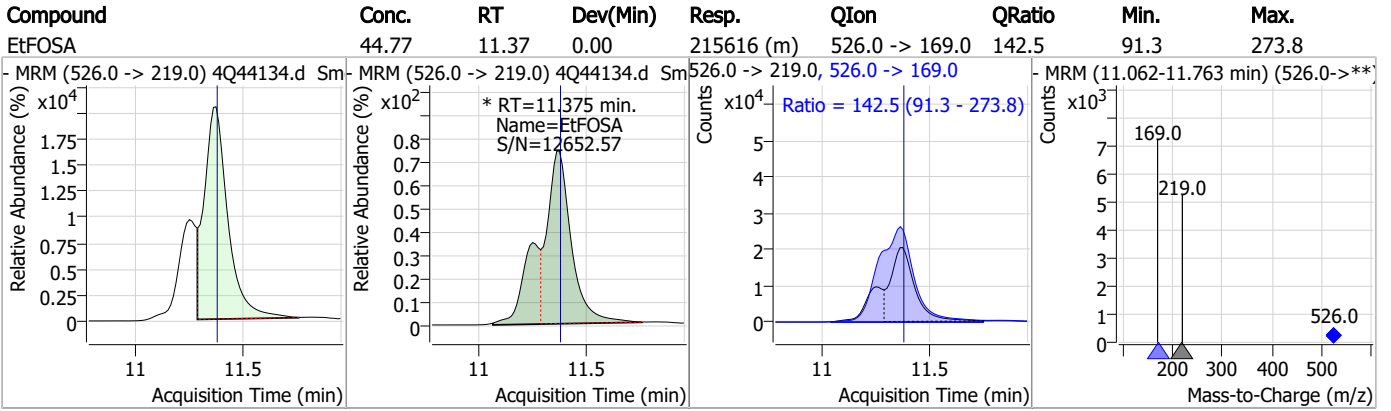


7.6.4

7



Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S4Q639-RT Method: EPA DRAFT 1633
Lab FileID: 4Q44134.D Analyst approved: 05/10/23 11:10 Martha Valls
Injection Time: 05/09/23 13:42 Supervisor approved: 05/10/23 17:21 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.15	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorononanoic acid	375-95-1		7.70	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
PFOSA	754-91-6		9.79	Split peak
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.6.4.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Mike Eger
 05/11/23 20:17

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17543.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 3:22:38 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q265 TDCA.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

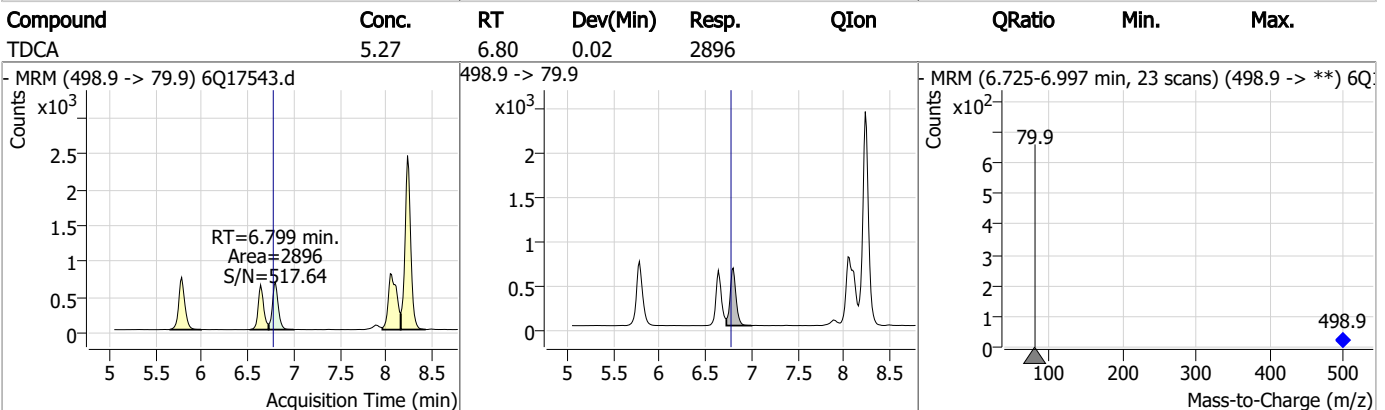
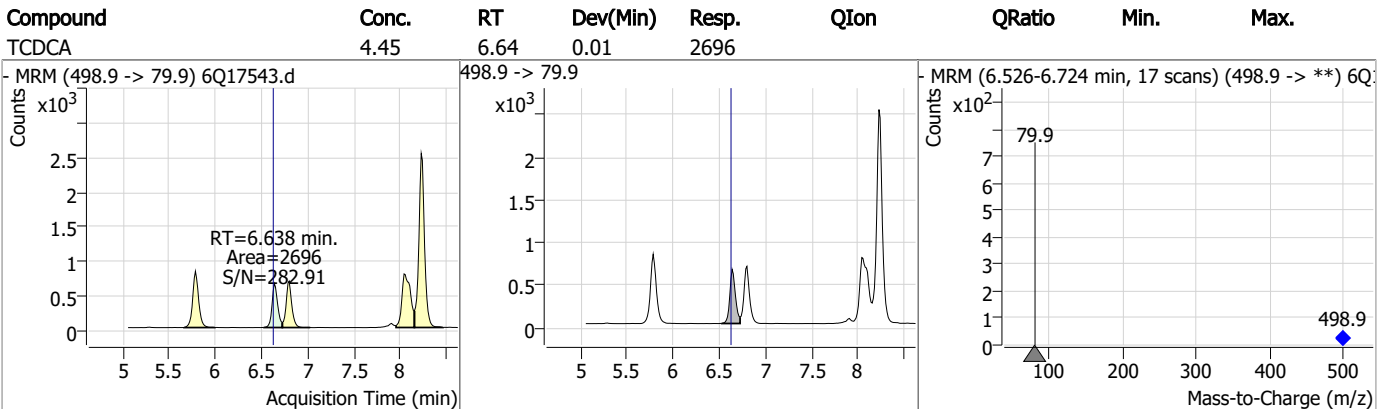
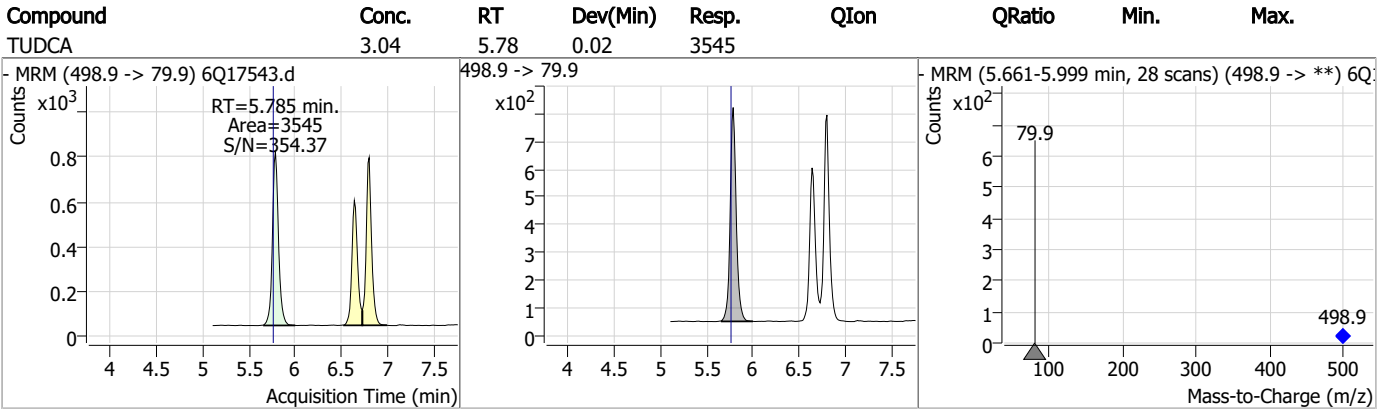
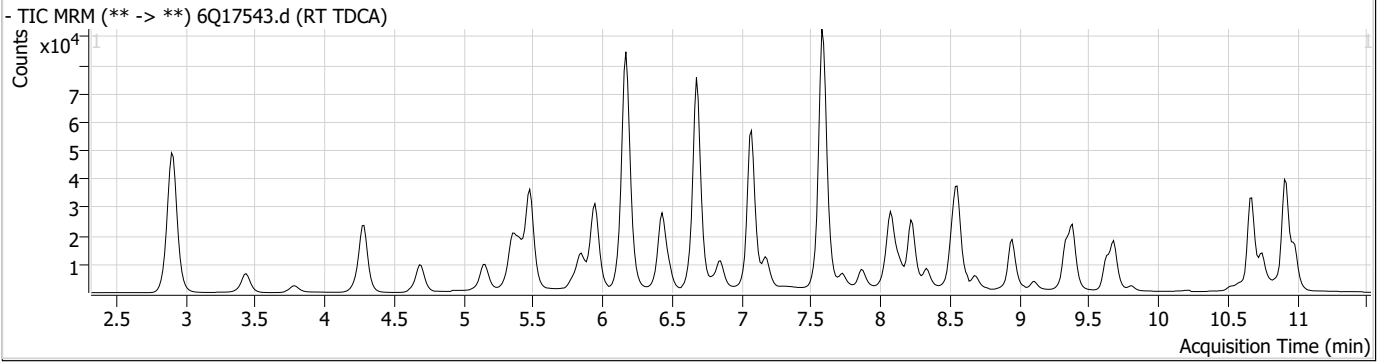
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.239	507.1 -> 79.9	13142	2.50	µg/L	0.000	
13C4-PFOS	8.227	502.8 -> 79.9	17150	2.50	µg/L	-0.012	
System Monitoring Compounds							
13C8-PFOS	8.239	507.1 -> 79.9	13142	1.94	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 77.8%				
Target Compounds							
PFOS	8.228	498.9 -> 79.9 498.9 -> 98.8	15799 7397	3.52	µg/L	m	76
TCDCa	6.638	498.9 -> 79.9	2696	4.45	ng/ml		100
TDCA	6.799	498.9 -> 79.9	2896	5.27	ng/ml		100
TUDCA	5.785	498.9 -> 79.9	3545	3.04	ng/ml		100

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

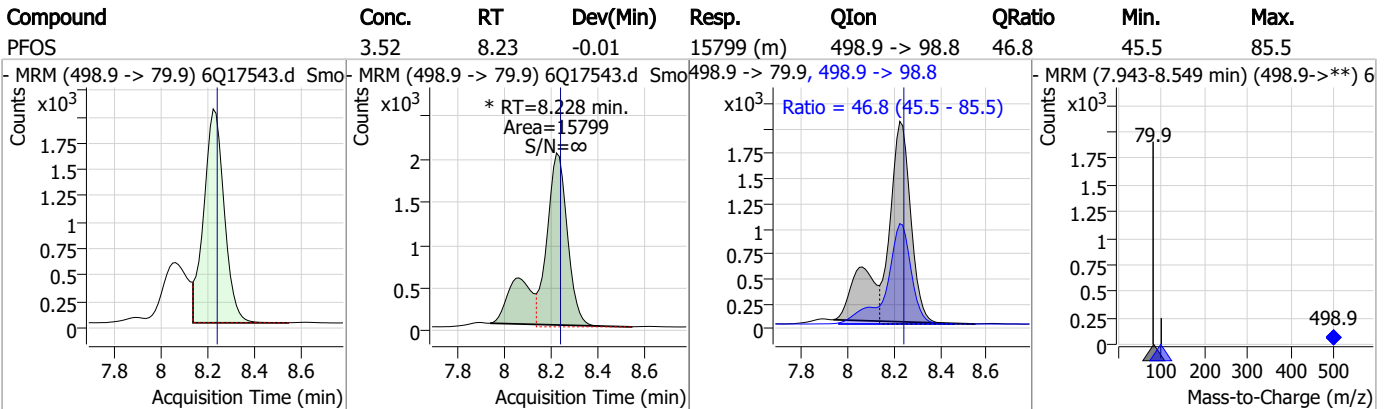
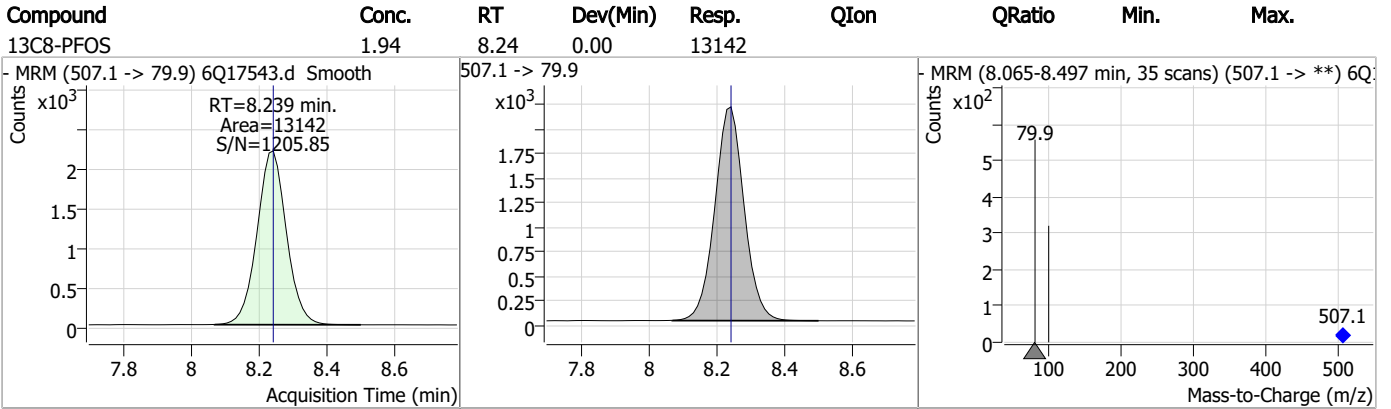
7.6.5

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.5
7



Manual Integration Approval Summary

Sample Number: S6Q265-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17543.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 15:22 Supervisor approved: 05/11/23 20:17 Mike Eger

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

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17544.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 3:37:09 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	142427	10.00 µg/L	0.000
M5-PFPeA	4.284	268.3 -> 223.0	47262	5.00 µg/L	0.012
M5-PFHxA	5.478	318.0 -> 273.0	53387	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	43691	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	64942	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	21900	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16049	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	22433	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	21020	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14627	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	20791	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	18716	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11029	2.50 µg/L	-0.012
M8-PFOS	8.226	507.1 -> 79.9	8747	2.50 µg/L	-0.012
M2-4:2FTS	5.156	329.1 -> 80.9	1558	5.00 µg/L	0.000
M2-6:2FTS	6.850	429.1 -> 80.9	1849	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2122	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	17579	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	33639	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	14863	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	79939	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	99826	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9429	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7166	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11768	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	59982	5.00 µg/L	0.000
18O2-PFHxS	7.191	403.0 -> 83.9	7848	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	69789	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	21170	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	24320	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	43868	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.156	329.1 -> 80.9	1558	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1849	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2122	5.41 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFDoDA	8.949	615.1 -> 570.0	21020	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14627	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFBS	5.409	302.1 -> 79.9	18716	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C3-PFHxS	7.179	402.1 -> 79.9	11029	2.70 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 = 107.9%	
13C4-PFBA	2.913	216.8 -> 171.9	142427	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFHpA	6.432	367.1 -> 322.0	43691	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C5-PFHxA	5.478	318.0 -> 273.0	53387	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFPeA	4.284	268.3 -> 223.0	47262	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C6-PFDA	8.076	519.1 -> 474.1	16049	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C7-PFUnDA	8.518	570.0 -> 525.1	22433	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C8-FOSA	9.636	506.1 -> 77.8	20791	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-PFOA	7.077	421.1 -> 376.0	64942	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C8-PFOS	8.226	507.1 -> 79.9	8747	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C9-PFNA	7.595	472.1 -> 427.0	21900	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
d3-MeFOSAA	8.133	573.2 -> 419.0	17579	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	33639	10.32 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSA	10.752	515.0 -> 219.0	7166	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
d5-EtFOSAA	8.329	589.2 -> 419.0	14863	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d7-MeFOSE	10.660	623.2 -> 58.9	79939	24.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	99826	26.94 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
d5-EtFOSA	10.984	531.1 -> 219.0	9429	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.4%	
Target Compounds					QValue
4:2FTS	5.156	327.1 -> 307.0	104772	44.05 µg/L	95
		327.1 -> 80.9	37602		
6:2FTS	6.850	427.1 -> 407.0	94802	46.65 µg/L	100
		427.1 -> 80.9	30765		
8:2FTS	7.865	527.1 -> 507.0	53706	43.58 µg/L	98
		527.1 -> 80.8	22184		
EtFOSAA	8.330	584.2 -> 419.1	33527	12.54 µg/L	m 91
		584.2 -> 526.0	16429		
FOSA	9.639	498.1 -> 77.9	217960	28.59 µg/L	m 99
		498.1 -> 478.0	6087		
MeFOSAA	8.134	570.1 -> 419.0	41010	11.29 µg/L	98
		570.1 -> 483.0	7831		
PFBA	2.907	212.8 -> 168.9	252241	49.45 µg/L	100
PFBS	5.410	298.7 -> 79.9	96040	10.37 µg/L	98
		298.7 -> 98.8	36459		
PFDA	8.076	512.9 -> 469.0	234417	11.80 µg/L	99
		512.9 -> 219.0	38870		
PFDoDA	8.950	613.1 -> 569.0	217023	12.95 µg/L	97
		613.1 -> 319.0	26577		
PFDS	9.113	599.0 -> 79.9	35807	12.14 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	18470			
PFHpA	6.433	363.1 -> 319.0	290980	13.19	µg/L	99
		363.1 -> 169.0	46085			
PFHpS	7.735	449.0 -> 79.9	59267	12.59	µg/L	94
		449.0 -> 98.9	27766			
PFHxA	5.481	313.0 -> 269.0	265136	12.21	µg/L	99
		313.0 -> 118.9	11873			
PFHxS	7.180	398.7 -> 79.9	66904	10.28	µg/L	m 98
		398.7 -> 98.9	32664			
PFNA	7.471	463.0 -> 419.0	467016	29.08	µg/L	m 94
		463.0 -> 219.0	105121			
PFNS	8.693	548.8 -> 79.9	52538	12.13	µg/L	82
		548.8 -> 98.9	31751			
PFOA	7.078	413.0 -> 369.0	785590	24.79	µg/L	m 96
		413.0 -> 169.0	155442			
PFOS	8.228	498.9 -> 79.9	57072	12.56	µg/L	m 78
		498.9 -> 98.8	27756			
PFPeA	4.287	263.0 -> 219.0	329573	23.86	µg/L	100
PFPeS	6.484	349.1 -> 79.9	69230	11.16	µg/L	96
		349.1 -> 98.9	30032			
PFTeDA	9.677	713.1 -> 669.0	179881	11.89	µg/L	99
		713.1 -> 168.9	13249			
PFTrDA	9.333	663.0 -> 619.0	239357	12.08	µg/L	100
		663.0 -> 168.9	21476			
PFUnDA	8.518	563.1 -> 519.0	197937	12.55	µg/L	99
		563.1 -> 269.1	29180			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	294041	22.84	µg/L	94
		632.9 -> 452.9	85734			
9Cl-PF3ONS	8.557	530.8 -> 351.0	435032	22.03	µg/L	100
		532.8 -> 353.0	134215			
ADONA	6.683	376.9 -> 250.9	1253794	23.25	µg/L	95
		376.9 -> 84.8	314596			
HFPO-DA	5.845	284.9 -> 168.9	76202	23.48	µg/L	98
		284.9 -> 184.9	10241			
3:3FTCA	3.790	241.0 -> 177.0	50781	57.60	µg/L	97
		241.0 -> 117.0	6354			
5:3FTCA	6.174	341.0 -> 237.1	1059460	286.03	µg/L	96
		341.0 -> 217.0	764831			
7:3FTCA	7.586	441.0 -> 316.9	475123	284.80	µg/L	89
		441.0 -> 336.9	1057614			
EtFOSA	10.986	526.0 -> 219.0	161041	39.39	µg/L	m 69
		526.0 -> 169.0	208722			
EtFOSE	10.920	630.0 -> 58.9	343243	79.97	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	145339	44.23	µg/L	m 73
		511.9 -> 169.0	188757			
MeFOSE	10.686	616.1 -> 58.9	308403	86.17	µg/L	m 100
PFDoS	9.805	699.1 -> 79.9	19389	12.34	µg/L	98
		699.1 -> 98.8	10997			
NFDHA	5.361	295.0 -> 201.0	57453	24.79	µg/L	98
		295.0 -> 84.9	14625			
PFMBA	4.688	279.0 -> 85.1	240972	24.71	µg/L	100
PFMPA	3.442	229.0 -> 84.9	167385	23.91	µg/L	100
PFEESA	5.950	314.8 -> 134.9	613197	21.64	µg/L	99
		314.8 -> 82.9	21205			

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

7.6.6
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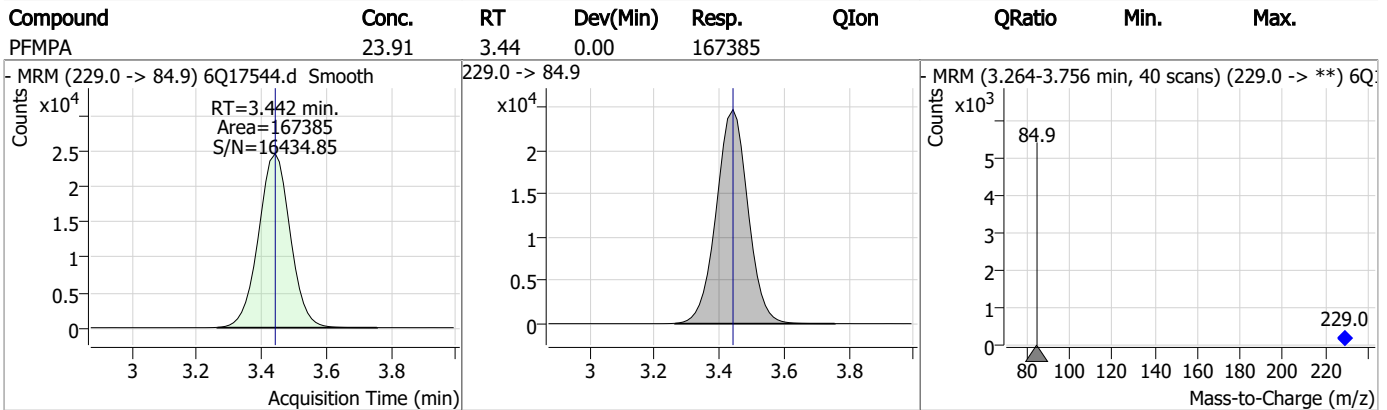
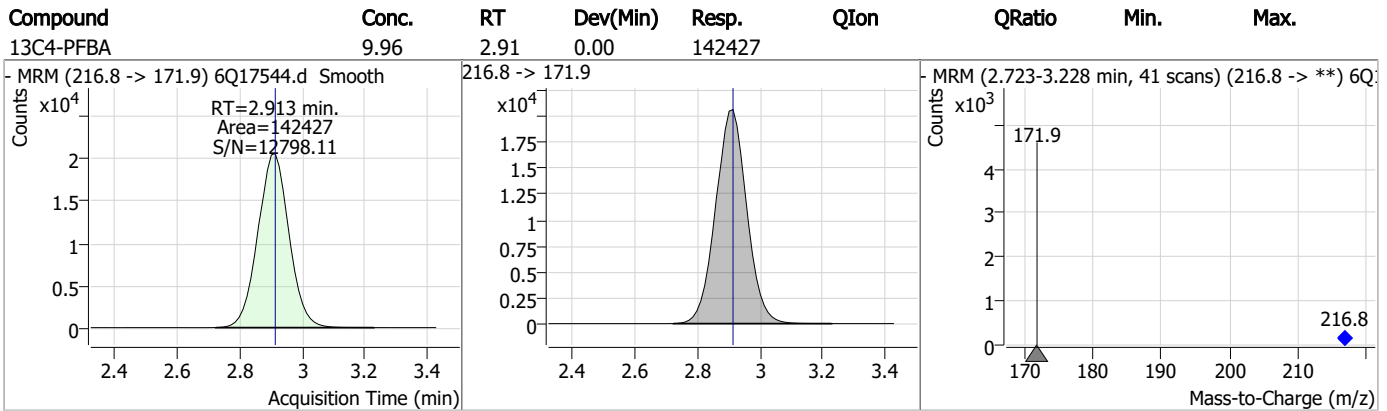
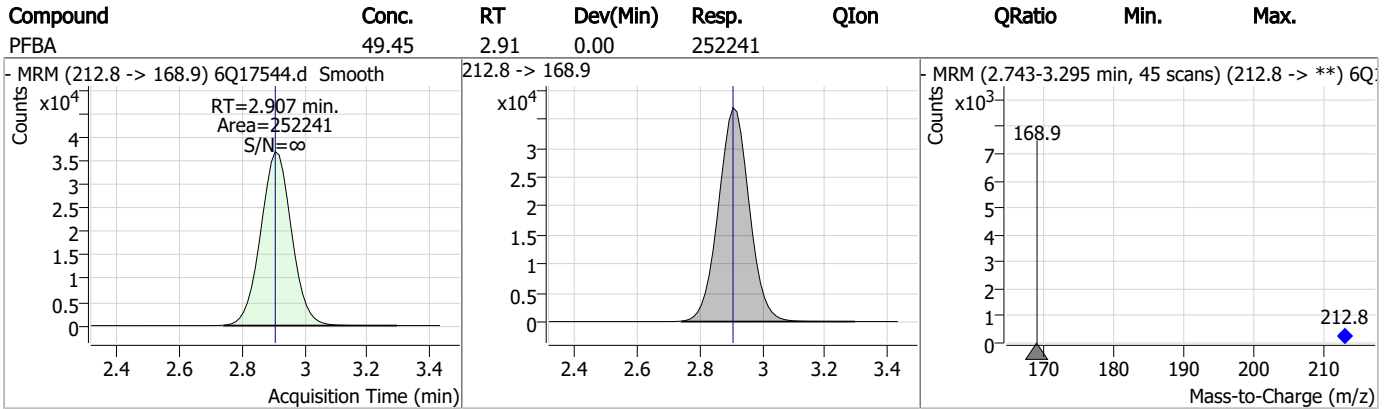
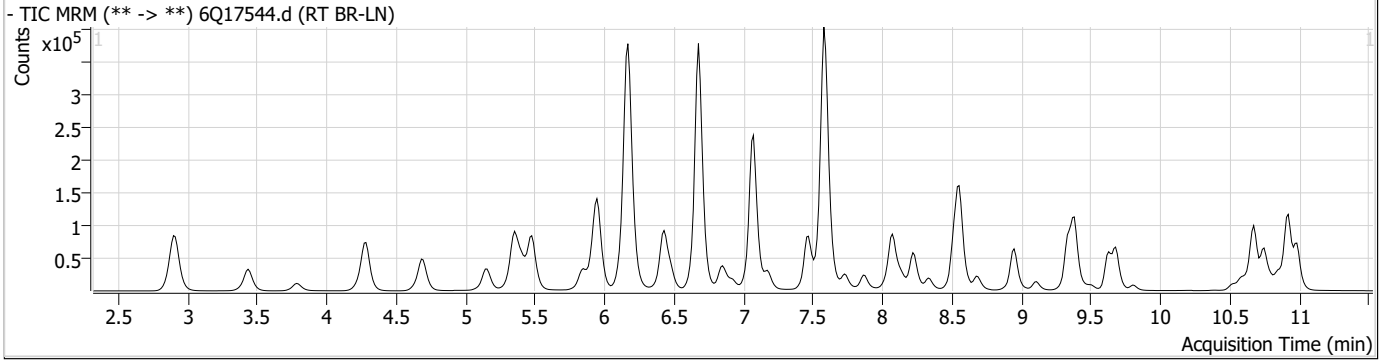
Perfluorinated Compounds by LC/MS/MS

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

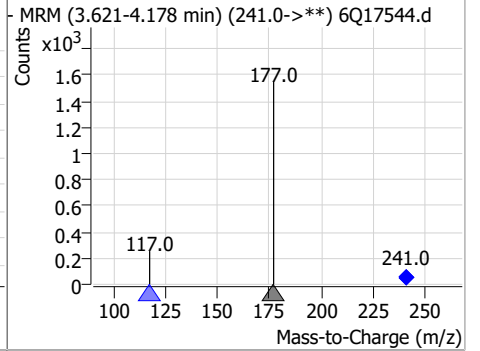
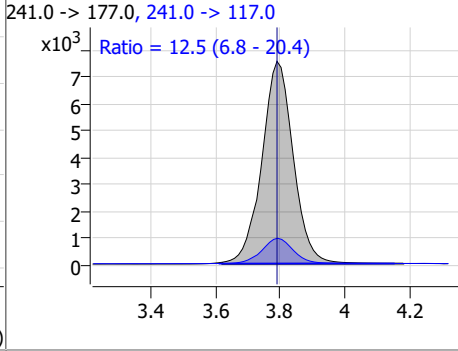
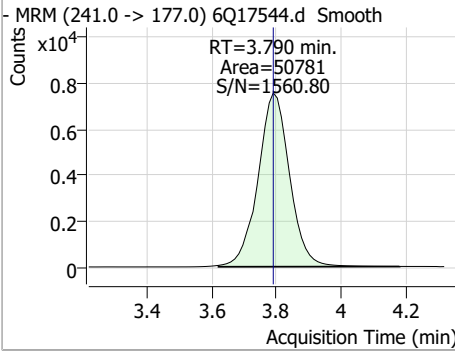
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Perfluorinated Compounds by LC/MS/MS

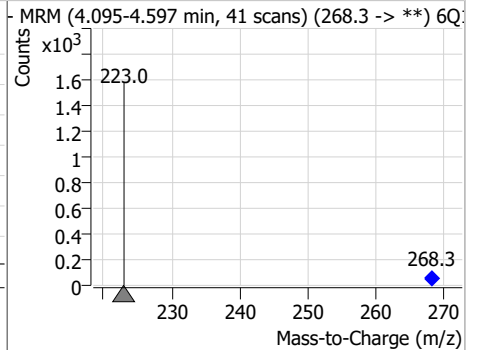
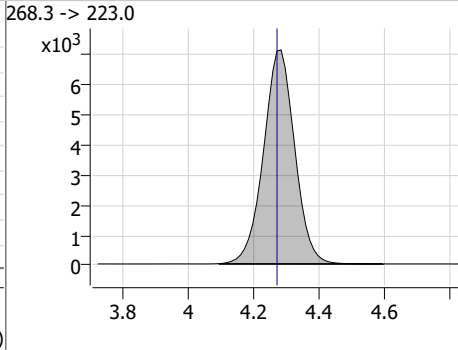
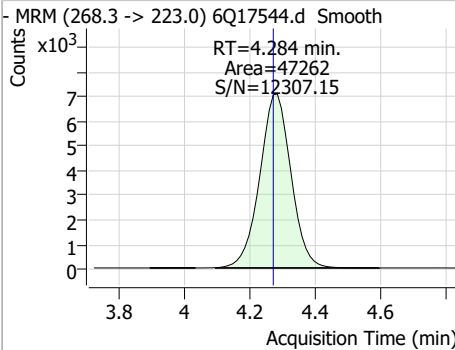


Perfluorinated Compounds by LC/MS/MS

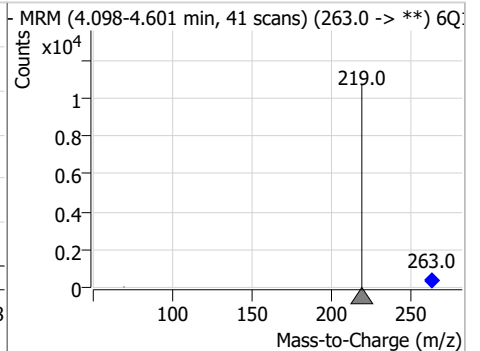
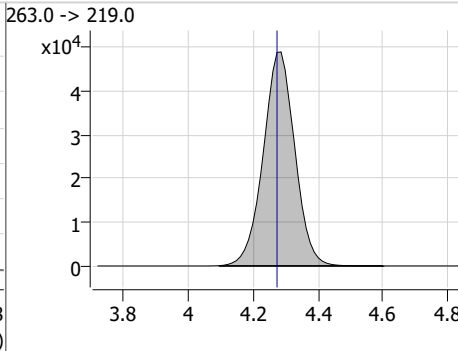
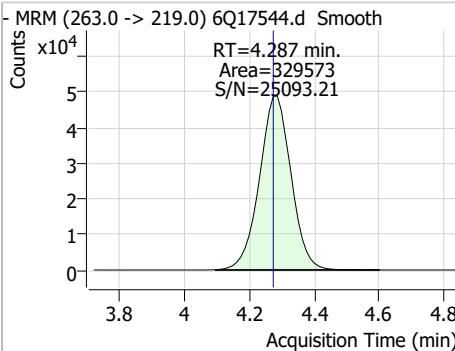
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	57.60	3.79	0.00	50781	241.0 -> 117.0	12.5	6.8	20.4



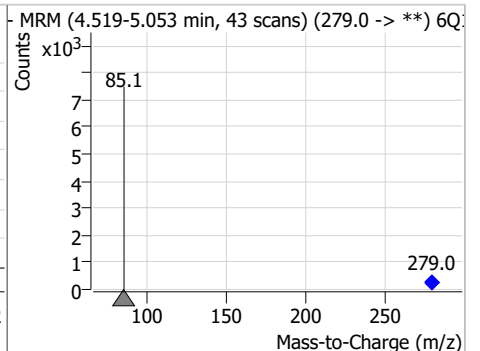
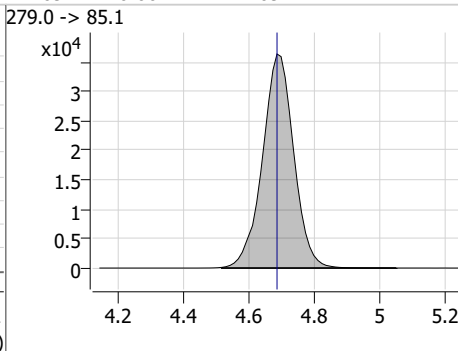
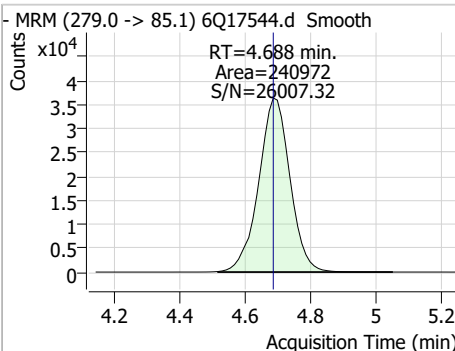
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.10	4.28	0.01	47262				



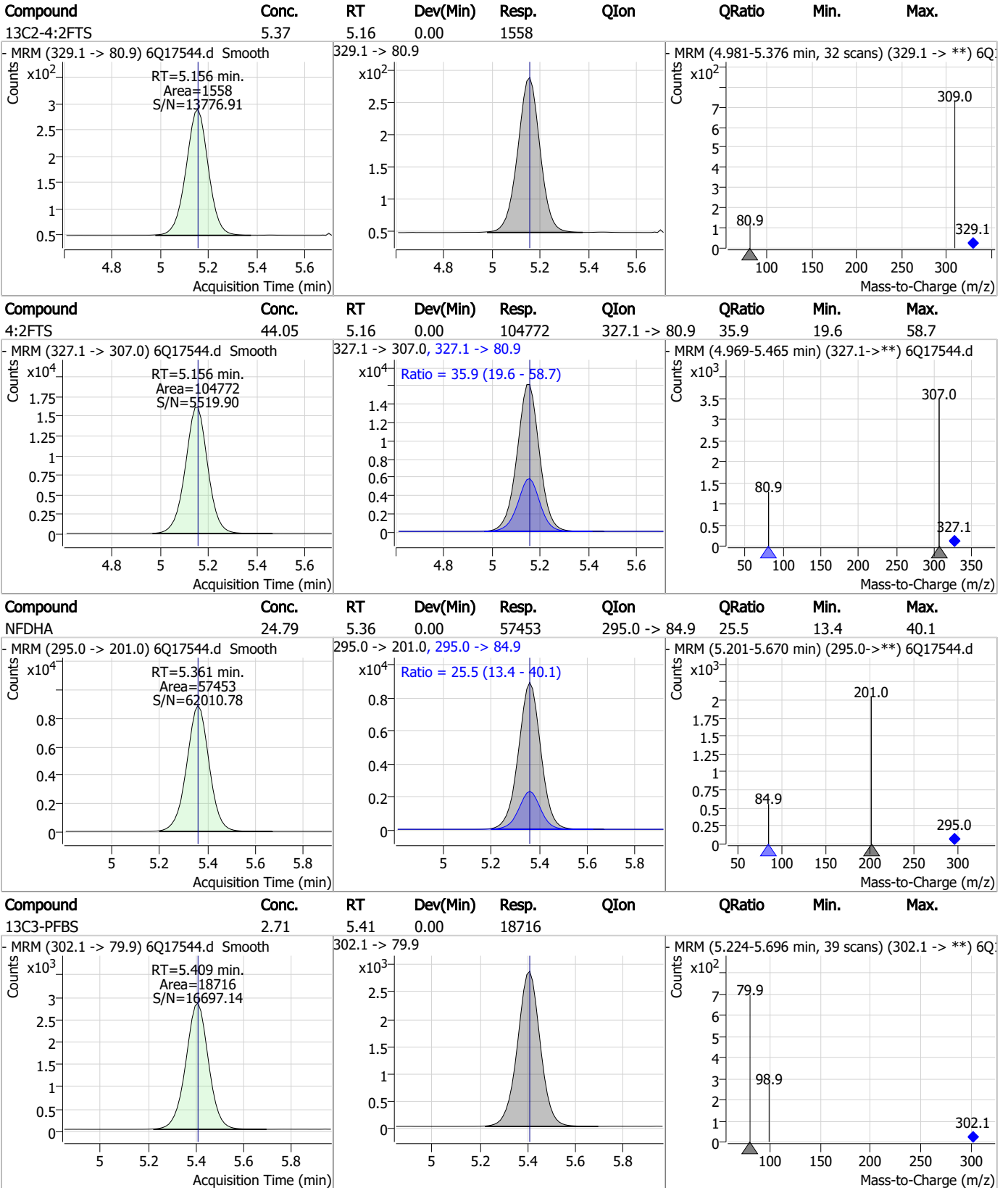
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	23.86	4.29	0.01	329573				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	24.71	4.69	0.00	240972				



Perfluorinated Compounds by LC/MS/MS

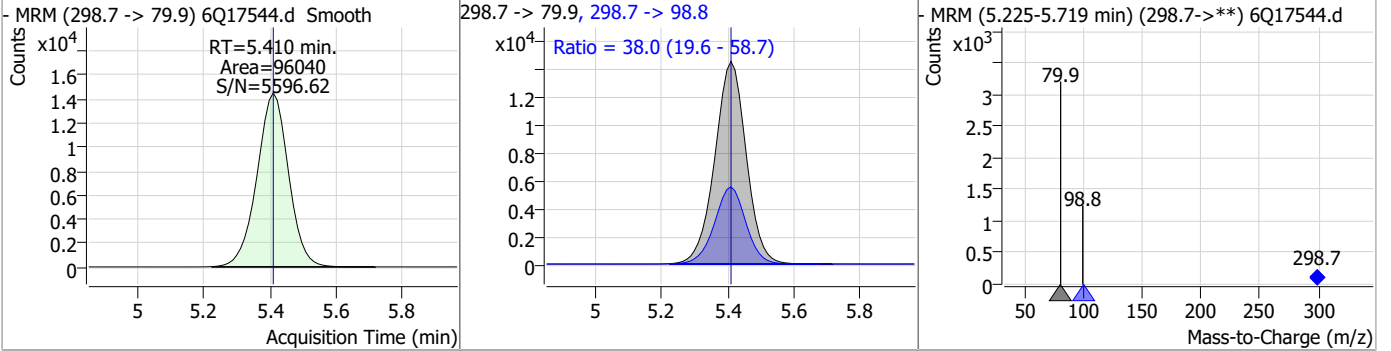


7.6.6

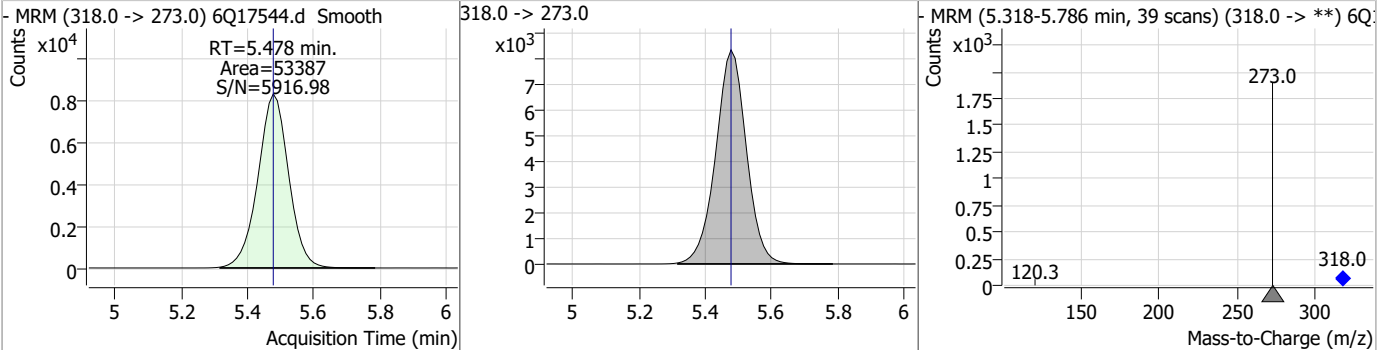
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Perfluorinated Compounds by LC/MS/MS

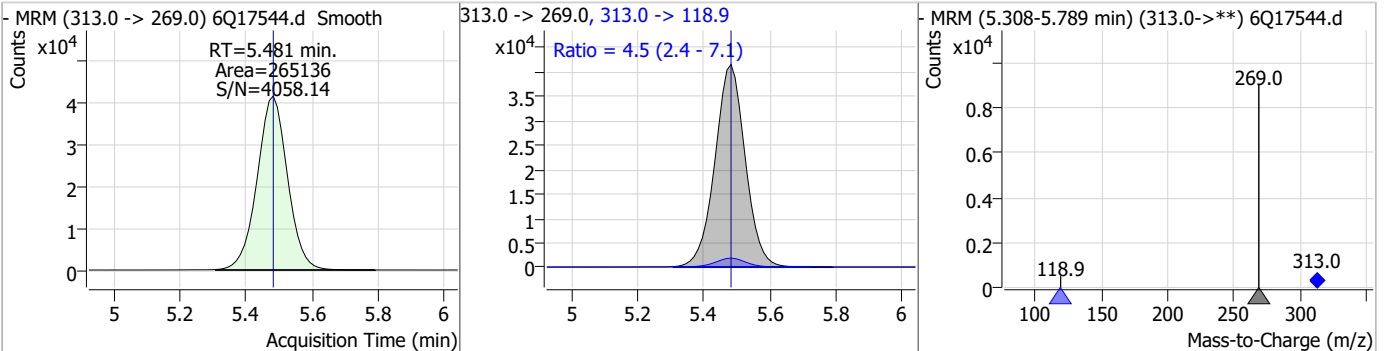
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.37	5.41	0.00	96040	298.7 -> 98.8	38.0	19.6	58.7



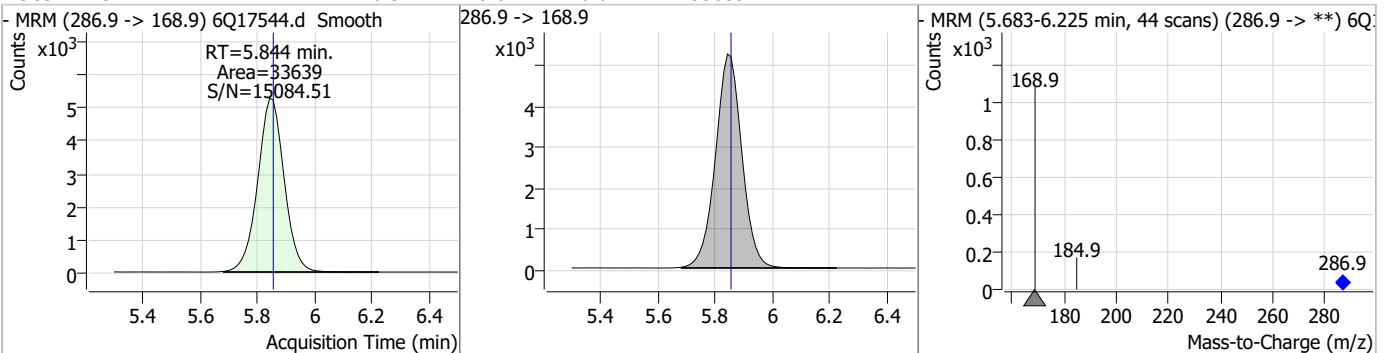
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.48	0.00	53387				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.21	5.48	0.00	265136	313.0 -> 118.9	4.5	2.4	7.1

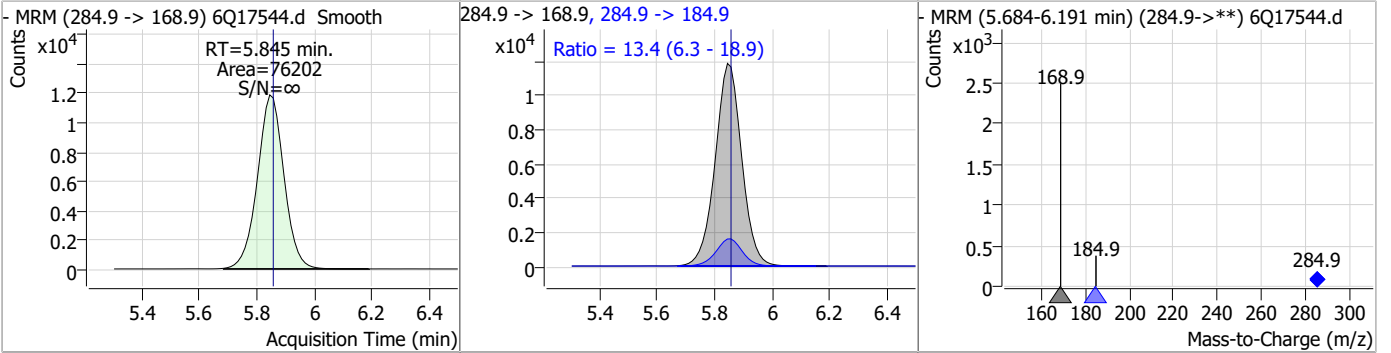


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.32	5.84	-0.01	33639				

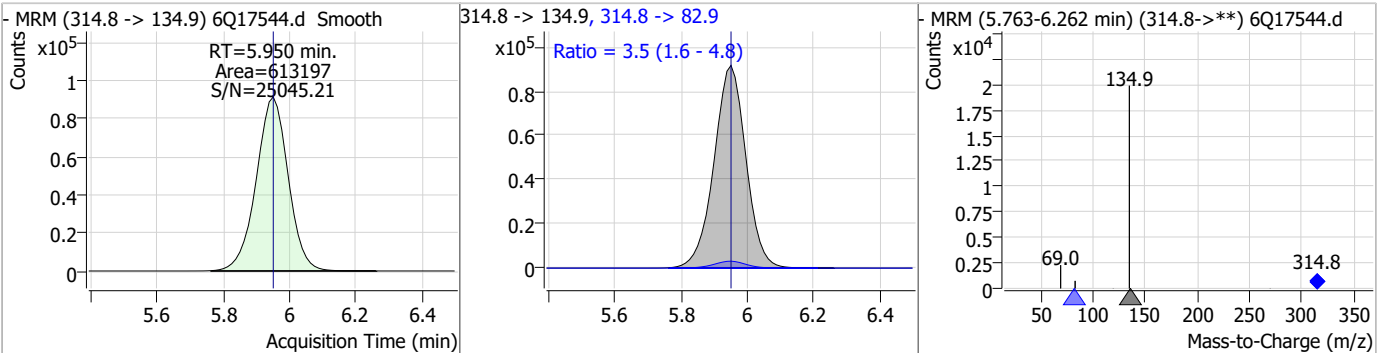


Perfluorinated Compounds by LC/MS/MS

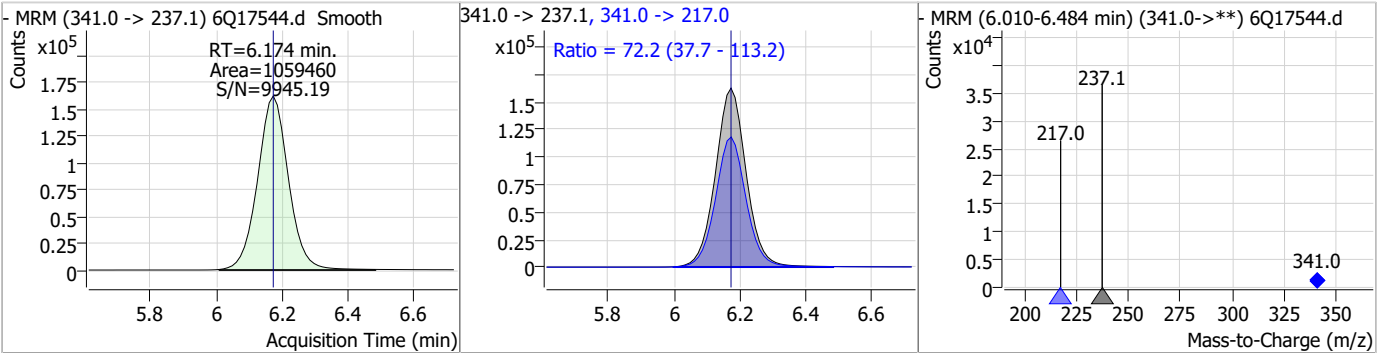
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	23.48	5.84	-0.01	76202	284.9 -> 184.9	13.4	6.3	18.9



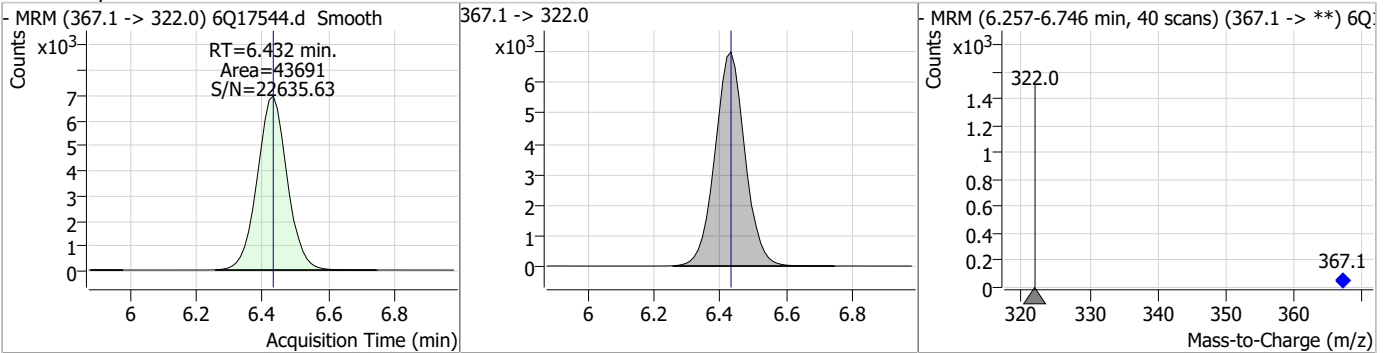
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	21.64	5.95	0.00	613197	314.8 -> 82.9	3.5	1.6	4.8



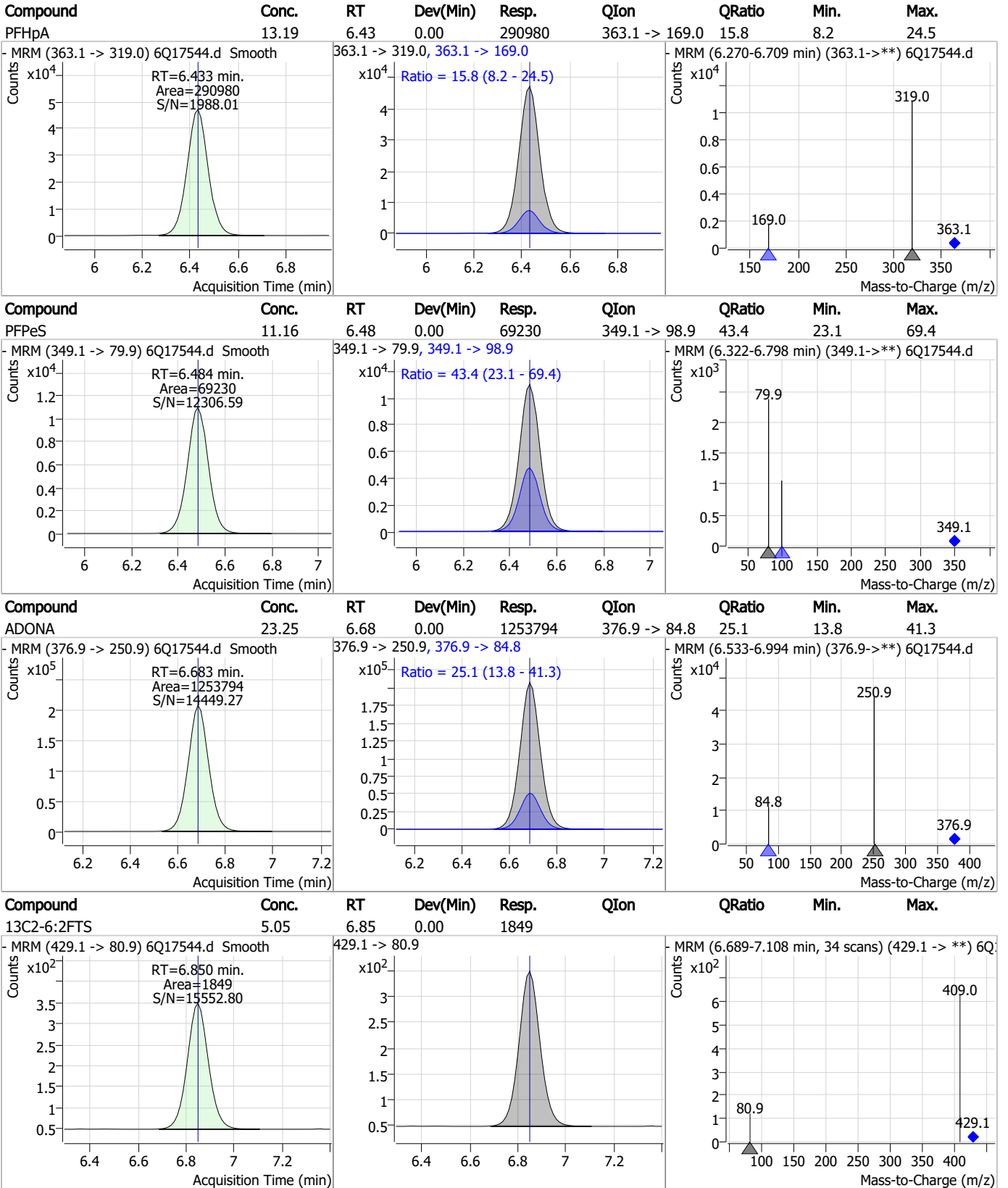
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	286.03	6.17	0.00	1059460	341.0 -> 217.0	72.2	37.7	113.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.35	6.43	0.00	43691	367.1 -> 322.0			



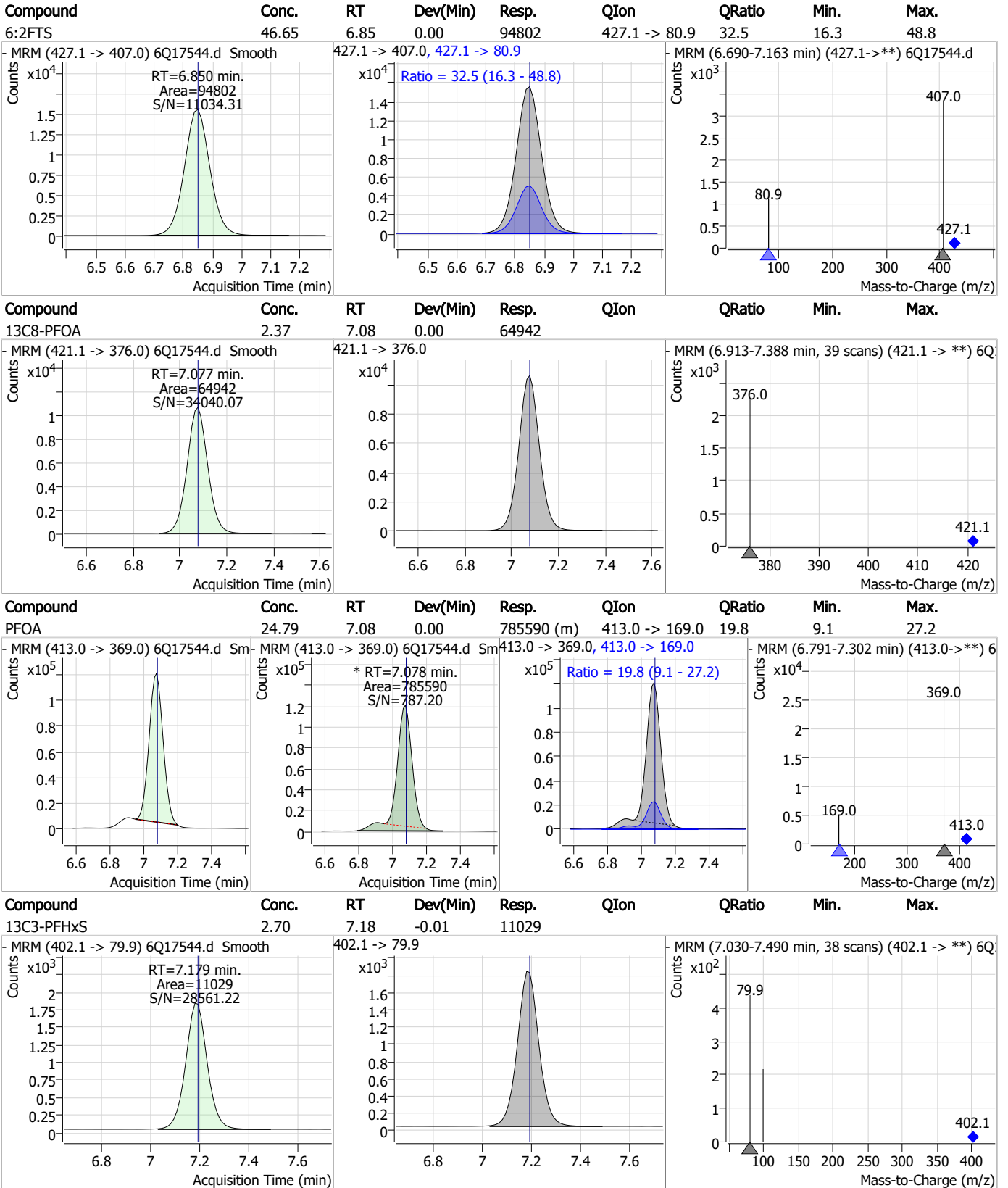
Perfluorinated Compounds by LC/MS/MS



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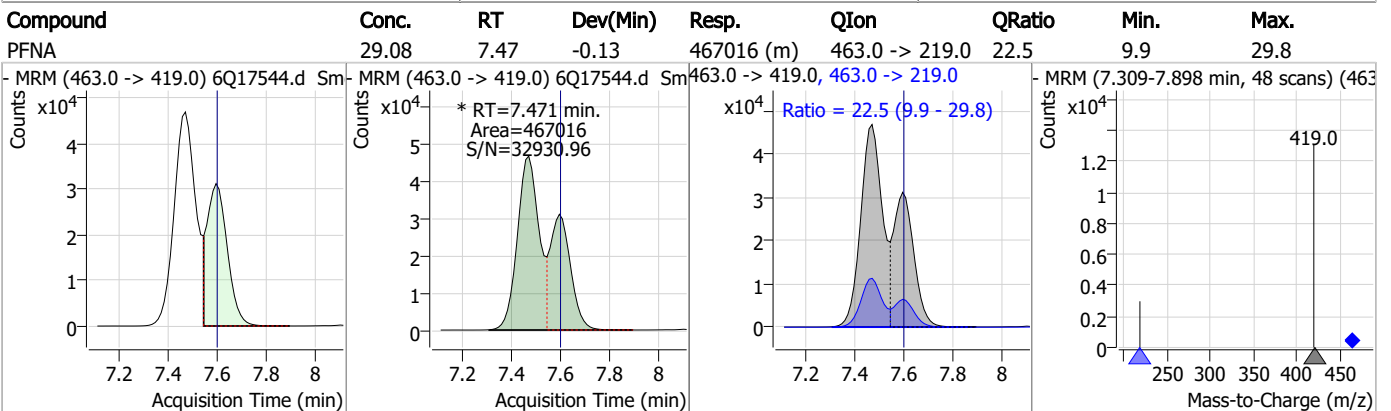
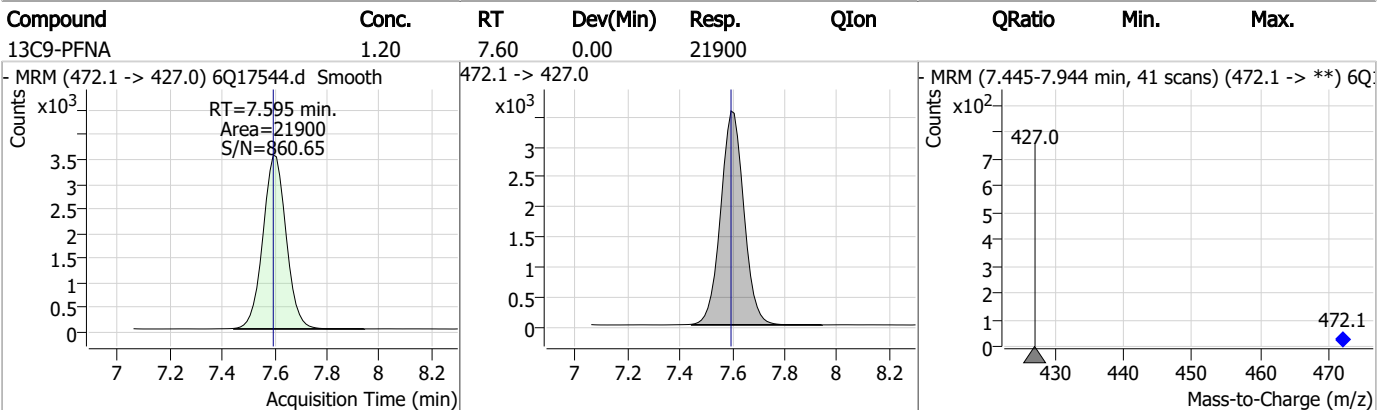
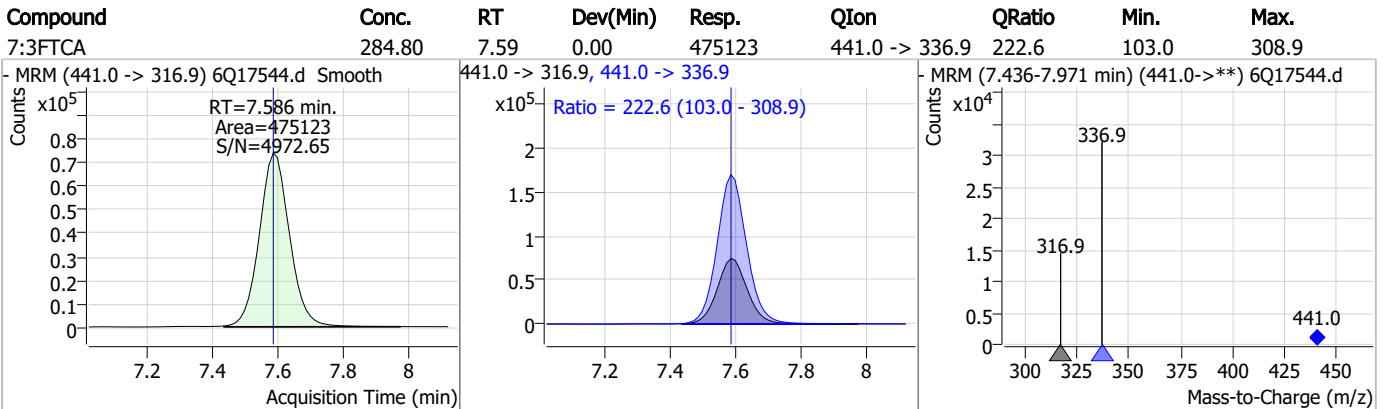
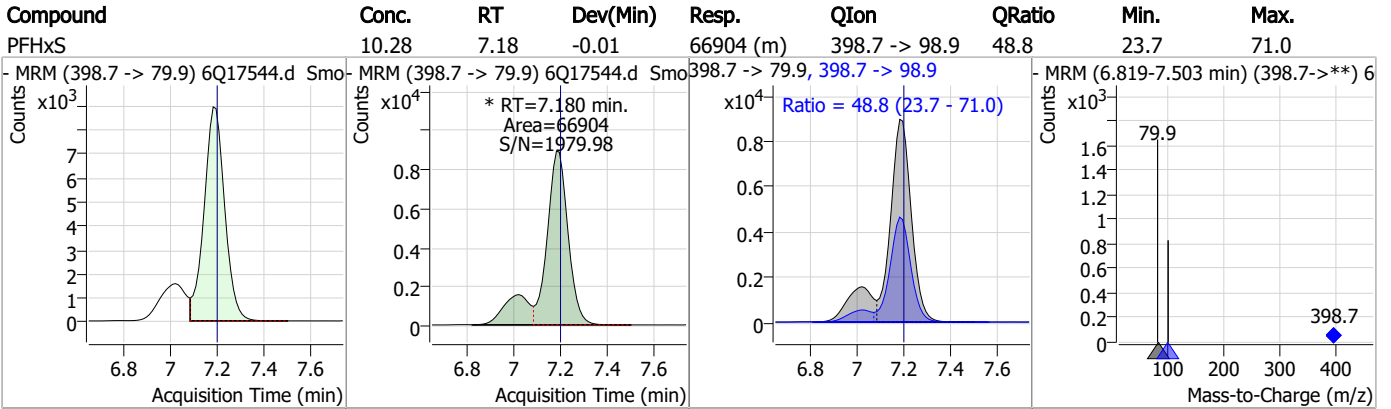
Perfluorinated Compounds by LC/MS/MS



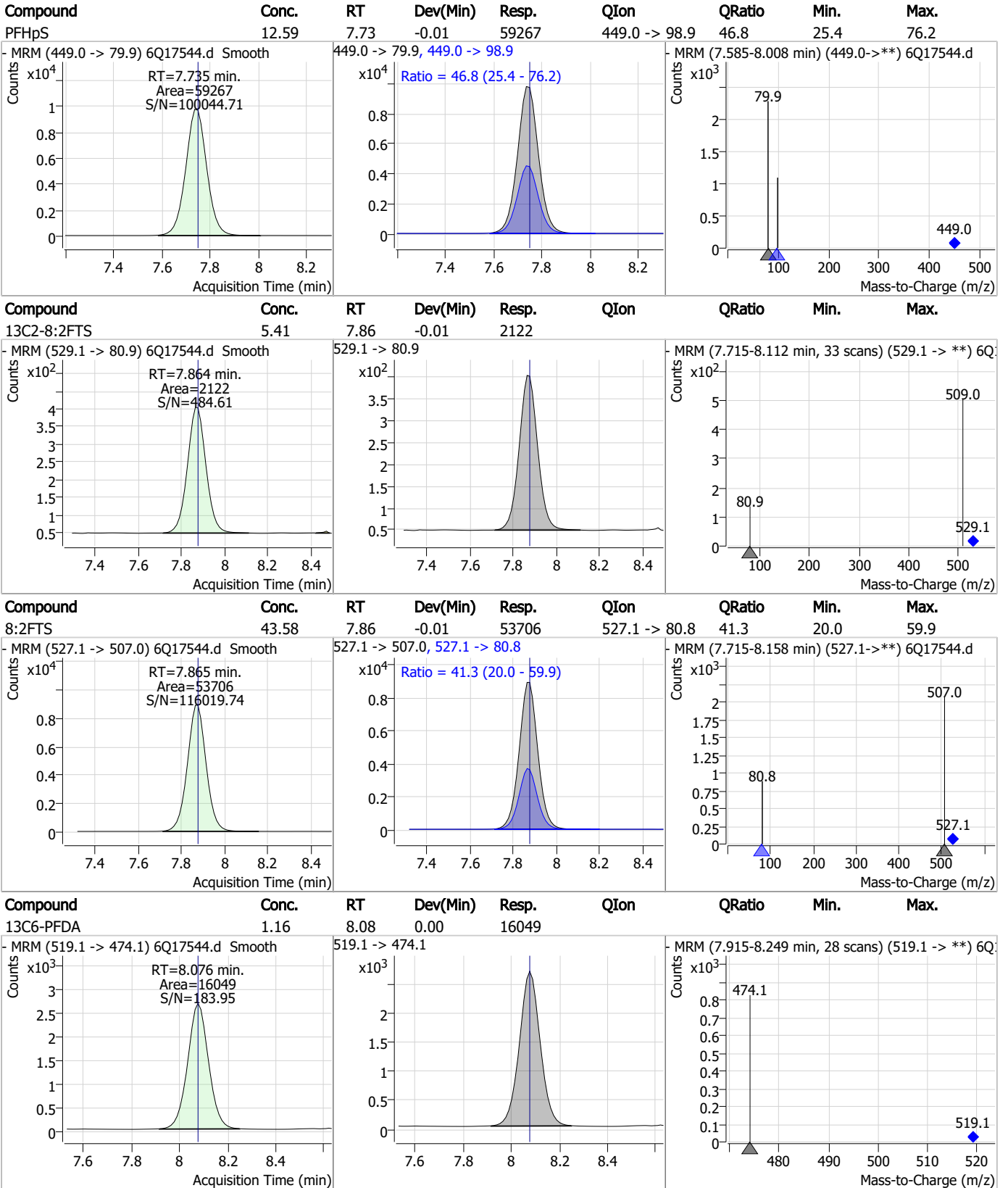
7.6.6

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Perfluorinated Compounds by LC/MS/MS



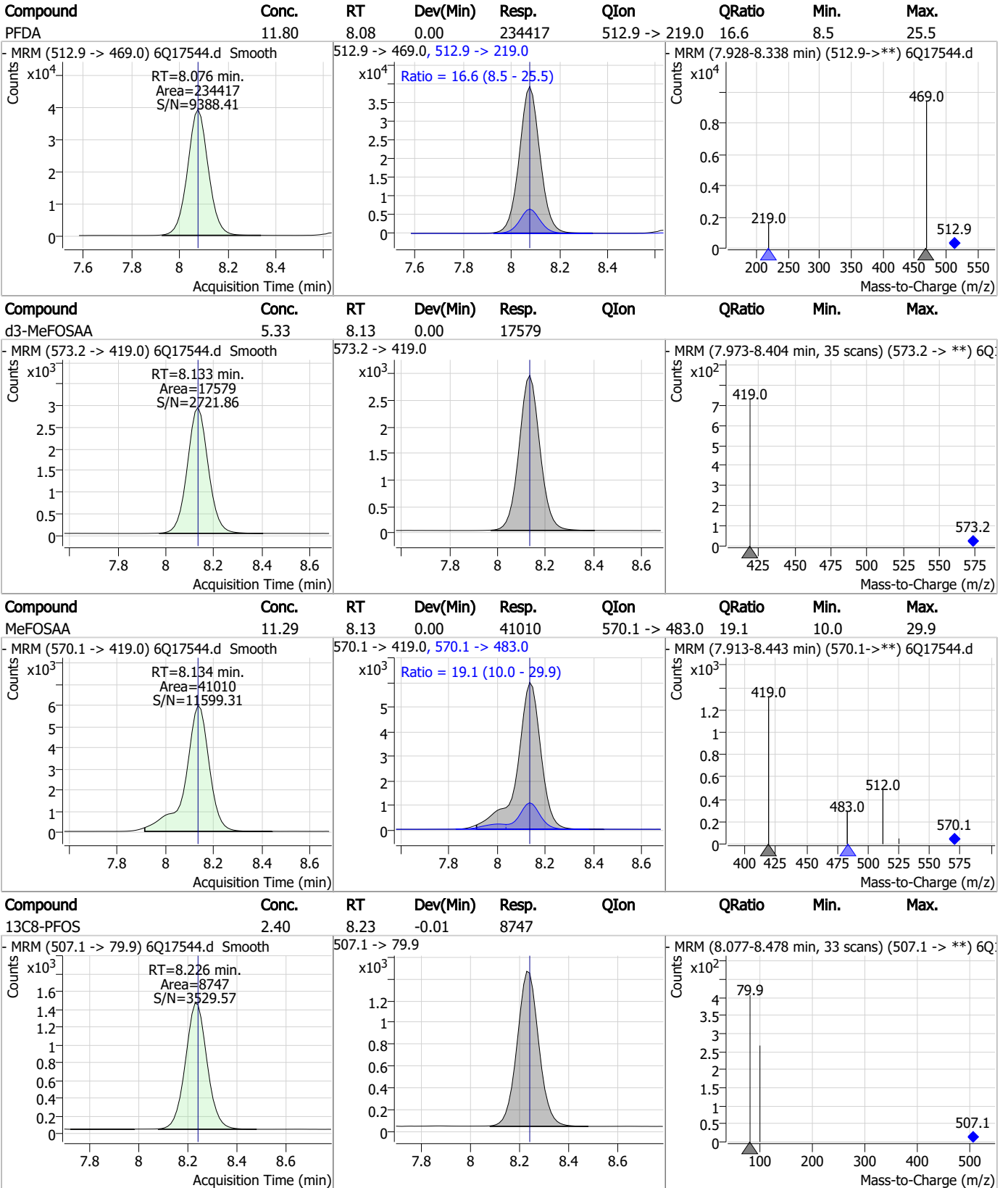
Perfluorinated Compounds by LC/MS/MS



7.6.6

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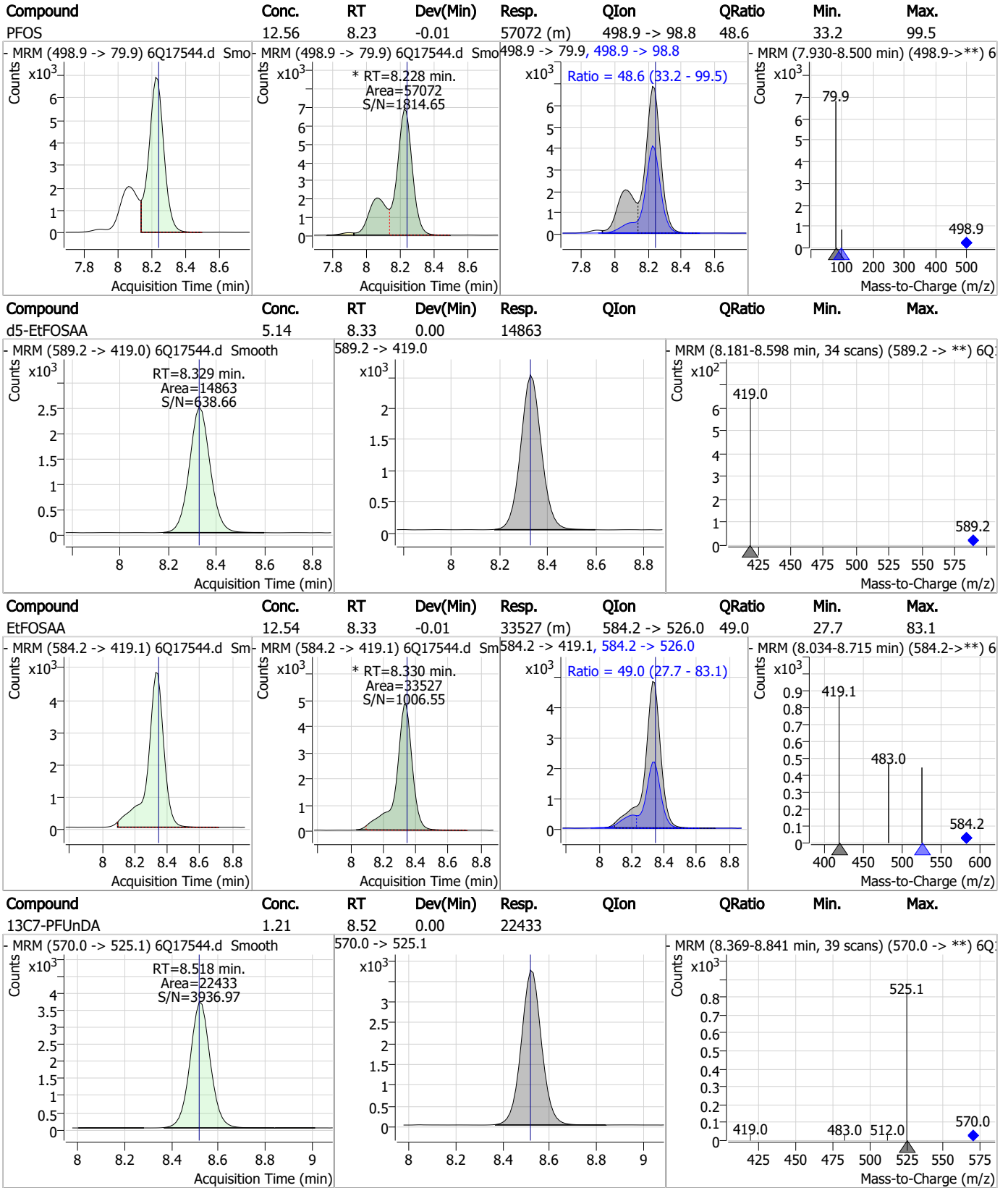
Perfluorinated Compounds by LC/MS/MS



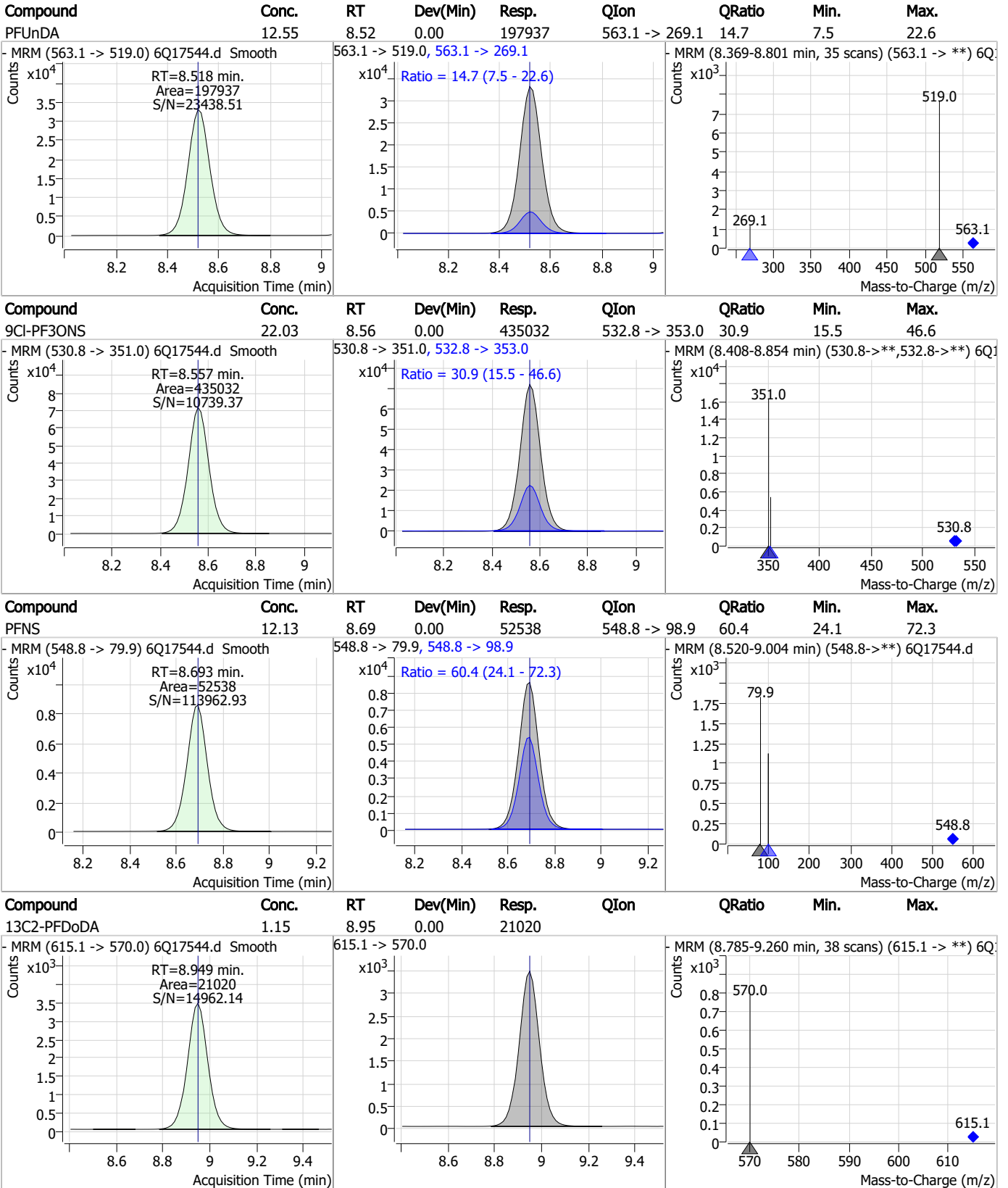
7.6.6

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Perfluorinated Compounds by LC/MS/MS



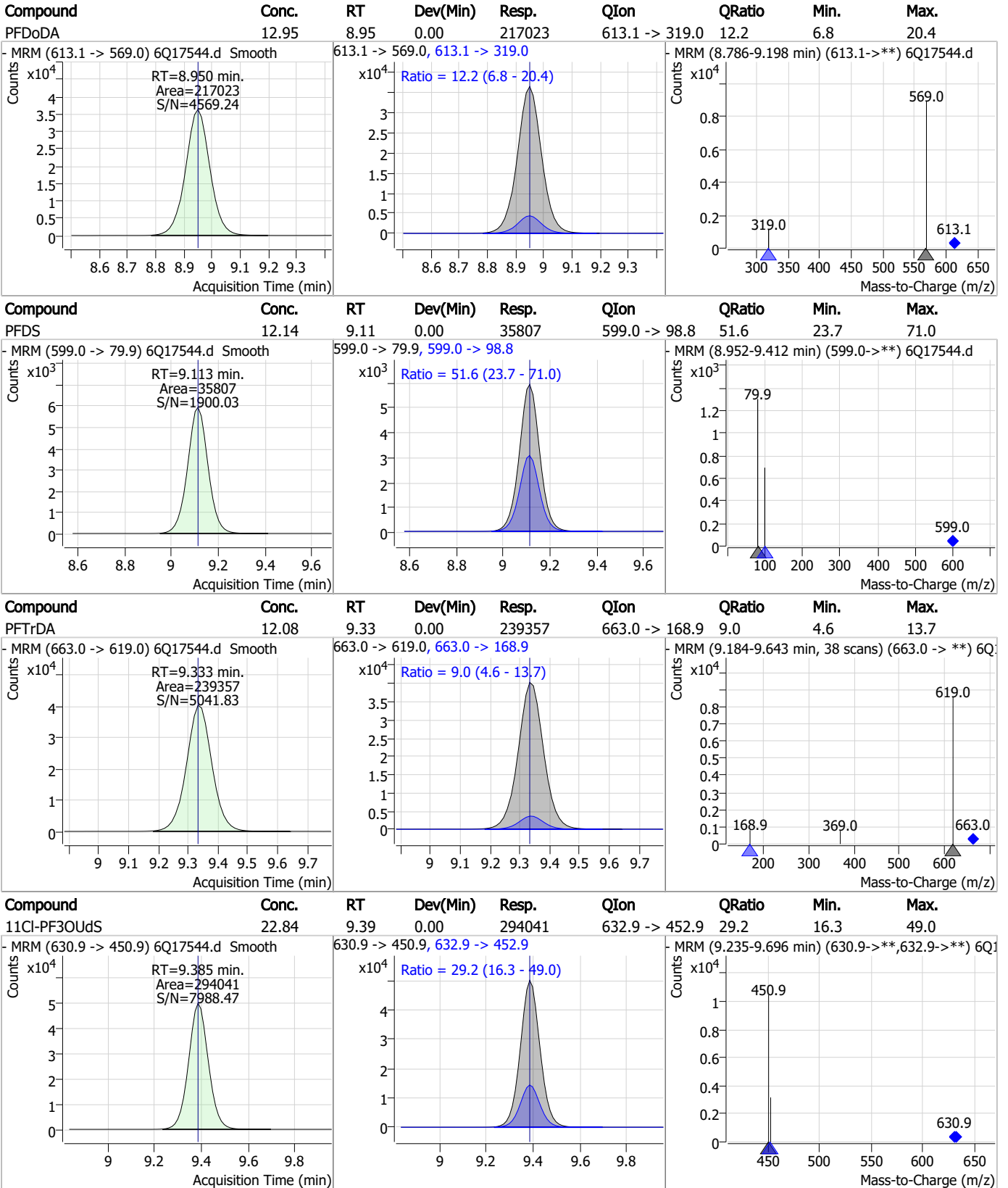
Perfluorinated Compounds by LC/MS/MS



7.6.6

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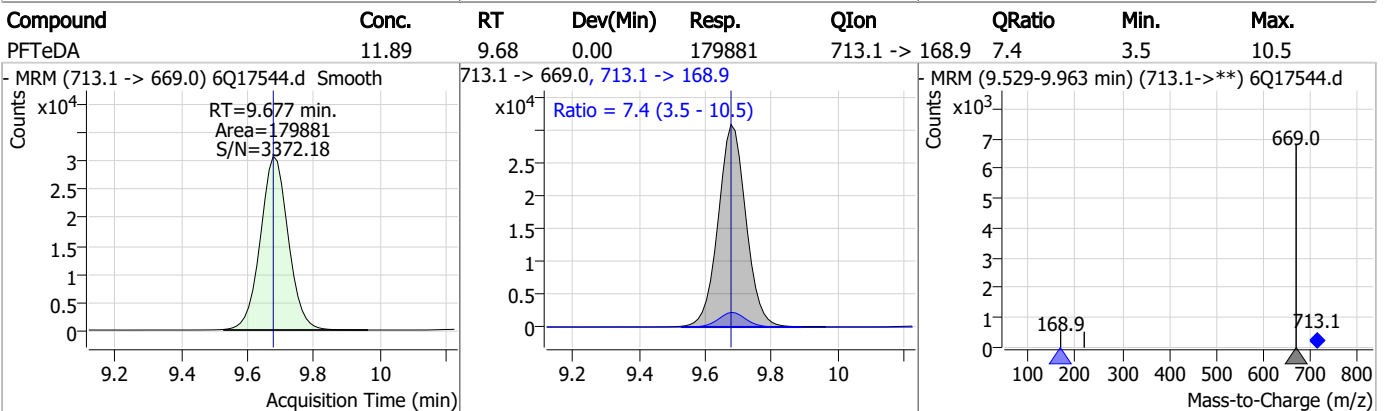
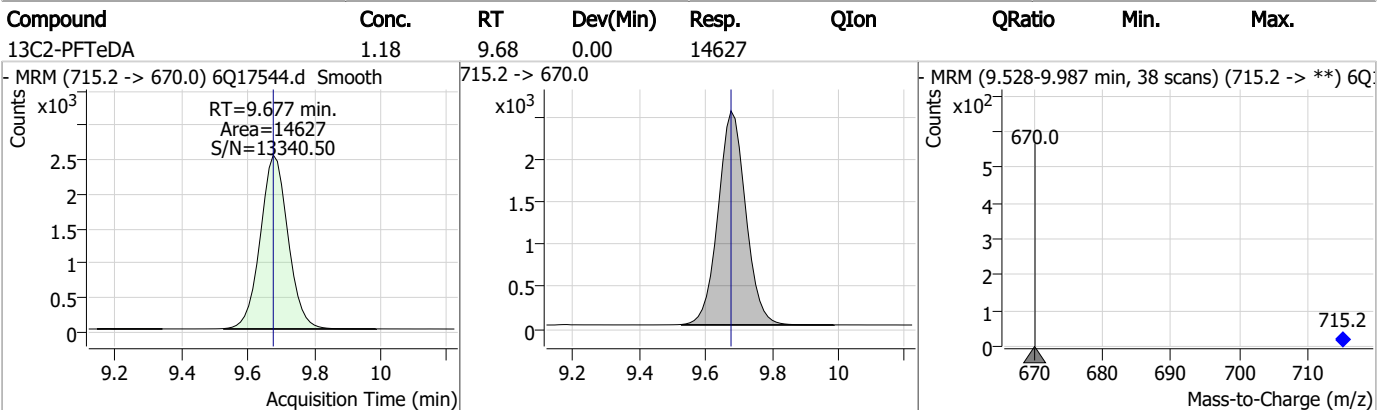
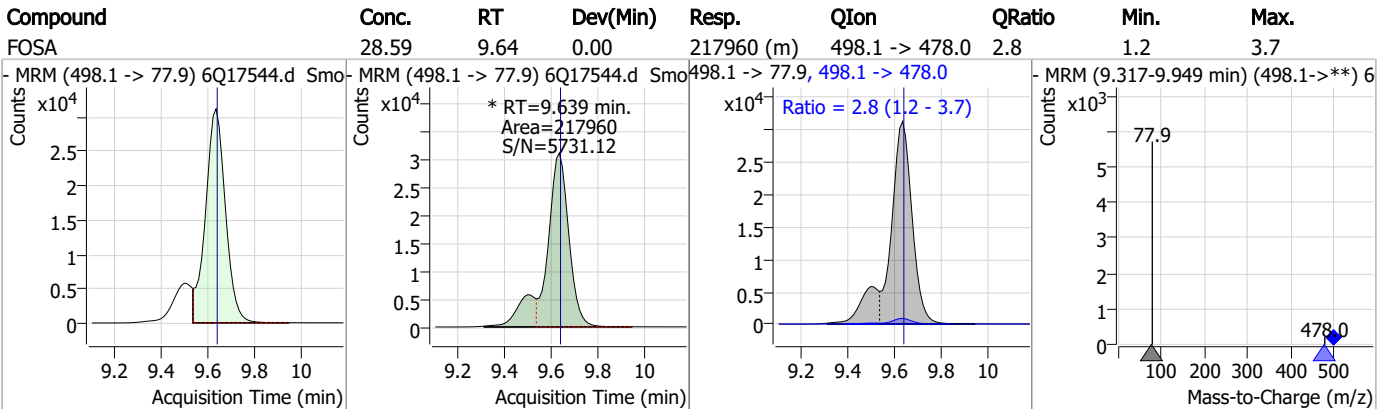
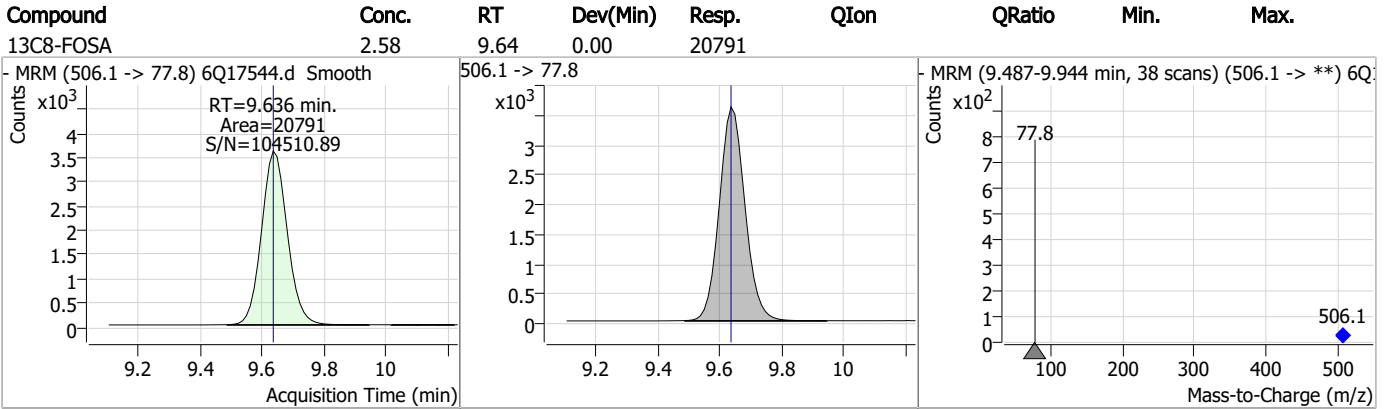
Perfluorinated Compounds by LC/MS/MS



7.6.6

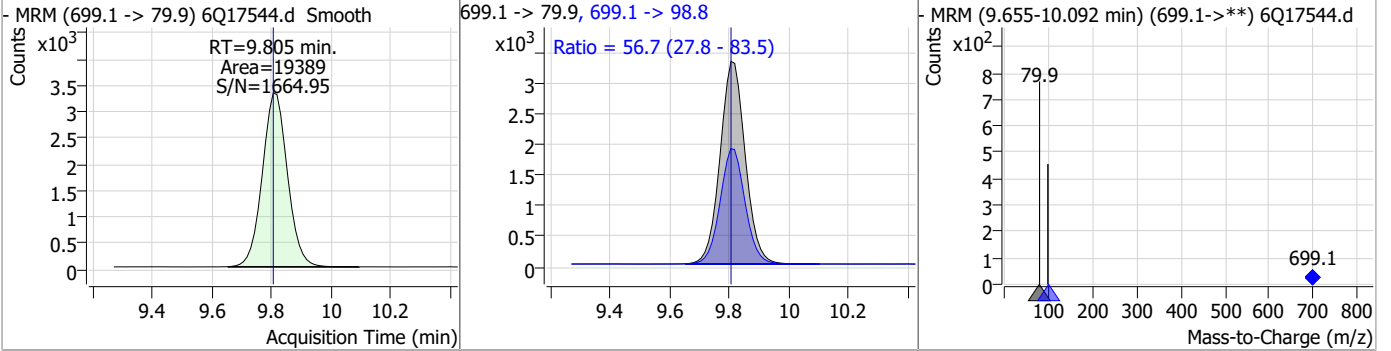
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Perfluorinated Compounds by LC/MS/MS

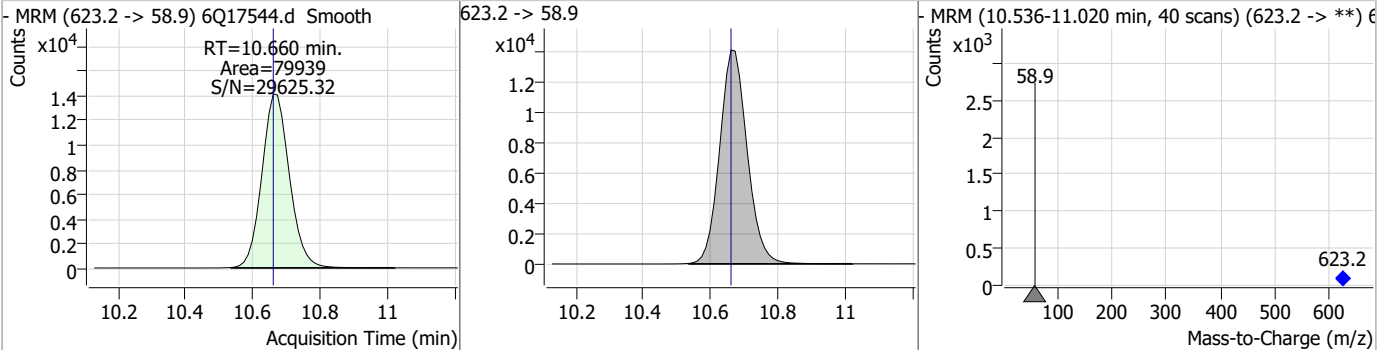


Perfluorinated Compounds by LC/MS/MS

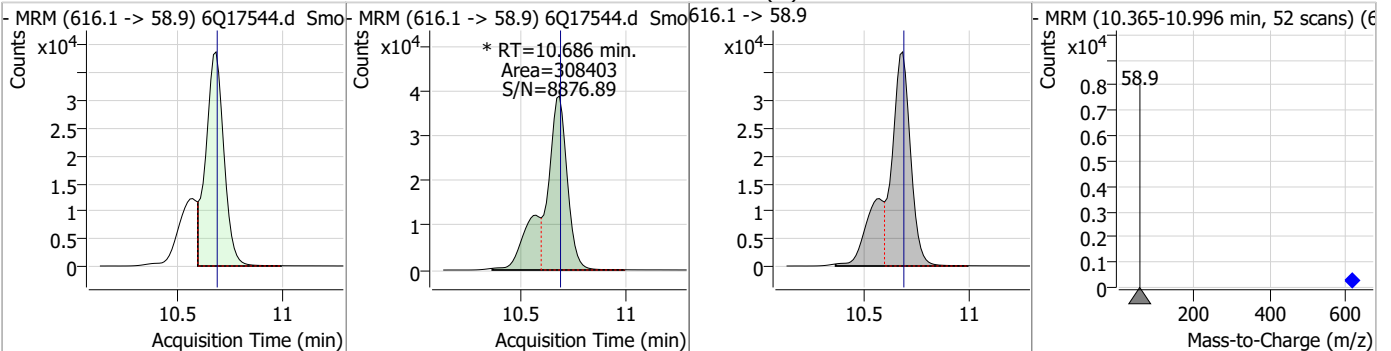
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.34	9.81	0.00	19389	699.1 -> 98.8	56.7	27.8	83.5



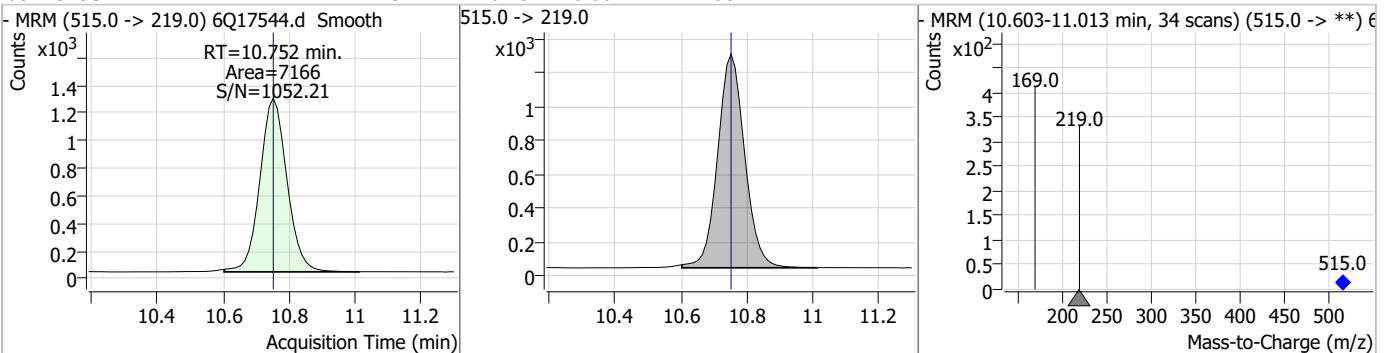
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.75	10.66	0.00	79939				



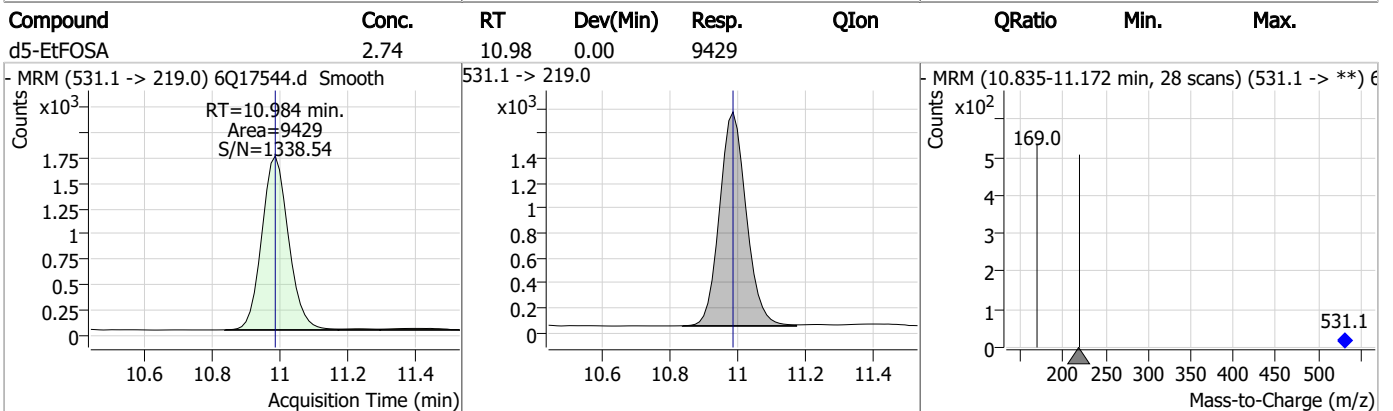
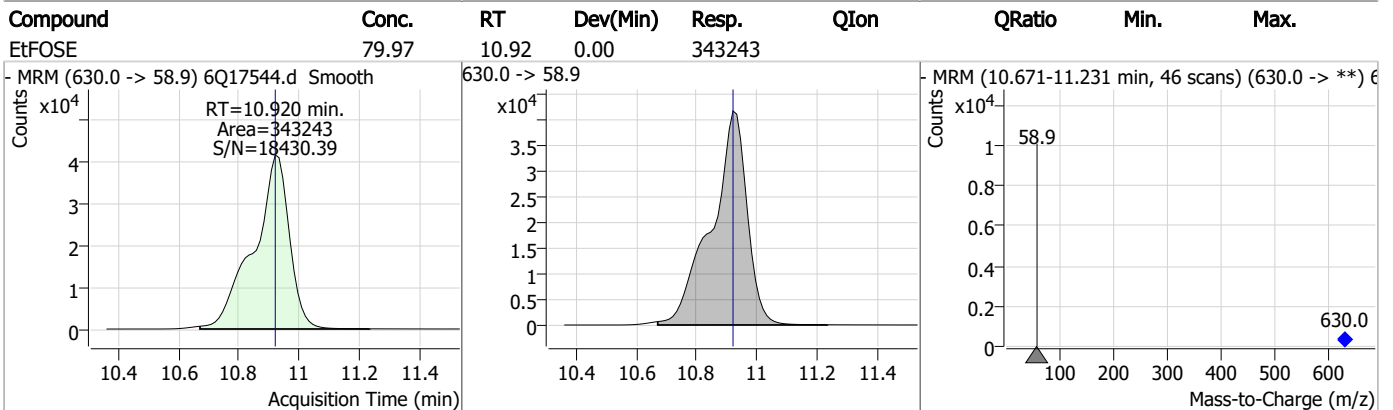
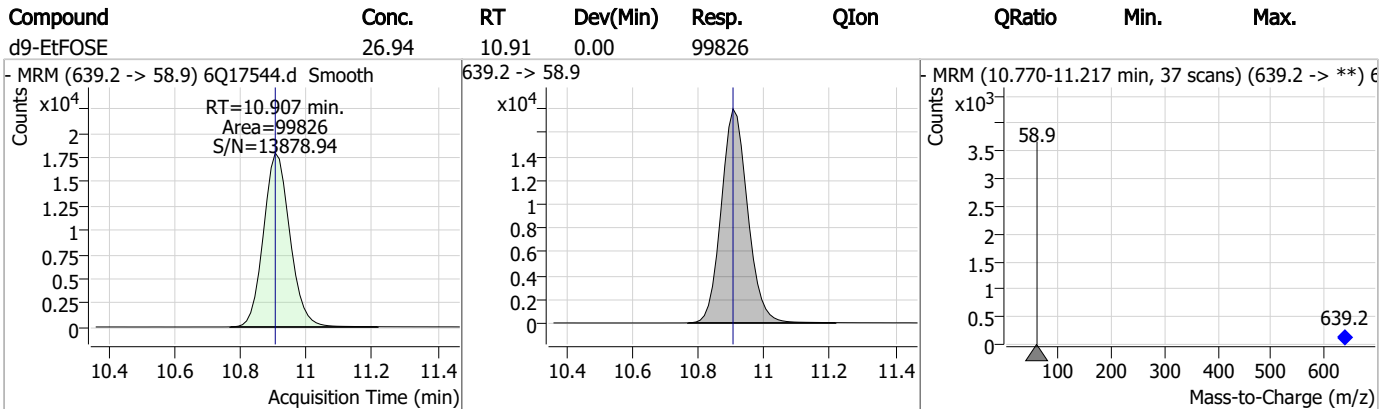
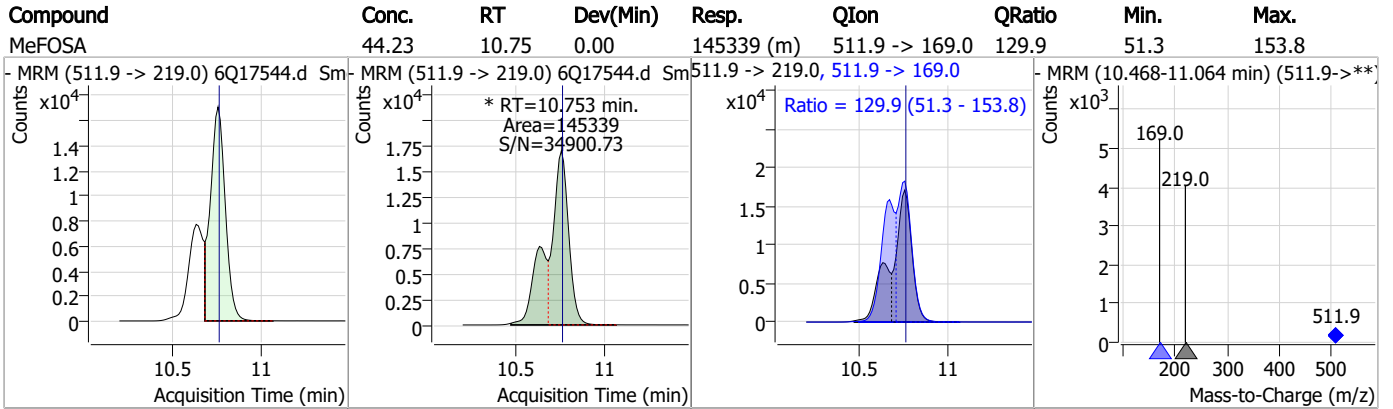
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	86.17	10.69	0.00	308403 (m)				



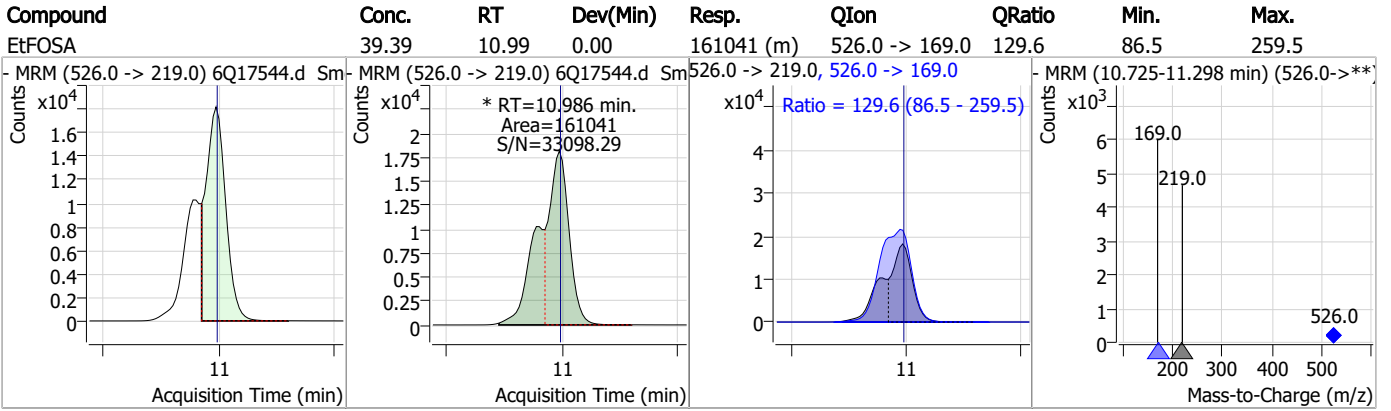
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.48	10.75	0.00	7166				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Manual Integration Approval Summary

Sample Number: S6Q265-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17544.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 15:37 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.08	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorononanoic acid	375-95-1		7.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
PFOSA	754-91-6		9.64	Split peak
MeFOSE	24448-09-7		10.69	Split peak
MeFOSA	31506-32-8		10.75	Split peak
EtFOSA	4151-50-2		10.99	Split peak

7.6.6.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 05/11/23 14:15

Perfluorinated Compounds by LC/MS/MS

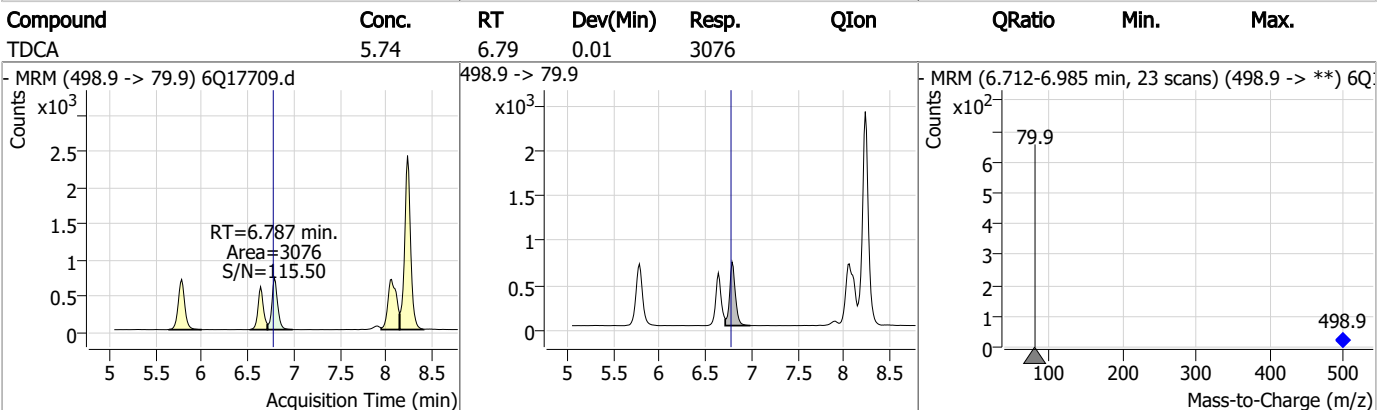
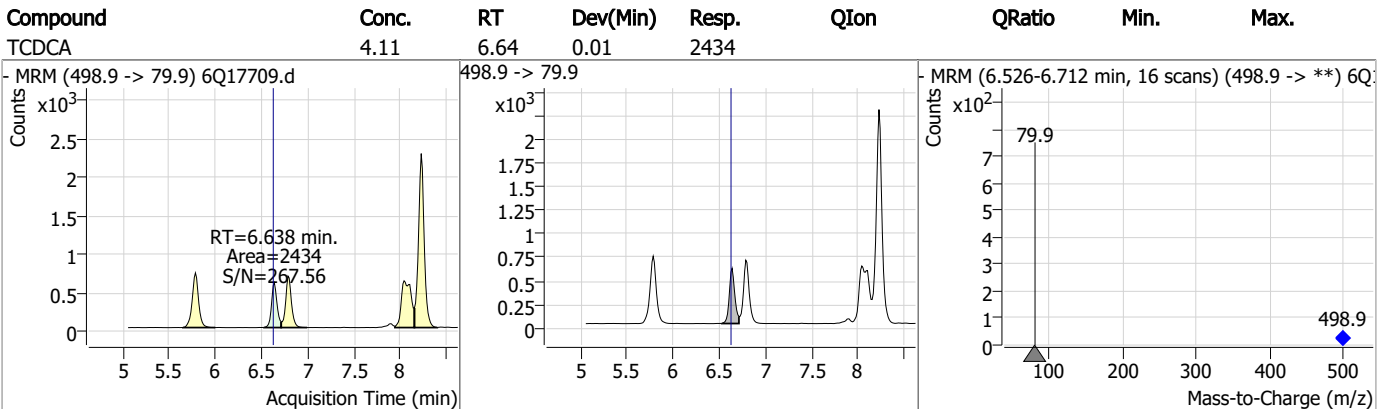
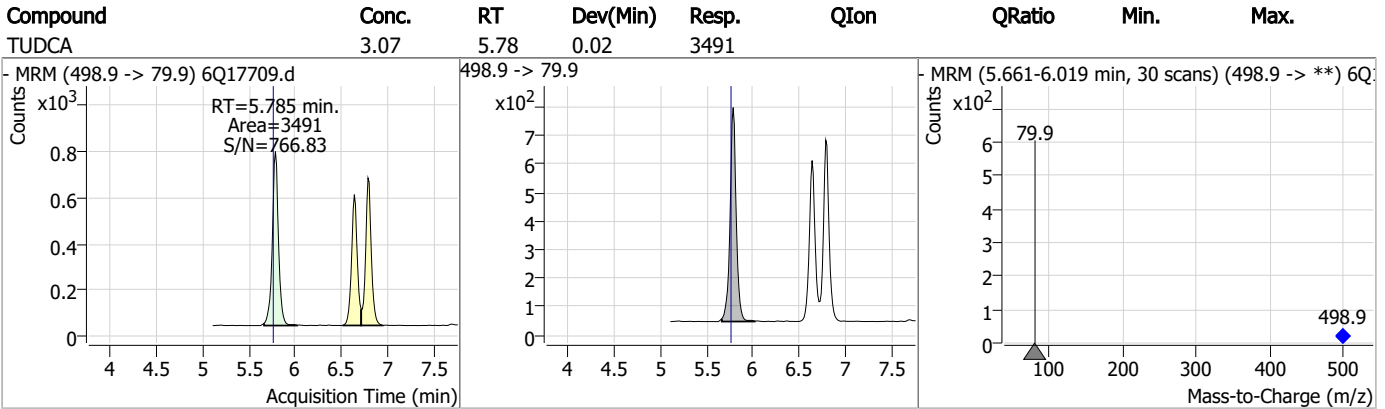
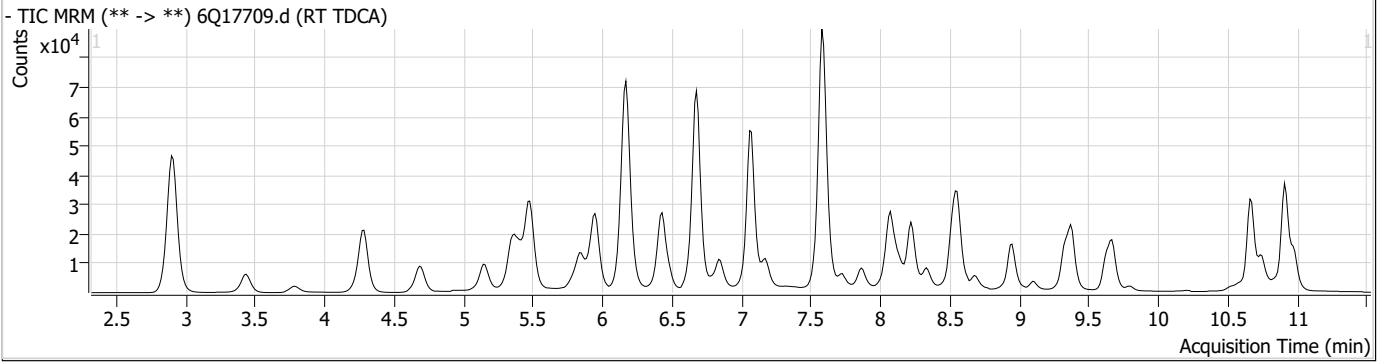
Data File : 6Q17709.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/10/2023 6:52:24 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q267 TDCA.batch.bin
 Sample Information : OP96663,S6Q267,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)	QValue
Internal Standards						
M8-PFOS	8.226	507.1 -> 79.9	12820	2.50 µg/L	-0.012	
13C4-PFOS	8.227	502.8 -> 79.9	16130	2.50 µg/L	-0.012	
System Monitoring Compounds						
13C8-PFOS	8.226	507.1 -> 79.9	12820	2.02 µg/L	-0.012	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.6%			
Target Compounds						
PFOS	8.228	498.9 -> 79.9 498.9 -> 98.8	13253 7403	3.03 µg/L	m	88
TCDCa	6.638	498.9 -> 79.9	2434	4.11 ng/ml		100
TDCA	6.787	498.9 -> 79.9	3076	5.74 ng/ml		100
TUDCA	5.785	498.9 -> 79.9	3491	3.07 ng/ml		100

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

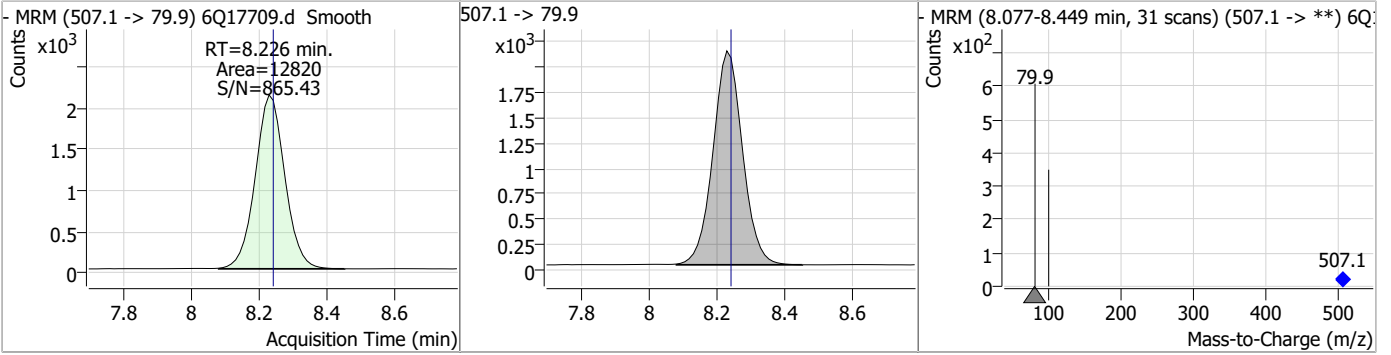
7.67
7

Perfluorinated Compounds by LC/MS/MS

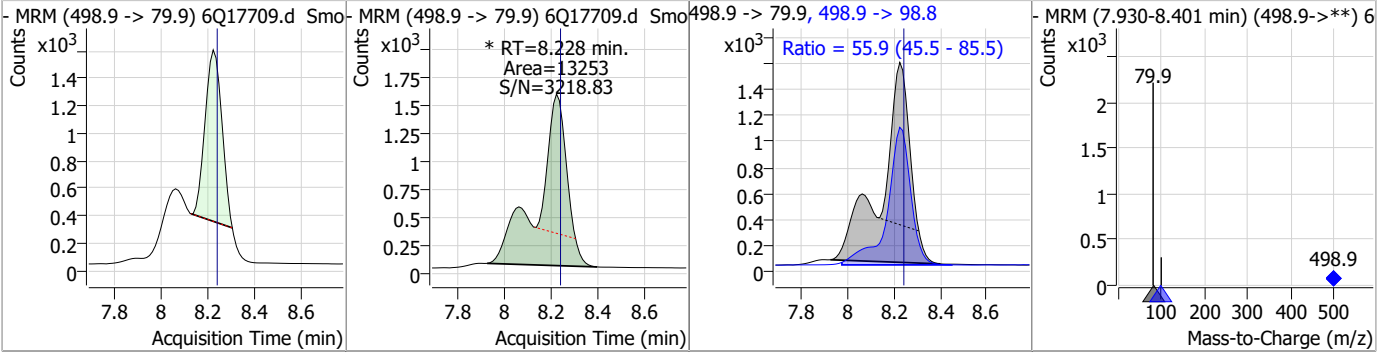


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.02	8.23	-0.01	12820				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.03	8.23	-0.01	13253 (m)	498.9 -> 98.8	55.9	45.5	85.5



7.6.7

7

Manual Integration Approval Summary

Sample Number: S6Q267-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17709.D Analyst approved: 05/11/23 11:20 Martha Valls
Injection Time: 05/10/23 18:52 Supervisor approved: 05/11/23 14:15 Natasha Gumtie

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

7.6.7.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17710.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/10/2023 7:06:53 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q267.batch.bin
 Sample Information : OP96663,S6Q267,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	143046	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	45134	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	50552	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	44033	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	61120	2.50 µg/L	0.000
M9-PFNA	7.608	472.1 -> 427.0	21903	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	15453	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	21776	1.25 µg/L	0.012
M2-PFDoDA	8.949	615.1 -> 570.0	20178	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	12947	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	18577	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	16923	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10398	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	9975	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1475	5.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	1950	5.00 µg/L	0.000
M2-8:2FTS	7.876	529.1 -> 80.9	2267	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	18069	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	32319	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	15230	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	78105	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	87680	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8380	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7144	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11419	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	59061	5.00 µg/L	0.000
18O2-PFHxS	7.191	403.0 -> 83.9	7001	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	67752	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20075	1.25 µg/L	0.000
13C5-PFNA	7.608	468.0 -> 423.0	24829	1.25 µg/L	0.012
13C2-PFHxA	5.479	315.1 -> 270.0	41794	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1475	5.70 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1950	5.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.4%		
13C2-8:2FTS	7.876	529.1 -> 80.9	2267	6.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.6%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20178	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C2-PFTeDA	9.664	715.2 -> 670.0	12947	1.10 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C3-PFBS	5.409	302.1 -> 79.9	16923	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	10398	2.85 µg/L	-0.012

7.6.8
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C4-PFBA	2.913	216.8 -> 171.9	143046	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.432	367.1 -> 322.0	44033	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFHxA	5.478	318.0 -> 273.0	50552	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.272	268.3 -> 223.0	45134	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	8.076	519.1 -> 474.1	15453	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C7-PFUnDA	8.530	570.0 -> 525.1	21776	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-FOSA	9.636	506.1 -> 77.8	18577	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-PFOA	7.077	421.1 -> 376.0	61120	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C8-PFOS	8.239	507.1 -> 79.9	9975	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C9-PFNA	7.608	472.1 -> 427.0	21903	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
d3-MeFOSAA	8.133	573.2 -> 419.0	18069	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	32319	10.41 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d3-MeFOSA	10.752	515.0 -> 219.0	7144	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15230	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
d7-MeFOSE	10.660	623.2 -> 58.9	78105	24.92 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	87680	24.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d5-EtFOSA	10.984	531.1 -> 219.0	8380	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	103667	46.03 µg/L	97
		327.1 -> 80.9	38567		
6:2FTS	6.850	427.1 -> 407.0	105566	49.25 µg/L	95
		427.1 -> 80.9	31728		
8:2FTS	7.877	527.1 -> 507.0	54839	41.64 µg/L	98
		527.1 -> 80.8	21398		
EtFOSAA	8.342	584.2 -> 419.1	32698	11.94 µg/L	99
		584.2 -> 526.0	17866		
FOSA	9.639	498.1 -> 77.9	210870	30.95 µg/L	m 99
		498.1 -> 478.0	6141		
MeFOSAA	8.134	570.1 -> 419.0	44407	11.89 µg/L	99
		570.1 -> 483.0	8578		
PFBA	2.907	212.8 -> 168.9	251701	49.14 µg/L	100
PFBS	5.410	298.7 -> 79.9	88403	10.56 µg/L	99
		298.7 -> 98.8	35327		
PFDA	8.076	512.9 -> 469.0	237778	12.43 µg/L	97
		512.9 -> 219.0	37727		
PFDoDA	8.950	613.1 -> 569.0	198330	12.33 µg/L	100
		613.1 -> 319.0	27292		
PFDS	9.101	599.0 -> 79.9	35653	10.60 µg/L	99

7.6.8
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.433	599.0 -> 98.8	16633	12.70	µg/L	98
		363.1 -> 319.0	282411			
PFHpS	7.749	363.1 -> 169.0	43576	10.92	µg/L	97
		449.0 -> 79.9	58604			
PFHxA	5.481	449.0 -> 98.9	28488	12.55	µg/L	100
		313.0 -> 269.0	258076			
PFHxS	7.193	313.0 -> 118.9	11705	9.88	µg/L	m
		398.7 -> 79.9	60632			
PFNA	7.471	398.7 -> 98.9	30397	29.05	µg/L	m
		463.0 -> 419.0	466693			
PFNS	8.693	463.0 -> 219.0	105007	10.99	µg/L	96
		548.8 -> 79.9	54320			
PFOA	7.078	548.8 -> 98.9	27764	28.19	µg/L	m
		413.0 -> 369.0	840601			
PFOS	8.240	413.0 -> 169.0	152747	9.84	µg/L	m
		498.9 -> 79.9	50976			
PFPeA	4.274	498.9 -> 98.8	26633	24.26	µg/L	100
		263.0 -> 219.0	319965			
PFPeS	6.484	349.1 -> 79.9	68075	11.64	µg/L	95
		349.1 -> 98.9	29205			
PFTeDA	9.665	713.1 -> 669.0	176771	13.20	µg/L	99
		713.1 -> 168.9	13085			
PFTrDA	9.333	663.0 -> 619.0	255527	13.44	µg/L	97
		663.0 -> 168.9	20079			
PFUnDA	8.531	563.1 -> 519.0	192979	12.61	µg/L	98
		563.1 -> 269.1	27292			
11CI-PF3OUdS	9.385	630.9 -> 450.9	273163	22.09	µg/L	98
		632.9 -> 452.9	91412			
9CI-PF3ONS	8.557	530.8 -> 351.0	430568	22.70	µg/L	96
		532.8 -> 353.0	142734			
ADONA	6.683	376.9 -> 250.9	1172562	22.64	µg/L	97
		376.9 -> 84.8	303174			
HFPO-DA	5.845	284.9 -> 168.9	82120	26.33	µg/L	99
		284.9 -> 184.9	9976			
3:3FTCA	3.790	241.0 -> 177.0	49726	59.07	µg/L	98
		241.0 -> 117.0	6415			
5:3FTCA	6.174	341.0 -> 237.1	1058694	301.85	µg/L	92
		341.0 -> 217.0	726283			
7:3FTCA	7.598	441.0 -> 316.9	483169	305.86	µg/L	95
		441.0 -> 336.9	1033164			
EtFOSA	10.986	526.0 -> 219.0	164121	45.18	µg/L	61
		526.0 -> 169.0	194404			
EtFOSE	10.920	630.0 -> 58.9	303657	80.55	µg/L	100
		511.9 -> 219.0	142183			
MeFOSA	10.753	511.9 -> 169.0	193698	43.41	µg/L	m
		616.1 -> 58.9	273773			
MeFOSE	10.673	699.1 -> 79.9	19016	78.29	µg/L	m
		699.1 -> 98.8	10272			
PFDoDS	9.805	295.0 -> 201.0	57359	10.62	µg/L	98
		295.0 -> 84.9	14513			
NFDHA	5.361	279.0 -> 85.1	230883	26.14	µg/L	97
		229.0 -> 84.9	166098			
PFMBA	4.688	314.8 -> 134.9	604580	24.79	µg/L	100
		314.8 -> 82.9	20135			
PFMPA	3.442			24.84	µg/L	100
PFEESA	5.950			22.53	µg/L	100

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

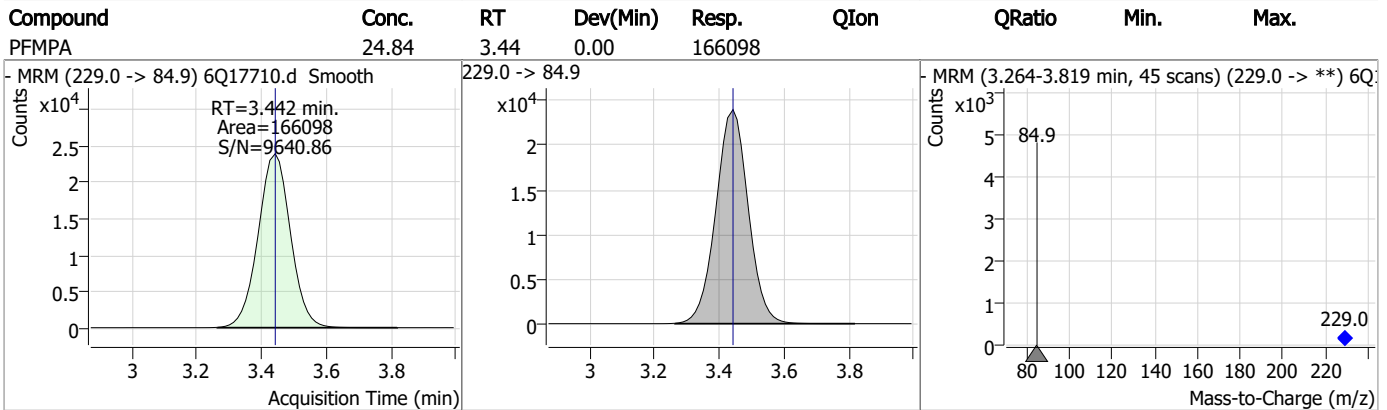
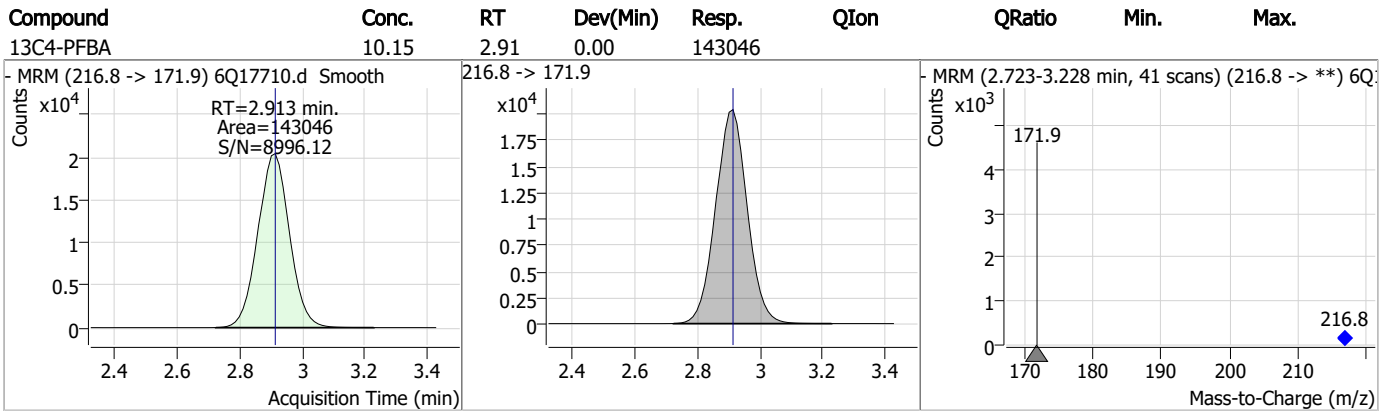
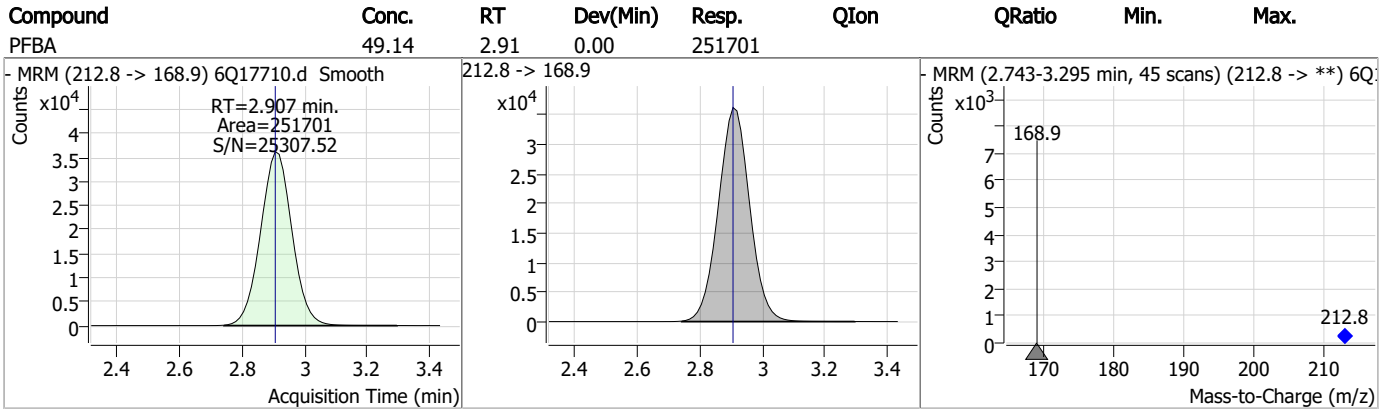
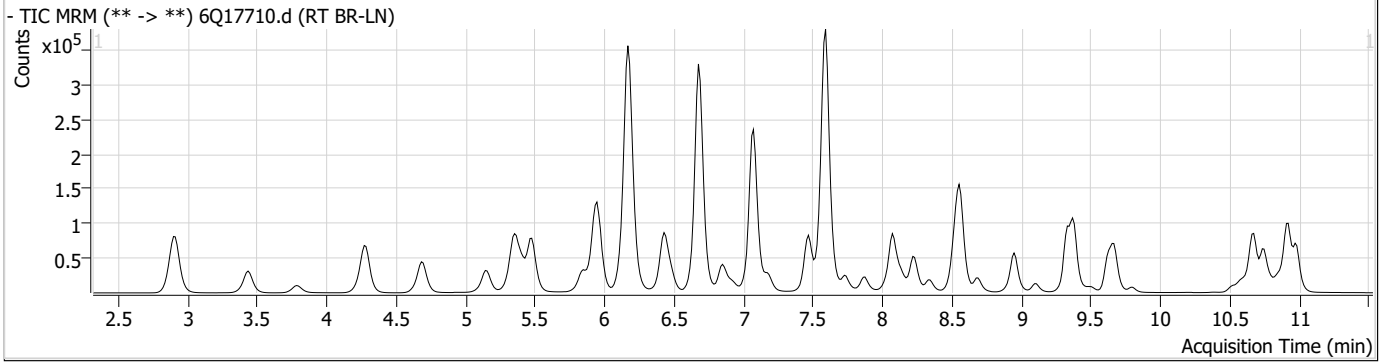
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.8

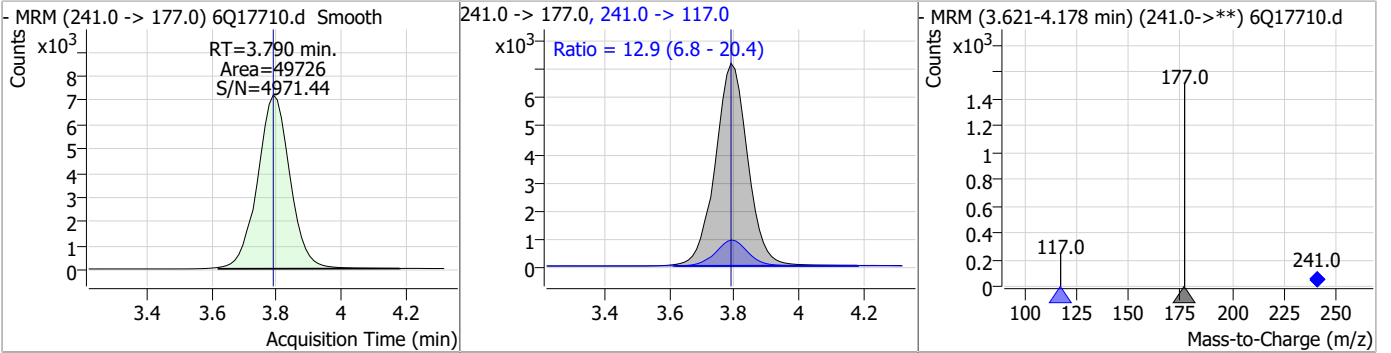
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Perfluorinated Compounds by LC/MS/MS

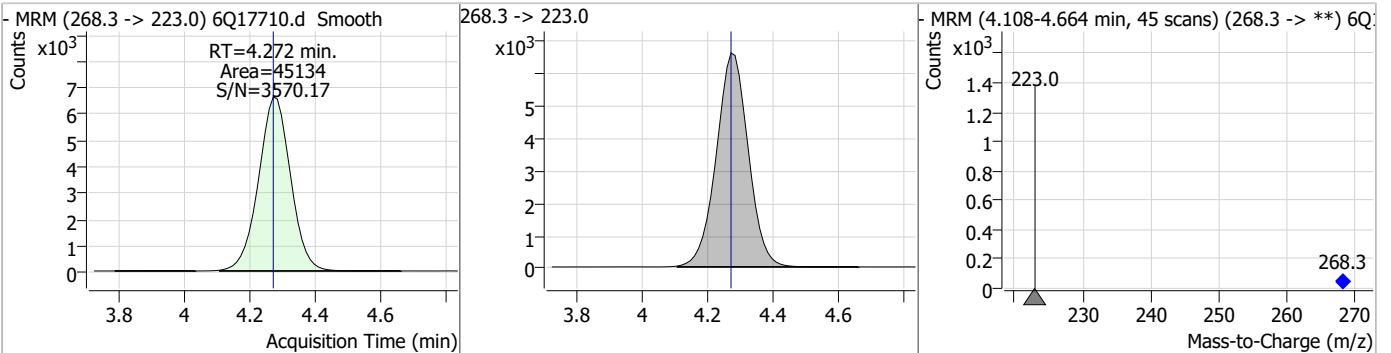


Perfluorinated Compounds by LC/MS/MS

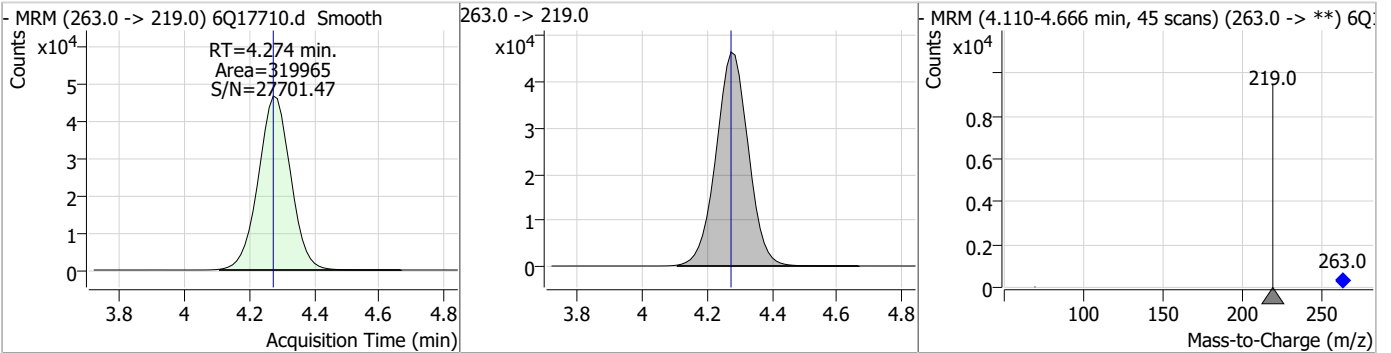
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	59.07	3.79	0.00	49726	241.0 -> 117.0	12.9	6.8	20.4



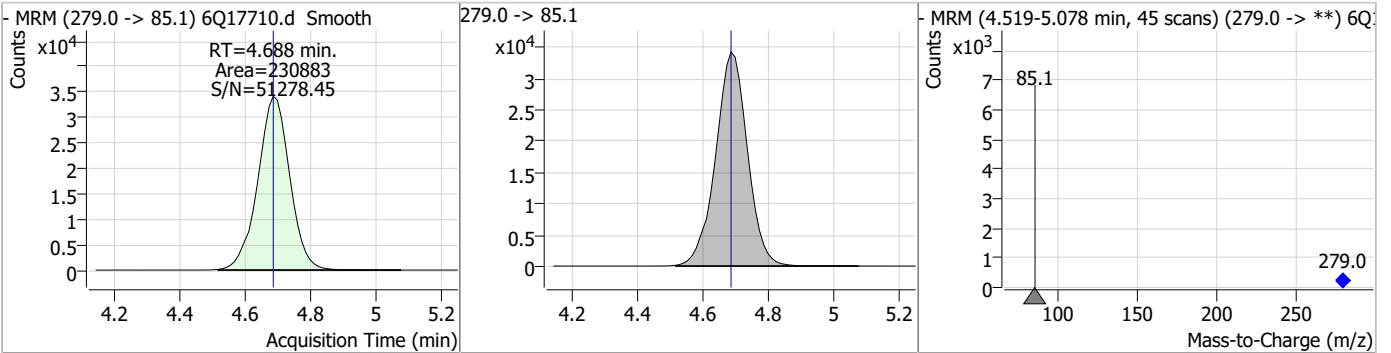
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.11	4.27	0.00	45134				



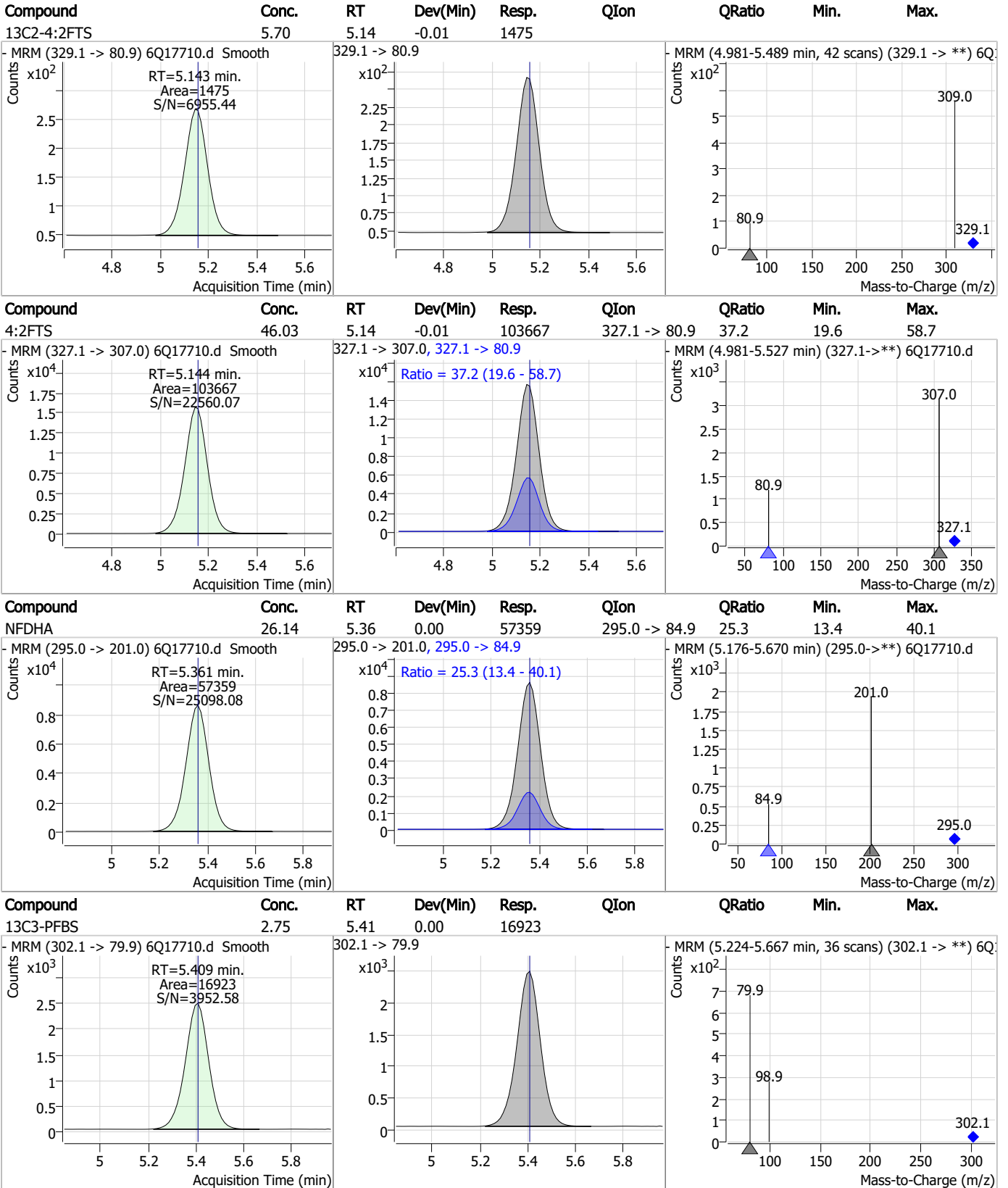
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	24.26	4.27	0.00	319965				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	24.79	4.69	0.00	230883				



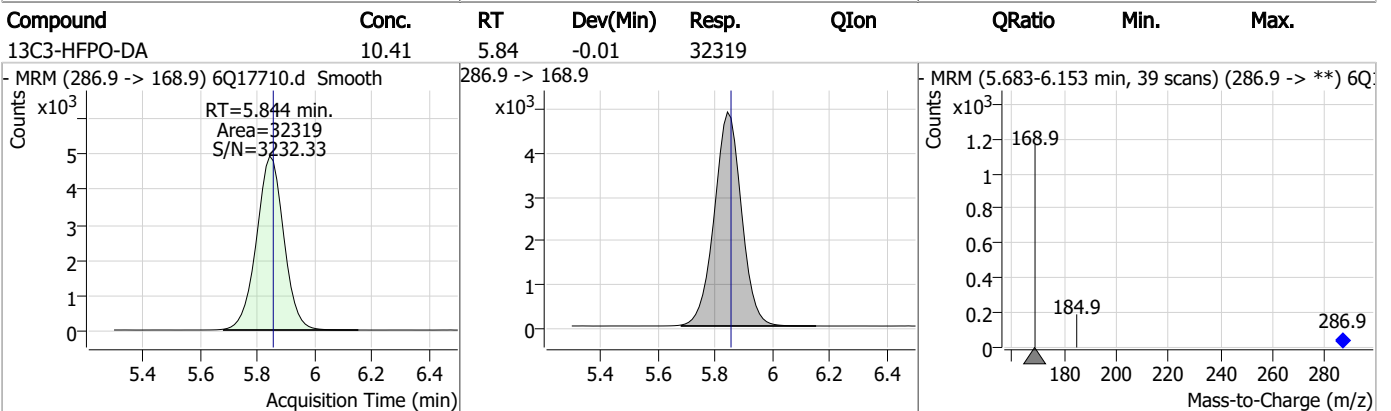
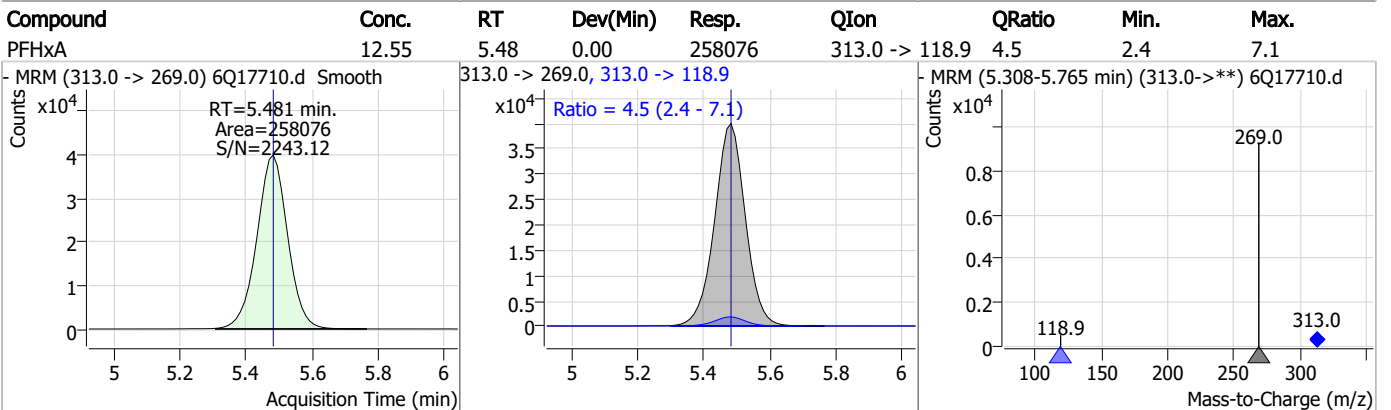
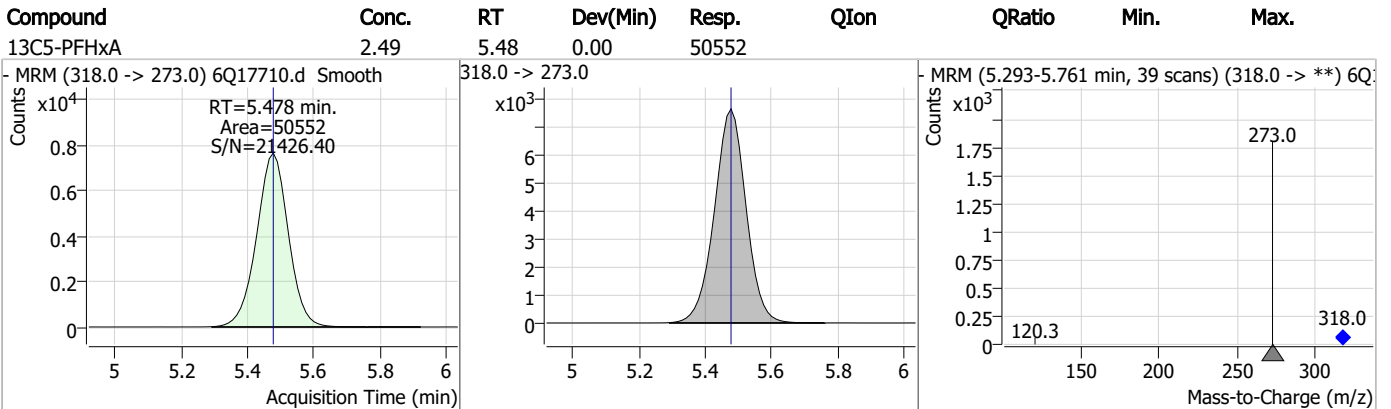
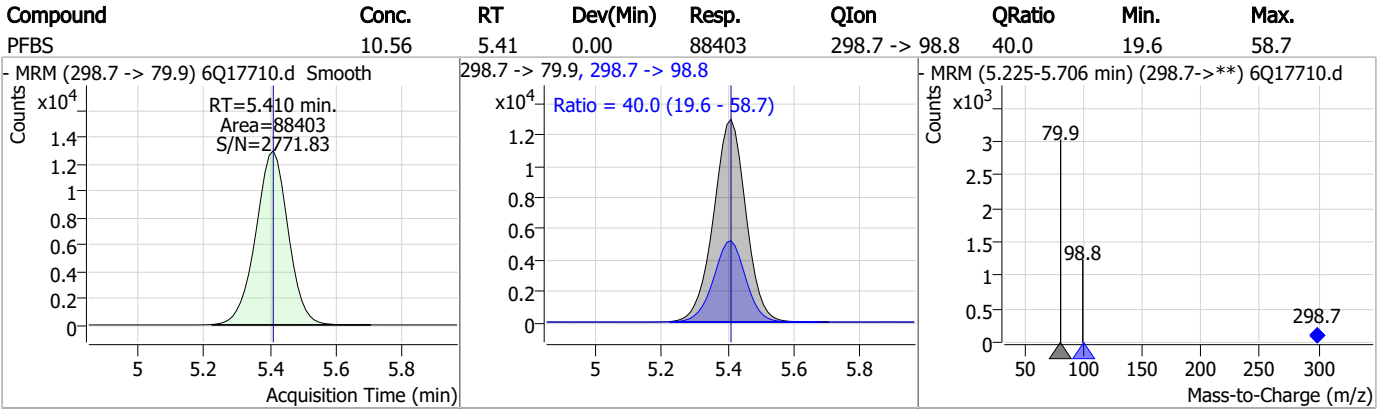
Perfluorinated Compounds by LC/MS/MS



7.6.8

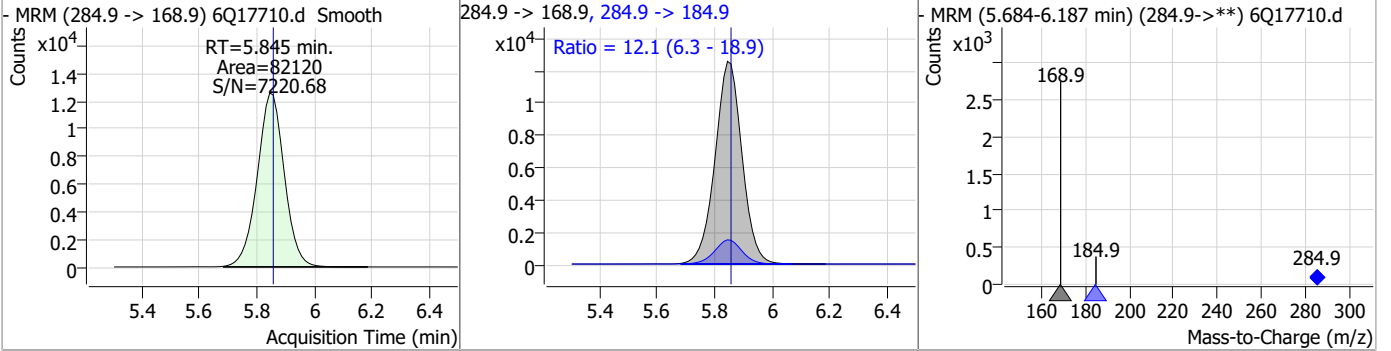
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Perfluorinated Compounds by LC/MS/MS

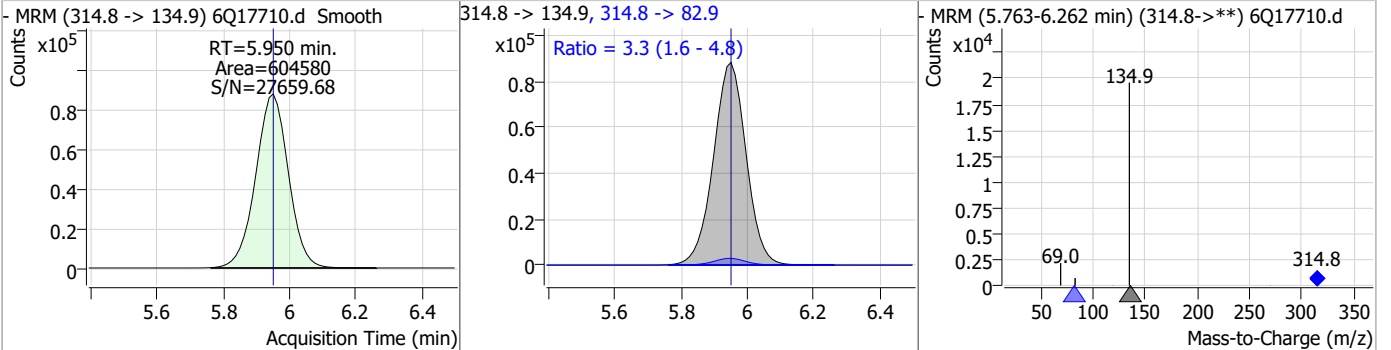


Perfluorinated Compounds by LC/MS/MS

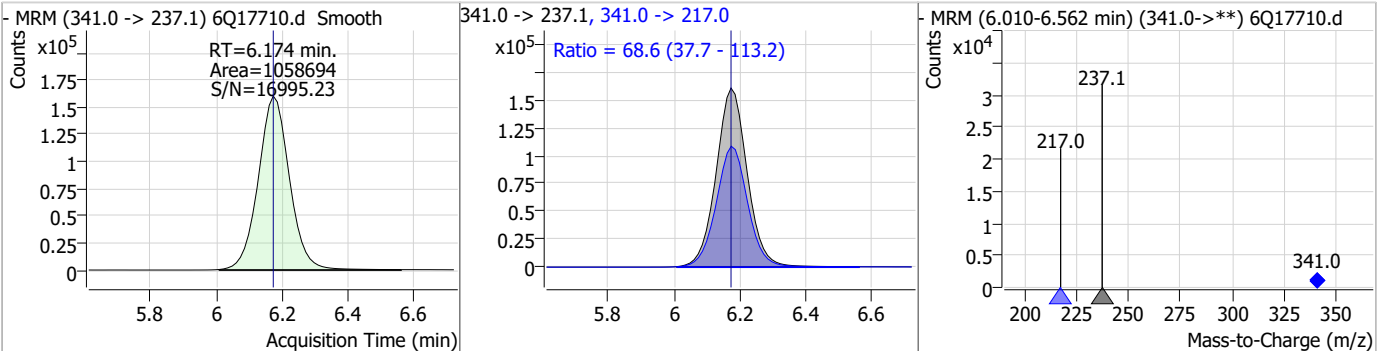
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	26.33	5.84	-0.01	82120	284.9 -> 184.9	12.1	6.3	18.9



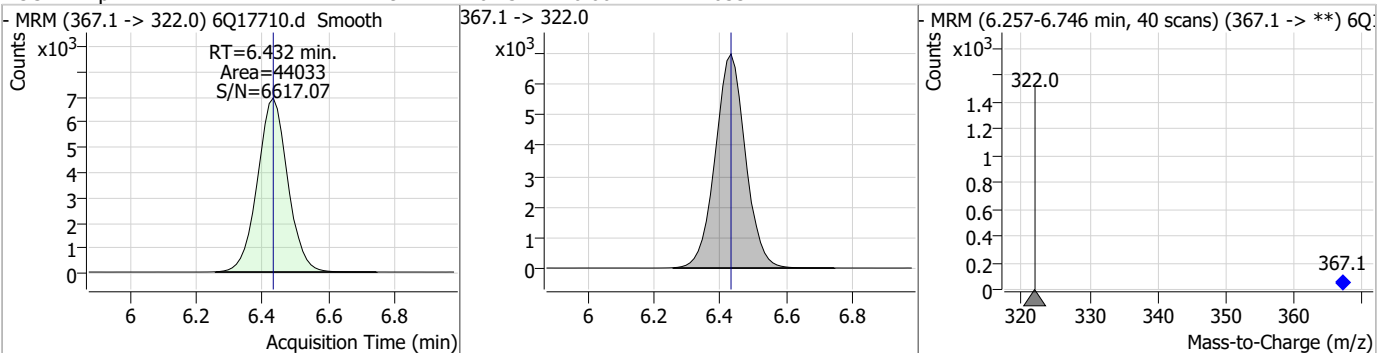
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	22.53	5.95	0.00	604580	314.8 -> 82.9	3.3	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	301.85	6.17	0.00	1058694	341.0 -> 217.0	68.6	37.7	113.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.43	0.00	44033	367.1 -> 322.0			



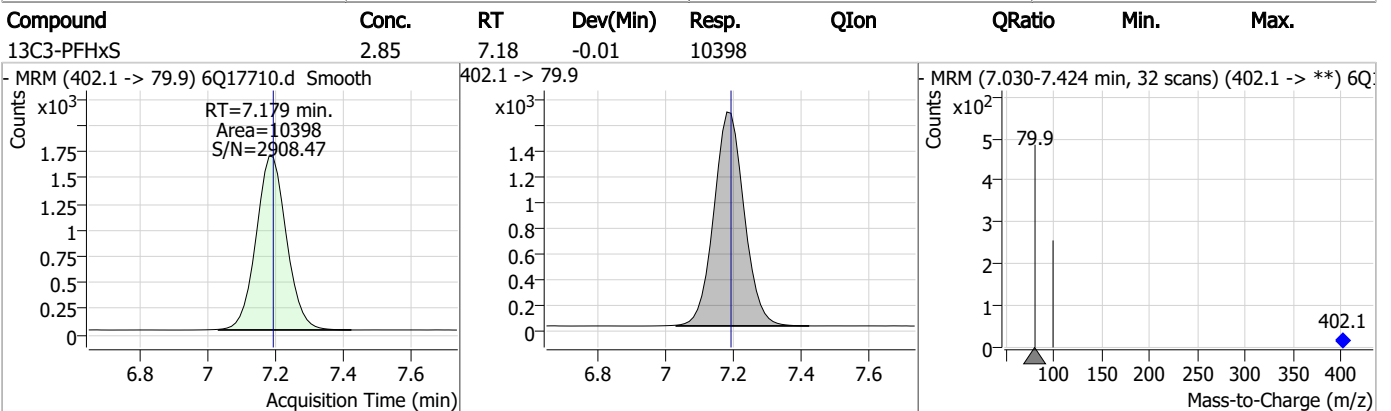
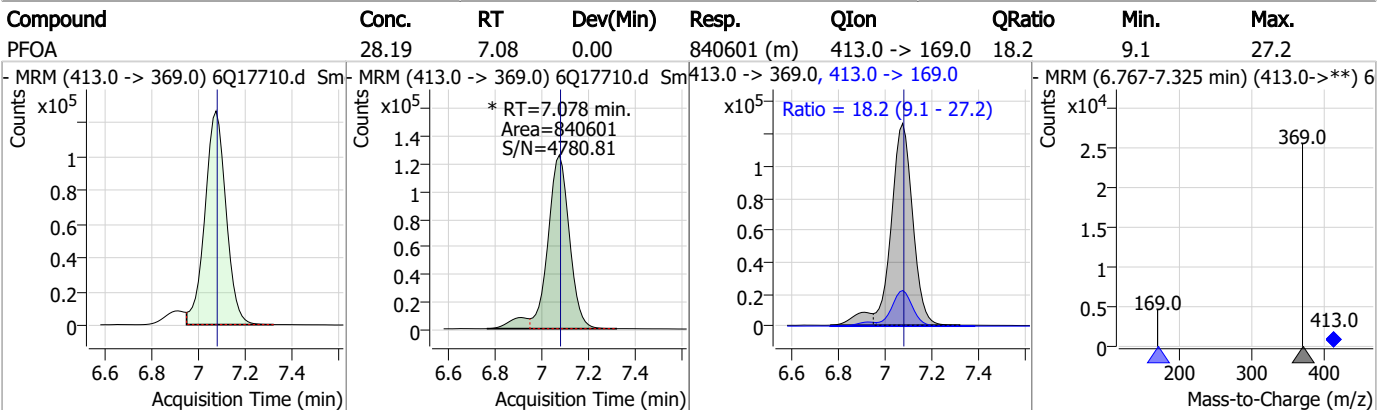
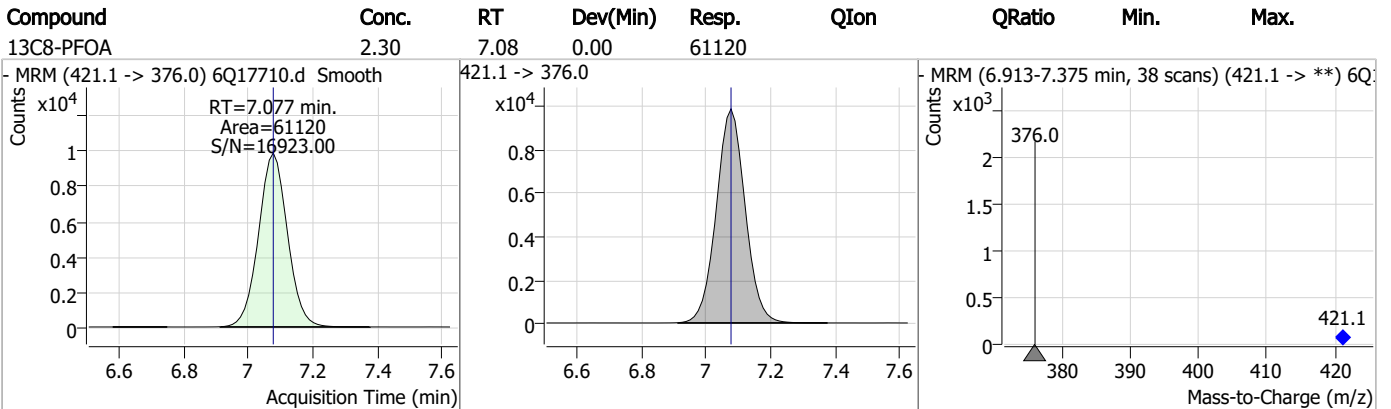
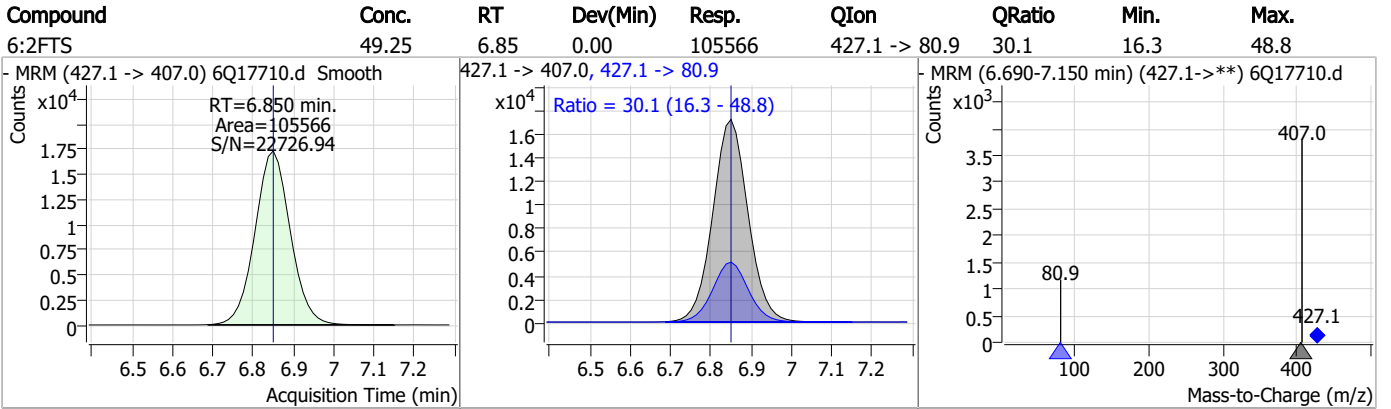
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	12.70	6.43	0.00	282411	363.1 -> 169.0	15.4	8.2	24.5
PFPeS	11.64	6.48	0.00	68075	349.1 -> 98.9	42.9	23.1	69.4
ADONA	22.64	6.68	0.00	1172562	376.9 -> 84.8	25.9	13.8	41.3
13C2-6:2FTS	5.97	6.85	0.00	1950	429.1 -> 80.9			

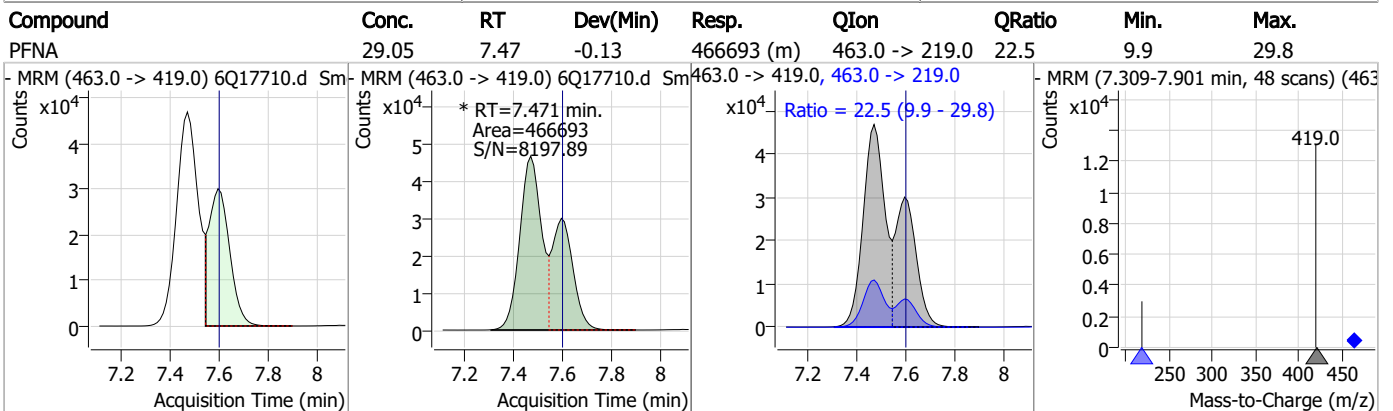
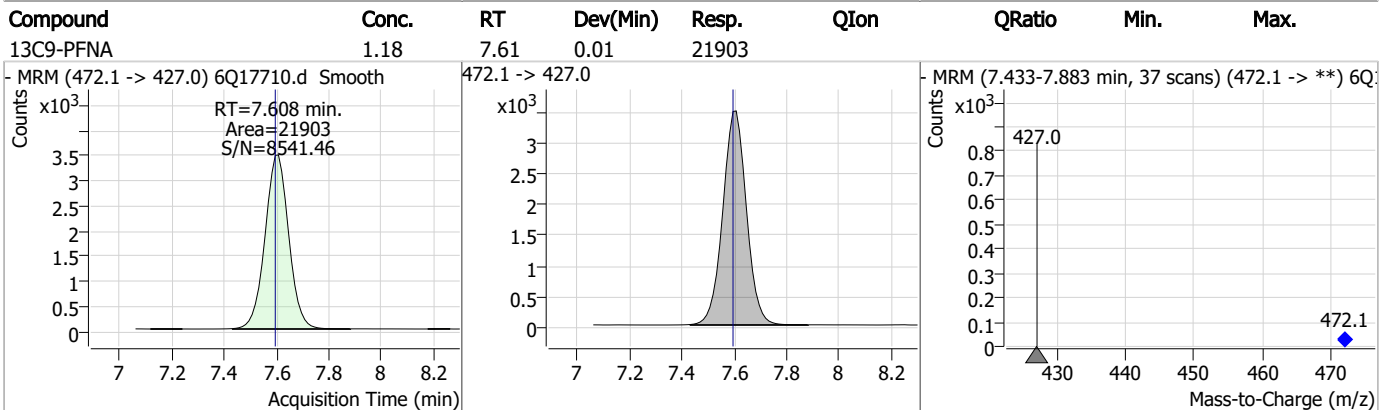
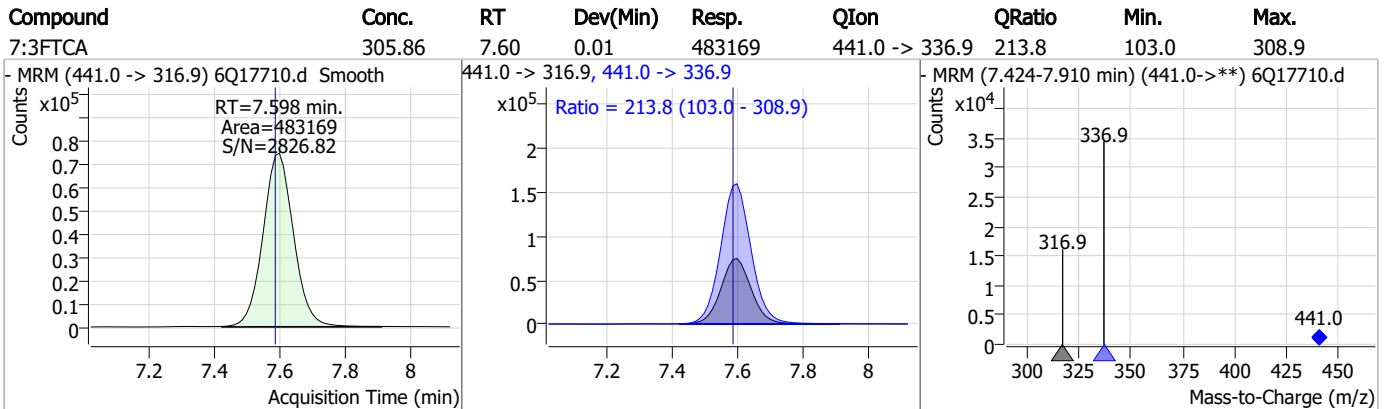
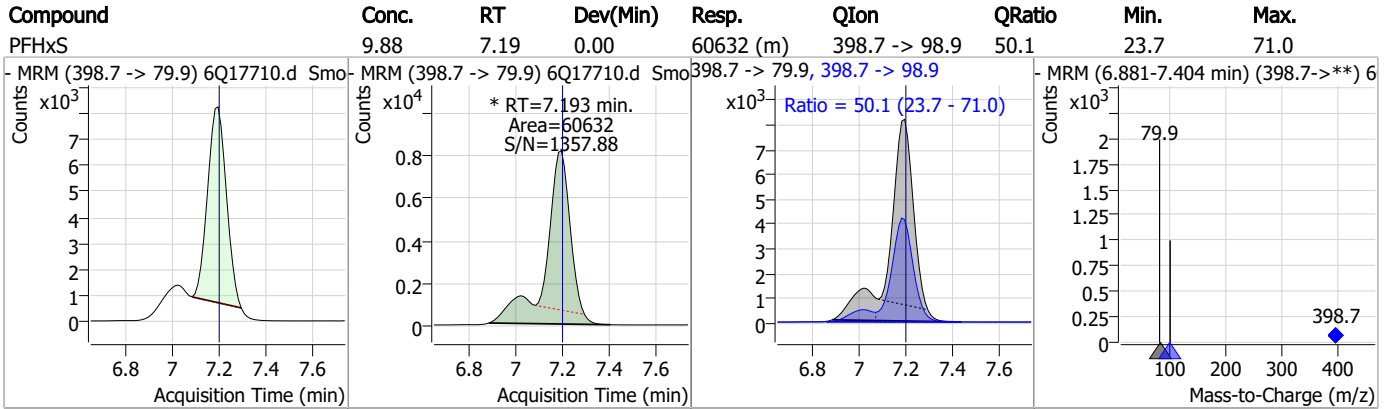
7.6.8

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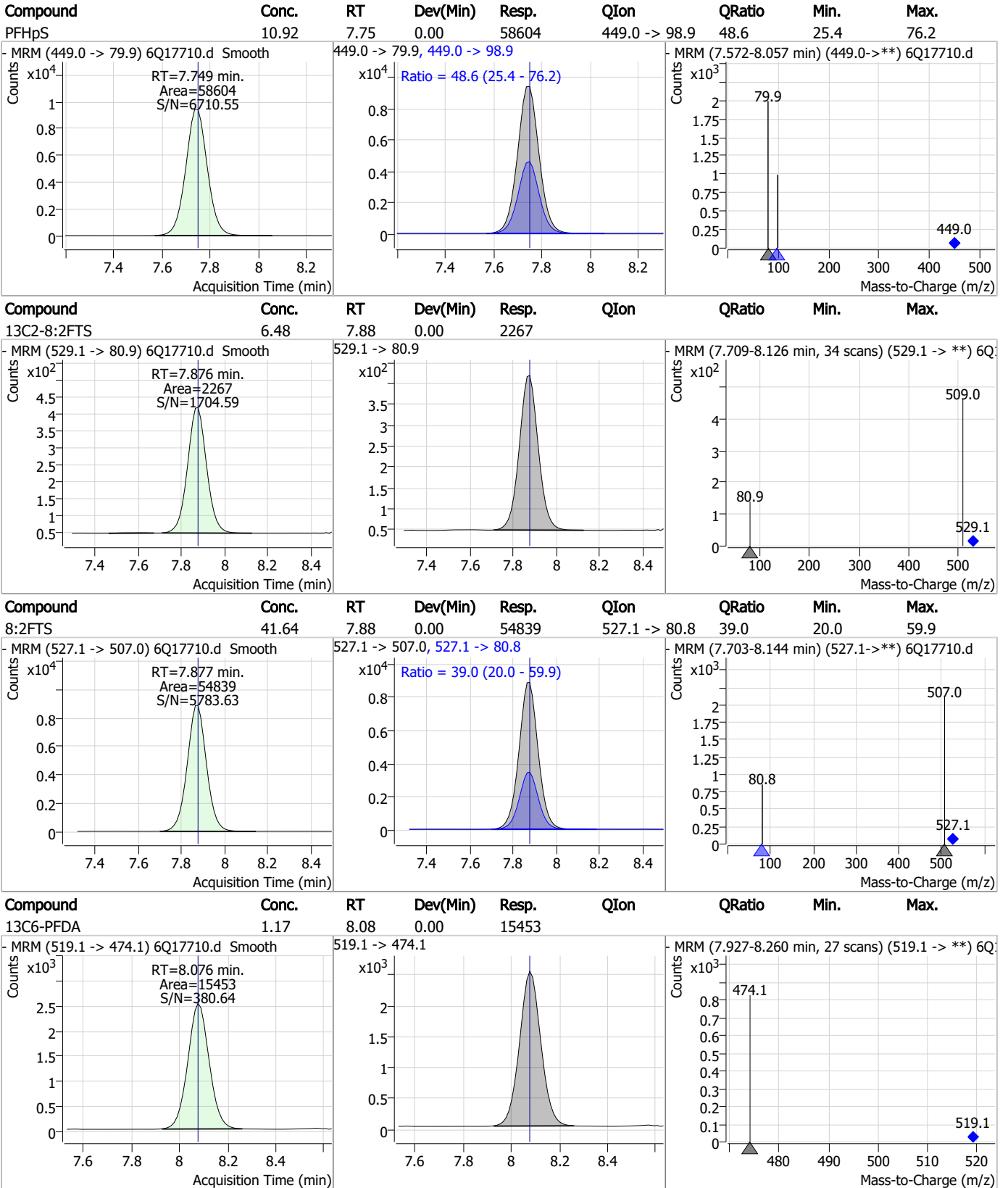
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



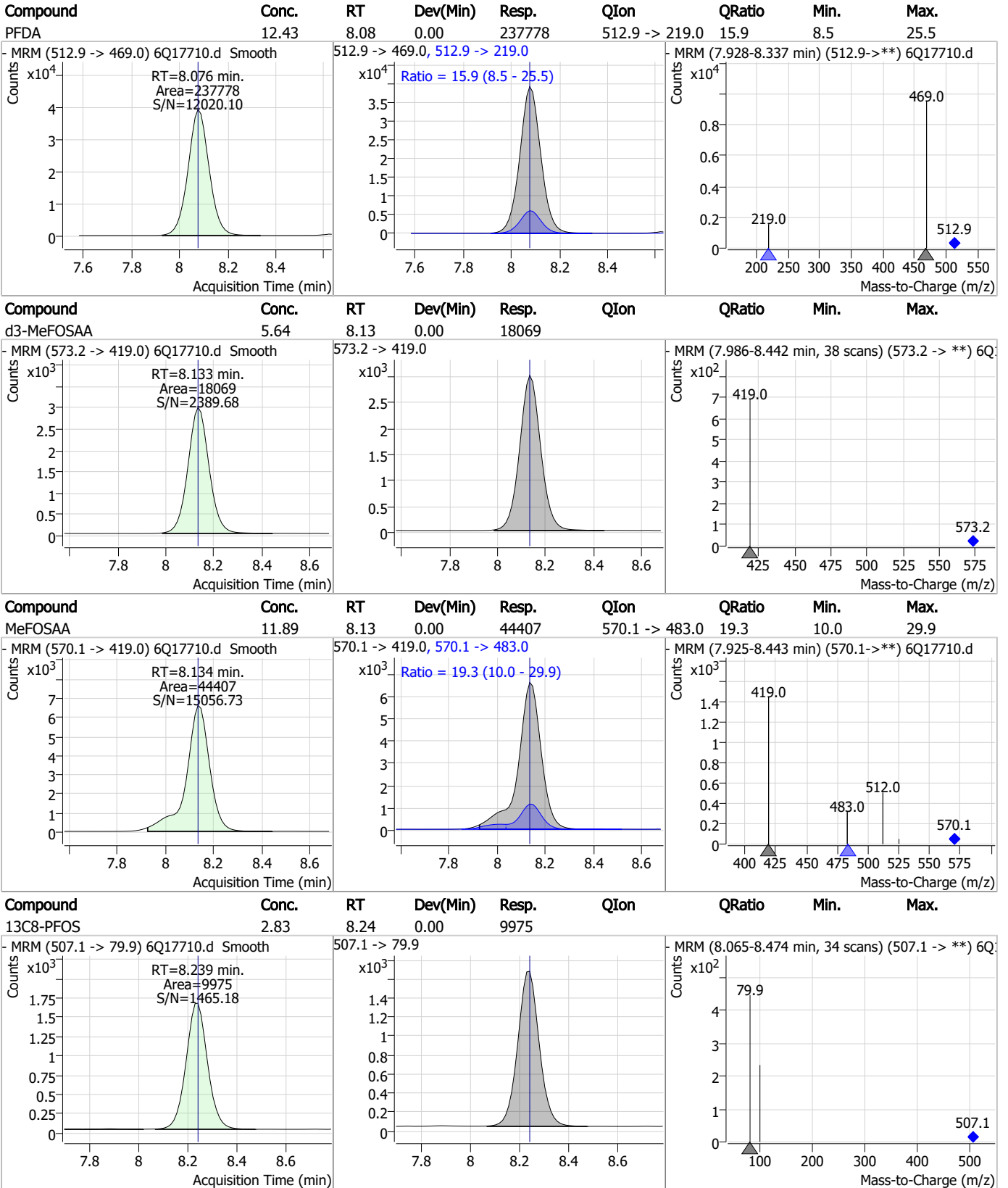
Perfluorinated Compounds by LC/MS/MS



7.6.8

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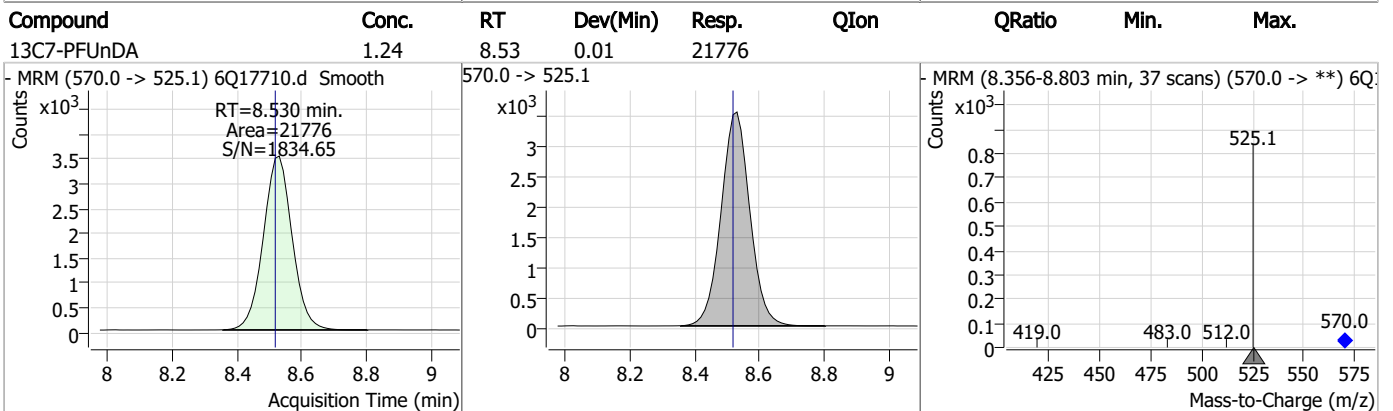
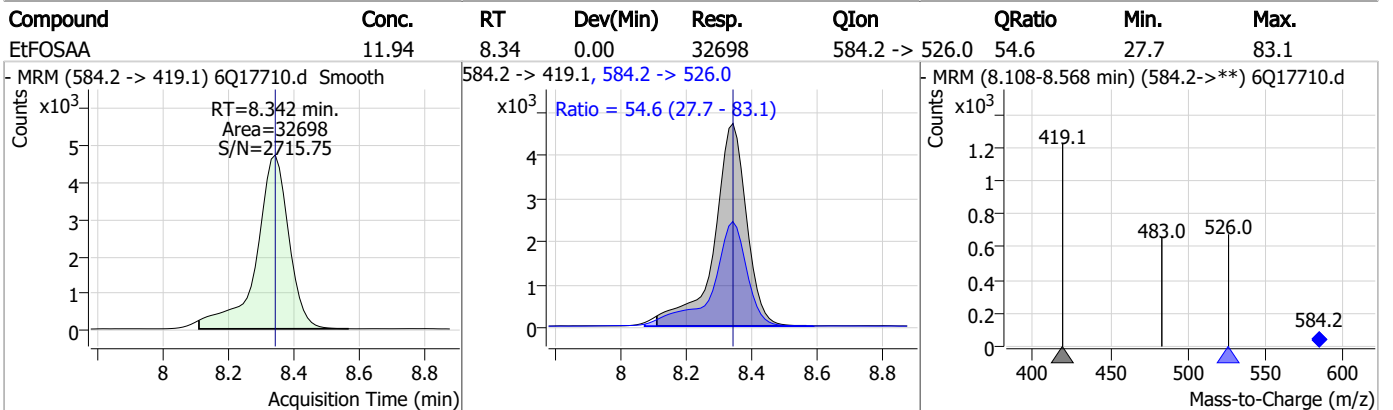
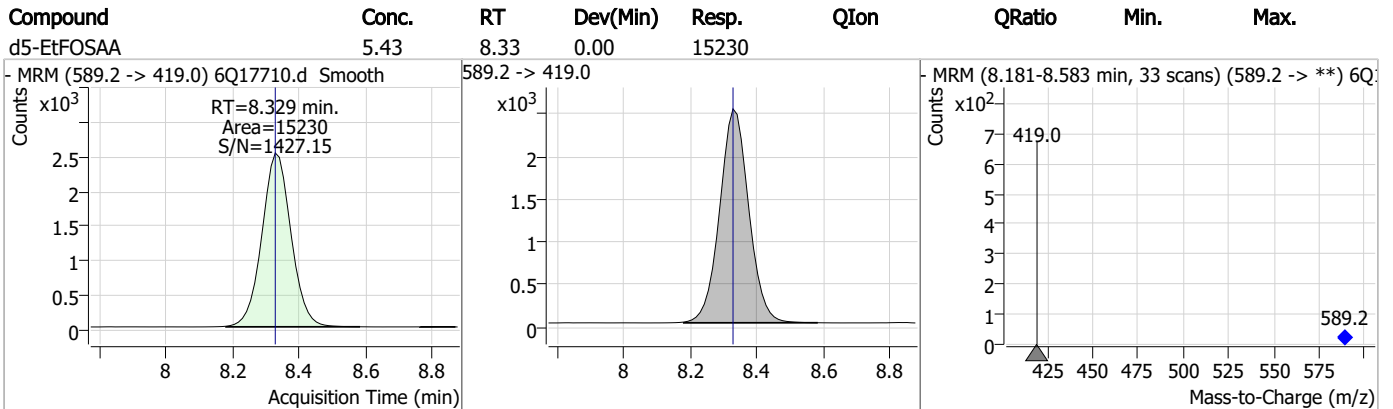
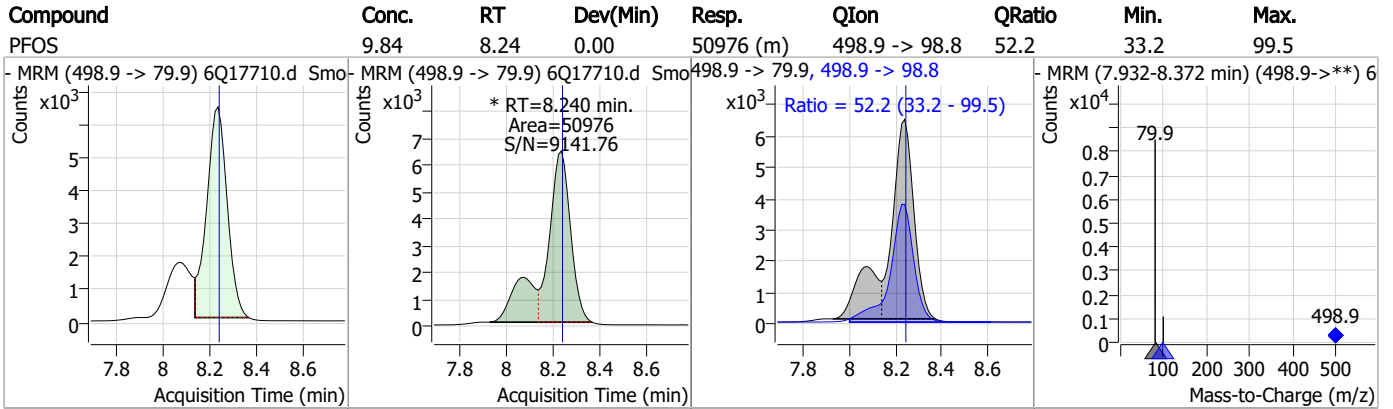
Perfluorinated Compounds by LC/MS/MS



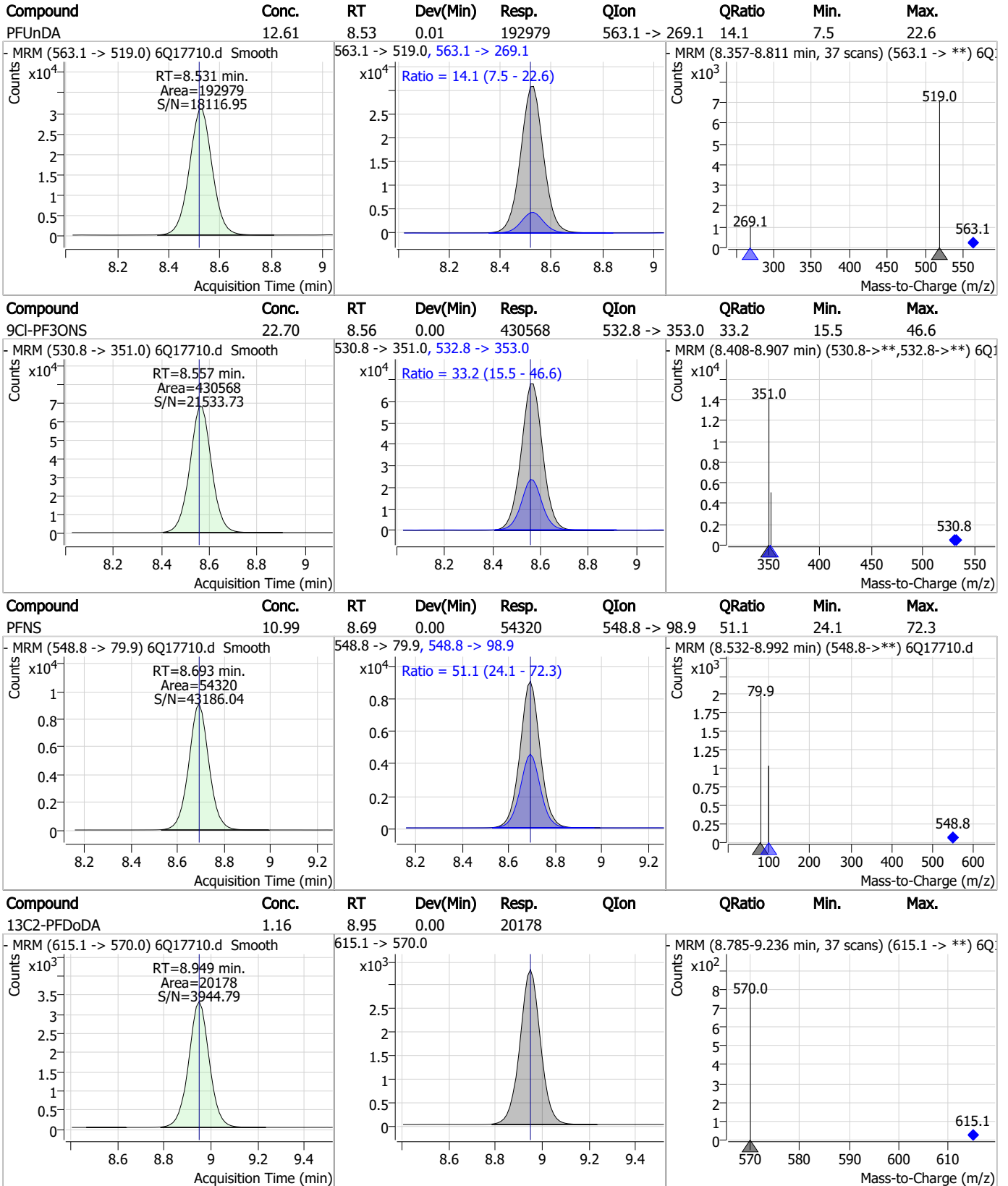
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Perfluorinated Compounds by LC/MS/MS



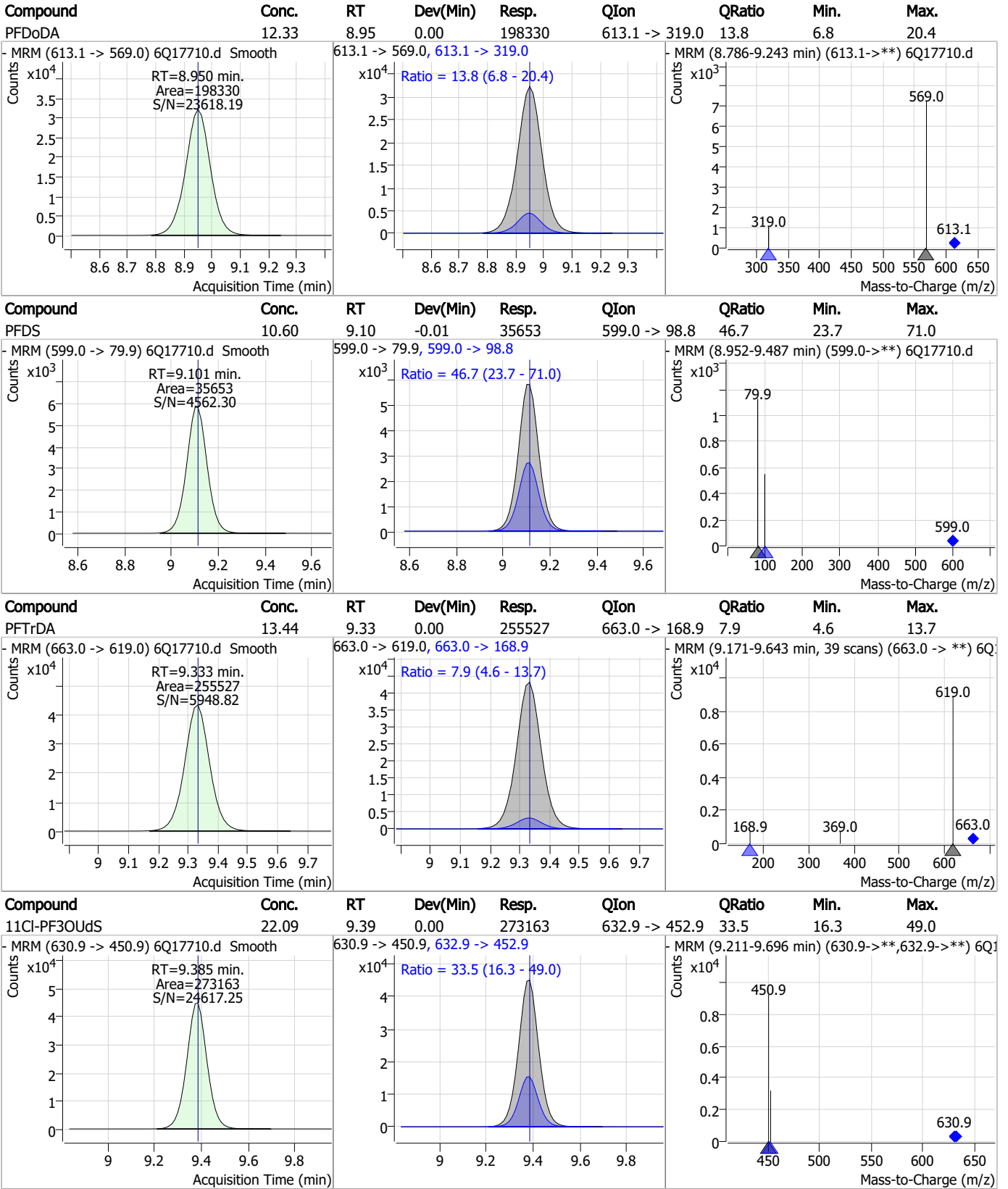
Perfluorinated Compounds by LC/MS/MS



7.6.8

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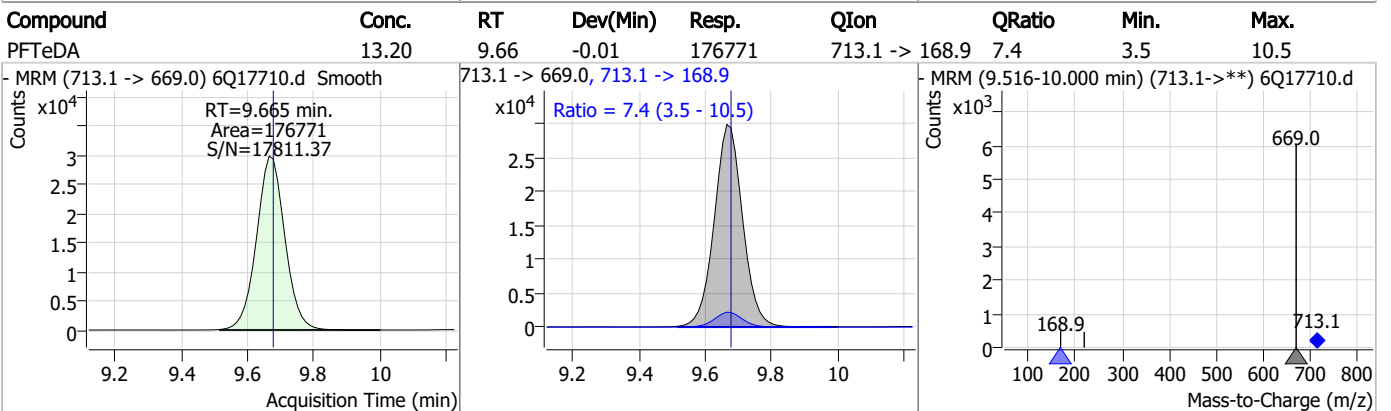
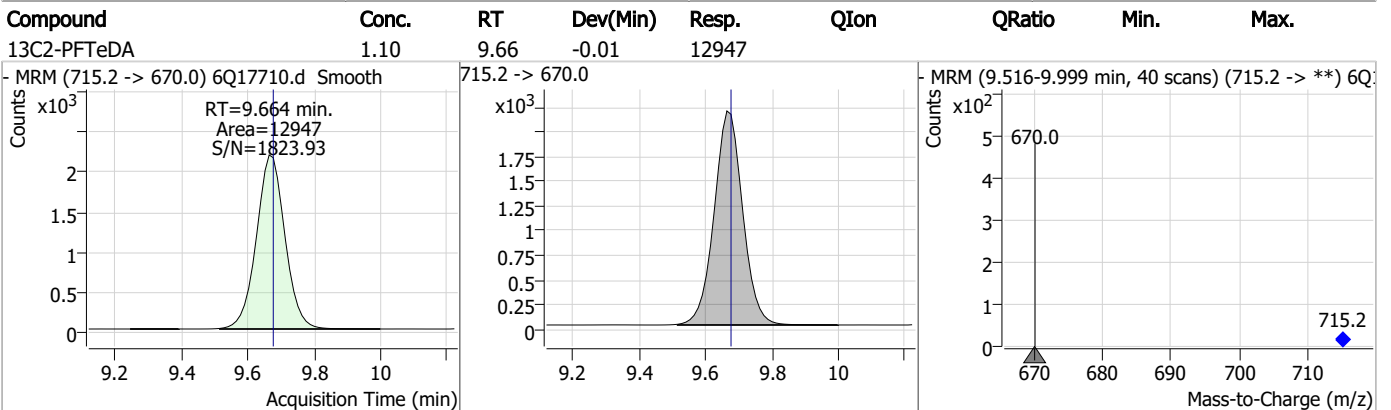
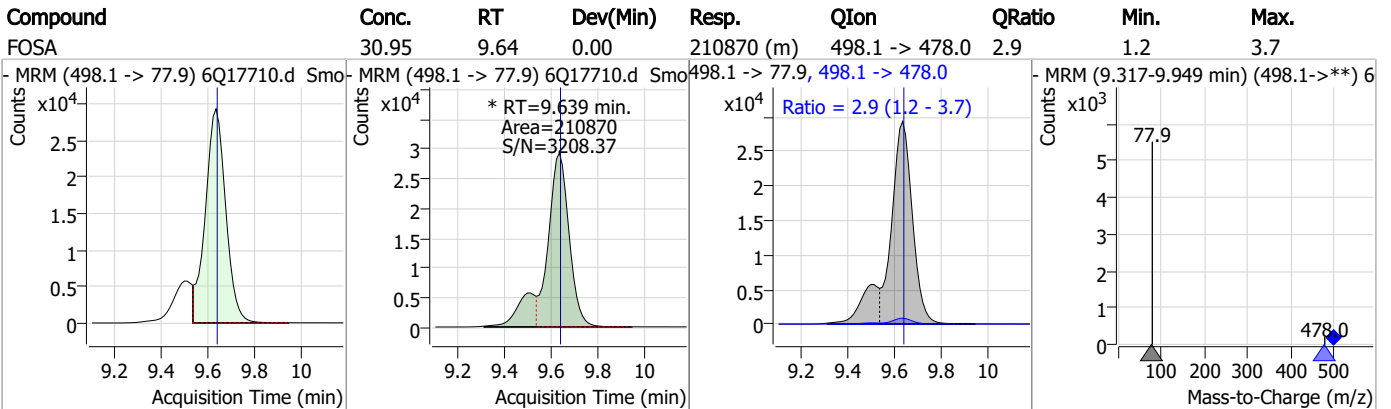
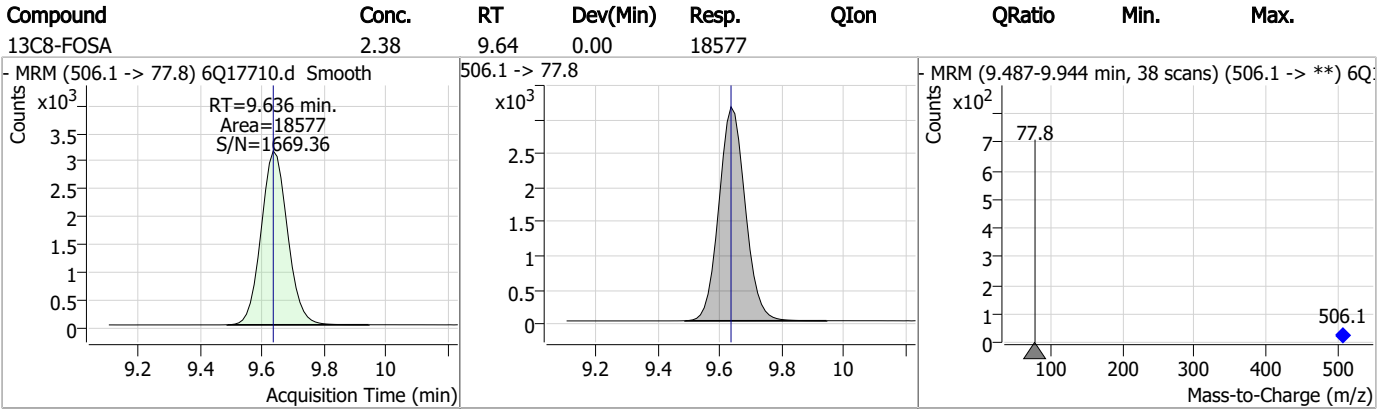
Perfluorinated Compounds by LC/MS/MS



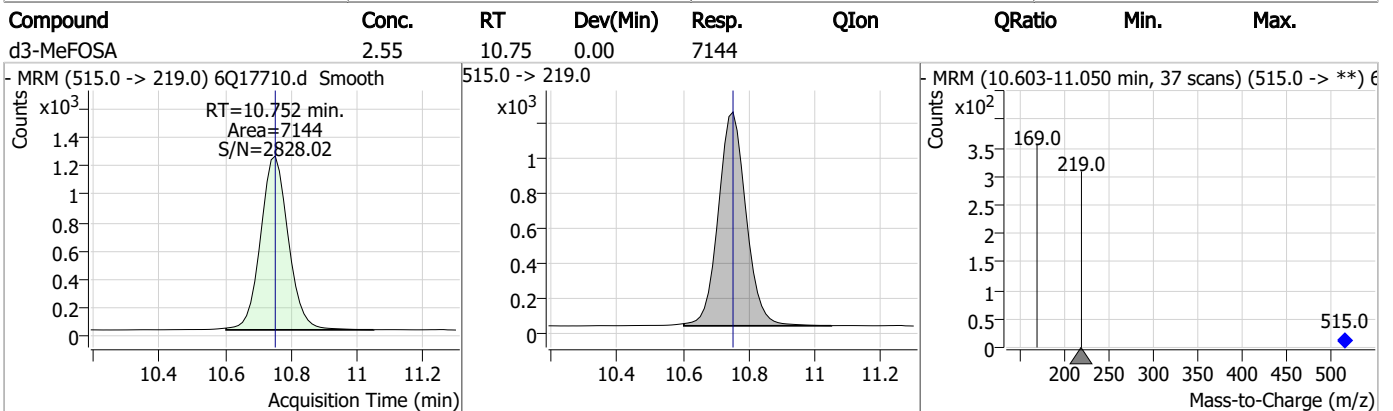
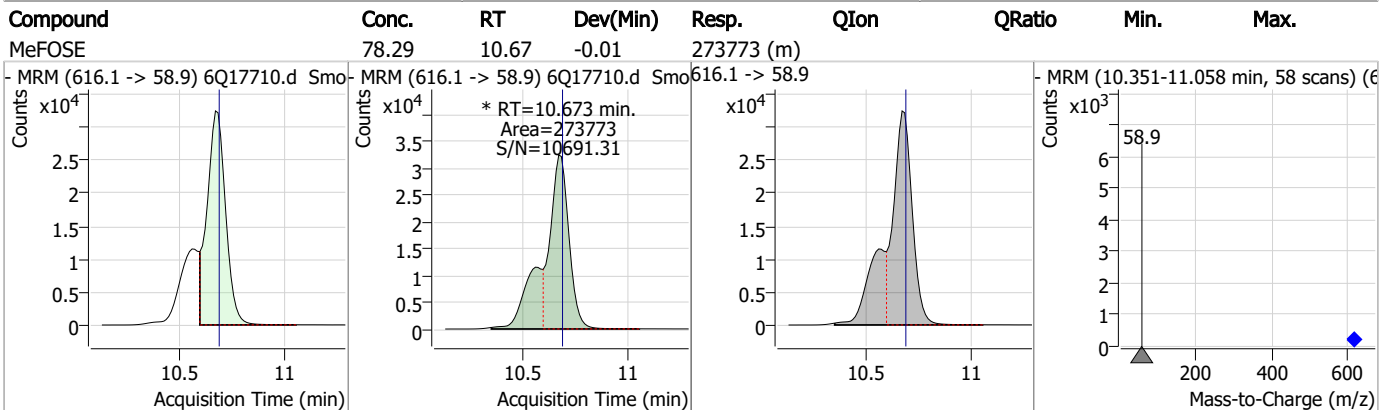
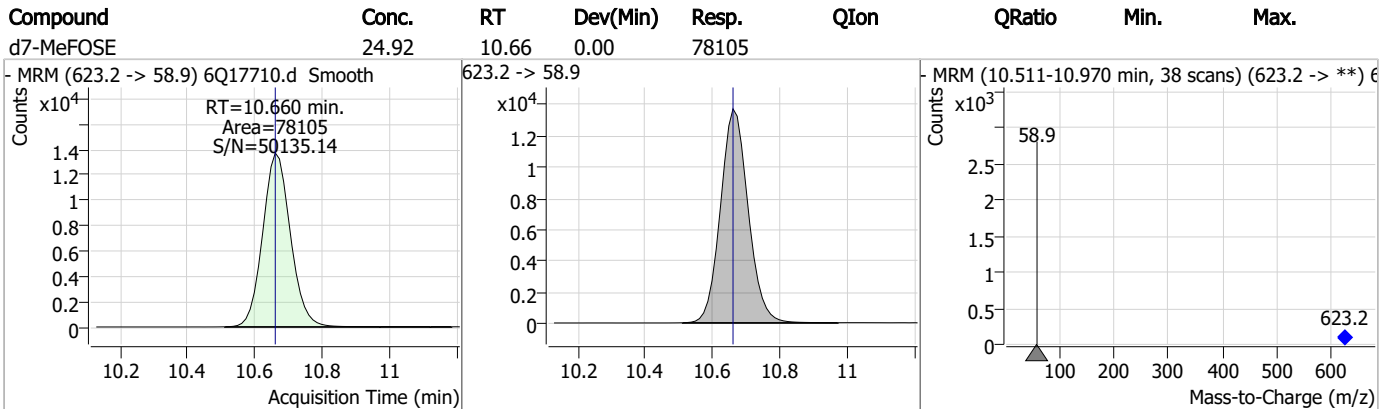
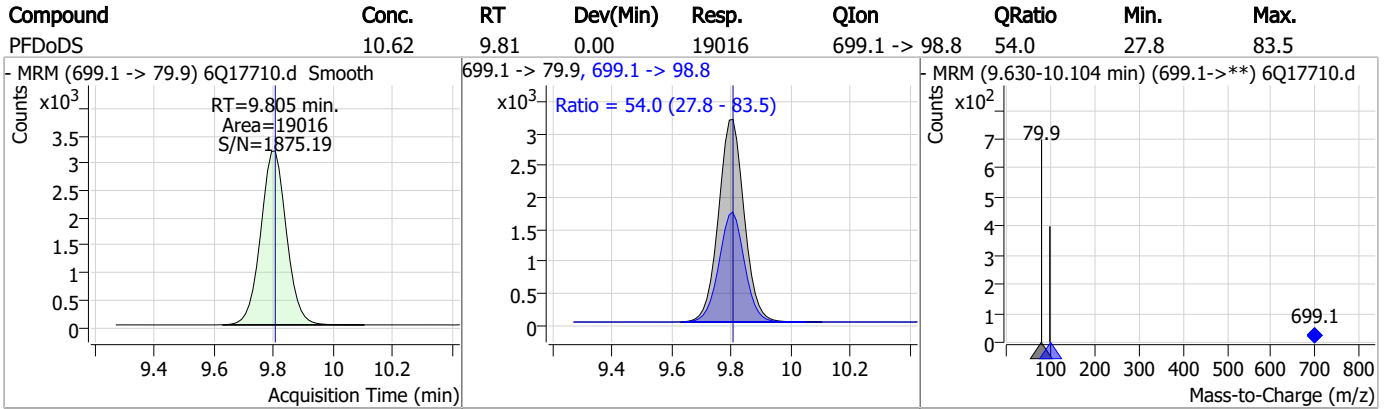
7.6.8

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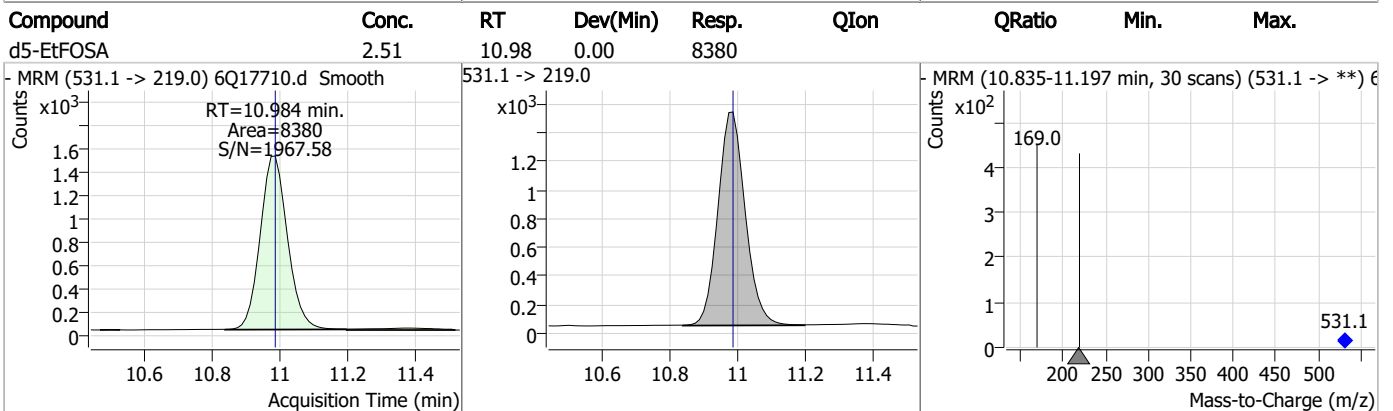
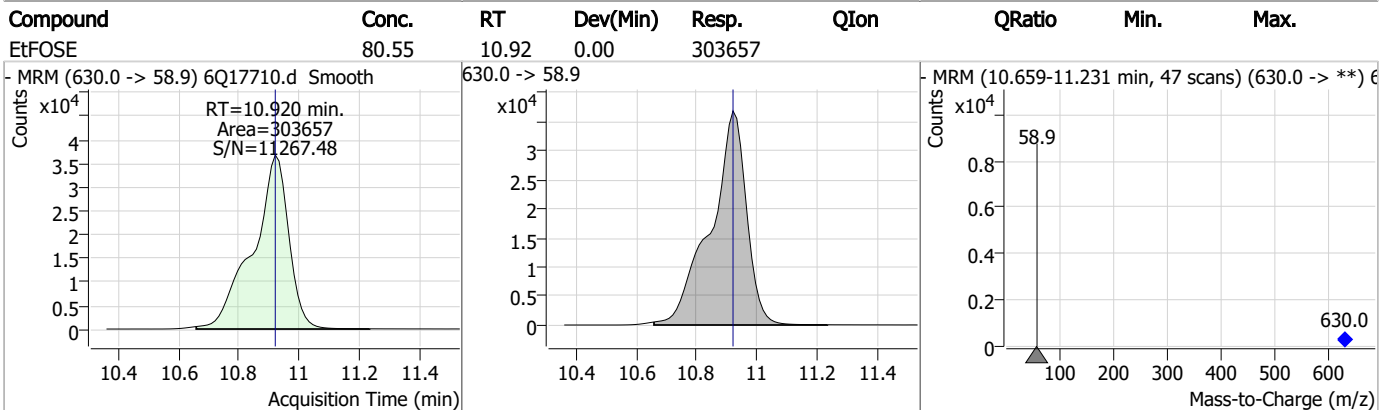
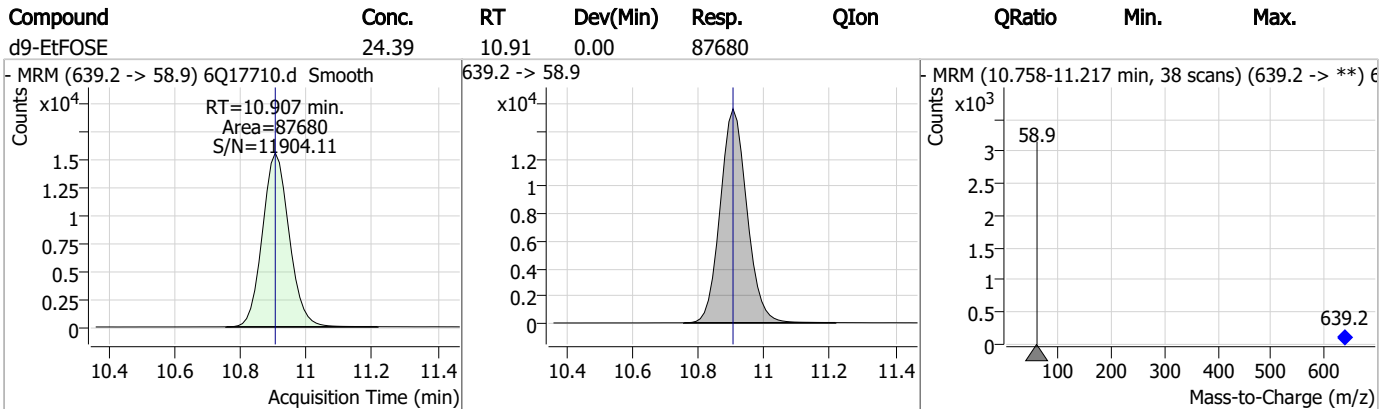
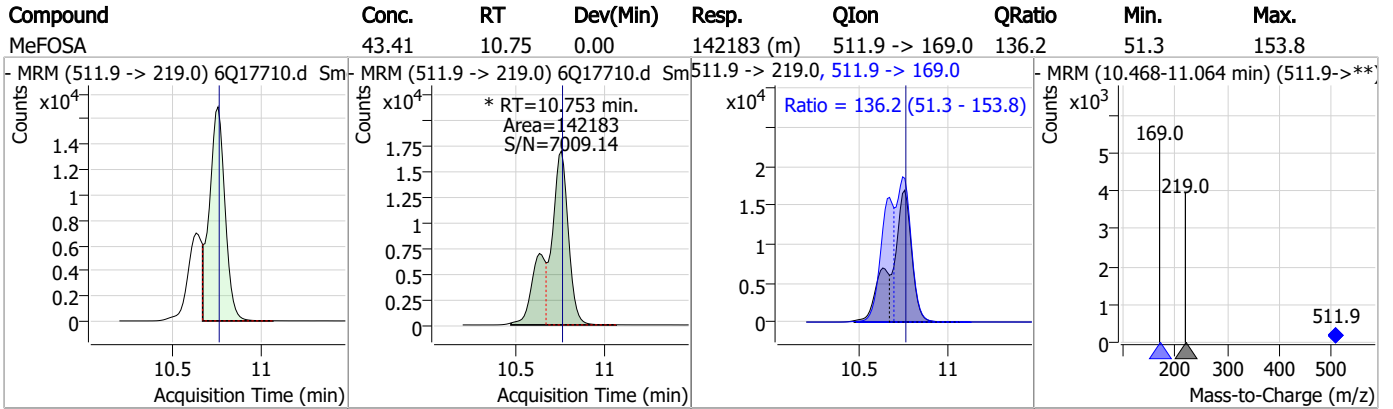
Perfluorinated Compounds by LC/MS/MS



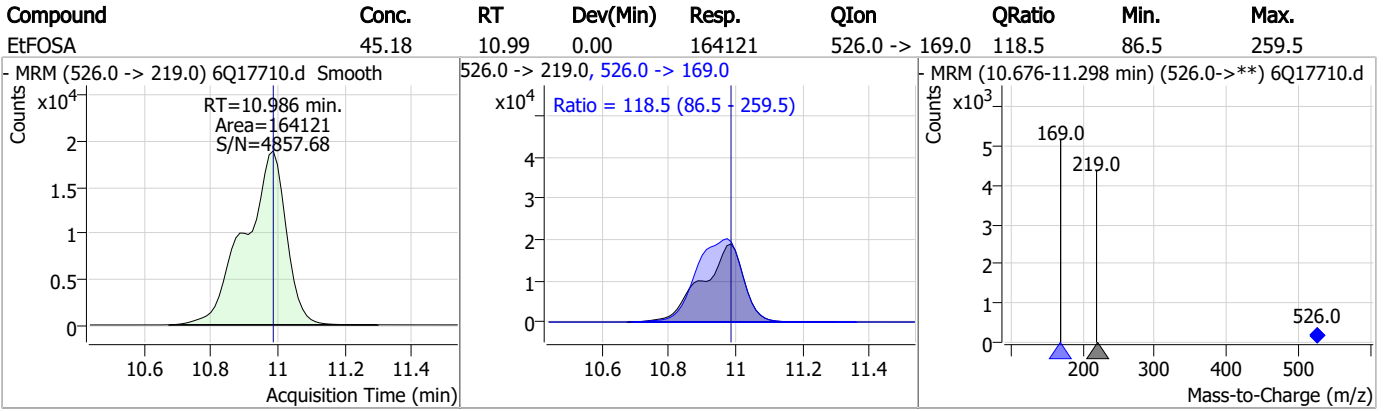
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.8

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Manual Integration Approval Summary

Sample Number: S6Q267-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17710.D Analyst approved: 05/11/23 11:20 Martha Valls
Injection Time: 05/10/23 19:06 Supervisor approved: 05/11/23 14:15 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.08	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.19	Split peak
Perfluorononanoic acid	375-95-1		7.47	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
PFOSA	754-91-6		9.64	Split peak
MeFOSE	24448-09-7		10.67	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.6.8.1
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 30 April 2023 11:24:53
Data Path D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.76E+0 [R] (Torr); 3.64E-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	112.98	-0.01	Pass	0.70	0.66	-0.04	Pass	201034
302.00	302.01	0.01	Pass	0.70	0.67	-0.03	Pass	310264
601.98	602.01	0.03	Pass	0.70	0.69	-0.01	Pass	444462
1033.99	1034.02	0.03	Pass	0.70	0.70	0.00	Pass	616104
1633.95	1633.95	0.00	Pass	0.70	0.68	-0.02	Pass	1304259
2233.91	2233.90	-0.01	Pass	0.70	0.72	0.02	Pass	724412

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	0.70	0.60	-0.10	Pass	43506
112.99	112.98	-0.01	Pass	0.70	0.71	0.01	Pass	146601
302.00	301.99	-0.01	Pass	0.70	0.66	-0.04	Pass	234306
601.98	601.92	-0.06	Pass	0.70	0.70	0.00	Pass	233181
1033.99	1033.85	-0.14	Pass	0.70	0.74	0.04	Pass	144228
1633.95	1633.70	-0.25	Adjust	0.70	0.78	0.08	Pass	201645
2233.91	2233.63	-0.28	Pass	0.70	0.79	0.09	Pass	82948

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.01	0.02	Pass	1.20	1.21	0.01	Pass	272389
302.00	301.98	-0.02	Pass	1.20	1.41	0.21	Pass	420909
601.98	601.99	0.01	Pass	1.20	1.44	0.24	Pass	763120
1033.99	1034.01	0.02	Pass	1.20	1.49	0.29	Pass	1327450
1633.95	1633.95	0.00	Pass	1.20	1.36	0.16	Pass	3403405
2233.91	2233.87	-0.04	Pass	1.20	1.20	0.00	Pass	1664147

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	1.20	1.10	-0.10	Pass	59945
112.99	112.96	-0.03	Pass	1.20	1.22	0.02	Pass	213730
302.00	302.00	0.00	Pass	1.20	1.45	0.25	Pass	349114
601.98	601.95	-0.03	Pass	1.20	1.53	0.33	Pass	449128
1033.99	1033.84	-0.15	Pass	1.20	1.59	0.39	Pass	302100
1633.95	1633.61	-0.34	Pass	1.20	1.55	0.35	Pass	580971
2233.91	2233.60	-0.31	Pass	1.20	1.47	0.27	Pass	324311

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	2.50	2.53	0.03	Pass	390598
302.00	302.01	0.01	Pass	2.50	2.70	0.20	Pass	510334
601.98	602.05	0.07	Pass	2.50	2.73	0.23	Pass	1033779
1033.99	1034.01	0.02	Pass	2.50	2.75	0.25	Pass	2141360
1633.95	1633.92	-0.03	Pass	2.50	2.63	0.13	Pass	6705580
2233.91	2233.79	-0.12	Pass	2.50	2.42	-0.08	Pass	4259918

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	2.37	-0.13	Pass	76909
112.99	112.97	-0.02	Pass	2.50	2.50	0.00	Pass	286009
302.00	301.99	-0.01	Pass	2.50	2.68	0.18	Pass	456032
601.98	601.95	-0.03	Pass	2.50	2.79	0.29	Pass	609214
1033.99	1033.83	-0.16	Pass	2.50	2.85	0.35	Pass	451181
1633.95	1633.68	-0.27	Pass	2.50	2.72	0.22	Pass	1021433
2233.91	2233.59	-0.32	Pass	2.50	2.47	-0.03	Pass	789629

7.7.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43884.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 11:12:11 AM
 Sample Name : ic634-1
 Vial : P1-A2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.911	216.8 -> 171.9	133324	10.00 µg/L	-0.012
M5-PFPeA	4.362	268.3 -> 223.0	70436	5.00 µg/L	0.000
M5-PFHxA	5.522	318.0 -> 273.0	51396	2.50 µg/L	-0.012
M4-PFHpA	6.455	367.1 -> 322.0	30242	2.50 µg/L	-0.012
M8-PFOA	7.124	421.1 -> 376.0	42914	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	20504	1.25 µg/L	0.000
M6-PFDA	8.166	519.1 -> 474.1	20136	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	21422	1.25 µg/L	-0.012
M2-PFDoDA	9.093	615.1 -> 570.0	21281	1.25 µg/L	-0.012
M2-PFTeDA	9.886	715.2 -> 670.0	18387	1.25 µg/L	-0.012
M8-FOSA	9.758	506.1 -> 77.8	17575	2.50 µg/L	-0.012
M3-PFBS	5.427	302.1 -> 79.9	12829	2.50 µg/L	0.000
M3-PFHxS	7.217	402.1 -> 79.9	8172	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	10530	2.50 µg/L	-0.013
M2-4:2FTS	5.209	329.1 -> 80.9	1189	5.00 µg/L	-0.014
M2-6:2FTS	6.886	429.1 -> 80.9	2090	5.00 µg/L	-0.012
M2-8:2FTS	7.953	529.1 -> 80.9	3107	5.00 µg/L	-0.012
M3-MeFOSAA	8.224	573.2 -> 419.0	14225	5.00 µg/L	-0.012
M3-HFPO-DA	5.877	286.9 -> 168.9	29384	10.00 µg/L	-0.012
M5-EtFOSAA	8.433	589.2 -> 419.0	10858	5.00 µg/L	-0.012
M7-MeFOSE	10.947	623.2 -> 58.9	84284	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	127257	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	12371	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11108	2.50 µg/L	0.000
13C4-PFOS	8.317	502.8 -> 79.9	12141	2.50 µg/L	-0.013
13C3-PFBA	2.916	216.0 -> 172.0	70772	5.00 µg/L	-0.013
18O2-PFHxS	7.216	403.0 -> 83.9	5179	2.50 µg/L	-0.012
13C4-PFOA	7.124	417.1 -> 372.0	53320	2.50 µg/L	0.000
13C2-PFDA	8.166	515.1 -> 470.1	18742	1.25 µg/L	-0.012
13C5-PFNA	7.671	468.0 -> 423.0	24868	1.25 µg/L	-0.013
13C2-PFHxA	5.523	315.1 -> 270.0	45134	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.209	329.1 -> 80.9	1189	5.65 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2090	5.51 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3107	5.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	21281	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C2-PFTeDA	9.886	715.2 -> 670.0	18387	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-PFBS	5.427	302.1 -> 79.9	12829	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.217	402.1 -> 79.9	8172	2.55 µg/L	-0.012

7.7.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C4-PFBA	2.911	216.8 -> 171.9	133324	10.01 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.455	367.1 -> 322.0	30242	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFHxA	5.522	318.0 -> 273.0	51396	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C5-PFPeA	4.362	268.3 -> 223.0	70436	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.166	519.1 -> 474.1	20136	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	8.635	570.0 -> 525.1	21422	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-FOSA	9.758	506.1 -> 77.8	17575	2.31 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C8-PFOA	7.124	421.1 -> 376.0	42914	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOS	8.316	507.1 -> 79.9	10530	2.30 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C9-PFNA	7.670	472.1 -> 427.0	20504	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSAA	8.224	573.2 -> 419.0	14225	4.64 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	29384	9.90 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSA	11.064	515.0 -> 219.0	11108	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
d5-EtFOSAA	8.433	589.2 -> 419.0	10858	4.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.1%	
d7-MeFOSE	10.947	623.2 -> 58.9	84284	22.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
d9-EtFOSE	11.256	639.2 -> 58.9	127257	23.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d5-EtFOSA	11.348	531.1 -> 219.0	12371	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
Target Compounds					QValue
4:2FTS	5.209	327.1 -> 307.0	1373	0.72 µg/L	99
		327.1 -> 80.9	654		
6:2FTS	6.886	427.1 -> 407.0	1456	0.72 µg/L	78
		427.1 -> 80.9	820		
8:2FTS	7.954	527.1 -> 507.0	1265	0.73 µg/L	99
		527.1 -> 80.8	529		
EtFOSAA	8.446	584.2 -> 419.1	415	0.20 µg/L	m 91
		584.2 -> 526.0	236		
FOSA	9.761	498.1 -> 77.9	1434	0.19 µg/L	99
		498.1 -> 478.0	51		
MeFOSAA	8.237	570.1 -> 419.0	578	0.23 µg/L	m 93
		570.1 -> 483.0	157		
PFBA	2.920	212.8 -> 168.9	2671	0.75 µg/L	100
PFBS	5.415	298.7 -> 79.9	887	0.17 µg/L	94
		298.7 -> 98.8	396		
PFDA	8.166	512.9 -> 469.0	2822	0.18 µg/L	96
		512.9 -> 219.0	561		
PFDODA	9.094	613.1 -> 569.0	3581	0.21 µg/L	m 93
		613.1 -> 319.0	631		
PFDS	9.257	599.0 -> 79.9	464	0.18 µg/L	93

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	235			
PFHpA	6.455	363.1 -> 319.0	3266	0.17	µg/L	m
		363.1 -> 169.0	704			
PFHpS	7.797	449.0 -> 79.9	730	0.19	µg/L	88
		449.0 -> 98.9	450			
PFHxA	5.525	313.0 -> 269.0	3920	0.19	µg/L	98
		313.0 -> 118.9	88			
PFHxS	7.218	398.7 -> 79.9	568	0.17	µg/L	m
		398.7 -> 98.9	277			
PFNA	7.671	463.0 -> 419.0	3263	0.21	µg/L	96
		463.0 -> 219.0	753			
PFNS	8.799	548.8 -> 79.9	435	0.19	µg/L	99
		548.8 -> 98.9	230			
PFOA	7.125	413.0 -> 369.0	4788	0.19	µg/L	87
		413.0 -> 169.0	1204			
PFOS	8.305	498.9 -> 79.9	1025	0.20	µg/L	m
		498.9 -> 98.8	575			
PFPeA	4.364	263.0 -> 219.0	6141	0.36	µg/L	100
PFPeS	6.494	349.1 -> 79.9	506	0.18	µg/L	98
		349.1 -> 98.9	227			
PFTeDA	9.887	713.1 -> 669.0	3199	0.18	µg/L	99
		713.1 -> 168.9	282			
PFTrDA	9.515	663.0 -> 619.0	5149	0.23	µg/L	96
		663.0 -> 168.9	485			
PFUnDA	8.648	563.1 -> 519.0	2712	0.19	µg/L	99
		563.1 -> 269.1	564			
11Cl-PF3OUdS	9.556	630.9 -> 450.9	3635	0.34	µg/L	89
		632.9 -> 452.9	1273			
9Cl-PF3ONS	8.663	530.8 -> 351.0	4687	0.35	µg/L	95
		532.8 -> 353.0	1553			
ADONA	6.718	376.9 -> 250.9	11026	0.37	µg/L	99
		376.9 -> 84.8	2854			
HFPO-DA	5.891	284.9 -> 168.9	1087	0.39	µg/L	92
		284.9 -> 184.9	91			
3:3FTCA	3.823	241.0 -> 177.0	672	0.90	µg/L	100
		241.0 -> 117.0	57			
5:3FTCA	6.180	341.0 -> 237.1	12380	4.53	µg/L	96
		341.0 -> 217.0	8858			
7:3FTCA	7.636	441.0 -> 316.9	6366	4.48	µg/L	99
		441.0 -> 336.9	15098			
EtFOSA	11.350	526.0 -> 219.0	1635	0.32	µg/L	m
		526.0 -> 169.0	2557			
EtFOSE	11.270	630.0 -> 58.9	4617	0.94	µg/L	m
MeFOSA	11.066	511.9 -> 219.0	1473	0.35	µg/L	m
		511.9 -> 169.0	2671			
MeFOSE	10.960	616.1 -> 58.9	3786	1.09	µg/L	m
PFDoDS	10.039	699.1 -> 79.9	469	0.20	µg/L	87
		699.1 -> 98.8	207			
NFDHA	5.403	295.0 -> 201.0	554	0.39	µg/L	80
		295.0 -> 84.9	96			
PFMBA	4.766	279.0 -> 85.1	3672	0.39	µg/L	100
PFMPA	3.515	229.0 -> 84.9	3240	0.37	µg/L	100
PFEESA	5.959	314.8 -> 134.9	5092	0.33	µg/L	95
		314.8 -> 82.9	107			

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

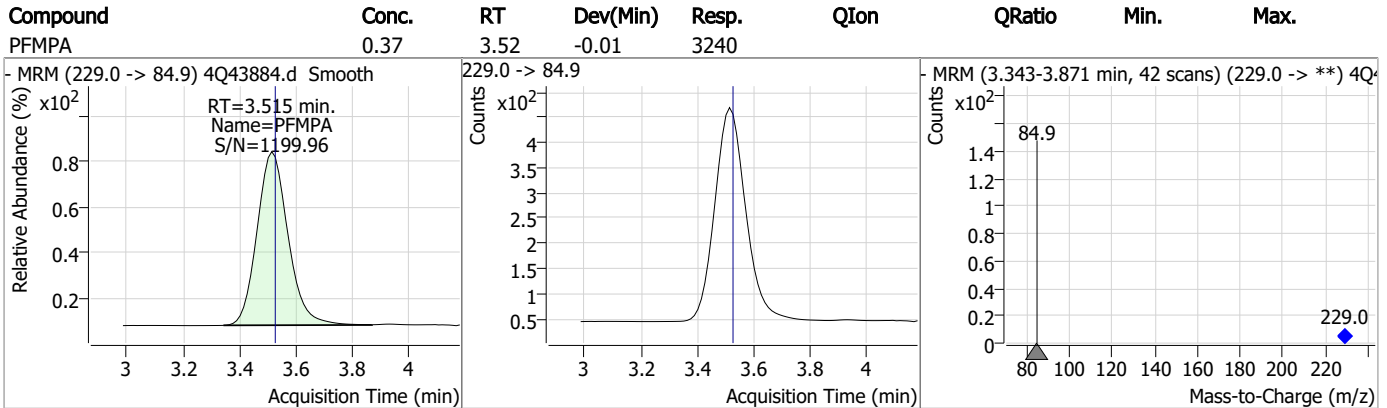
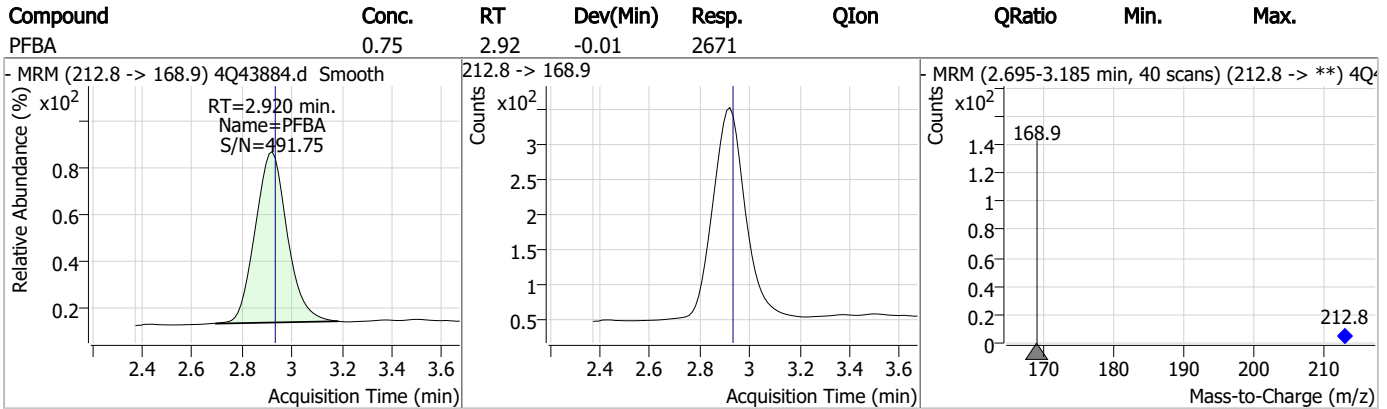
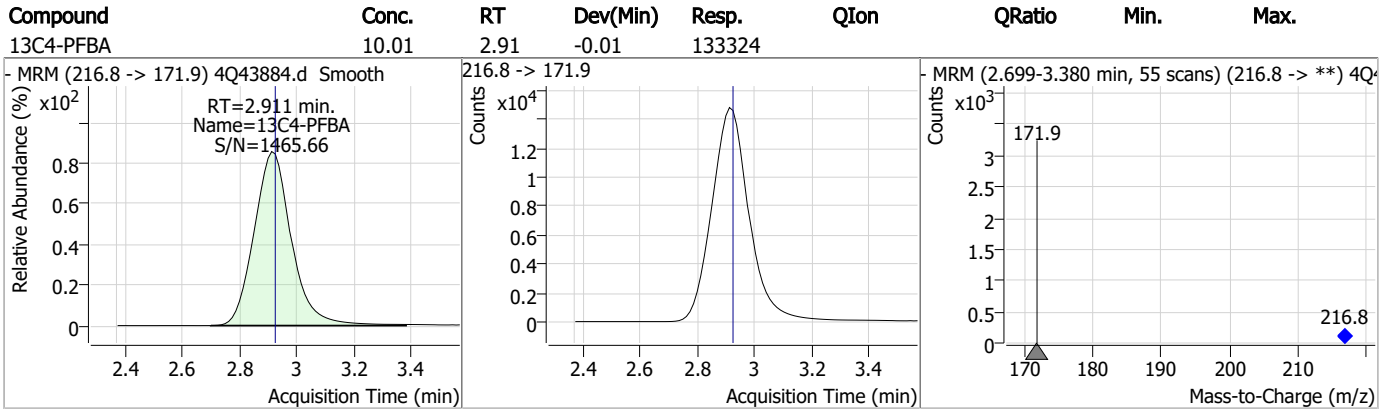
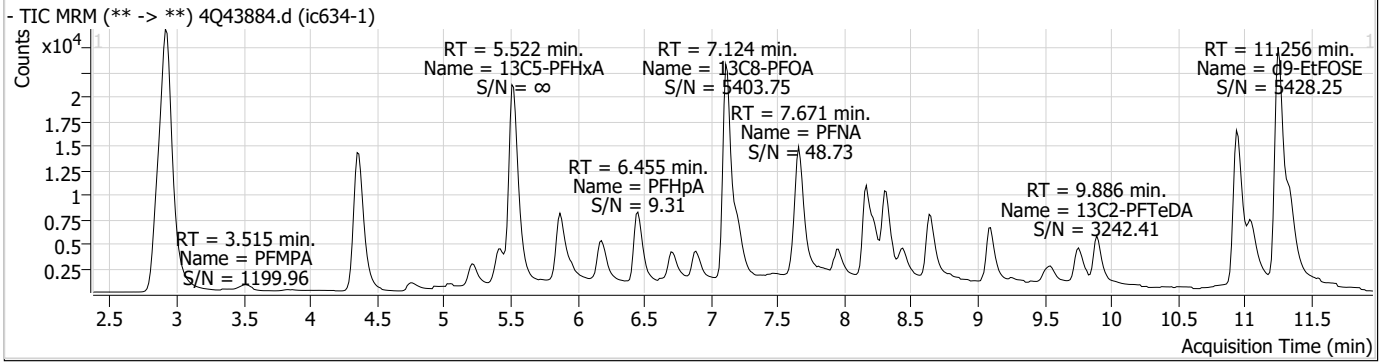
Perfluorinated Compounds by LC/MS/MS

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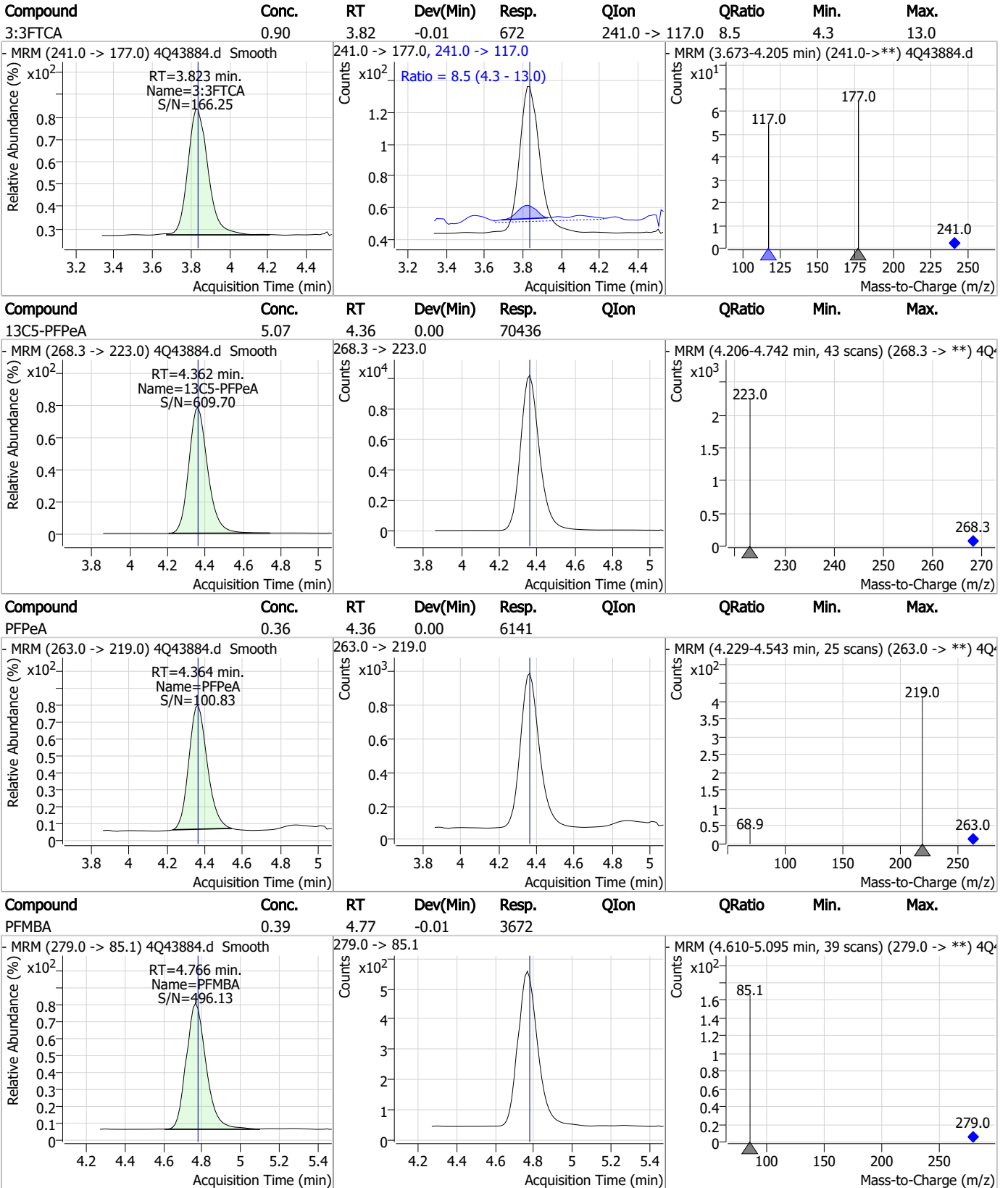
7.7.2
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Perfluorinated Compounds by LC/MS/MS



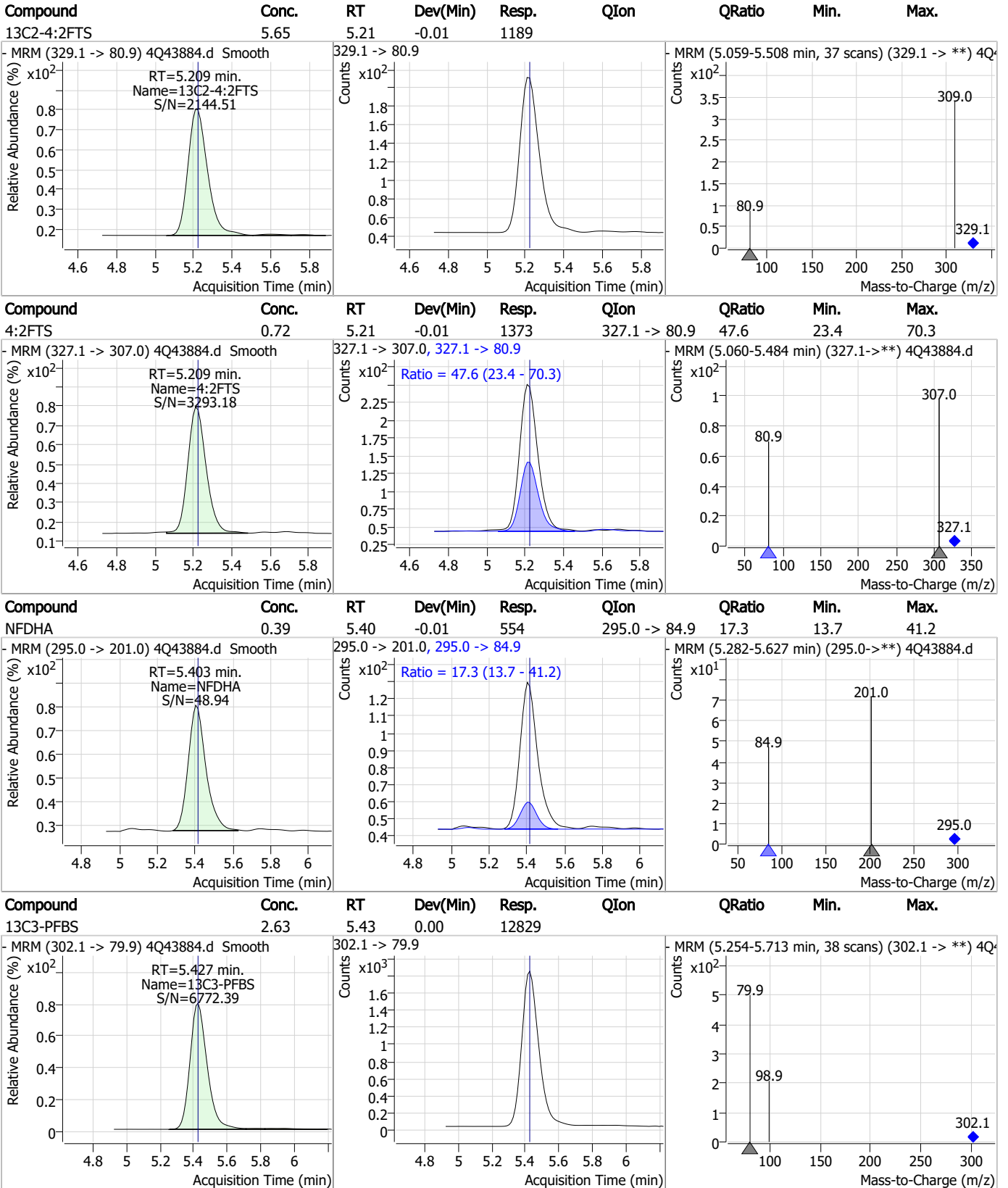
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

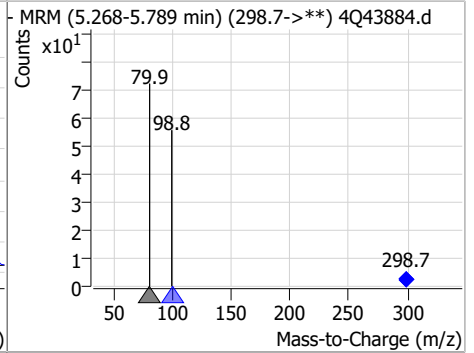
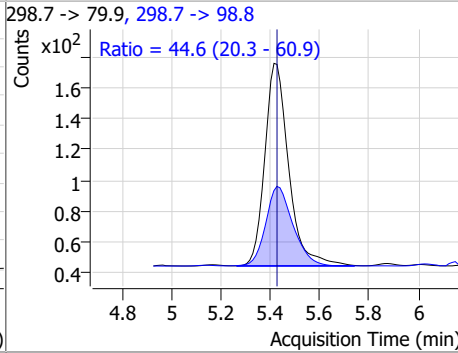
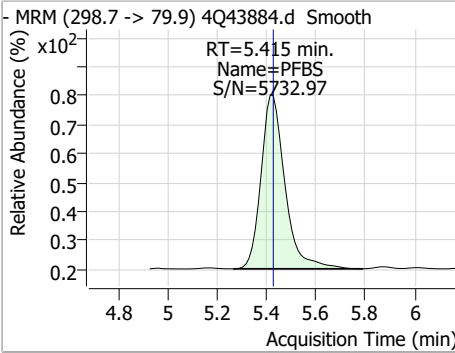


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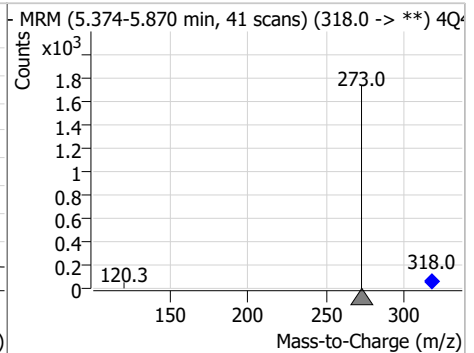
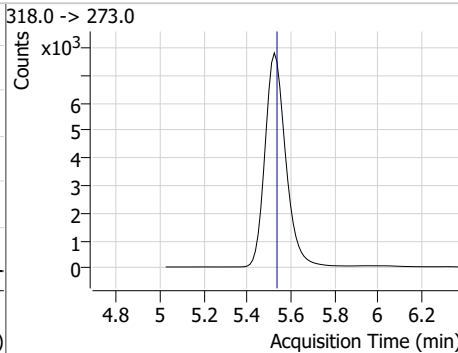
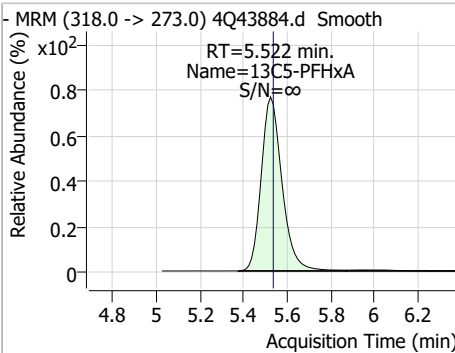
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Perfluorinated Compounds by LC/MS/MS

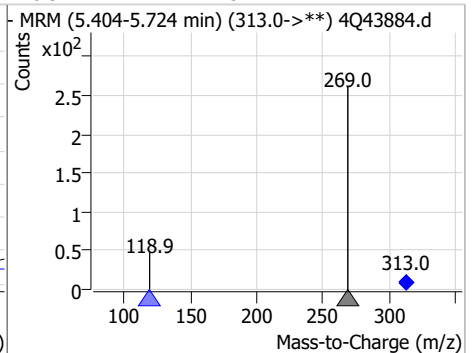
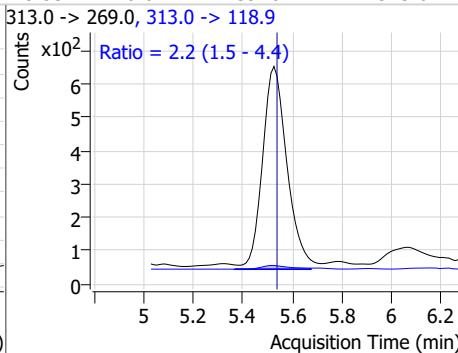
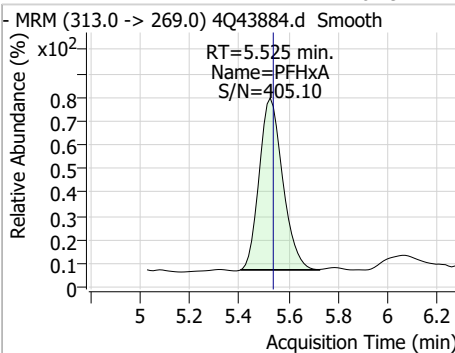
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.42	-0.01	887	298.7 -> 98.8	44.6	20.3	60.9



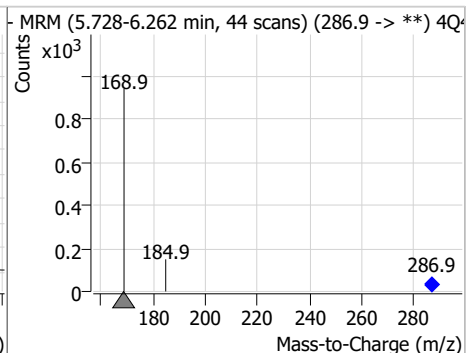
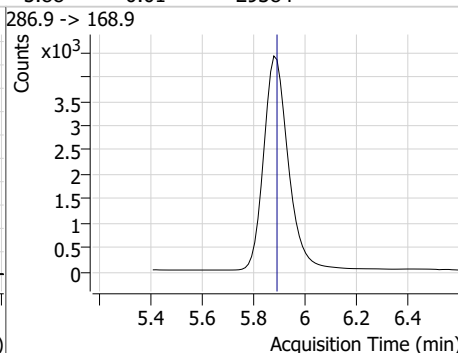
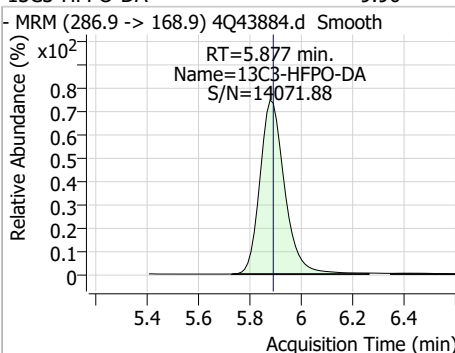
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.52	-0.01	51396	318.0 -> 273.0			



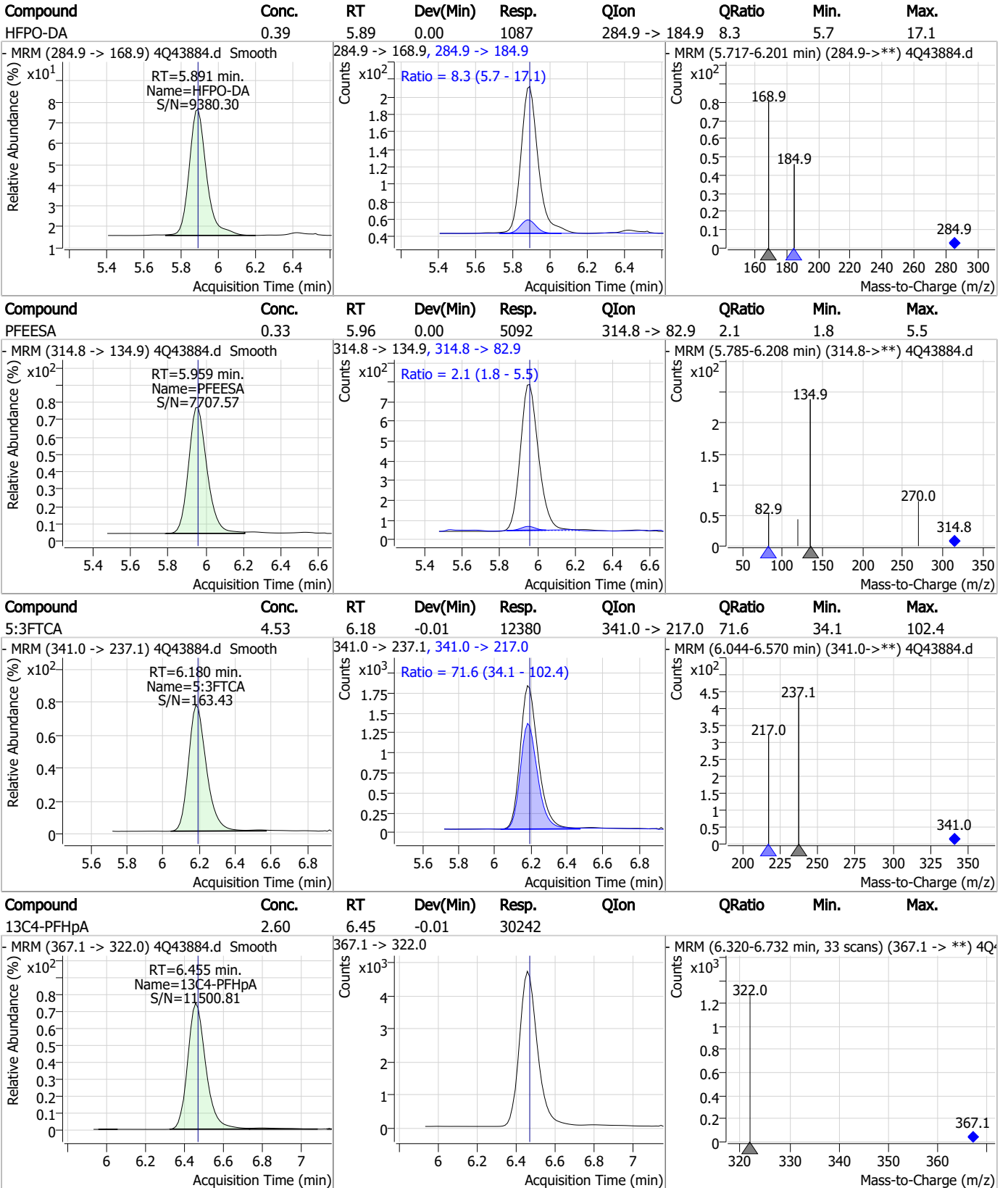
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.19	5.53	-0.01	3920	313.0 -> 118.9	2.2	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.90	5.88	-0.01	29384	286.9 -> 168.9			



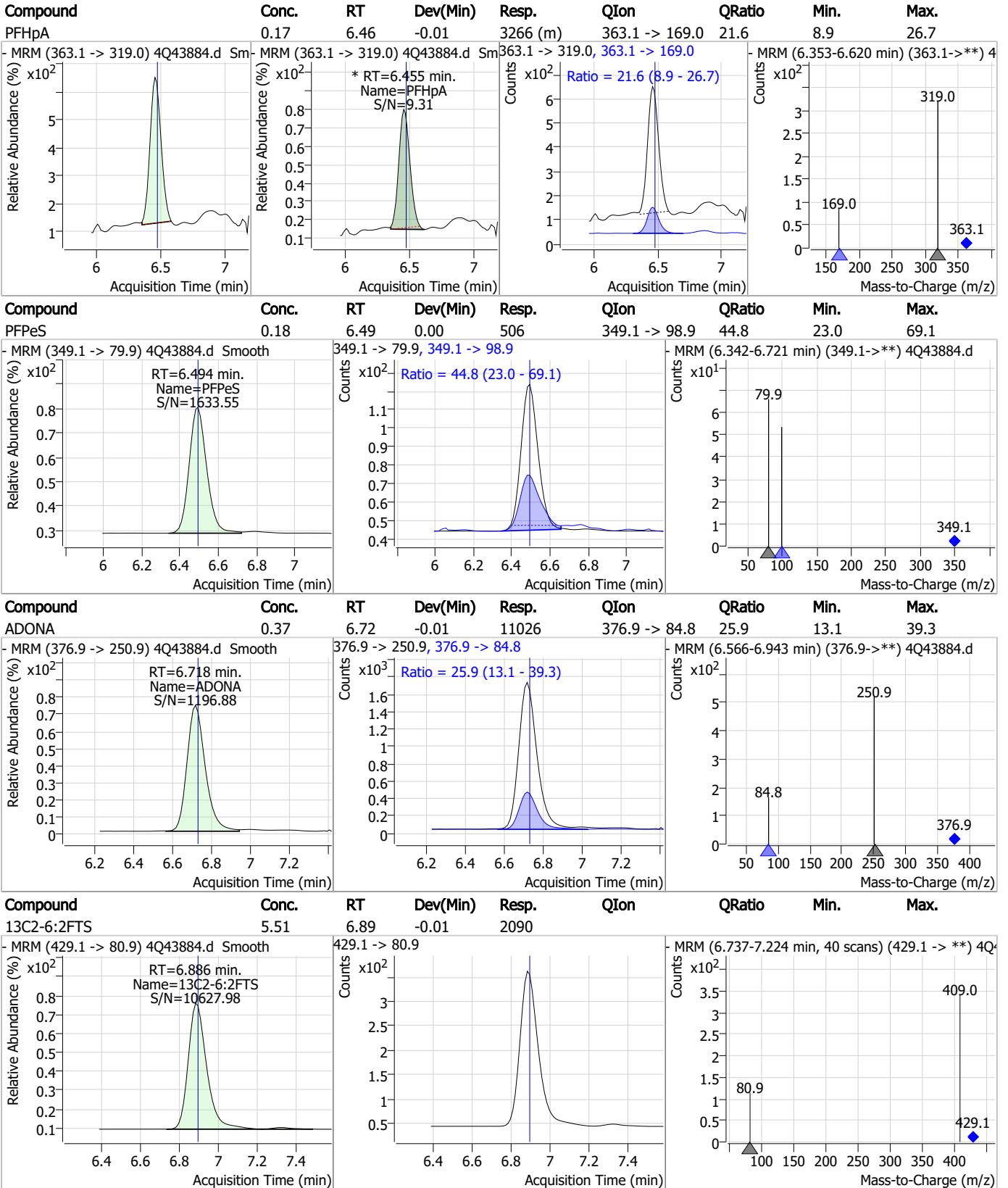
Perfluorinated Compounds by LC/MS/MS



7.7.2

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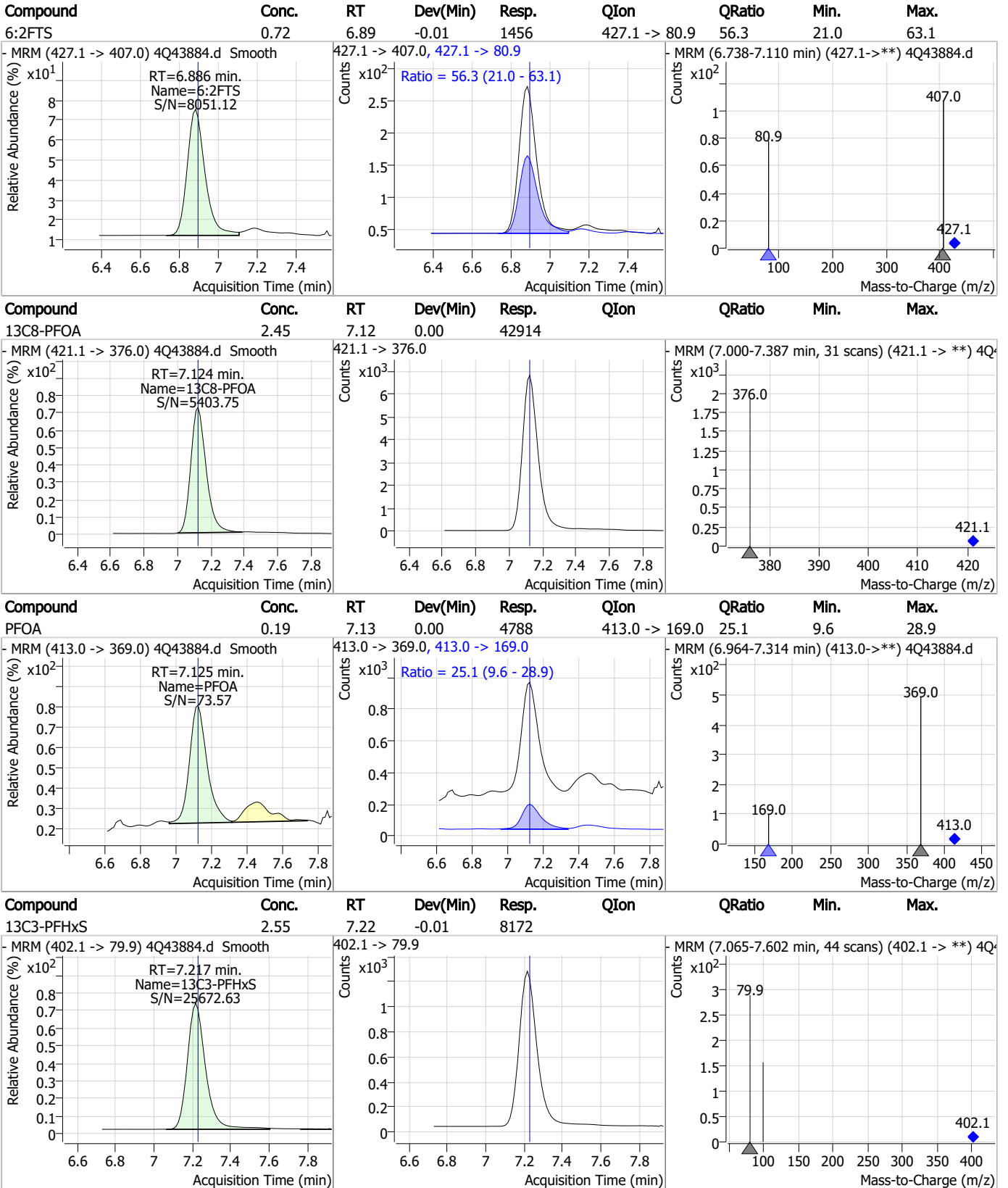
Perfluorinated Compounds by LC/MS/MS



7.7.2

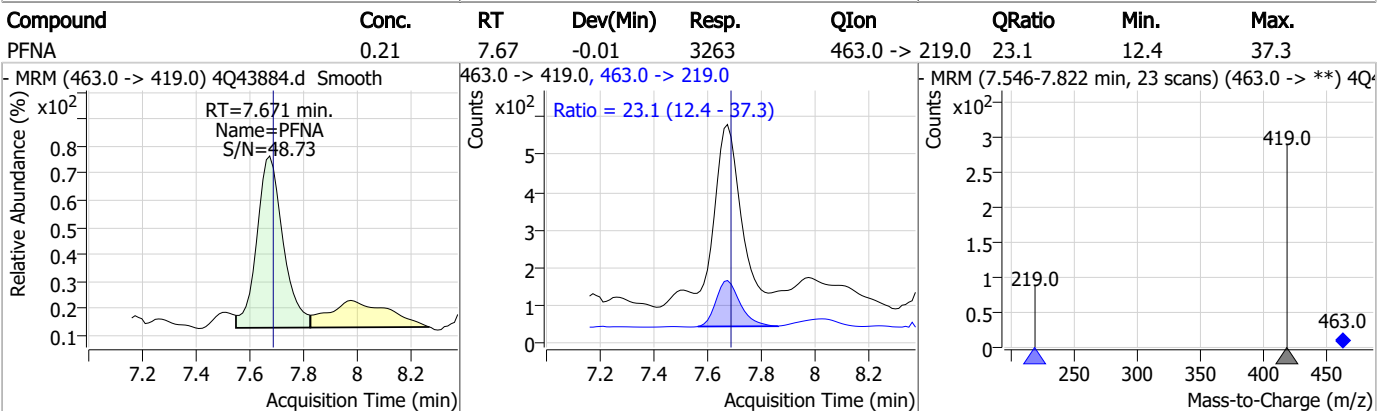
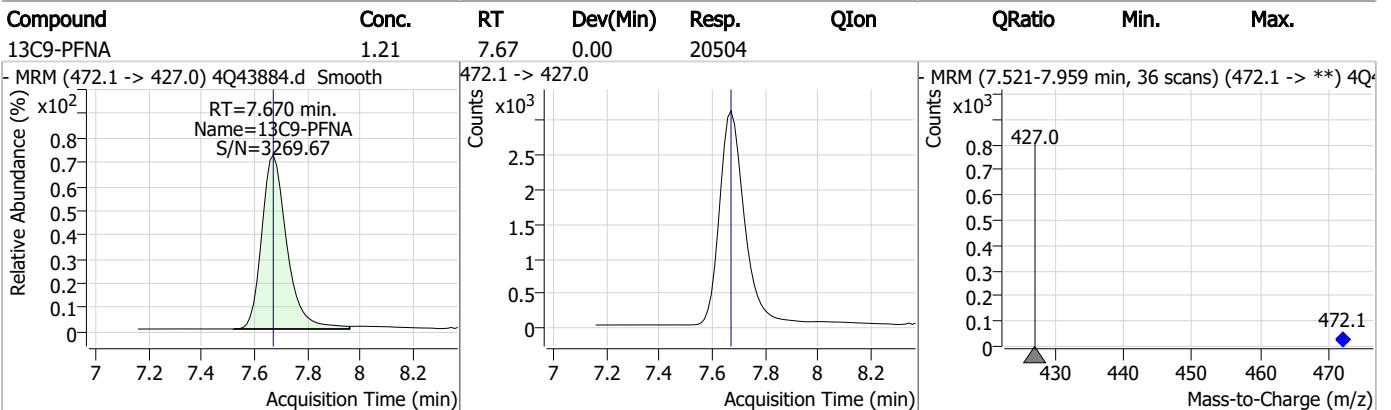
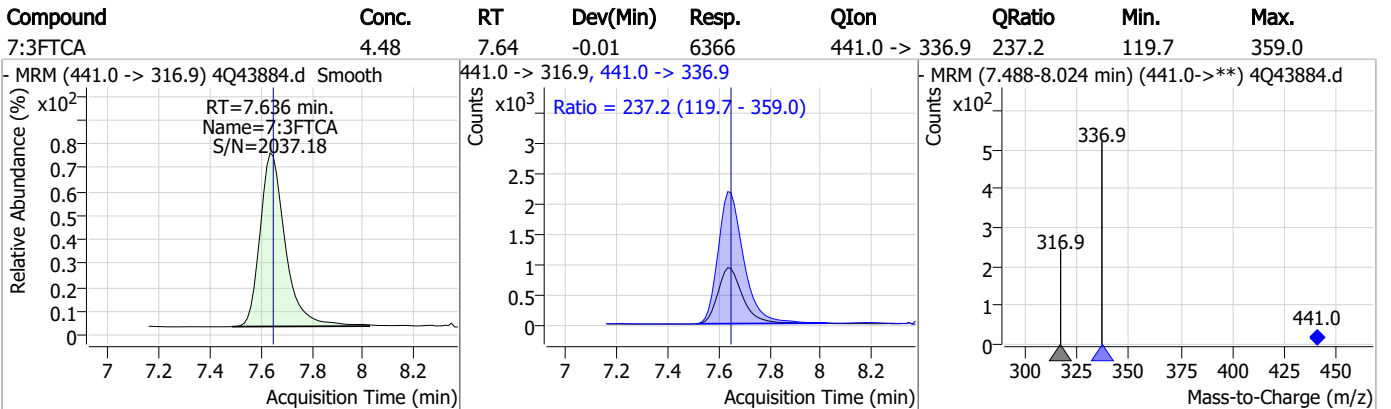
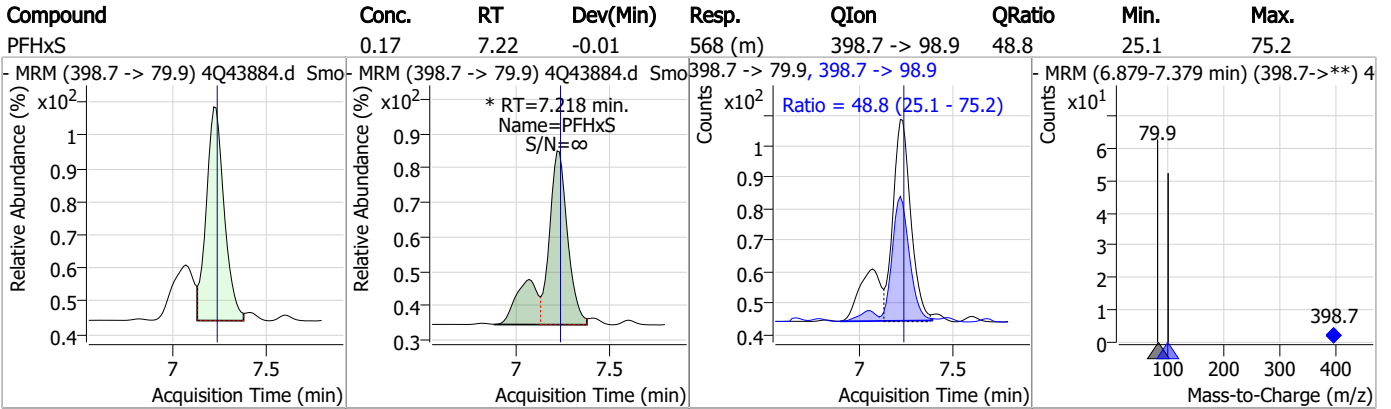
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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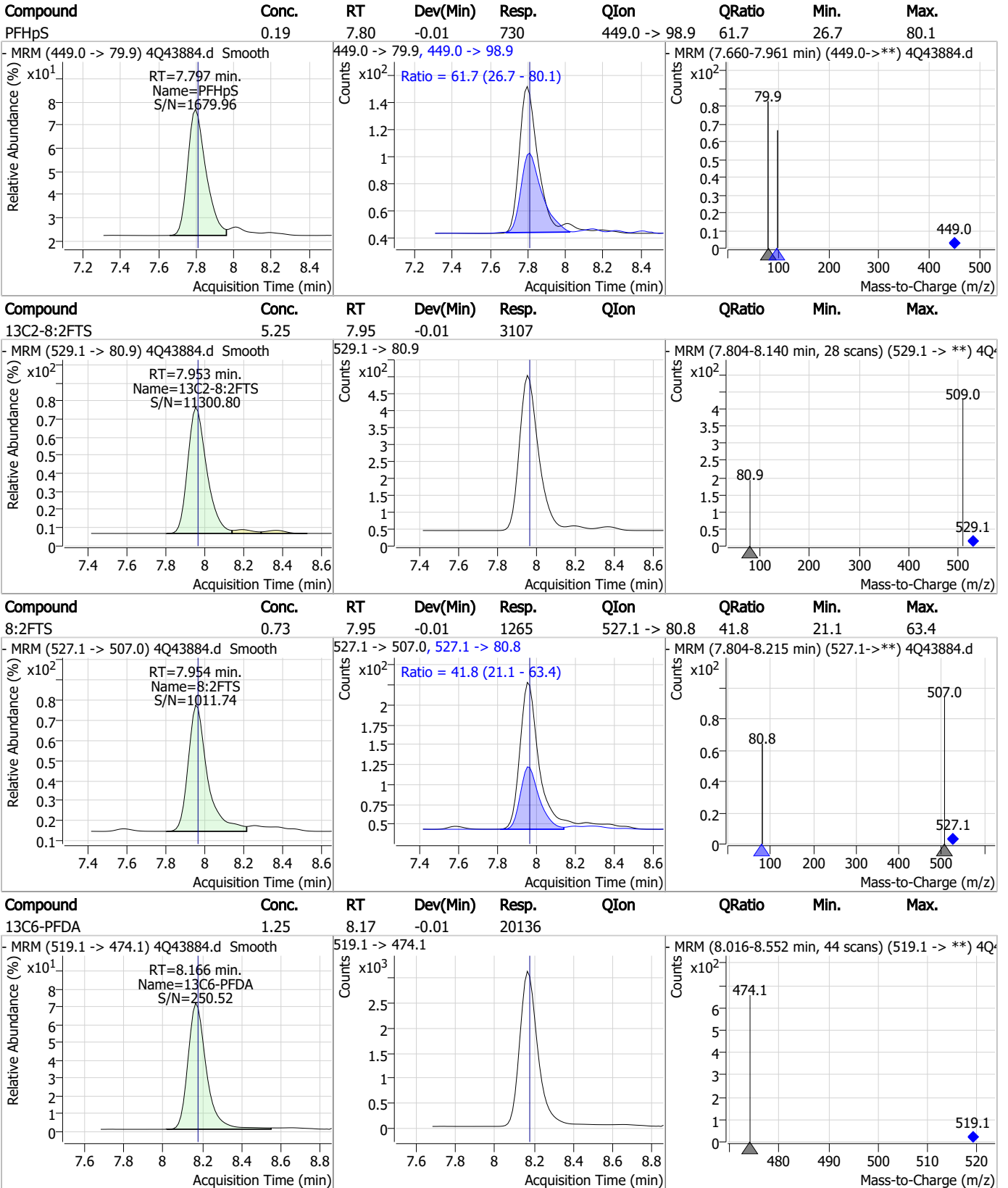
Perfluorinated Compounds by LC/MS/MS



7.7.2

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Perfluorinated Compounds by LC/MS/MS

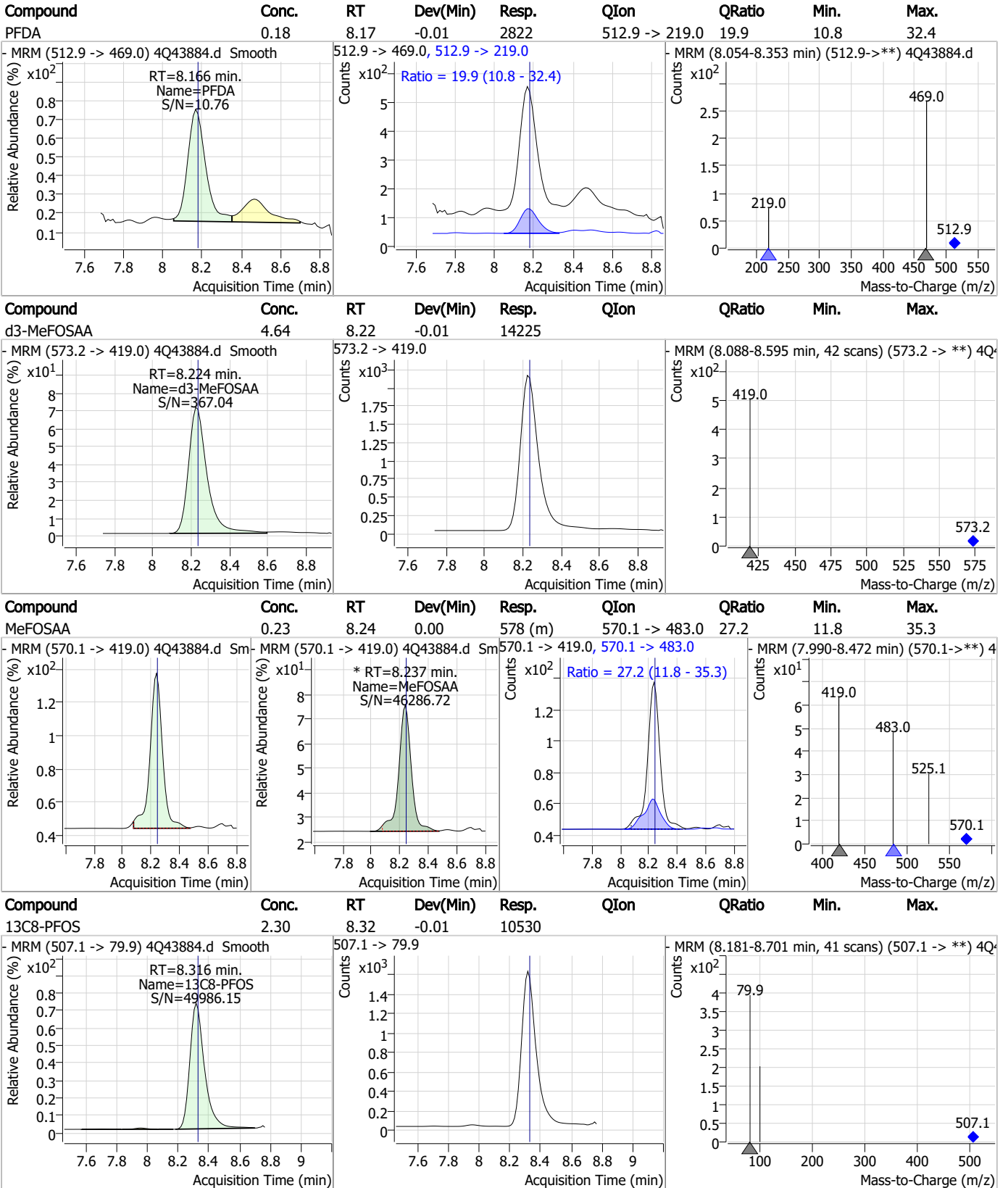


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Perfluorinated Compounds by LC/MS/MS

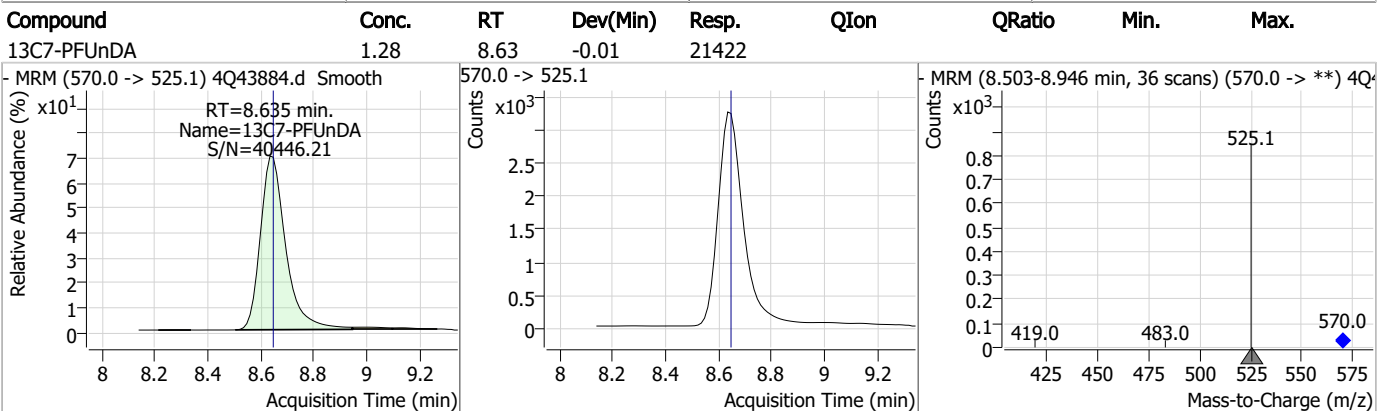
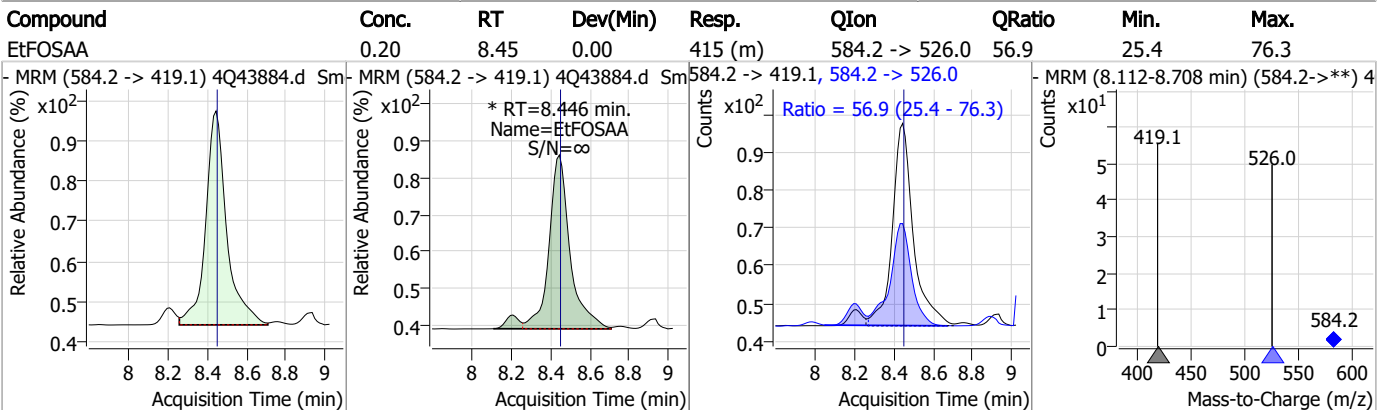
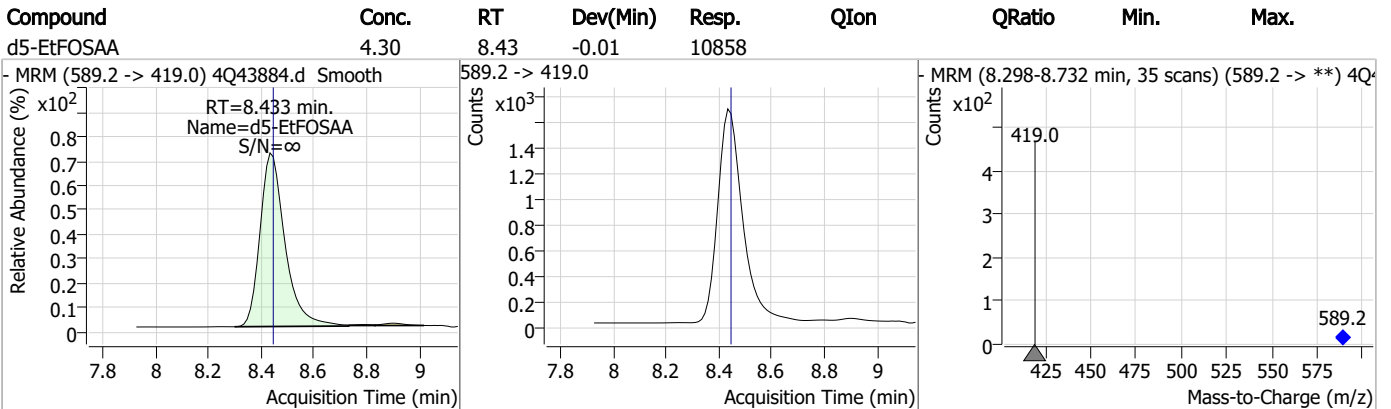
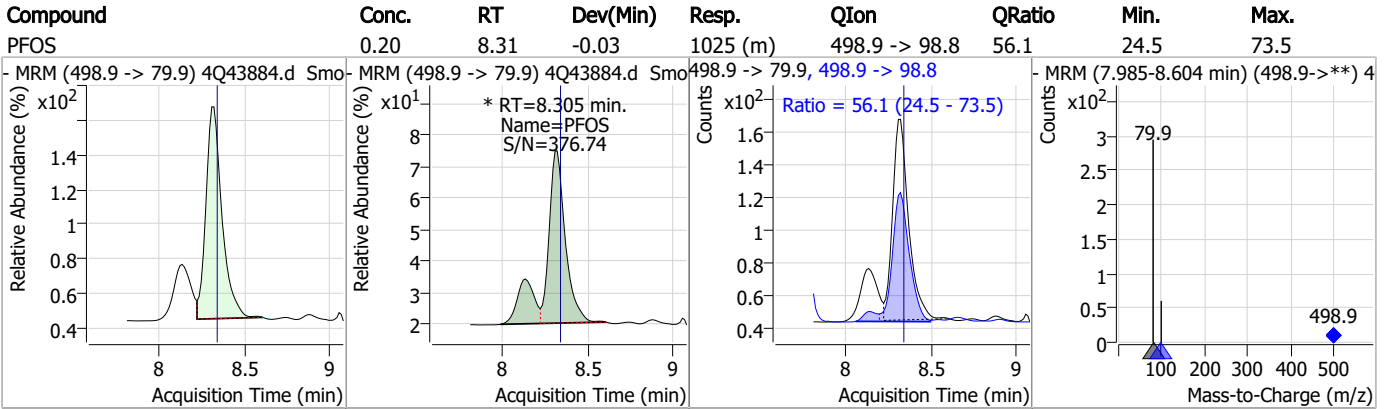


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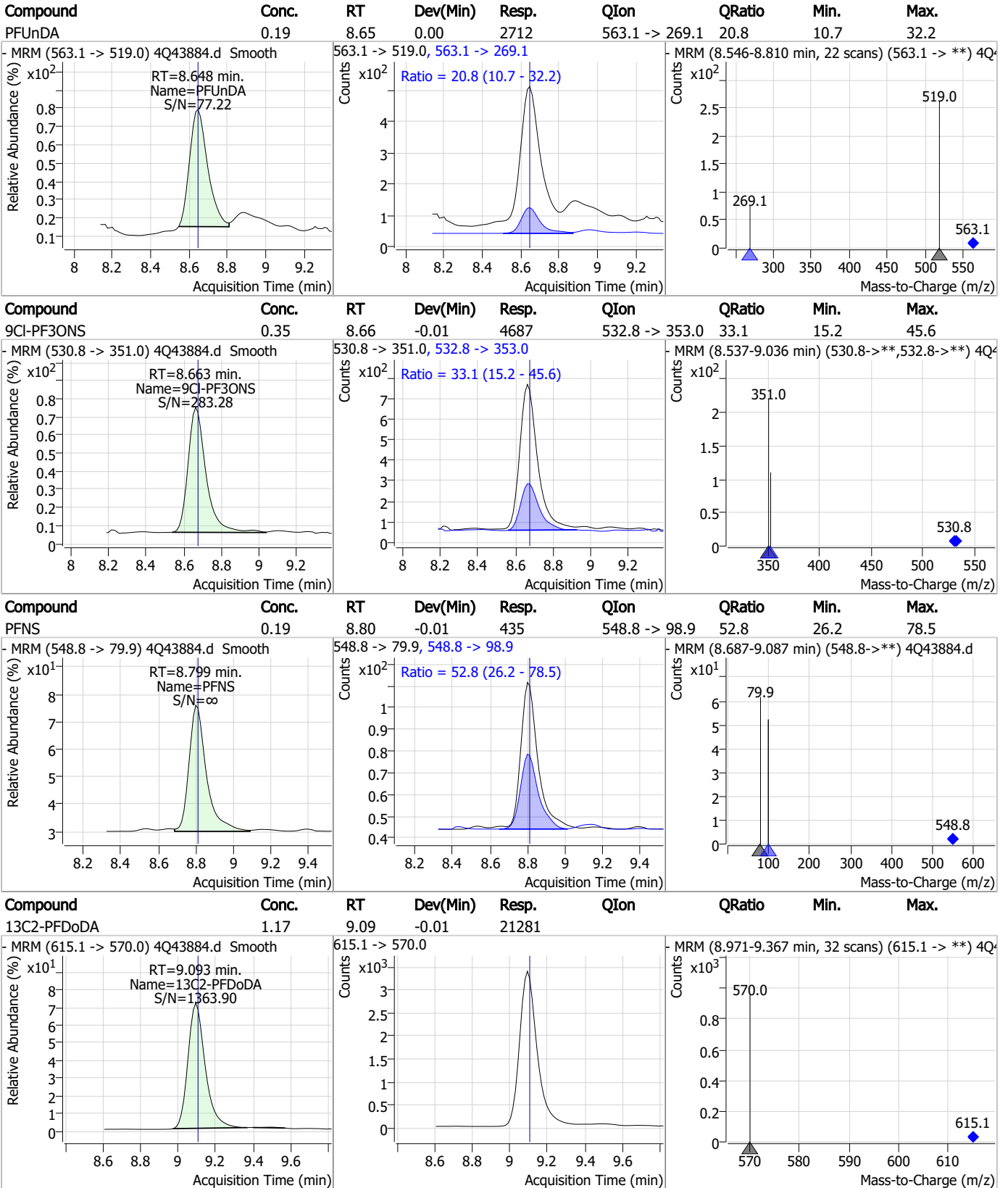
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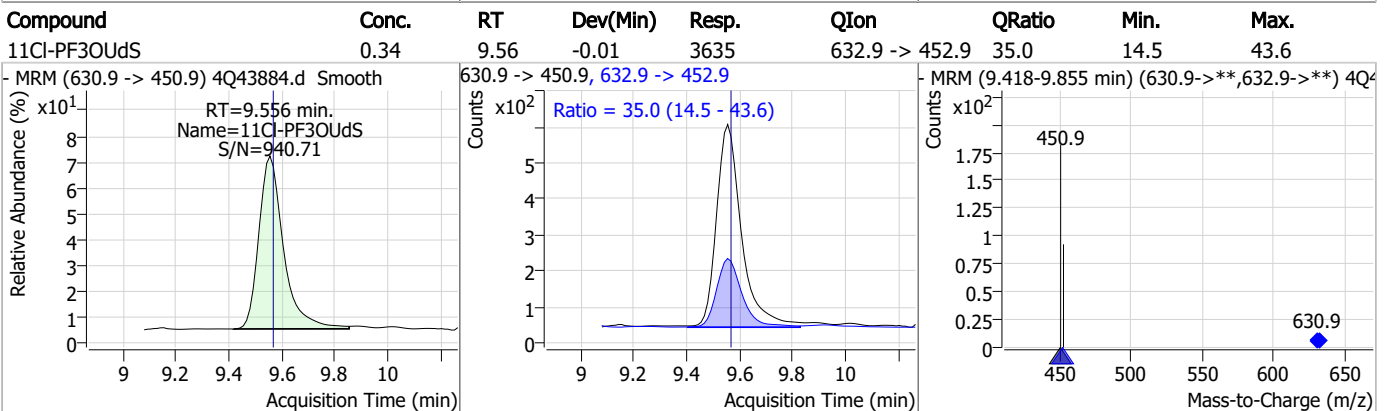
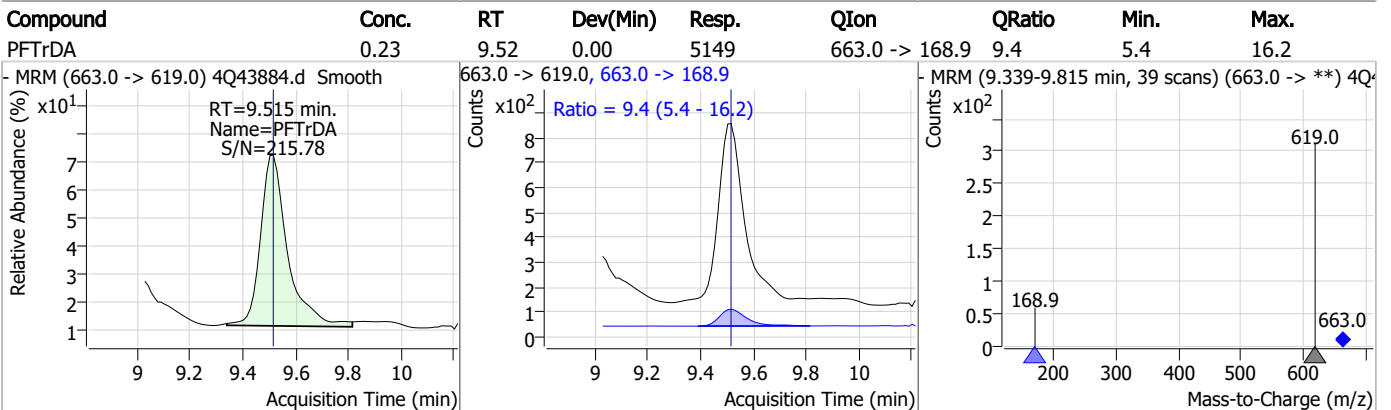
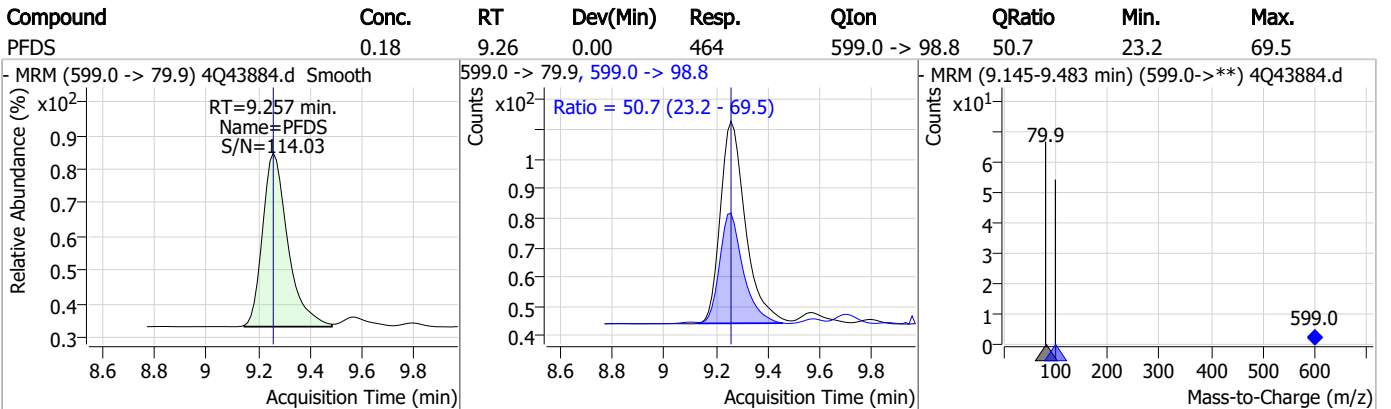
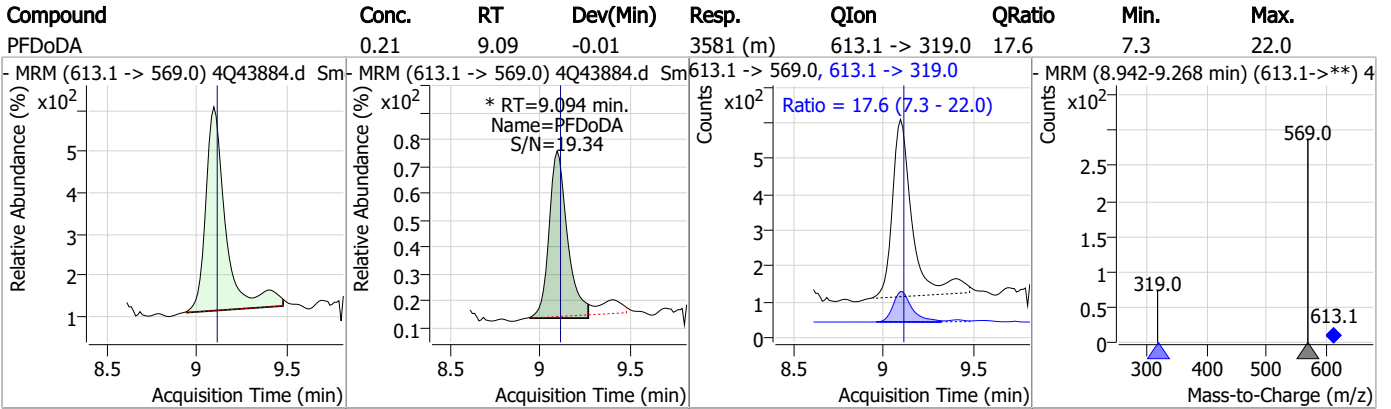
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



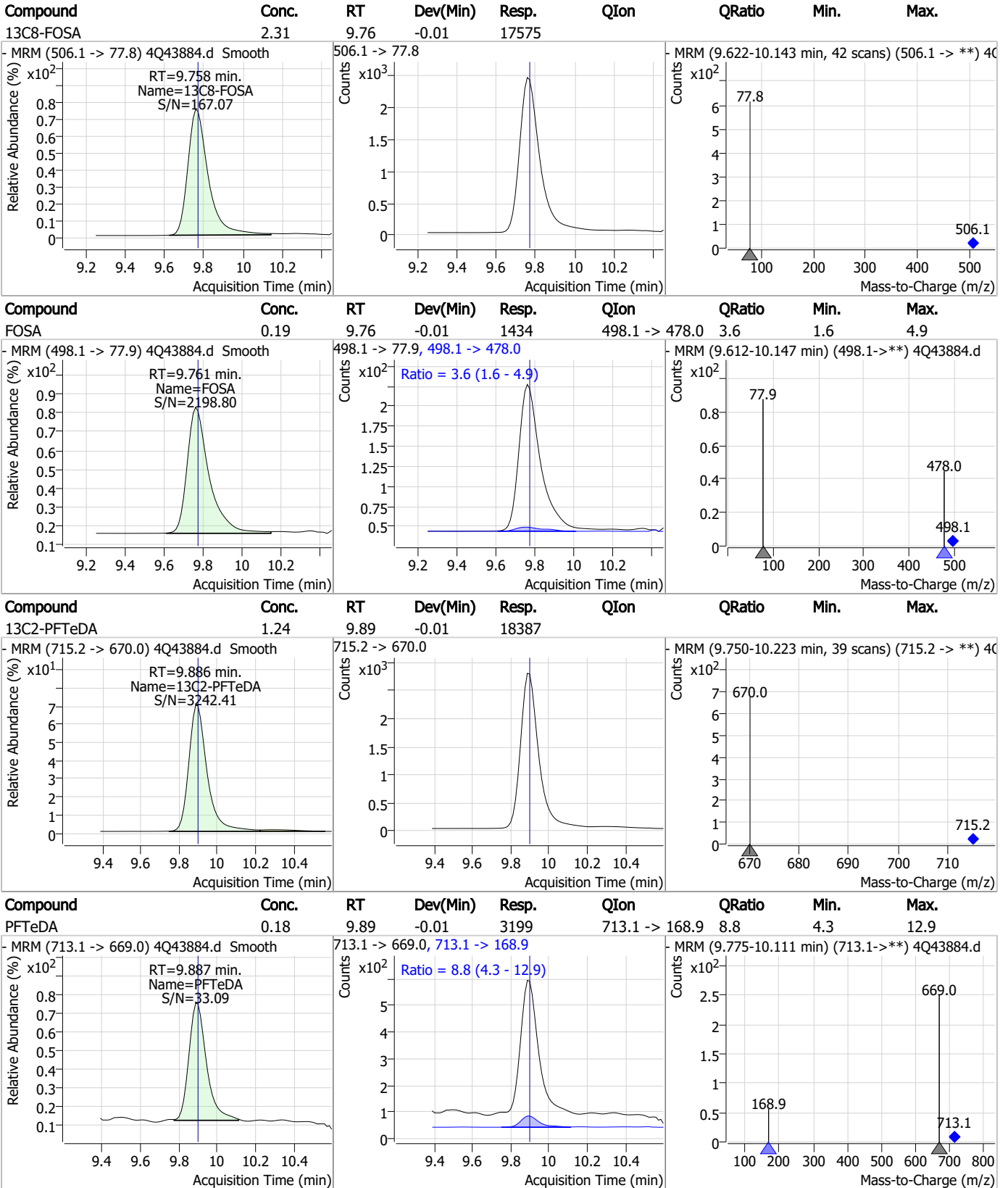
Perfluorinated Compounds by LC/MS/MS



7.7.2

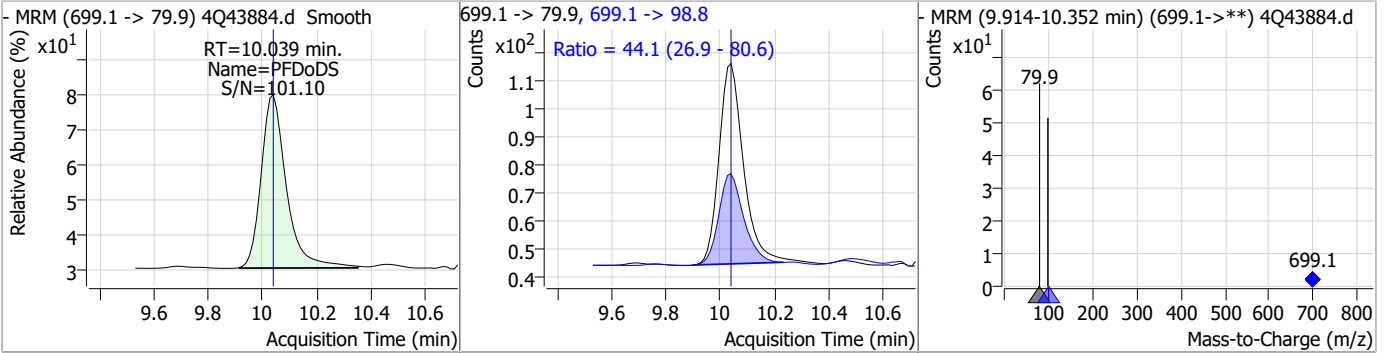
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Perfluorinated Compounds by LC/MS/MS

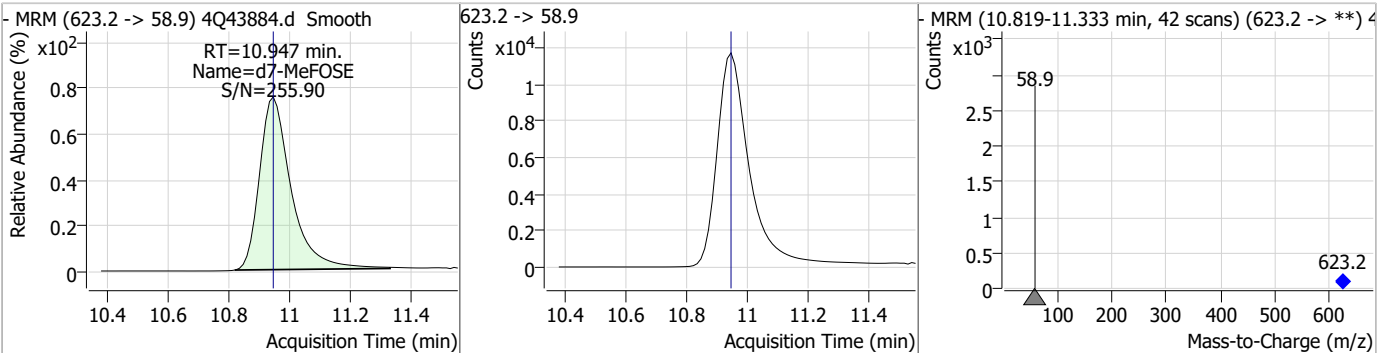


Perfluorinated Compounds by LC/MS/MS

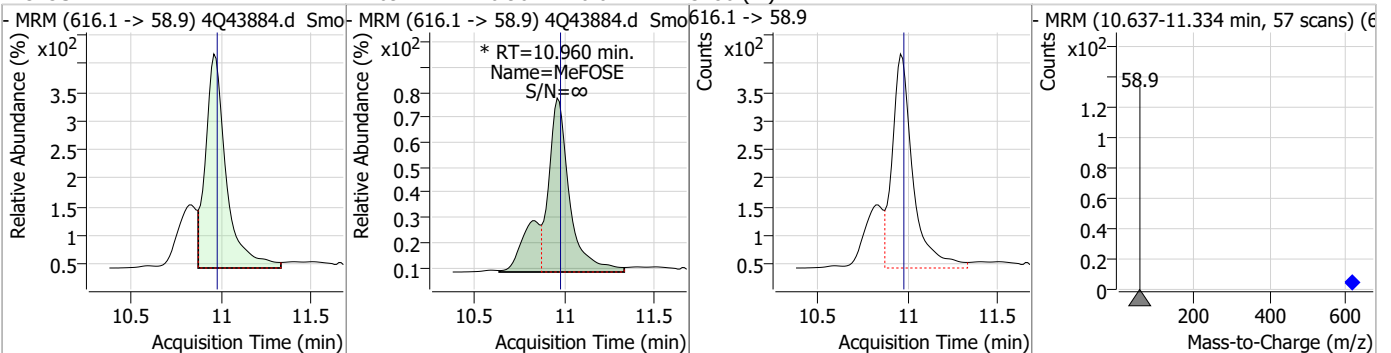
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.20	10.04	0.00	469	699.1 -> 98.8	44.1	26.9	80.6



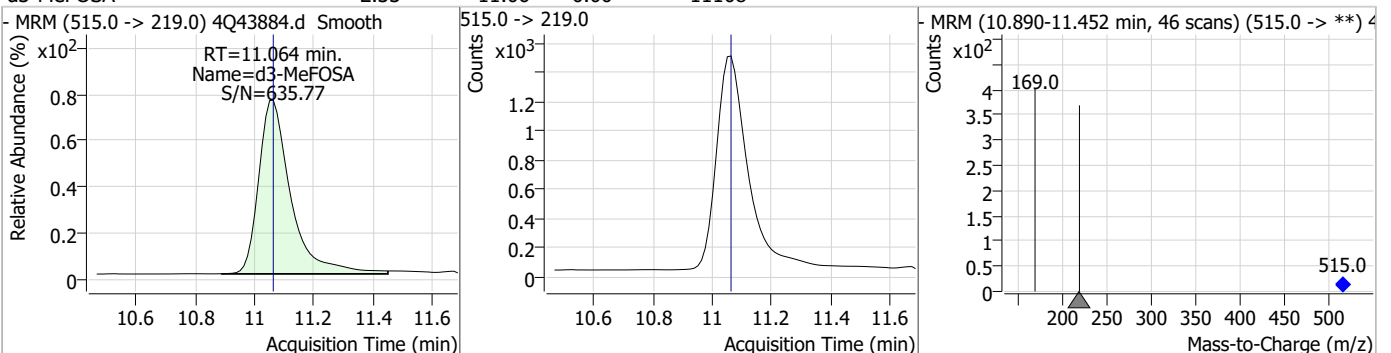
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.31	10.95	0.00	84284				



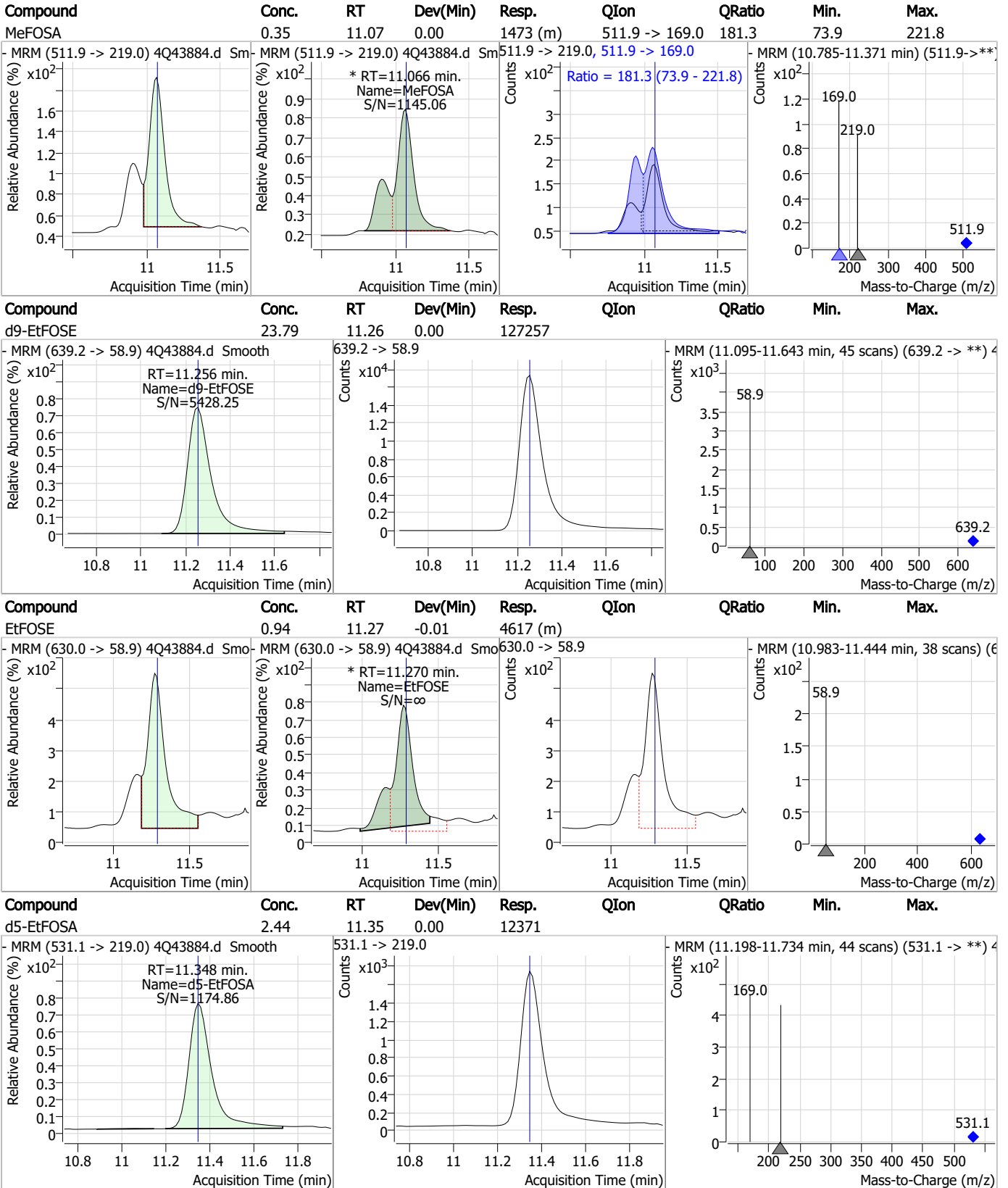
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.09	10.96	-0.01	3786 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.33	11.06	0.00	11108				



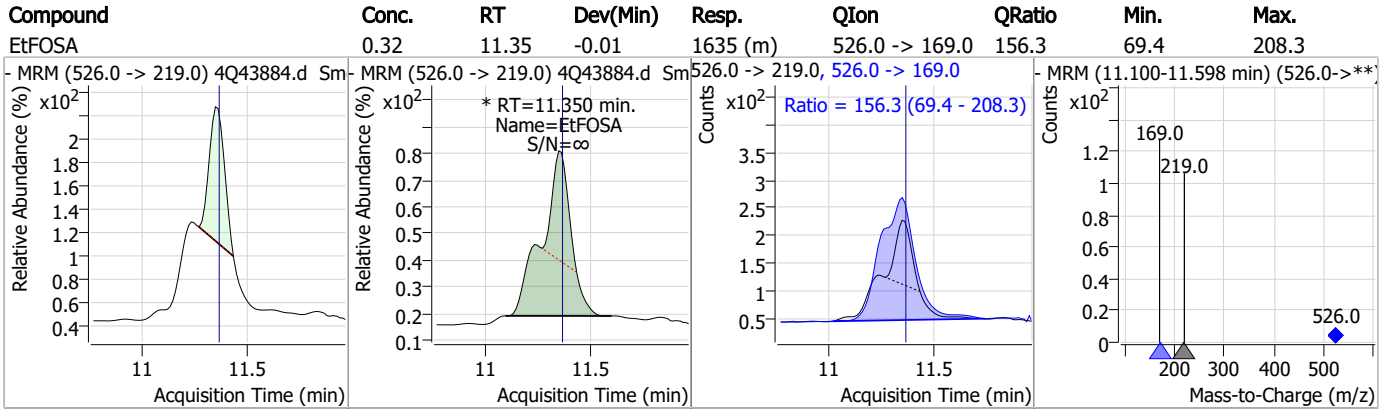
Perfluorinated Compounds by LC/MS/MS



7.7.2

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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q634-IC634 **Method:** EPA DRAFT 1633
Lab FileID: 4Q43884.D **Analyst approved:** 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 11:12 **Supervisor approved:** 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.46	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
Perfluorododecanoic acid	307-55-1		9.09	Poor instrument integration
MeFOSE	24448-09-7		10.96	Split peak
MeFOSA	31506-32-8		11.07	Split peak
EtFOSE	1691-99-2		11.27	Split peak
EtFOSA	4151-50-2		11.35	Split peak

7.7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43885.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 11:26:14 AM
 Sample Name : ic634-2
 Vial : P1-A3
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	137179	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	72419	5.00 µg/L	0.000
M5-PFHxA	5.522	318.0 -> 273.0	52123	2.50 µg/L	-0.012
M4-PFHpA	6.455	367.1 -> 322.0	29993	2.50 µg/L	-0.012
M8-PFOA	7.124	421.1 -> 376.0	46706	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	22151	1.25 µg/L	0.000
M6-PFDA	8.166	519.1 -> 474.1	20112	1.25 µg/L	-0.012
M7-PFUnDA	8.647	570.0 -> 525.1	20563	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	22014	1.25 µg/L	-0.012
M2-PFTeDA	9.899	715.2 -> 670.0	18668	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	18230	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12687	2.50 µg/L	0.000
M3-PFHxS	7.217	402.1 -> 79.9	8282	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	11826	2.50 µg/L	-0.013
M2-4:2FTS	5.209	329.1 -> 80.9	1103	5.00 µg/L	-0.014
M2-6:2FTS	6.898	429.1 -> 80.9	2015	5.00 µg/L	0.000
M2-8:2FTS	7.953	529.1 -> 80.9	3205	5.00 µg/L	-0.012
M3-MeFOSAA	8.236	573.2 -> 419.0	14463	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30118	10.00 µg/L	0.000
M5-EtFOSAA	8.433	589.2 -> 419.0	11942	5.00 µg/L	-0.012
M7-MeFOSE	10.947	623.2 -> 58.9	94353	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	137343	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	12459	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11960	2.50 µg/L	0.000
13C4-PFOS	8.317	502.8 -> 79.9	11988	2.50 µg/L	-0.013
13C3-PFBA	2.916	216.0 -> 172.0	72783	5.00 µg/L	-0.013
18O2-PFHxS	7.216	403.0 -> 83.9	5458	2.50 µg/L	-0.012
13C4-PFOA	7.124	417.1 -> 372.0	55739	2.50 µg/L	0.000
13C2-PFDA	8.166	515.1 -> 470.1	19514	1.25 µg/L	-0.012
13C5-PFNA	7.671	468.0 -> 423.0	25301	1.25 µg/L	-0.013
13C2-PFHxA	5.523	315.1 -> 270.0	47423	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.209	329.1 -> 80.9	1103	4.97 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2015	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3205	5.13 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-PFDoDA	9.093	615.1 -> 570.0	22014	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-PFTeDA	9.899	715.2 -> 670.0	18668	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C3-PFBS	5.427	302.1 -> 79.9	12687	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFHxS	7.217	402.1 -> 79.9	8282	2.45 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 = 97.9%	
13C4-PFBA	2.924	216.8 -> 171.9	137179	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.455	367.1 -> 322.0	29993	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFHxA	5.522	318.0 -> 273.0	52123	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.362	268.3 -> 223.0	72419	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C6-PFDA	8.166	519.1 -> 474.1	20112	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C7-PFUnDA	8.647	570.0 -> 525.1	20563	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-FOSA	9.771	506.1 -> 77.8	18230	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-PFOA	7.124	421.1 -> 376.0	46706	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOS	8.316	507.1 -> 79.9	11826	2.62 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C9-PFNA	7.670	472.1 -> 427.0	22151	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14463	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	30118	9.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
d3-MeFOSA	11.064	515.0 -> 219.0	11960	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
d5-EtFOSAA	8.433	589.2 -> 419.0	11942	4.79 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d7-MeFOSE	10.947	623.2 -> 58.9	94353	25.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d9-EtFOSE	11.256	639.2 -> 58.9	137343	26.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSA	11.348	531.1 -> 219.0	12459	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	2662	1.50 µg/L	99
		327.1 -> 80.9	1226		
6:2FTS	6.886	427.1 -> 407.0	2993	1.54 µg/L	98
		427.1 -> 80.9	1289		
8:2FTS	7.966	527.1 -> 507.0	2323	1.30 µg/L	94
		527.1 -> 80.8	1062		
EtFOSAA	8.446	584.2 -> 419.1	911	0.40 µg/L	m 95
		584.2 -> 526.0	435		
FOSA	9.761	498.1 -> 77.9	3015	0.39 µg/L	95
		498.1 -> 478.0	54		
MeFOSAA	8.237	570.1 -> 419.0	963	0.38 µg/L	m 91
		570.1 -> 483.0	272		
PFBA	2.920	212.8 -> 168.9	5570	1.52 µg/L	100
PFBS	5.428	298.7 -> 79.9	1783	0.34 µg/L	97
		298.7 -> 98.8	691		
PFDA	8.166	512.9 -> 469.0	5587	0.37 µg/L	m 97
		512.9 -> 219.0	1133		
PFDODA	9.094	613.1 -> 569.0	6564	0.37 µg/L	96
		613.1 -> 319.0	1053		
PFDS	9.257	599.0 -> 79.9	1121	0.38 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	519			
PFHpA	6.455	363.1 -> 319.0	7251	0.38	µg/L	97
		363.1 -> 169.0	1400			
PFHpS	7.797	449.0 -> 79.9	1402	0.33	µg/L	87
		449.0 -> 98.9	877			
PFHxA	5.525	313.0 -> 269.0	7573	0.37	µg/L	98
		313.0 -> 118.9	281			
PFHxS	7.218	398.7 -> 79.9	1152	0.34	µg/L	m 95
		398.7 -> 98.9	535			
PFNA	7.671	463.0 -> 419.0	6420	0.39	µg/L	99
		463.0 -> 219.0	1559			
PFNS	8.811	548.8 -> 79.9	929	0.36	µg/L	97
		548.8 -> 98.9	504			
PFOA	7.125	413.0 -> 369.0	10173	0.38	µg/L	94
		413.0 -> 169.0	2260			
PFOS	8.318	498.9 -> 79.9	1796	0.31	µg/L	m 87
		498.9 -> 98.8	1033			
PFPeA	4.364	263.0 -> 219.0	13543	0.78	µg/L	100
PFPeS	6.494	349.1 -> 79.9	1143	0.39	µg/L	96
		349.1 -> 98.9	500			
PFTeDA	9.900	713.1 -> 669.0	7026	0.38	µg/L	99
		713.1 -> 168.9	586			
PFTrDA	9.515	663.0 -> 619.0	8586	0.36	µg/L	99
		663.0 -> 168.9	911			
PFUnDA	8.648	563.1 -> 519.0	4936	0.35	µg/L	96
		563.1 -> 269.1	1166			
11CI-PF3OUdS	9.556	630.9 -> 450.9	7934	0.73	µg/L	97
		632.9 -> 452.9	2438			
9CI-PF3ONS	8.675	530.8 -> 351.0	10198	0.74	µg/L	97
		532.8 -> 353.0	2949			
ADONA	6.718	376.9 -> 250.9	22650	0.75	µg/L	98
		376.9 -> 84.8	6196			
HFPO-DA	5.891	284.9 -> 168.9	2169	0.75	µg/L	93
		284.9 -> 184.9	307			
3:3FTCA	3.836	241.0 -> 177.0	1496	1.95	µg/L	99
		241.0 -> 117.0	124			
5:3FTCA	6.193	341.0 -> 237.1	25482	9.20	µg/L	100
		341.0 -> 217.0	17465			
7:3FTCA	7.649	441.0 -> 316.9	13175	9.15	µg/L	97
		441.0 -> 336.9	32090			
EtFOSA	11.350	526.0 -> 219.0	4009	0.77	µg/L	m 100
		526.0 -> 169.0	5563			
EtFOSE	11.270	630.0 -> 58.9	10380	1.95	µg/L	100
MeFOSA	11.066	511.9 -> 219.0	3333	0.74	µg/L	m 99
		511.9 -> 169.0	4985			
MeFOSE	10.973	616.1 -> 58.9	7862	2.03	µg/L	m 100
PFDoDS	10.039	699.1 -> 79.9	881	0.34	µg/L	92
		699.1 -> 98.8	524			
NFDHA	5.403	295.0 -> 201.0	1245	0.85	µg/L	87
		295.0 -> 84.9	256			
PFMBA	4.766	279.0 -> 85.1	7663	0.79	µg/L	100
PFMPA	3.515	229.0 -> 84.9	7085	0.78	µg/L	100
PFEESA	5.959	314.8 -> 134.9	10499	0.68	µg/L	100
		314.8 -> 82.9	377			

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

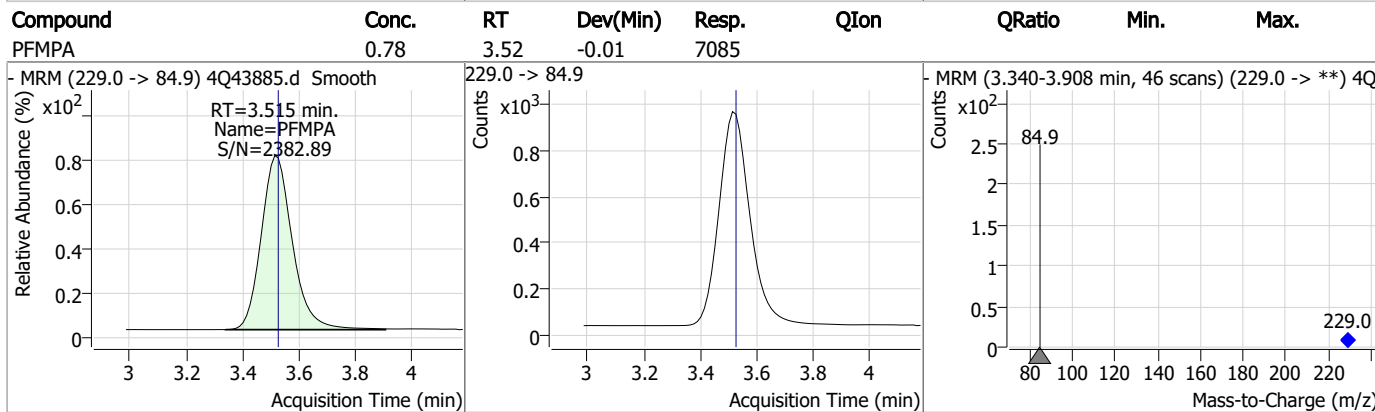
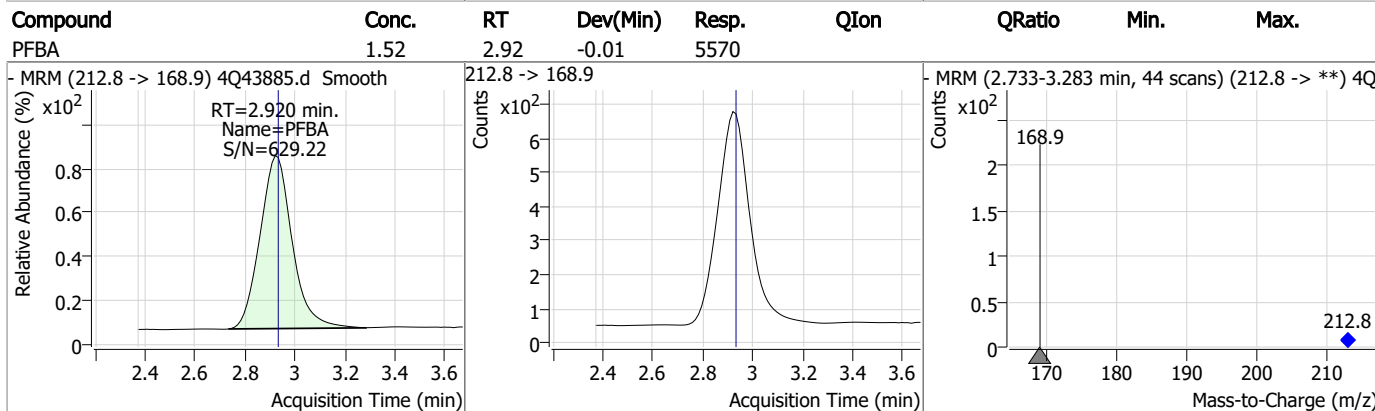
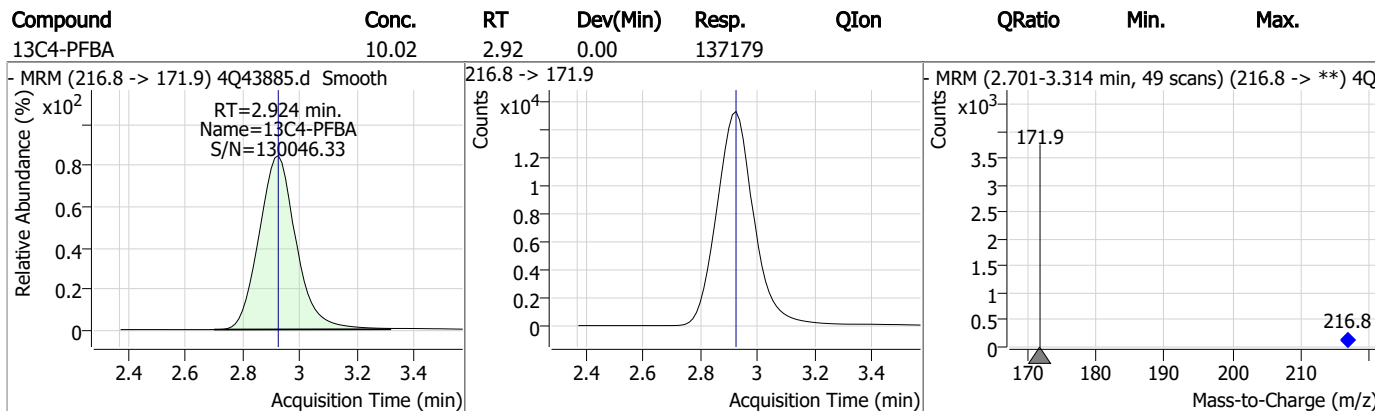
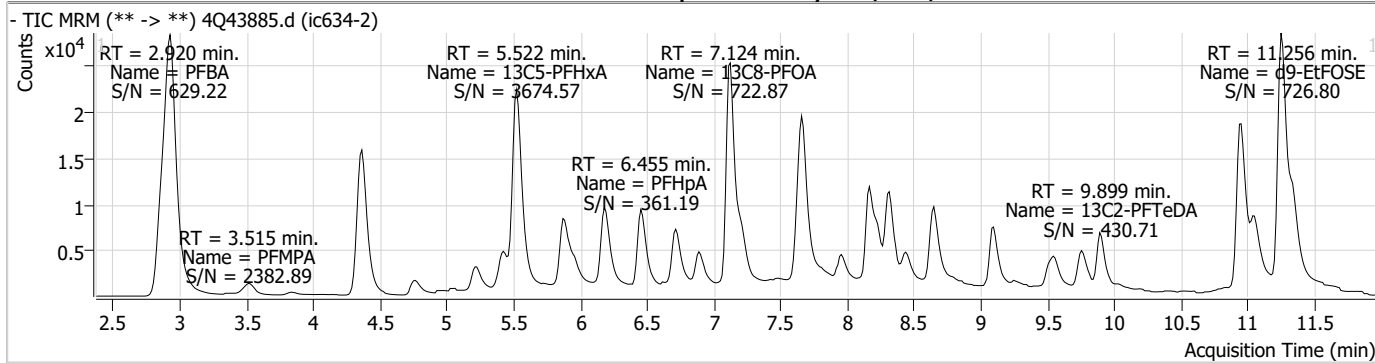
Perfluorinated Compounds by LC/MS/MS

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

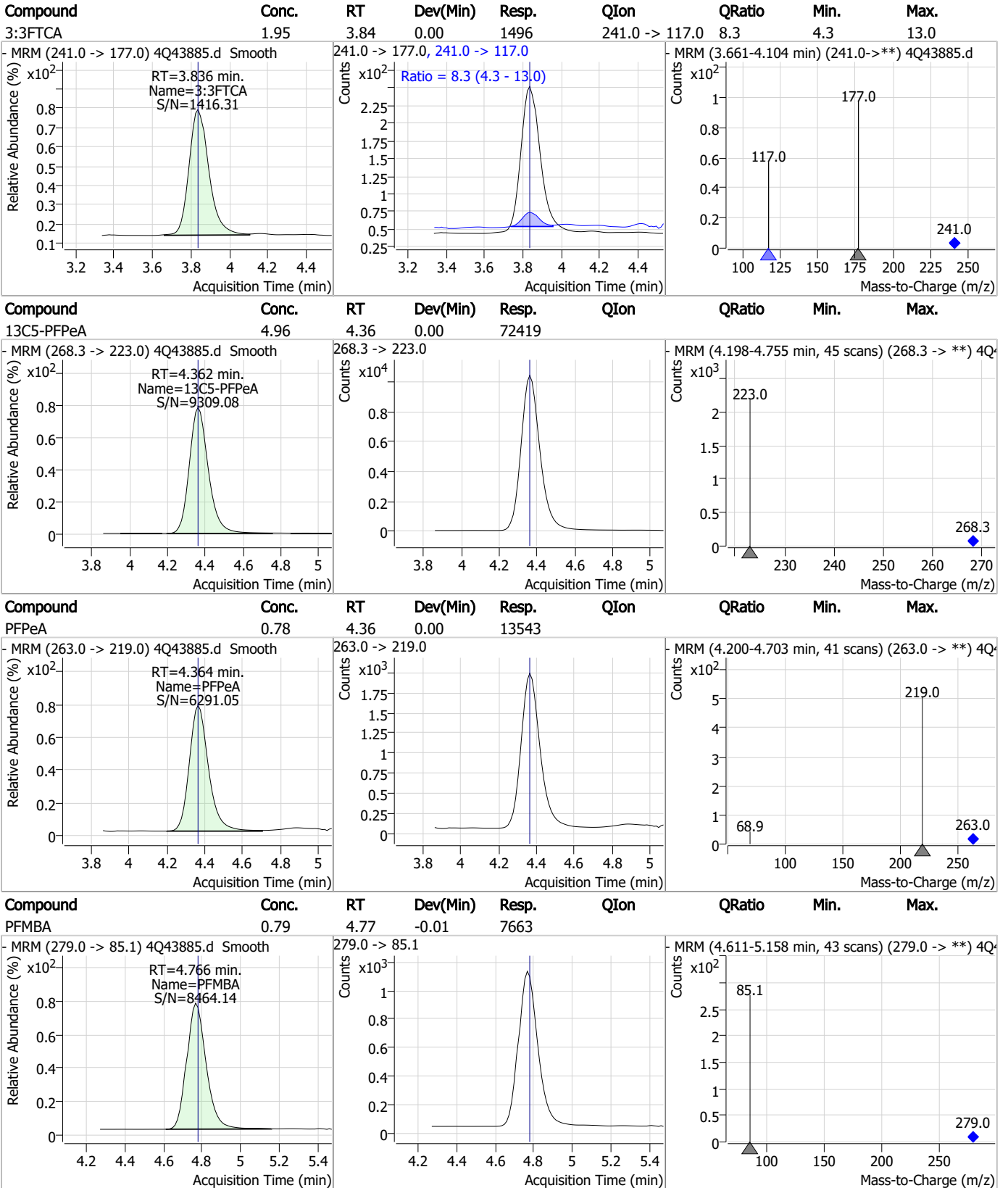
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Perfluorinated Compounds by LC/MS/MS

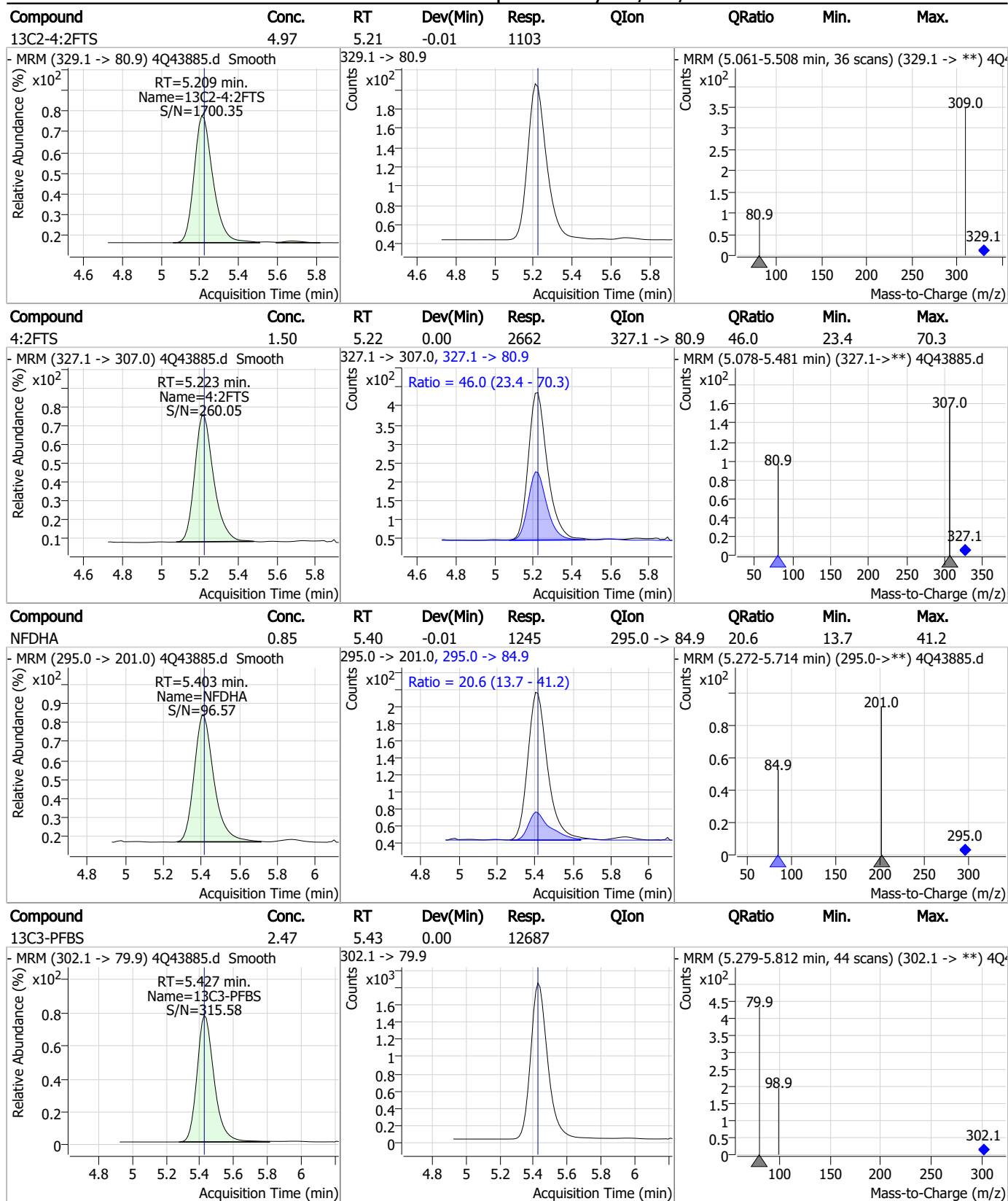


7.7.3
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Perfluorinated Compounds by LC/MS/MS



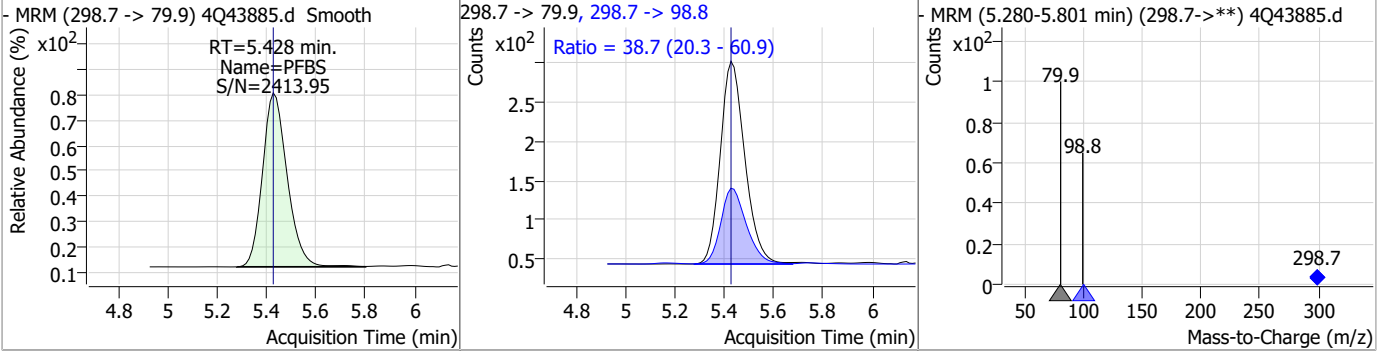
Perfluorinated Compounds by LC/MS/MS



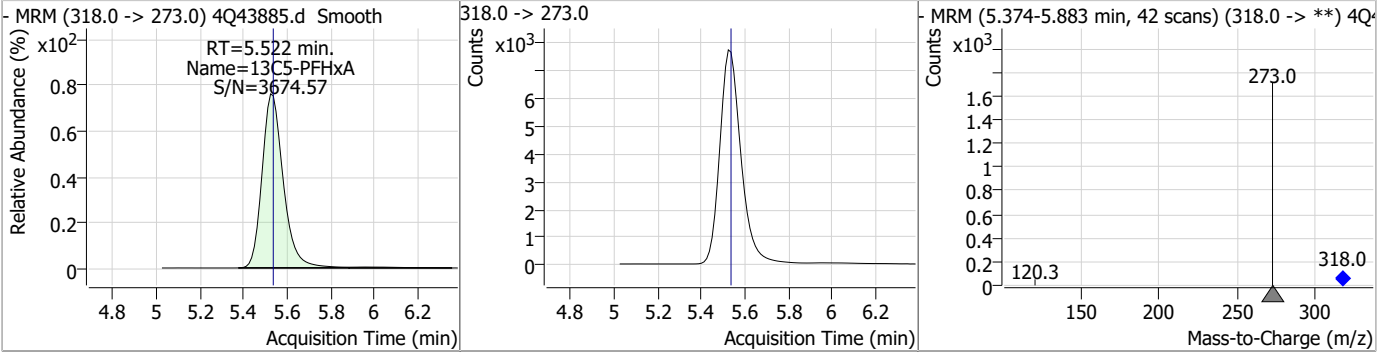
7.7.3
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Perfluorinated Compounds by LC/MS/MS

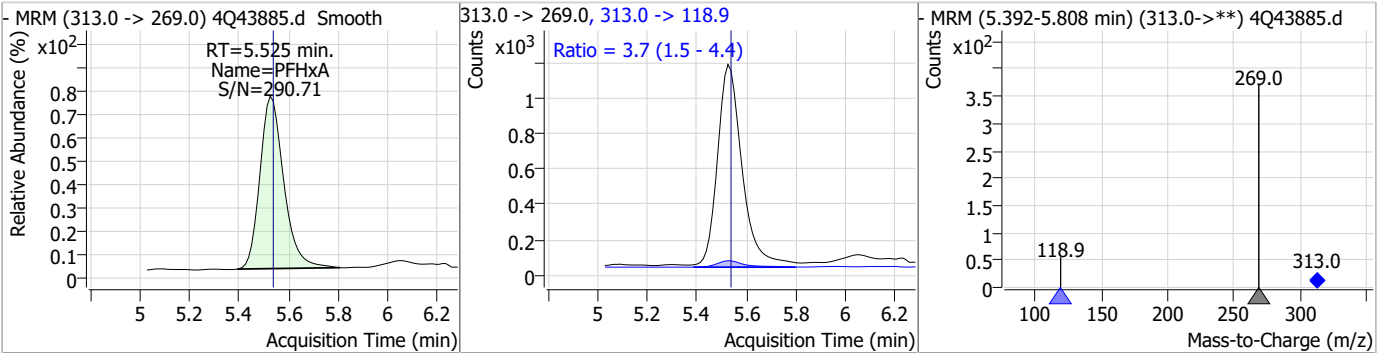
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.34	5.43	0.00	1783	298.7 -> 98.8	38.7	20.3	60.9



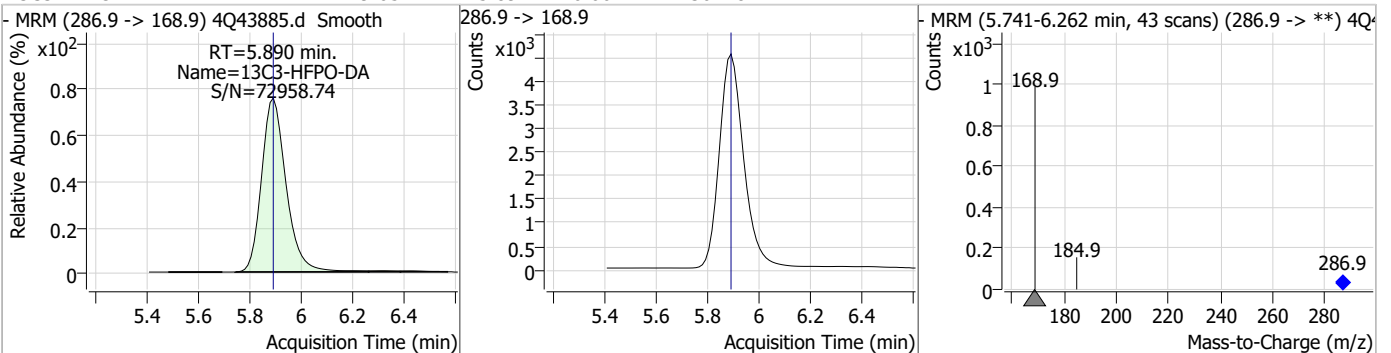
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.52	-0.01	52123				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.37	5.53	-0.01	7573	313.0 -> 118.9	3.7	1.5	4.4

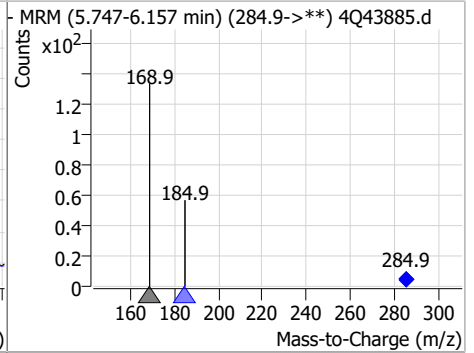
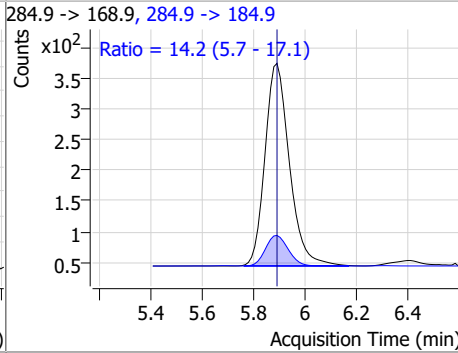
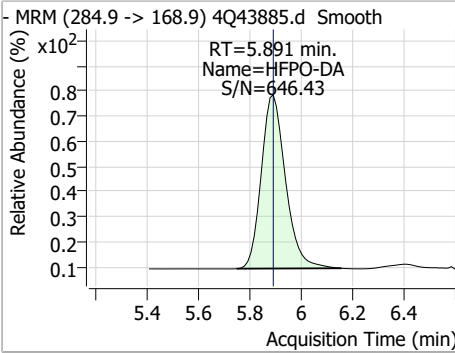


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.65	5.89	0.00	30118				

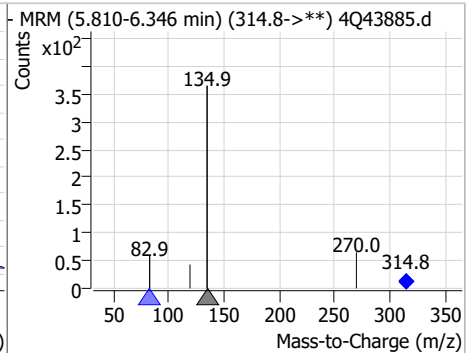
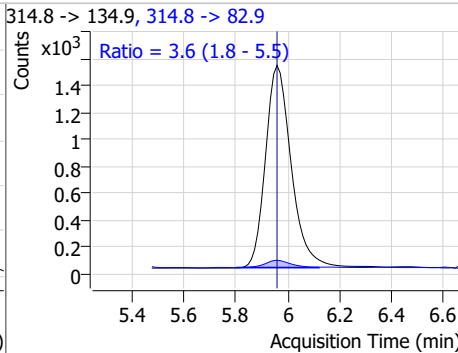
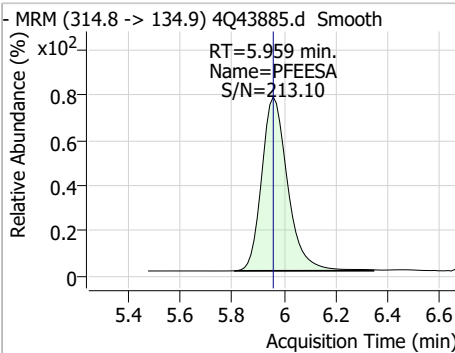


Perfluorinated Compounds by LC/MS/MS

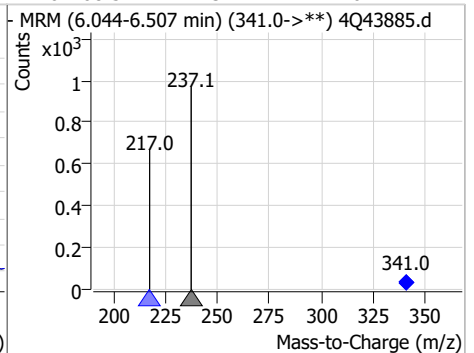
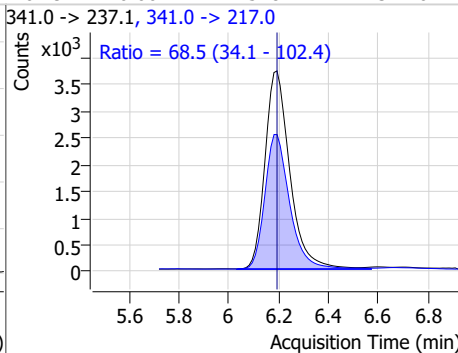
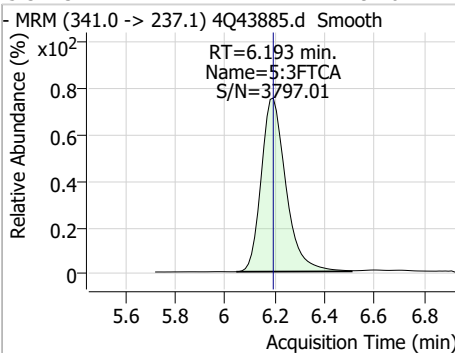
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.75	5.89	0.00	2169	284.9 -> 184.9	14.2	5.7	17.1



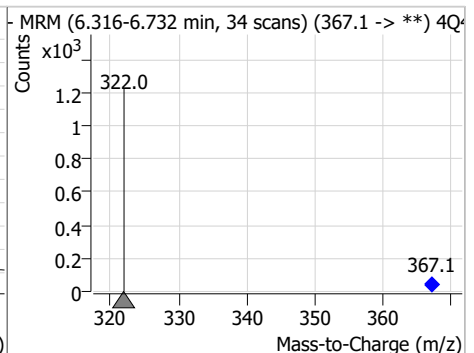
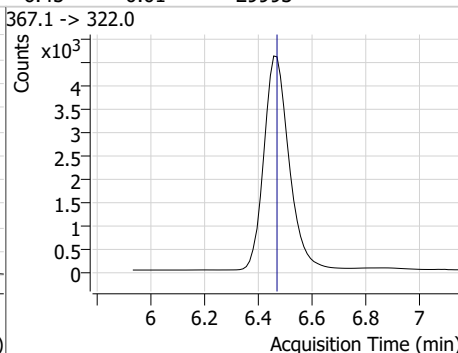
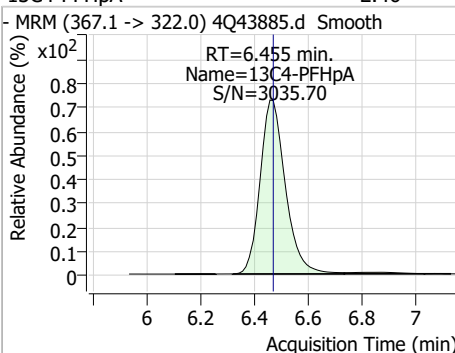
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.68	5.96	0.00	10499	314.8 -> 82.9	3.6	1.8	5.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	9.20	6.19	0.00	25482	341.0 -> 217.0	68.5	34.1	102.4



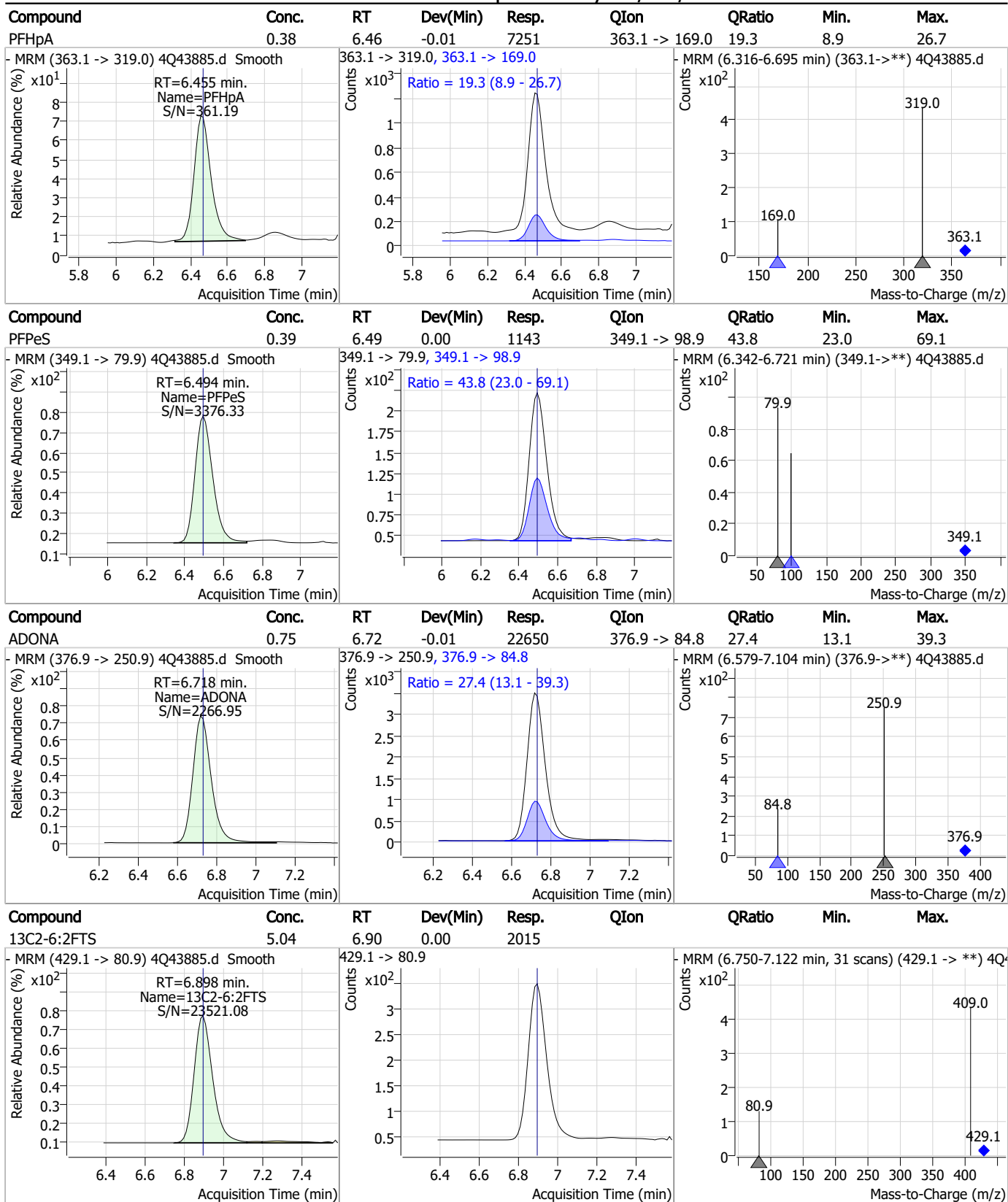
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.45	-0.01	29993	367.1 -> 322.0			



7.7.3

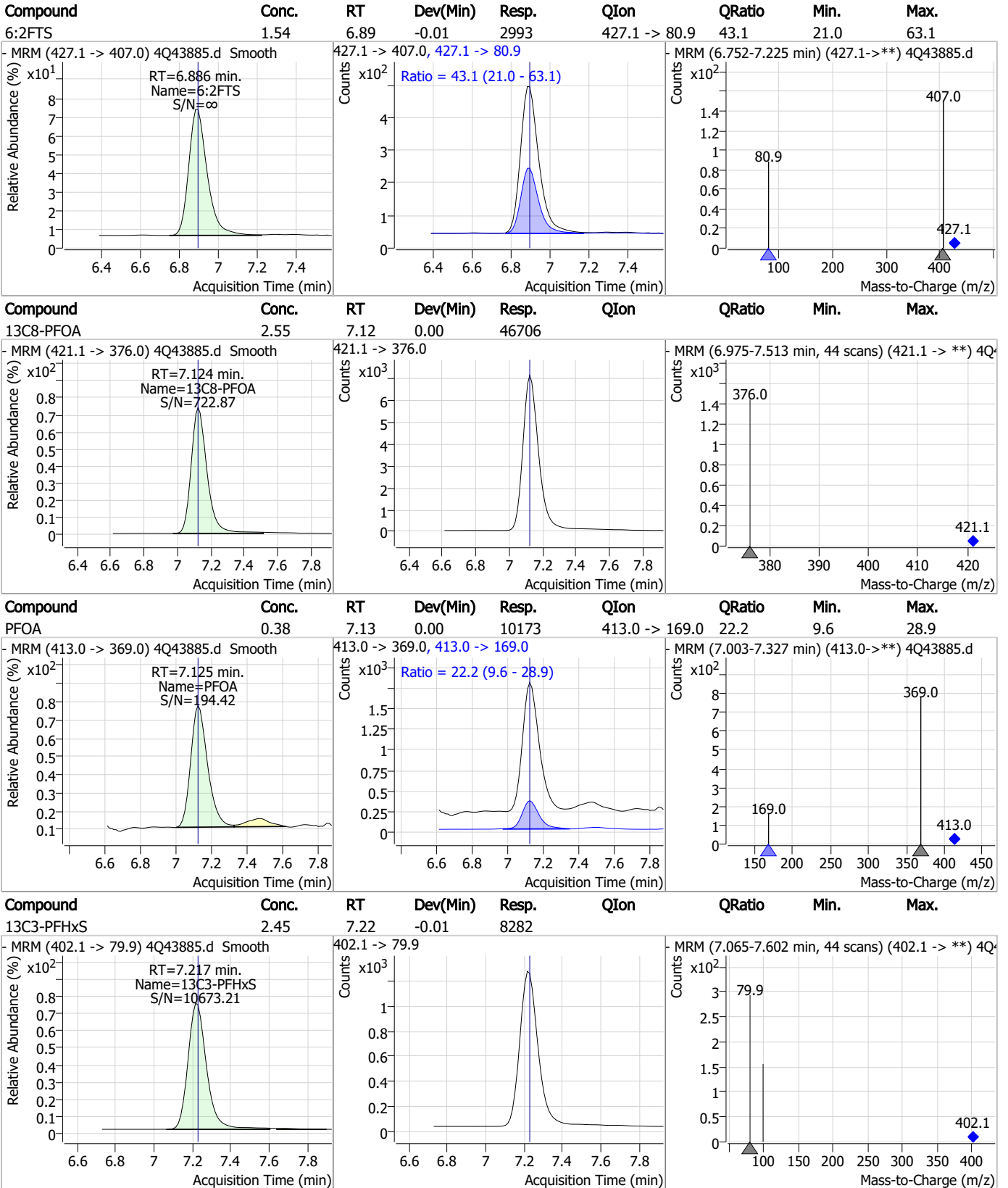
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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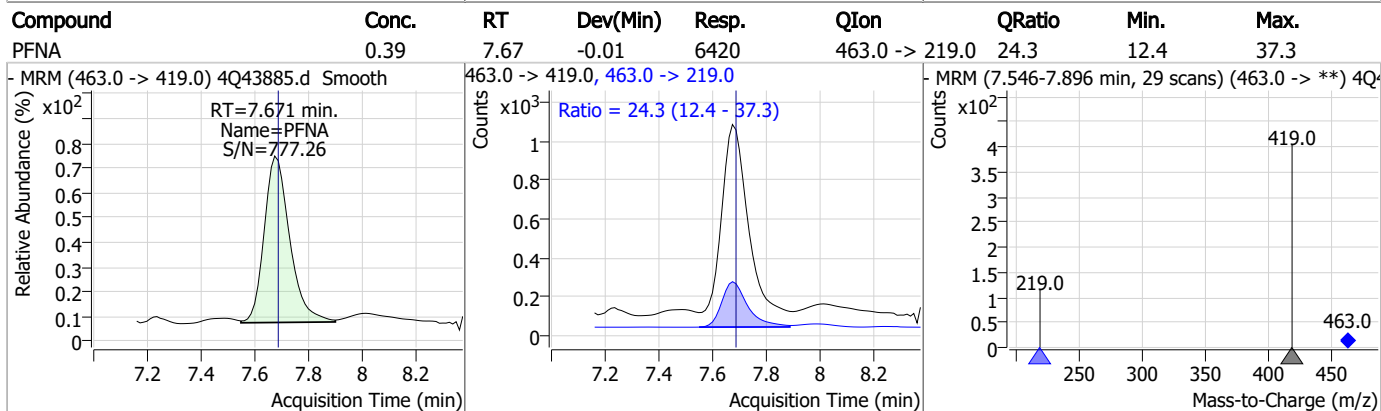
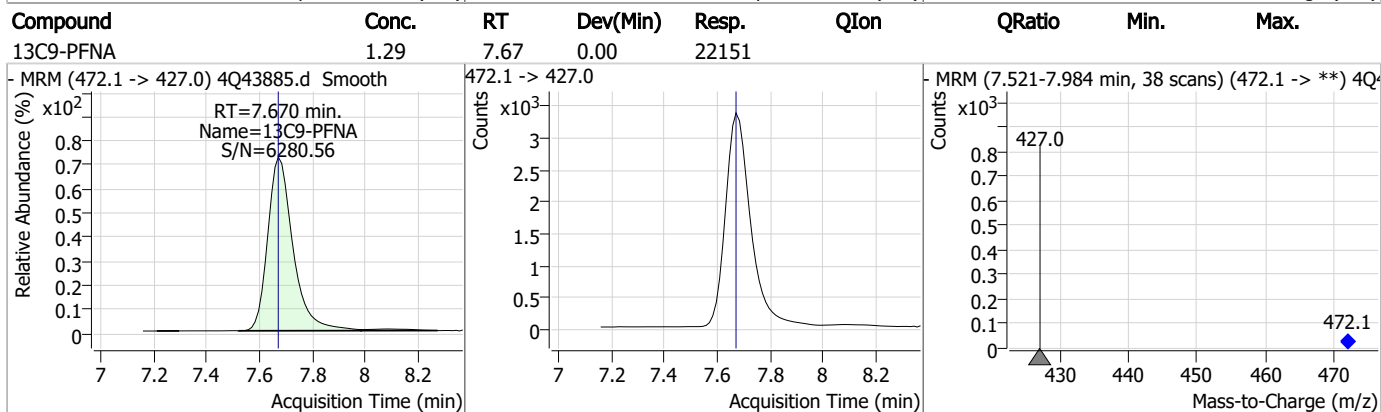
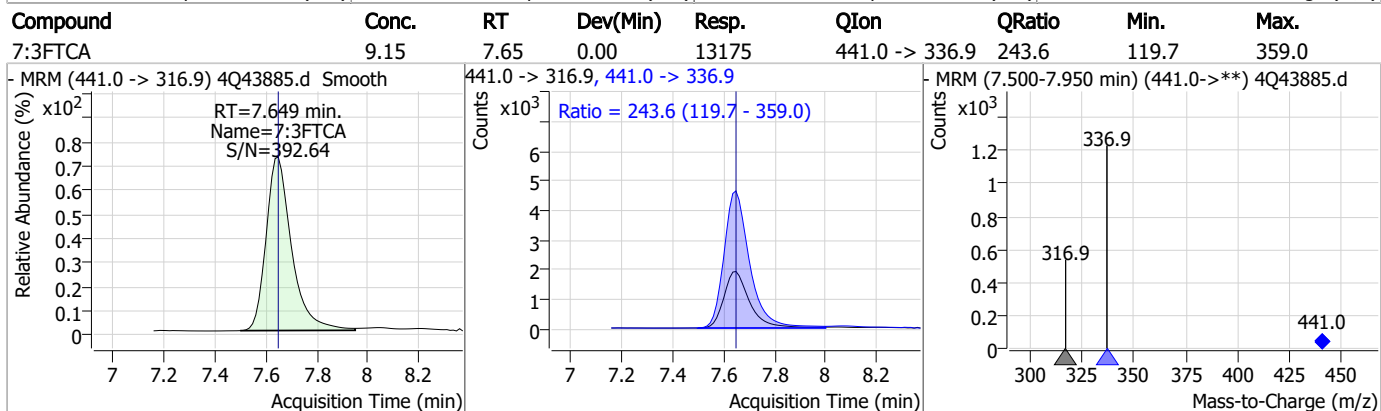
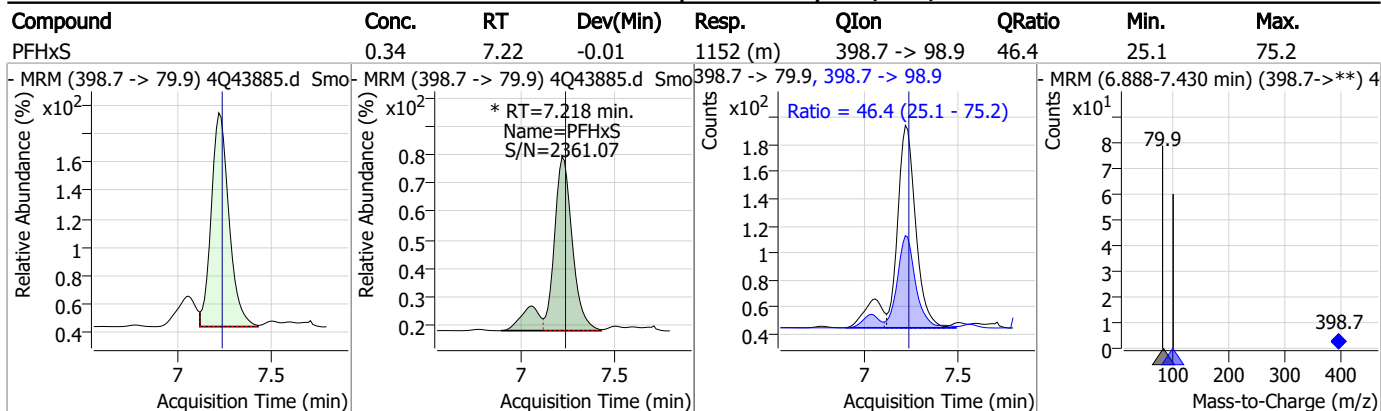
Perfluorinated Compounds by LC/MS/MS



7.7.3
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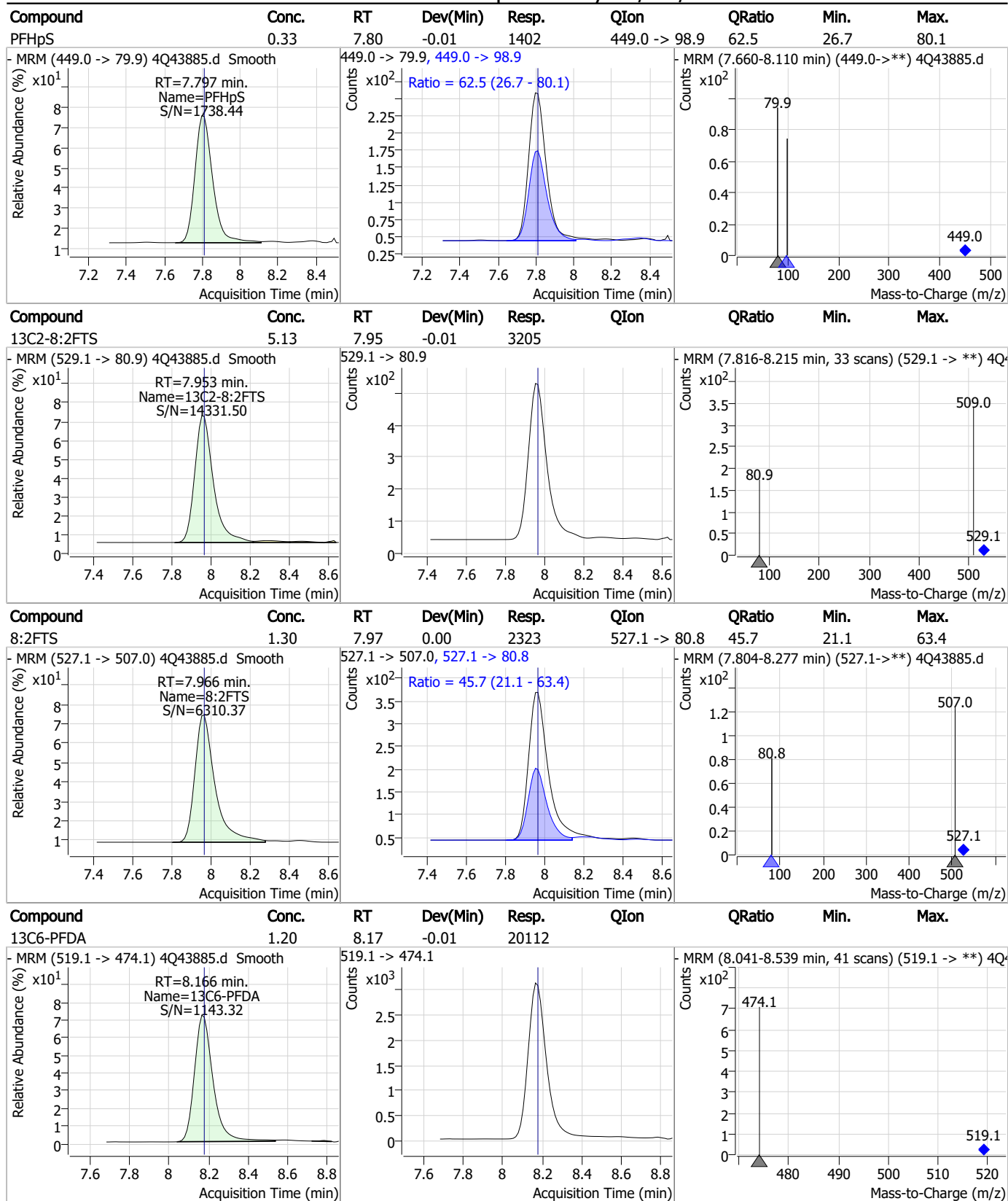


Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS

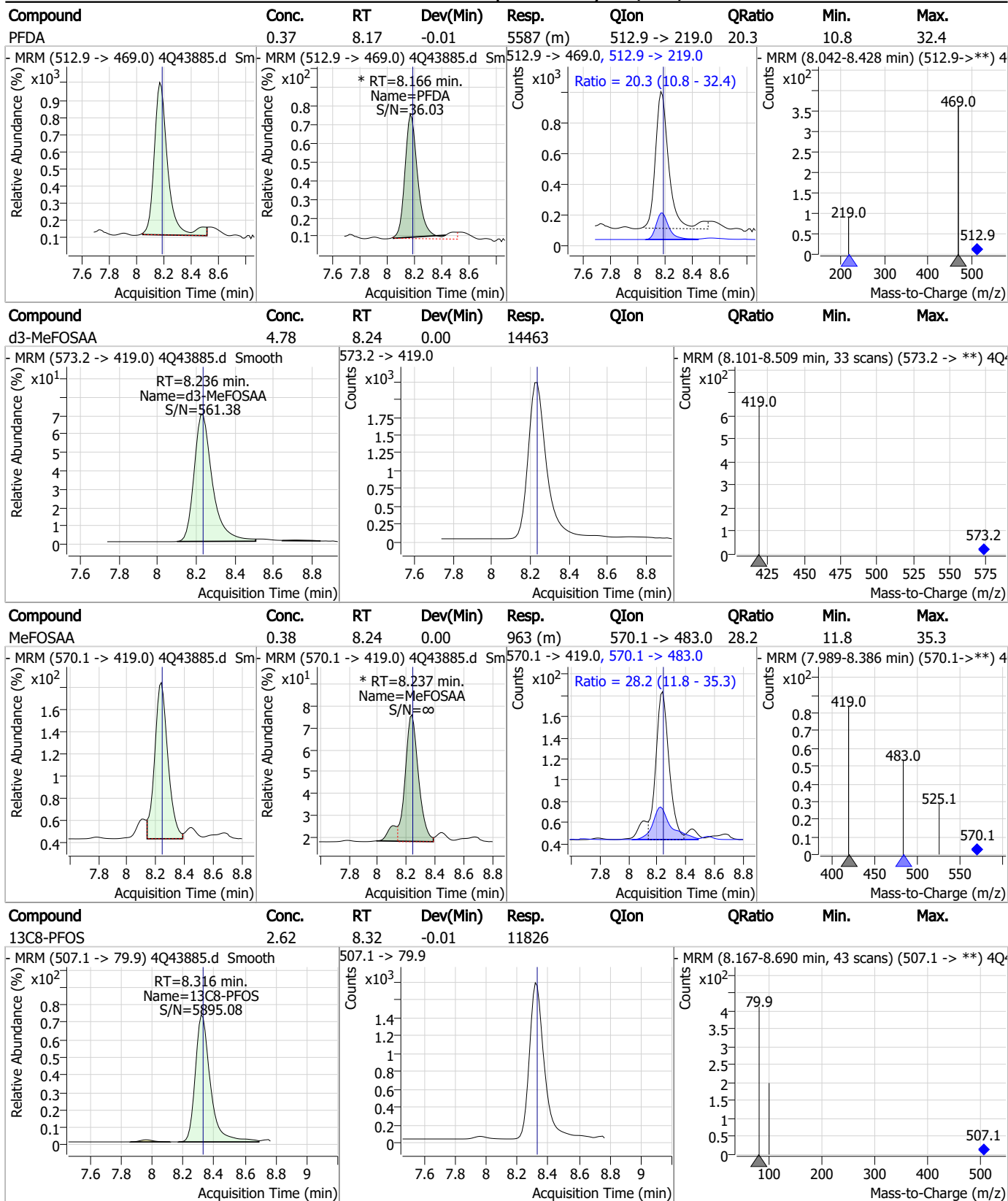


7.7.3

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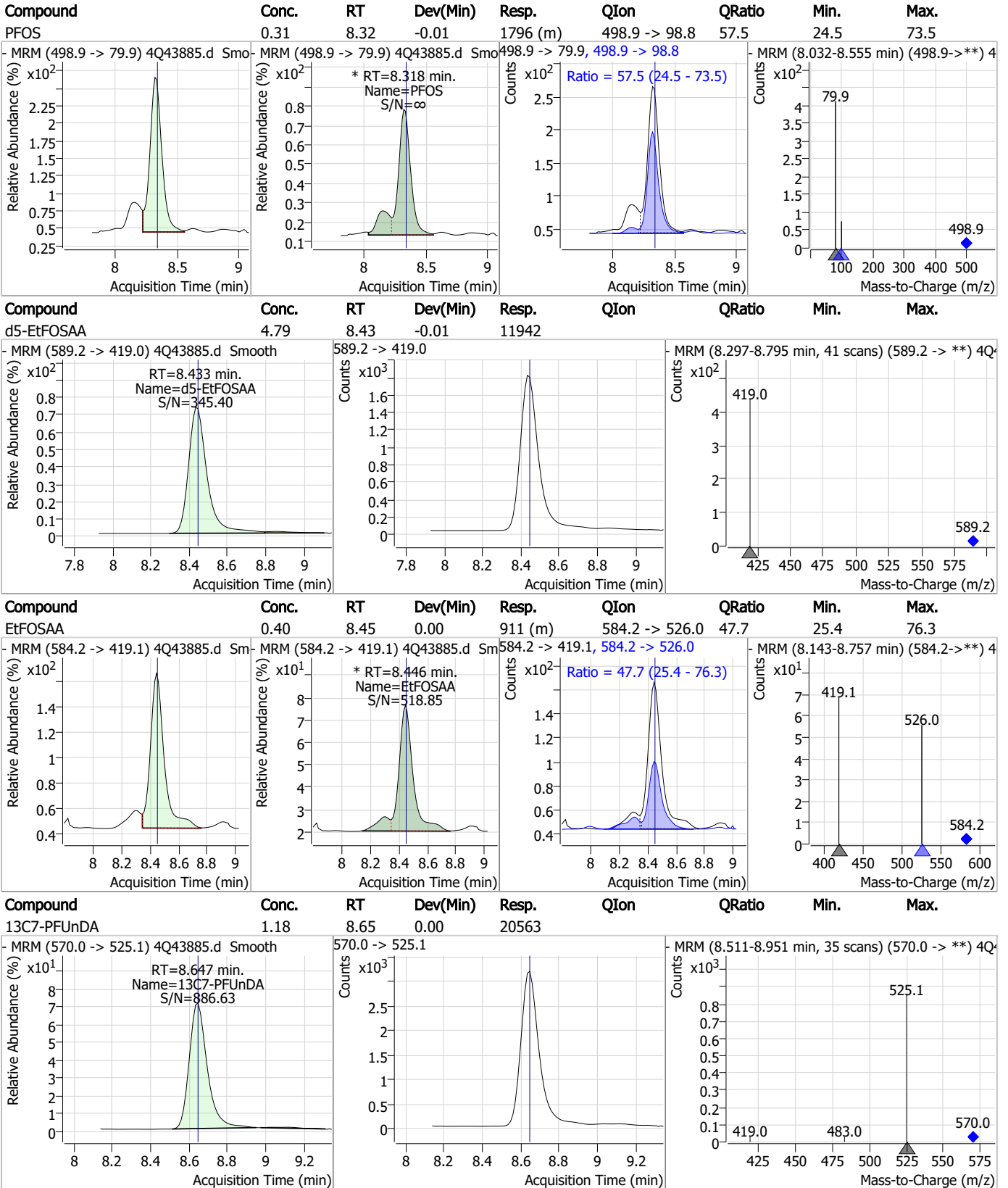
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Perfluorinated Compounds by LC/MS/MS

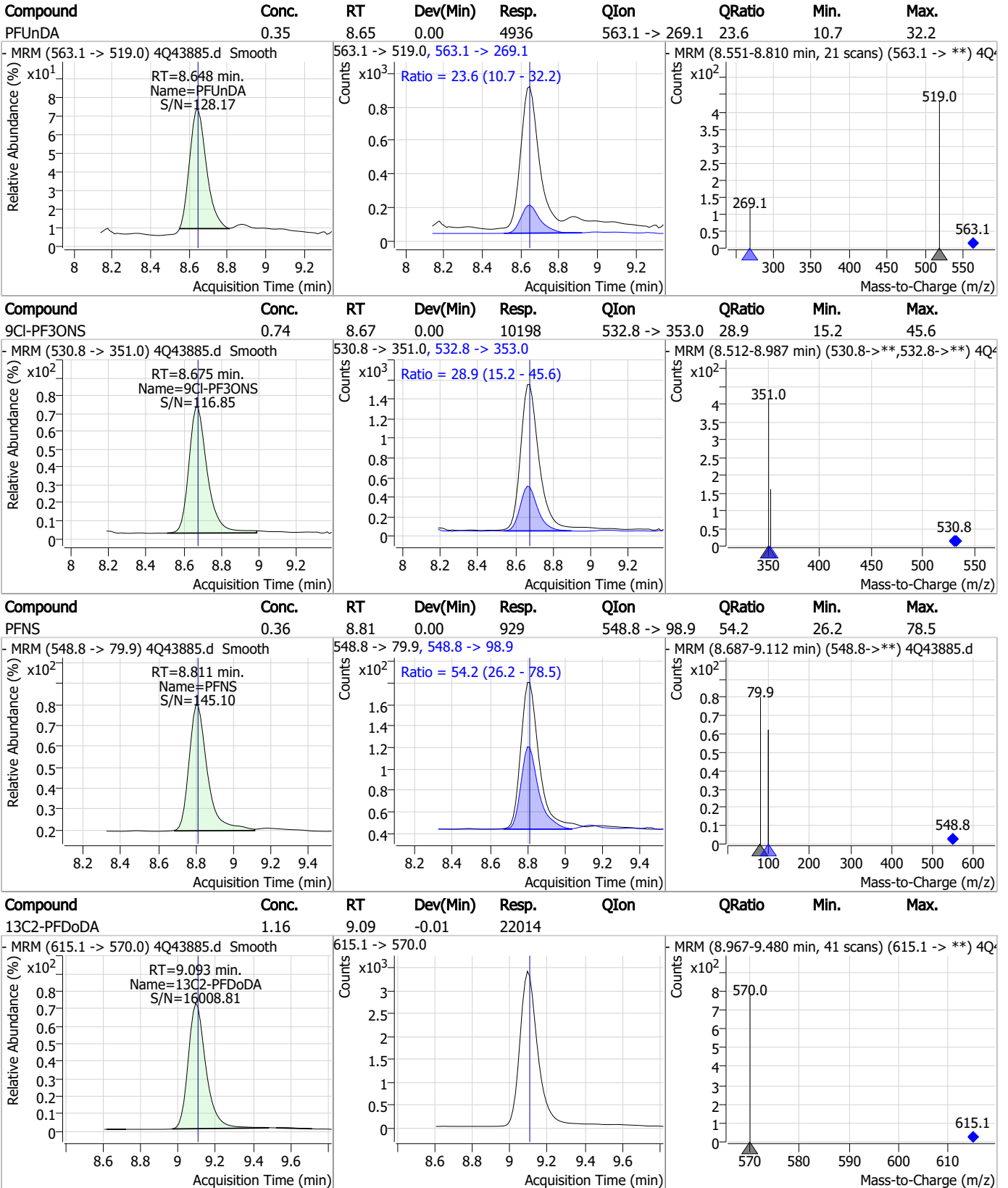


7.7.3

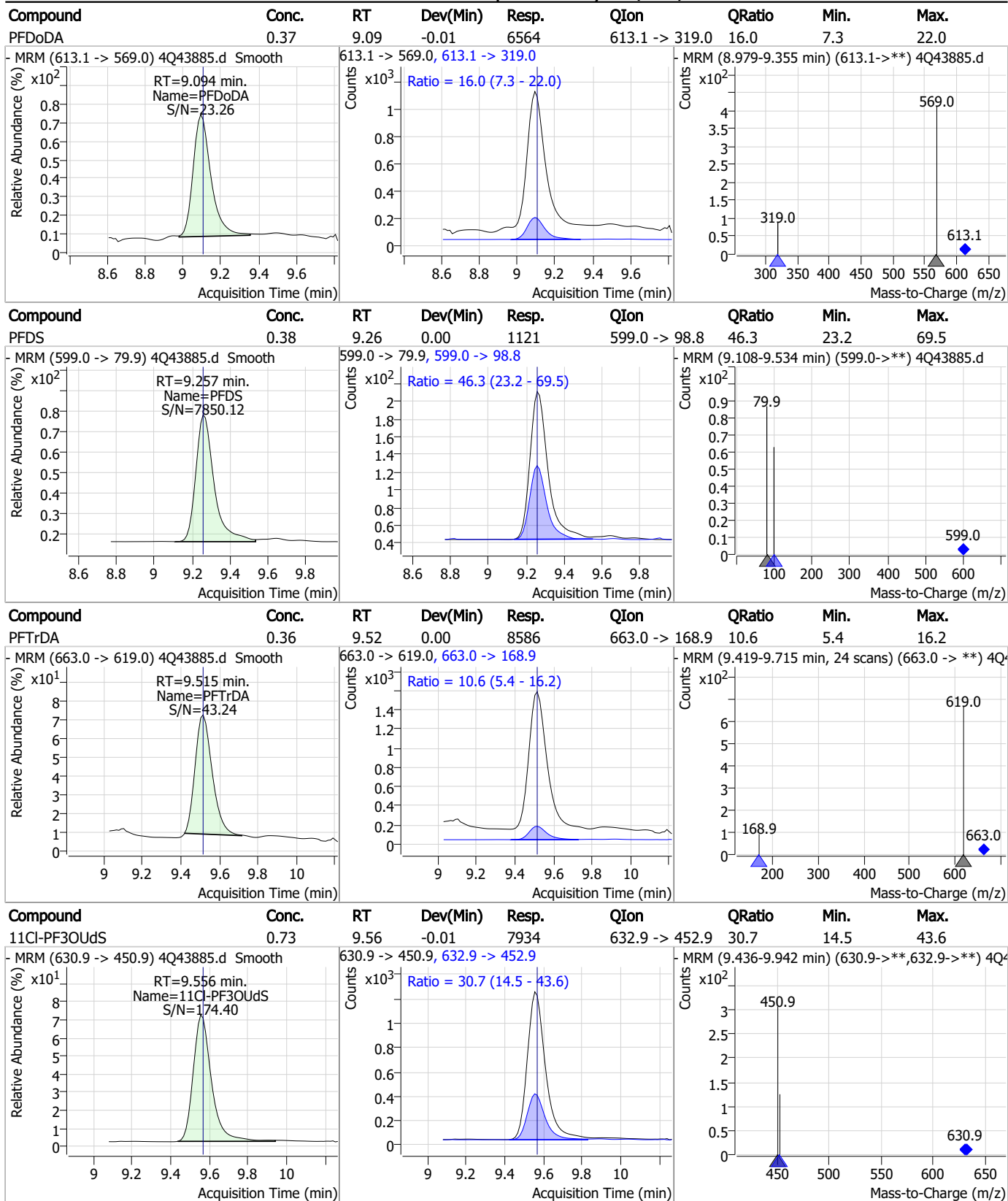
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Perfluorinated Compounds by LC/MS/MS

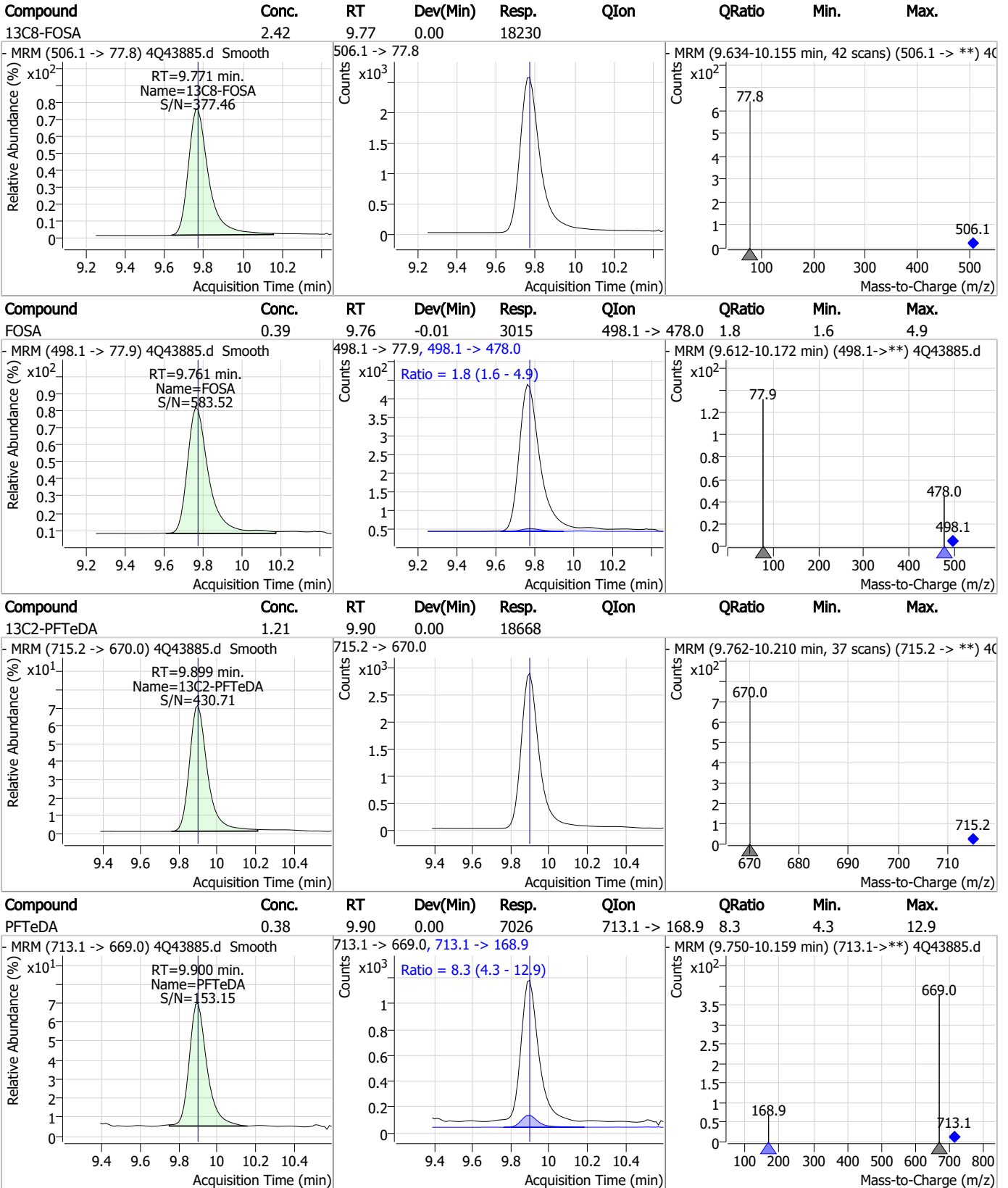


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

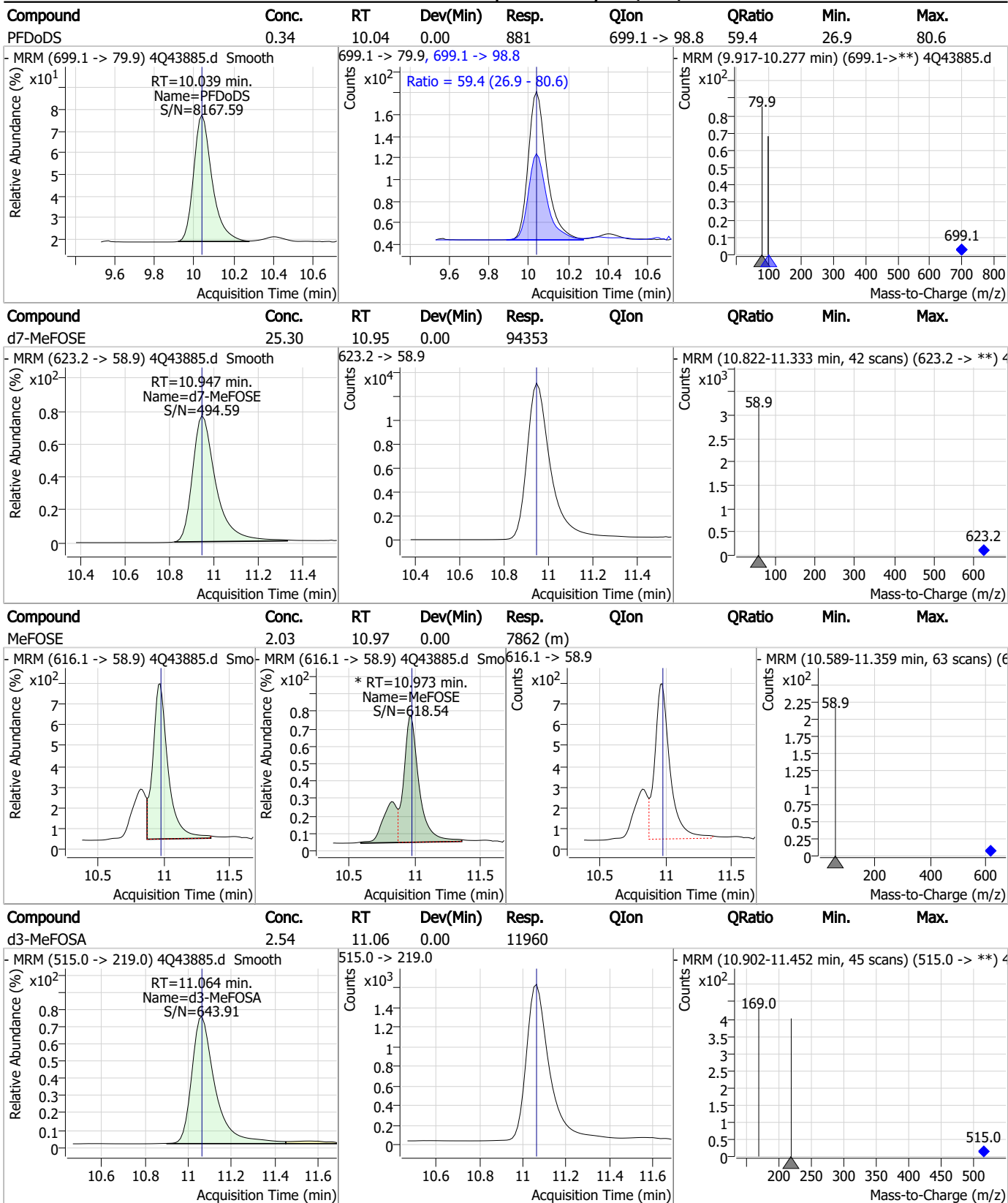
Perfluorinated Compounds by LC/MS/MS



7.7.3

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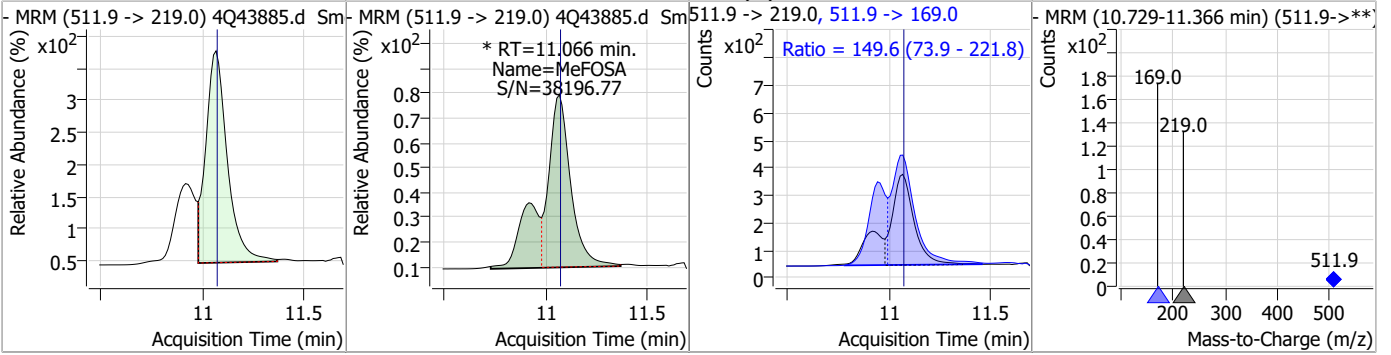
Perfluorinated Compounds by LC/MS/MS



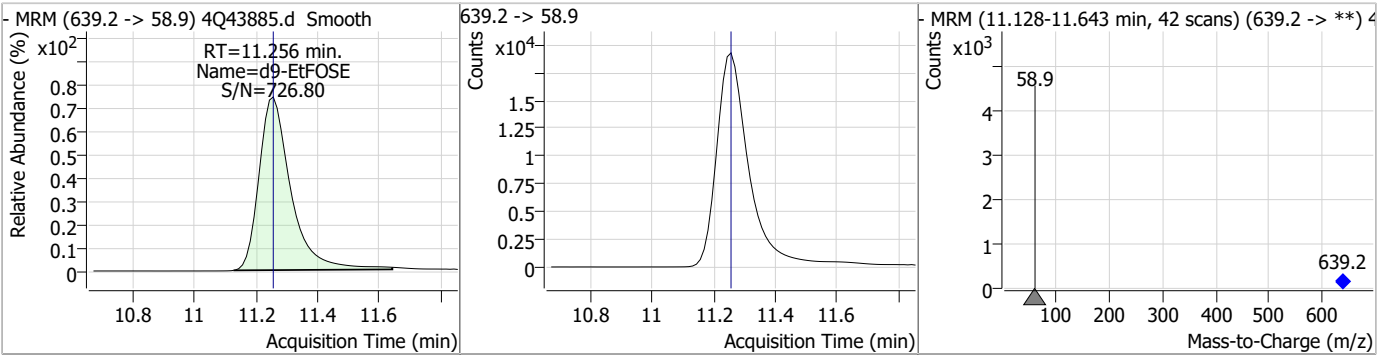
7.7.3
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Perfluorinated Compounds by LC/MS/MS

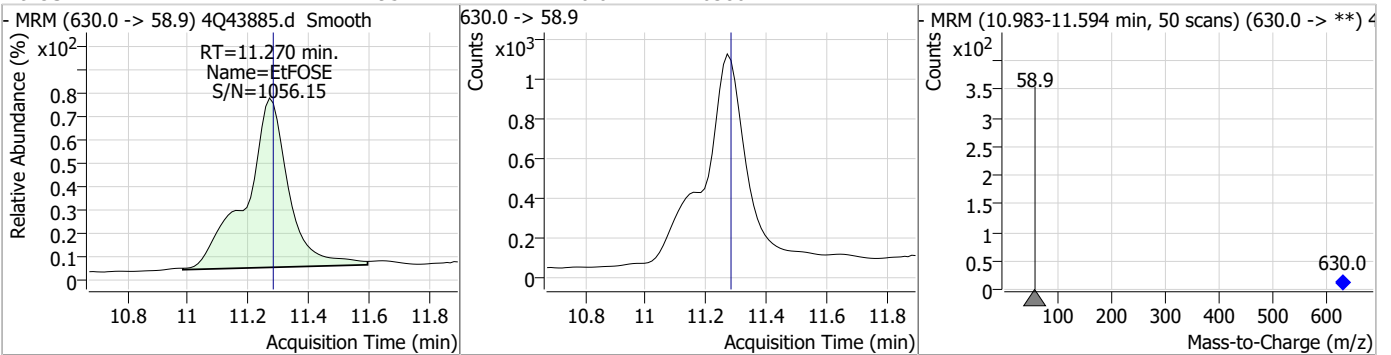
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.74	11.07	0.00	3333 (m)	511.9 -> 169.0	149.6	73.9	221.8



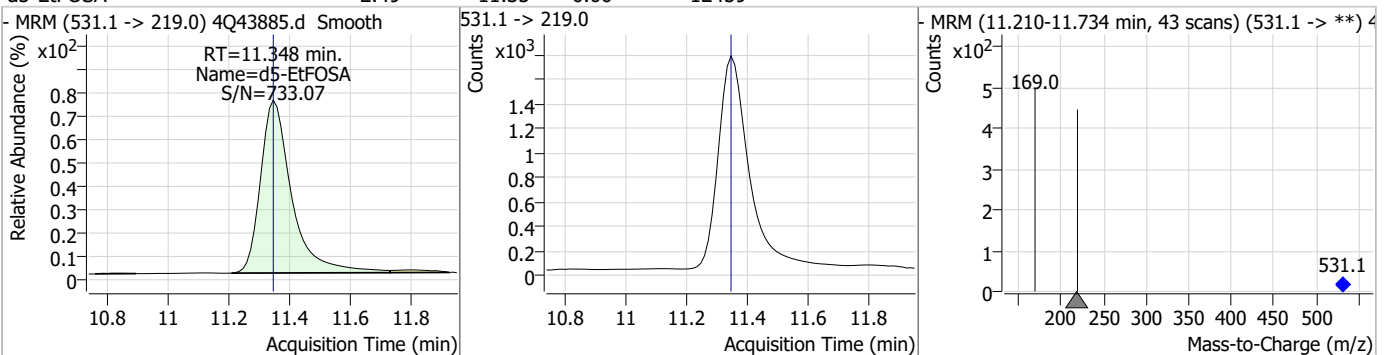
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.01	11.26	0.00	137343				



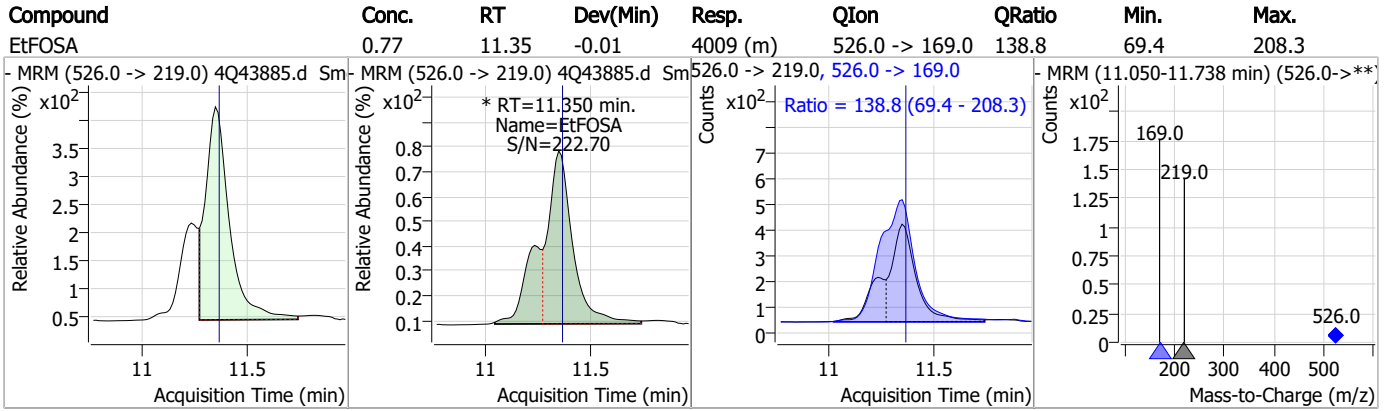
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.95	11.27	-0.01	10380				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	11.35	0.00	12459				



Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43885.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 11:26 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorodecanoic acid	335-76-2		8.17	Poor instrument integration
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.07	Split peak
EtFOSA	4151-50-2		11.35	Split peak

7.7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43886.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 11:40:17 AM
 Sample Name : ic634-3
 Vial : P1-A4
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	137252	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	71771	5.00 µg/L	0.000
M5-PFHxA	5.522	318.0 -> 273.0	51796	2.50 µg/L	-0.012
M4-PFHpA	6.467	367.1 -> 322.0	29720	2.50 µg/L	0.000
M8-PFOA	7.124	421.1 -> 376.0	46449	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	21605	1.25 µg/L	0.000
M6-PFDA	8.178	519.1 -> 474.1	20369	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	21956	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	22886	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	19592	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	18365	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12905	2.50 µg/L	0.000
M3-PFHxS	7.217	402.1 -> 79.9	8347	2.50 µg/L	-0.012
M8-PFOS	8.329	507.1 -> 79.9	10370	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1084	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1938	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	2893	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	14943	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30209	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11666	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	103075	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	147452	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	12410	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11872	2.50 µg/L	0.000
13C4-PFOS	8.317	502.8 -> 79.9	12408	2.50 µg/L	-0.013
13C3-PFBA	2.916	216.0 -> 172.0	72692	5.00 µg/L	-0.013
18O2-PFHxS	7.228	403.0 -> 83.9	4947	2.50 µg/L	0.000
13C4-PFOA	7.124	417.1 -> 372.0	55898	2.50 µg/L	0.000
13C2-PFDA	8.178	515.1 -> 470.1	18809	1.25 µg/L	0.000
13C5-PFNA	7.671	468.0 -> 423.0	25955	1.25 µg/L	-0.013
13C2-PFHxA	5.523	315.1 -> 270.0	47256	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1084	5.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1938	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C2-8:2FTS	7.966	529.1 -> 80.9	2893	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFDoDA	9.106	615.1 -> 570.0	22886	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	9.899	715.2 -> 670.0	19592	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C3-PFBS	5.427	302.1 -> 79.9	12905	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C3-PFHxS	7.217	402.1 -> 79.9	8347	2.72 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 = 108.9%	
13C4-PFBA	2.924	216.8 -> 171.9	137252	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.467	367.1 -> 322.0	29720	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C5-PFHxA	5.522	318.0 -> 273.0	51796	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.362	268.3 -> 223.0	71771	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C6-PFDA	8.178	519.1 -> 474.1	20369	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C7-PFUnDA	8.647	570.0 -> 525.1	21956	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-FOSA	9.771	506.1 -> 77.8	18365	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C8-PFOA	7.124	421.1 -> 376.0	46449	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.329	507.1 -> 79.9	10370	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%	
13C9-PFNA	7.670	472.1 -> 427.0	21605	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14943	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	30209	9.72 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSA	11.064	515.0 -> 219.0	11872	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11666	4.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
d7-MeFOSE	10.947	623.2 -> 58.9	103075	26.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
d9-EtFOSE	11.256	639.2 -> 58.9	147452	26.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
d5-EtFOSA	11.348	531.1 -> 219.0	12410	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	8153	4.68 µg/L	93
		327.1 -> 80.9	3436		
6:2FTS	6.899	427.1 -> 407.0	8839	4.72 µg/L	95
		427.1 -> 80.9	4012		
8:2FTS	7.966	527.1 -> 507.0	8150	5.05 µg/L	98
		527.1 -> 80.8	3536		
EtFOSAA	8.446	584.2 -> 419.1	2876	1.28 µg/L	m 96
		584.2 -> 526.0	1387		
FOSA	9.761	498.1 -> 77.9	9549	1.24 µg/L	98
		498.1 -> 478.0	238		
MeFOSAA	8.237	570.1 -> 419.0	2967	1.14 µg/L	m 100
		570.1 -> 483.0	697		
PFBA	2.920	212.8 -> 168.9	17412	4.74 µg/L	100
PFBS	5.428	298.7 -> 79.9	5301	1.00 µg/L	97
		298.7 -> 98.8	2251		
PFDA	8.179	512.9 -> 469.0	19257	1.25 µg/L	97
		512.9 -> 219.0	3926		
PFDODA	9.094	613.1 -> 569.0	22231	1.21 µg/L	97
		613.1 -> 319.0	3534		
PFDS	9.257	599.0 -> 79.9	3372	1.31 µg/L	96

7.7.4
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1658			
PFHpA	6.468	363.1 -> 319.0	22972	1.22	µg/L	99
		363.1 -> 169.0	4191			
PFHpS	7.811	449.0 -> 79.9	4739	1.27	µg/L	95
		449.0 -> 98.9	2366			
PFHxA	5.525	313.0 -> 269.0	24548	1.21	µg/L	99
		313.0 -> 118.9	755			
PFHxS	7.218	398.7 -> 79.9	3628	1.06	µg/L	m 90
		398.7 -> 98.9	2056			
PFNA	7.671	463.0 -> 419.0	19018	1.19	µg/L	95
		463.0 -> 219.0	5179			
PFNS	8.811	548.8 -> 79.9	3057	1.35	µg/L	93
		548.8 -> 98.9	1450			
PFOA	7.125	413.0 -> 369.0	31811	1.19	µg/L	99
		413.0 -> 169.0	6346			
PFOS	8.330	498.9 -> 79.9	6025	1.19	µg/L	m 93
		498.9 -> 98.8	3234			
PFPeA	4.364	263.0 -> 219.0	41238	2.39	µg/L	100
PFPeS	6.494	349.1 -> 79.9	3208	1.09	µg/L	98
		349.1 -> 98.9	1440			
PFTeDA	9.900	713.1 -> 669.0	23005	1.20	µg/L	98
		713.1 -> 168.9	1851			
PFTrDA	9.515	663.0 -> 619.0	30932	1.26	µg/L	98
		663.0 -> 168.9	3083			
PFUnDA	8.648	563.1 -> 519.0	17992	1.21	µg/L	95
		563.1 -> 269.1	3457			
11CI-PF3OUdS	9.556	630.9 -> 450.9	24933	2.30	µg/L	94
		632.9 -> 452.9	8060			
9CI-PF3ONS	8.675	530.8 -> 351.0	32766	2.37	µg/L	94
		532.8 -> 353.0	8890			
ADONA	6.718	376.9 -> 250.9	70589	2.32	µg/L	99
		376.9 -> 84.8	18818			
HFPO-DA	5.891	284.9 -> 168.9	6999	2.42	µg/L	95
		284.9 -> 184.9	919			
3:3FTCA	3.836	241.0 -> 177.0	4501	5.92	µg/L	95
		241.0 -> 117.0	469			
5:3FTCA	6.193	341.0 -> 237.1	84055	30.52	µg/L	98
		341.0 -> 217.0	56171			
7:3FTCA	7.649	441.0 -> 316.9	43011	30.06	µg/L	96
		441.0 -> 336.9	100210			
EtFOSA	11.350	526.0 -> 219.0	12547	2.41	µg/L	m 97
		526.0 -> 169.0	17949			
EtFOSE	11.270	630.0 -> 58.9	34039	5.96	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	10932	2.44	µg/L	m 99
		511.9 -> 169.0	16340			
MeFOSE	10.973	616.1 -> 58.9	23509	5.55	µg/L	m 100
PFDoDS	10.039	699.1 -> 79.9	2960	1.29	µg/L	97
		699.1 -> 98.8	1646			
NFDHA	5.416	295.0 -> 201.0	3731	2.57	µg/L	96
		295.0 -> 84.9	945			
PFMBA	4.766	279.0 -> 85.1	23367	2.42	µg/L	100
PFMPA	3.515	229.0 -> 84.9	21818	2.42	µg/L	100
PFEESA	5.959	314.8 -> 134.9	32841	2.14	µg/L	99
		314.8 -> 82.9	1144			

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

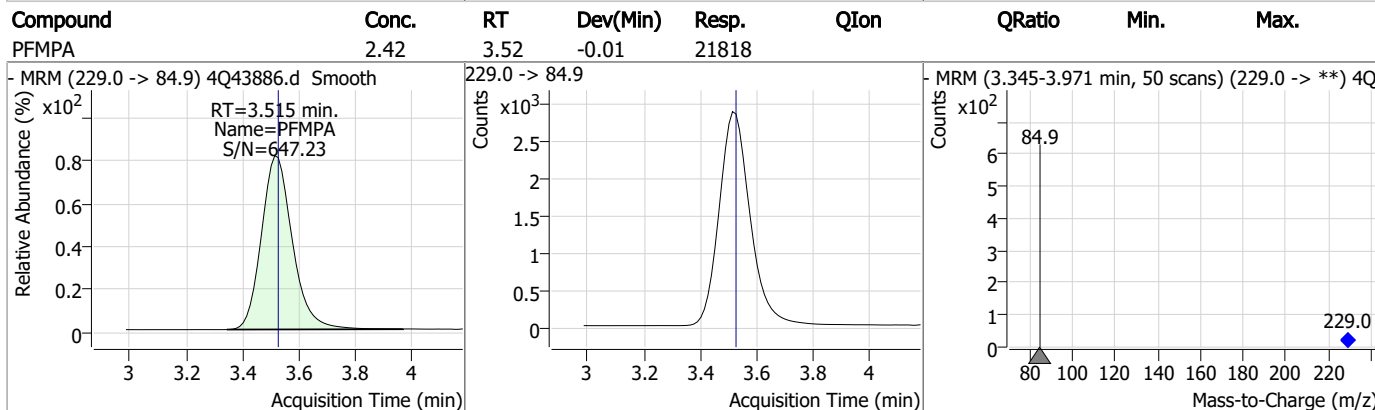
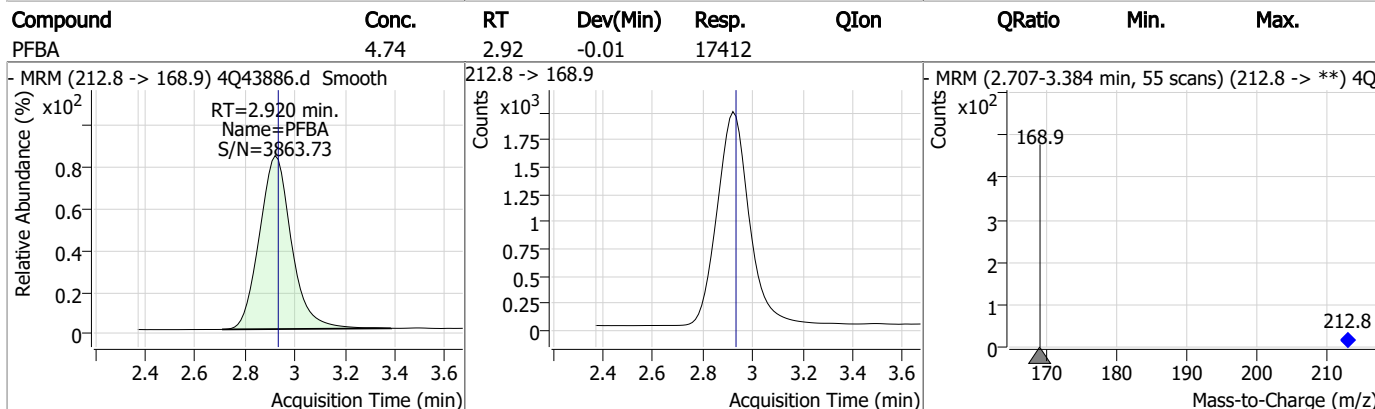
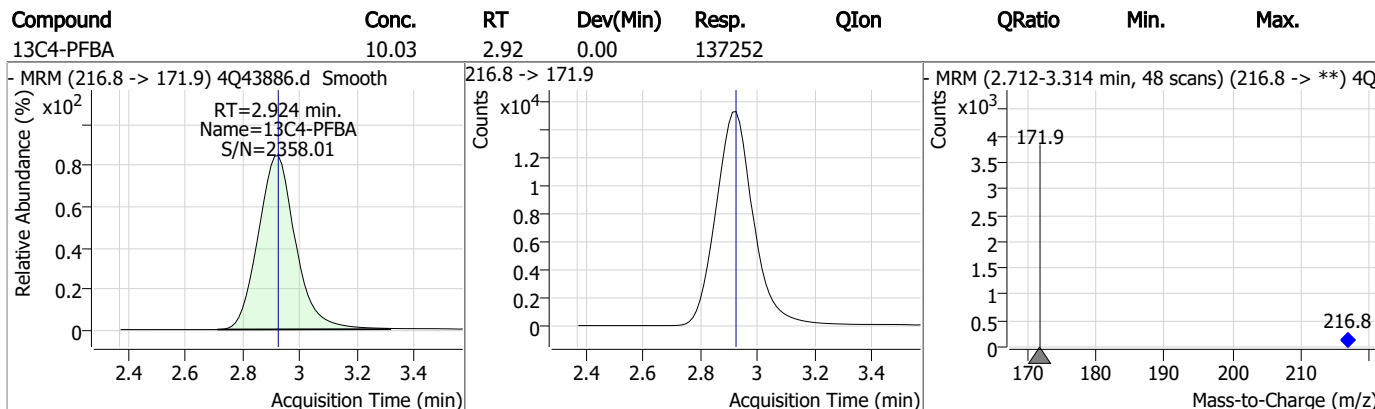
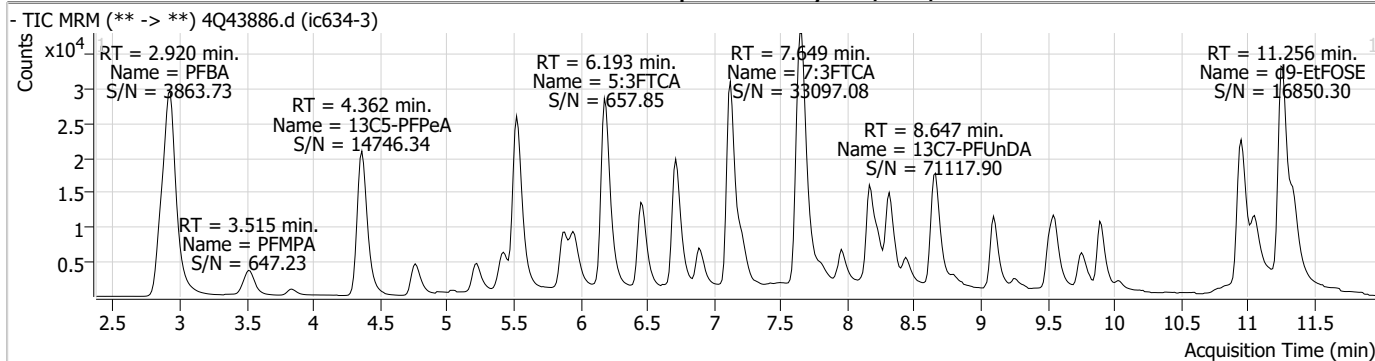
Perfluorinated Compounds by LC/MS/MS

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

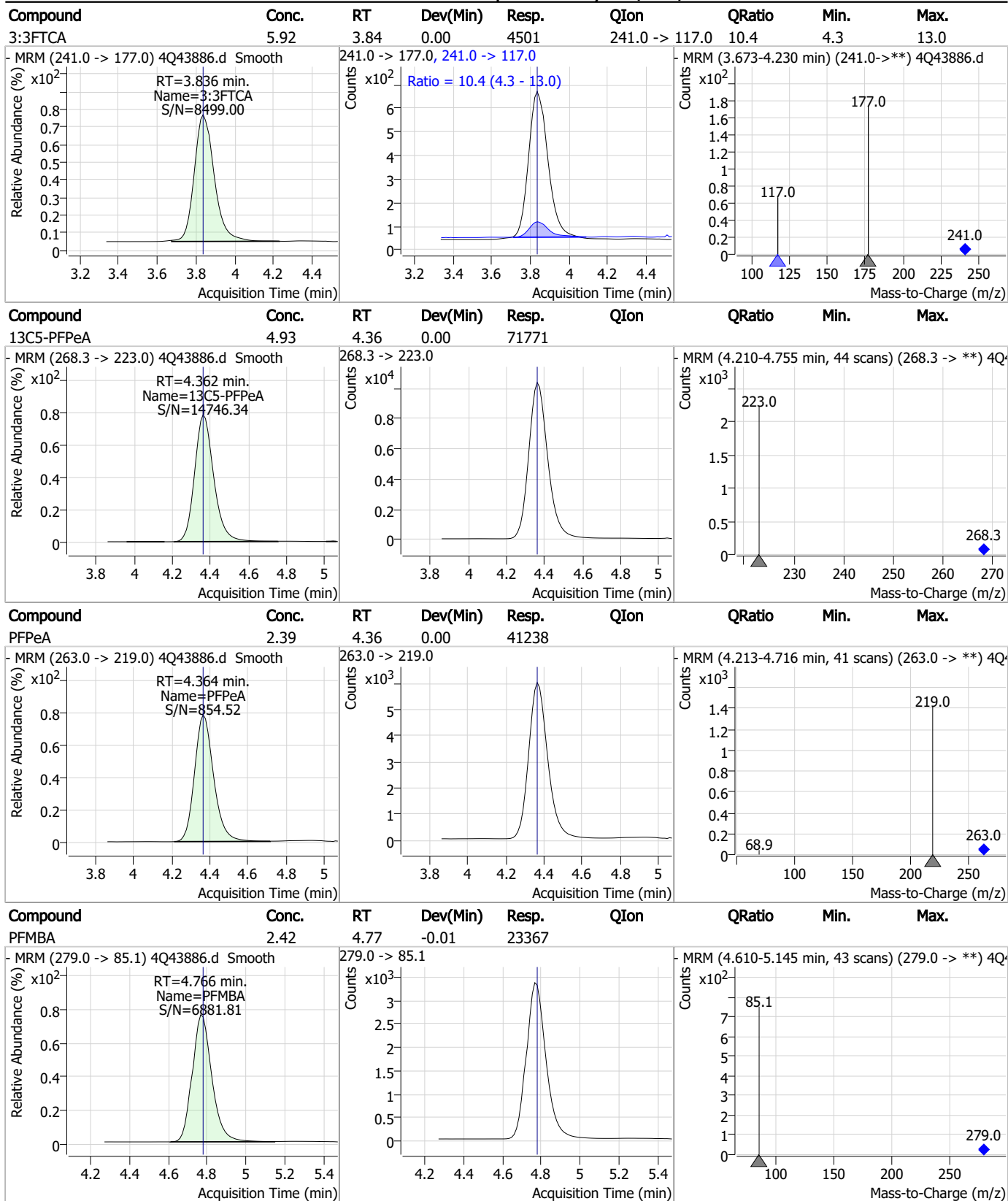
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Perfluorinated Compounds by LC/MS/MS



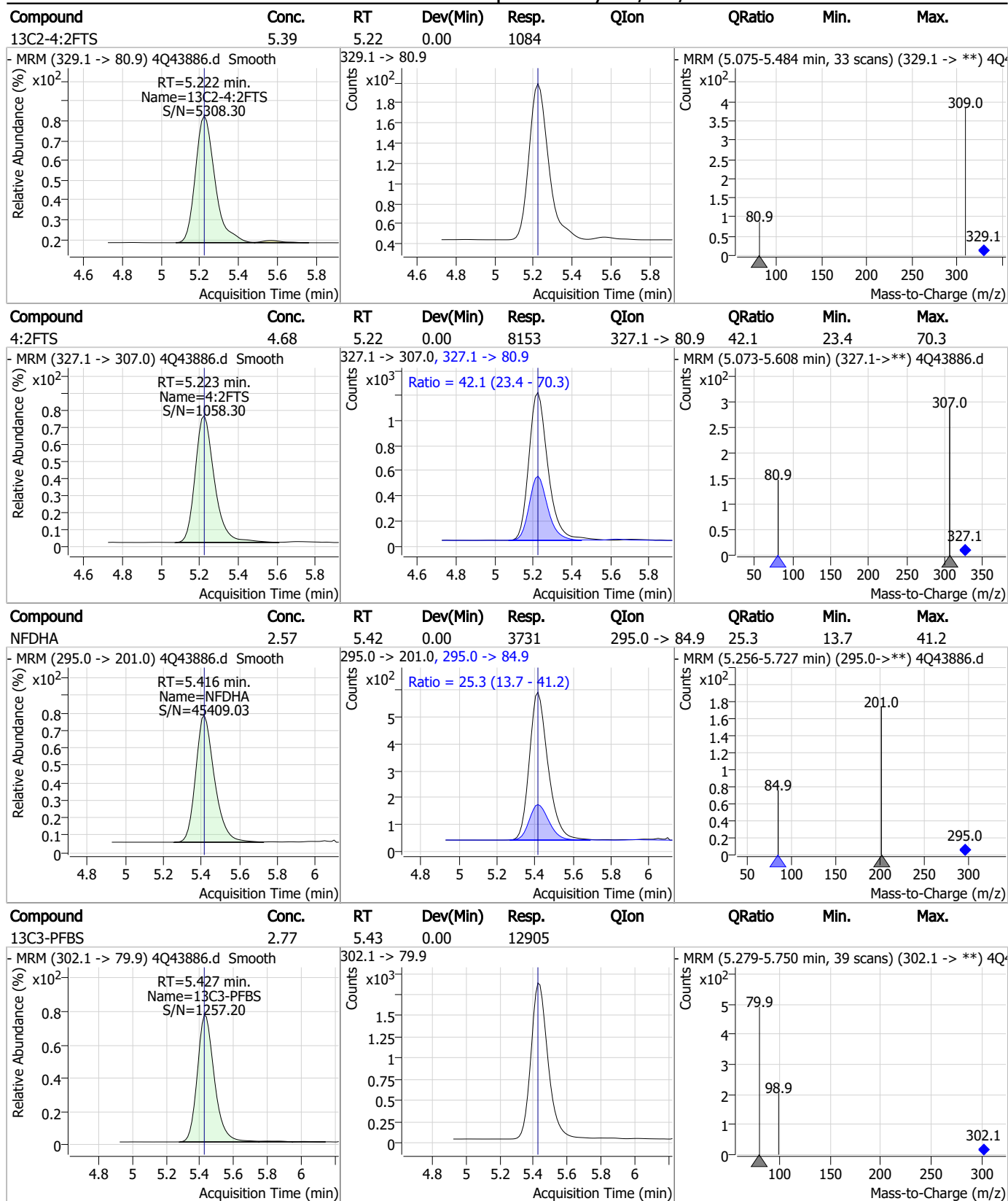
7.7.4
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Perfluorinated Compounds by LC/MS/MS



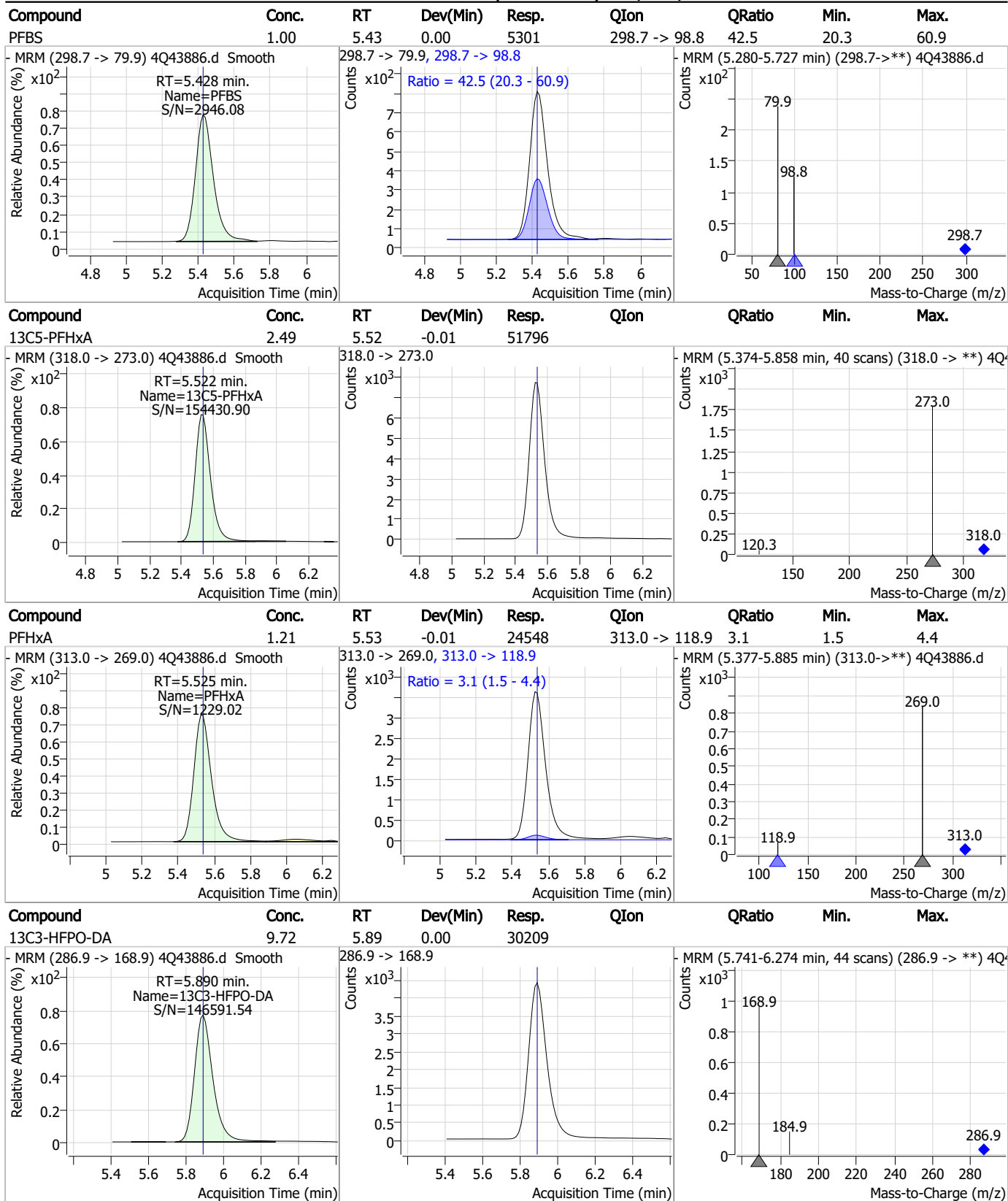
7.7.4
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Perfluorinated Compounds by LC/MS/MS



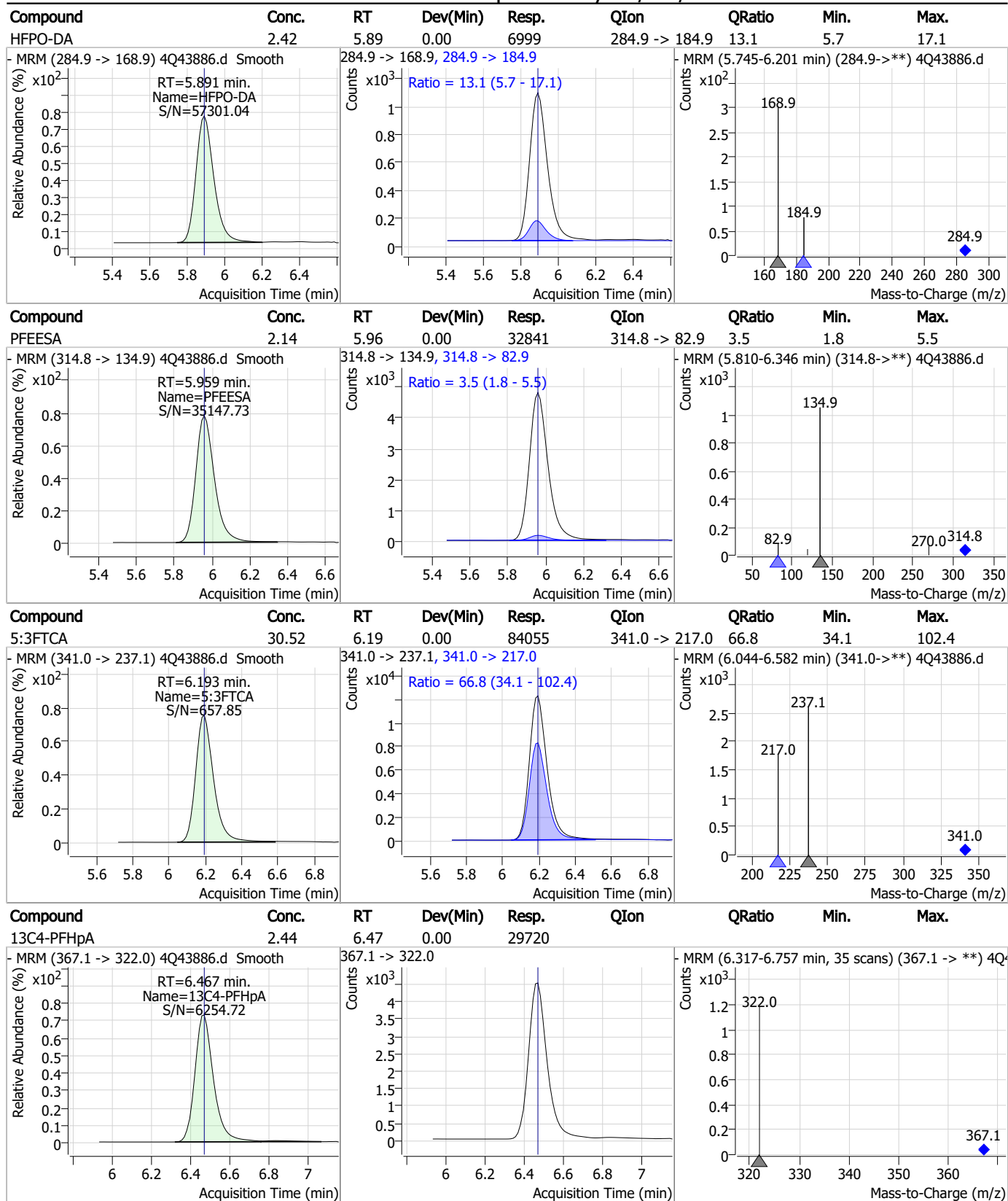
7.7.4
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Perfluorinated Compounds by LC/MS/MS



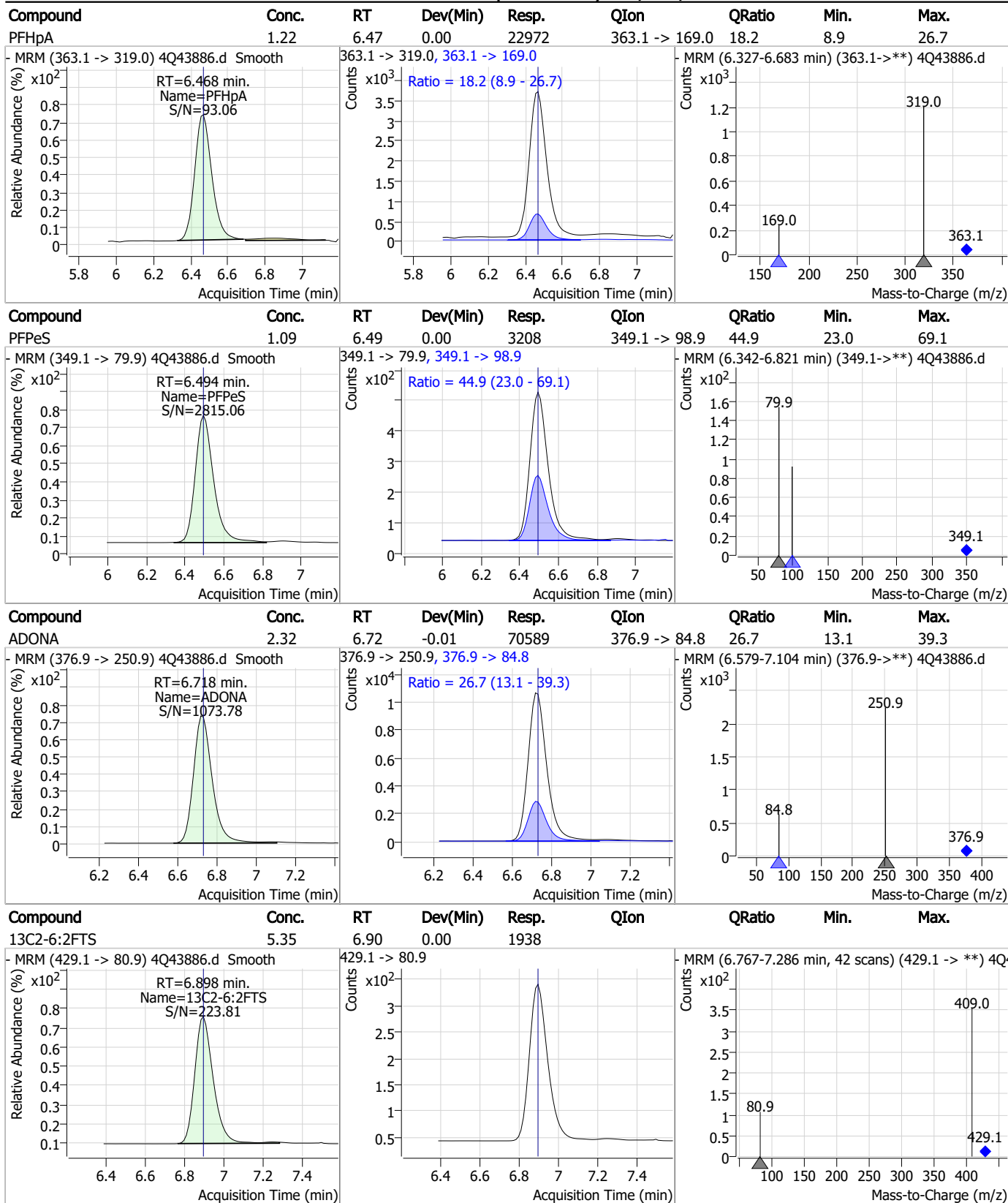
7.7.4
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Perfluorinated Compounds by LC/MS/MS



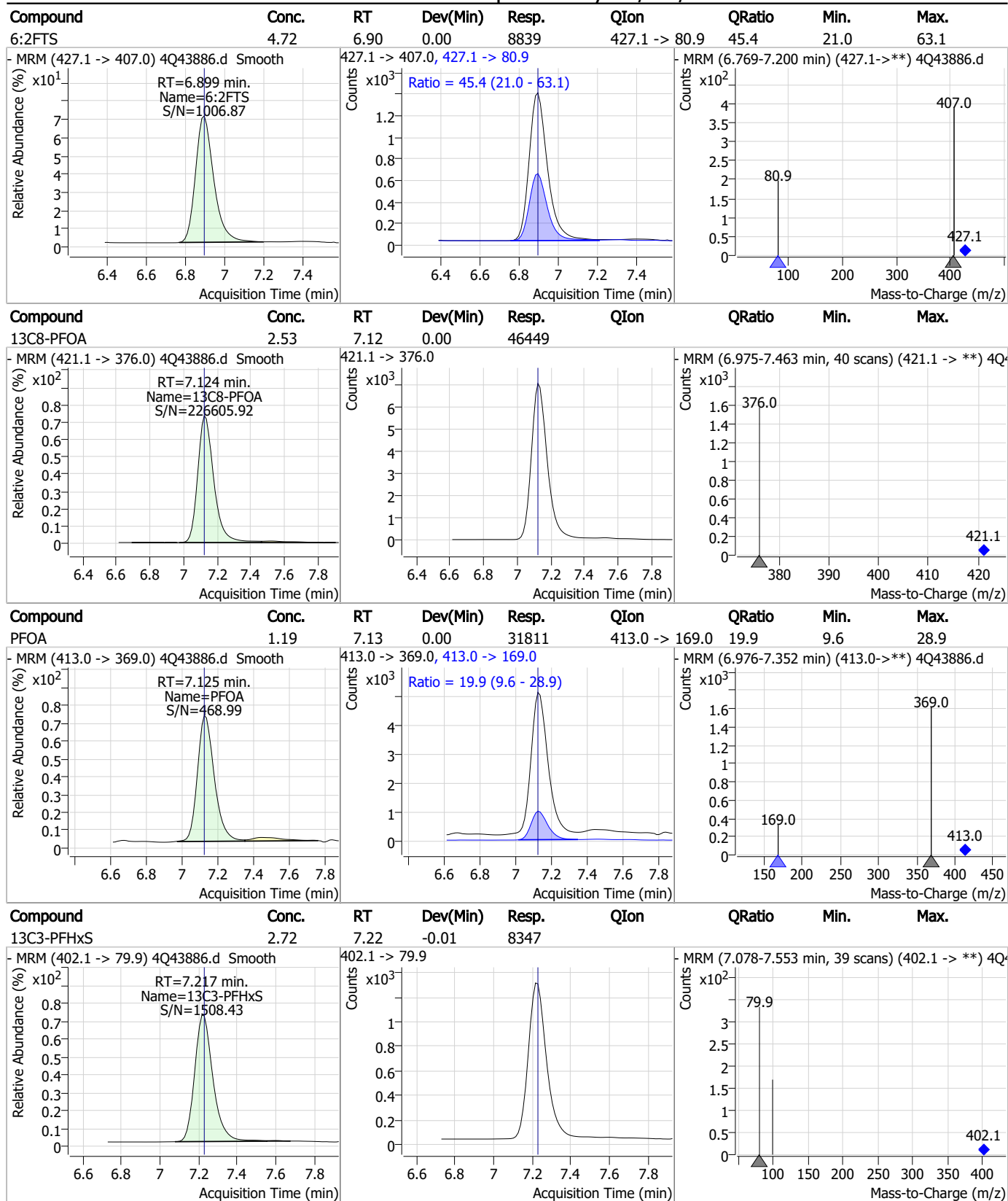
7.7.4
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Perfluorinated Compounds by LC/MS/MS



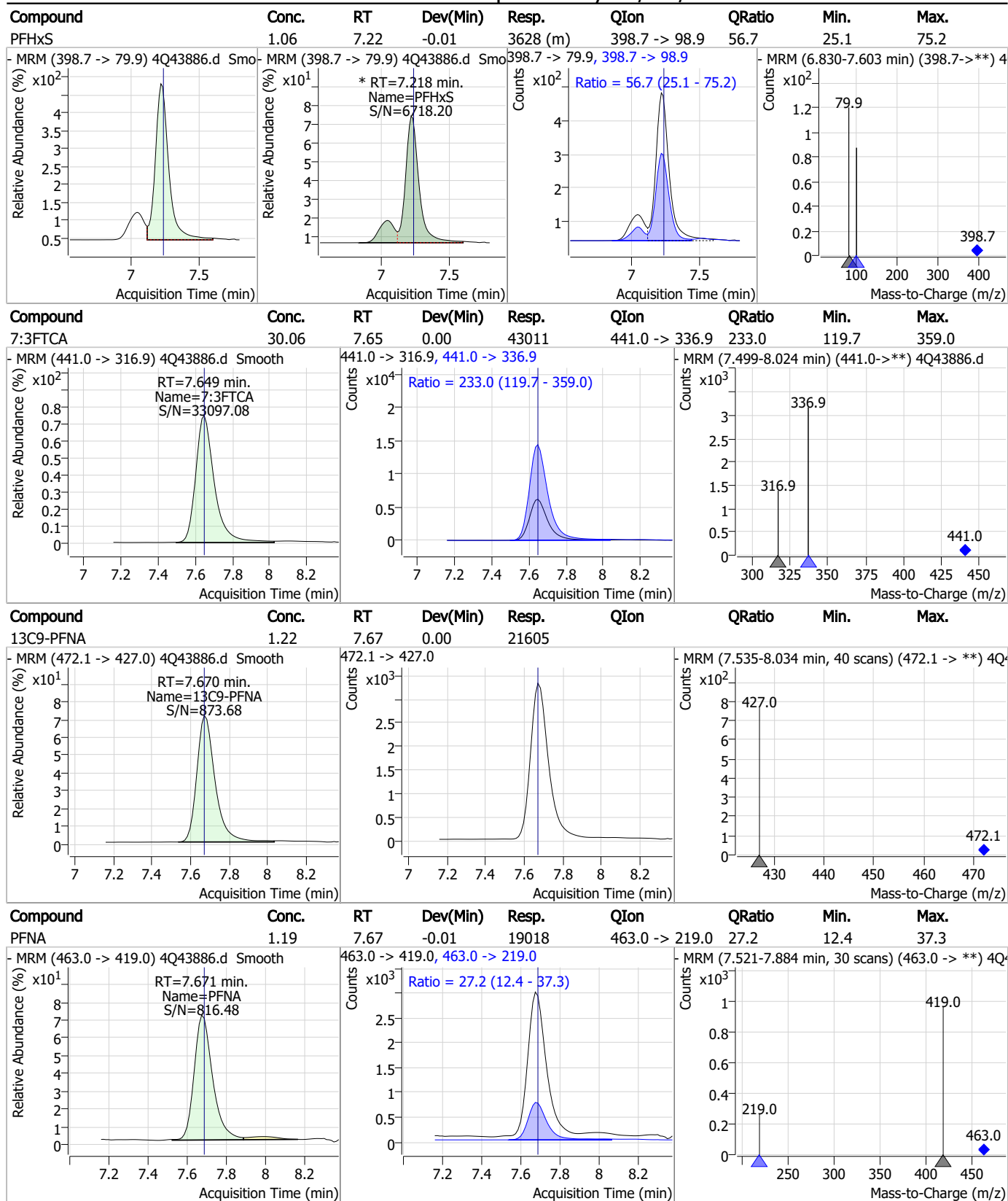
7.7.4
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Perfluorinated Compounds by LC/MS/MS



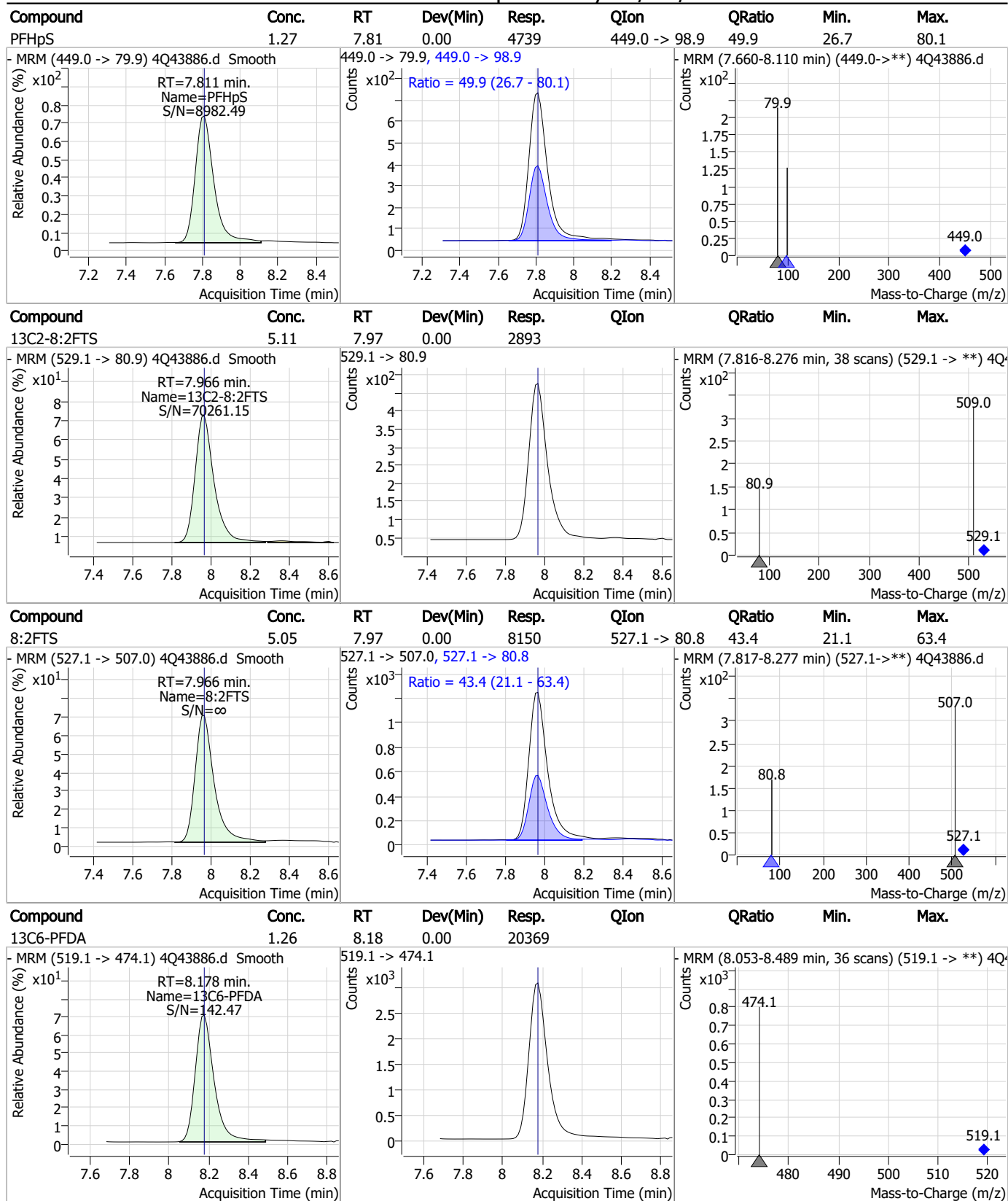
7.7.4
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Perfluorinated Compounds by LC/MS/MS



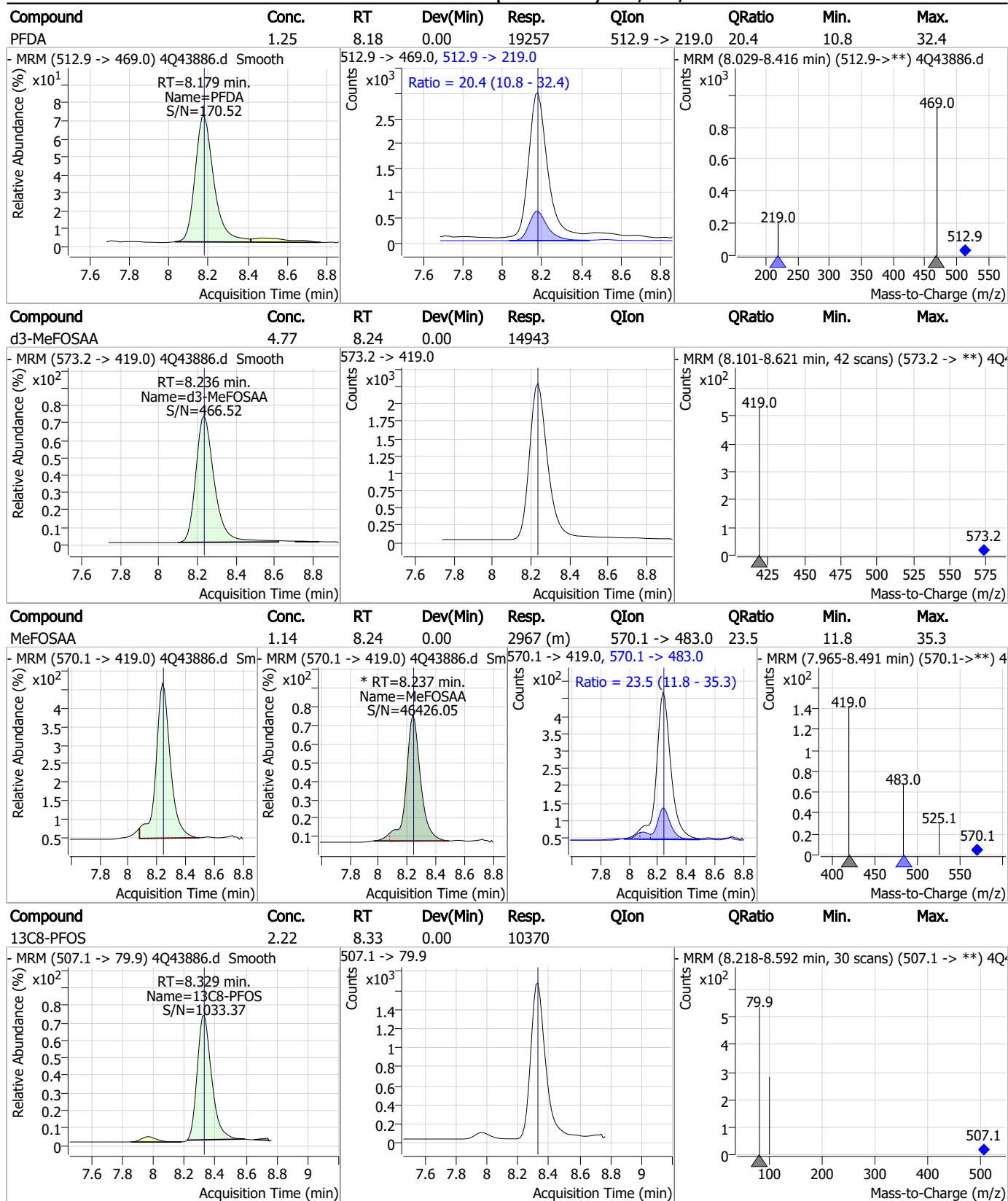
7.7.4
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Perfluorinated Compounds by LC/MS/MS



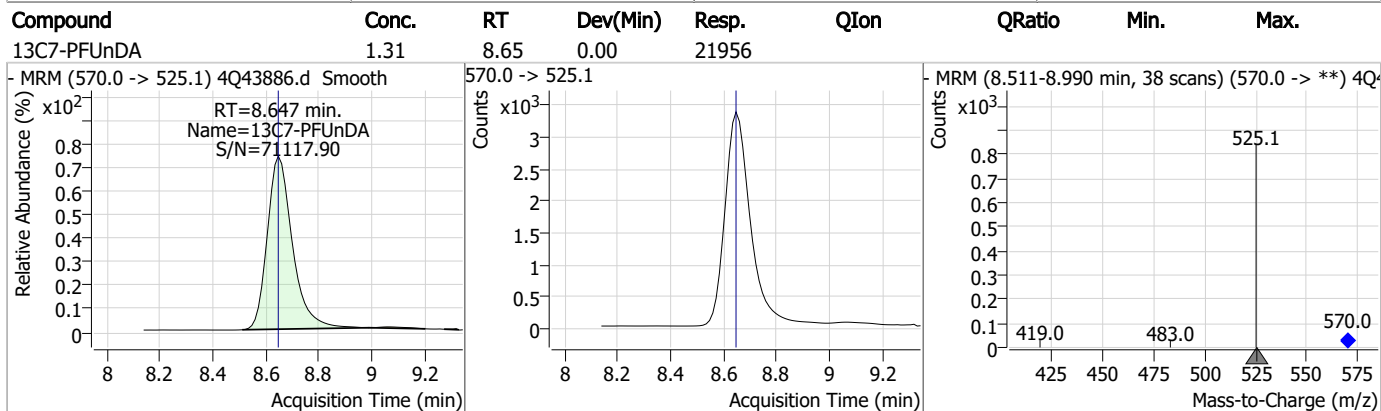
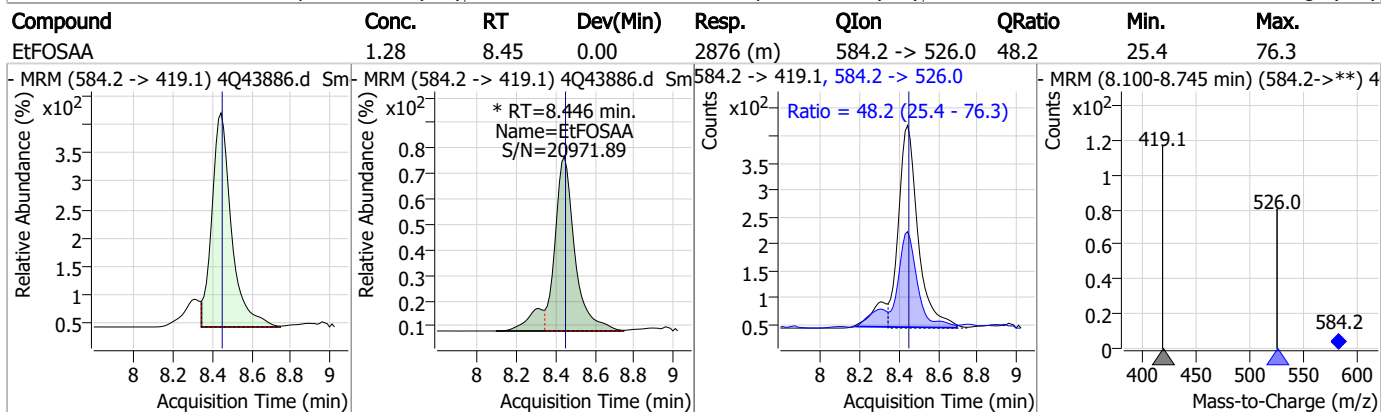
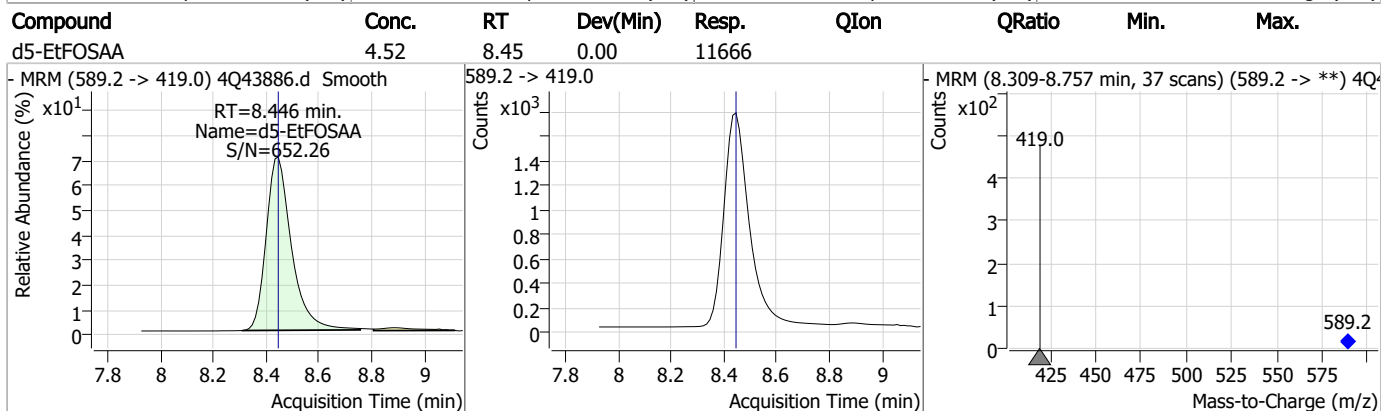
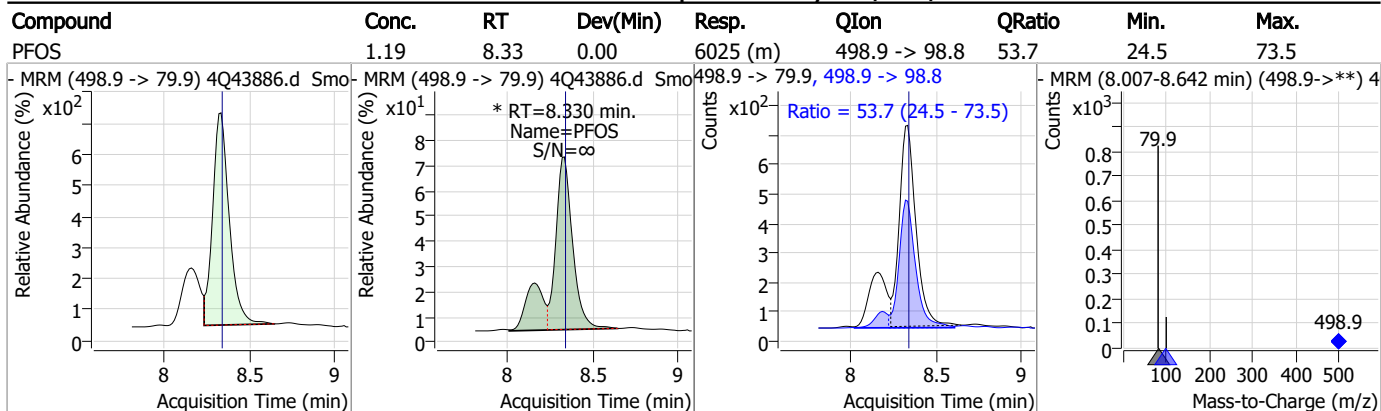
7.7.4
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Perfluorinated Compounds by LC/MS/MS

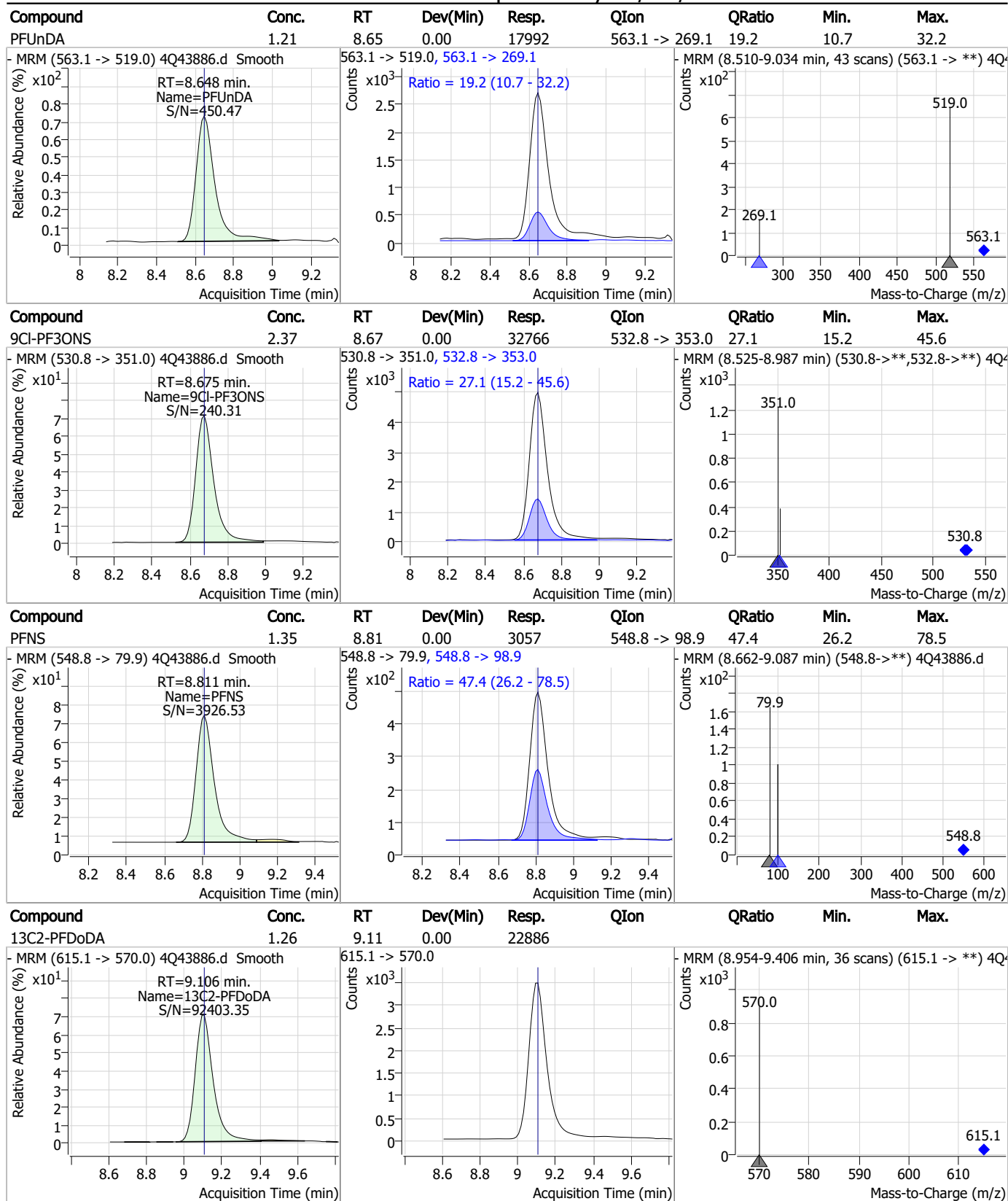


7.7.4
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Perfluorinated Compounds by LC/MS/MS

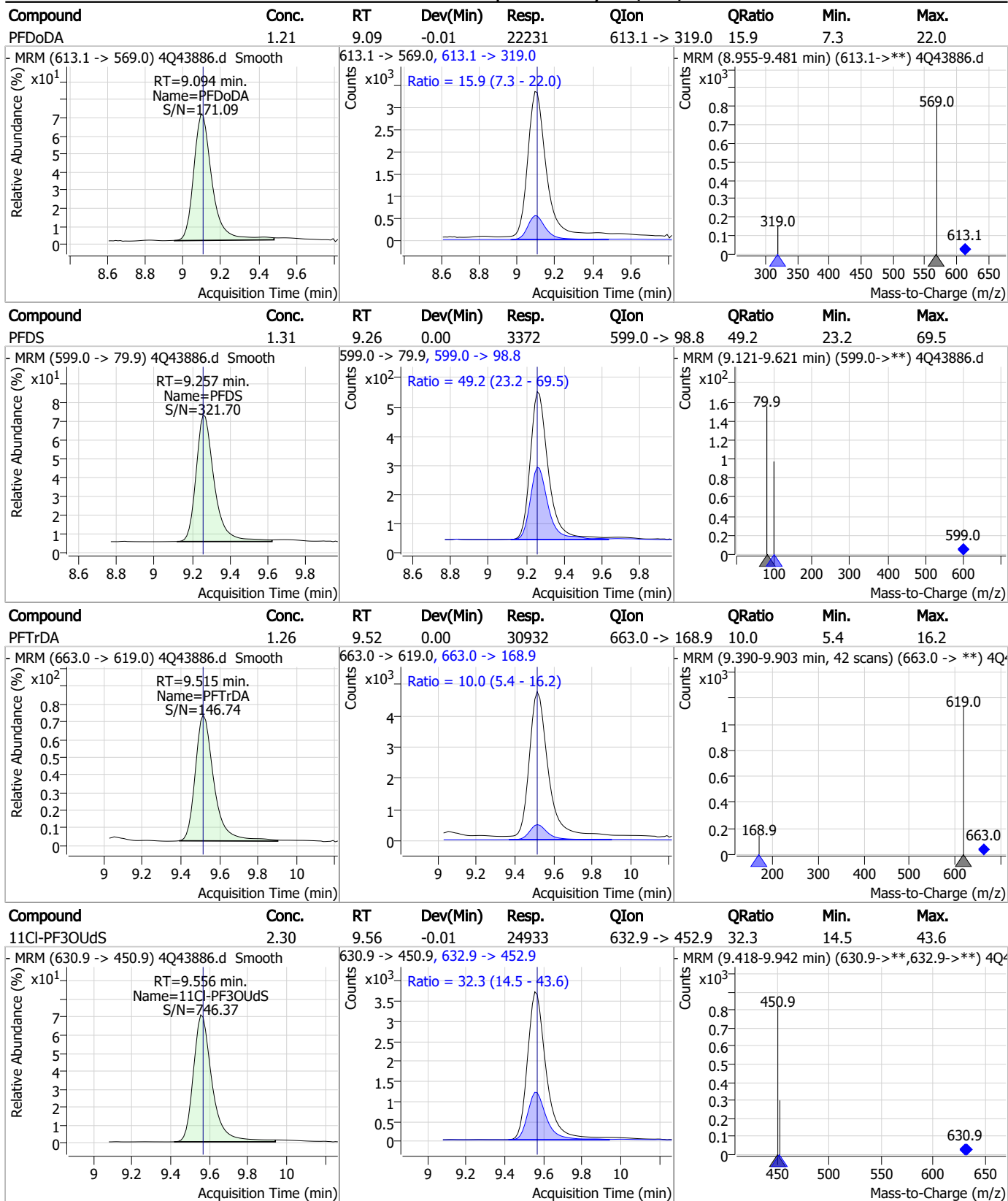


Perfluorinated Compounds by LC/MS/MS



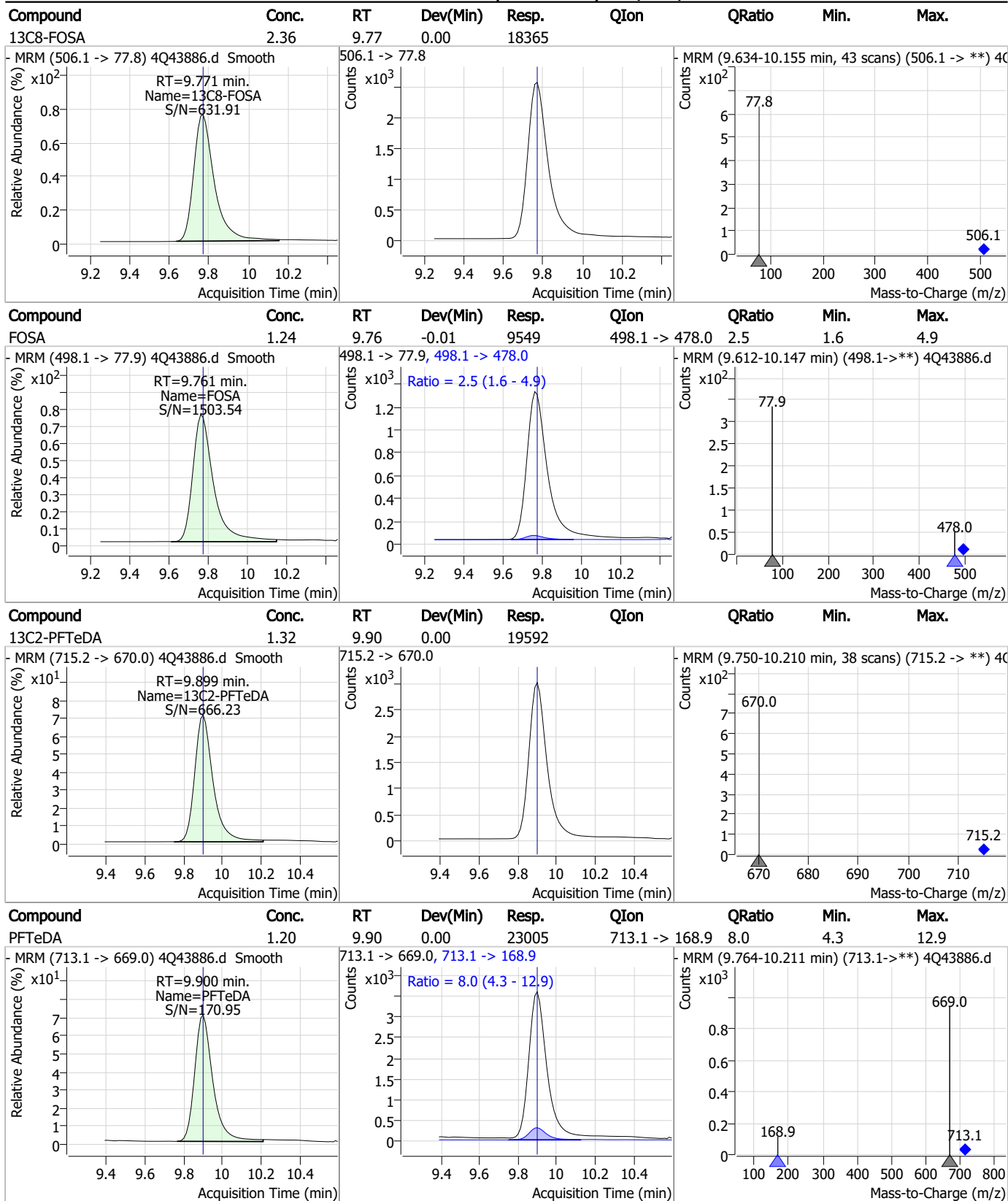
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

Perfluorinated Compounds by LC/MS/MS

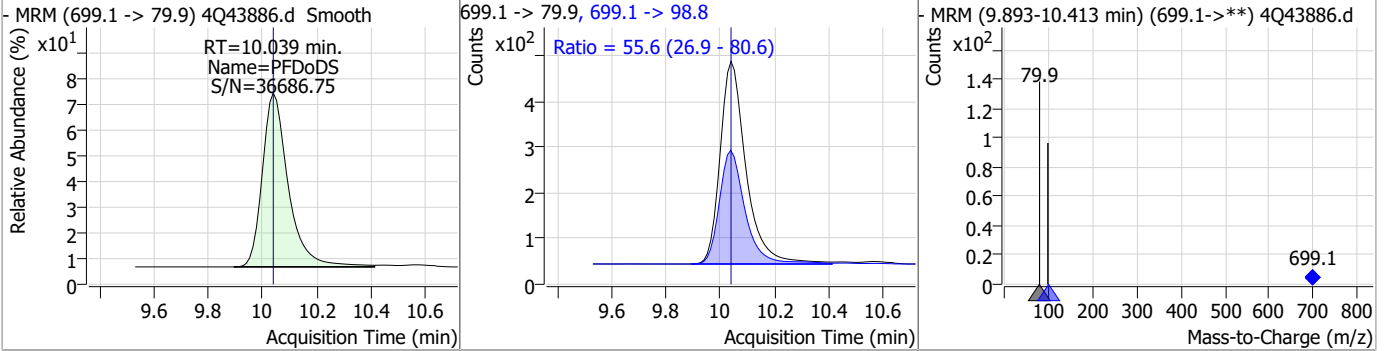


7.7.4

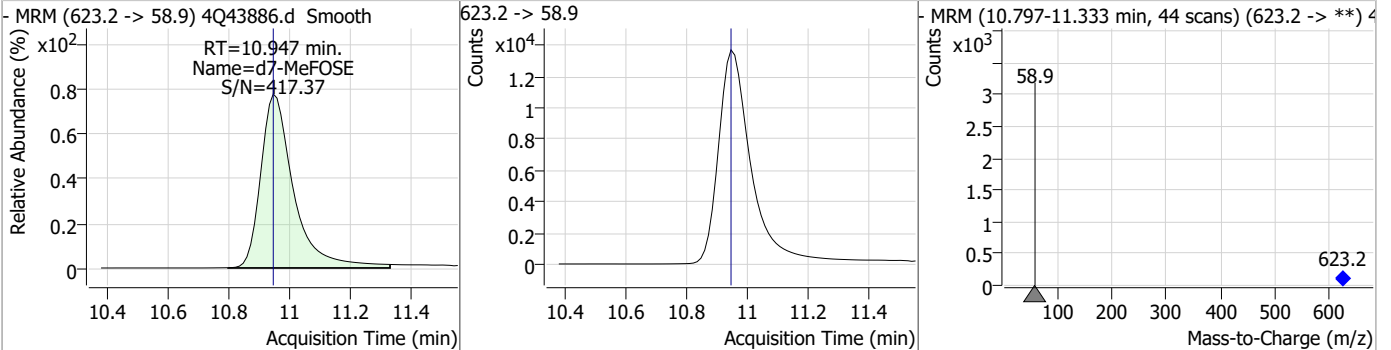
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Perfluorinated Compounds by LC/MS/MS

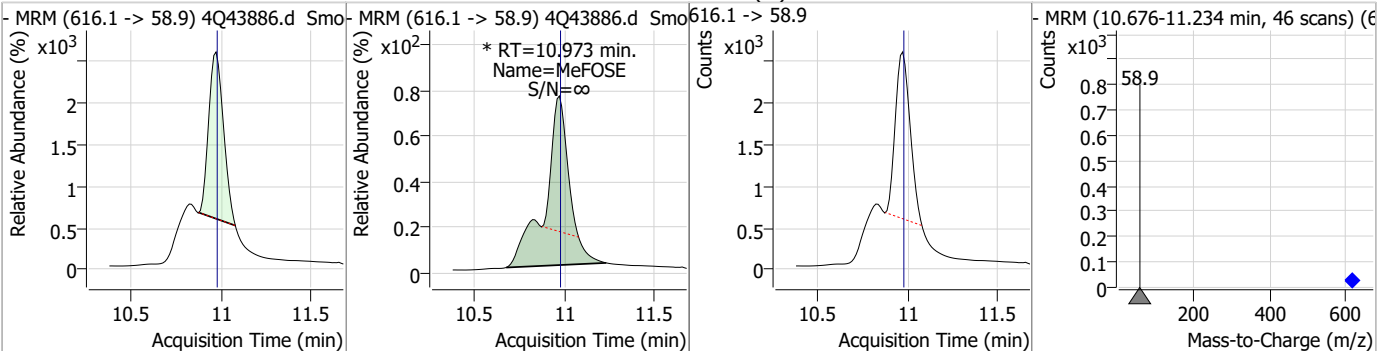
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.29	10.04	0.00	2960	699.1 -> 98.8	55.6	26.9	80.6



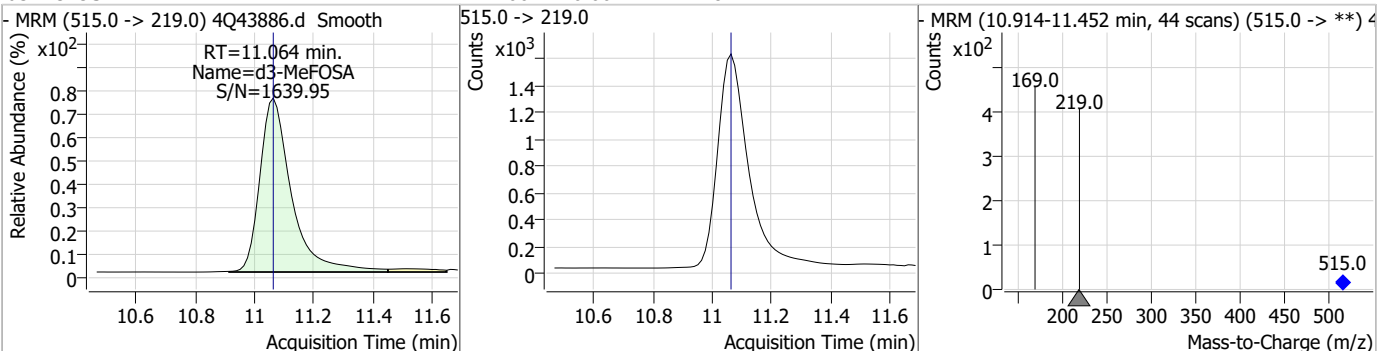
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.70	10.95	0.00	103075				



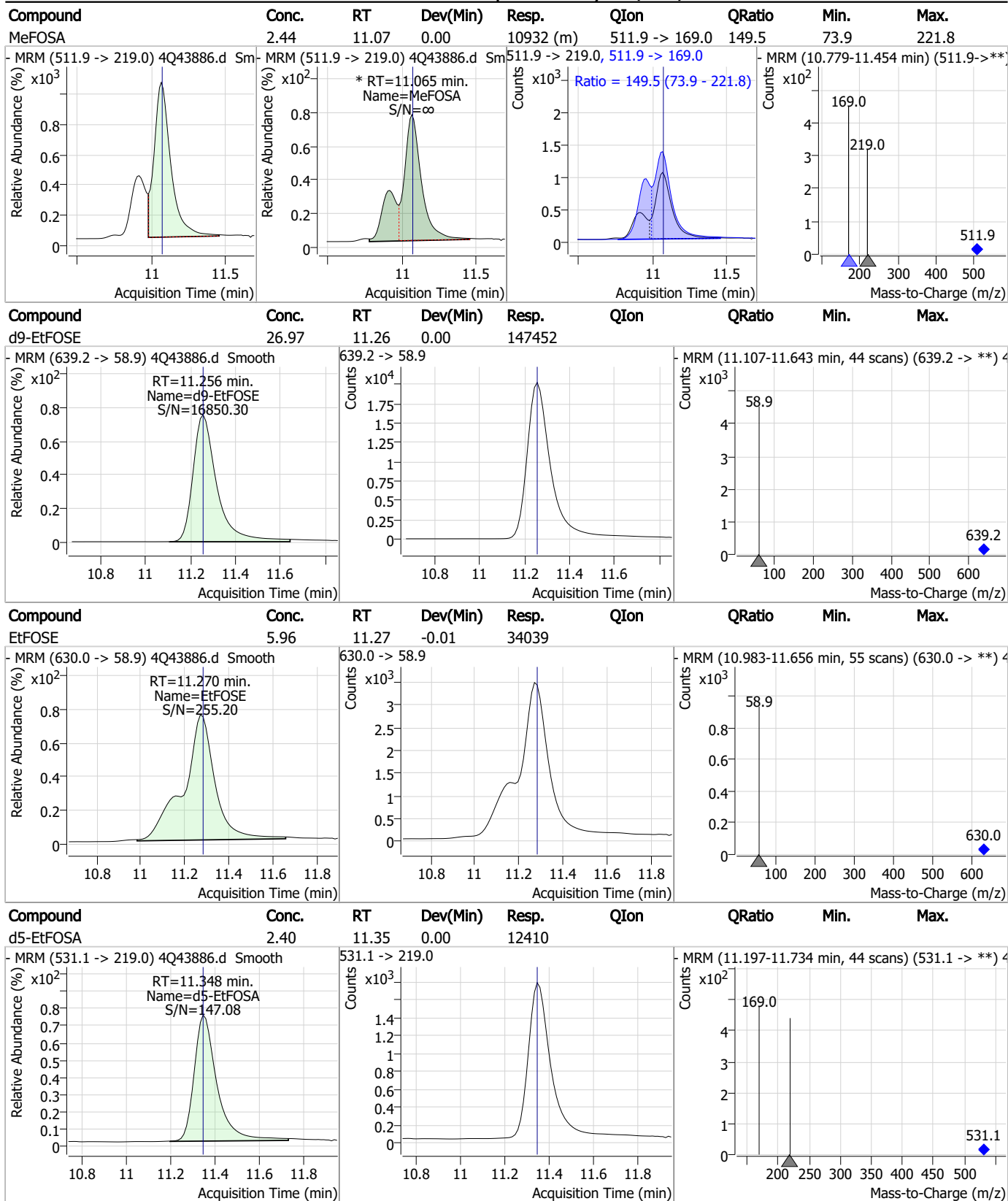
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	5.55	10.97	0.00	23509 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.44	11.06	0.00	11872				

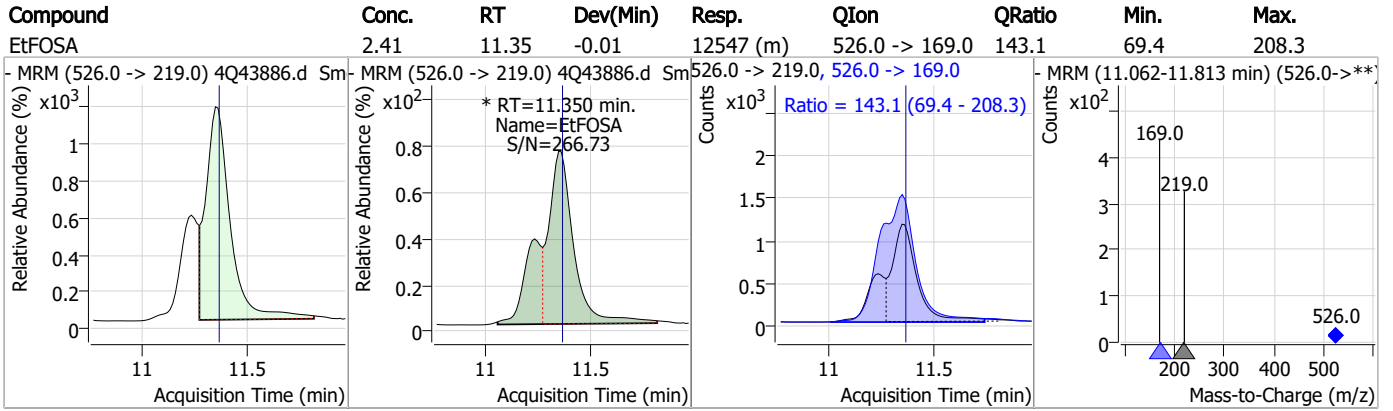


Perfluorinated Compounds by LC/MS/MS



7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43886.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 11:40 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.35	Split peak

7.7.4.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 05/04/23 17:44

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43887.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 11:54:24 AM
 Sample Name : icc634-4
 Vial : P1-A5
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	136945	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	71702	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	49910	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	29610	2.50 µg/L	0.000
M8-PFOA	7.124	421.1 -> 376.0	44424	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	21310	1.25 µg/L	0.000
M6-PFDA	8.178	519.1 -> 474.1	20739	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	21721	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	24668	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	20258	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	19470	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12093	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	7948	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	11069	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1045	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1865	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	2930	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	14878	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30150	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	12886	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	110308	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	150711	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	11717	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	12050	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	11376	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	72159	5.00 µg/L	0.000
18O2-PFHxS	7.228	403.0 -> 83.9	5353	2.50 µg/L	0.000
13C4-PFOA	7.124	417.1 -> 372.0	54891	2.50 µg/L	0.000
13C2-PFDA	8.178	515.1 -> 470.1	19442	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	25730	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	46191	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1045	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1865	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-8:2FTS	7.966	529.1 -> 80.9	2930	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-PFDoDA	9.106	615.1 -> 570.0	24668	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-PFTeDA	9.899	715.2 -> 670.0	20258	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C3-PFBS	5.427	302.1 -> 79.9	12093	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C3-PFHxS	7.229	402.1 -> 79.9	7948	2.40 µg/L	0.000

7.7.5
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C4-PFBA	2.924	216.8 -> 171.9	136945	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	6.467	367.1 -> 322.0	29610	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFHxA	5.535	318.0 -> 273.0	49910	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFPeA	4.362	268.3 -> 223.0	71702	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C6-PFDA	8.178	519.1 -> 474.1	20739	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C7-PFUnDA	8.647	570.0 -> 525.1	21721	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-FOSA	9.771	506.1 -> 77.8	19470	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-PFOA	7.124	421.1 -> 376.0	44424	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOS	8.329	507.1 -> 79.9	11069	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C9-PFNA	7.670	472.1 -> 427.0	21310	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14878	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	30150	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSA	11.064	515.0 -> 219.0	12050	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
d5-EtFOSAA	8.446	589.2 -> 419.0	12886	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d7-MeFOSE	10.947	623.2 -> 58.9	110308	31.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 124.7%	
d9-EtFOSE	11.256	639.2 -> 58.9	150711	30.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 120.3%	
d5-EtFOSA	11.348	531.1 -> 219.0	11717	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	16368	9.73 µg/L	100
		327.1 -> 80.9	7675		
6:2FTS	6.899	427.1 -> 407.0	19037	10.57 µg/L	100
		427.1 -> 80.9	8009		
8:2FTS	7.966	527.1 -> 507.0	16898	10.35 µg/L	100
		527.1 -> 80.8	7139		
EtFOSAA	8.446	584.2 -> 419.1	5251	2.12 µg/L	m 100
		584.2 -> 526.0	2672		
FOSA	9.774	498.1 -> 77.9	19654	2.41 µg/L	100
		498.1 -> 478.0	646		
MeFOSAA	8.237	570.1 -> 419.0	5917	2.28 µg/L	m 100
		570.1 -> 483.0	1394		
PFBA	2.932	212.8 -> 168.9	35630	9.72 µg/L	100
PFBS	5.428	298.7 -> 79.9	11011	2.22 µg/L	100
		298.7 -> 98.8	4473		
PFDA	8.179	512.9 -> 469.0	37828	2.40 µg/L	100
		512.9 -> 219.0	8158		
PFDODA	9.106	613.1 -> 569.0	46925	2.37 µg/L	100
		613.1 -> 319.0	6874		
PFDS	9.257	599.0 -> 79.9	6593	2.40 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3053			
PFHpA	6.468	363.1 -> 319.0	45754	2.44	µg/L	100
		363.1 -> 169.0	8131			
PFHpS	7.811	449.0 -> 79.9	8932	2.24	µg/L	100
		449.0 -> 98.9	4767			
PFHxA	5.538	313.0 -> 269.0	48280	2.47	µg/L	100
		313.0 -> 118.9	1419			
PFHxS	7.230	398.7 -> 79.9	7700	2.36	µg/L	m 100
		398.7 -> 98.9	3861			
PFNA	7.685	463.0 -> 419.0	38083	2.41	µg/L	100
		463.0 -> 219.0	9466			
PFNS	8.811	548.8 -> 79.9	5533	2.29	µg/L	100
		548.8 -> 98.9	2894			
PFOA	7.125	413.0 -> 369.0	66788	2.61	µg/L	100
		413.0 -> 169.0	12884			
PFOS	8.330	498.9 -> 79.9	12700	2.34	µg/L	m 100
		498.9 -> 98.8	6227			
PFPeA	4.364	263.0 -> 219.0	85901	4.98	µg/L	100
PFPeS	6.494	349.1 -> 79.9	6690	2.39	µg/L	100
		349.1 -> 98.9	3083			
PFTeDA	9.900	713.1 -> 669.0	48732	2.46	µg/L	100
		713.1 -> 168.9	4176			
PFTrDA	9.515	663.0 -> 619.0	64267	2.43	µg/L	100
		663.0 -> 168.9	6945			
PFUnDA	8.648	563.1 -> 519.0	37222	2.52	µg/L	100
		563.1 -> 269.1	7998			
11CI-PF3OUdS	9.568	630.9 -> 450.9	52167	4.81	µg/L	100
		632.9 -> 452.9	15156			
9CI-PF3ONS	8.675	530.8 -> 351.0	64137	4.64	µg/L	100
		532.8 -> 353.0	19505			
ADONA	6.731	376.9 -> 250.9	142578	4.70	µg/L	100
		376.9 -> 84.8	37314			
HFPO-DA	5.891	284.9 -> 168.9	14161	4.92	µg/L	100
		284.9 -> 184.9	1610			
3:3FTCA	3.836	241.0 -> 177.0	9126	12.02	µg/L	100
		241.0 -> 117.0	789			
5:3FTCA	6.193	341.0 -> 237.1	168151	63.37	µg/L	100
		341.0 -> 217.0	114841			
7:3FTCA	7.649	441.0 -> 316.9	87477	63.45	µg/L	100
		441.0 -> 336.9	209338			
EtFOSA	11.362	526.0 -> 219.0	25279	5.15	µg/L	100
		526.0 -> 169.0	35104			
EtFOSE	11.282	630.0 -> 58.9	71271	12.22	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	21827	4.81	µg/L	m 100
		511.9 -> 169.0	32269			
MeFOSE	10.973	616.1 -> 58.9	56025	12.37	µg/L	m 100
PFDoDS	10.039	699.1 -> 79.9	5823	2.38	µg/L	100
		699.1 -> 98.8	3130			
NFDHA	5.416	295.0 -> 201.0	7223	5.17	µg/L	100
		295.0 -> 84.9	1983			
PFMBA	4.778	279.0 -> 85.1	46882	4.87	µg/L	100
PFMPA	3.528	229.0 -> 84.9	44190	4.90	µg/L	100
PFEESA	5.959	314.8 -> 134.9	65159	4.40	µg/L	100
		314.8 -> 82.9	2381			

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

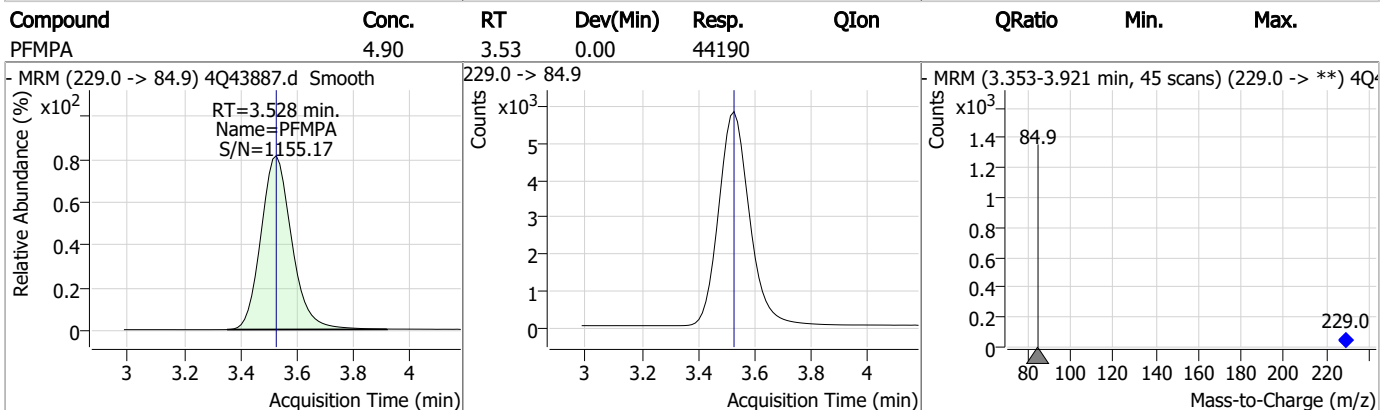
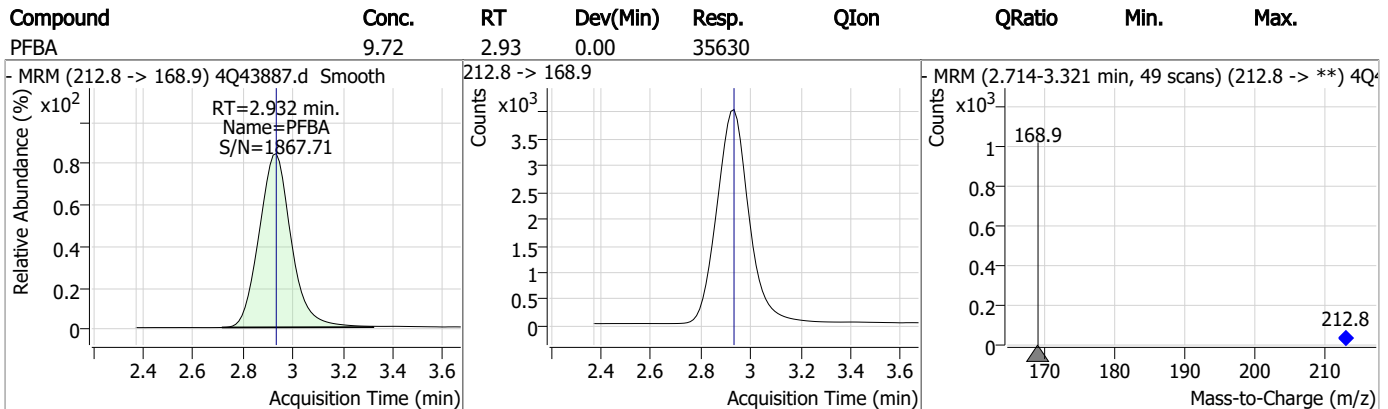
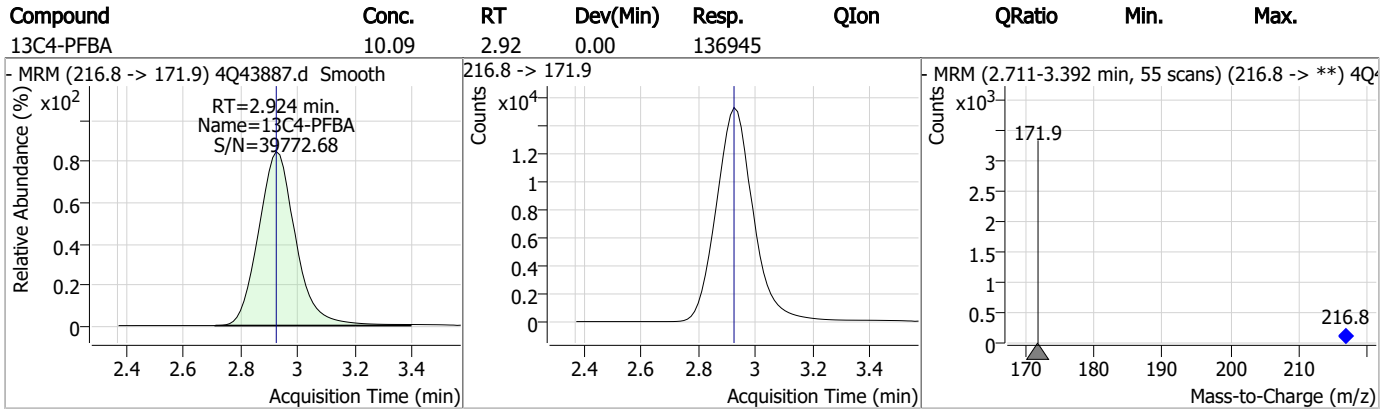
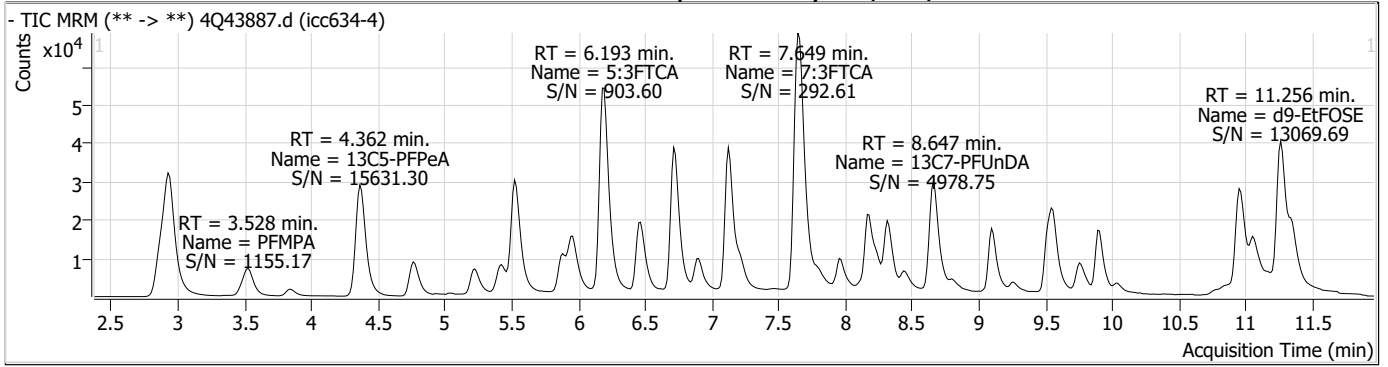
Perfluorinated Compounds by LC/MS/MS

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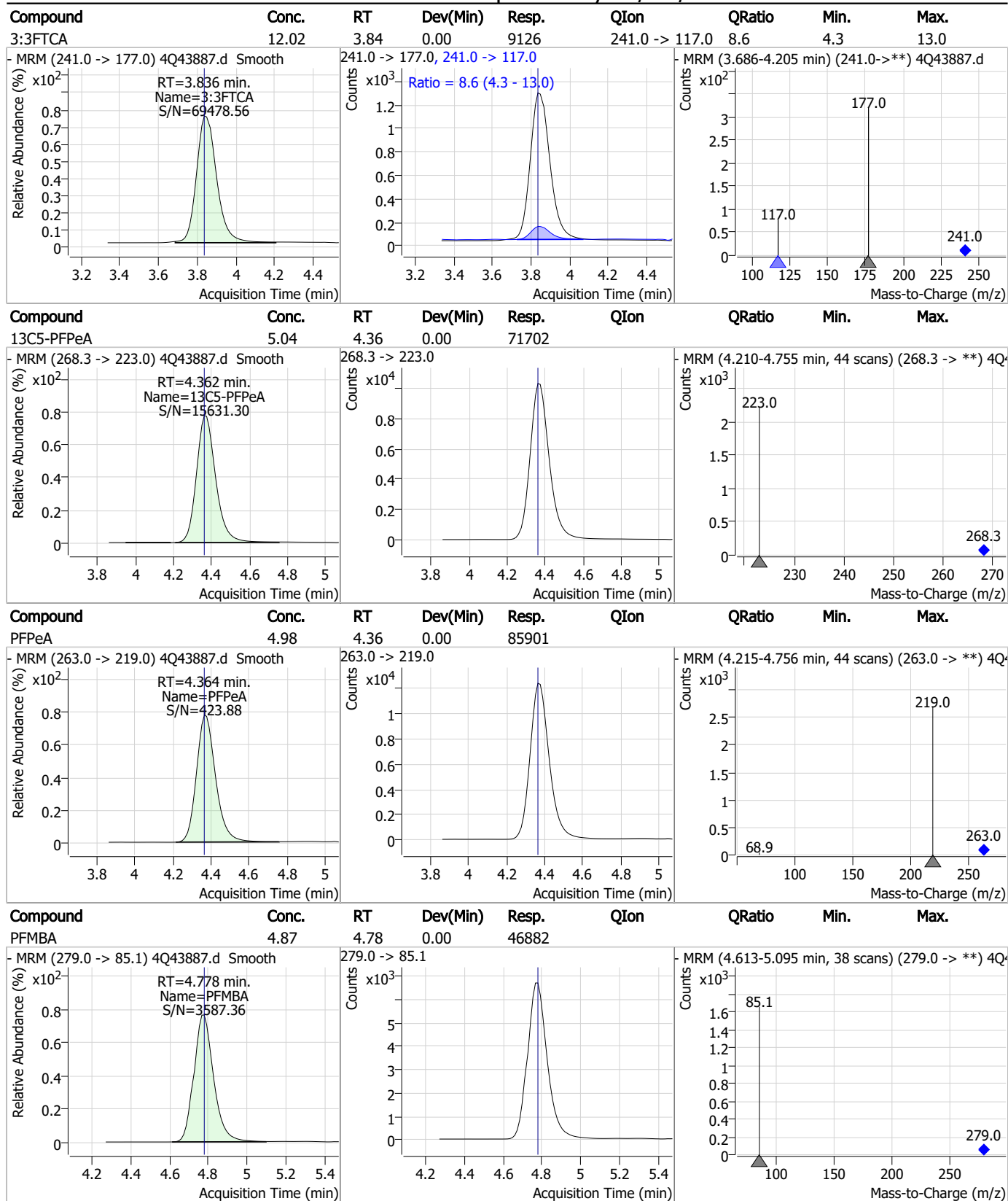
7.7.5

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Perfluorinated Compounds by LC/MS/MS

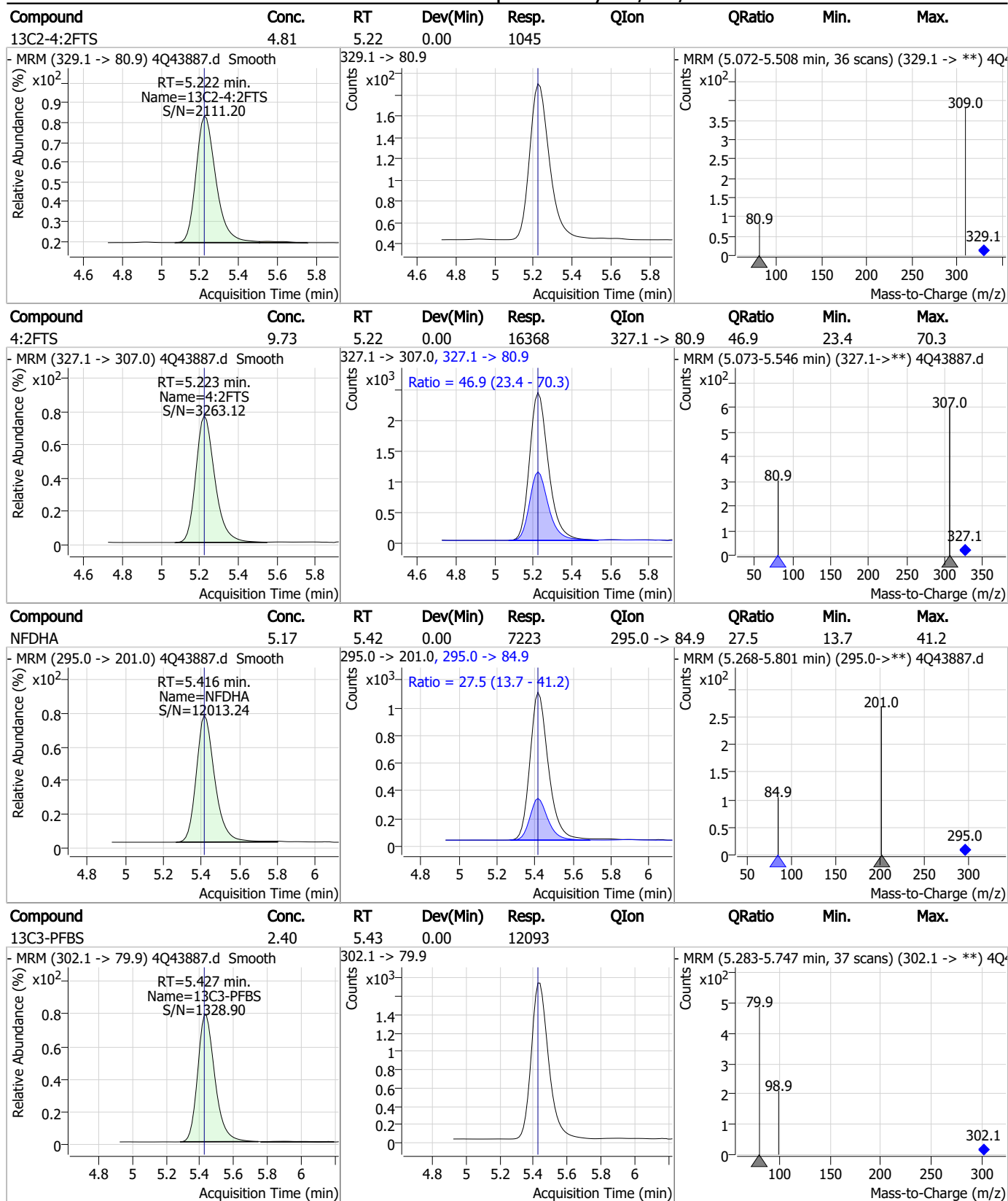


Perfluorinated Compounds by LC/MS/MS



7.7.5
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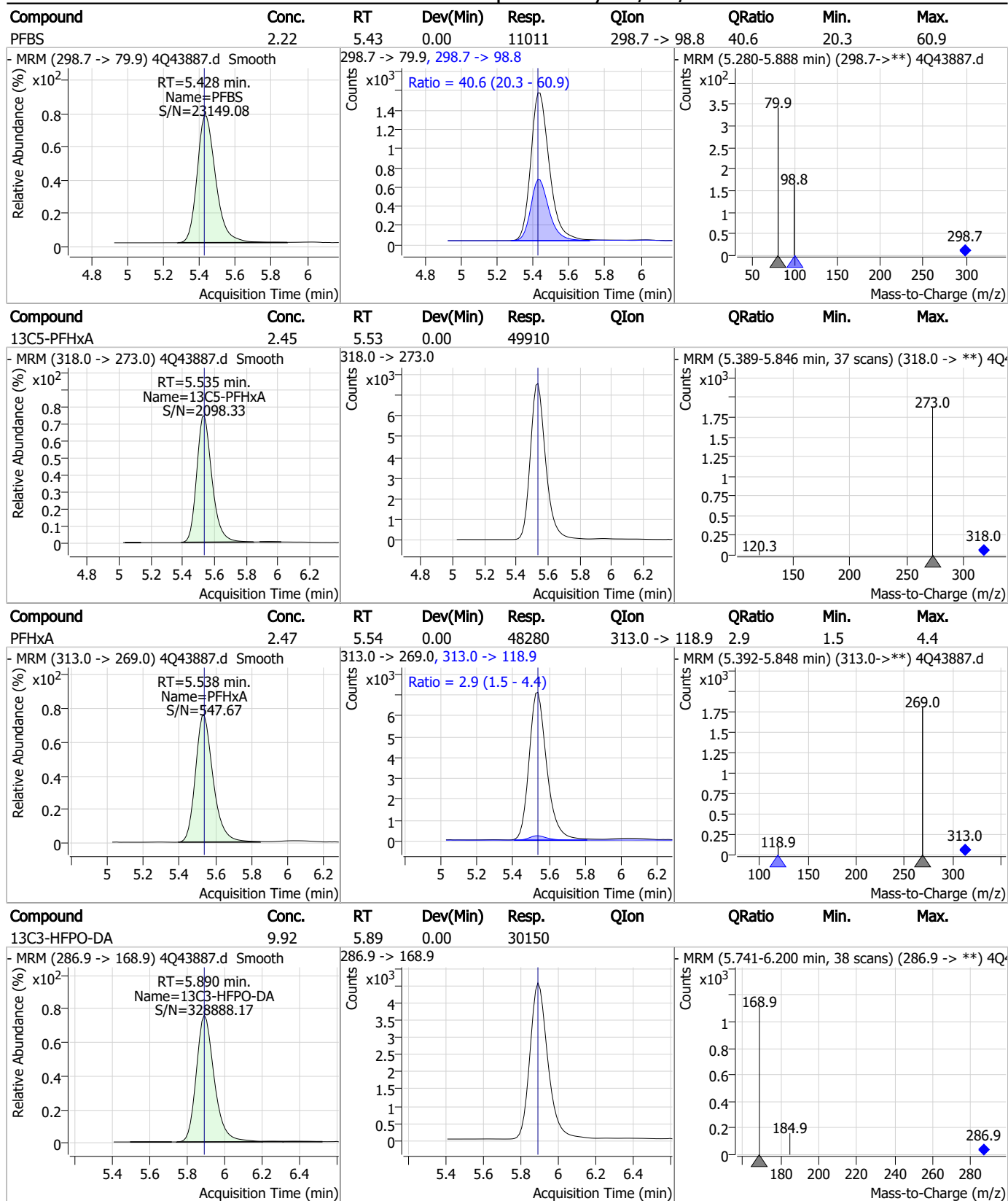
Perfluorinated Compounds by LC/MS/MS



7.7.5

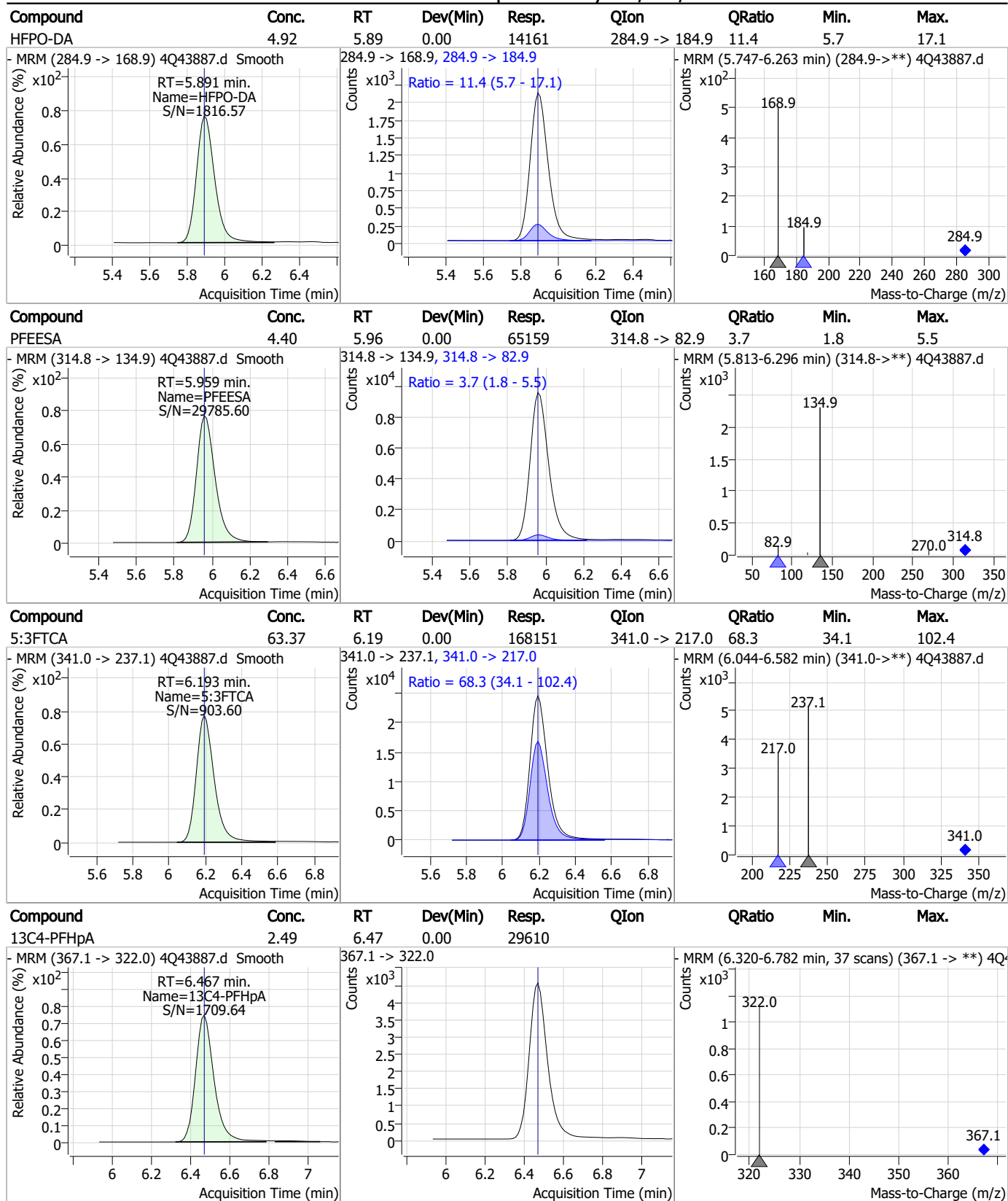
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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Perfluorinated Compounds by LC/MS/MS

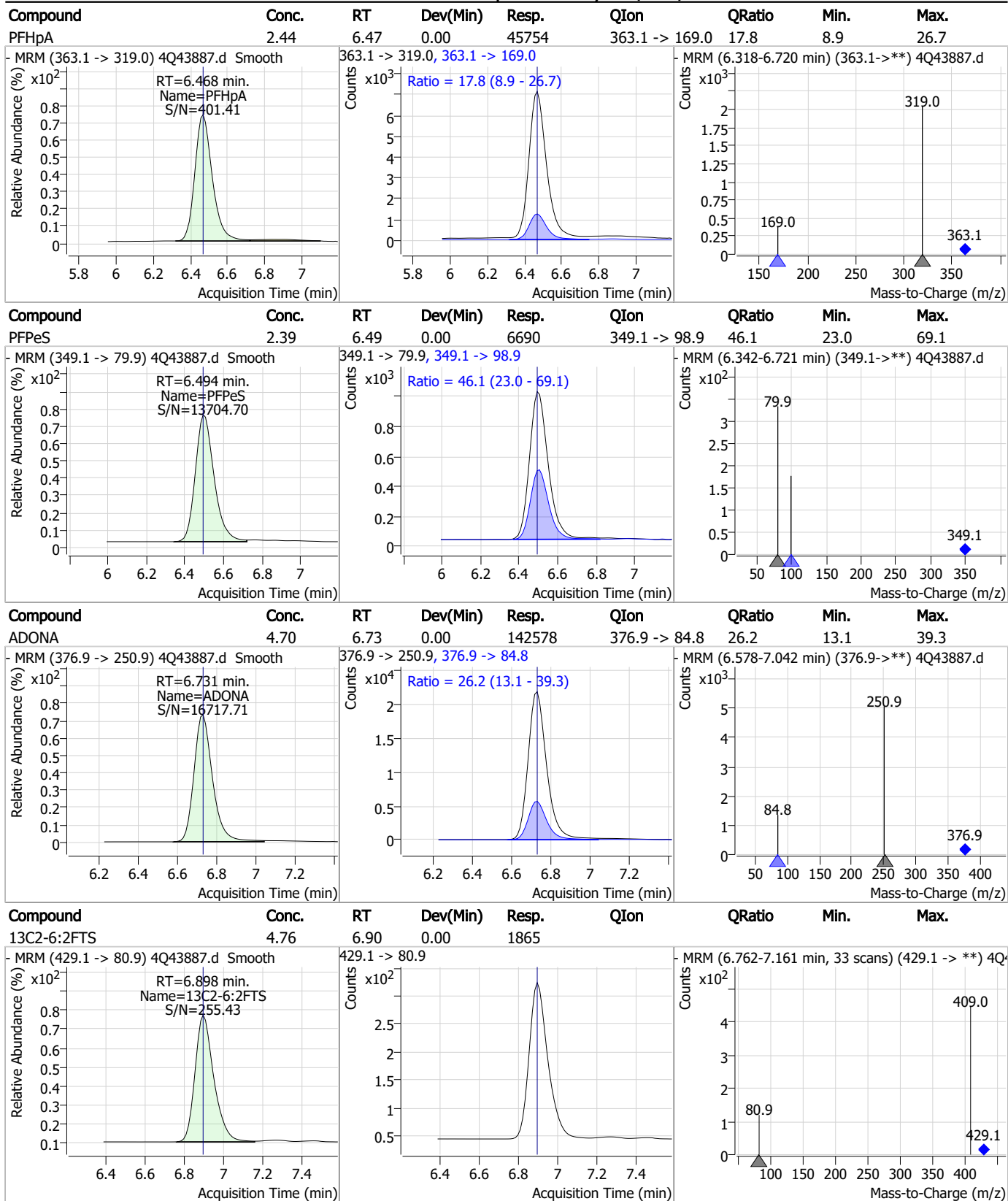


7.7.5

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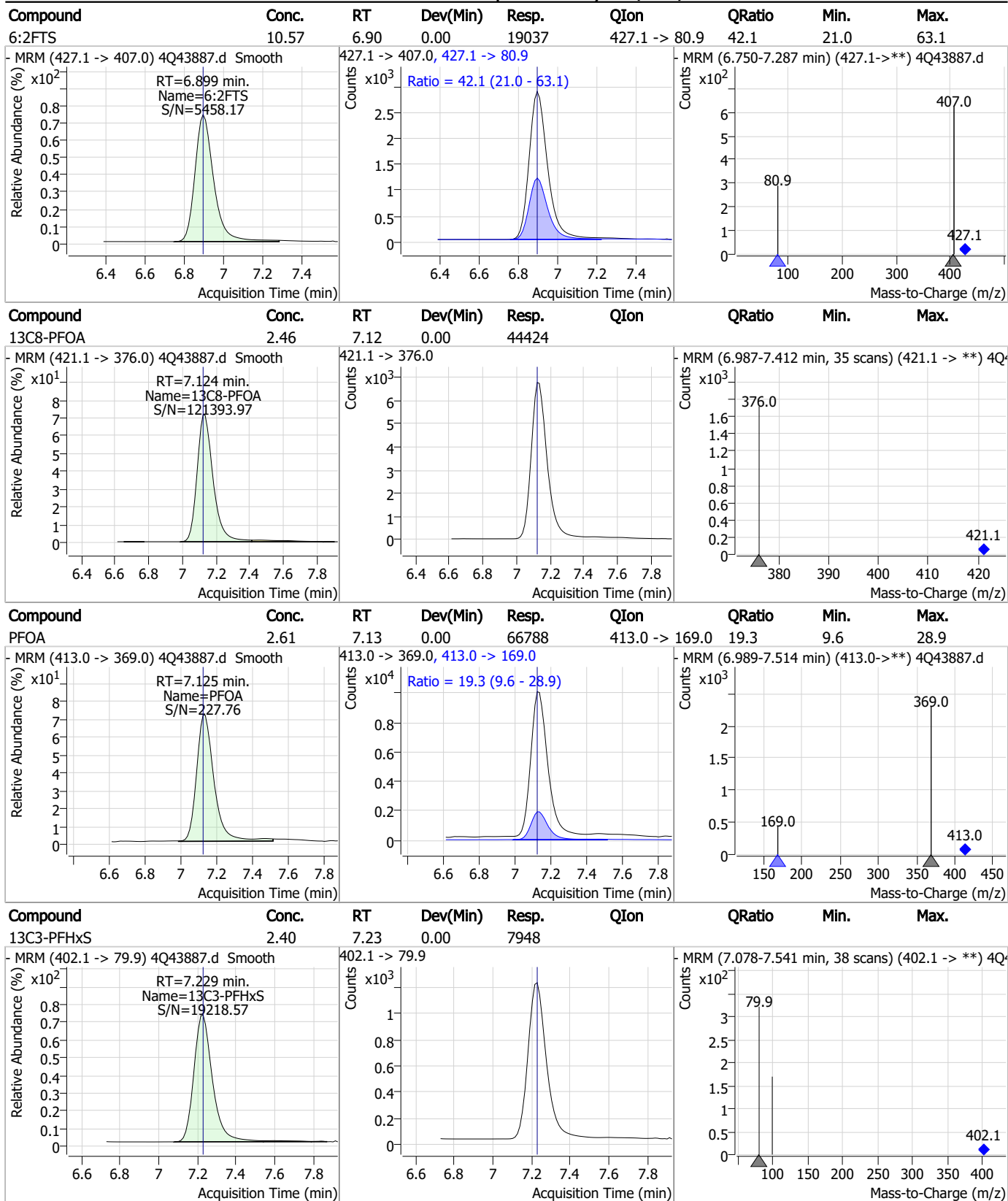


Perfluorinated Compounds by LC/MS/MS



7.7.5
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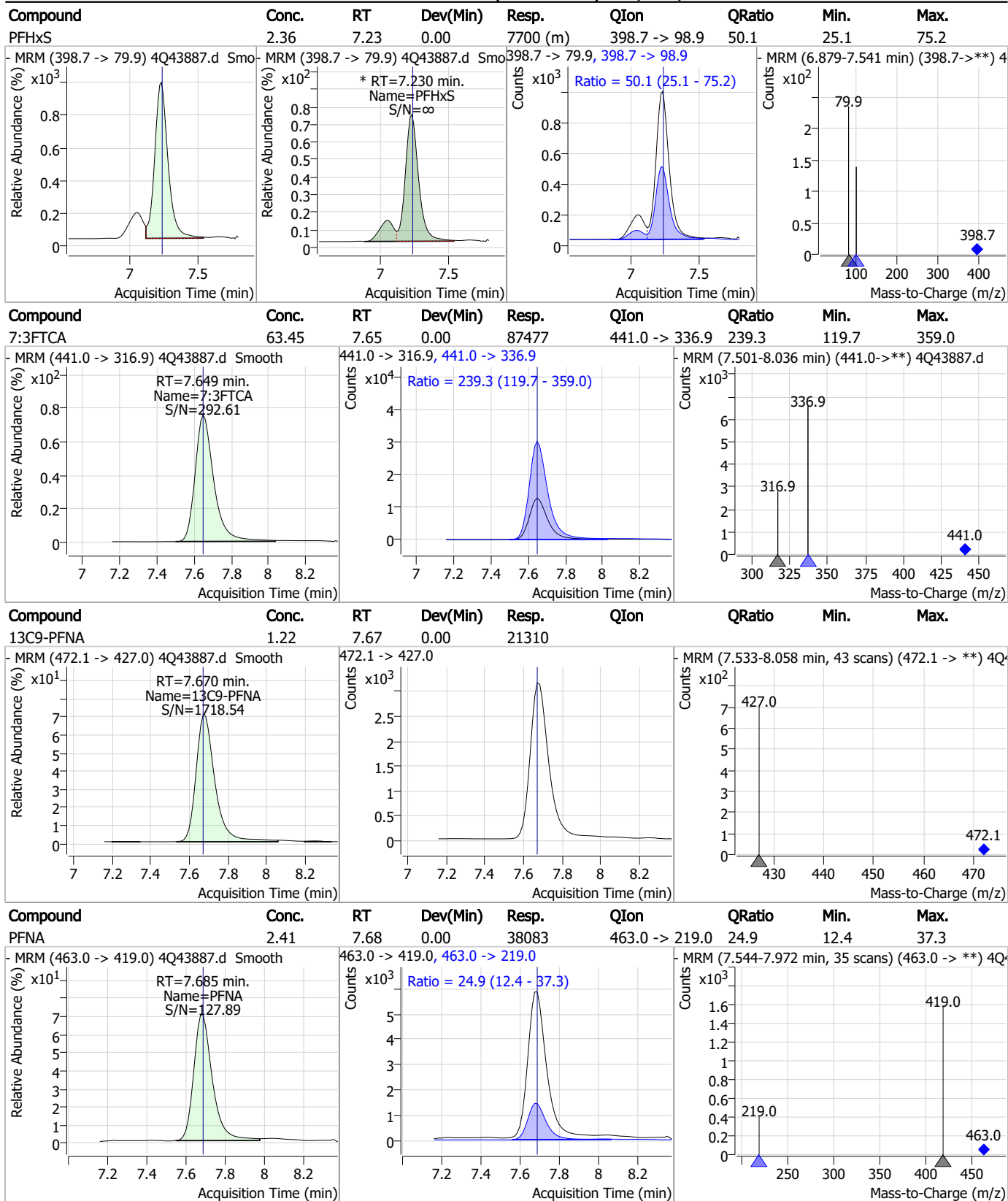
Perfluorinated Compounds by LC/MS/MS



7.7.5

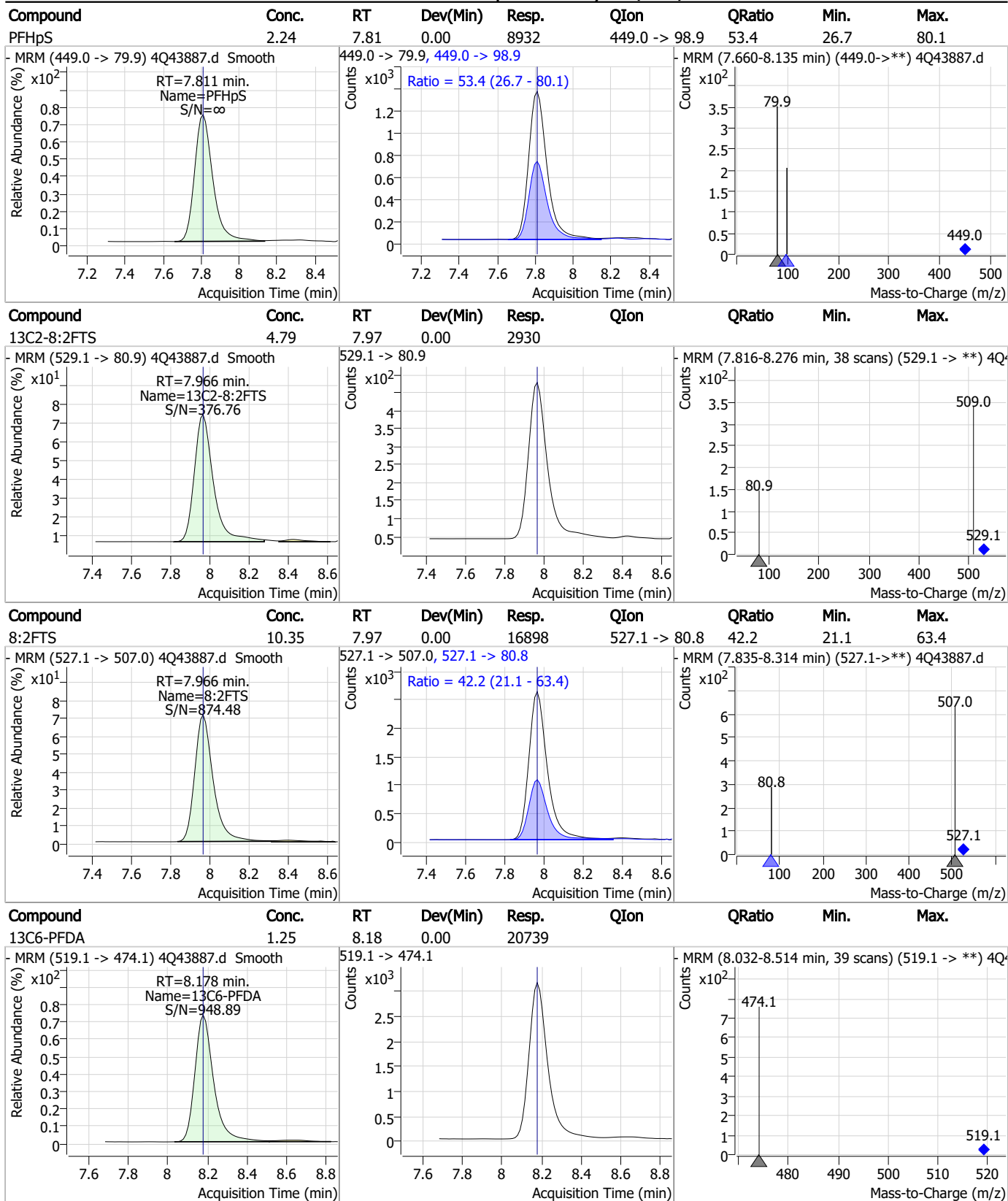
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Perfluorinated Compounds by LC/MS/MS



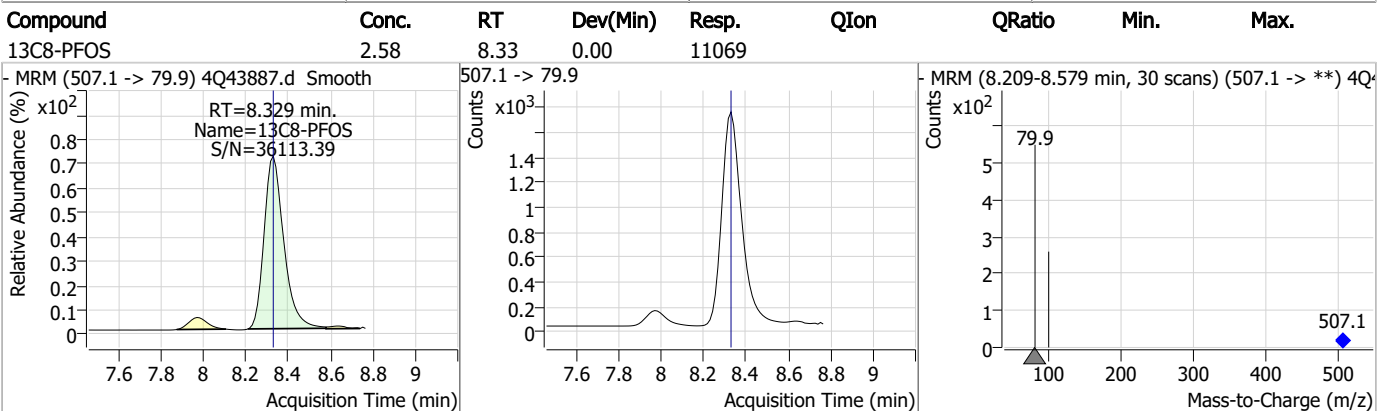
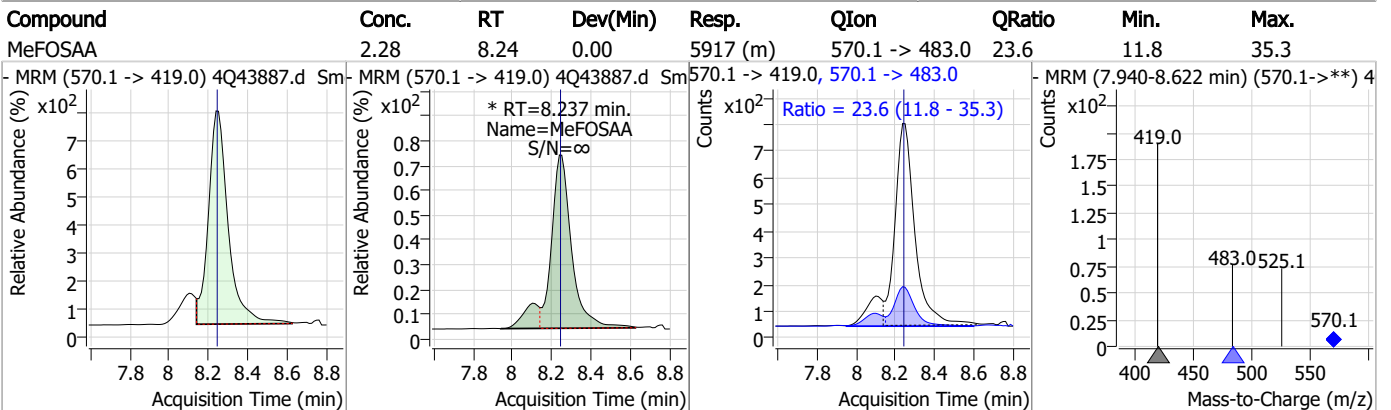
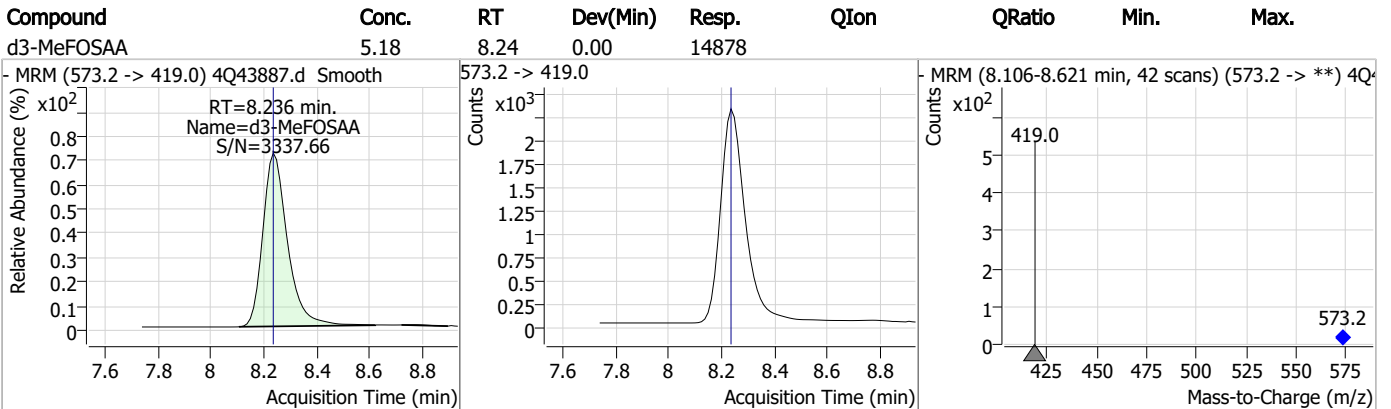
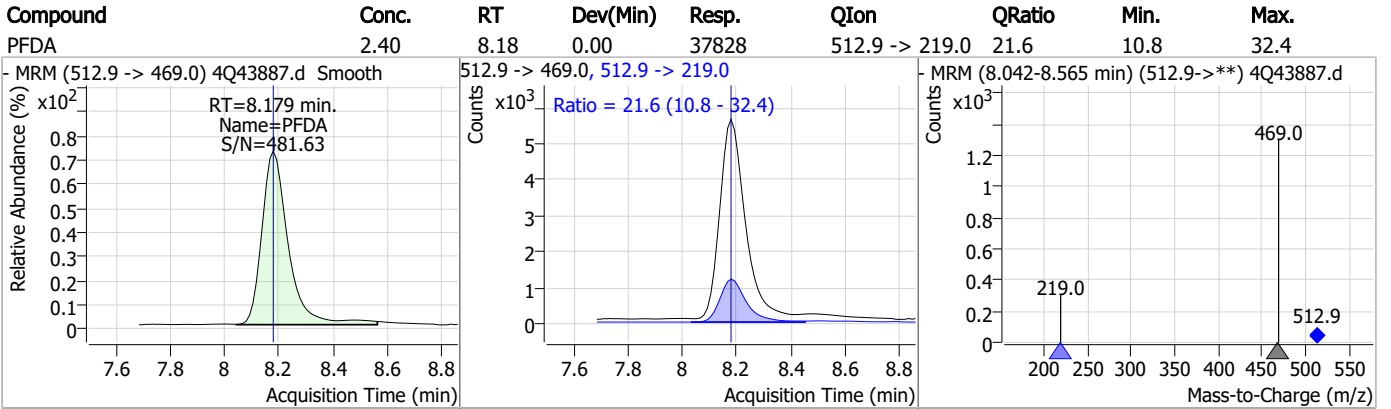
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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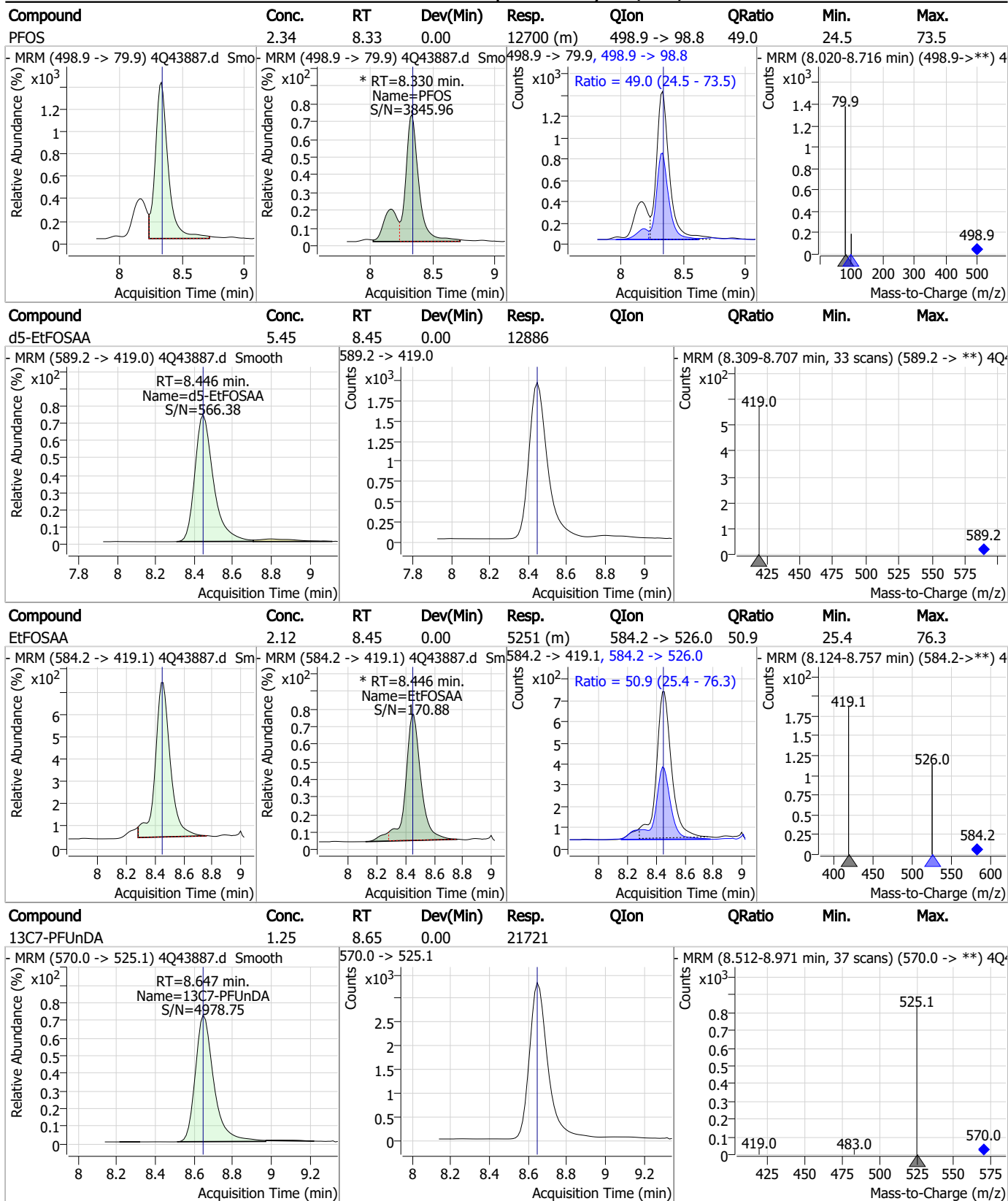
Perfluorinated Compounds by LC/MS/MS



7.7.5

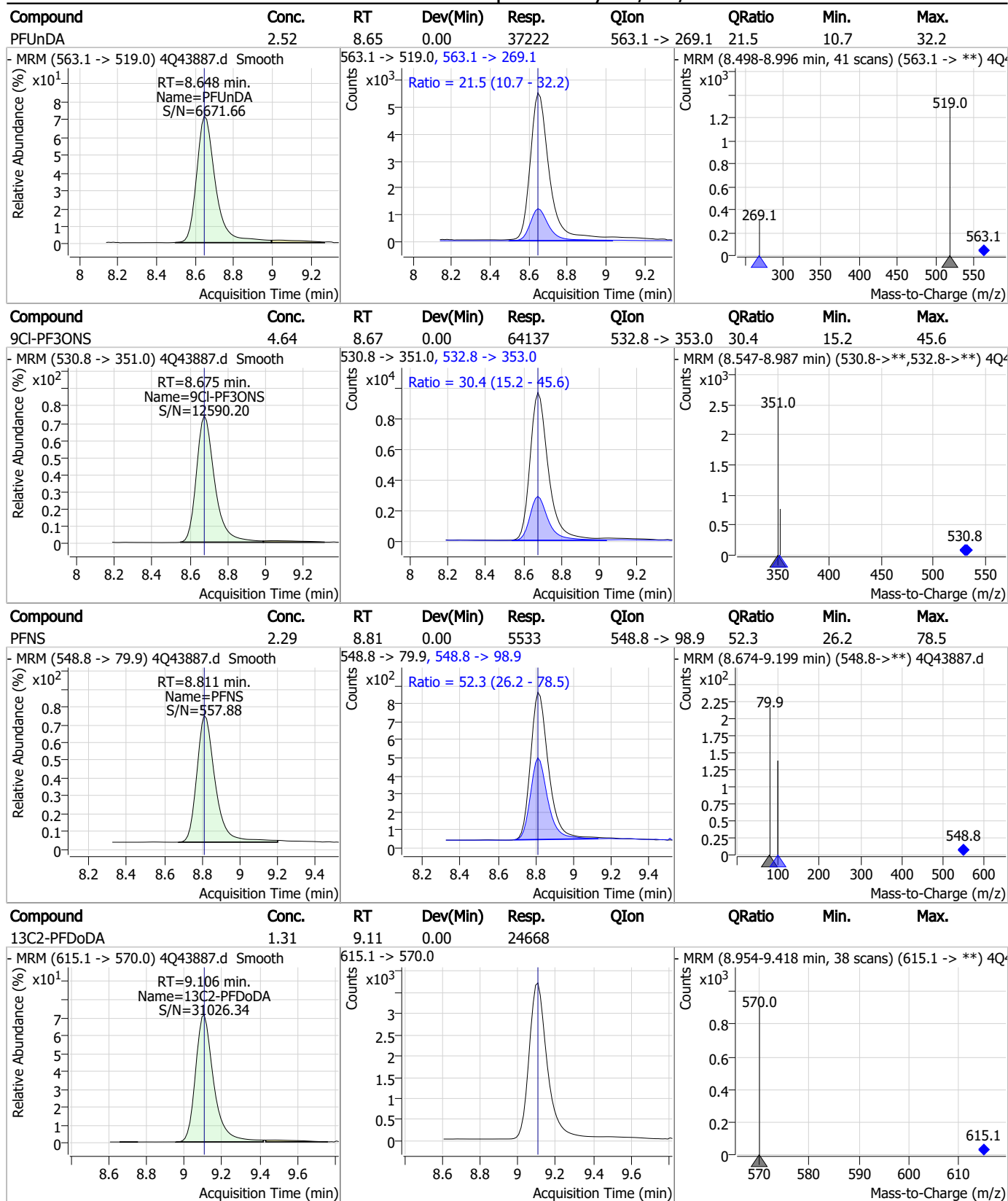
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Perfluorinated Compounds by LC/MS/MS



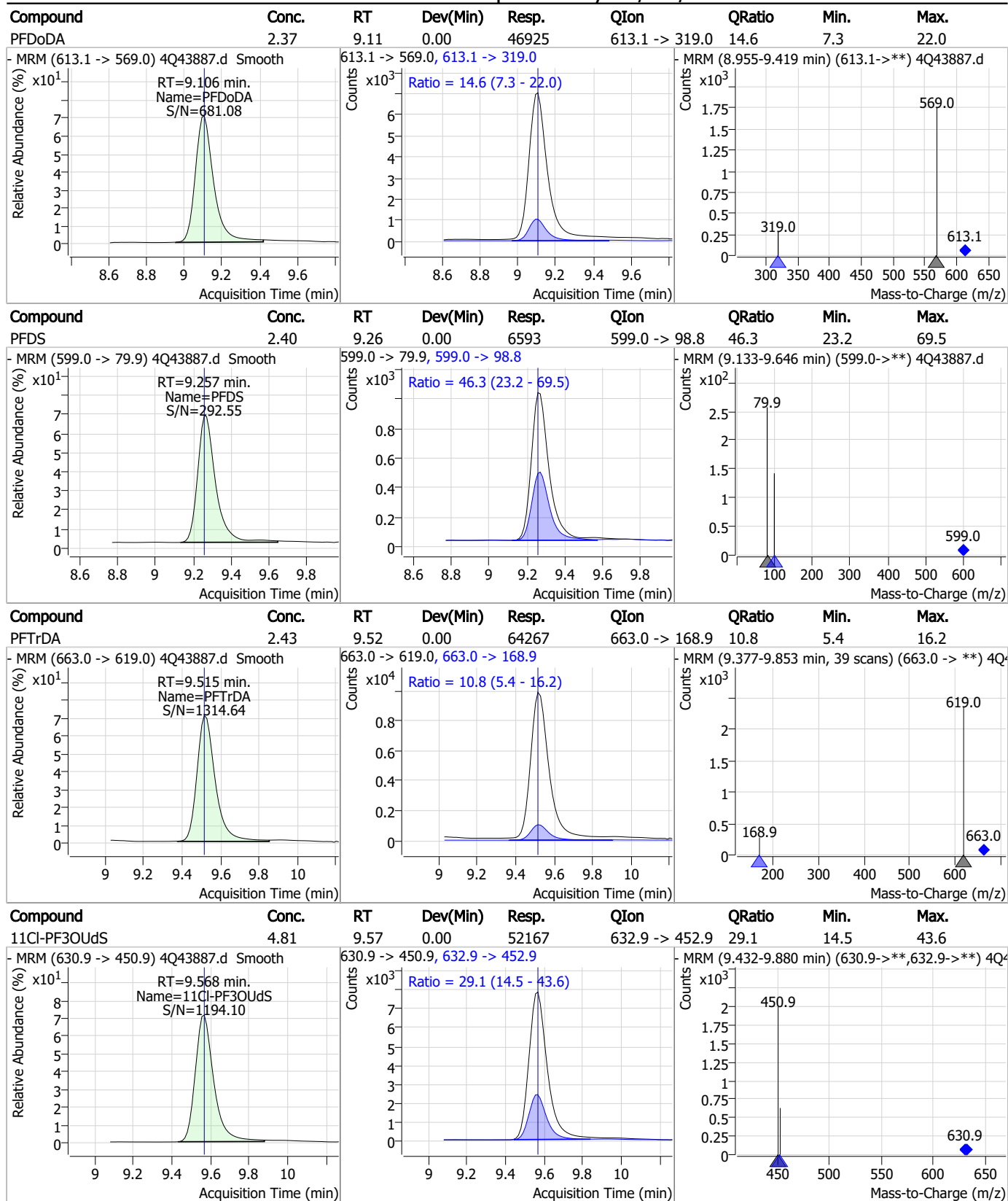
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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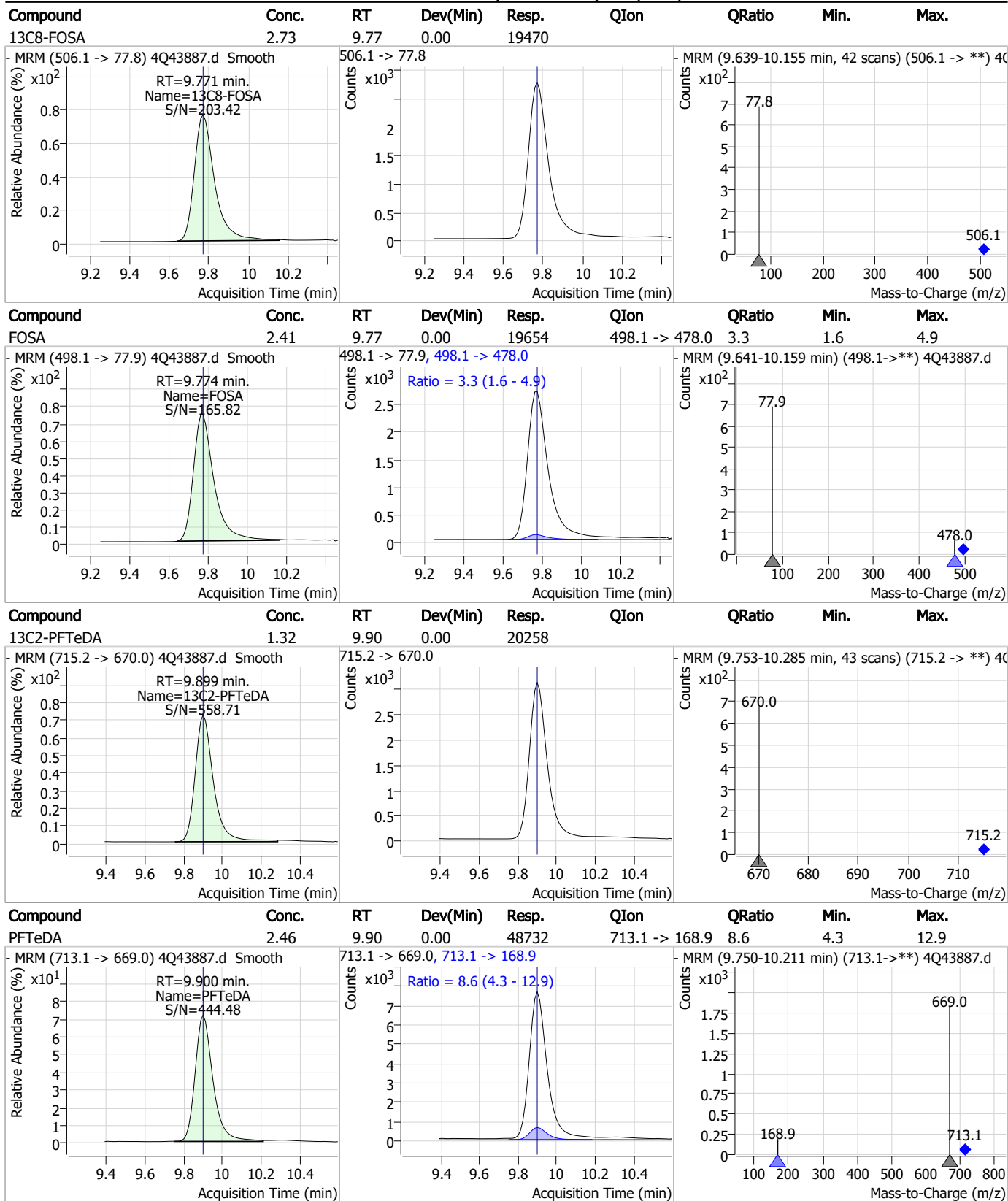
Perfluorinated Compounds by LC/MS/MS



7.7.5

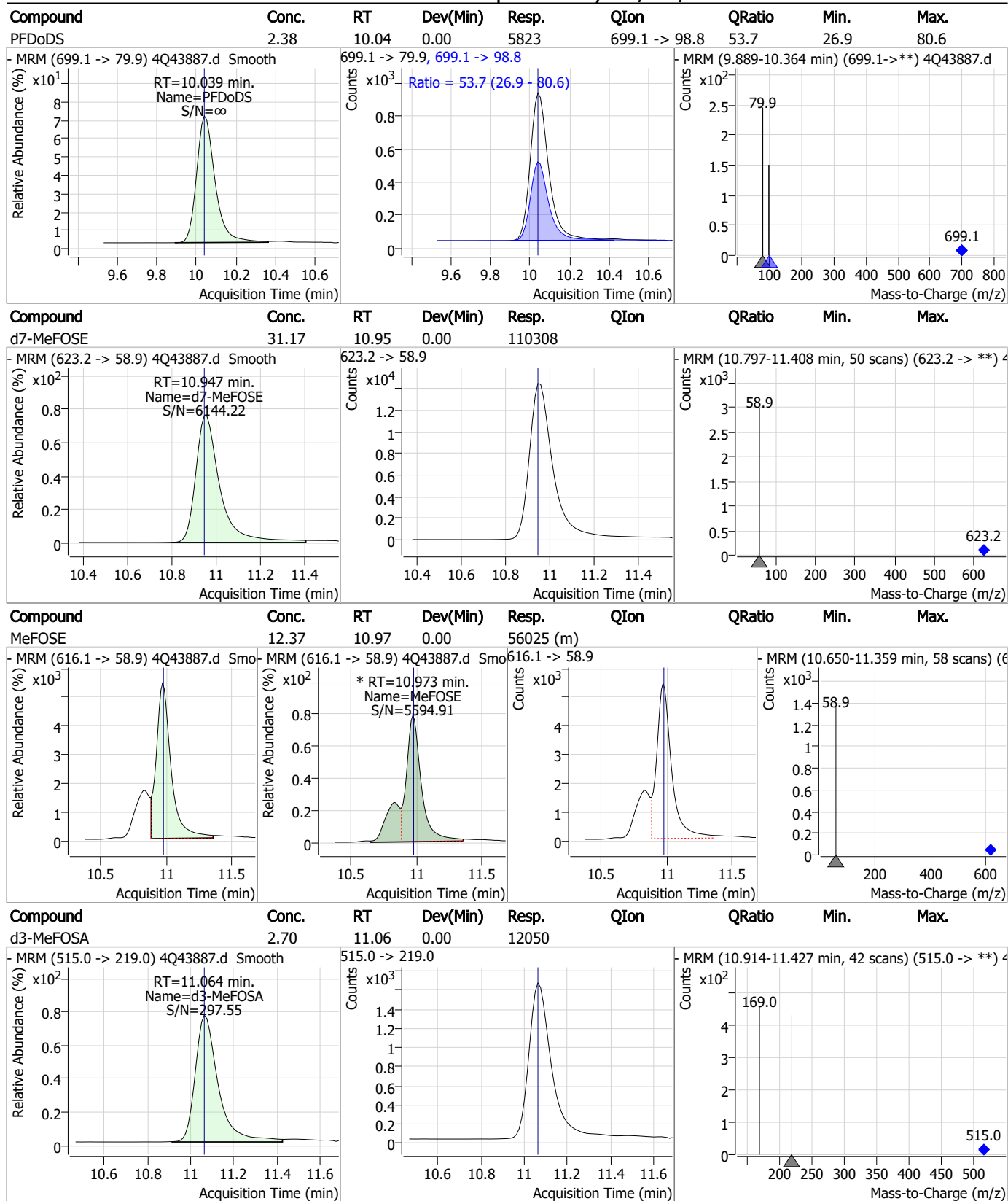
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

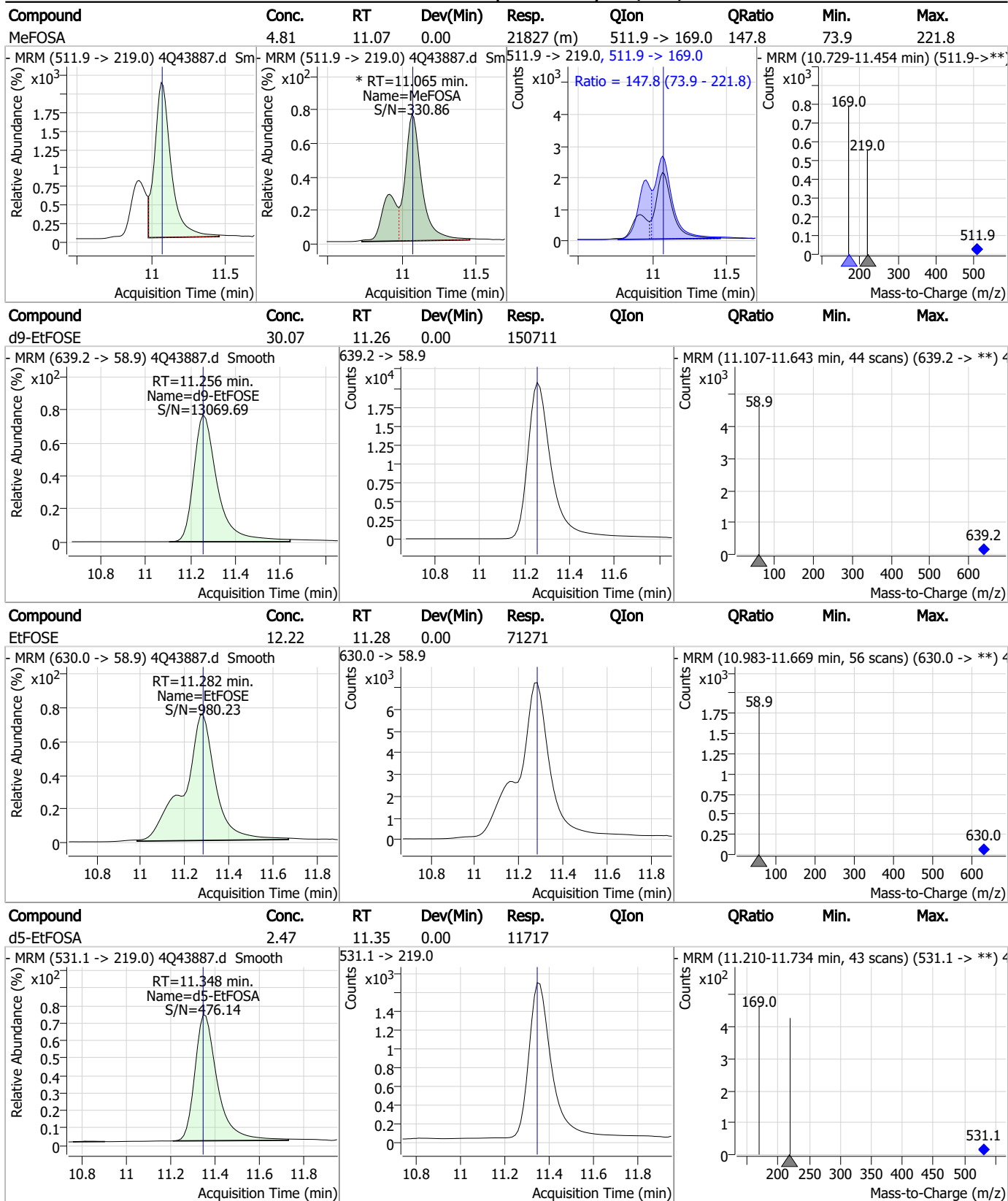
Perfluorinated Compounds by LC/MS/MS



7.7.5

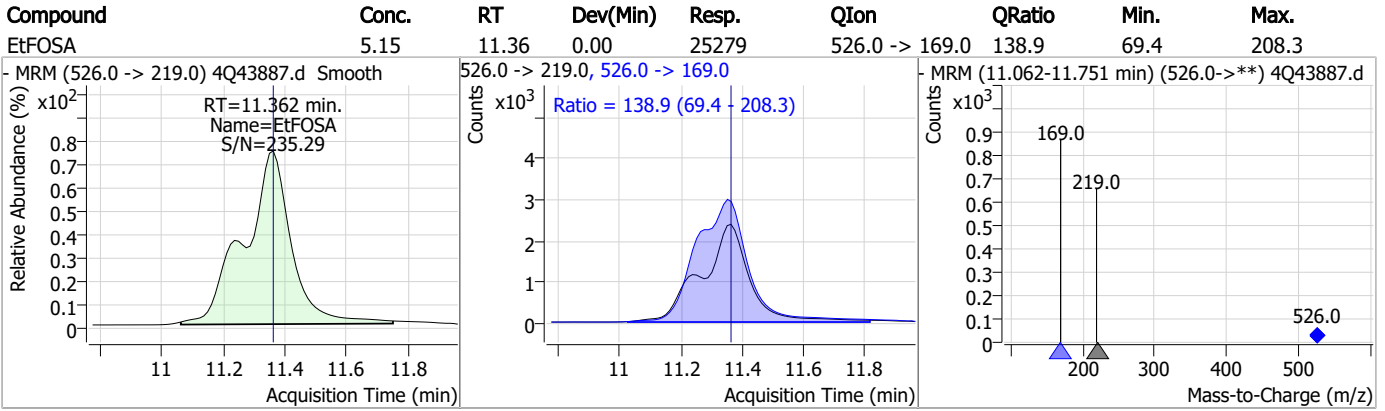
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S4Q634-ICC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43887.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 11:54 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak

7.7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43888.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 12:08:27 PM
 Sample Name : ic634-5
 Vial : P1-A6
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	134804	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	72823	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	52258	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	29578	2.50 µg/L	0.000
M8-PFOA	7.124	421.1 -> 376.0	47154	2.50 µg/L	0.000
M9-PFNA	7.684	472.1 -> 427.0	21268	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	20452	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	22750	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	24715	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	20759	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	21043	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12398	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	8084	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	10984	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1077	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	2039	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	3000	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	14764	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30622	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	12616	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	113735	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	153598	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	12423	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11501	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	12014	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	71515	5.00 µg/L	-0.012
18O2-PFHxS	7.228	403.0 -> 83.9	5214	2.50 µg/L	0.000
13C4-PFOA	7.124	417.1 -> 372.0	57051	2.50 µg/L	0.000
13C2-PFDA	8.178	515.1 -> 470.1	19211	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	25924	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	46558	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1077	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2039	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-8:2FTS	7.966	529.1 -> 80.9	3000	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFDoDA	9.106	615.1 -> 570.0	24715	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFTeDA	9.899	715.2 -> 670.0	20759	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C3-PFBS	5.427	302.1 -> 79.9	12398	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFHxS	7.229	402.1 -> 79.9	8084	2.50 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 = 100.0%	
13C4-PFBA	2.924	216.8 -> 171.9	134804	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.467	367.1 -> 322.0	29578	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.535	318.0 -> 273.0	52258	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFPeA	4.362	268.3 -> 223.0	72823	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C6-PFDA	8.178	519.1 -> 474.1	20452	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C7-PFUnDA	8.647	570.0 -> 525.1	22750	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C8-FOSA	9.771	506.1 -> 77.8	21043	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C8-PFOA	7.124	421.1 -> 376.0	47154	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOS	8.329	507.1 -> 79.9	10984	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C9-PFNA	7.684	472.1 -> 427.0	21268	1.21 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14764	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	30622	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSA	11.064	515.0 -> 219.0	11501	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
d5-EtFOSAA	8.446	589.2 -> 419.0	12616	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d7-MeFOSE	10.947	623.2 -> 58.9	113735	30.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 121.7%	
d9-EtFOSE	11.256	639.2 -> 58.9	153598	29.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 116.1%	
d5-EtFOSA	11.348	531.1 -> 219.0	12423	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	31539	18.21 µg/L	93
		327.1 -> 80.9	13355		
6:2FTS	6.899	427.1 -> 407.0	34855	17.69 µg/L	97
		427.1 -> 80.9	15248		
8:2FTS	7.966	527.1 -> 507.0	33969	20.32 µg/L	96
		527.1 -> 80.8	13558		
EtFOSAA	8.459	584.2 -> 419.1	11889	4.91 µg/L	m 86
		584.2 -> 526.0	4874		
FOSA	9.774	498.1 -> 77.9	40395	4.58 µg/L	100
		498.1 -> 478.0	1299		
MeFOSAA	8.249	570.1 -> 419.0	12287	4.77 µg/L	m 94
		570.1 -> 483.0	2551		
PFBA	2.920	212.8 -> 168.9	69778	19.33 µg/L	100
PFBS	5.428	298.7 -> 79.9	21965	4.32 µg/L	95
		298.7 -> 98.8	8210		
PFDA	8.179	512.9 -> 469.0	76434	4.93 µg/L	96
		512.9 -> 219.0	15009		
PFDODA	9.106	613.1 -> 569.0	96603	4.87 µg/L	98
		613.1 -> 319.0	13468		
PFDS	9.269	599.0 -> 79.9	12625	4.64 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6186			
PFHpA	6.468	363.1 -> 319.0	93191	4.98	µg/L	97
		363.1 -> 169.0	15263			
PFHpS	7.811	449.0 -> 79.9	18307	4.63	µg/L	98
		449.0 -> 98.9	9503			
PFHxA	5.538	313.0 -> 269.0	95984	4.69	µg/L	99
		313.0 -> 118.9	3021			
PFHxS	7.230	398.7 -> 79.9	15189	4.58	µg/L	m 100
		398.7 -> 98.9	7586			
PFNA	7.685	463.0 -> 419.0	76679	4.86	µg/L	98
		463.0 -> 219.0	18428			
PFNS	8.811	548.8 -> 79.9	10967	4.57	µg/L	99
		548.8 -> 98.9	5623			
PFOA	7.125	413.0 -> 369.0	127443	4.68	µg/L	98
		413.0 -> 169.0	25603			
PFOS	8.330	498.9 -> 79.9	22688	4.22	µg/L	m 92
		498.9 -> 98.8	12327			
PFPeA	4.364	263.0 -> 219.0	170747	9.75	µg/L	100
PFPeS	6.494	349.1 -> 79.9	12591	4.43	µg/L	97
		349.1 -> 98.9	5579			
PFTeDA	9.900	713.1 -> 669.0	100204	4.93	µg/L	100
		713.1 -> 168.9	8586			
PFTrDA	9.515	663.0 -> 619.0	132030	4.98	µg/L	98
		663.0 -> 168.9	13100			
PFUnDA	8.648	563.1 -> 519.0	73373	4.75	µg/L	97
		563.1 -> 269.1	14796			
11CI-PF3OUdS	9.568	630.9 -> 450.9	104514	9.49	µg/L	99
		632.9 -> 452.9	31228			
9CI-PF3ONS	8.675	530.8 -> 351.0	127175	9.07	µg/L	99
		532.8 -> 353.0	37776			
ADONA	6.731	376.9 -> 250.9	282729	9.18	µg/L	99
		376.9 -> 84.8	74836			
HFPO-DA	5.891	284.9 -> 168.9	27831	9.51	µg/L	99
		284.9 -> 184.9	3310			
3:3FTCA	3.836	241.0 -> 177.0	18002	23.35	µg/L	98
		241.0 -> 117.0	1663			
5:3FTCA	6.193	341.0 -> 237.1	330806	119.07	µg/L	99
		341.0 -> 217.0	227780			
7:3FTCA	7.649	441.0 -> 316.9	174758	121.06	µg/L	98
		441.0 -> 336.9	410856			
EtFOSA	11.362	526.0 -> 219.0	49660	9.54	µg/L	99
		526.0 -> 169.0	68360			
EtFOSE	11.282	630.0 -> 58.9	143421	24.12	µg/L	100
MeFOSA	11.066	511.9 -> 219.0	42597	9.83	µg/L	m 96
		511.9 -> 169.0	65145			
MeFOSE	10.973	616.1 -> 58.9	100255	21.46	µg/L	m 100
PFDoDS	10.039	699.1 -> 79.9	11673	4.81	µg/L	95
		699.1 -> 98.8	6646			
NFDHA	5.416	295.0 -> 201.0	13821	9.45	µg/L	95
		295.0 -> 84.9	3465			
PFMBA	4.778	279.0 -> 85.1	92755	9.49	µg/L	100
PFMPA	3.528	229.0 -> 84.9	87763	9.58	µg/L	100
PFEESA	5.959	314.8 -> 134.9	128861	8.31	µg/L	99
		314.8 -> 82.9	4504			

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

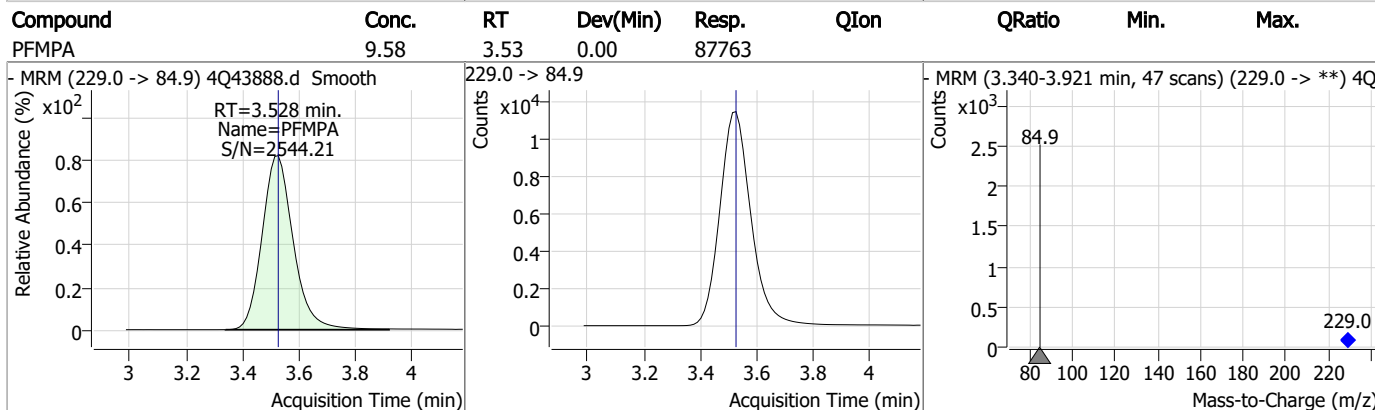
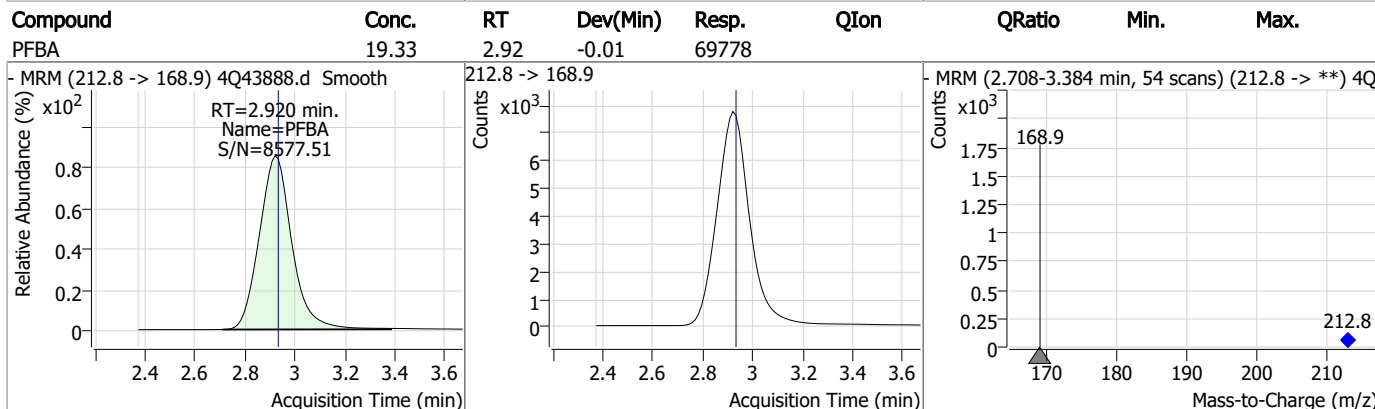
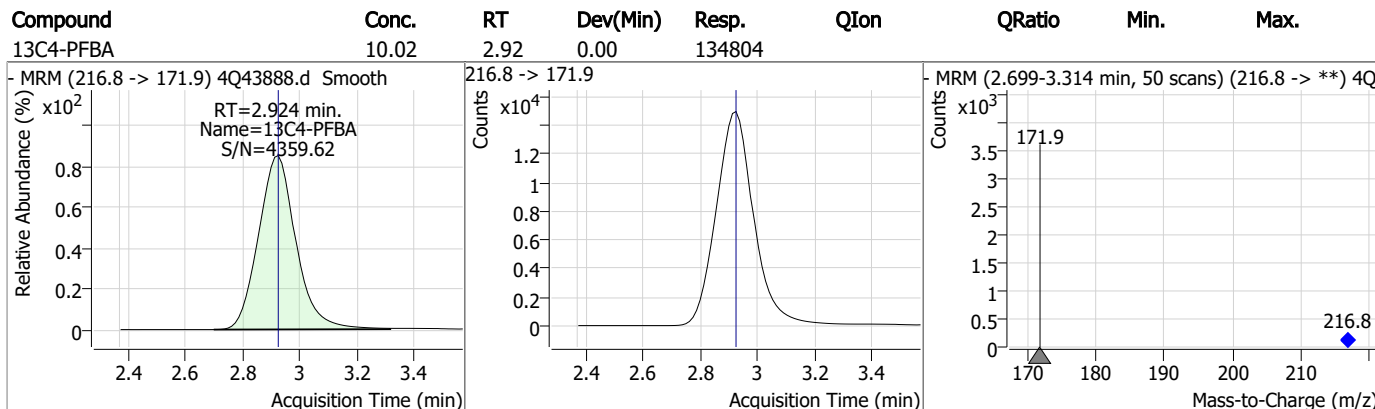
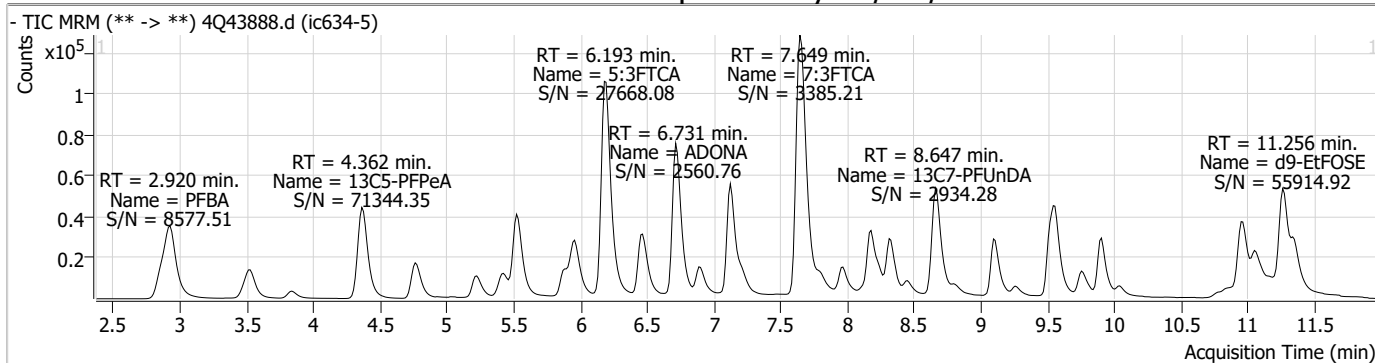
Perfluorinated Compounds by LC/MS/MS

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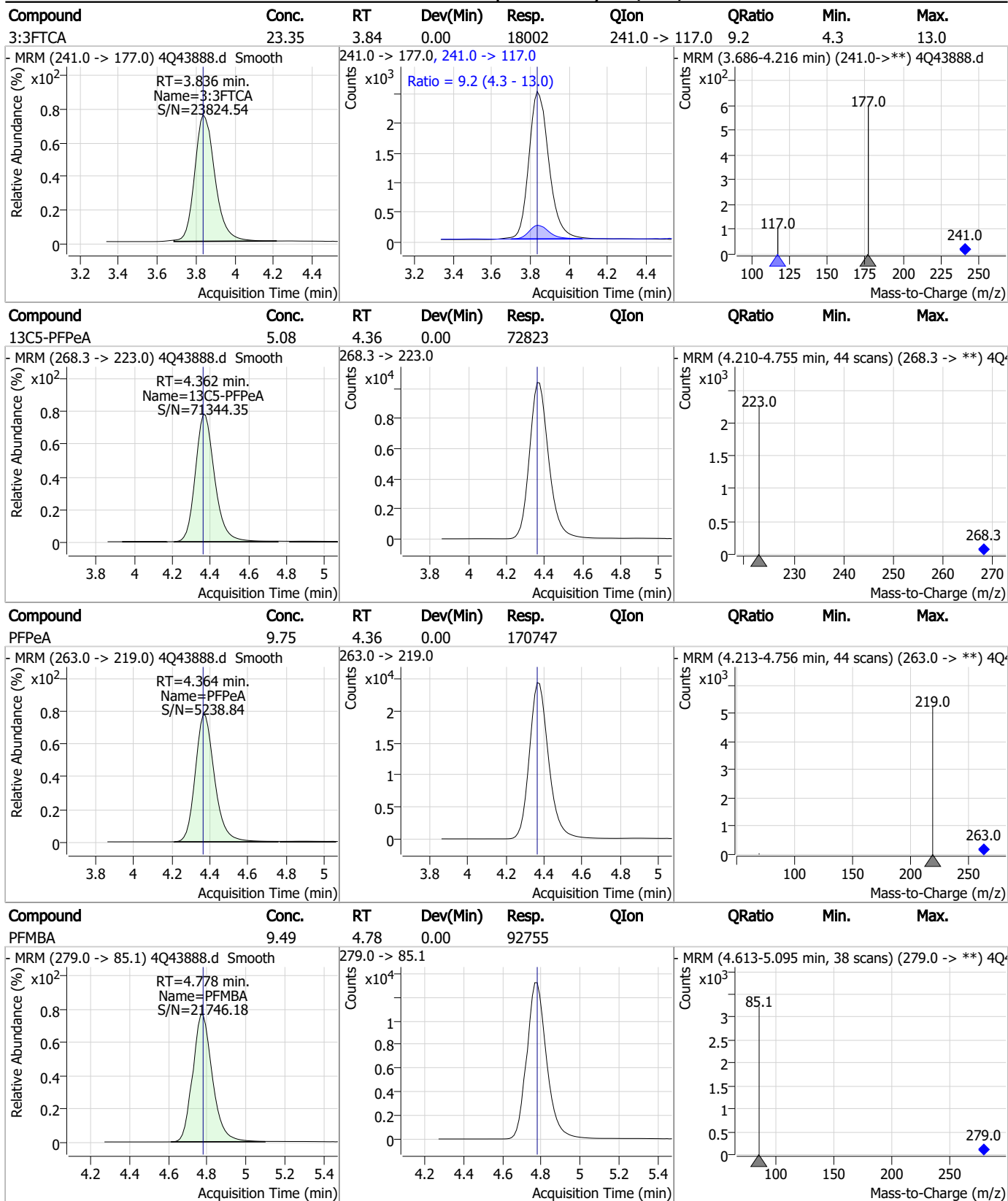
7.7.6

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Perfluorinated Compounds by LC/MS/MS

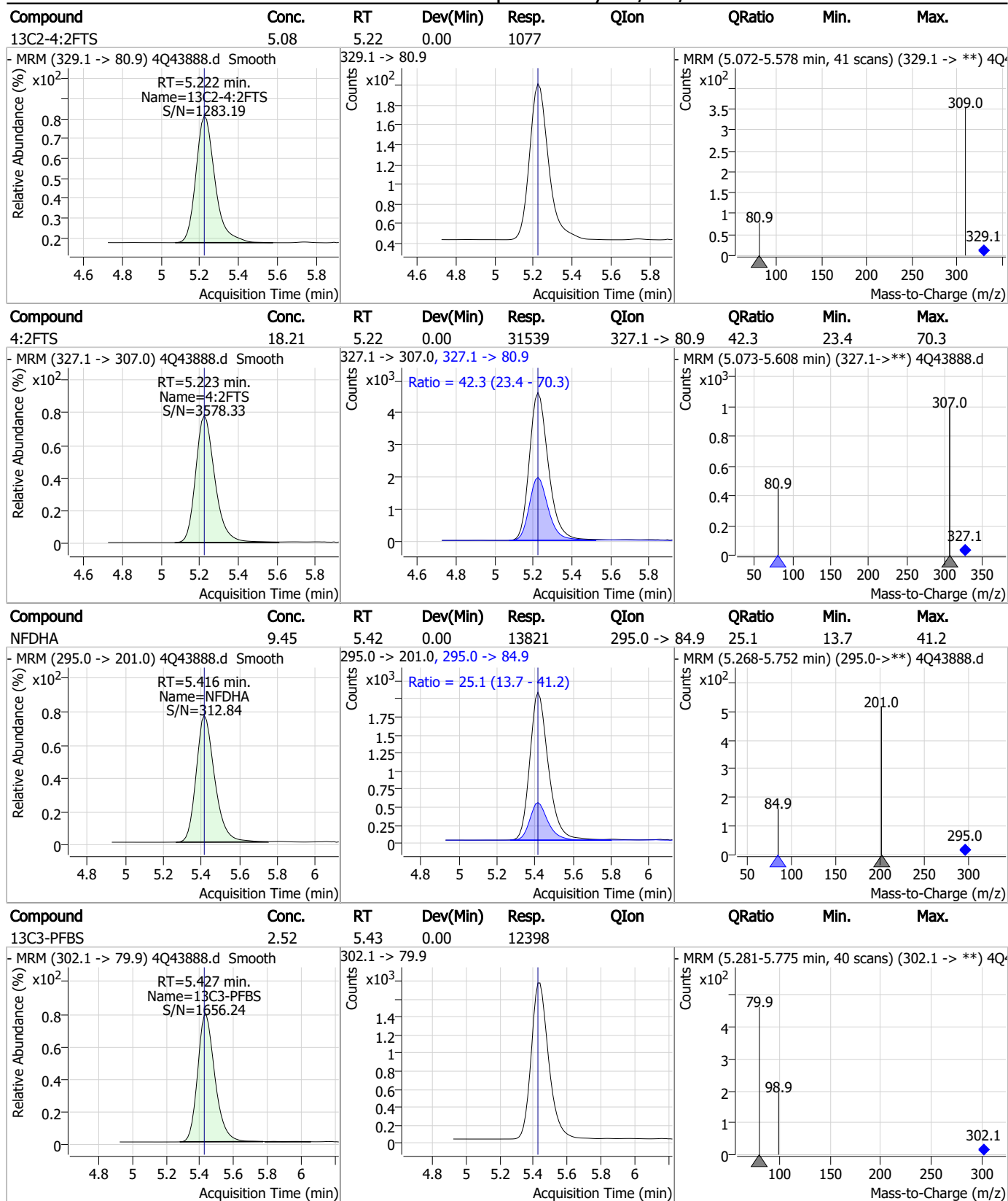


Perfluorinated Compounds by LC/MS/MS



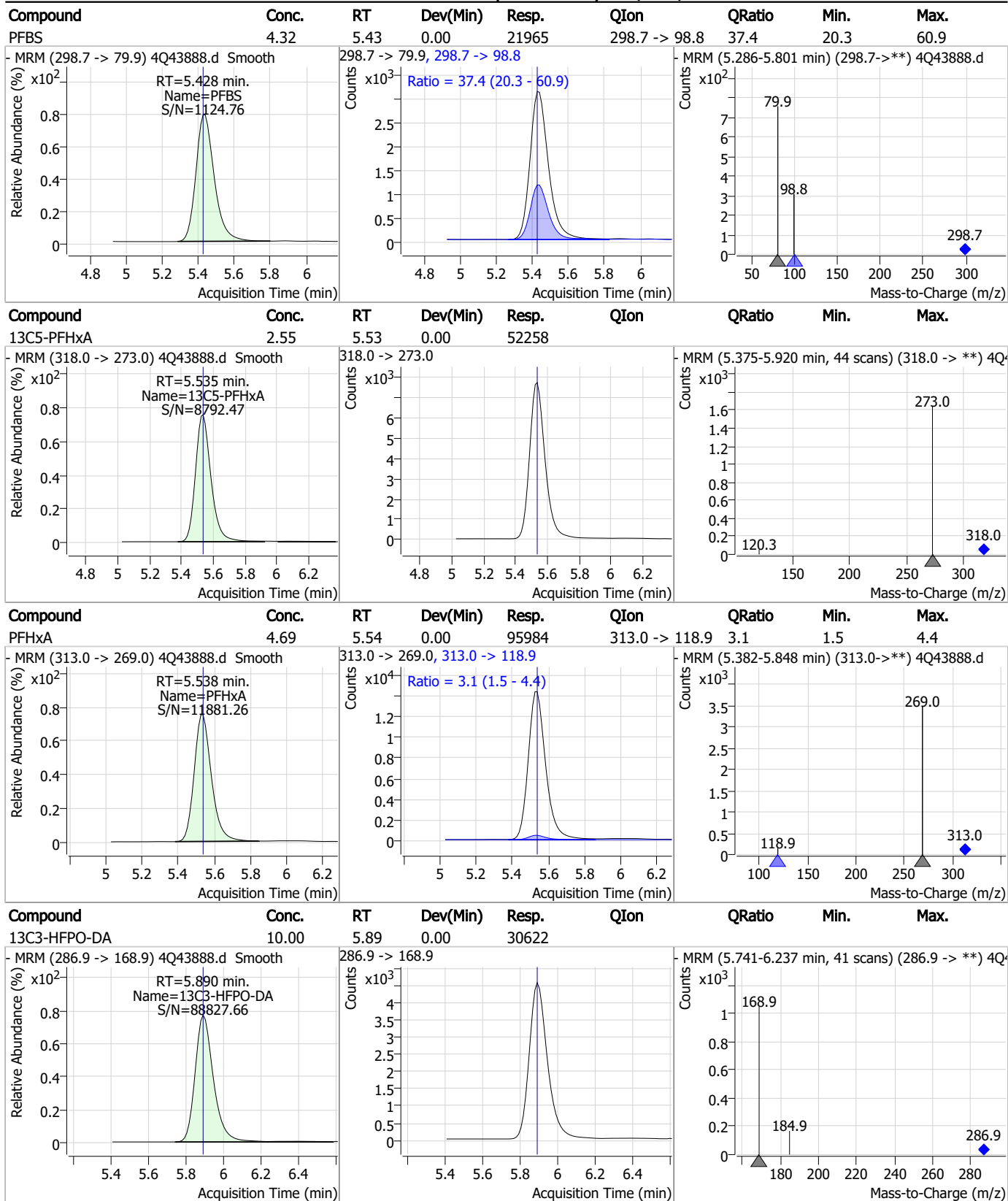
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Perfluorinated Compounds by LC/MS/MS



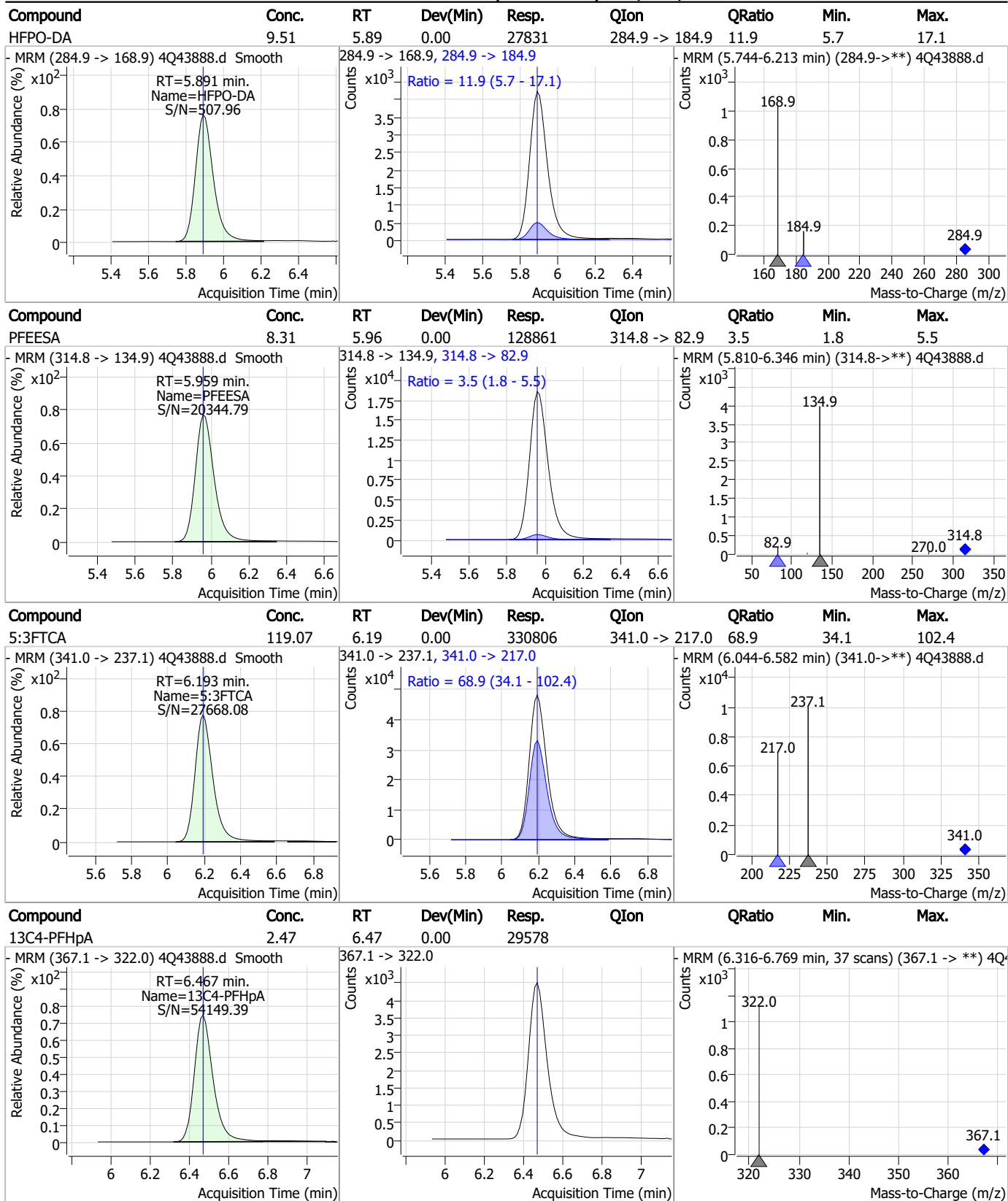
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Perfluorinated Compounds by LC/MS/MS



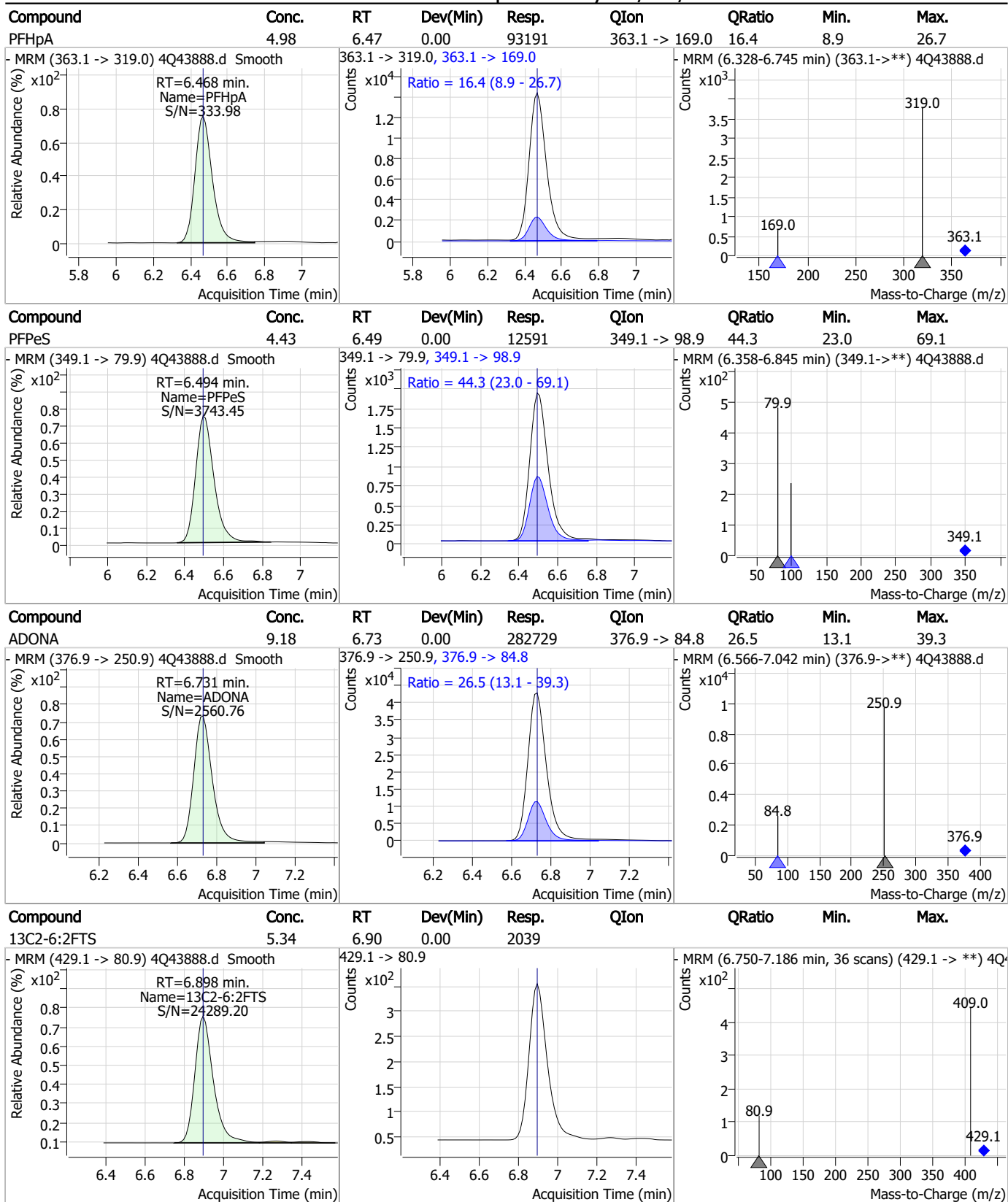
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Perfluorinated Compounds by LC/MS/MS



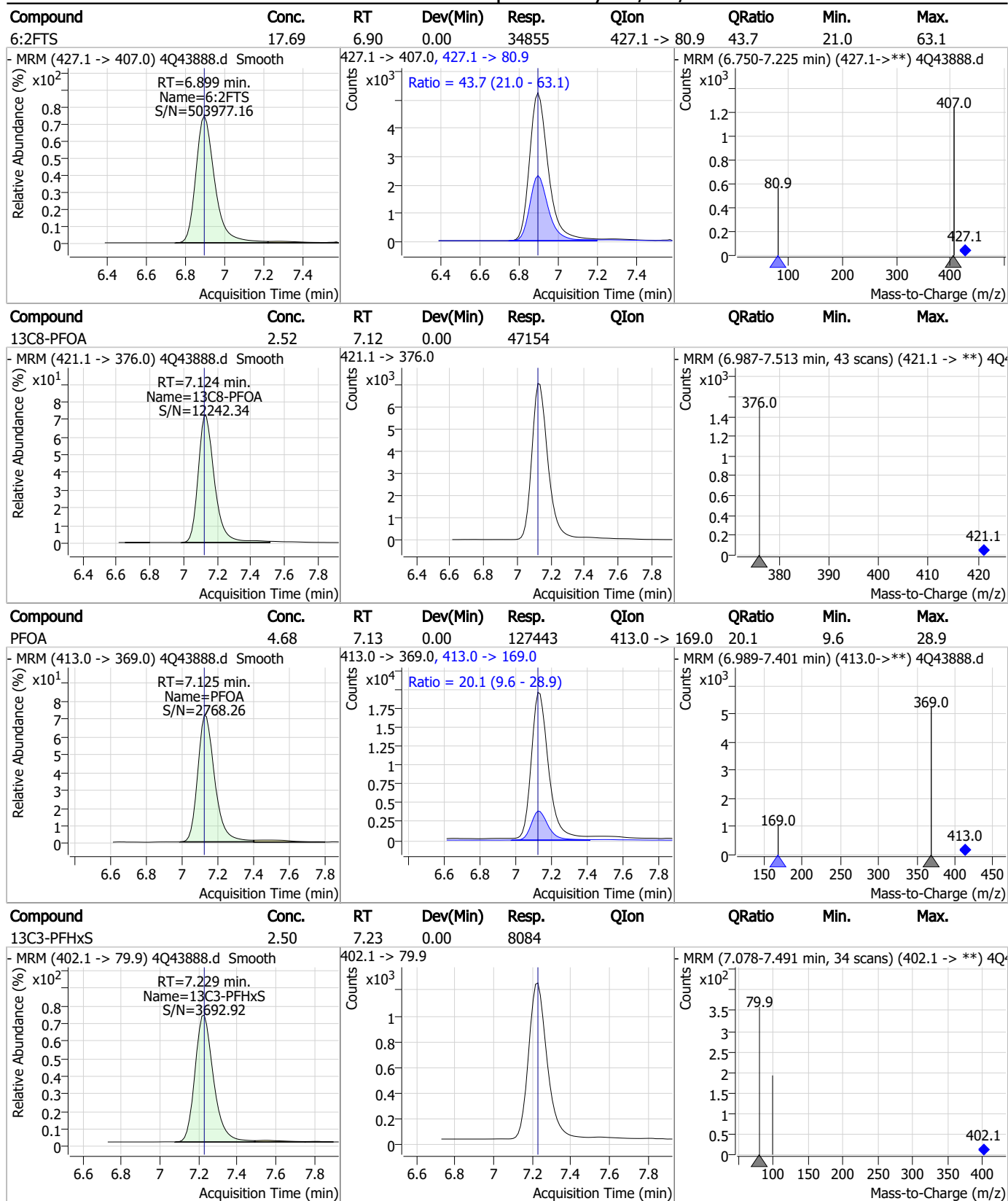
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Perfluorinated Compounds by LC/MS/MS



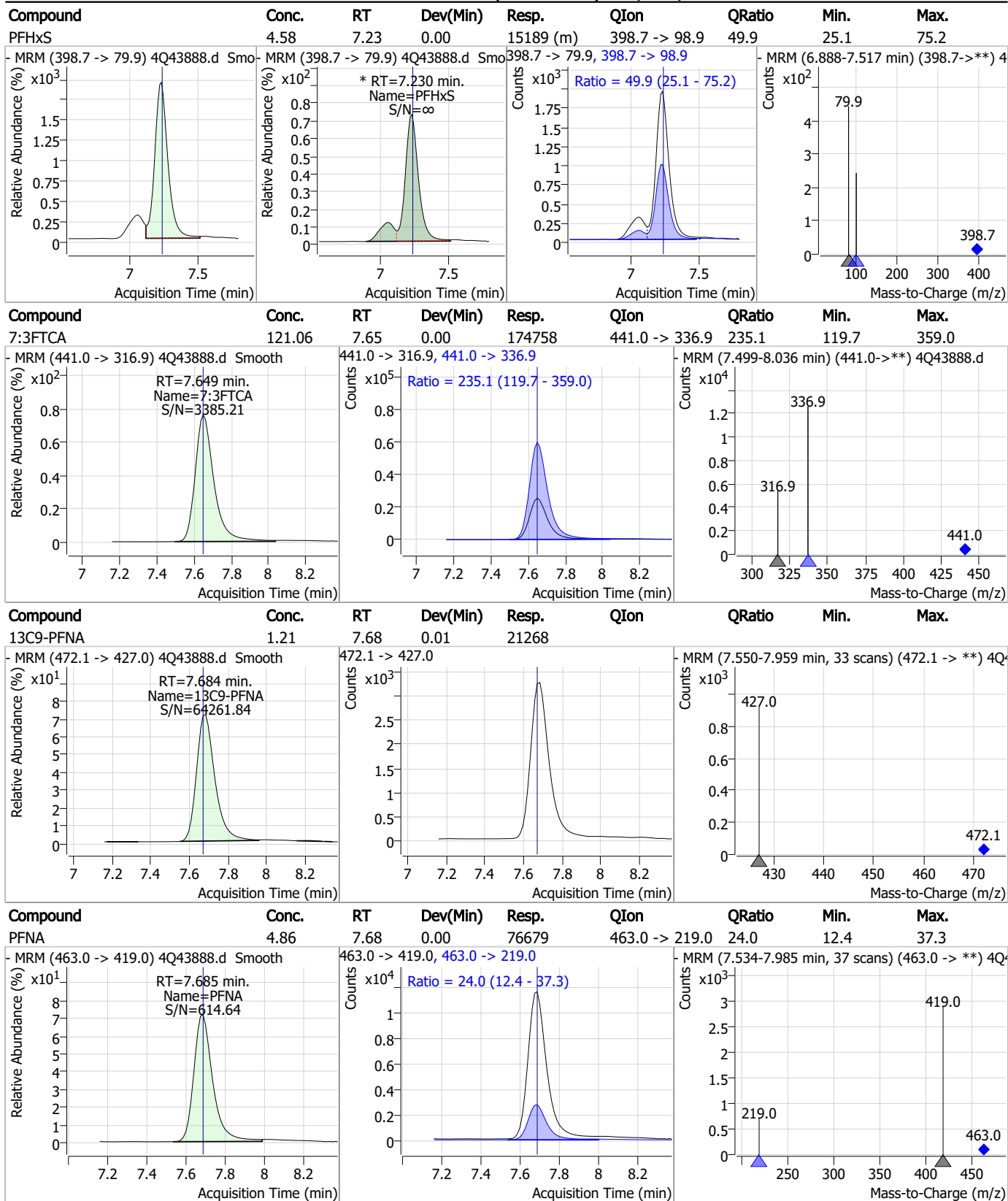
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Perfluorinated Compounds by LC/MS/MS



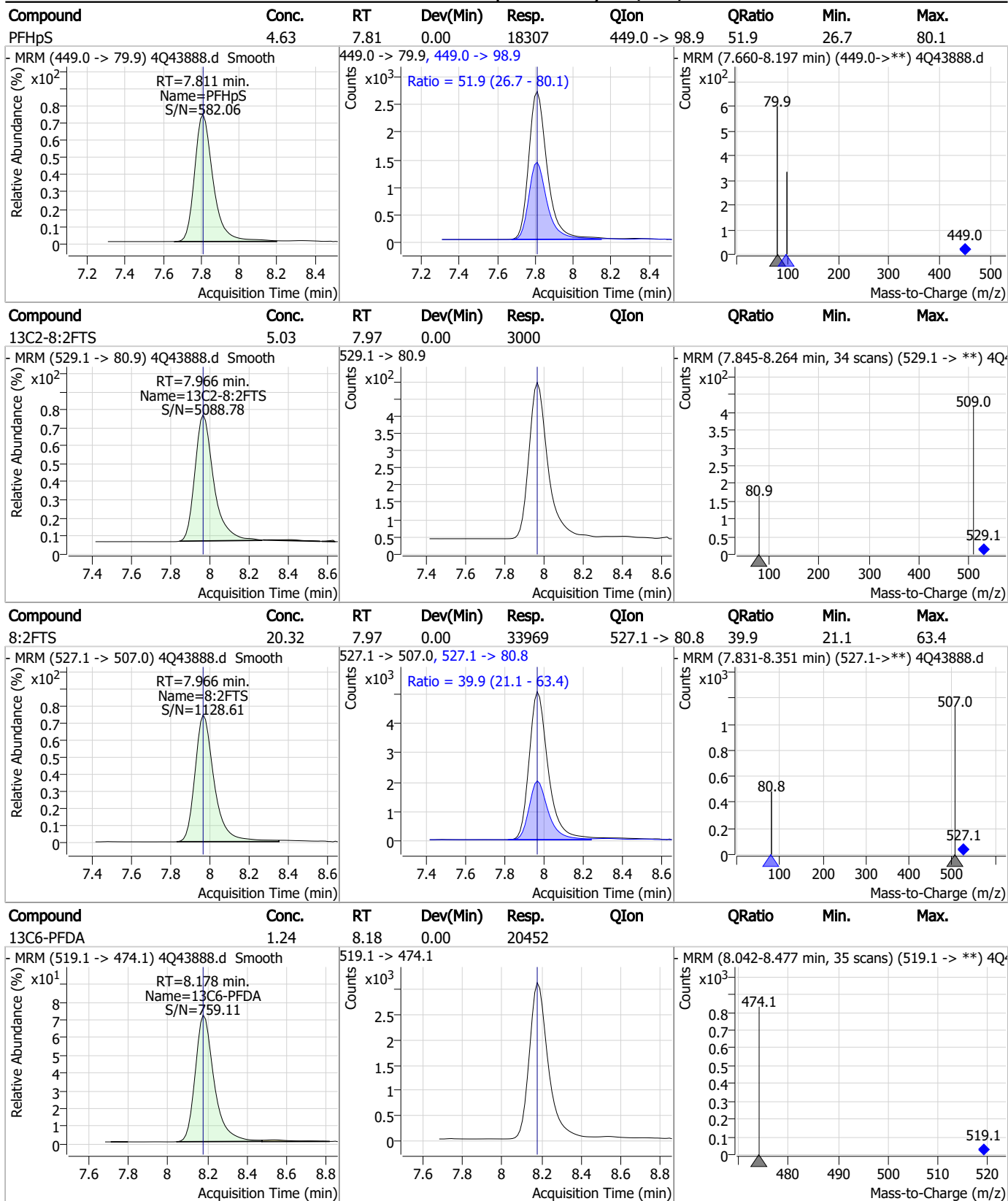
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Perfluorinated Compounds by LC/MS/MS



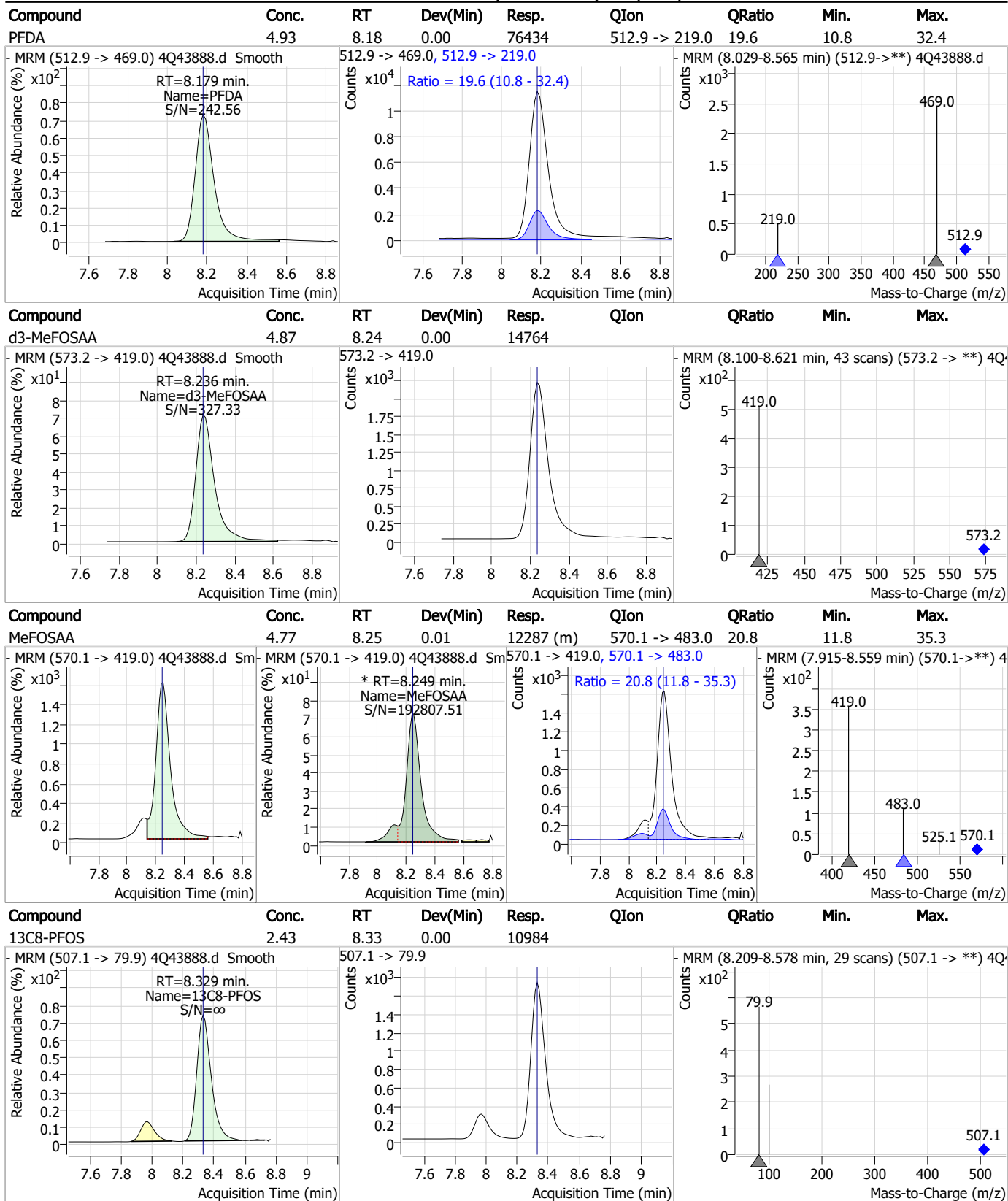
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Perfluorinated Compounds by LC/MS/MS



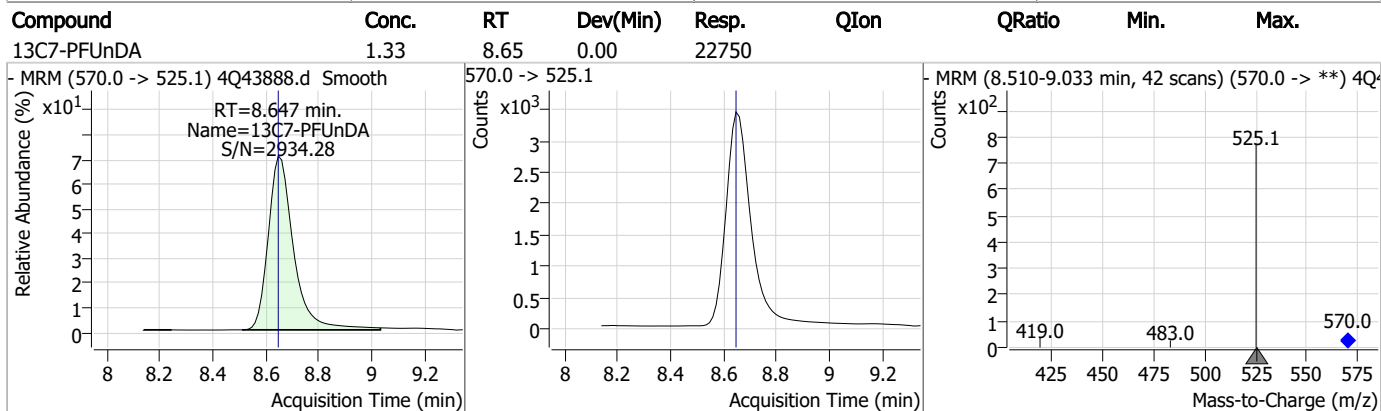
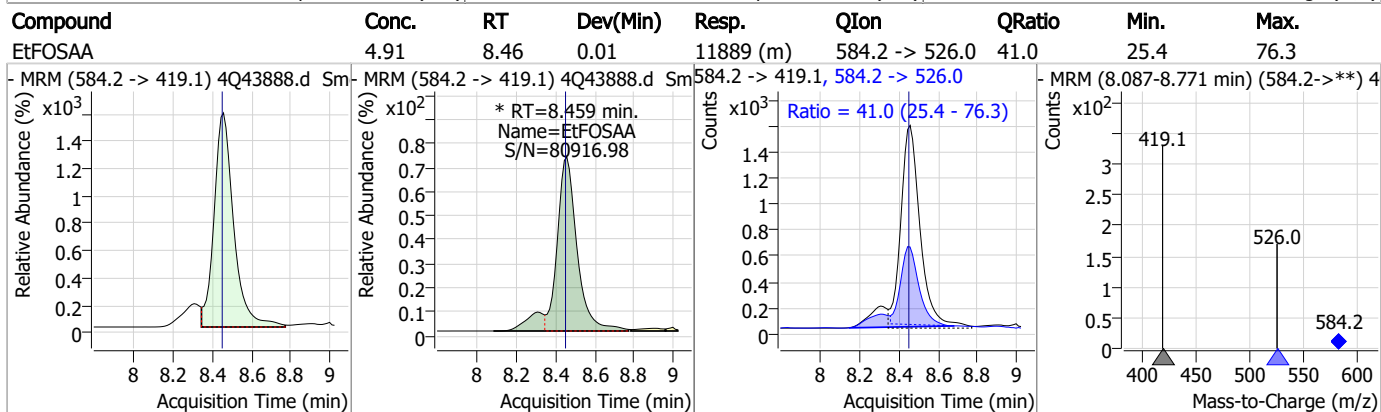
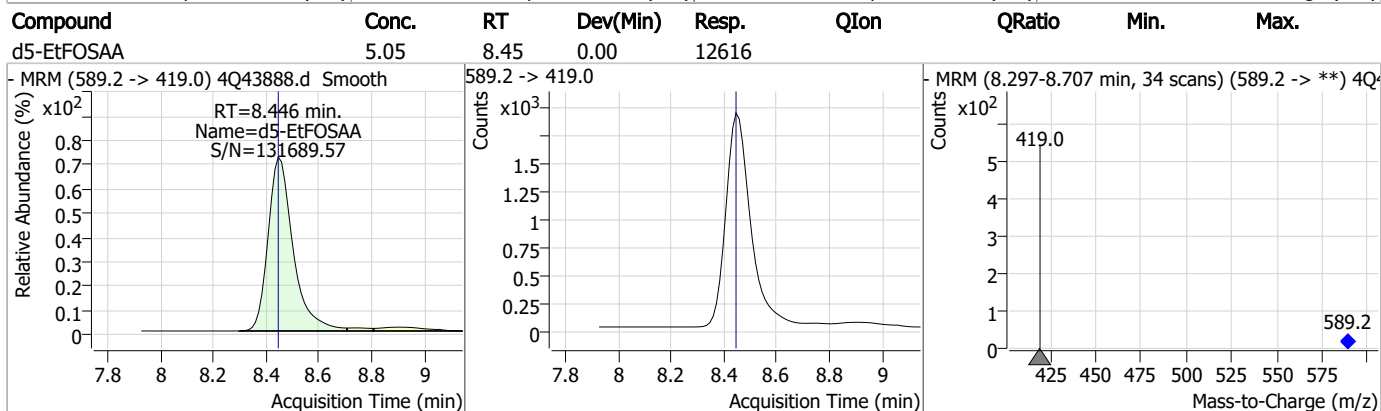
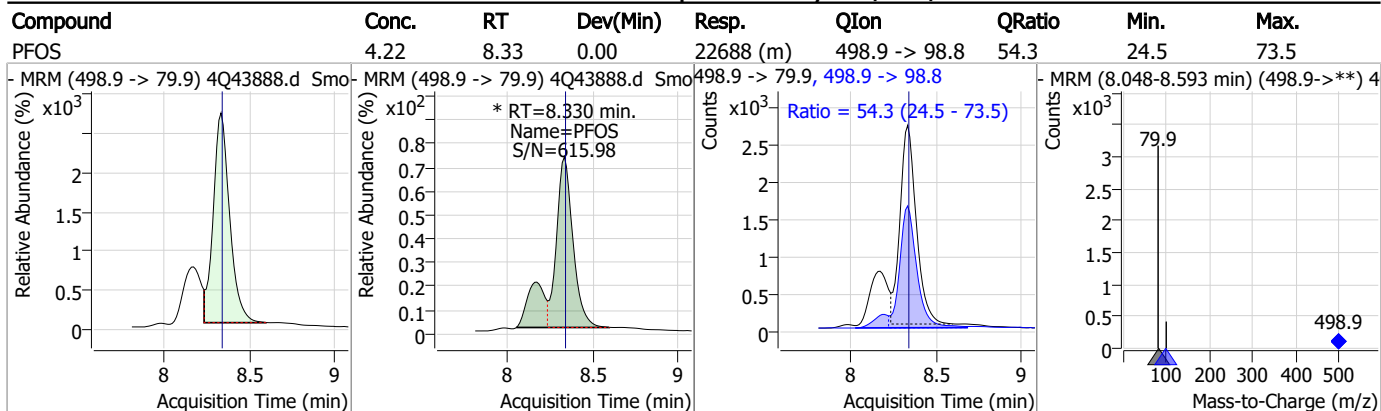
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Perfluorinated Compounds by LC/MS/MS



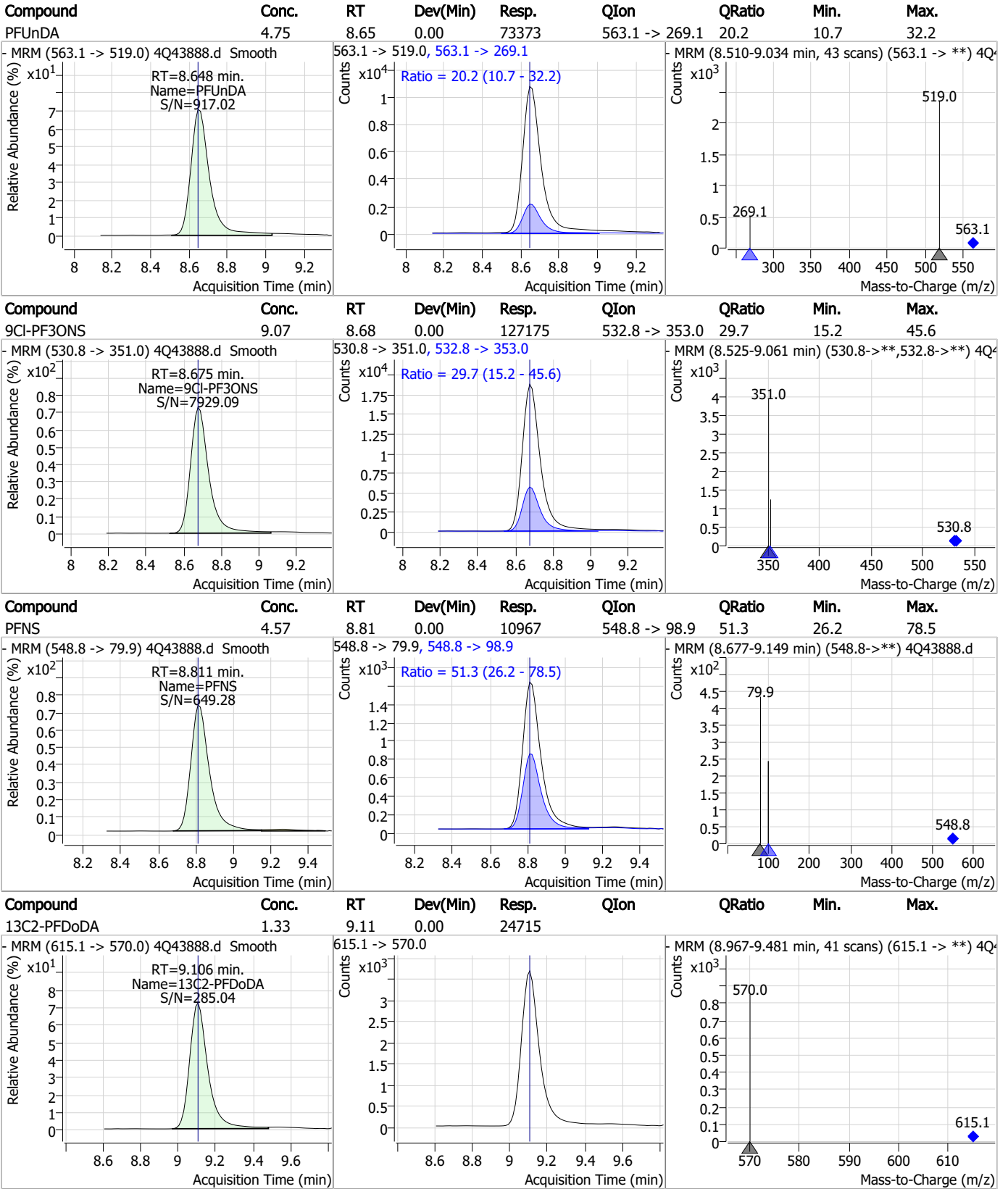
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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Perfluorinated Compounds by LC/MS/MS

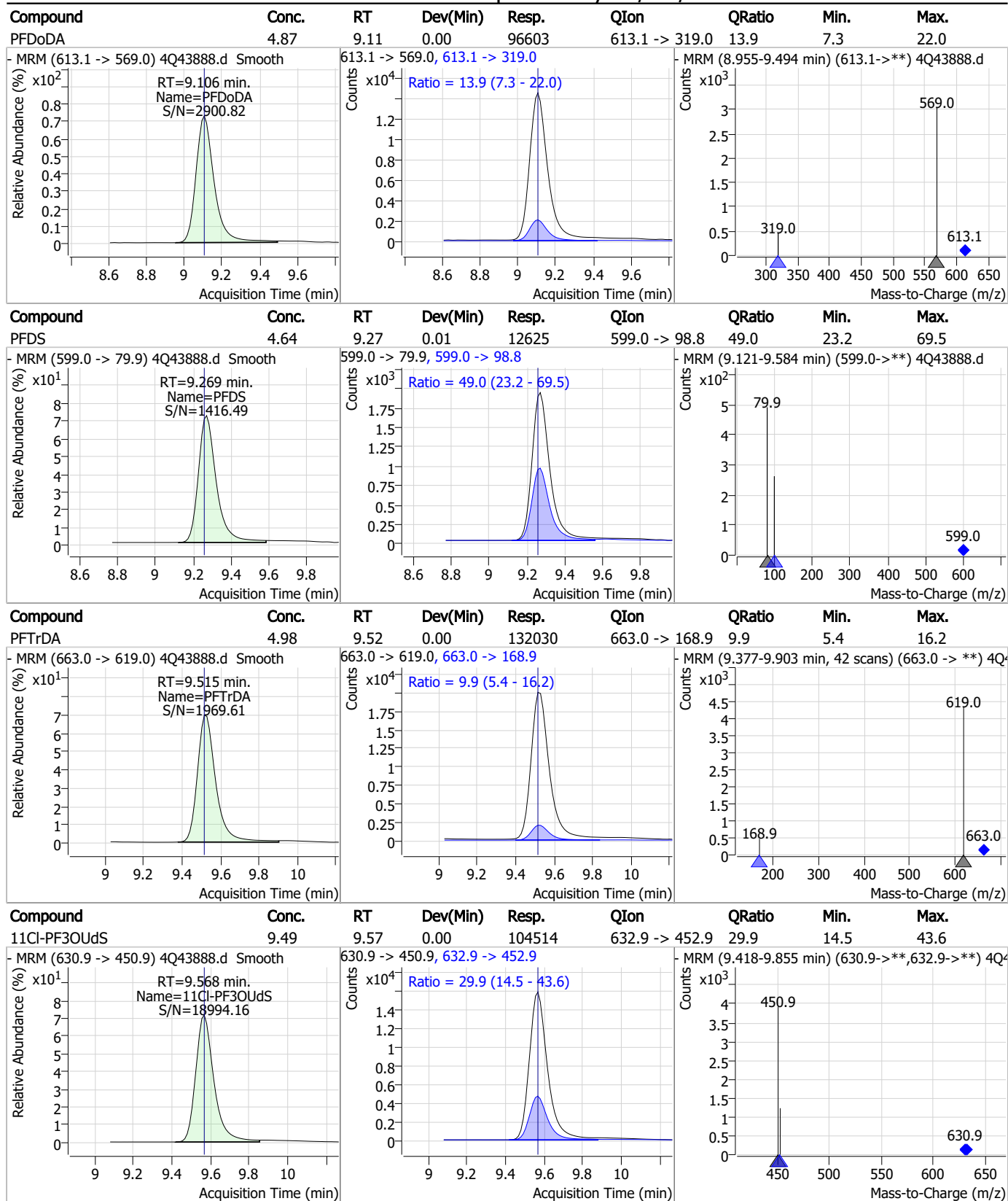


7.7.6

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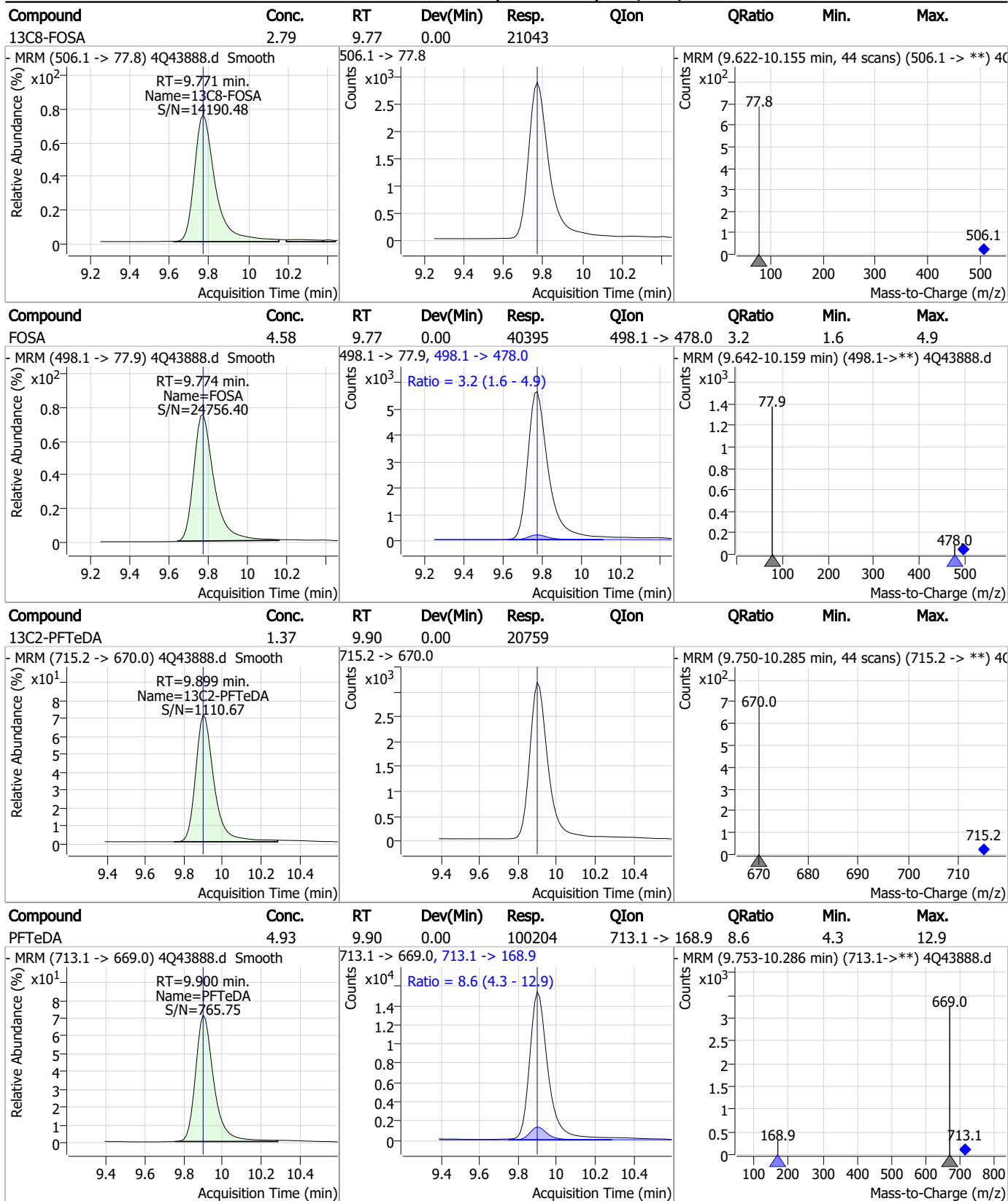


Perfluorinated Compounds by LC/MS/MS



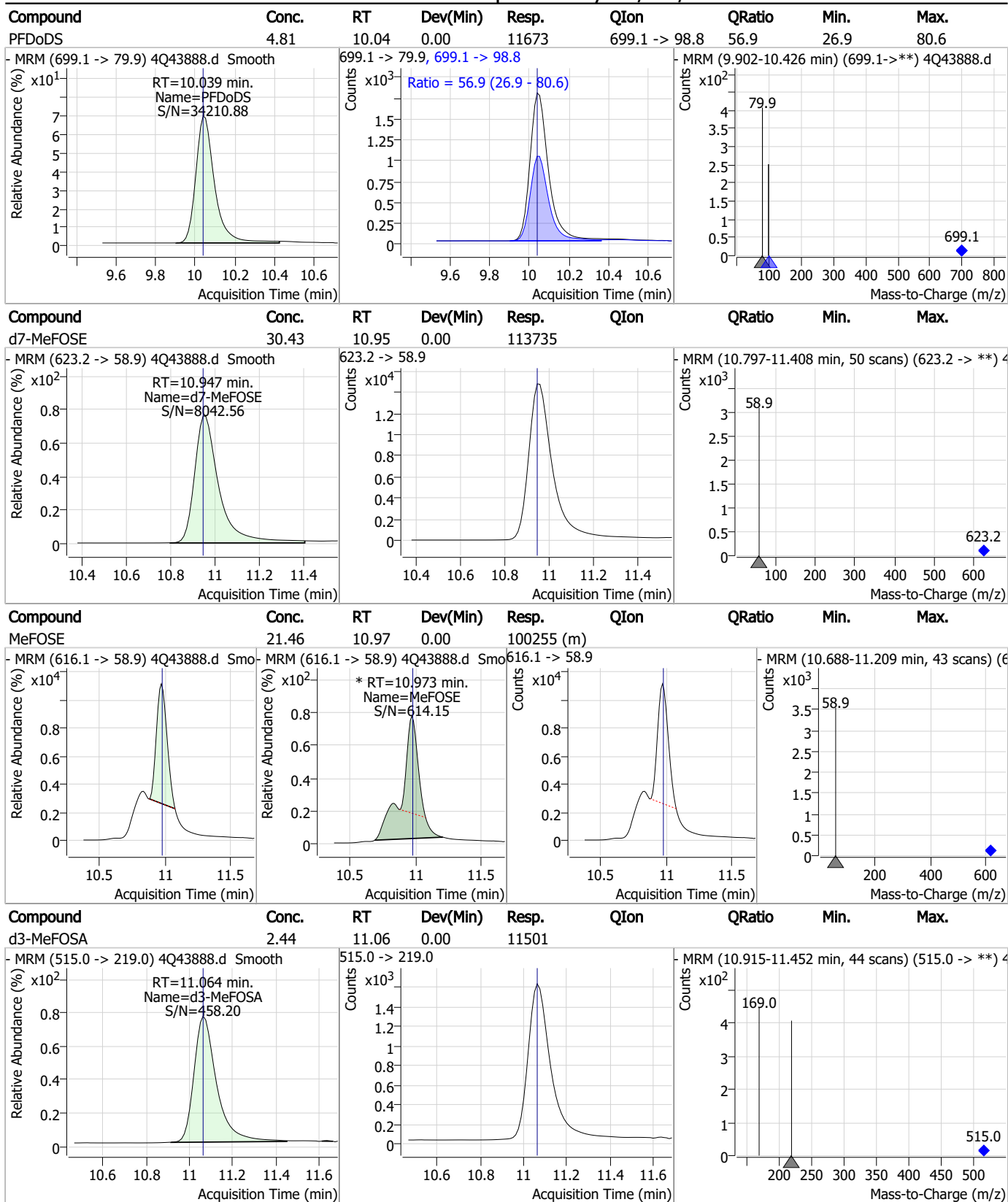
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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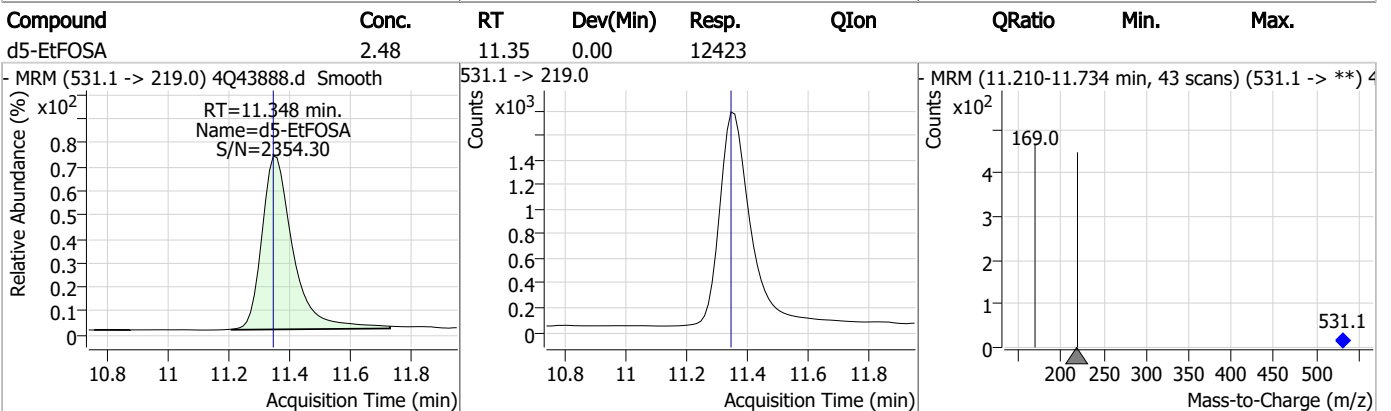
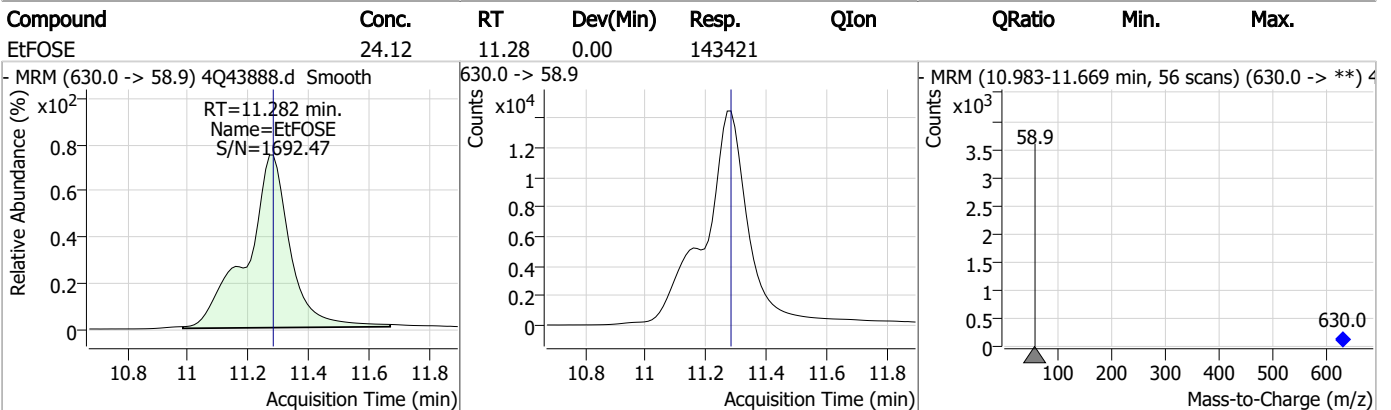
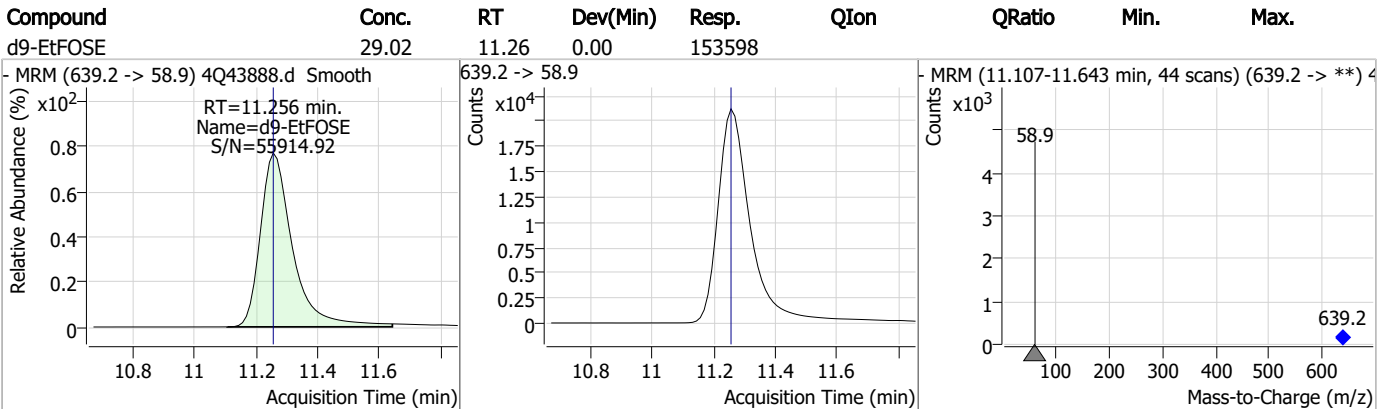
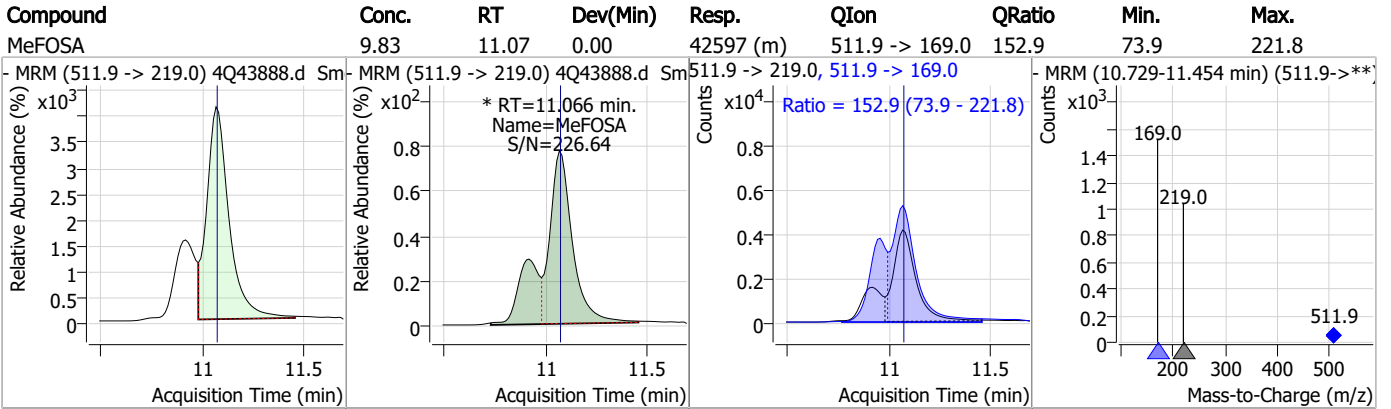
Perfluorinated Compounds by LC/MS/MS



7.7.6

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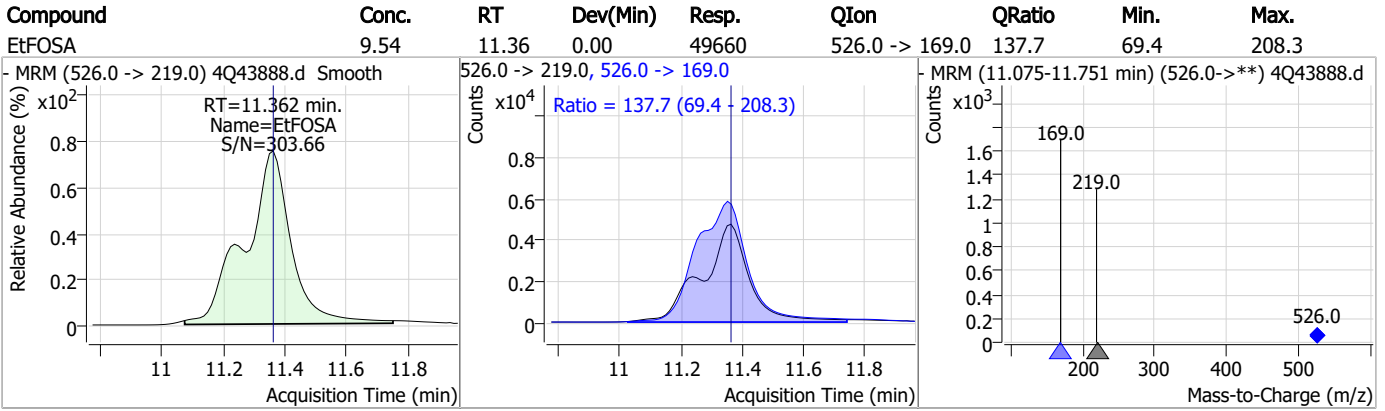
Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43888.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 12:08 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.07	Split peak

7.7.6.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 05/04/23 17:44

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43889.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 12:22:30 PM
 Sample Name : ic634-6
 Vial : P1-A7
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	128713	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	69264	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	49069	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	28355	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	44315	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20413	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	19410	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	20436	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	21733	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	17340	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	17130	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	11741	2.50 µg/L	0.012
M3-PFHxS	7.229	402.1 -> 79.9	8064	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	10590	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1101	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1916	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	3050	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	13872	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	29381	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11848	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	78988	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	112230	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	11917	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10730	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	11410	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	68345	5.00 µg/L	-0.013
18O2-PFHxS	7.228	403.0 -> 83.9	5135	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	53915	2.50 µg/L	0.012
13C2-PFDA	8.178	515.1 -> 470.1	17904	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	24617	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	44383	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1101	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1916	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-8:2FTS	7.966	529.1 -> 80.9	3050	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21733	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFTeDA	9.899	715.2 -> 670.0	17340	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFBS	5.439	302.1 -> 79.9	11741	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.229	402.1 -> 79.9	8064	2.53 µg/L	0.000

7.7.7
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFBA	2.924	216.8 -> 171.9	128713	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.467	367.1 -> 322.0	28355	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.535	318.0 -> 273.0	49069	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.362	268.3 -> 223.0	69264	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.178	519.1 -> 474.1	19410	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C7-PFUnDA	8.647	570.0 -> 525.1	20436	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-FOSA	9.771	506.1 -> 77.8	17130	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOA	7.136	421.1 -> 376.0	44315	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-PFOS	8.329	507.1 -> 79.9	10590	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C9-PFNA	7.684	472.1 -> 427.0	20413	1.22 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.6%	
d3-MeFOSAA	8.236	573.2 -> 419.0	13872	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	29381	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSA	11.064	515.0 -> 219.0	10730	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11848	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
d7-MeFOSE	10.947	623.2 -> 58.9	78988	22.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
d9-EtFOSE	11.256	639.2 -> 58.9	112230	22.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
d5-EtFOSA	11.348	531.1 -> 219.0	11917	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0 327.1 -> 80.9	76961 32830	43.44 µg/L	94
6:2FTS	6.899	427.1 -> 407.0 427.1 -> 80.9	86158 35567	46.55 µg/L	99
8:2FTS	7.966	527.1 -> 507.0 527.1 -> 80.8	81135 32973	47.73 µg/L	98
EtFOSAA	8.459	584.2 -> 419.1 584.2 -> 526.0	29503 14022	12.96 µg/L	m 95
FOSA	9.774	498.1 -> 77.9 498.1 -> 478.0	93693 2566	13.05 µg/L	98
MeFOSAA	8.249	570.1 -> 419.0 570.1 -> 483.0	31400 6893	12.99 µg/L	m 97
PFBA	2.920	212.8 -> 168.9	180069	52.24 µg/L	100
PFBS	5.440	298.7 -> 79.9 298.7 -> 98.8	56713 20771	11.78 µg/L	94
PFDA	8.179	512.9 -> 469.0 512.9 -> 219.0	197729 38436	13.43 µg/L	95
PFDoDA	9.106	613.1 -> 569.0 613.1 -> 319.0	230624 32458	13.22 µg/L	99
PFDS	9.269	599.0 -> 79.9	32741	12.48 µg/L	95

7.7.7
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	16222			
PFHpA	6.468	363.1 -> 319.0	242238	13.52	µg/L	98
		363.1 -> 169.0	41387			
PFHpS	7.811	449.0 -> 79.9	48544	12.72	µg/L	95
		449.0 -> 98.9	24110			
PFHxA	5.538	313.0 -> 269.0	248936	12.95	µg/L	100
		313.0 -> 118.9	7161			
PFHxS	7.230	398.7 -> 79.9	37785	11.43	µg/L	m 98
		398.7 -> 98.9	19513			
PFNA	7.685	463.0 -> 419.0	197700	13.07	µg/L	98
		463.0 -> 219.0	47530			
PFNS	8.811	548.8 -> 79.9	28263	12.22	µg/L	98
		548.8 -> 98.9	14381			
PFOA	7.137	413.0 -> 369.0	332675	13.01	µg/L	100
		413.0 -> 169.0	64573			
PFOS	8.330	498.9 -> 79.9	64846	12.51	µg/L	m 98
		498.9 -> 98.8	30733			
PFPeA	4.364	263.0 -> 219.0	439404	26.37	µg/L	100
PFPeS	6.494	349.1 -> 79.9	33156	11.69	µg/L	96
		349.1 -> 98.9	14416			
PFTeDA	9.900	713.1 -> 669.0	222966	13.14	µg/L	99
		713.1 -> 168.9	18397			
PFTrDA	9.515	663.0 -> 619.0	301738	12.95	µg/L	98
		663.0 -> 168.9	30099			
PFUnDA	8.648	563.1 -> 519.0	184252	13.27	µg/L	97
		563.1 -> 269.1	36980			
11Cl-PF3OUdS	9.568	630.9 -> 450.9	265861	25.16	µg/L	98
		632.9 -> 452.9	80306			
9Cl-PF3ONS	8.675	530.8 -> 351.0	332327	24.70	µg/L	100
		532.8 -> 353.0	100643			
ADONA	6.731	376.9 -> 250.9	726148	24.58	µg/L	99
		376.9 -> 84.8	193928			
HFPO-DA	5.891	284.9 -> 168.9	75140	26.76	µg/L	100
		284.9 -> 184.9	8692			
3:3FTCA	3.836	241.0 -> 177.0	46712	63.71	µg/L	99
		241.0 -> 117.0	4223			
5:3FTCA	6.193	341.0 -> 237.1	852354	326.73	µg/L	99
		341.0 -> 217.0	591774			
7:3FTCA	7.649	441.0 -> 316.9	442038	326.10	µg/L	99
		441.0 -> 336.9	1050456			
EtFOSA	11.362	526.0 -> 219.0	134876	27.02	µg/L	m 99
		526.0 -> 169.0	185812			
EtFOSE	11.282	630.0 -> 58.9	279923	64.43	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	110174	27.26	µg/L	m 98
		511.9 -> 169.0	159475			
MeFOSE	10.973	616.1 -> 58.9	201716	62.18	µg/L	m 100
PFDoDS	10.039	699.1 -> 79.9	29923	12.78	µg/L	97
		699.1 -> 98.8	15349			
NFDHA	5.416	295.0 -> 201.0	35115	25.58	µg/L	94
		295.0 -> 84.9	8578			
PFMBA	4.778	279.0 -> 85.1	240040	25.81	µg/L	100
PFMPA	3.528	229.0 -> 84.9	226056	25.95	µg/L	100
PFEESA	5.959	314.8 -> 134.9	345119	23.72	µg/L	99
		314.8 -> 82.9	11323			

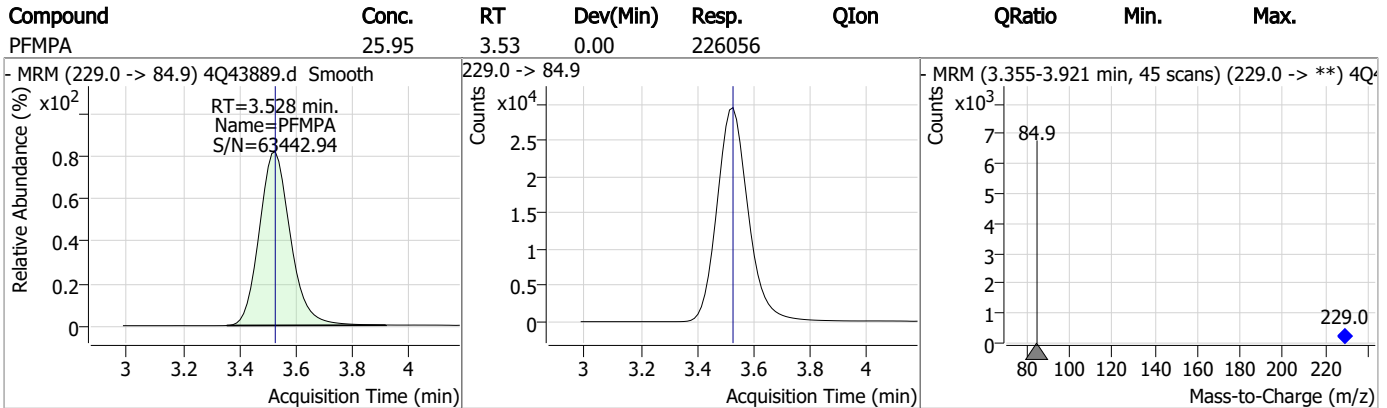
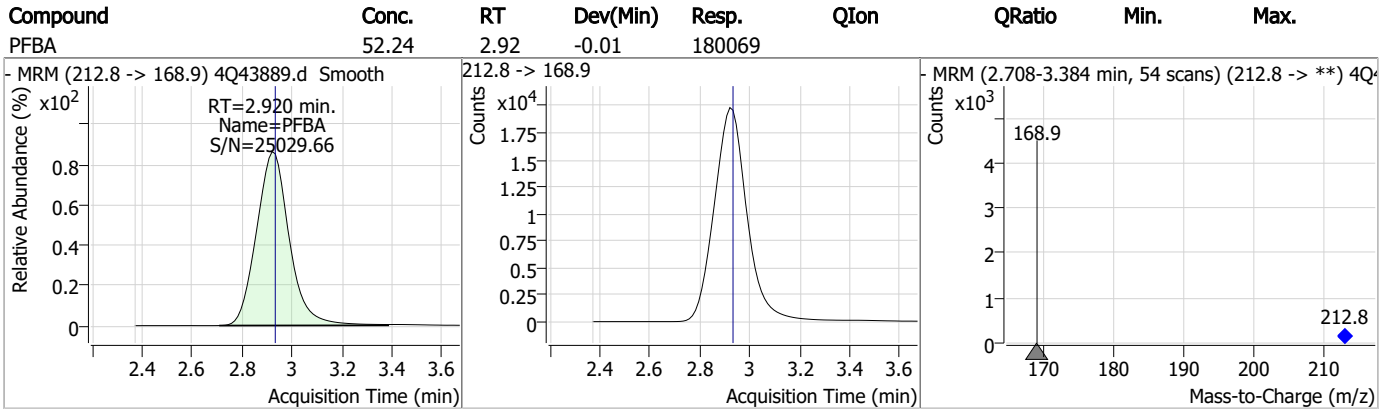
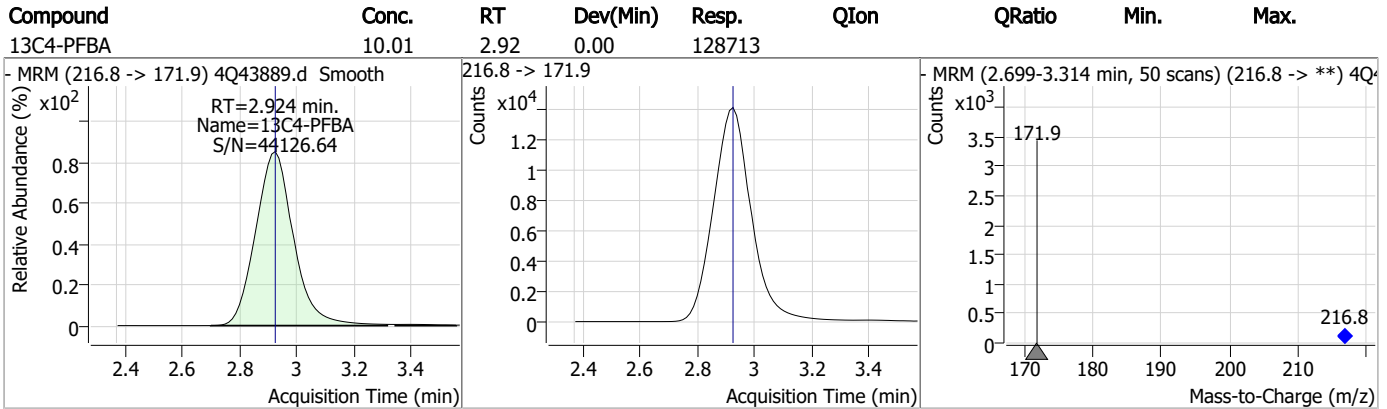
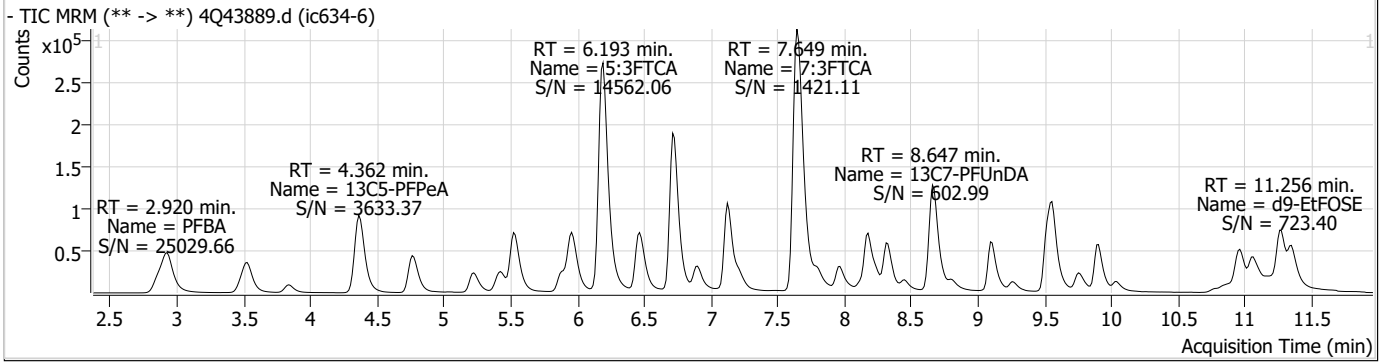
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

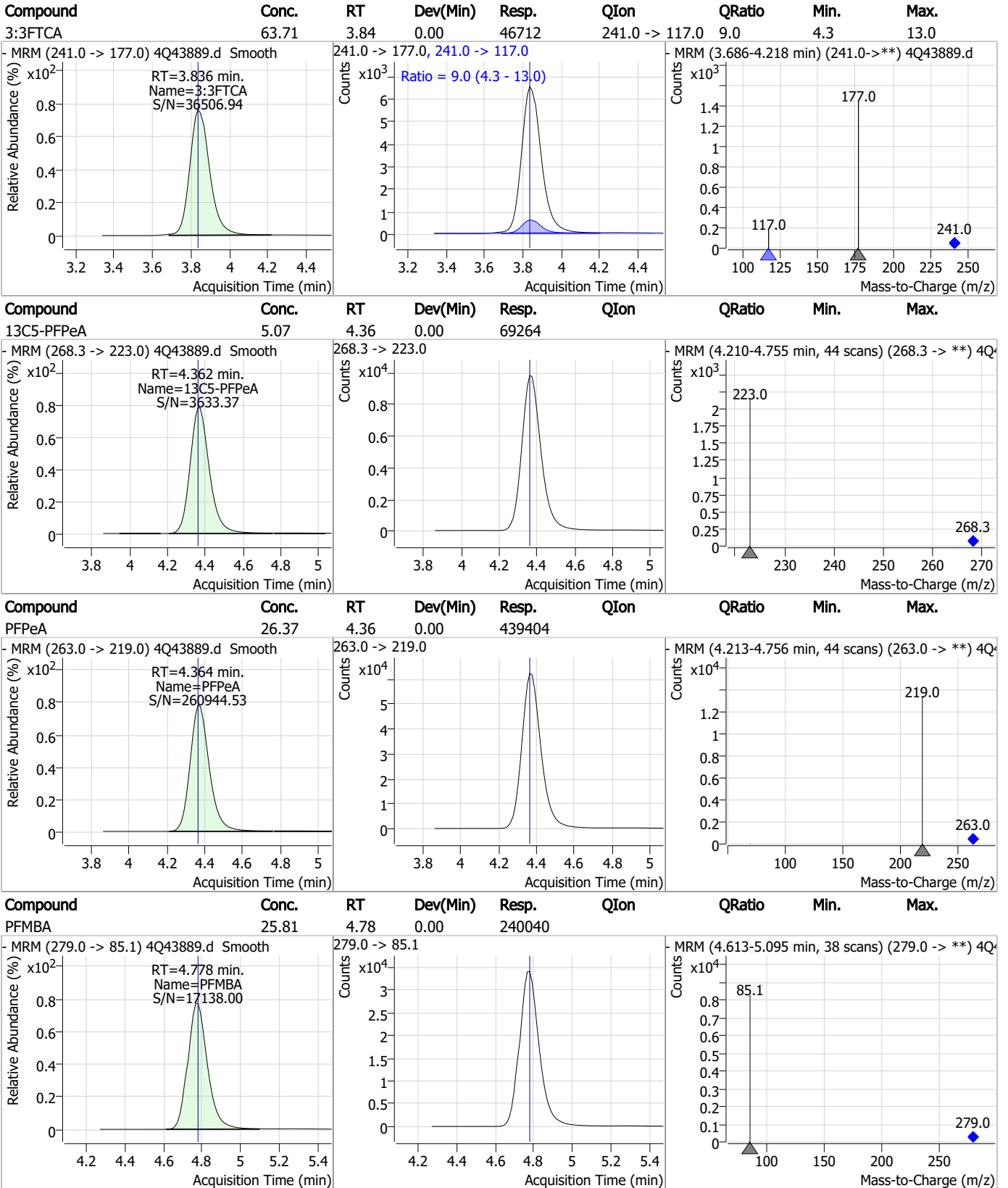
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.7
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Perfluorinated Compounds by LC/MS/MS

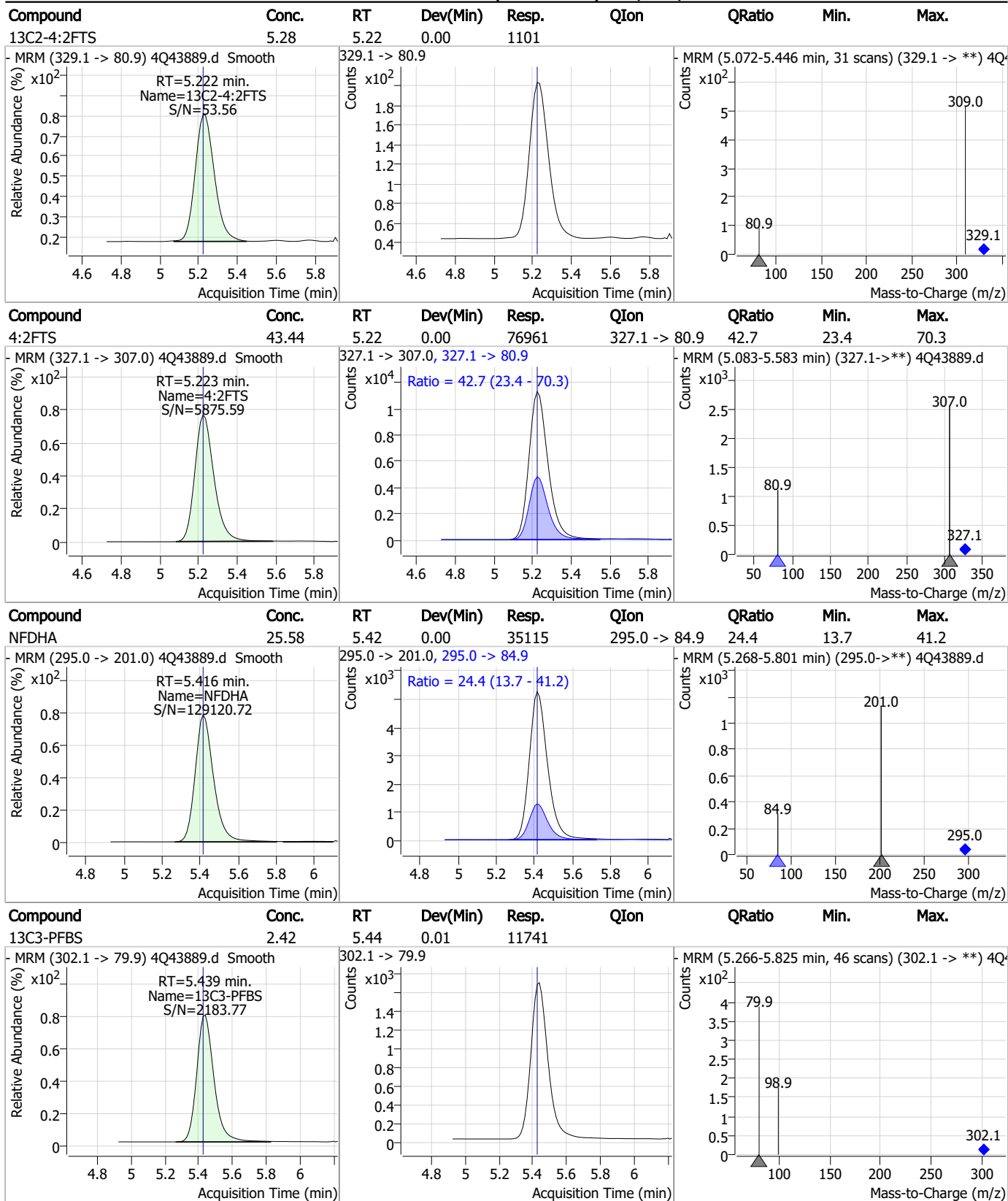


Perfluorinated Compounds by LC/MS/MS



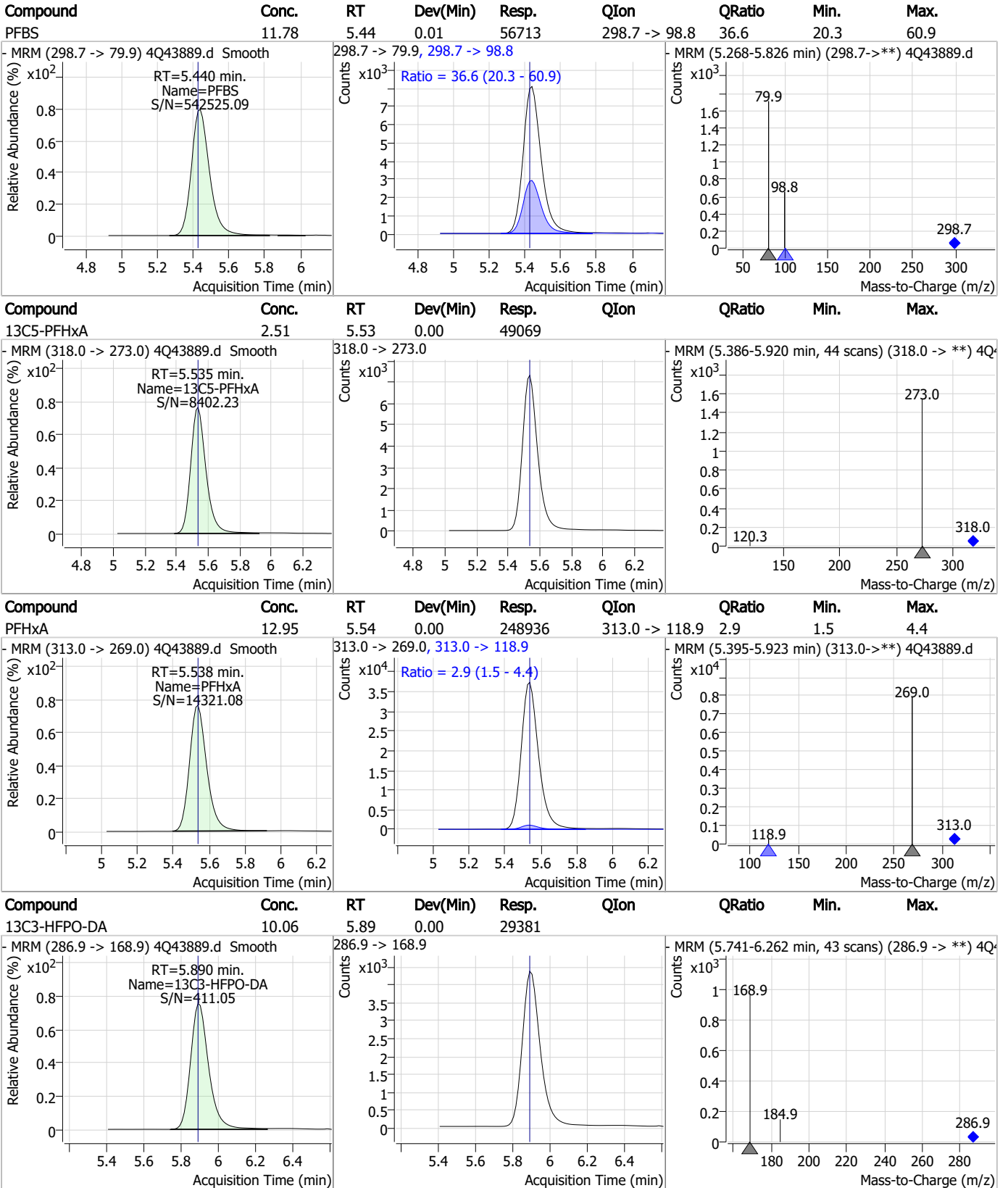
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Perfluorinated Compounds by LC/MS/MS



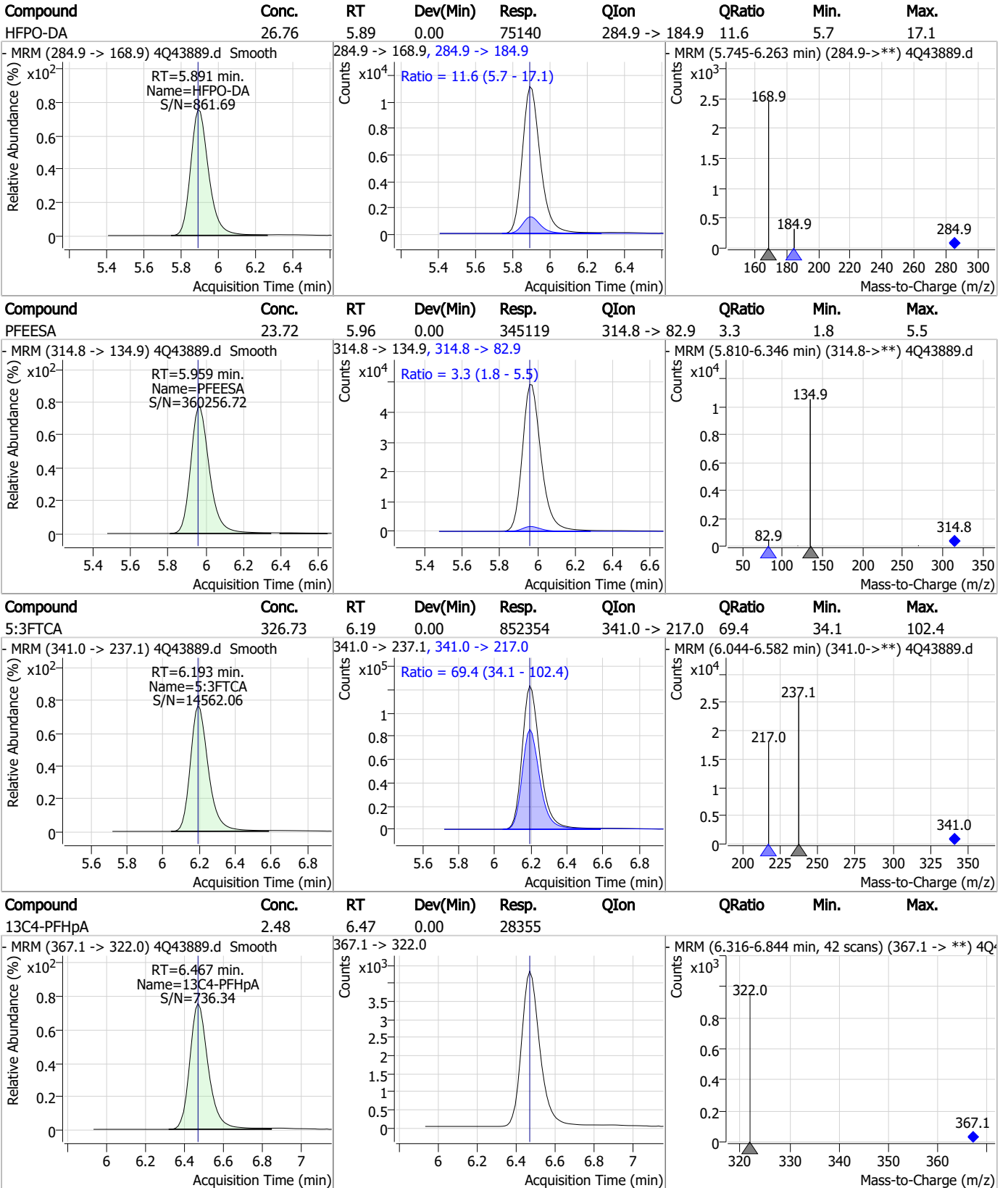
7.7.7
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Perfluorinated Compounds by LC/MS/MS



7.7.7
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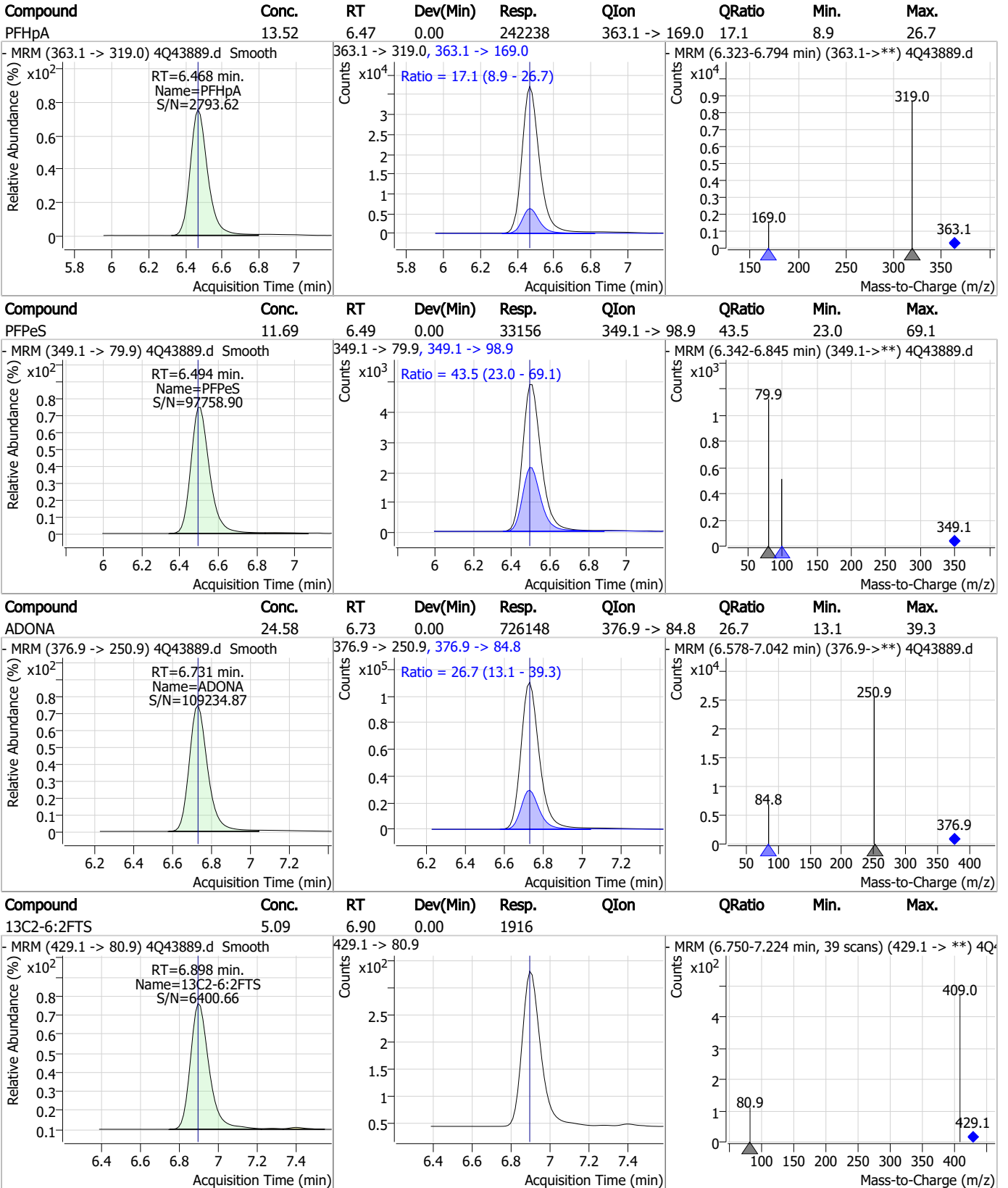
Perfluorinated Compounds by LC/MS/MS



7.7.7

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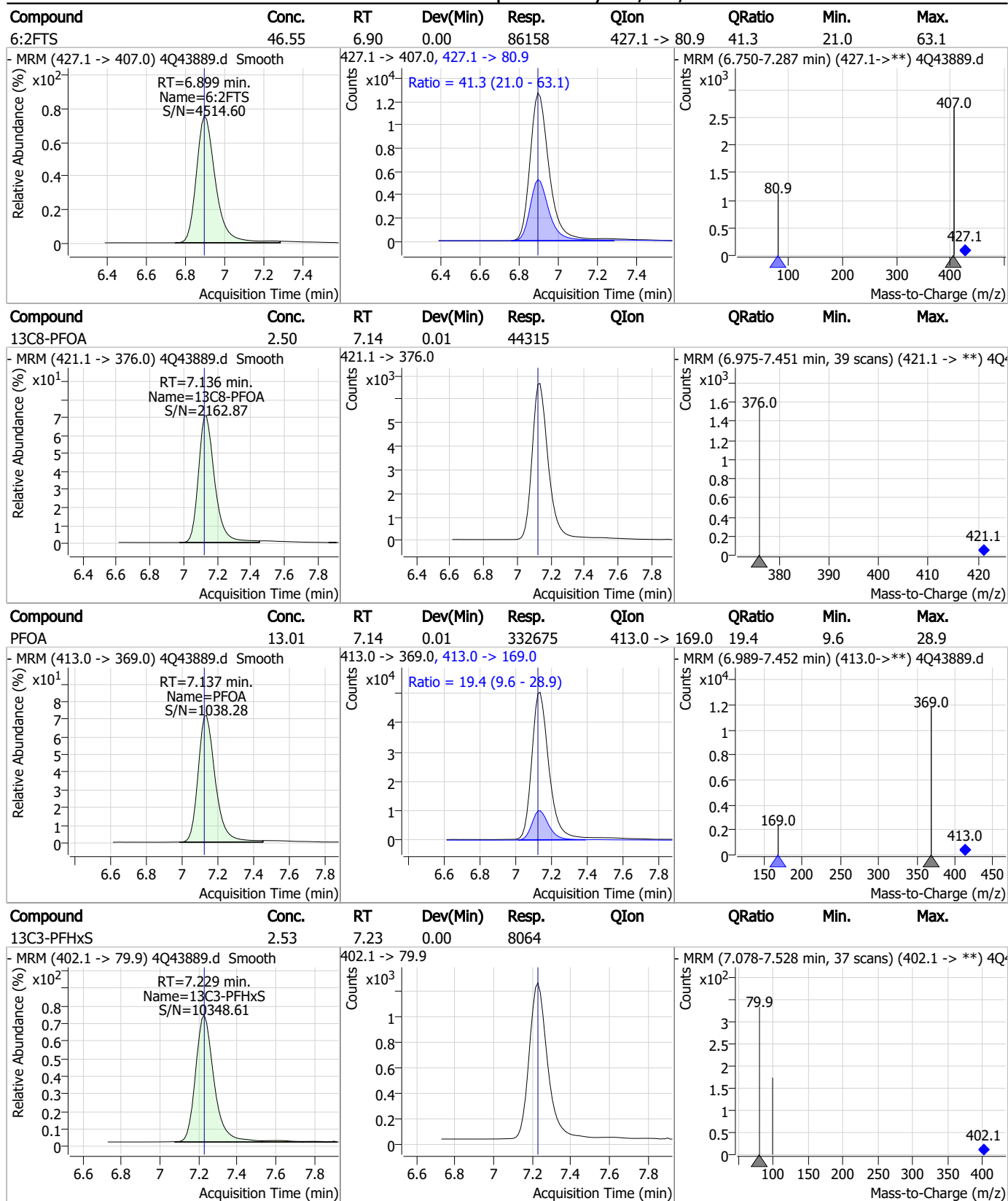
Perfluorinated Compounds by LC/MS/MS



7.7.7

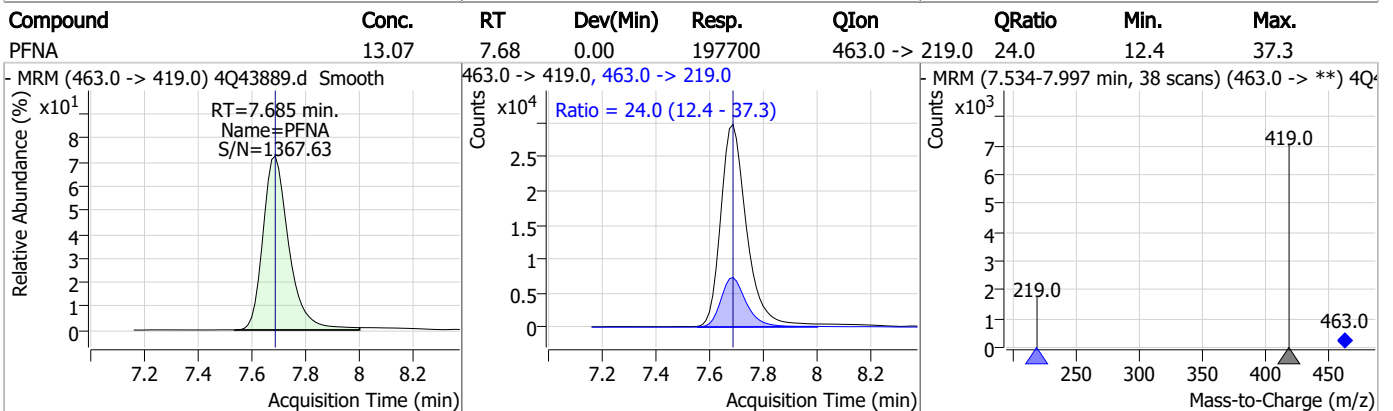
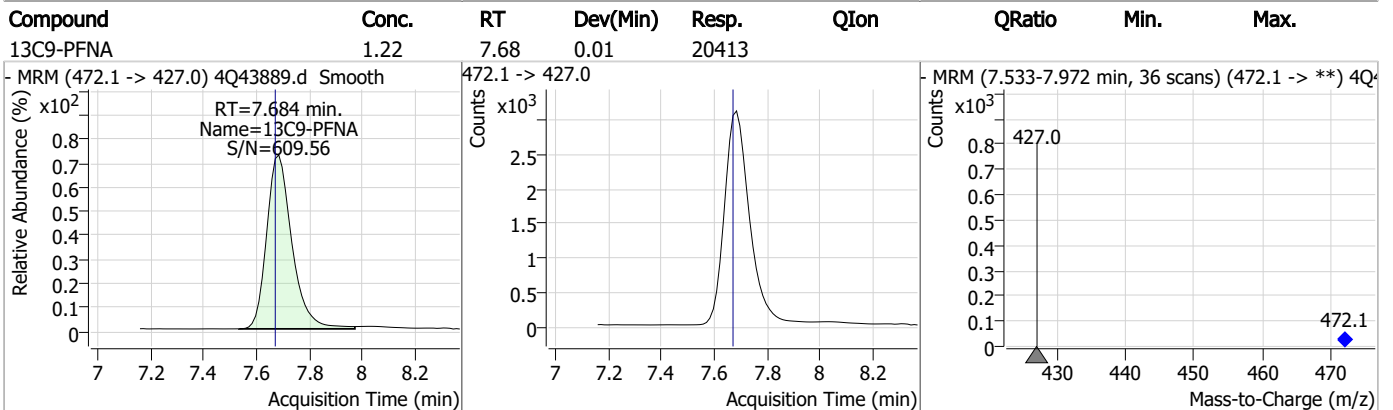
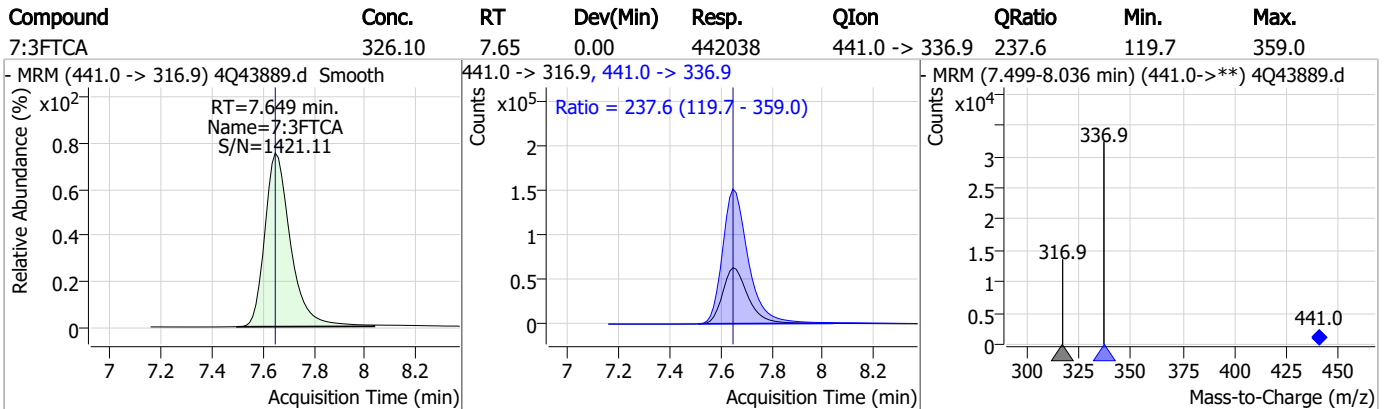
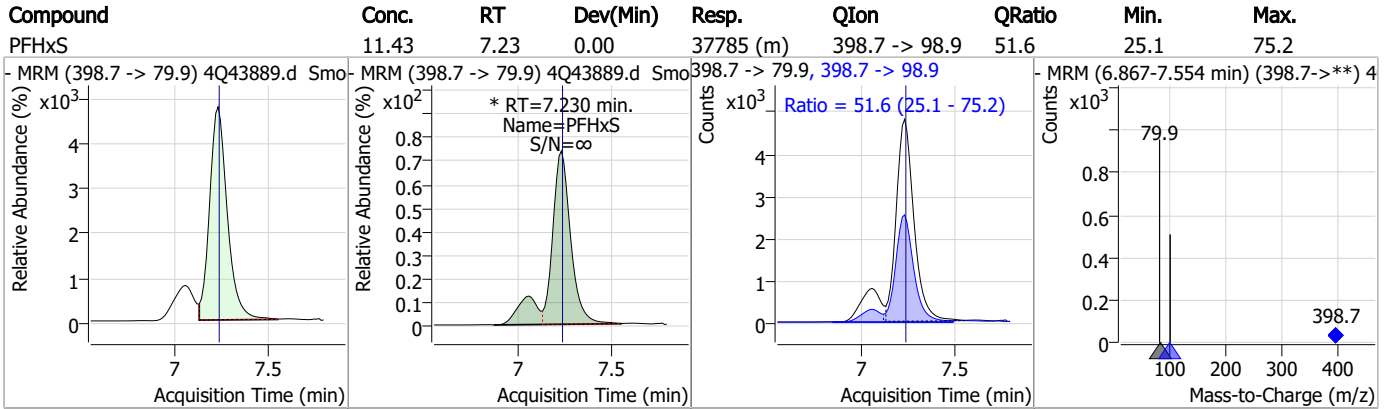
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Perfluorinated Compounds by LC/MS/MS

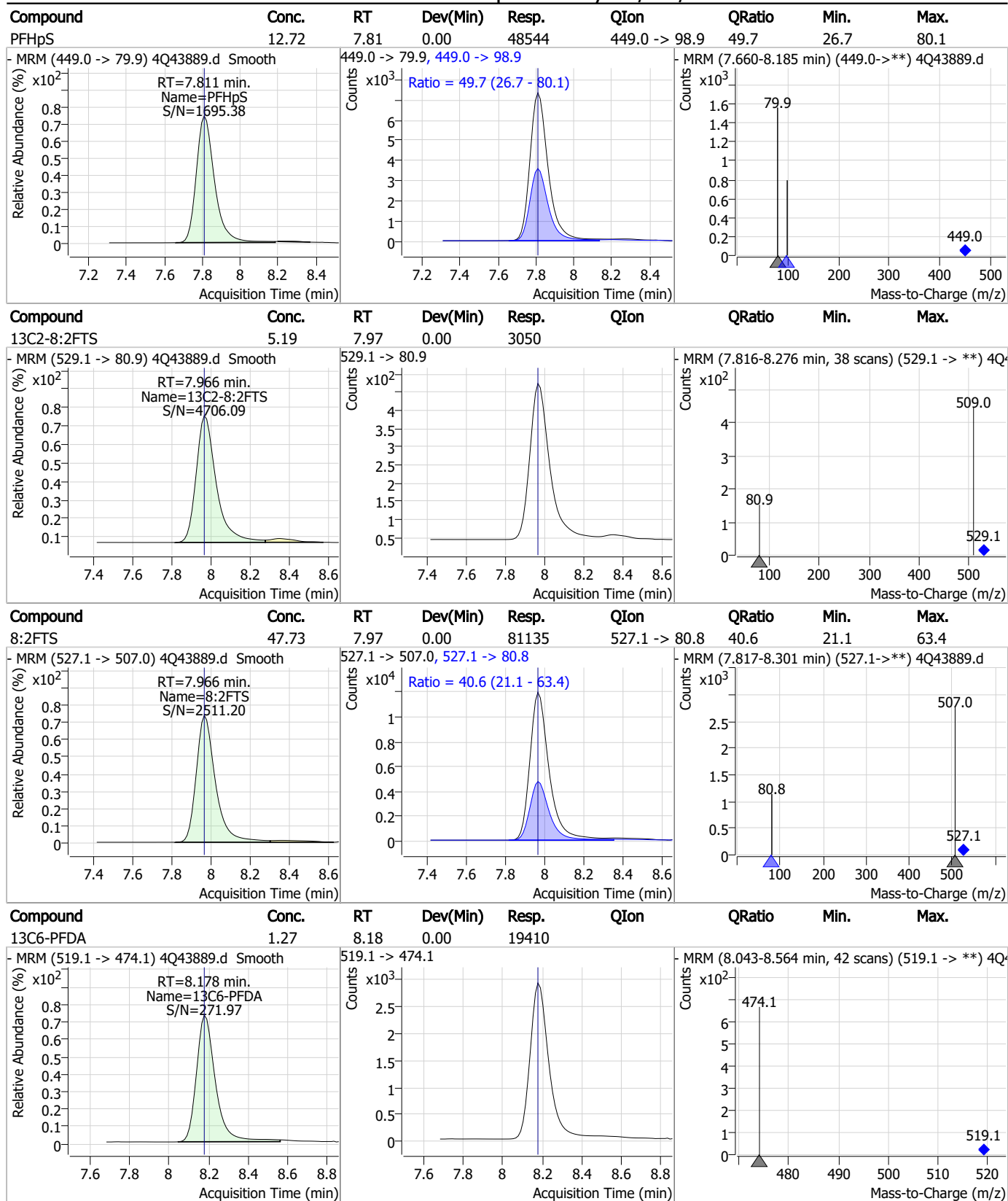


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Perfluorinated Compounds by LC/MS/MS

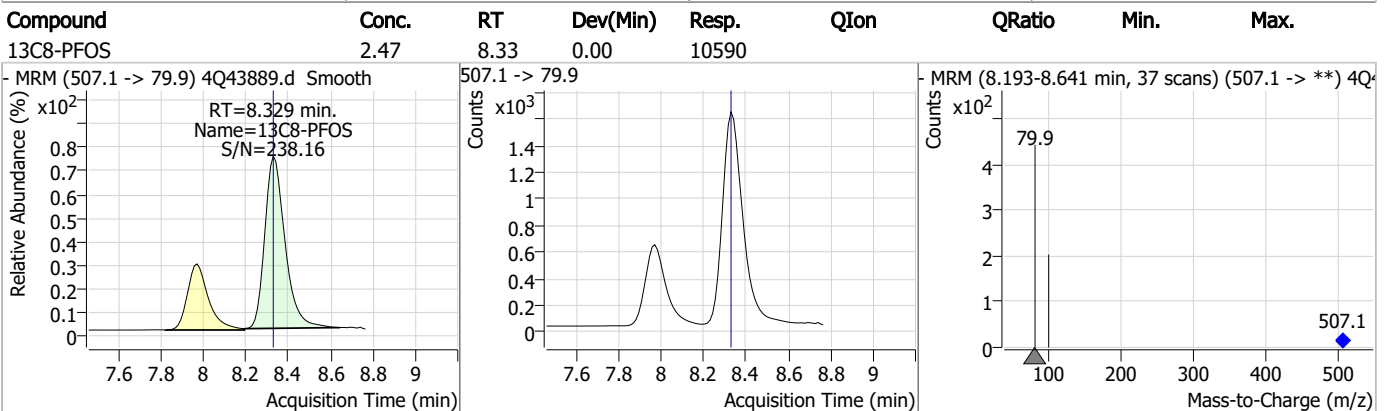
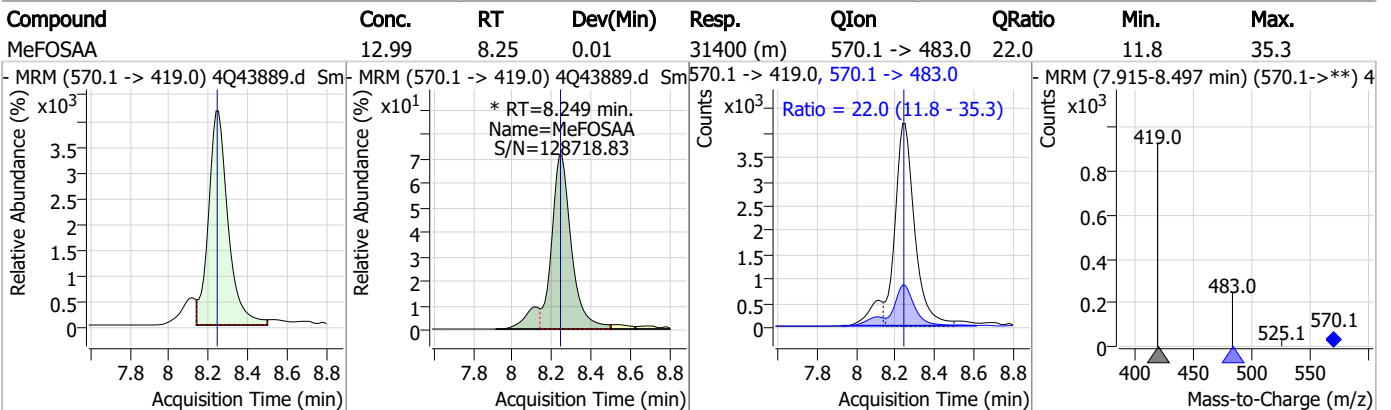
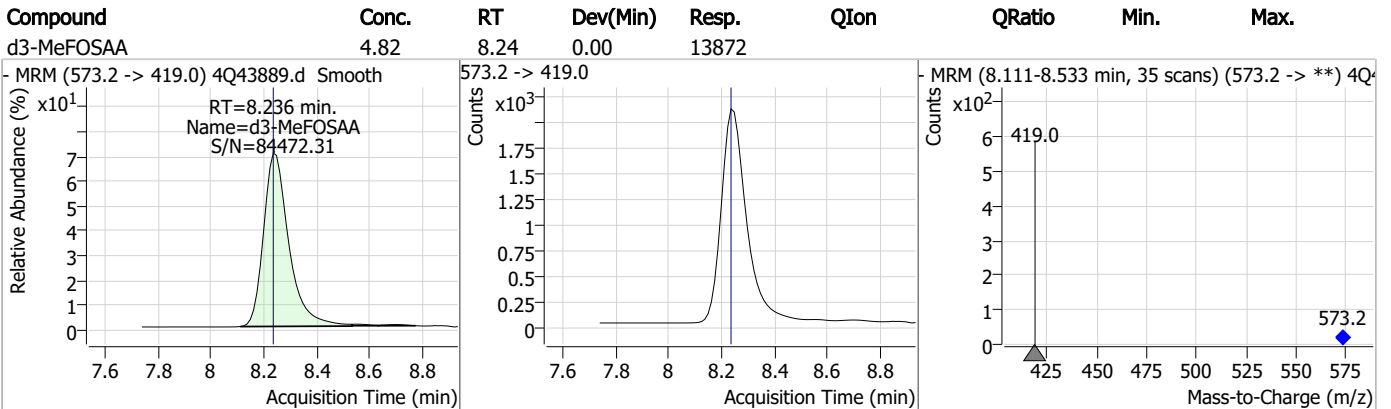
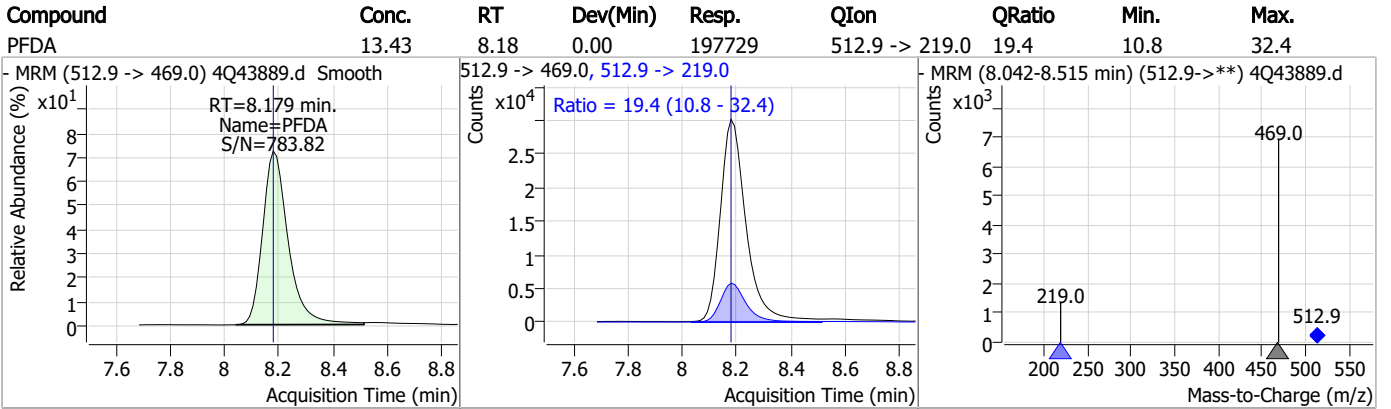


Perfluorinated Compounds by LC/MS/MS



7.7.7
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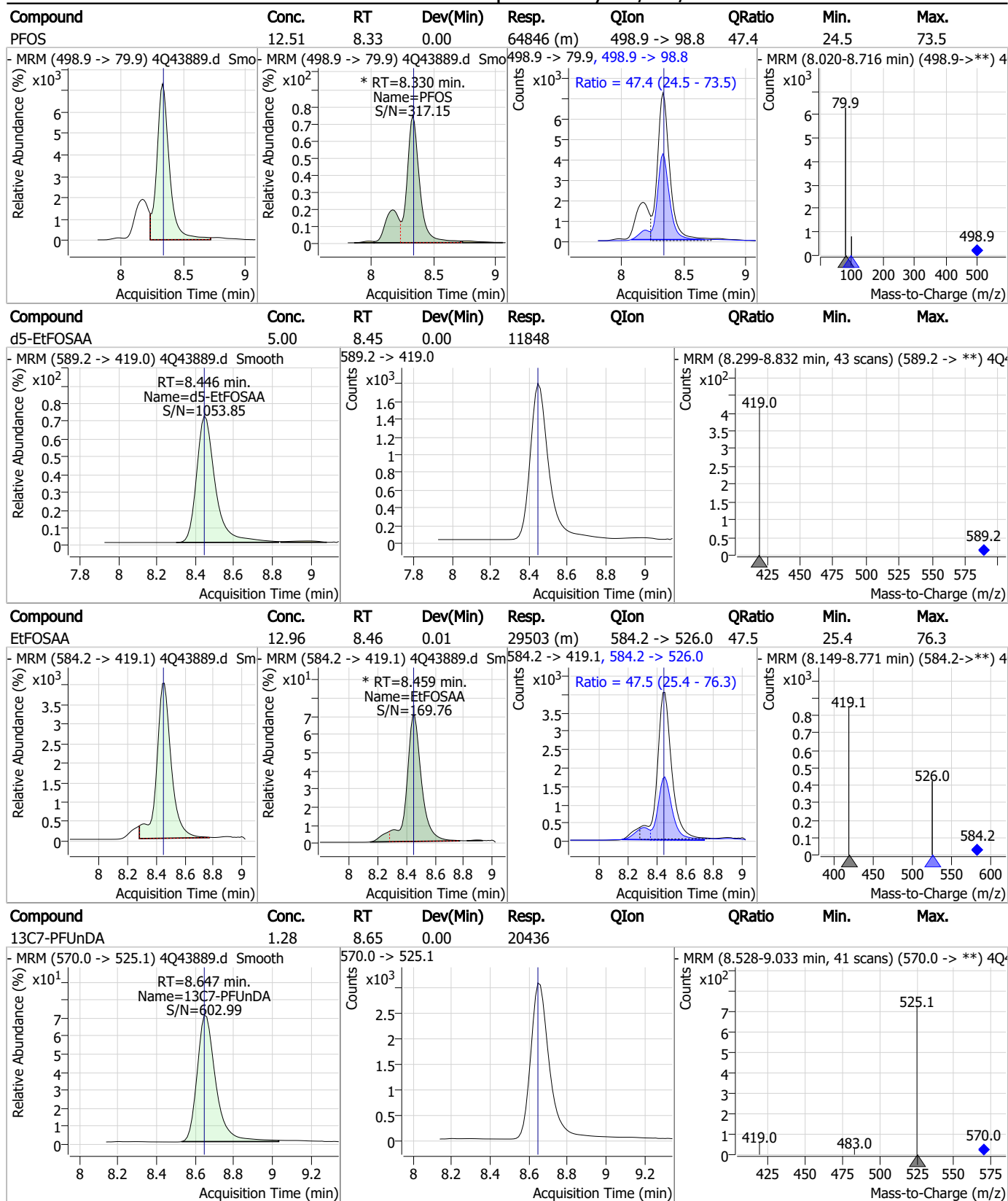
Perfluorinated Compounds by LC/MS/MS



7.7.7

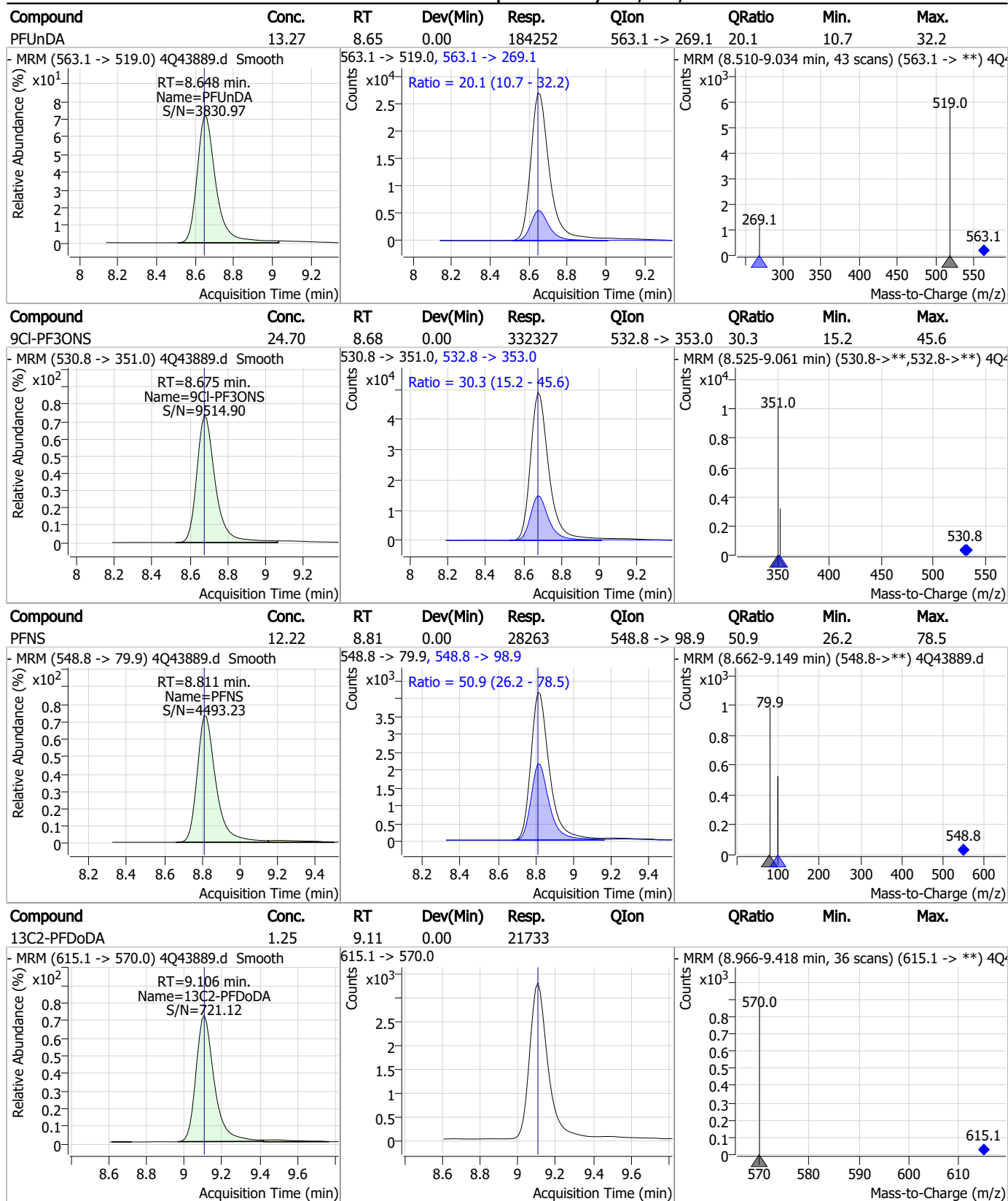
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Perfluorinated Compounds by LC/MS/MS



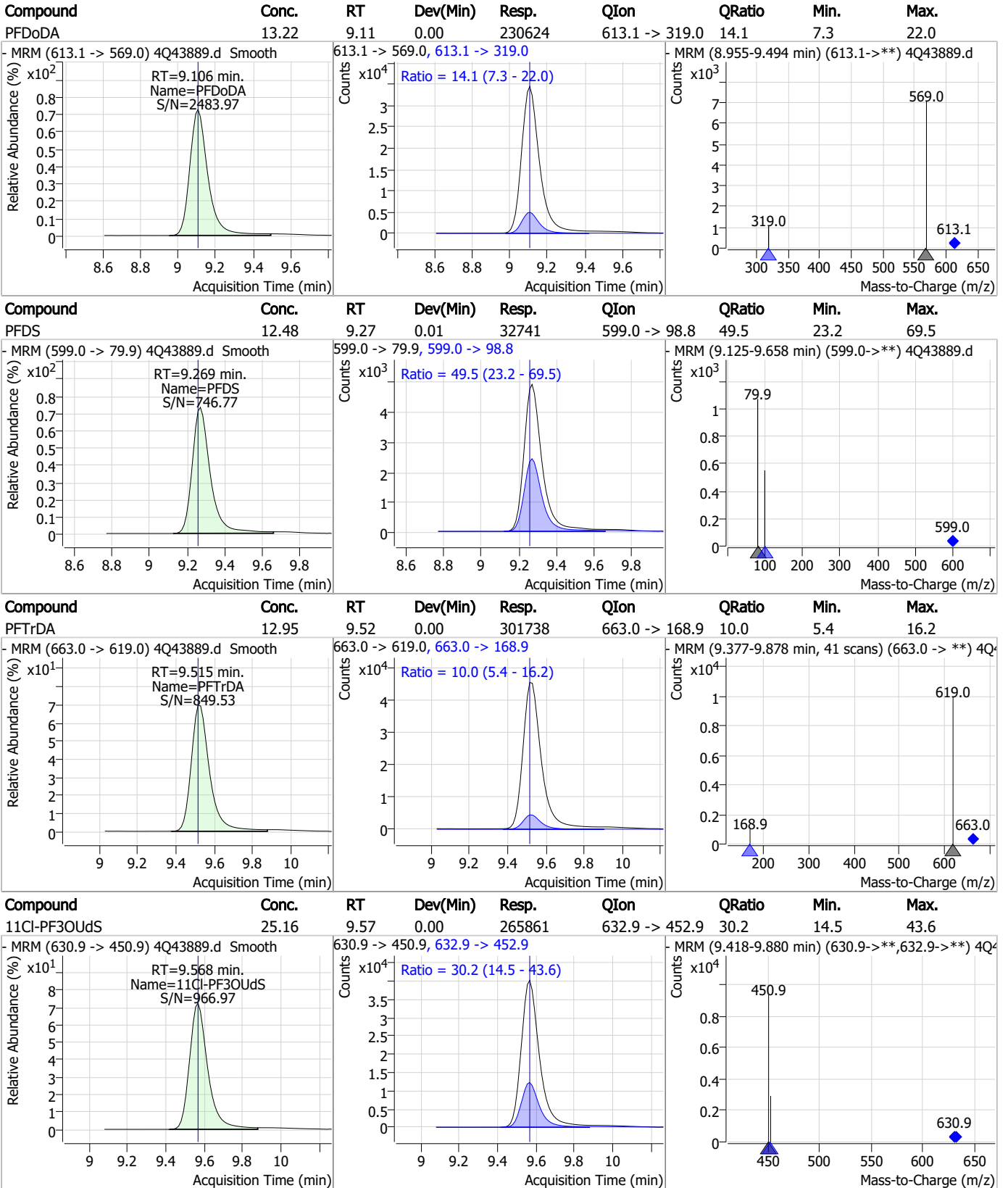
7.7.7
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Perfluorinated Compounds by LC/MS/MS



7.7.7
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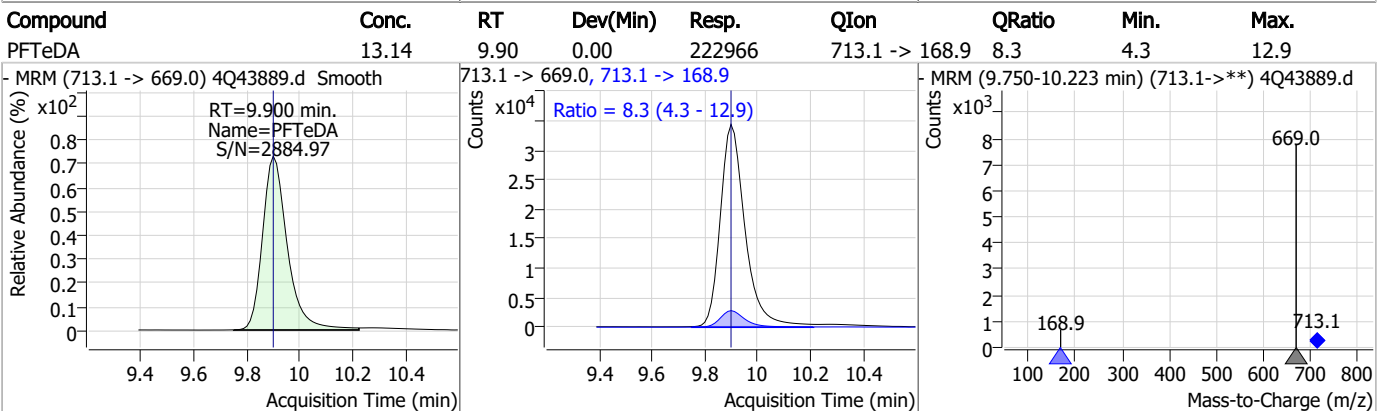
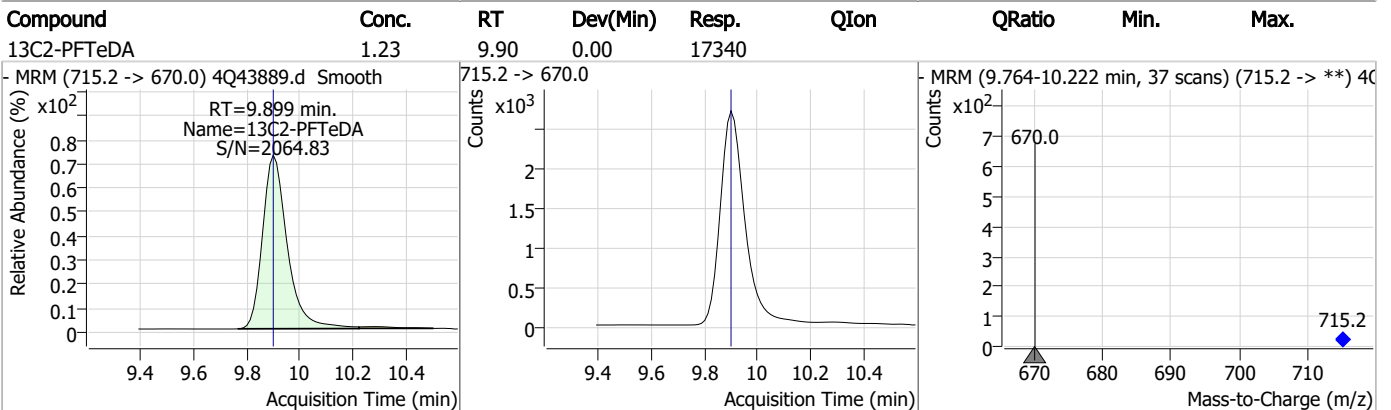
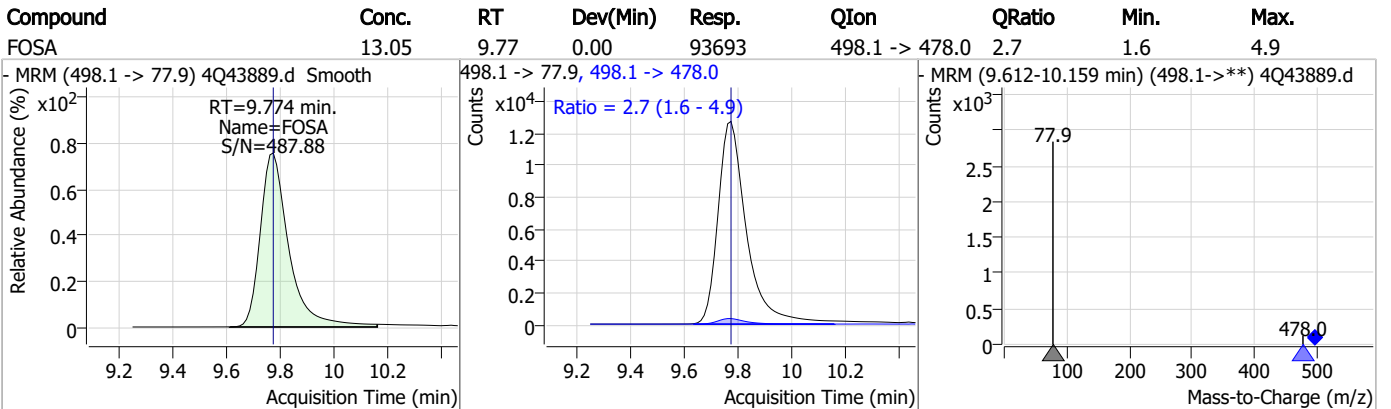
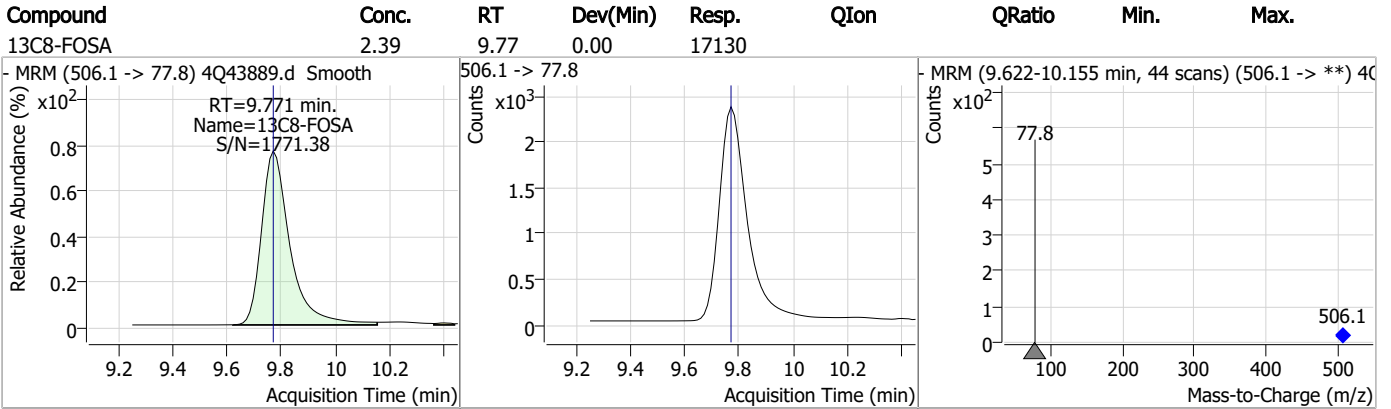
Perfluorinated Compounds by LC/MS/MS



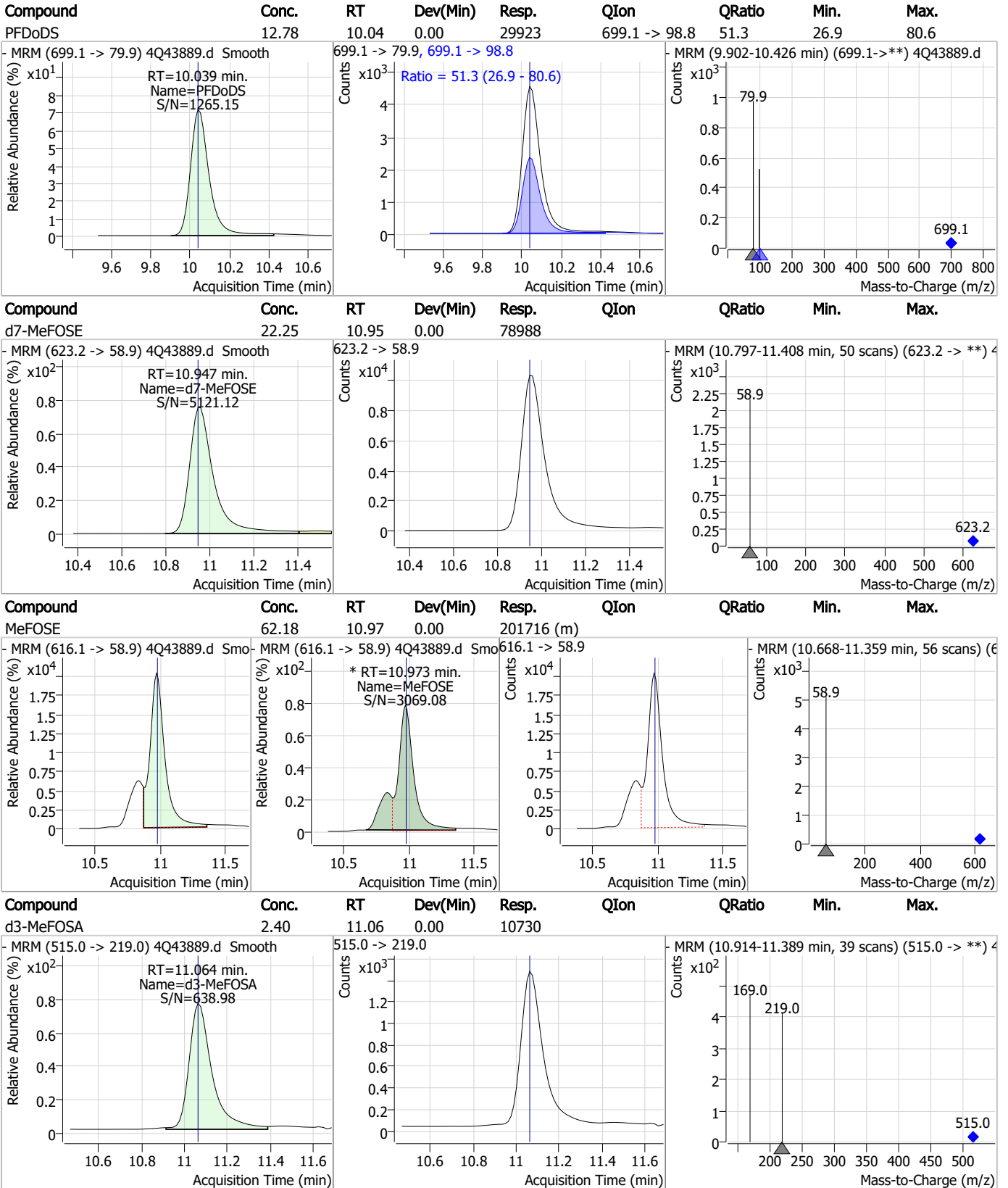
7.7.7

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Perfluorinated Compounds by LC/MS/MS



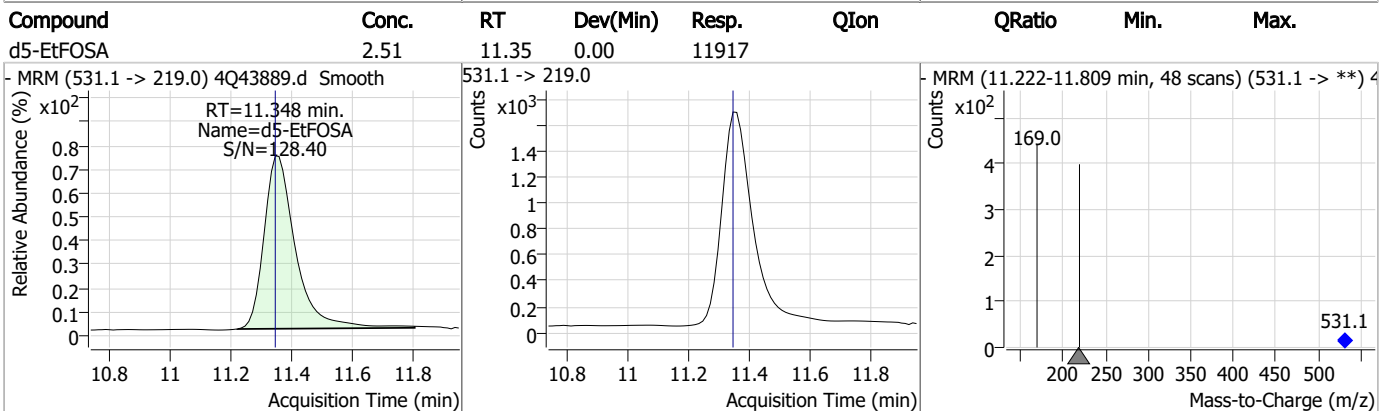
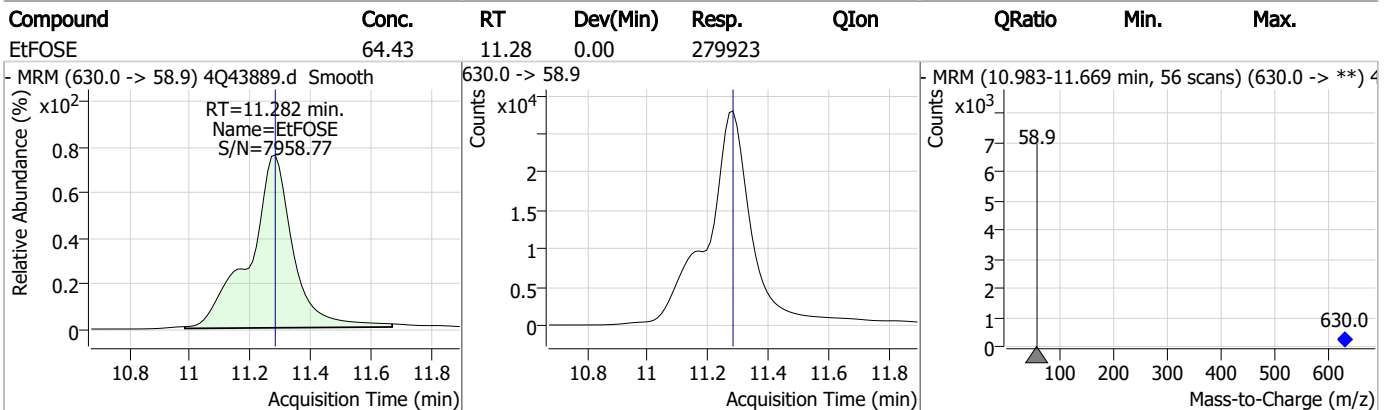
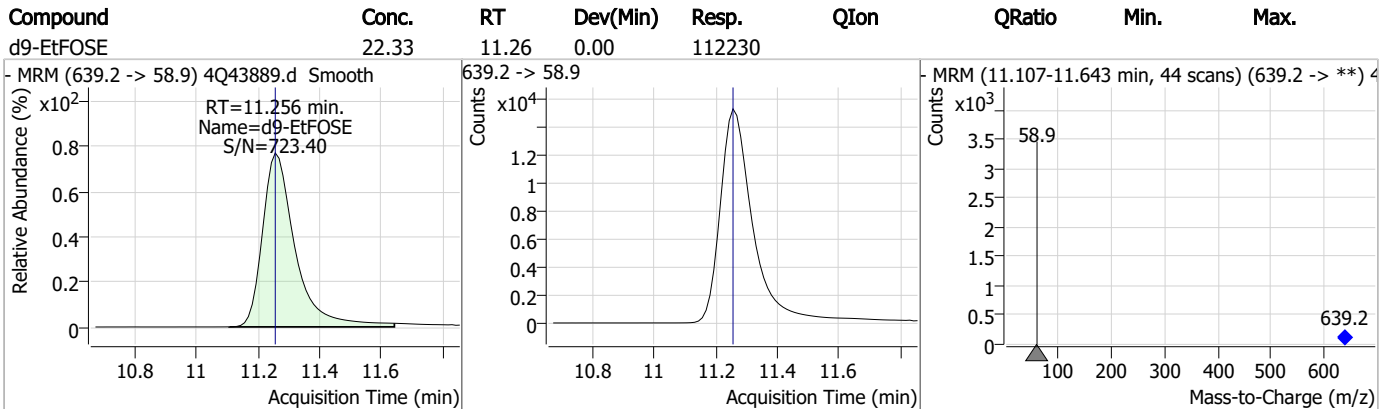
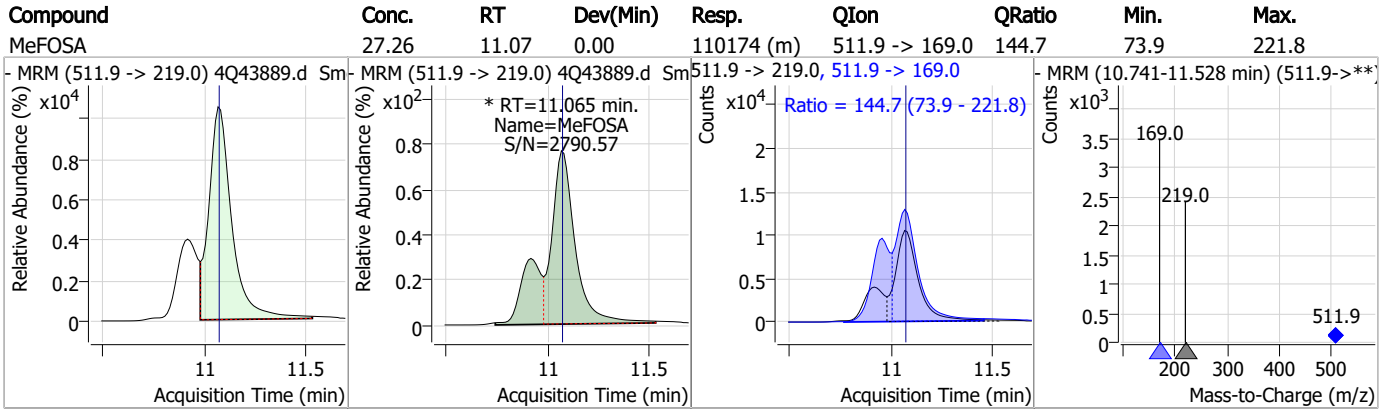
Perfluorinated Compounds by LC/MS/MS



7.7.7

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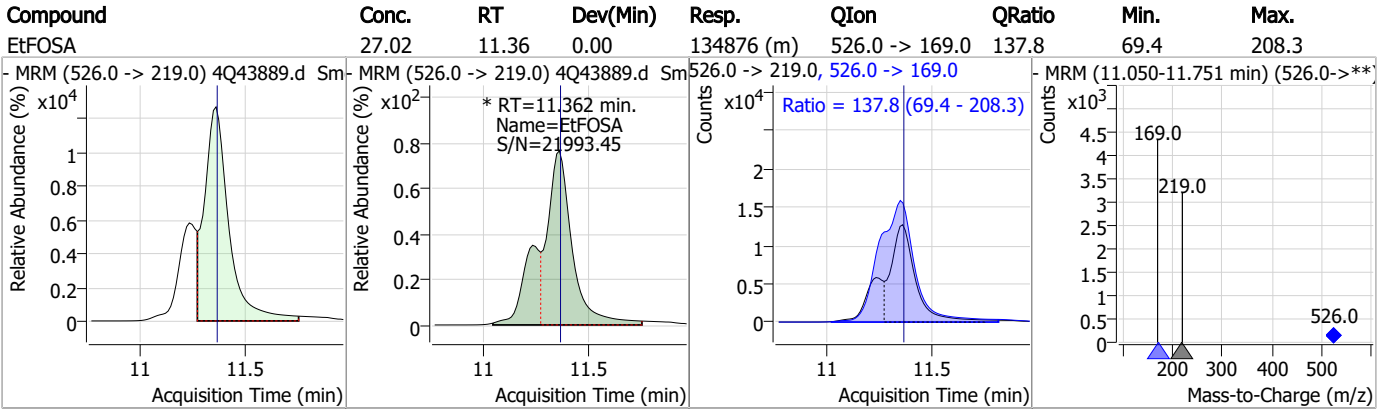
Perfluorinated Compounds by LC/MS/MS



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: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43889.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 12:22 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

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

Norman Farmer
 05/04/23 17:44

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43890.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 12:36:33 PM
 Sample Name : ic634-7
 Vial : P1-A8
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.911	216.8 -> 171.9	120121	10.00 µg/L	-0.012
M5-PFPeA	4.362	268.3 -> 223.0	66273	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	46821	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	28586	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	41636	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20543	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	19612	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	18650	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	21188	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	15643	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	16278	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	11395	2.50 µg/L	0.012
M3-PFHxS	7.229	402.1 -> 79.9	7525	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	10878	2.50 µg/L	0.000
M2-4:2FTS	5.235	329.1 -> 80.9	872	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	1599	5.00 µg/L	0.000
M2-8:2FTS	7.978	529.1 -> 80.9	2515	5.00 µg/L	0.012
M3-MeFOSAA	8.236	573.2 -> 419.0	14413	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	29456	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11475	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	70051	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	98044	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	11250	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10176	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	10322	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	63898	5.00 µg/L	-0.012
18O2-PFHxS	7.228	403.0 -> 83.9	4756	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	51637	2.50 µg/L	0.012
13C2-PFDA	8.178	515.1 -> 470.1	17262	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	23219	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	43283	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.235	329.1 -> 80.9	872	4.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1599	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.8%		
13C2-8:2FTS	7.978	529.1 -> 80.9	2515	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21188	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-PFTeDA	9.899	715.2 -> 670.0	15643	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C3-PFBS	5.439	302.1 -> 79.9	11395	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.229	402.1 -> 79.9	7525	2.55 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 = 102.1%	
13C4-PFBA	2.911	216.8 -> 171.9	120121	9.99 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.467	367.1 -> 322.0	28586	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	5.535	318.0 -> 273.0	46821	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	4.362	268.3 -> 223.0	66273	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.178	519.1 -> 474.1	19612	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C7-PFUnDA	8.647	570.0 -> 525.1	18650	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-FOSA	9.771	506.1 -> 77.8	16278	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-PFOA	7.136	421.1 -> 376.0	41636	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOS	8.329	507.1 -> 79.9	10878	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C9-PFNA	7.684	472.1 -> 427.0	20543	1.30 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14413	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	29456	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSA	11.064	515.0 -> 219.0	10176	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11475	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d7-MeFOSE	10.959	623.2 -> 58.9	70051	21.81 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
d9-EtFOSE	11.256	639.2 -> 58.9	98044	21.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.2%	
d5-EtFOSA	11.348	531.1 -> 219.0	11250	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	146301	104.28 µg/L	92
		327.1 -> 80.9	60380		
6:2FTS	6.899	427.1 -> 407.0	156292	101.17 µg/L	98
		427.1 -> 80.9	64052		
8:2FTS	7.966	527.1 -> 507.0	149695	106.75 µg/L	95
		527.1 -> 80.8	58775		
EtFOSAA	8.459	584.2 -> 419.1	57787	26.21 µg/L	m 94
		584.2 -> 526.0	26926		
FOSA	9.774	498.1 -> 77.9	174421	25.57 µg/L	99
		498.1 -> 478.0	4957		
MeFOSAA	8.249	570.1 -> 419.0	61802	24.60 µg/L	m 99
		570.1 -> 483.0	14322		
PFBA	2.920	212.8 -> 168.9	346581	107.75 µg/L	100
PFBS	5.440	298.7 -> 79.9	109963	23.53 µg/L	95
		298.7 -> 98.8	41302		
PFDA	8.179	512.9 -> 469.0	385953	25.94 µg/L	97
		512.9 -> 219.0	77211		
PFDoDA	9.106	613.1 -> 569.0	447161	26.30 µg/L	100
		613.1 -> 319.0	64881		
PFDS	9.269	599.0 -> 79.9	61928	22.98 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	30537			
PFHpA	6.468	363.1 -> 319.0	476095	26.35	µg/L	99
		363.1 -> 169.0	82464			
PFHpS	7.811	449.0 -> 79.9	93082	23.75	µg/L	98
		449.0 -> 98.9	48374			
PFHxA	5.538	313.0 -> 269.0	491297	26.78	µg/L	100
		313.0 -> 118.9	14658			
PFHxS	7.230	398.7 -> 79.9	74205	24.06	µg/L	m 98
		398.7 -> 98.9	38246			
PFNA	7.685	463.0 -> 419.0	388441	25.51	µg/L	99
		463.0 -> 219.0	95620			
PFNS	8.811	548.8 -> 79.9	55484	23.36	µg/L	97
		548.8 -> 98.9	28020			
PFOA	7.137	413.0 -> 369.0	642884	26.76	µg/L	97
		413.0 -> 169.0	131407			
PFOS	8.330	498.9 -> 79.9	132624	24.91	µg/L	m 98
		498.9 -> 98.8	62946			
PFPeA	4.364	263.0 -> 219.0	849369	53.27	µg/L	100
PFPeS	6.507	349.1 -> 79.9	65126	24.61	µg/L	96
		349.1 -> 98.9	28467			
PFTeDA	9.900	713.1 -> 669.0	424000	27.69	µg/L	99
		713.1 -> 168.9	34965			
PFTrDA	9.529	663.0 -> 619.0	564435	24.84	µg/L	98
		663.0 -> 168.9	56187			
PFUnDA	8.648	563.1 -> 519.0	350086	27.64	µg/L	97
		563.1 -> 269.1	70679			
11Cl-PF3OUdS	9.568	630.9 -> 450.9	519008	49.00	µg/L	97
		632.9 -> 452.9	159065			
9Cl-PF3ONS	8.675	530.8 -> 351.0	641153	47.53	µg/L	99
		532.8 -> 353.0	197012			
ADONA	6.731	376.9 -> 250.9	1425503	48.12	µg/L	100
		376.9 -> 84.8	372213			
HFPO-DA	5.891	284.9 -> 168.9	147577	52.43	µg/L	100
		284.9 -> 184.9	16918			
3:3FTCA	3.836	241.0 -> 177.0	93481	133.25	µg/L	99
		241.0 -> 117.0	8317			
5:3FTCA	6.193	341.0 -> 237.1	1676151	673.37	µg/L	100
		341.0 -> 217.0	1146237			
7:3FTCA	7.649	441.0 -> 316.9	878718	679.38	µg/L	97
		441.0 -> 336.9	2052834			
EtFOSA	11.362	526.0 -> 219.0	262384	55.67	µg/L	m 98
		526.0 -> 169.0	357124			
EtFOSE	11.282	630.0 -> 58.9	509704	134.29	µg/L	100
MeFOSA	11.066	511.9 -> 219.0	210295	54.86	µg/L	m 98
		511.9 -> 169.0	316383			
MeFOSE	10.973	616.1 -> 58.9	369686	128.49	µg/L	m 100
PFDoDS	10.052	699.1 -> 79.9	56691	23.57	µg/L	99
		699.1 -> 98.8	31005			
NFDHA	5.416	295.0 -> 201.0	66188	50.53	µg/L	95
		295.0 -> 84.9	16643			
PFMBA	4.778	279.0 -> 85.1	466141	52.38	µg/L	100
PFMPA	3.515	229.0 -> 84.9	445482	53.45	µg/L	100
PFEESA	5.971	314.8 -> 134.9	665147	47.90	µg/L	99
		314.8 -> 82.9	22108			

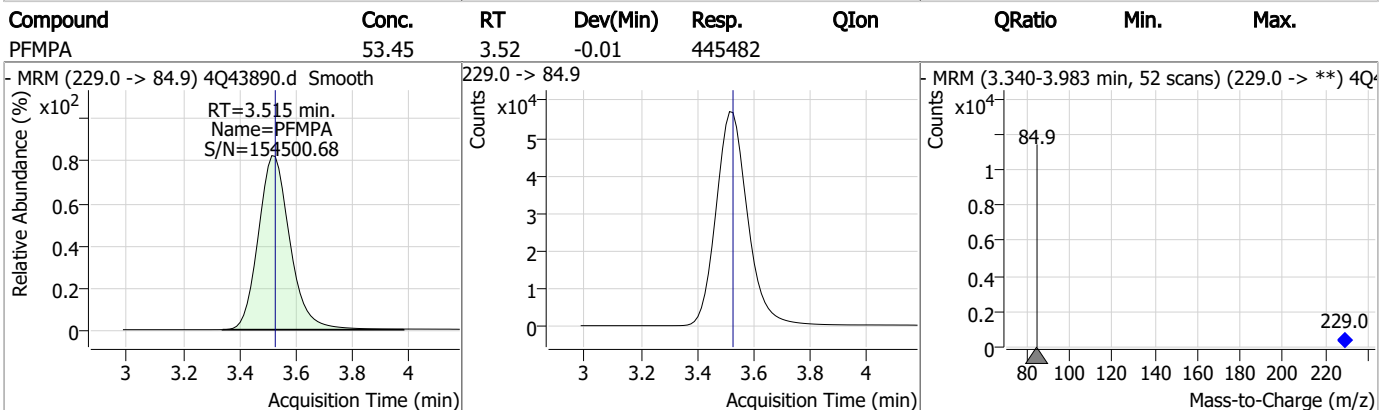
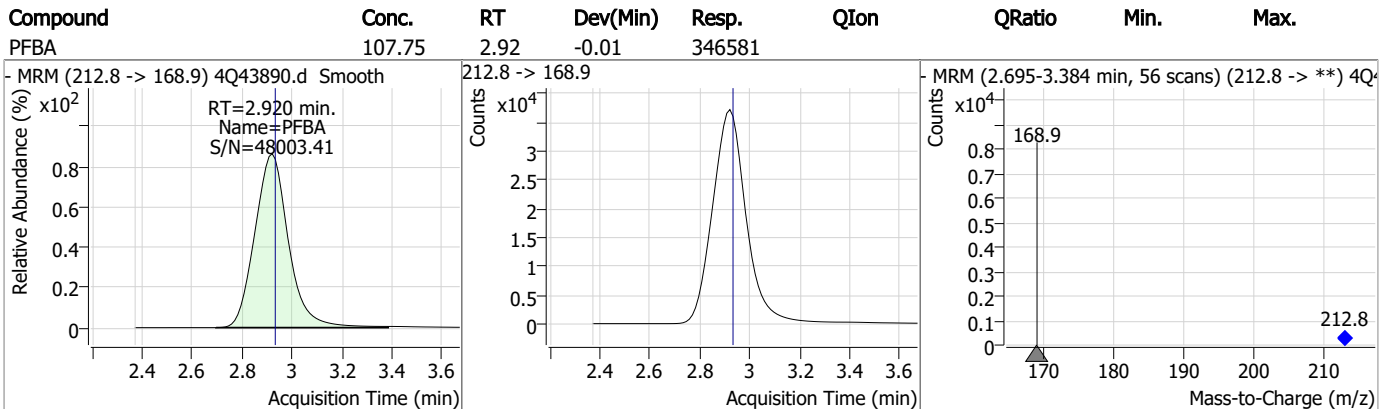
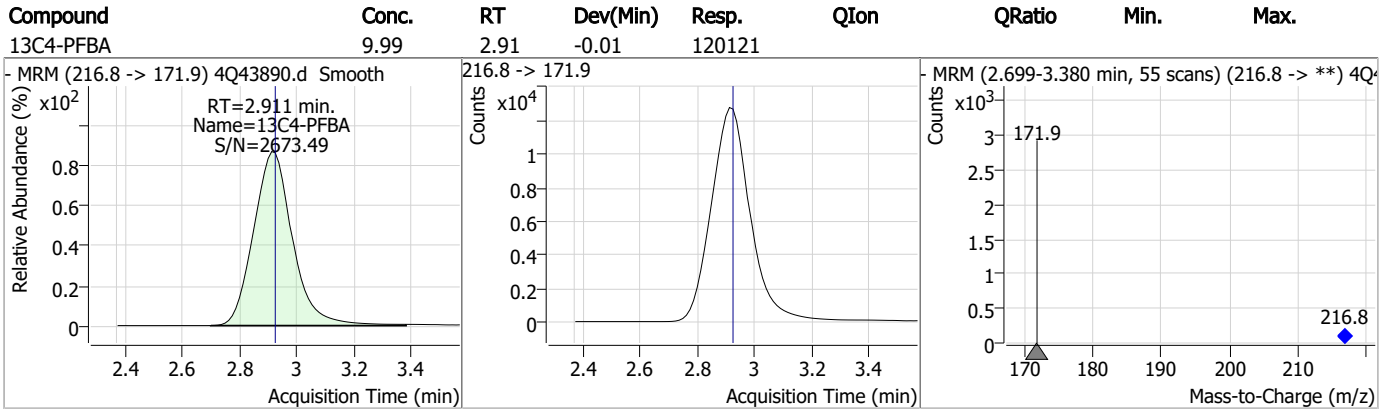
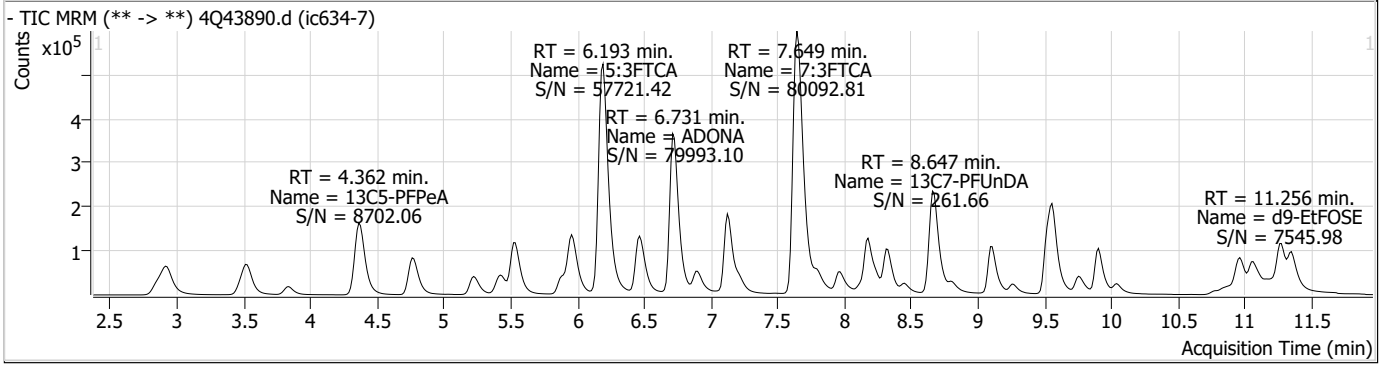
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

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

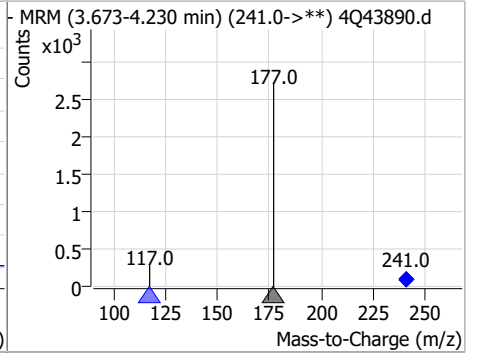
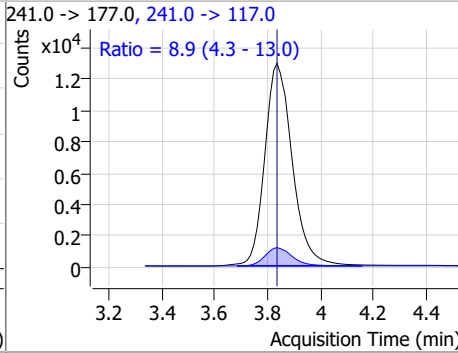
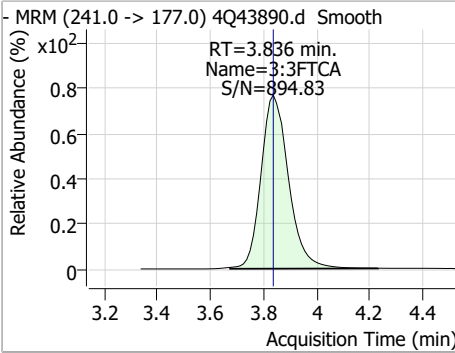


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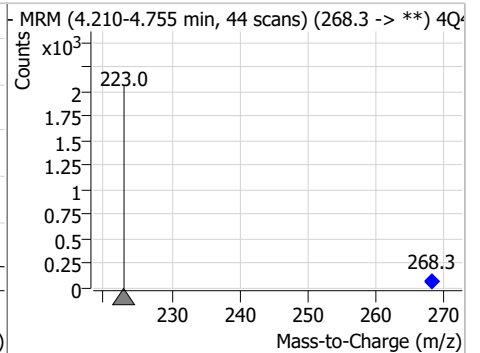
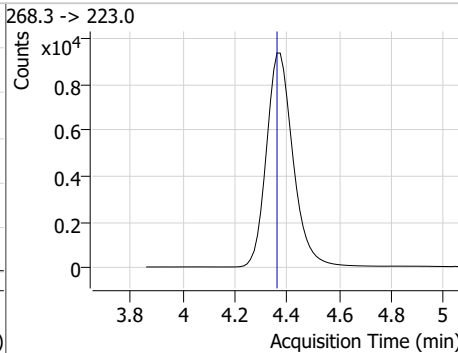
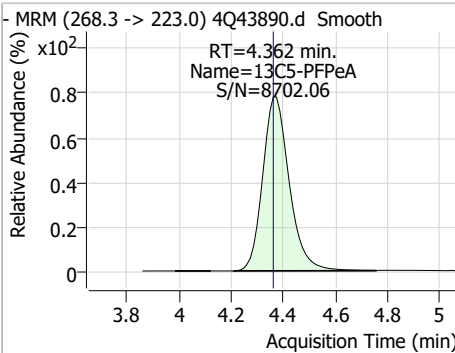
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Perfluorinated Compounds by LC/MS/MS

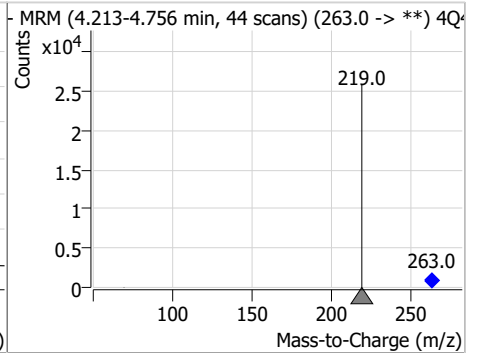
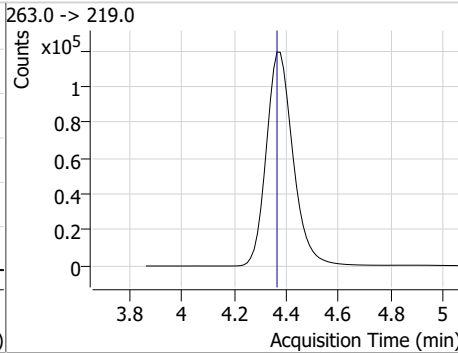
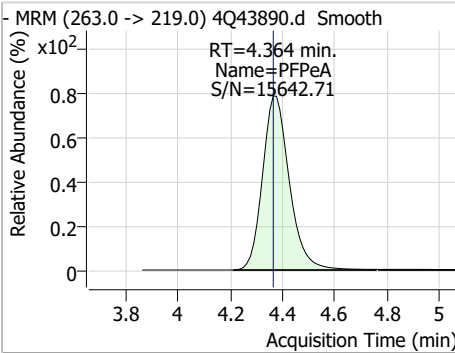
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	133.25	3.84	0.00	93481	241.0 -> 117.0	8.9	4.3	13.0



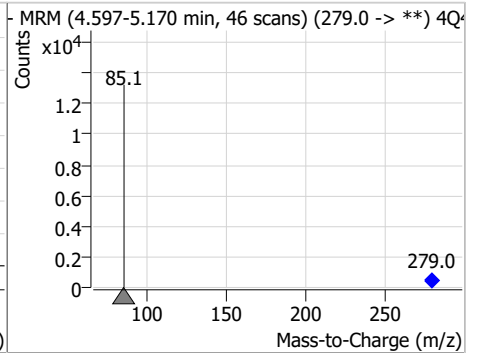
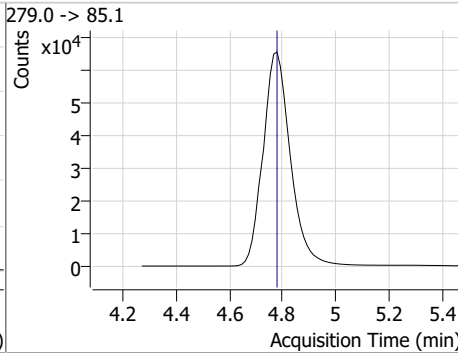
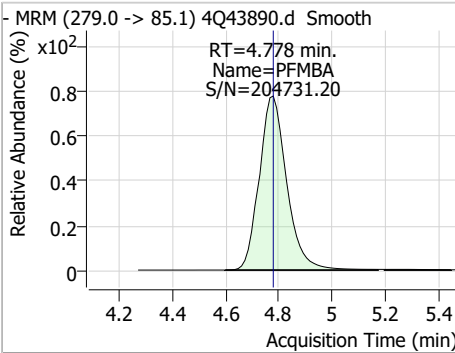
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.97	4.36	0.00	66273				



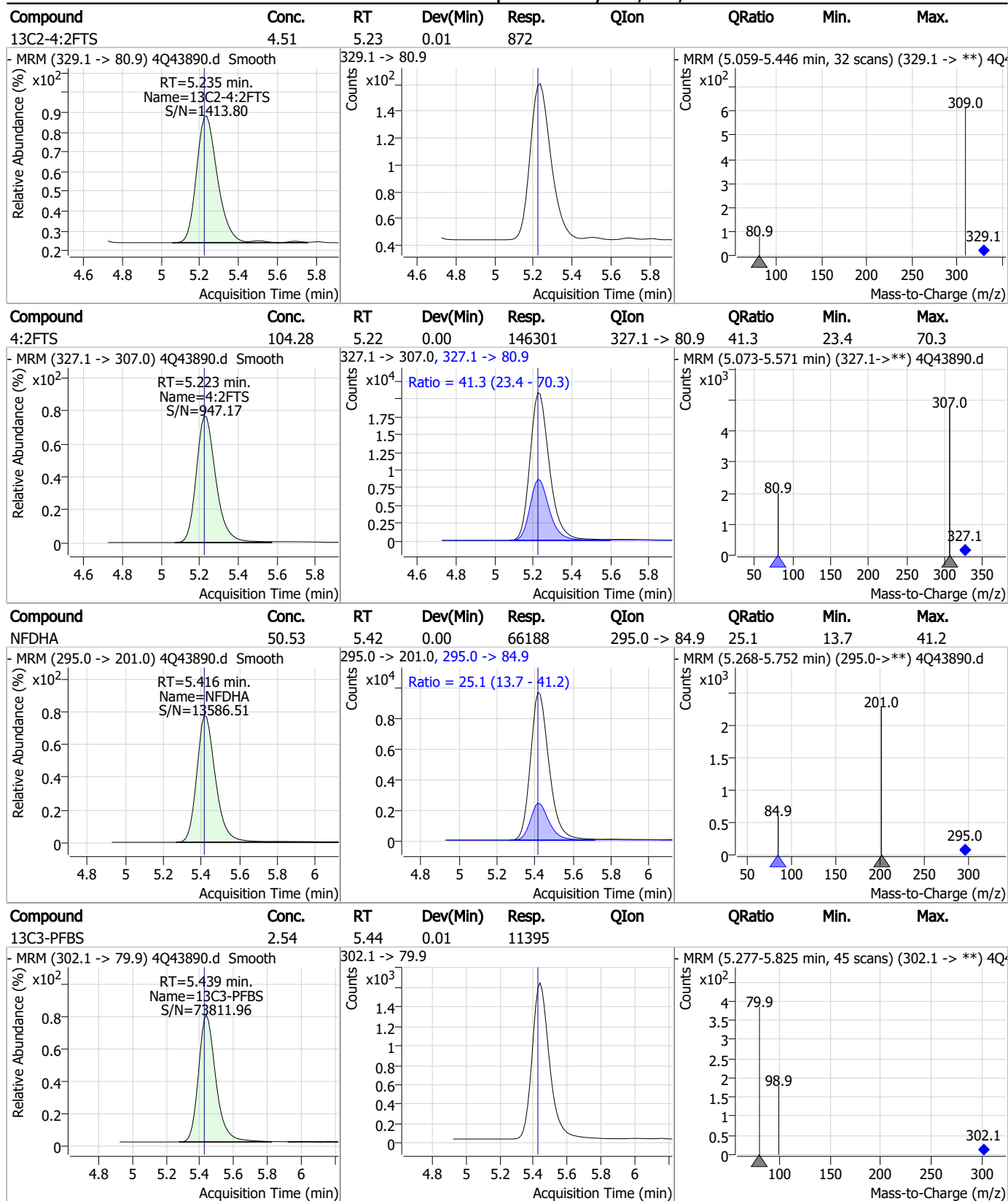
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	53.27	4.36	0.00	849369				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	52.38	4.78	0.00	466141				

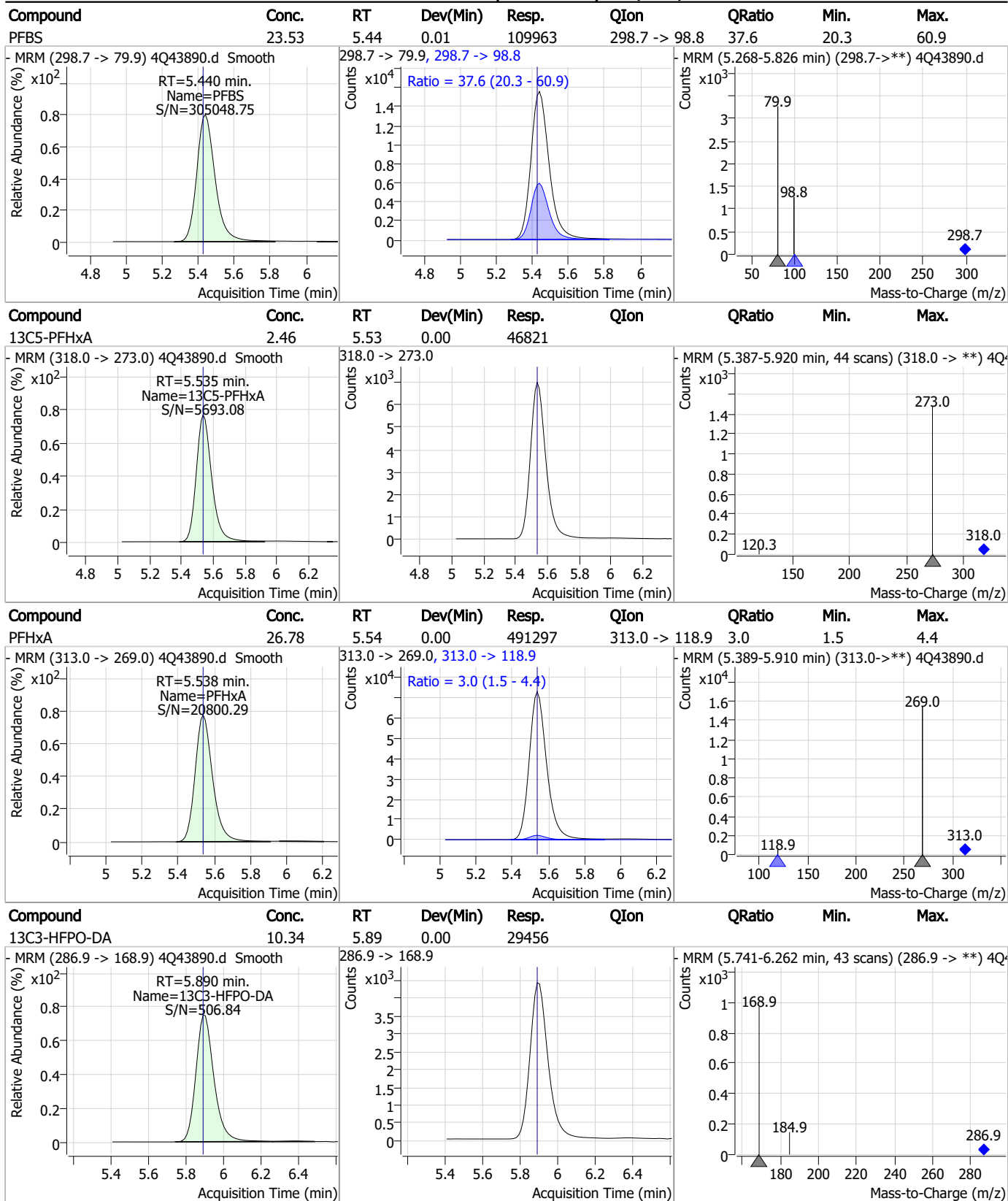


Perfluorinated Compounds by LC/MS/MS



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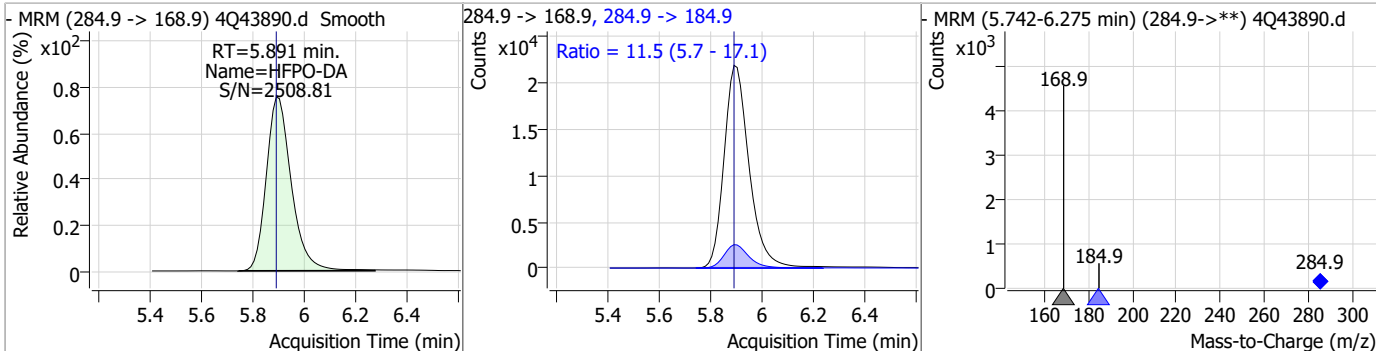
Perfluorinated Compounds by LC/MS/MS



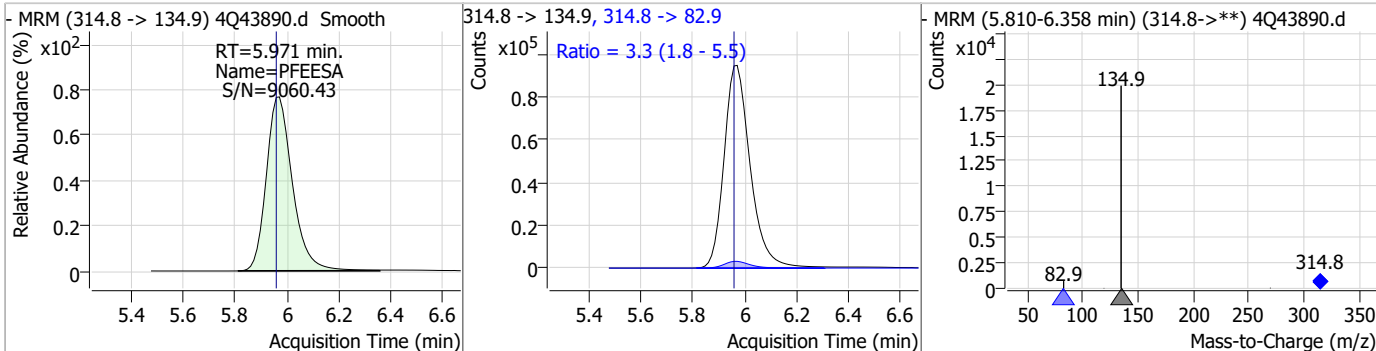
7.7.8
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Perfluorinated Compounds by LC/MS/MS

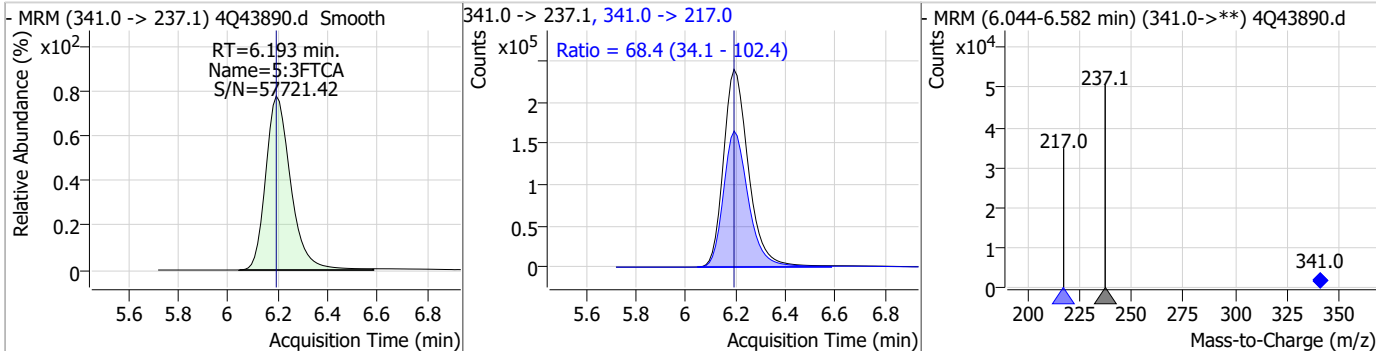
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	52.43	5.89	0.00	147577	284.9 -> 184.9	11.5	5.7	17.1



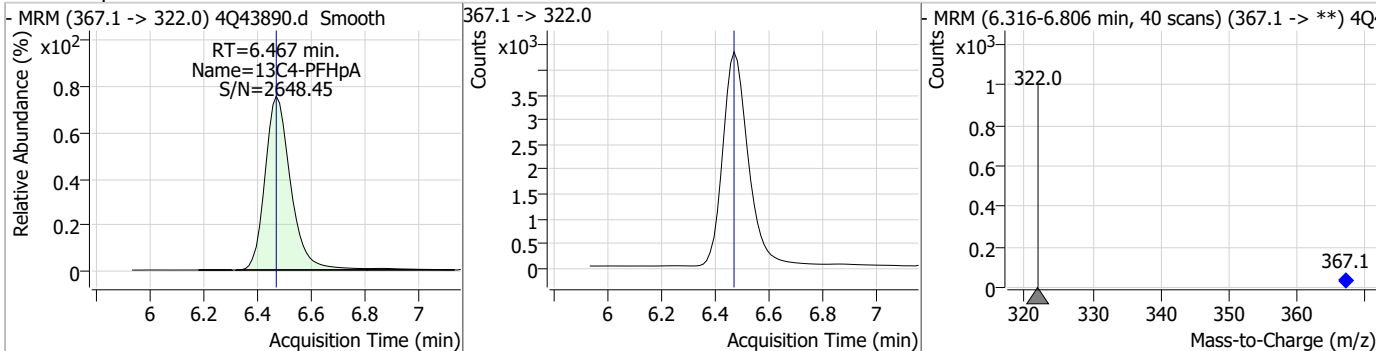
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	47.90	5.97	0.01	665147	314.8 -> 82.9	3.3	1.8	5.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	673.37	6.19	0.00	1676151	341.0 -> 217.0	68.4	34.1	102.4

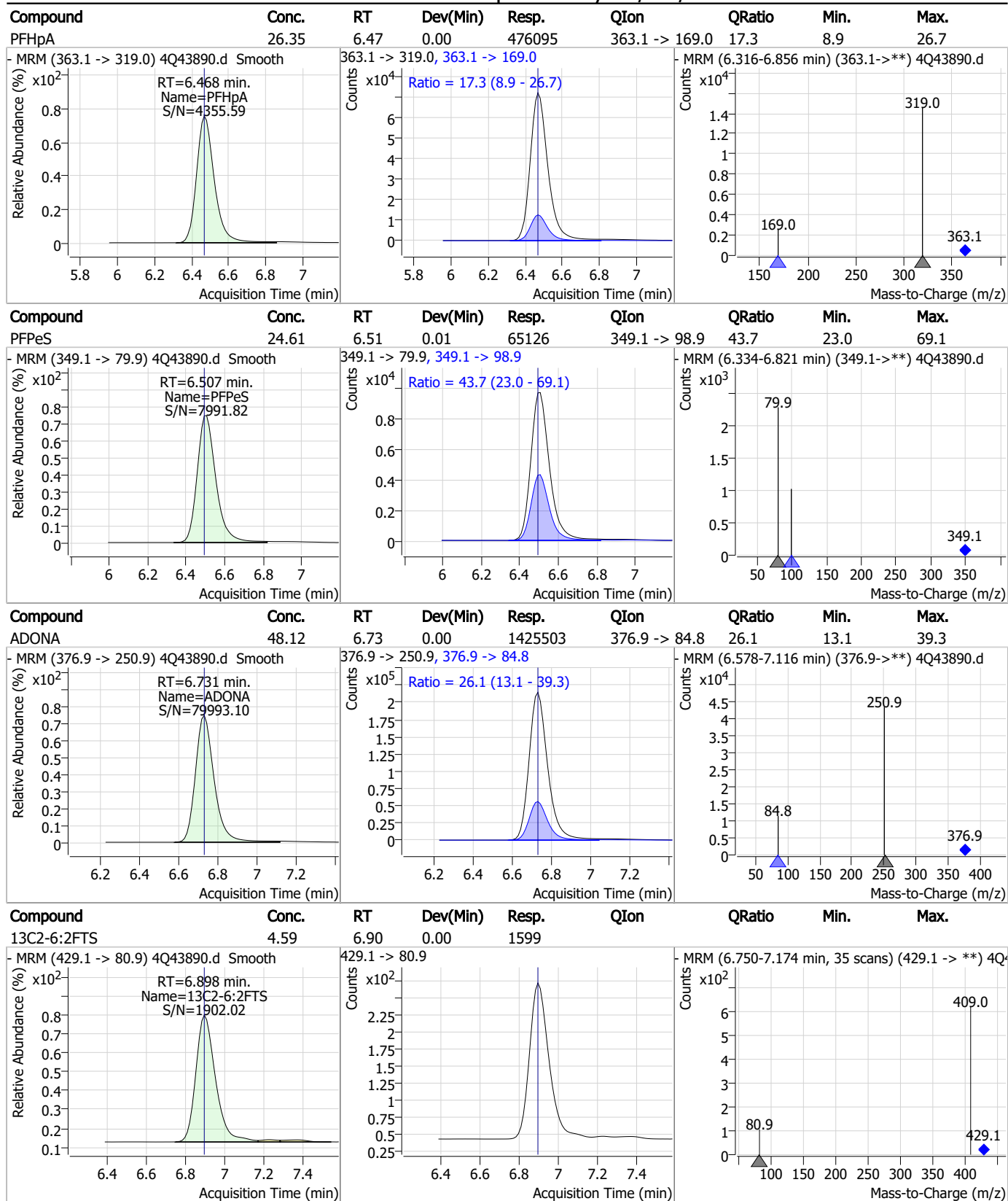


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.47	0.00	28586	367.1 -> 322.0			



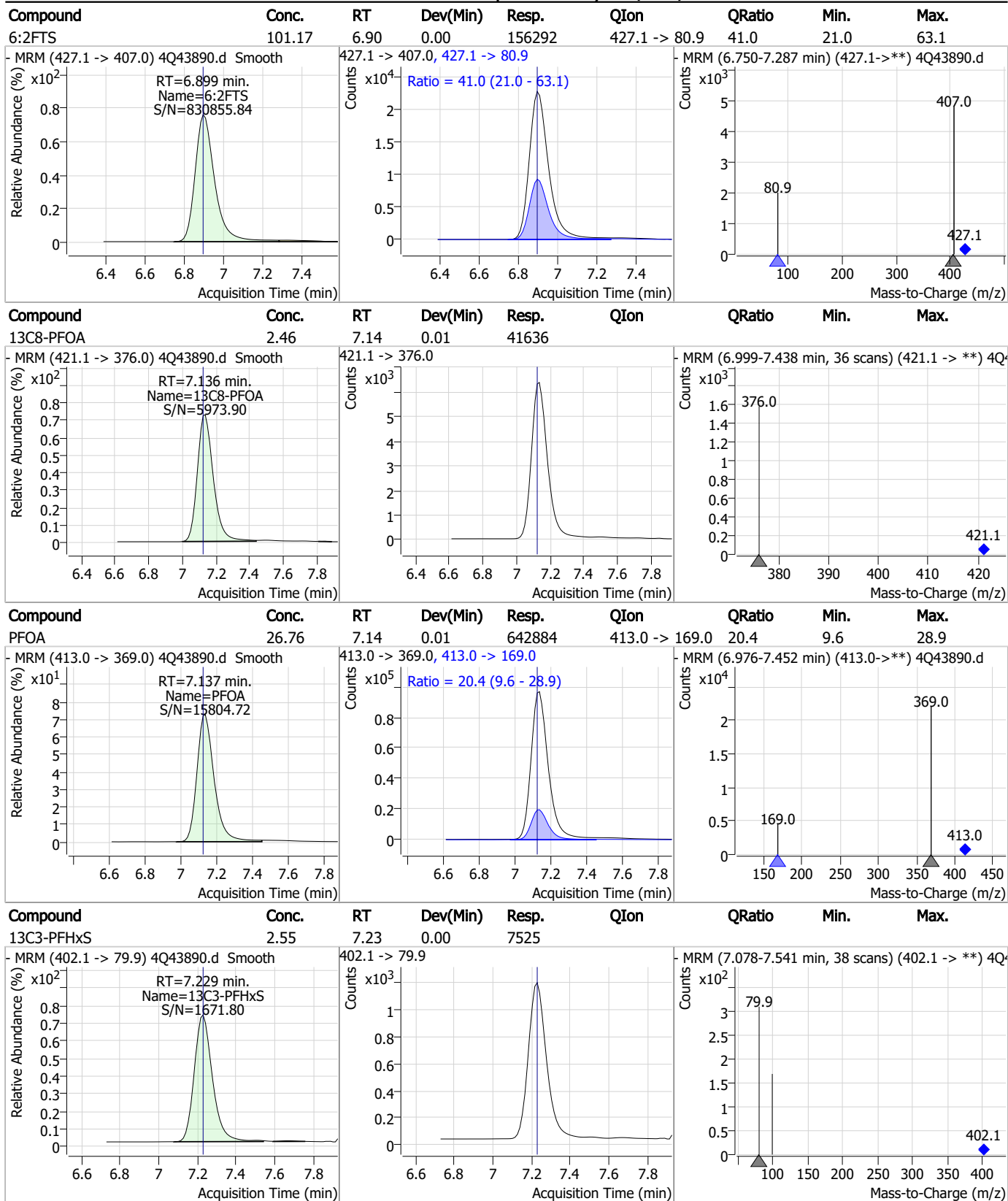
7.7.8
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Perfluorinated Compounds by LC/MS/MS



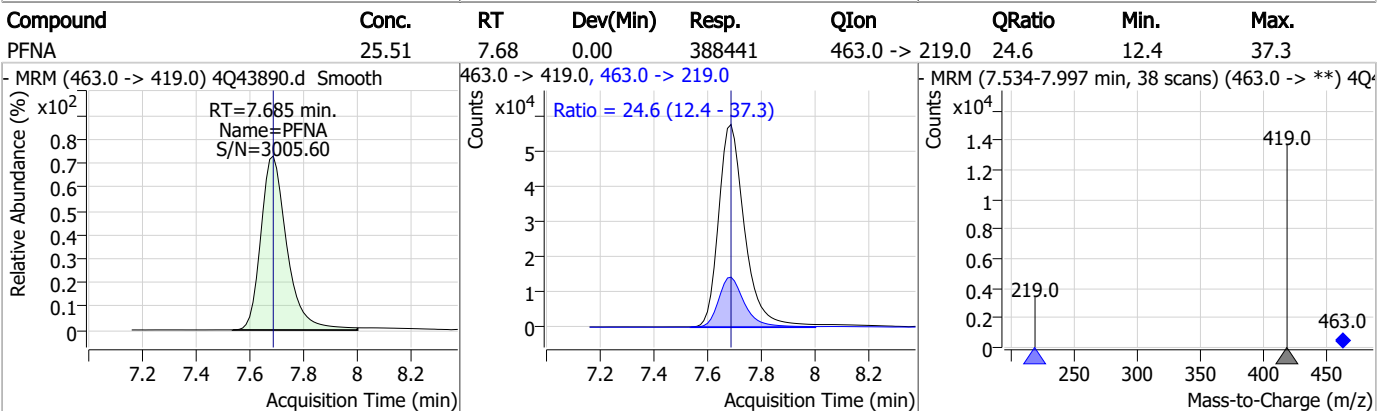
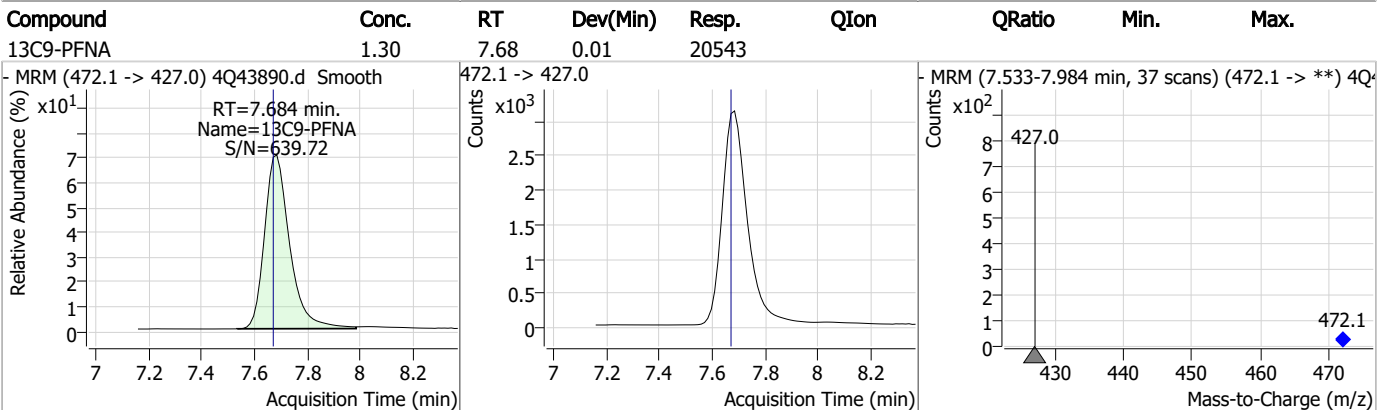
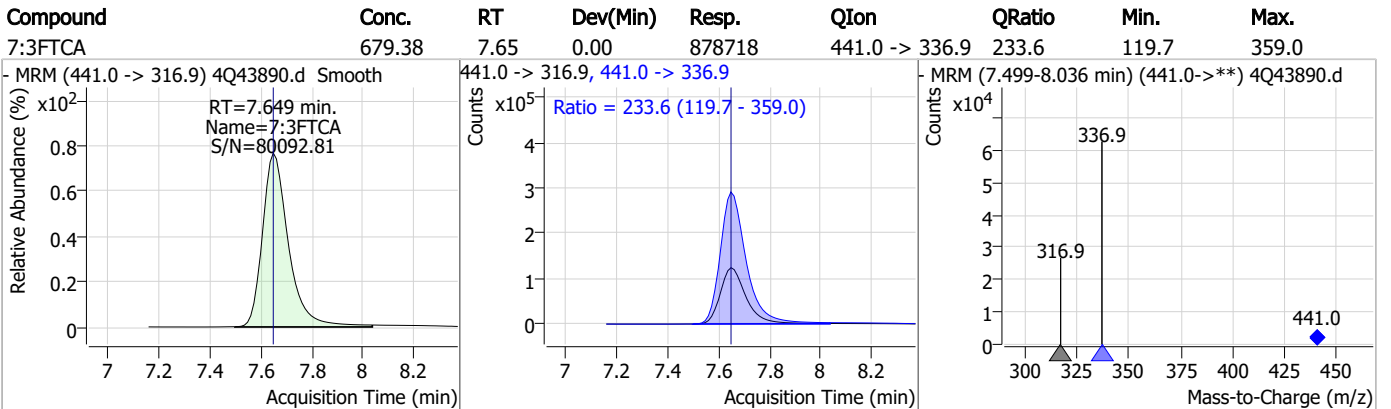
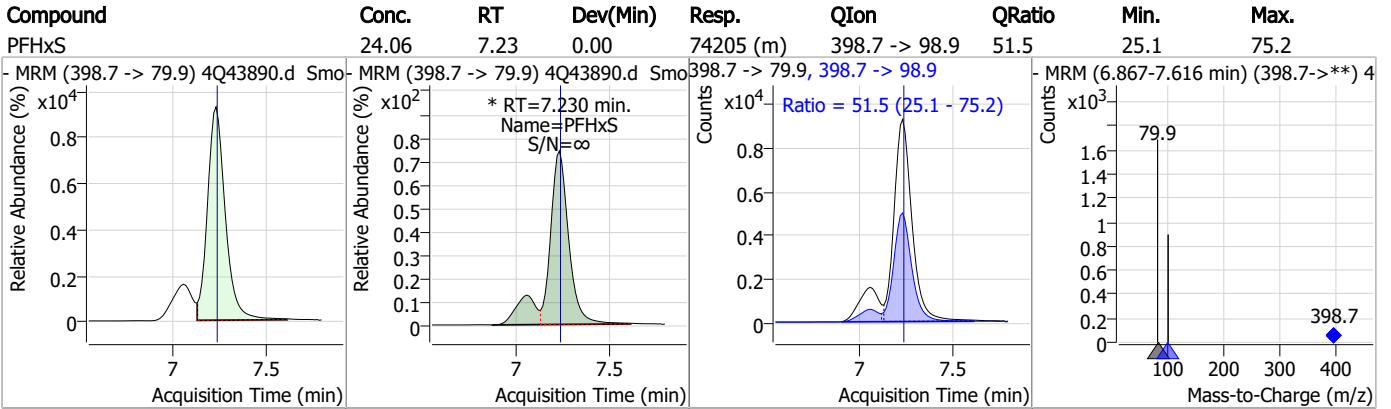
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Perfluorinated Compounds by LC/MS/MS



7.7.8
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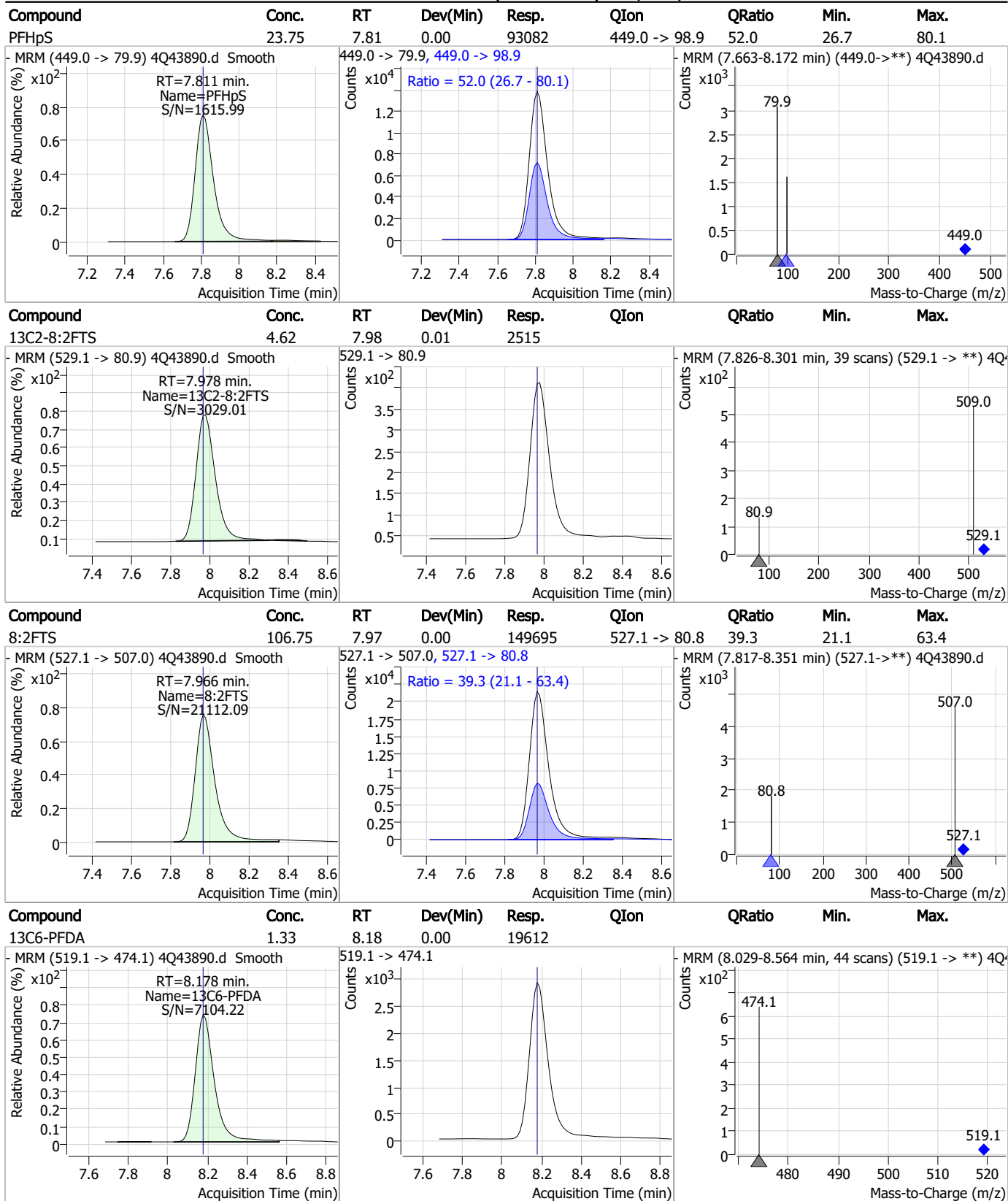
Perfluorinated Compounds by LC/MS/MS



7.7.8

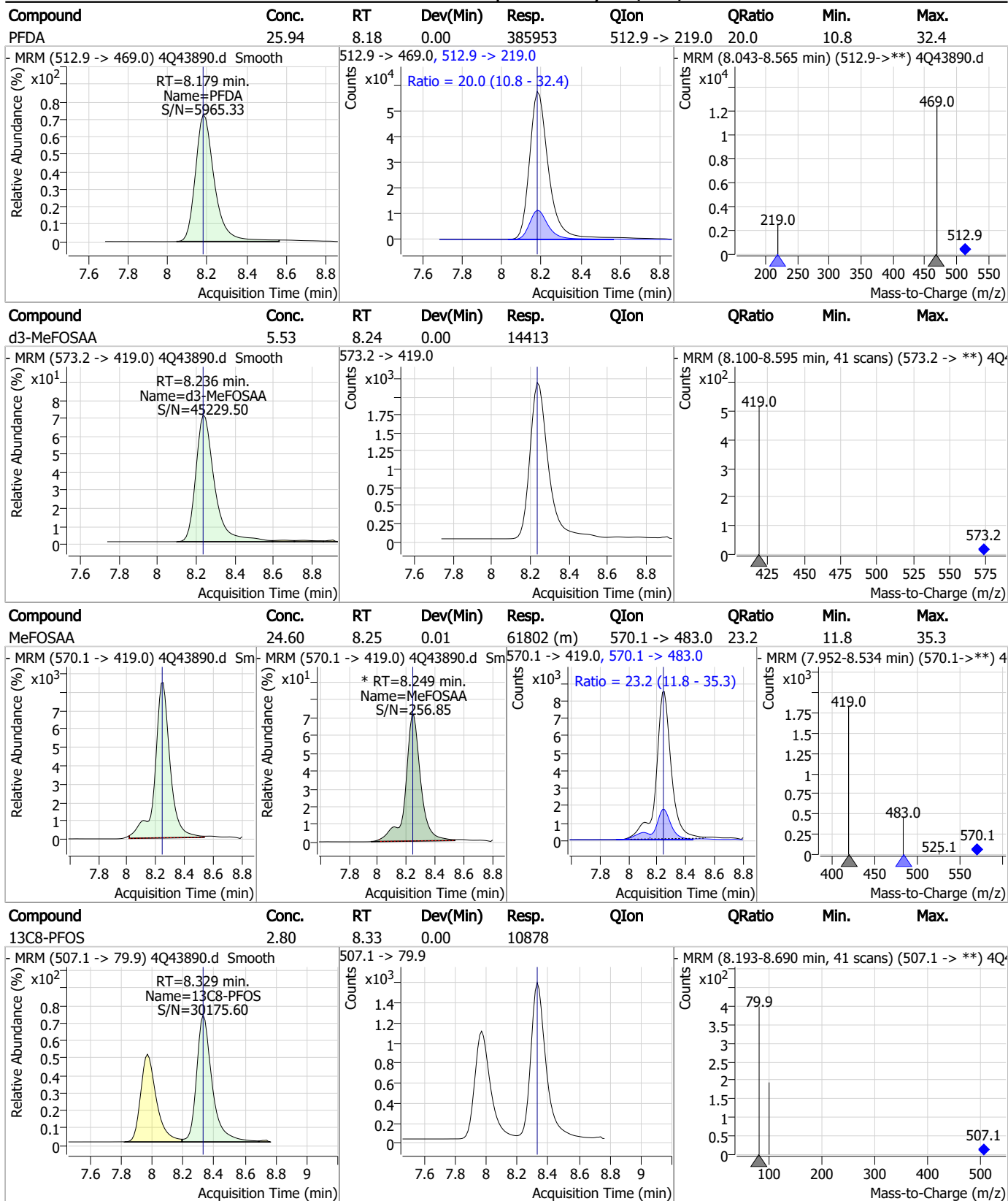
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Perfluorinated Compounds by LC/MS/MS



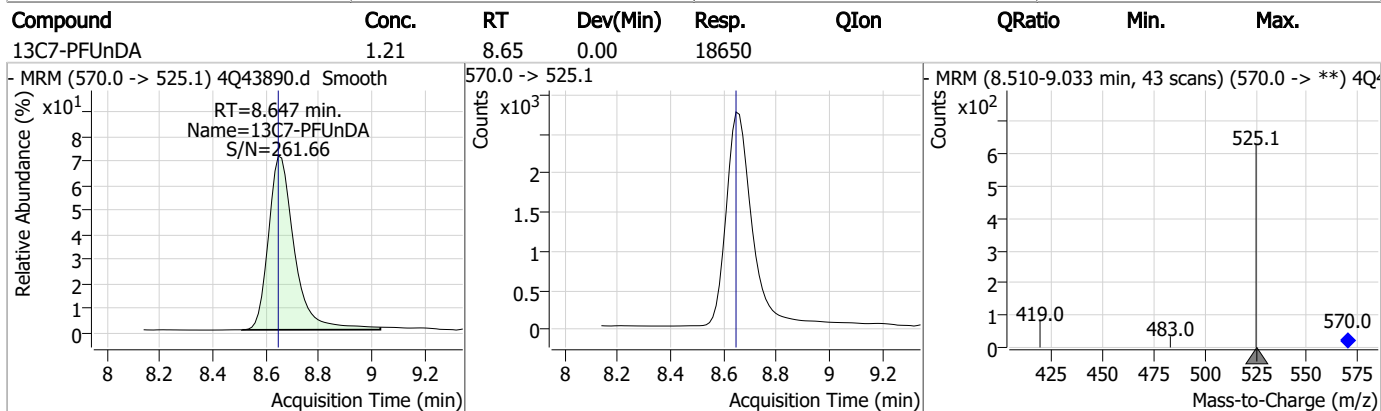
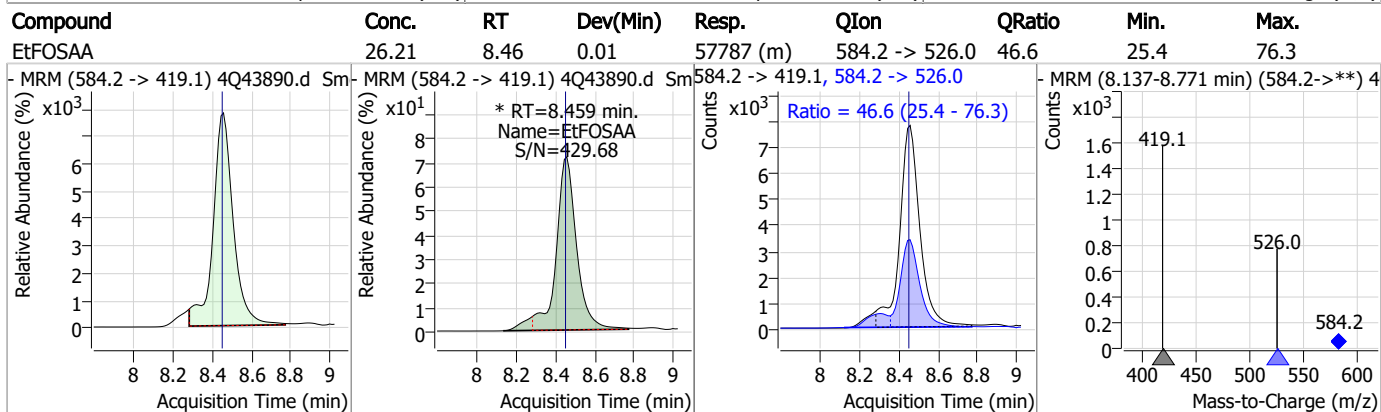
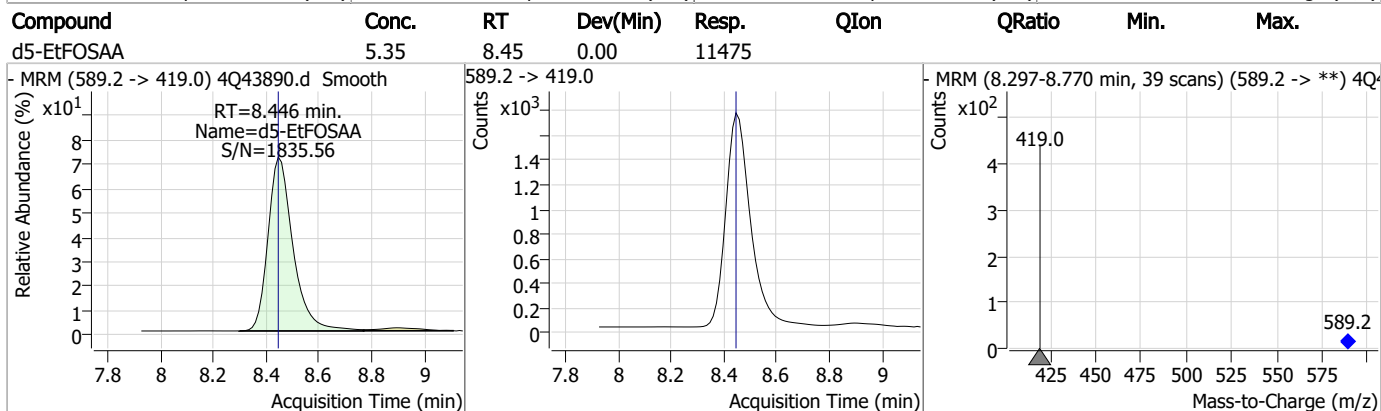
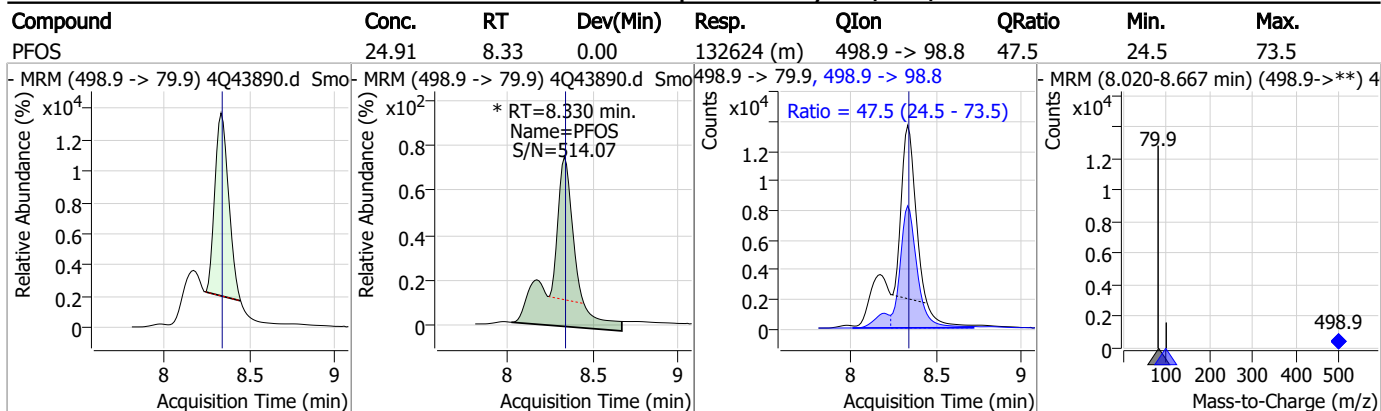
7.7.8
7

Perfluorinated Compounds by LC/MS/MS



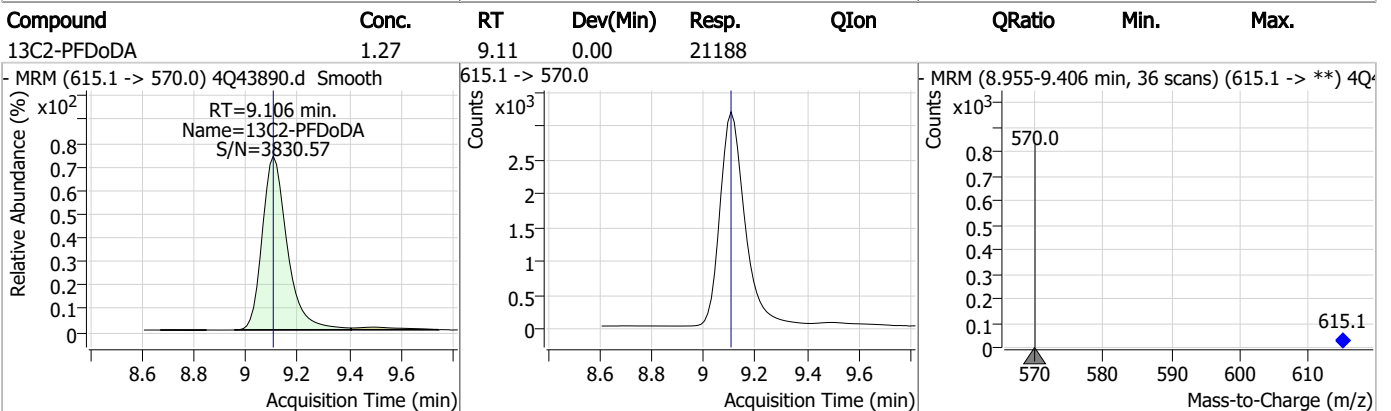
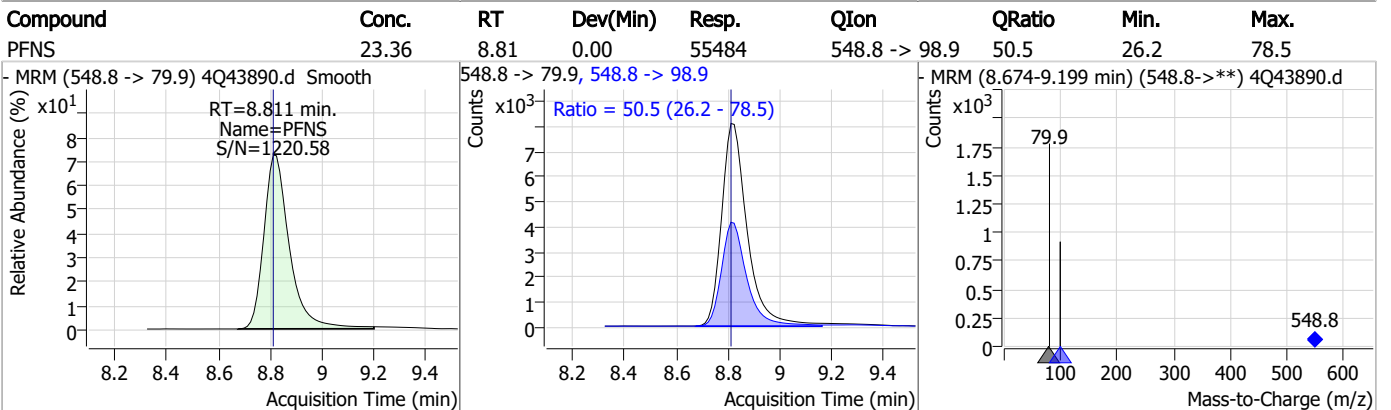
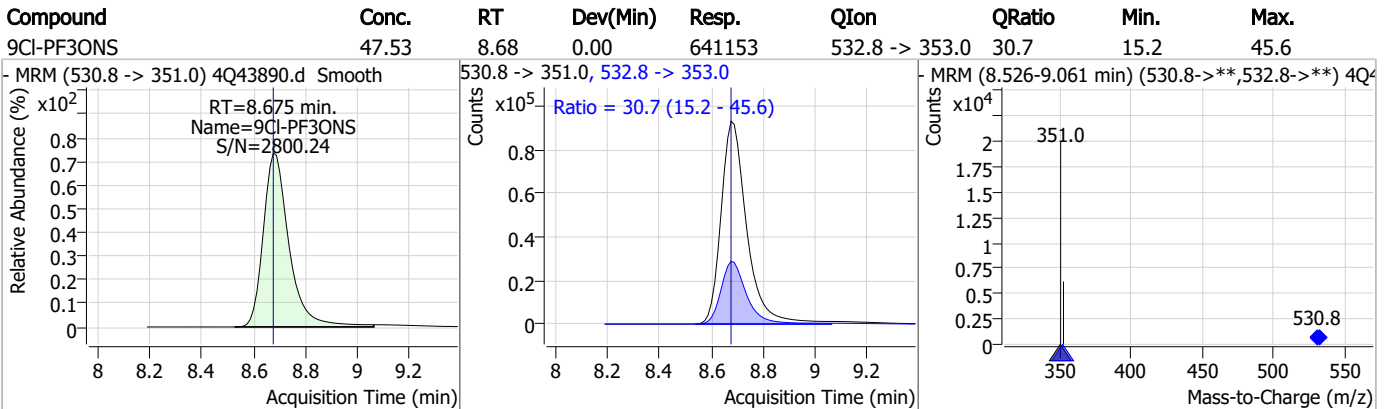
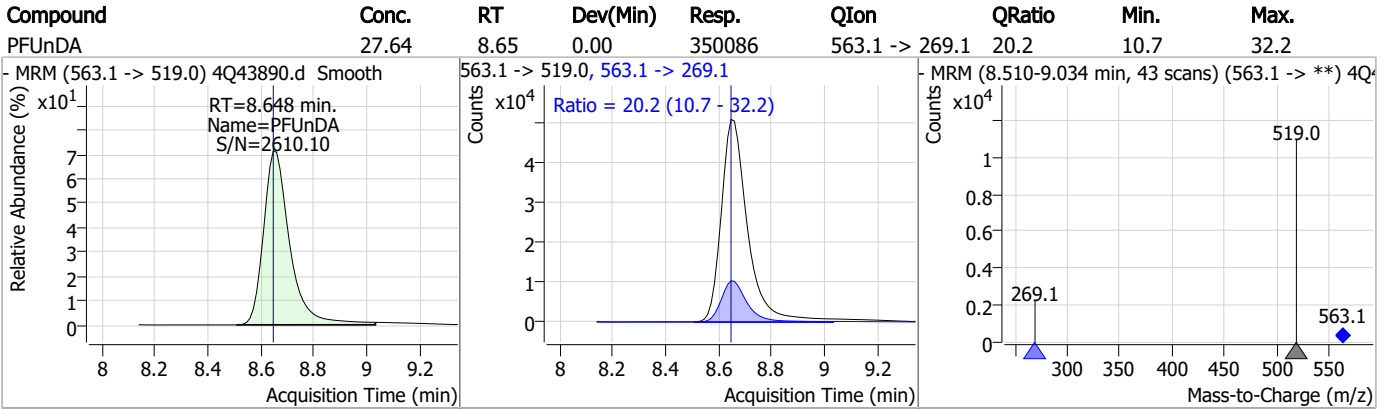
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Perfluorinated Compounds by LC/MS/MS

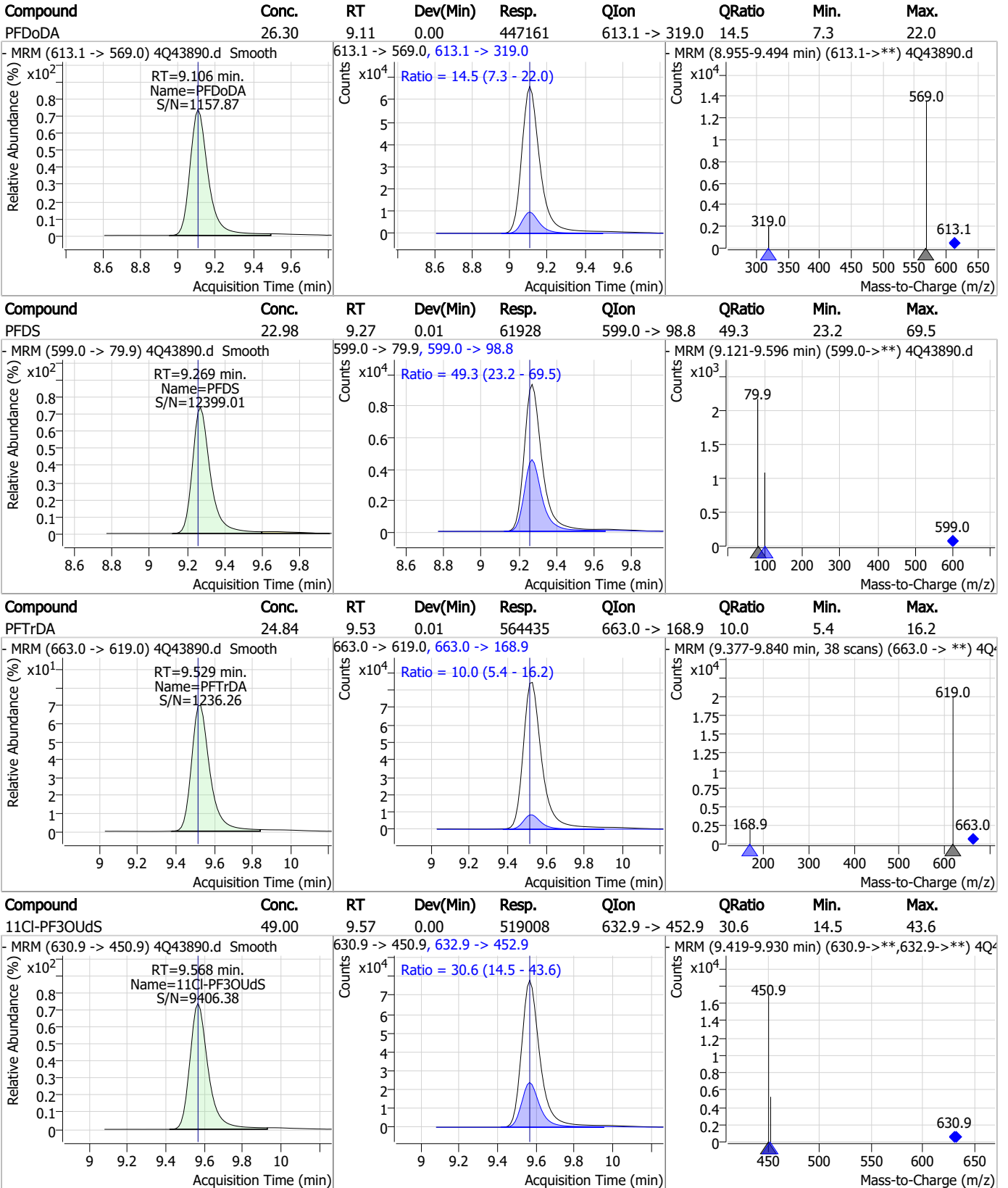


7.7.8
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Perfluorinated Compounds by LC/MS/MS

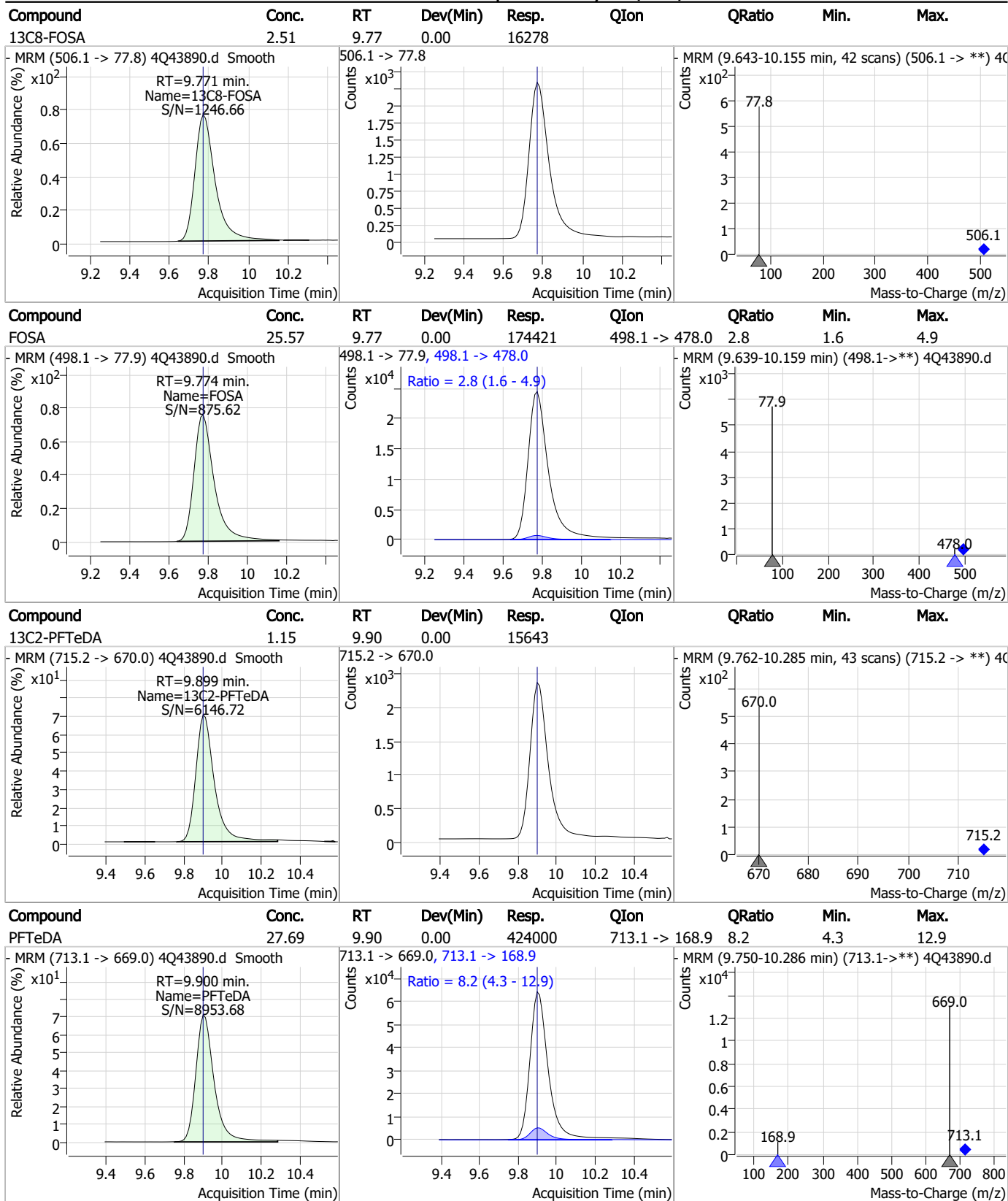


Perfluorinated Compounds by LC/MS/MS



7.7.8
7

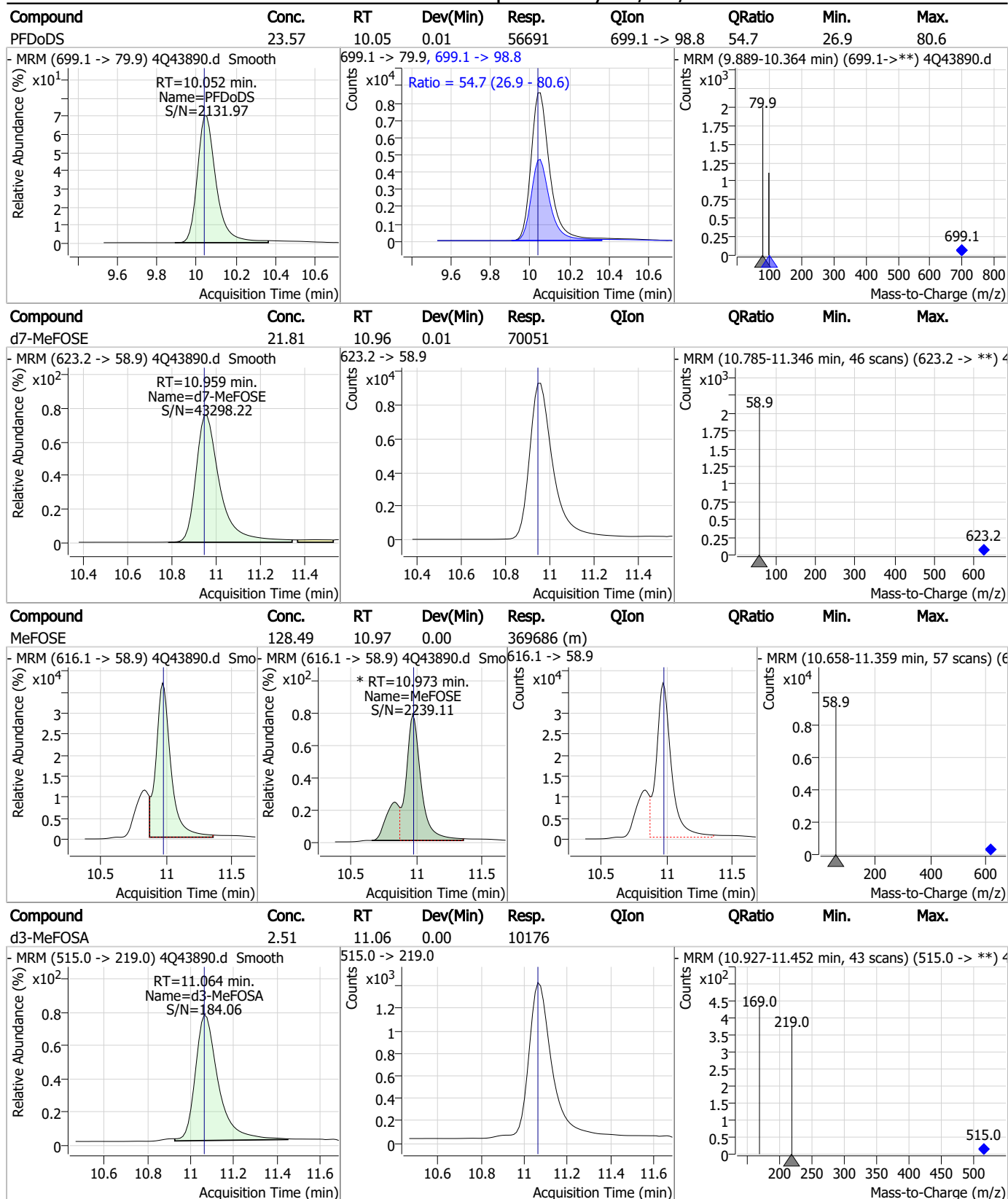
Perfluorinated Compounds by LC/MS/MS



7.7.8
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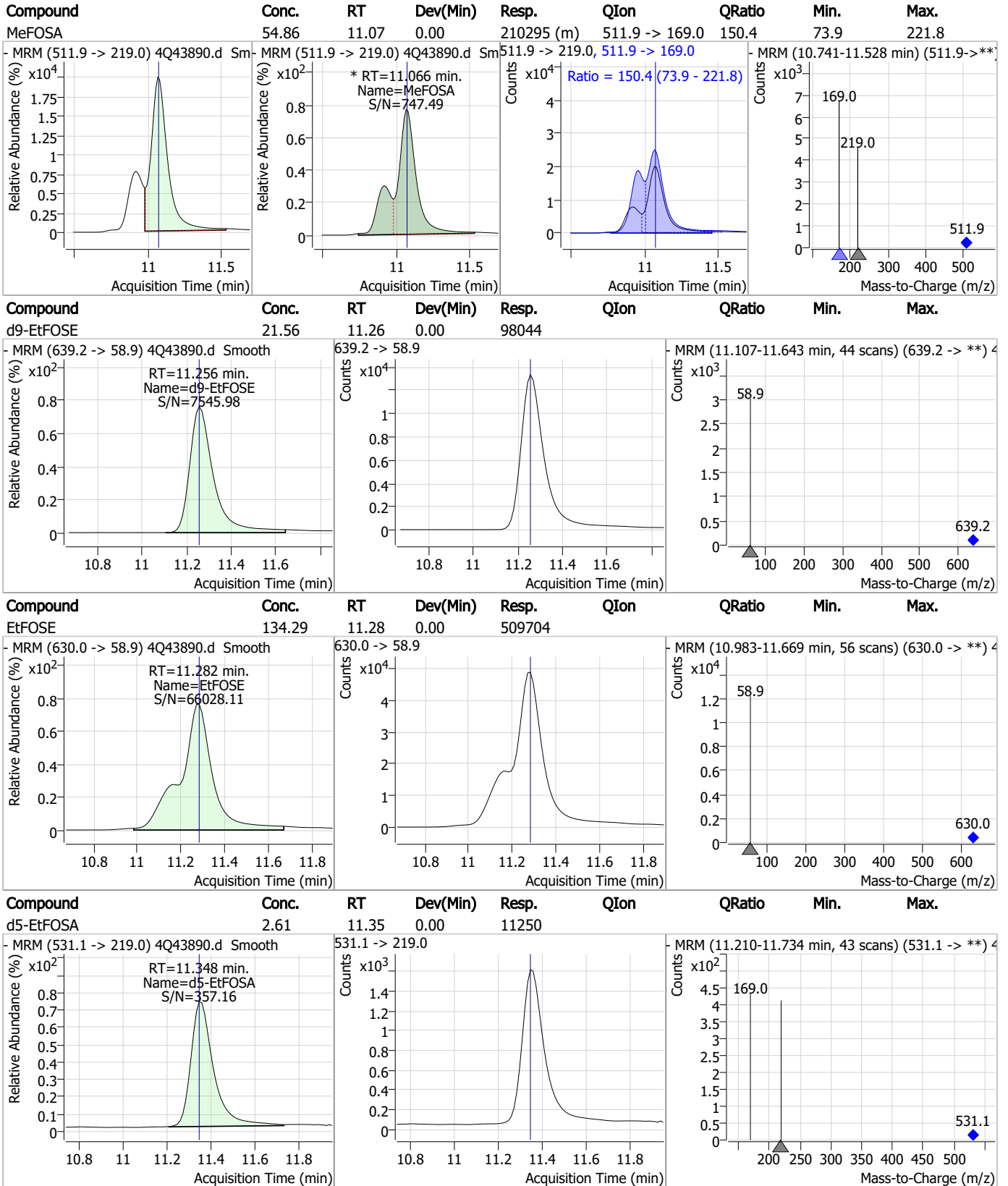
Perfluorinated Compounds by LC/MS/MS



7.7.8
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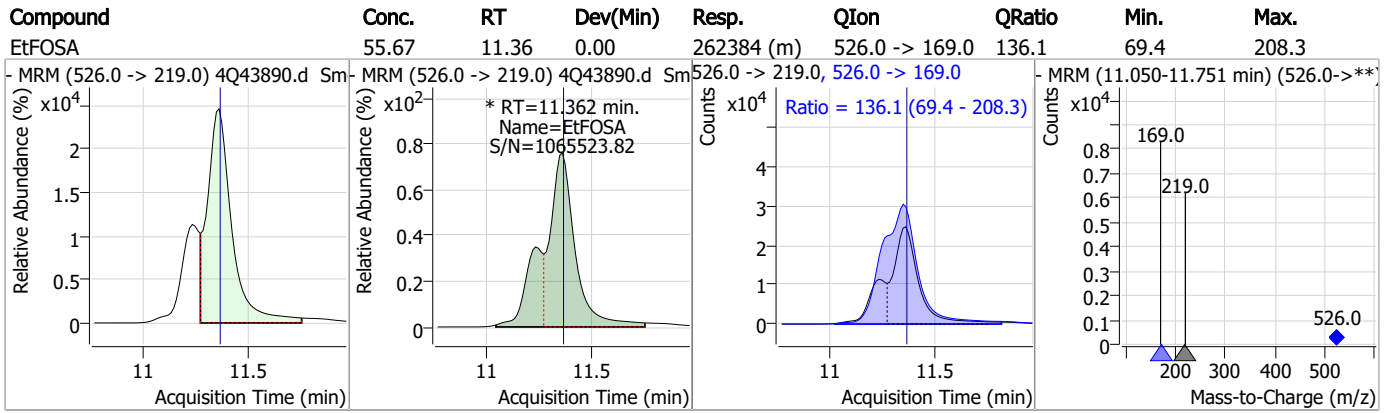
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS



7.7.8
7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43890.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 12:36 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.07	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.8.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43891.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 12:50:36 PM
 Sample Name : ic634-8
 Vial : P1-A9
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.911	216.8 -> 171.9	105134	10.00 µg/L	-0.012
M5-PFPeA	4.362	268.3 -> 223.0	60246	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	43396	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	25658	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	39570	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	19681	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	17478	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	17471	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	20670	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	15473	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	15213	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	10217	2.50 µg/L	0.012
M3-PFHxS	7.229	402.1 -> 79.9	6843	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	9515	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	842	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1521	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	2674	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	13382	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	27378	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11277	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	61091	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	87409	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	10591	2.50 µg/L	0.012
M3-MeFOSA	11.064	515.0 -> 219.0	10104	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	9799	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	56782	5.00 µg/L	-0.013
18O2-PFHxS	7.228	403.0 -> 83.9	4797	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	47709	2.50 µg/L	0.012
13C2-PFDA	8.178	515.1 -> 470.1	17050	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	21809	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	39998	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	842	4.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.4%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1521	4.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.5%		
13C2-8:2FTS	7.966	529.1 -> 80.9	2674	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFDoDA	9.106	615.1 -> 570.0	20670	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.899	715.2 -> 670.0	15473	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.1%		
13C3-PFBS	5.439	302.1 -> 79.9	10217	2.26 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.3%		
13C3-PFHxS	7.229	402.1 -> 79.9	6843	2.30 µg/L	0.000

7.7.9
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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 = 92.0%	
13C4-PFBA	2.911	216.8 -> 171.9	105134	9.84 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFHpA	6.467	367.1 -> 322.0	25658	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFHxA	5.535	318.0 -> 273.0	43396	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFPeA	4.362	268.3 -> 223.0	60246	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C6-PFDA	8.178	519.1 -> 474.1	17478	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C7-PFUnDA	8.647	570.0 -> 525.1	17471	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C8-FOSA	9.771	506.1 -> 77.8	15213	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-PFOA	7.136	421.1 -> 376.0	39570	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-PFOS	8.329	507.1 -> 79.9	9515	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C9-PFNA	7.684	472.1 -> 427.0	19681	1.33 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.2%	
d3-MeFOSAA	8.236	573.2 -> 419.0	13382	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	27378	10.40 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d3-MeFOSA	11.064	515.0 -> 219.0	10104	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11277	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.7%	
d7-MeFOSE	10.959	623.2 -> 58.9	61091	20.04 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.1%	
d9-EtFOSE	11.256	639.2 -> 58.9	87409	20.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.0%	
d5-EtFOSA	11.360	531.1 -> 219.0	10591	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0 327.1 -> 80.9	316462 134287	233.64 µg/L	93
6:2FTS	6.899	427.1 -> 407.0 427.1 -> 80.9	333858 133307	227.27 µg/L	97
8:2FTS	7.966	527.1 -> 507.0 527.1 -> 80.8	324709 121732	217.87 µg/L	93
EtFOSAA	8.459	584.2 -> 419.1 584.2 -> 526.0	145113 66283	66.98 µg/L	m 92
FOSA	9.774	498.1 -> 77.9 498.1 -> 478.0	438428 11984	68.77 µg/L	98
MeFOSAA	8.249	570.1 -> 419.0 570.1 -> 483.0	157123 34451	67.37 µg/L	m 97
PFBA	2.920	212.8 -> 168.9	780608	277.27 µg/L	100
PFBS	5.440	298.7 -> 79.9 298.7 -> 98.8	251571 94993	60.03 µg/L	95
PFDA	8.179	512.9 -> 469.0 512.9 -> 219.0	916605 178851	69.12 µg/L	96
PFDoDA	9.106	613.1 -> 569.0 613.1 -> 319.0	1058949 155967	63.85 µg/L	100
PFDS	9.269	599.0 -> 79.9	149623	63.48 µg/L	95

7.7.9
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	74022			
PFHpA	6.468	363.1 -> 319.0	1115770	68.80	µg/L	99
		363.1 -> 169.0	195581			
PFHpS	7.811	449.0 -> 79.9	222028	64.78	µg/L	97
		449.0 -> 98.9	113217			
PFHxA	5.538	313.0 -> 269.0	1169490	68.78	µg/L	100
		313.0 -> 118.9	34560			
PFHxS	7.230	398.7 -> 79.9	180803	64.46	µg/L	m 98
		398.7 -> 98.9	92773			
PFNA	7.685	463.0 -> 419.0	907289	62.20	µg/L	99
		463.0 -> 219.0	222637			
PFNS	8.823	548.8 -> 79.9	133198	64.12	µg/L	99
		548.8 -> 98.9	68994			
PFOA	7.138	413.0 -> 369.0	1496248	65.54	µg/L	98
		413.0 -> 169.0	302844			
PFOS	8.330	498.9 -> 79.9	269483	57.87	µg/L	m 93
		498.9 -> 98.8	144658			
PFPeA	4.364	263.0 -> 219.0	1951040	134.60	µg/L	100
PFPeS	6.507	349.1 -> 79.9	154398	64.17	µg/L	96
		349.1 -> 98.9	66746			
PFTeDA	9.900	713.1 -> 669.0	1006100	66.43	µg/L	99
		713.1 -> 168.9	83501			
PFTrDA	9.515	663.0 -> 619.0	1325238	59.79	µg/L	98
		663.0 -> 168.9	134887			
PFUnDA	8.648	563.1 -> 519.0	810524	68.30	µg/L	97
		563.1 -> 269.1	163751			
11Cl-PF3OUdS	9.568	630.9 -> 450.9	1192020	121.07	µg/L	97
		632.9 -> 452.9	368570			
9Cl-PF3ONS	8.675	530.8 -> 351.0	1485788	118.50	µg/L	99
		532.8 -> 353.0	458667			
ADONA	6.731	376.9 -> 250.9	3300217	119.87	µg/L	99
		376.9 -> 84.8	880949			
HFPO-DA	5.891	284.9 -> 168.9	348903	133.36	µg/L	99
		284.9 -> 184.9	40667			
3:3FTCA	3.836	241.0 -> 177.0	235825	369.78	µg/L	99
		241.0 -> 117.0	20747			
5:3FTCA	6.193	341.0 -> 237.1	3927001	1702.10	µg/L	99
		341.0 -> 217.0	2700284			
7:3FTCA	7.649	441.0 -> 316.9	2048322	1708.63	µg/L	94
		441.0 -> 336.9	4708575			
EtFOSA	11.362	526.0 -> 219.0	614296	138.45	µg/L	m 98
		526.0 -> 169.0	840549			
EtFOSE	11.282	630.0 -> 58.9	1147731	339.18	µg/L	m 100
MeFOSA	11.066	511.9 -> 219.0	516182	135.61	µg/L	m 96
		511.9 -> 169.0	735589			
MeFOSE	10.973	616.1 -> 58.9	888597	354.13	µg/L	m 100
PFDoDS	10.052	699.1 -> 79.9	131199	62.37	µg/L	97
		699.1 -> 98.8	73404			
NFDHA	5.416	295.0 -> 201.0	140318	115.59	µg/L	95
		295.0 -> 84.9	35181			
PFMBA	4.766	279.0 -> 85.1	1083924	133.99	µg/L	100
PFMPA	3.515	229.0 -> 84.9	1042459	137.59	µg/L	100
PFEESA	5.971	314.8 -> 134.9	1547810	120.26	µg/L	99
		314.8 -> 82.9	53143			

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

7.7.9
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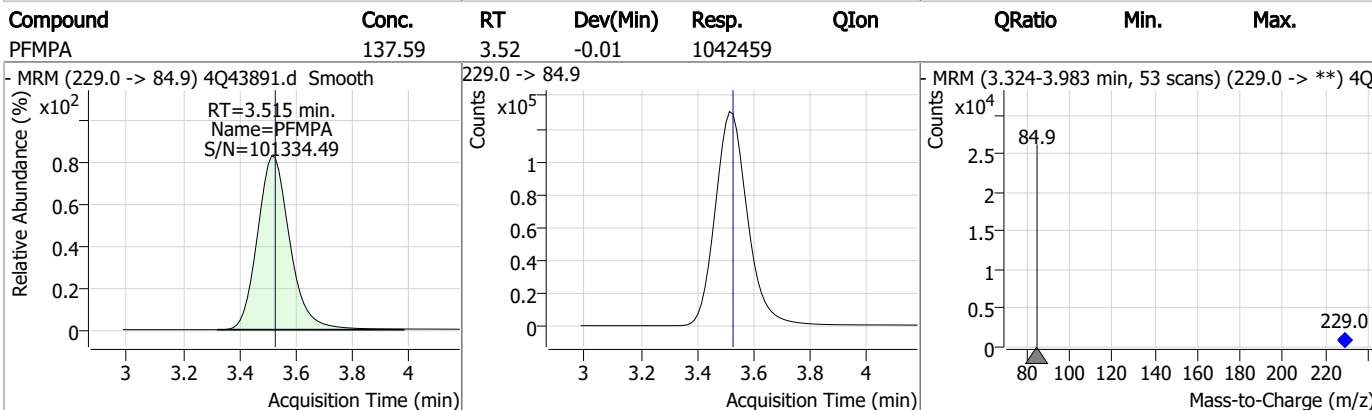
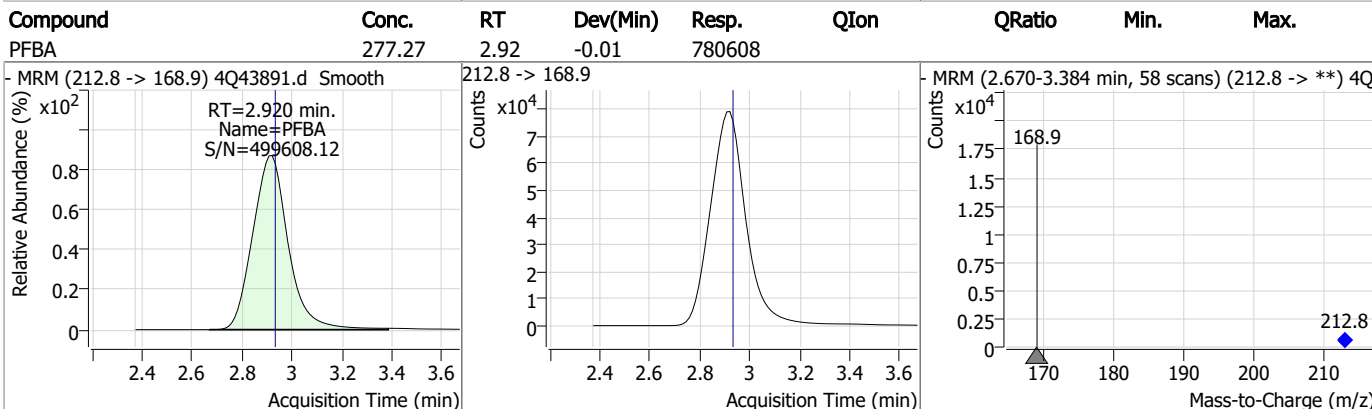
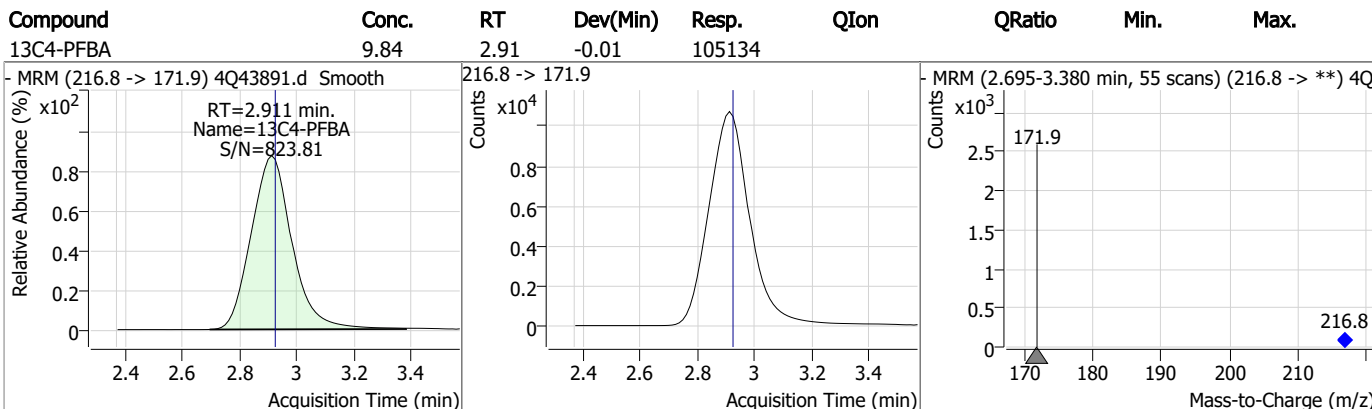
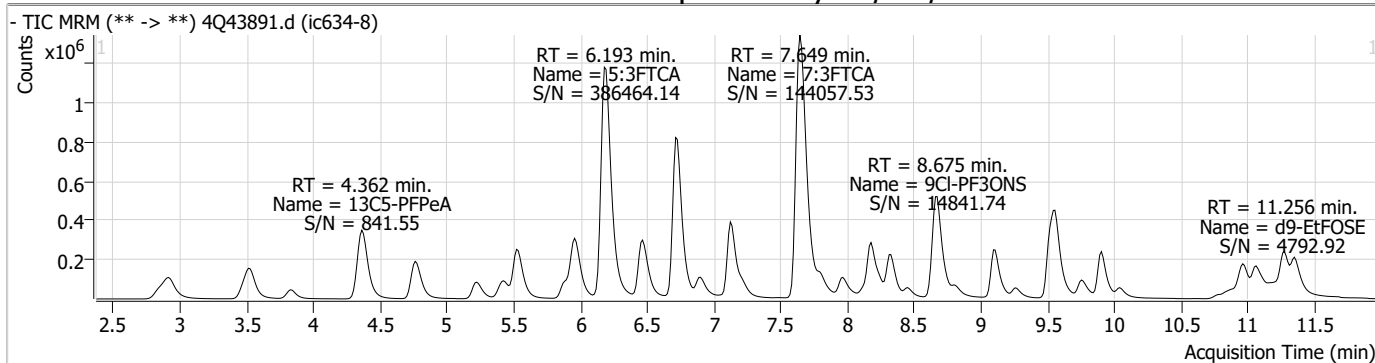
Perfluorinated Compounds by LC/MS/MS

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

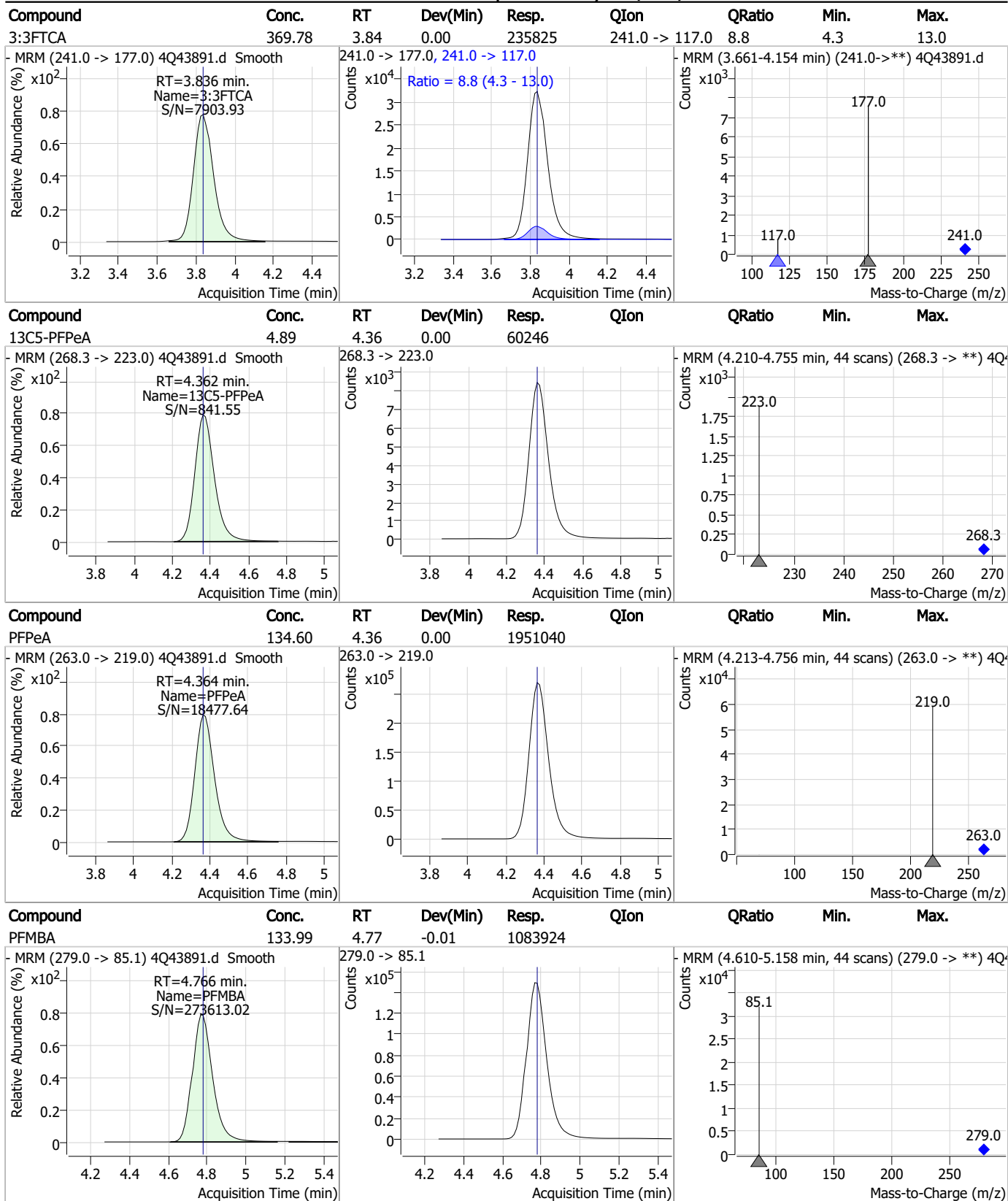
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Perfluorinated Compounds by LC/MS/MS



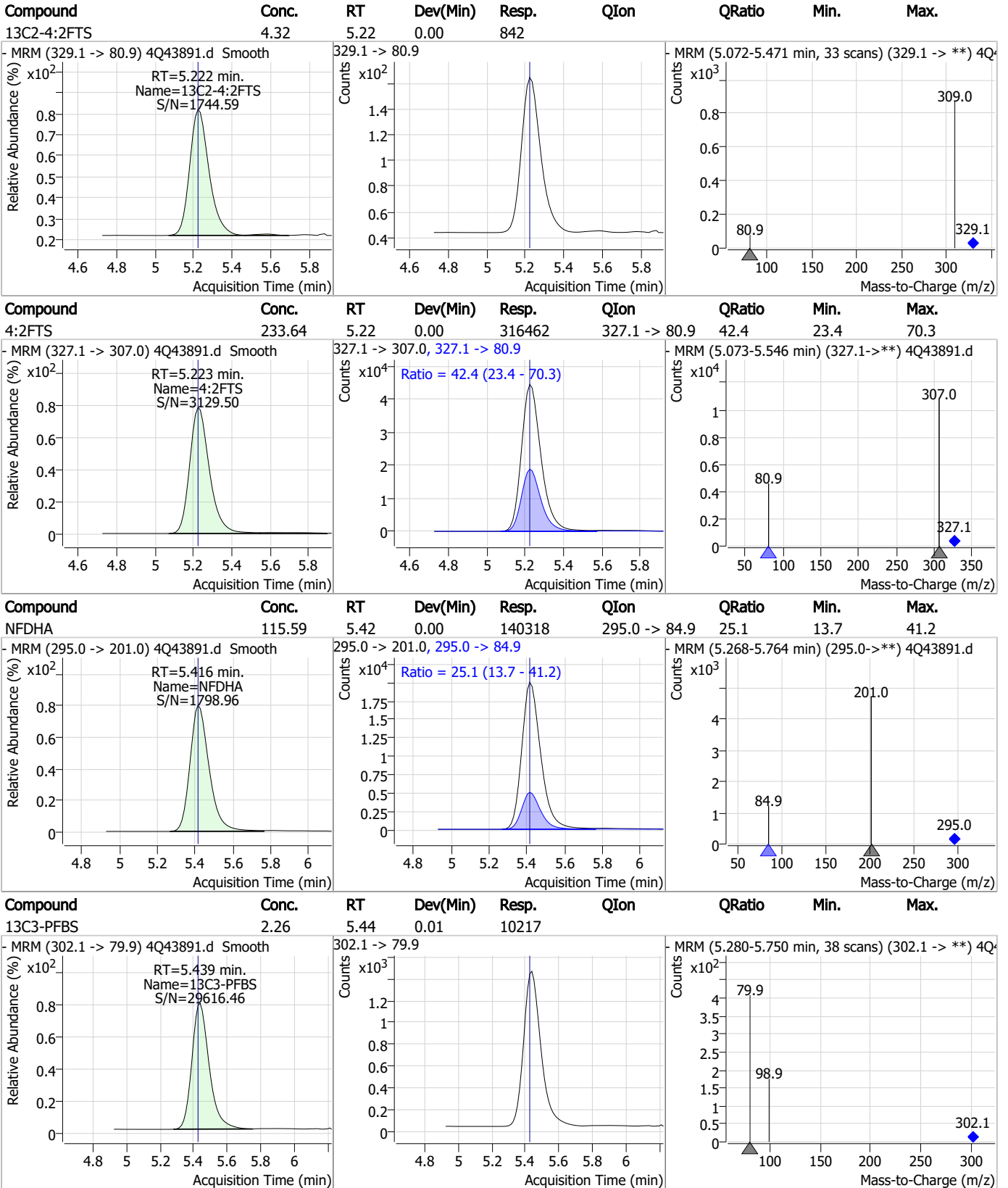
7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

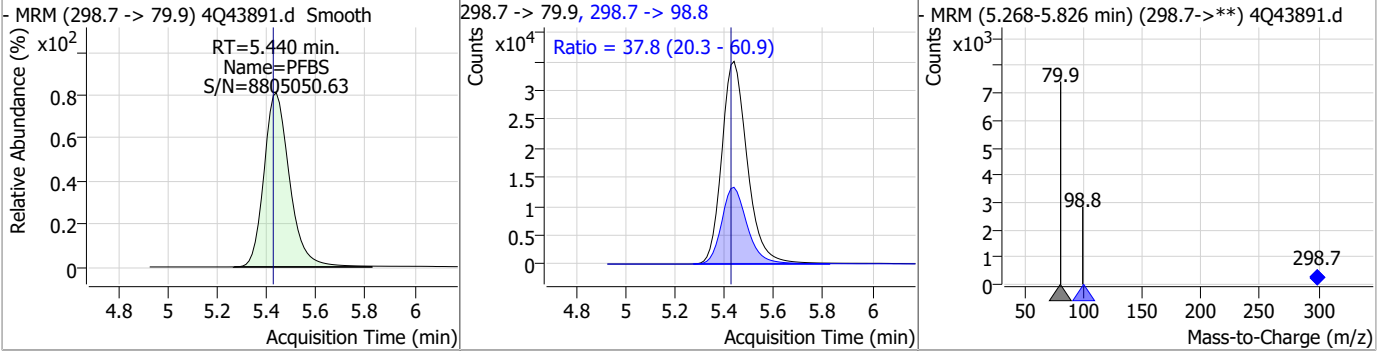


7.7.9

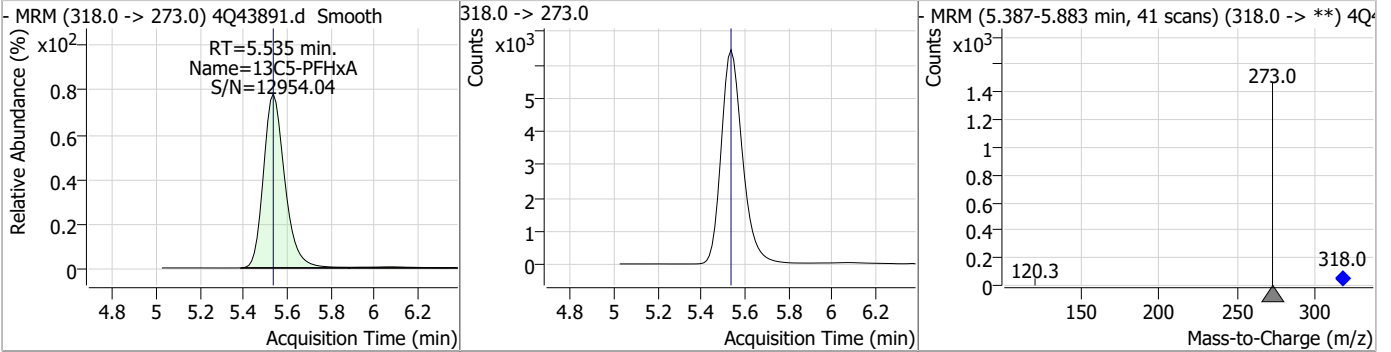
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Perfluorinated Compounds by LC/MS/MS

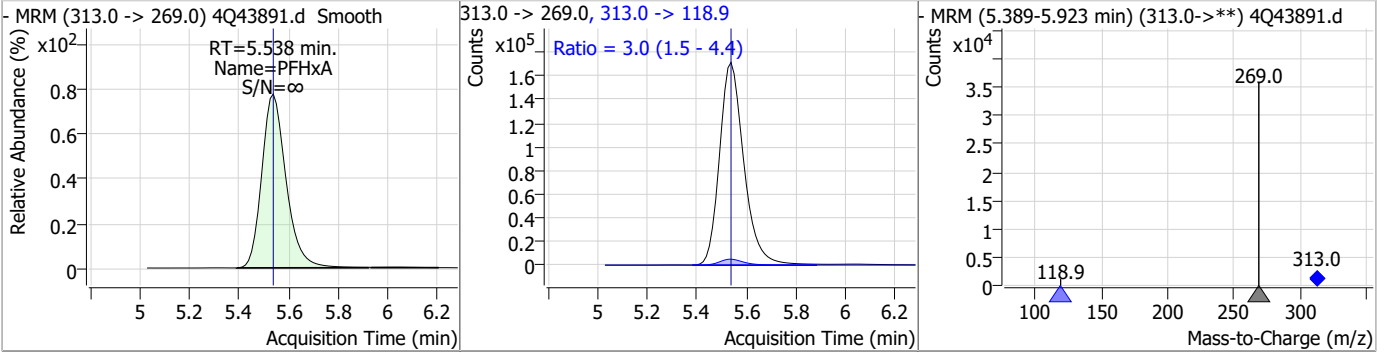
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	60.03	5.44	0.01	251571	298.7 -> 98.8	37.8	20.3	60.9



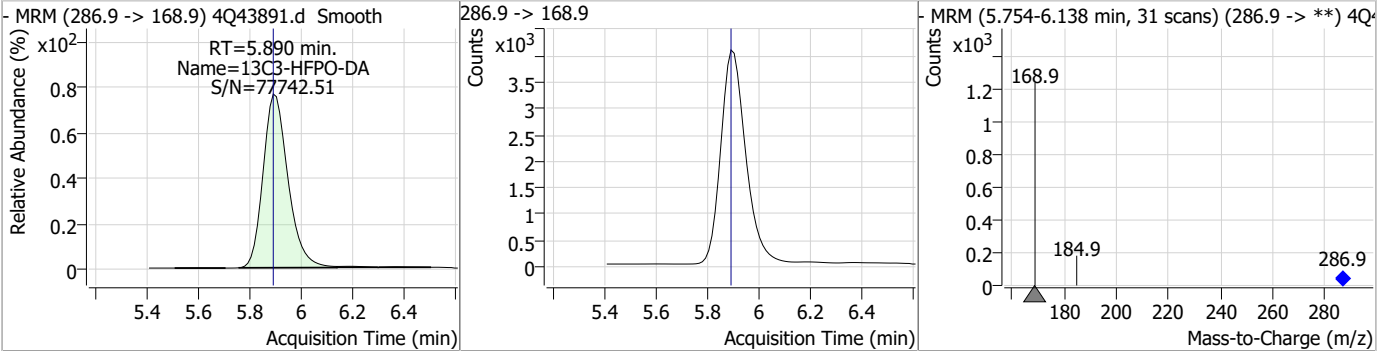
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.53	0.00	43396				



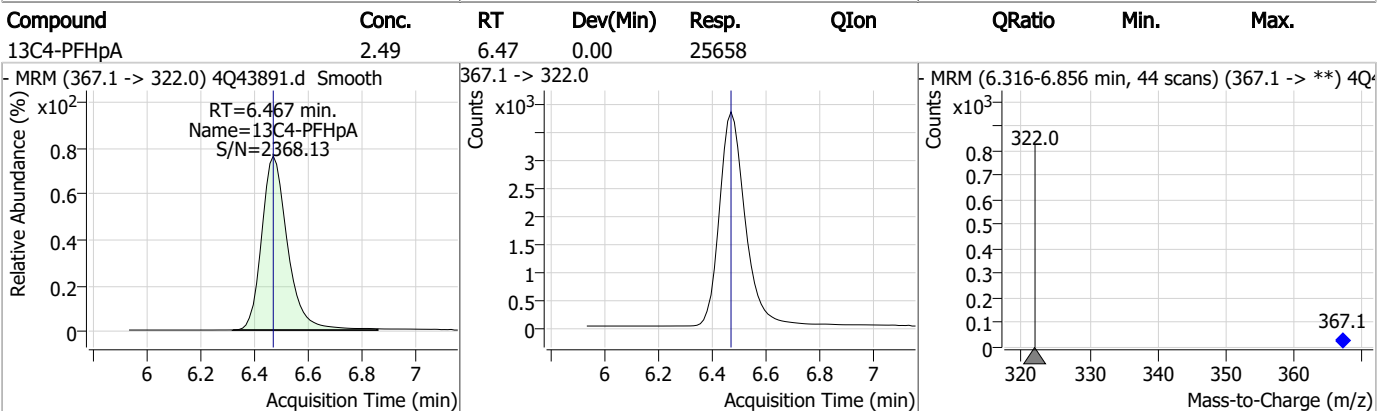
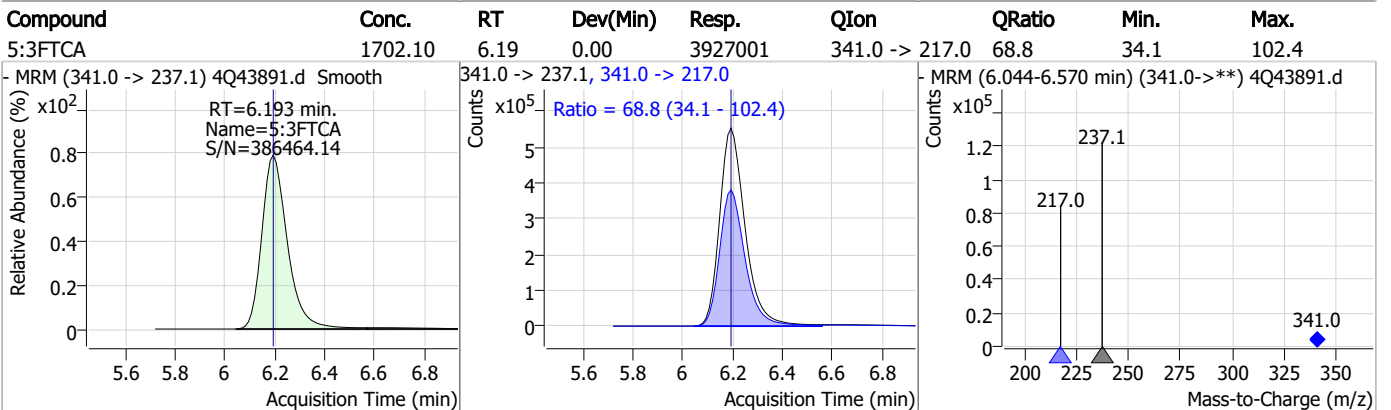
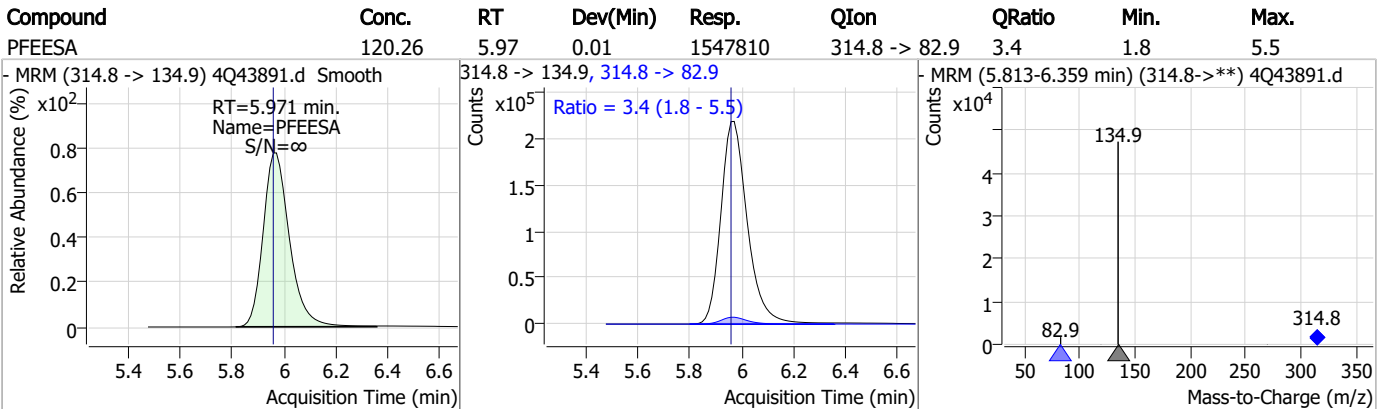
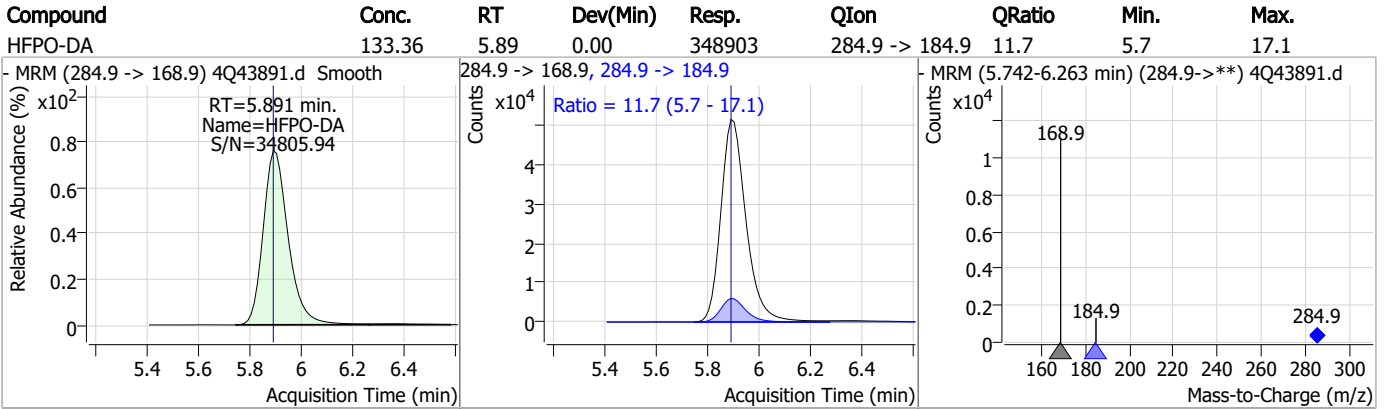
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	68.78	5.54	0.00	1169490	313.0 -> 118.9	3.0	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.40	5.89	0.00	27378				



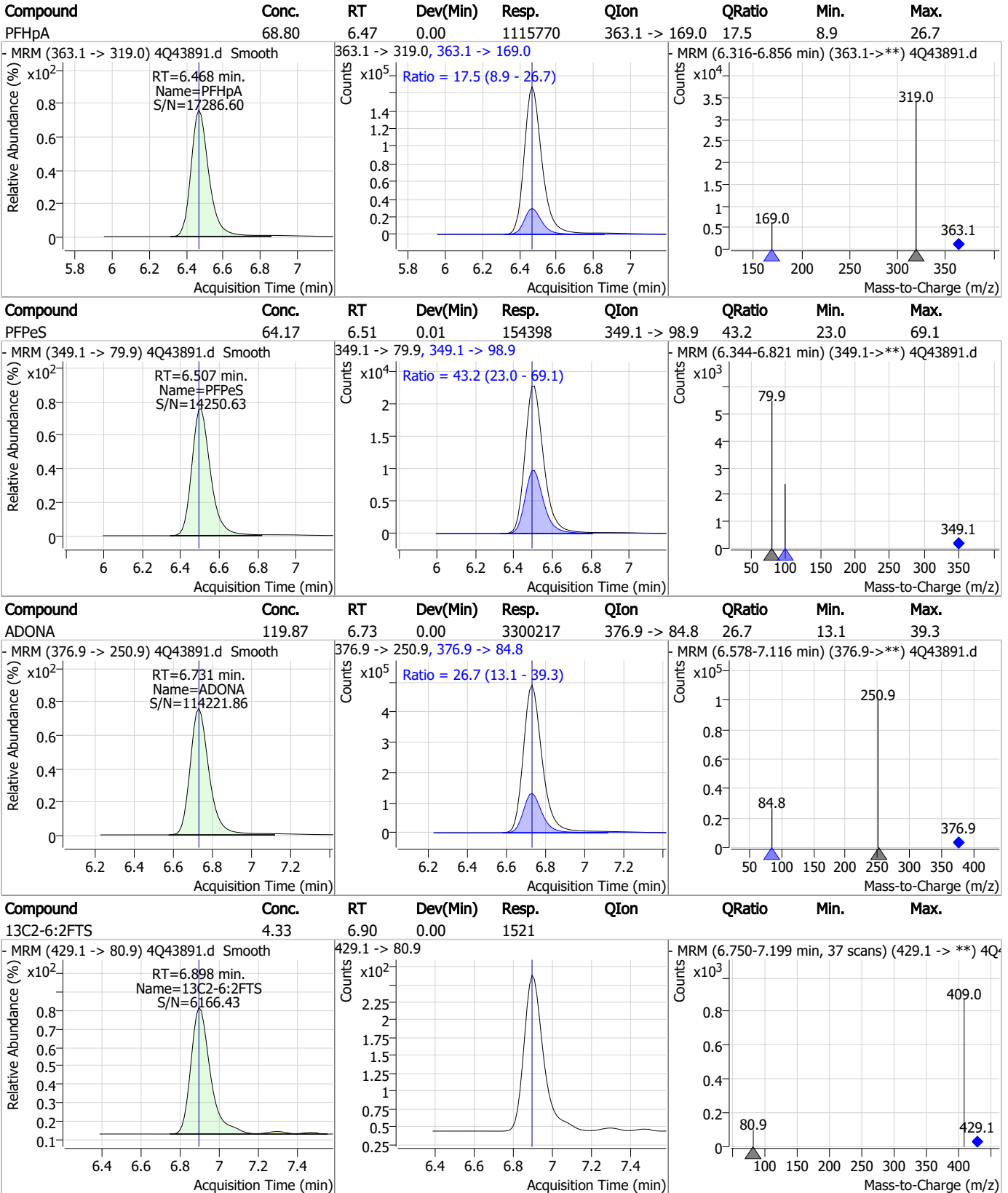
Perfluorinated Compounds by LC/MS/MS



7.7.9

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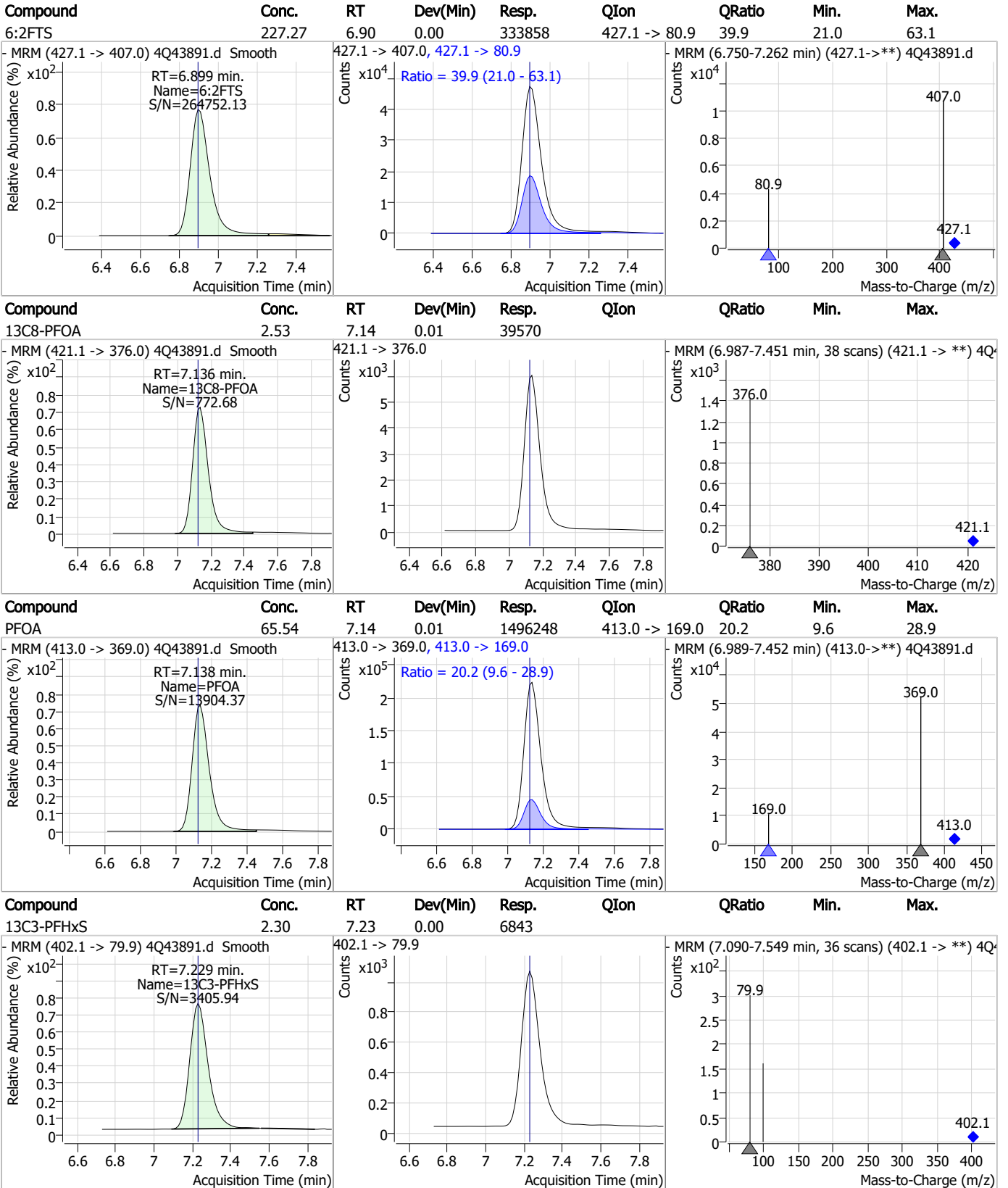
Perfluorinated Compounds by LC/MS/MS



7.7.9

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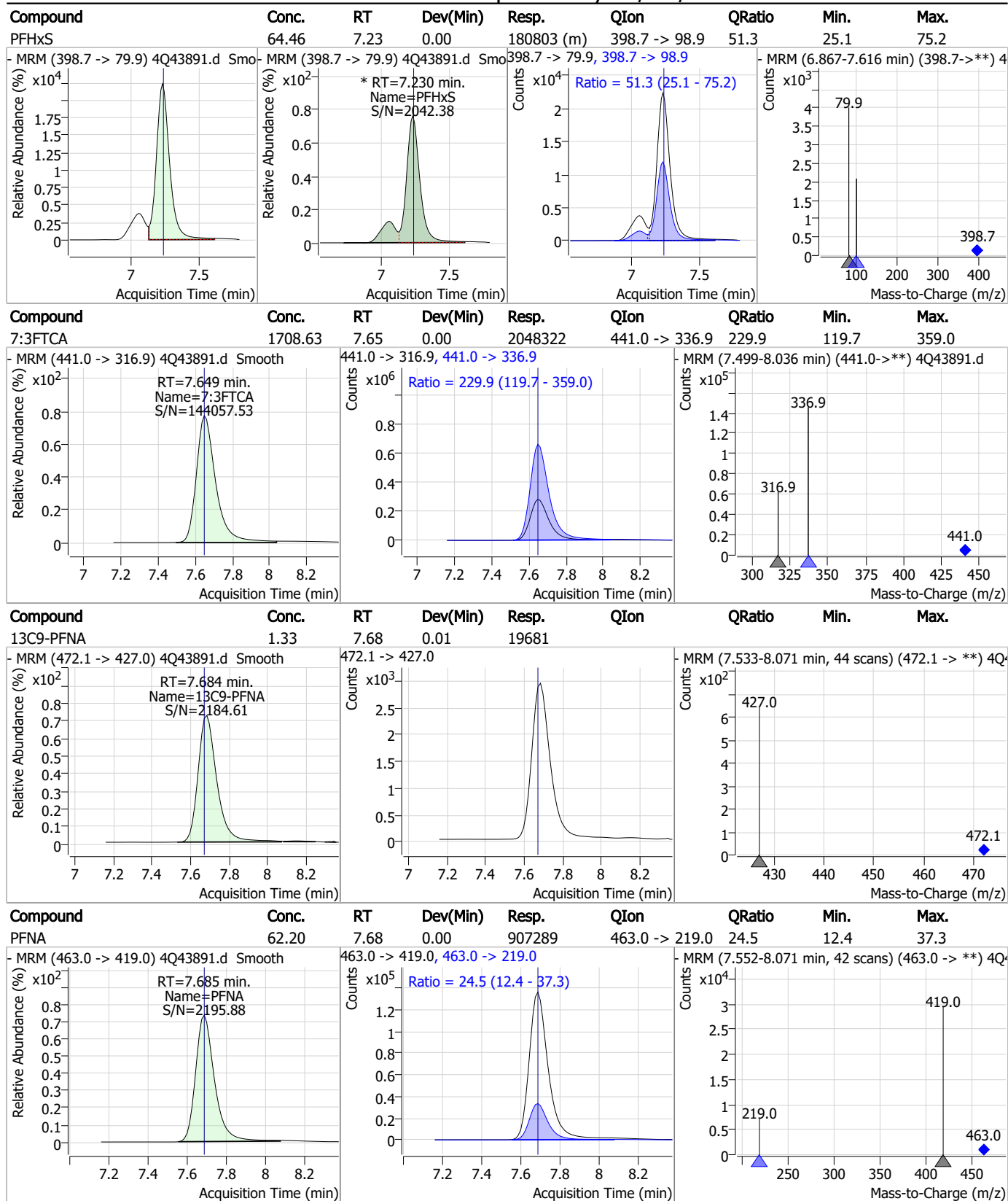
Perfluorinated Compounds by LC/MS/MS



7.7.9

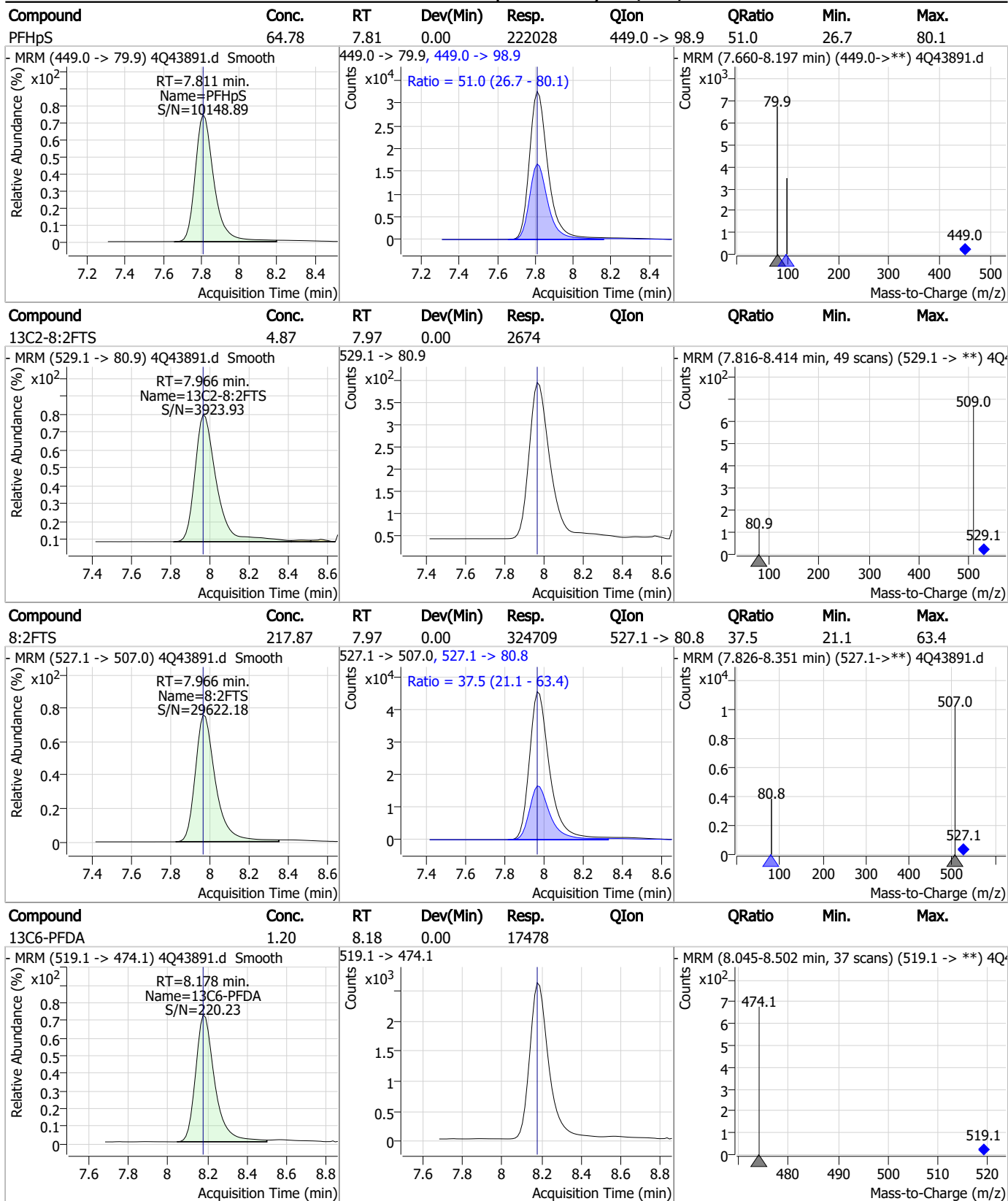
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Perfluorinated Compounds by LC/MS/MS



7.7.9
7

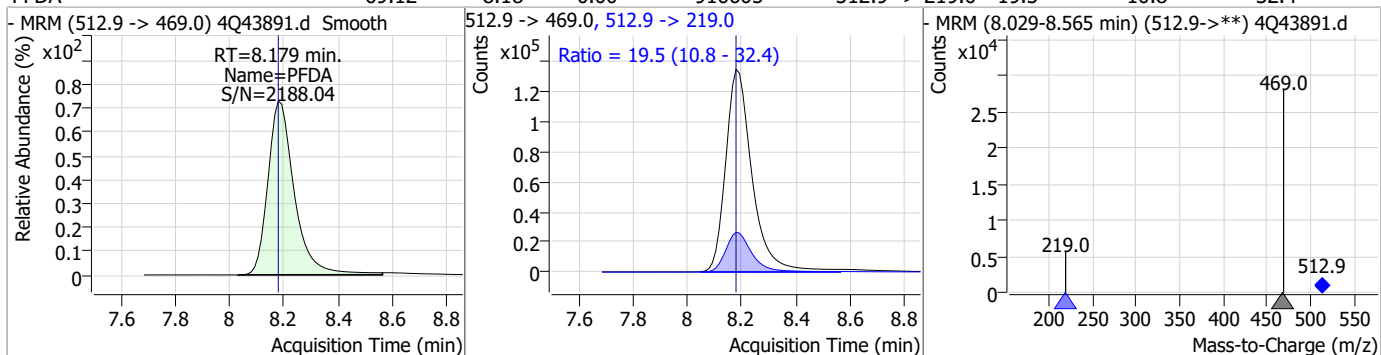
Perfluorinated Compounds by LC/MS/MS



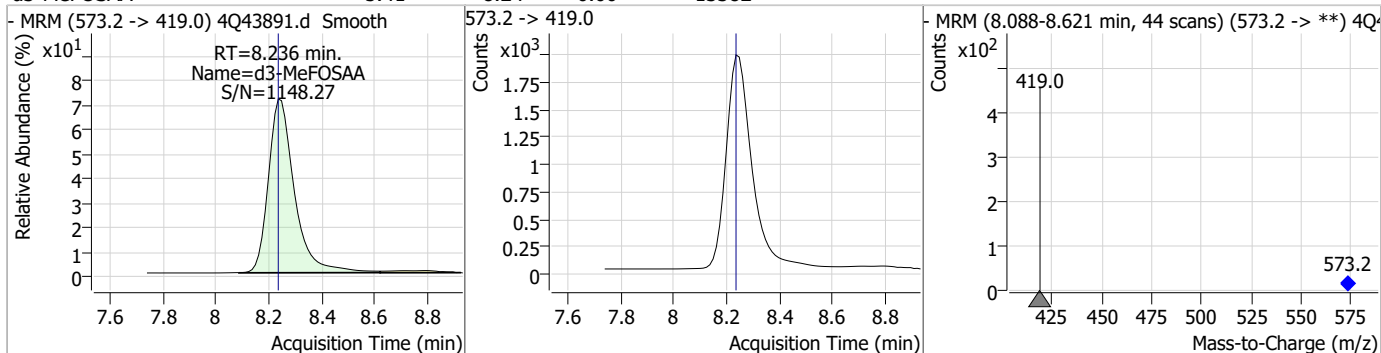
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Perfluorinated Compounds by LC/MS/MS

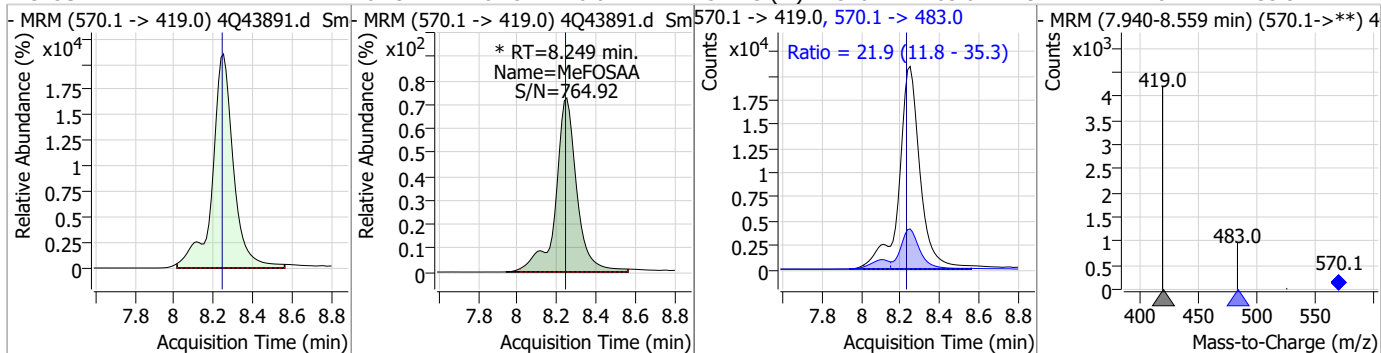
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	69.12	8.18	0.00	916605	512.9 -> 219.0	19.5	10.8	32.4



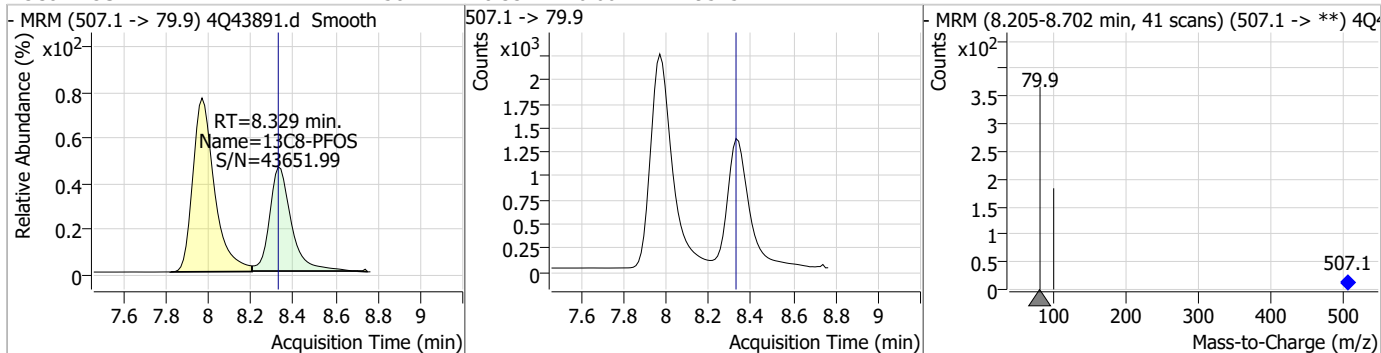
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.41	8.24	0.00	13382				



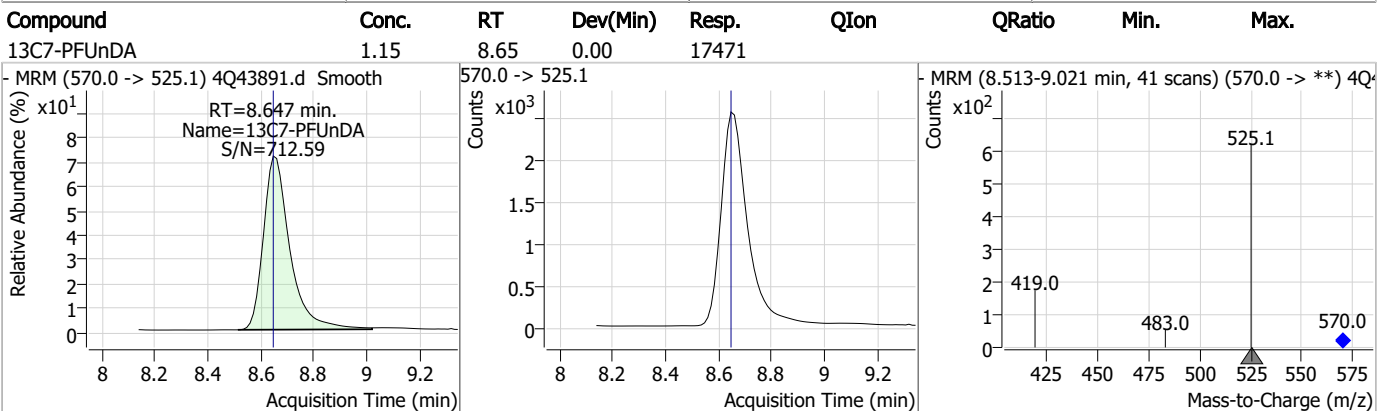
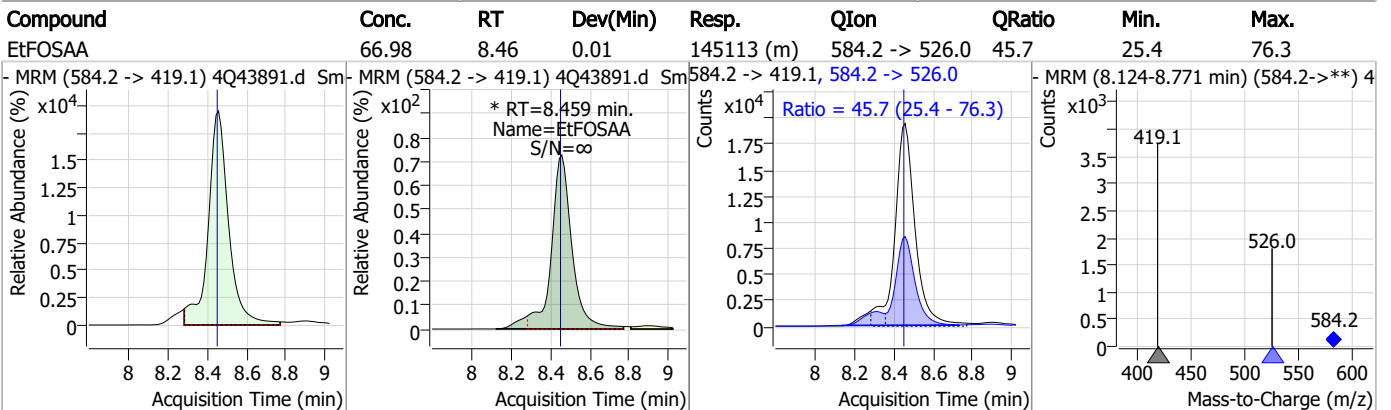
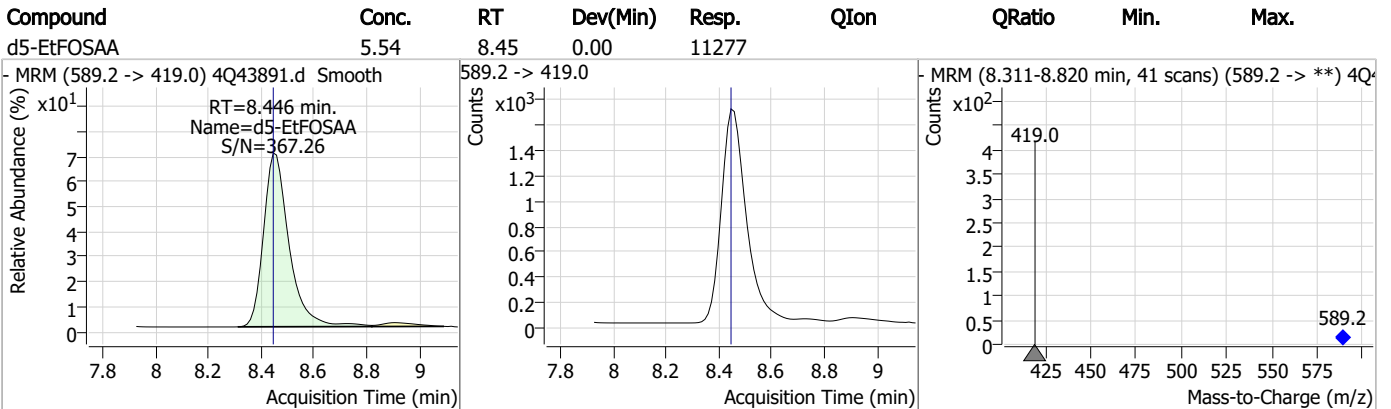
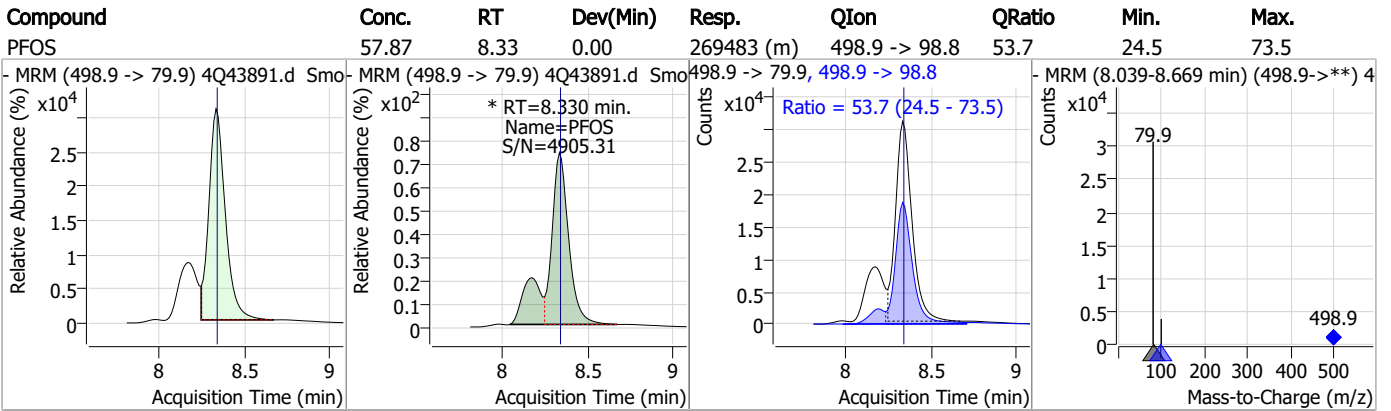
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	67.37	8.25	0.01	157123 (m)	570.1 -> 483.0	21.9	11.8	35.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.58	8.33	0.00	9515				



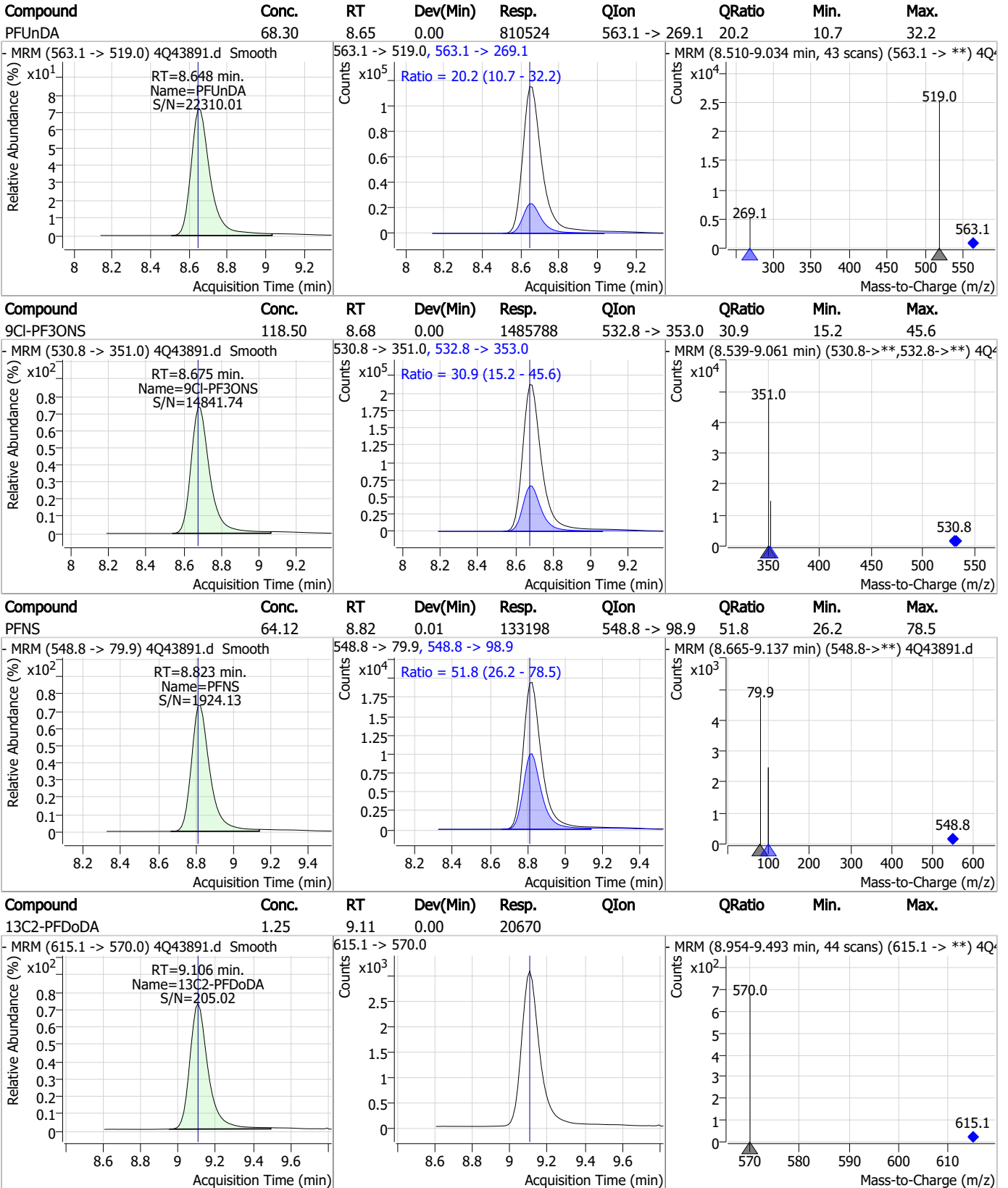
Perfluorinated Compounds by LC/MS/MS



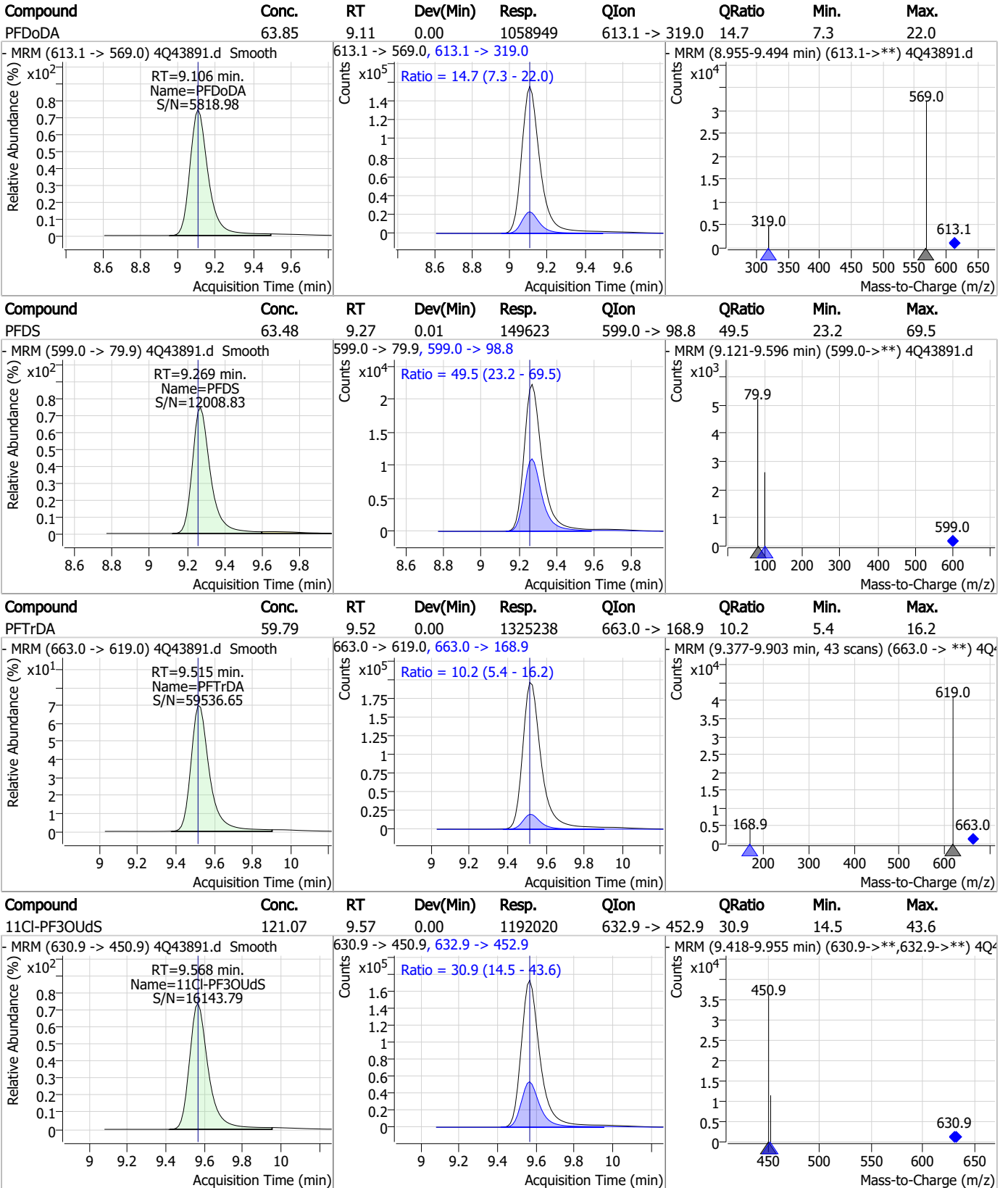
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

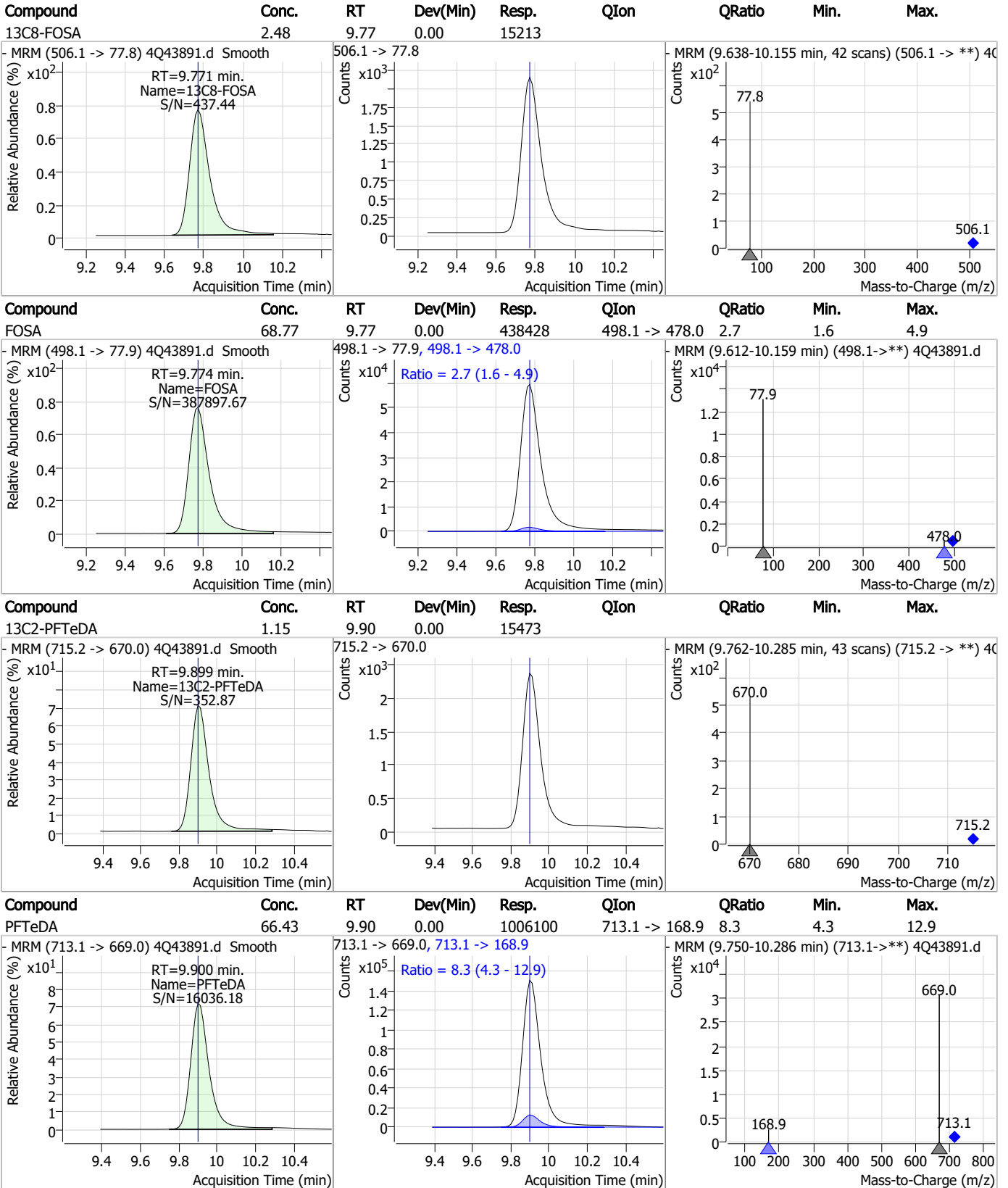


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Perfluorinated Compounds by LC/MS/MS

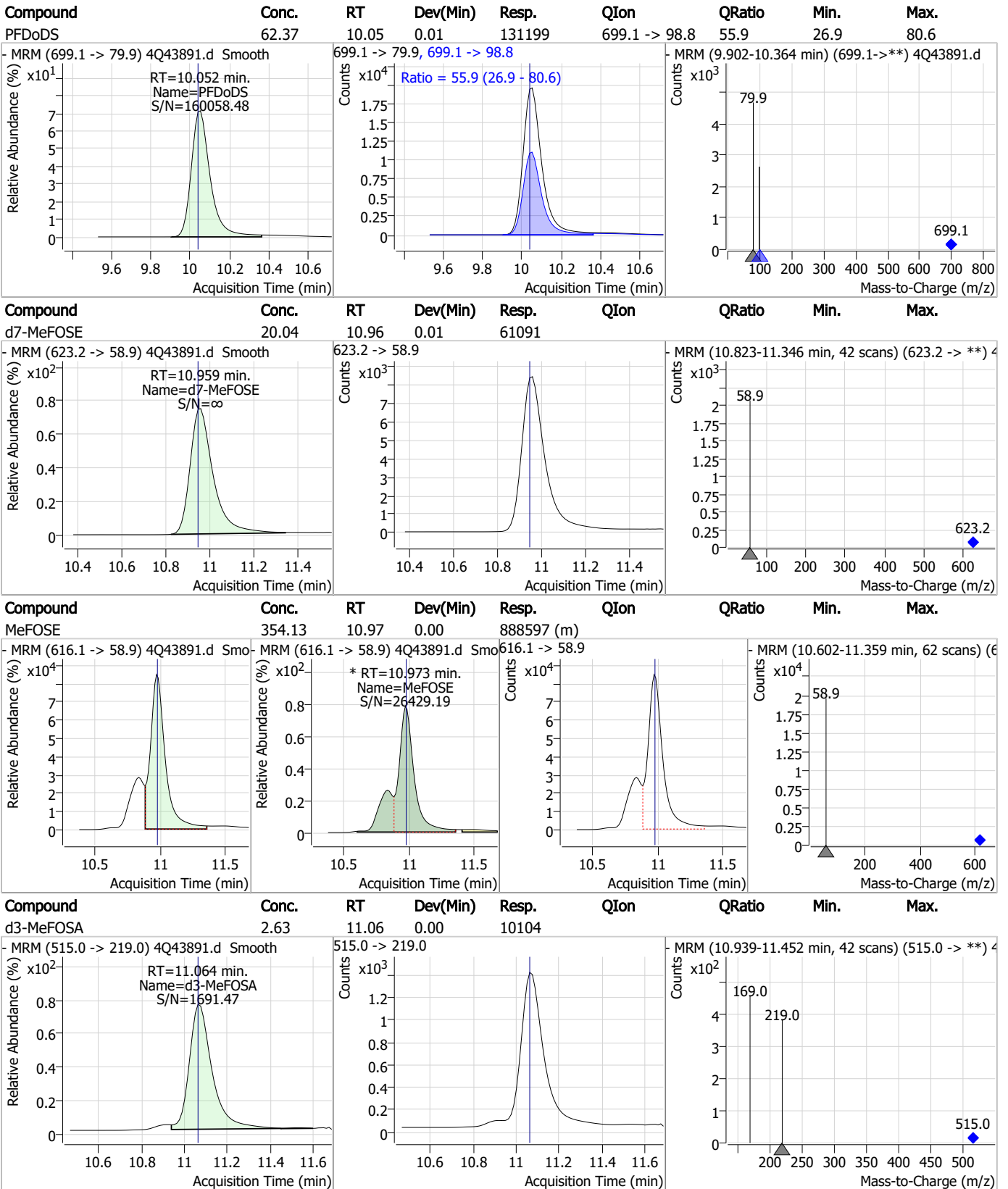


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Perfluorinated Compounds by LC/MS/MS

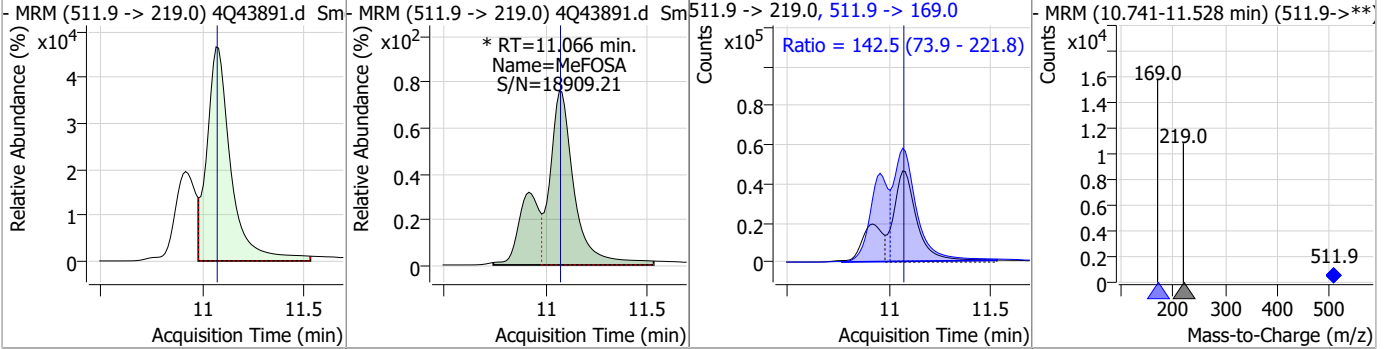


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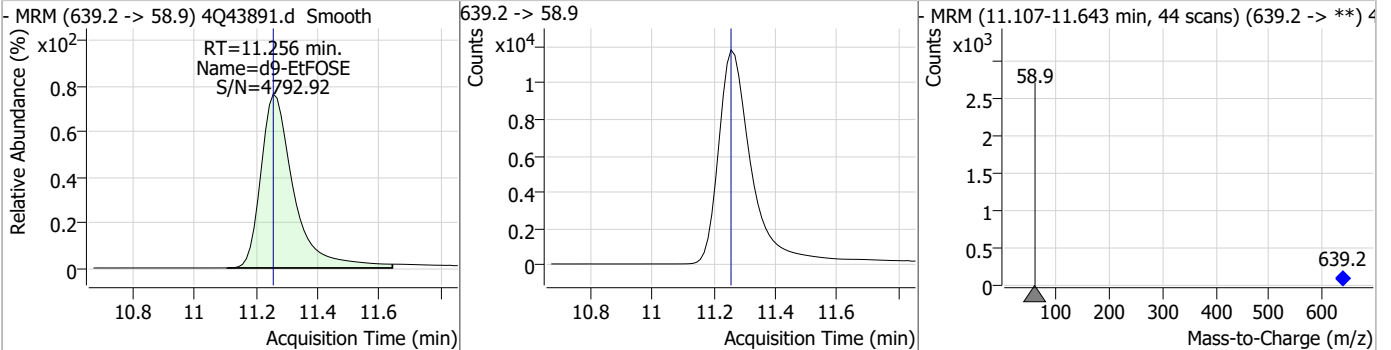
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Perfluorinated Compounds by LC/MS/MS

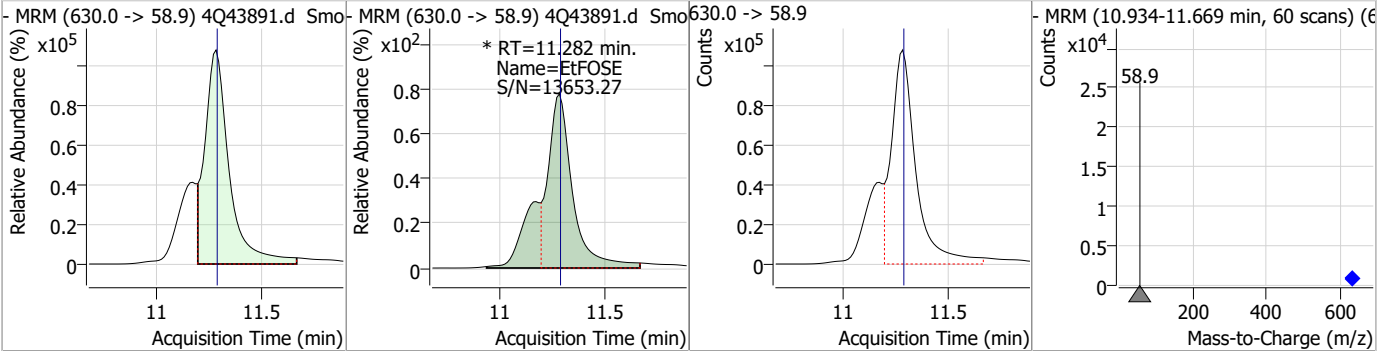
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	135.61	11.07	0.00	516182 (m)	511.9 -> 169.0	142.5	73.9	221.8



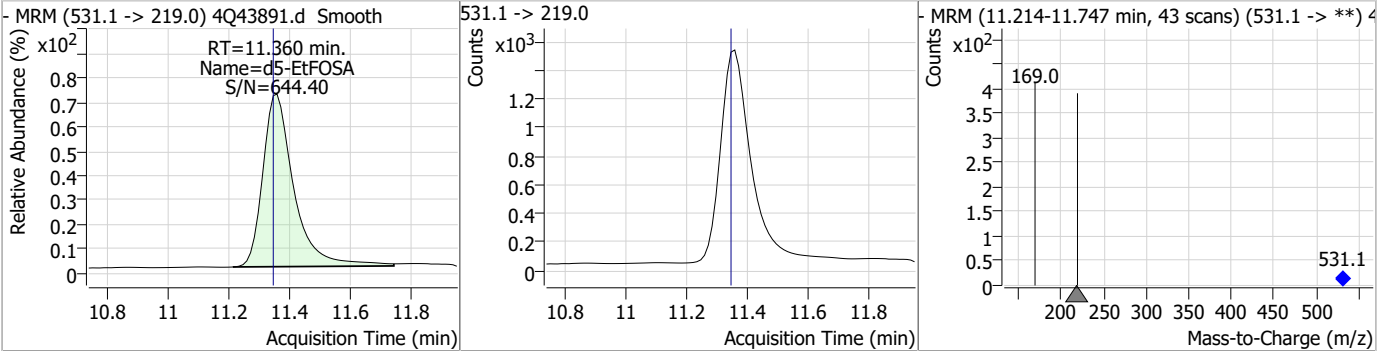
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.25	11.26	0.00	87409				



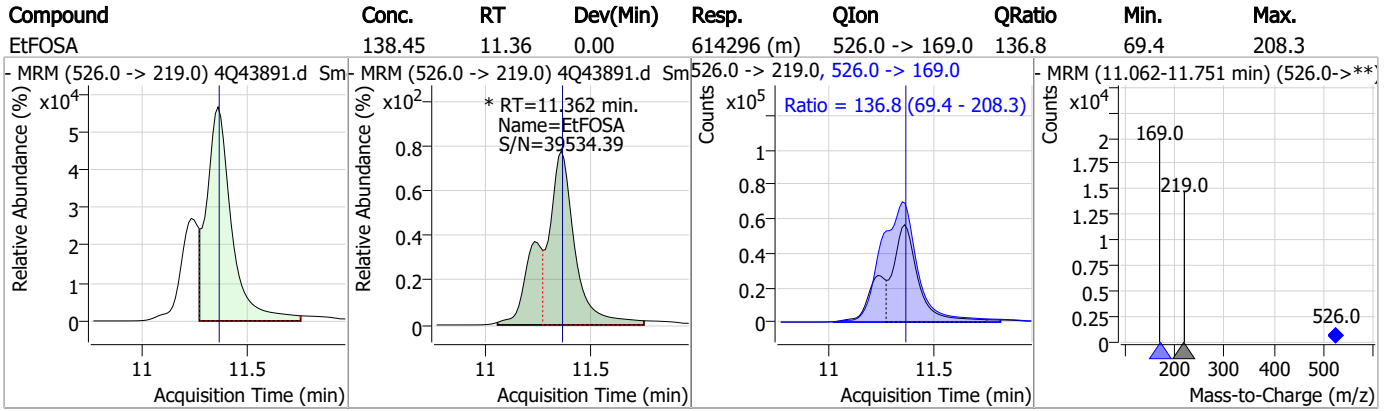
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	339.18	11.28	0.00	1147731 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.59	11.36	0.01	10591				



Perfluorinated Compounds by LC/MS/MS



7.7.9

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43891.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 12:50 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.07	Split peak
EtFOSE	1691-99-2		11.28	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.9.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43894.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 1:20:27 PM
 Sample Name : icv634-20
 Vial : P1-B4
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	130791	10.00 µg/L	0.037
M5-PFPeA	4.387	268.3 -> 223.0	66851	5.00 µg/L	0.025
M5-PFHxA	5.547	318.0 -> 273.0	46251	2.50 µg/L	0.012
M4-PFHpA	6.480	367.1 -> 322.0	27970	2.50 µg/L	0.012
M8-PFOA	7.136	421.1 -> 376.0	42684	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20224	1.25 µg/L	0.013
M6-PFDA	8.191	519.1 -> 474.1	18744	1.25 µg/L	0.013
M7-PFUnDA	8.660	570.0 -> 525.1	18716	1.25 µg/L	0.013
M2-PFDoDA	9.106	615.1 -> 570.0	21397	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	15850	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	15950	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11303	2.50 µg/L	0.025
M3-PFHxS	7.242	402.1 -> 79.9	7645	2.50 µg/L	0.012
M8-PFOS	8.341	507.1 -> 79.9	10355	2.50 µg/L	0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1075	5.00 µg/L	0.025
M2-6:2FTS	6.911	429.1 -> 80.9	1967	5.00 µg/L	0.012
M2-8:2FTS	7.978	529.1 -> 80.9	3100	5.00 µg/L	0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	13820	5.00 µg/L	0.012
M3-HFPO-DA	5.902	286.9 -> 168.9	28905	10.00 µg/L	0.012
M5-EtFOSAA	8.458	589.2 -> 419.0	11868	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	64121	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	90962	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11004	2.50 µg/L	0.012
M3-MeFOSA	11.064	515.0 -> 219.0	9720	2.50 µg/L	0.000
13C4-PFOS	8.342	502.8 -> 79.9	10619	2.50 µg/L	0.012
13C3-PFBA	2.966	216.0 -> 172.0	68812	5.00 µg/L	0.037
18O2-PFHxS	7.228	403.0 -> 83.9	5057	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	50127	2.50 µg/L	0.012
13C2-PFDA	8.191	515.1 -> 470.1	16617	1.25 µg/L	0.013
13C5-PFNA	7.684	468.0 -> 423.0	23190	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	42103	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1075	5.23 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-6:2FTS	6.911	429.1 -> 80.9	1967	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3100	5.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21397	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-PFTeDA	9.911	715.2 -> 670.0	15850	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C3-PFBS	5.452	302.1 -> 79.9	11303	2.37 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFHxS	7.242	402.1 -> 79.9	7645	2.44 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 = 97.6%		
13C4-PFBA	2.961	216.8 -> 171.9	130791	10.10 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.480	367.1 -> 322.0	27970	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C5-PFHxA	5.547	318.0 -> 273.0	46251	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C5-PFPeA	4.387	268.3 -> 223.0	66851	5.15 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C6-PFDA	8.191	519.1 -> 474.1	18744	1.32 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C7-PFUnDA	8.660	570.0 -> 525.1	18716	1.26 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C8-FOSA	9.783	506.1 -> 77.8	15950	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C8-PFOA	7.136	421.1 -> 376.0	42684	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C8-PFOS	8.341	507.1 -> 79.9	10355	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C9-PFNA	7.684	472.1 -> 427.0	20224	1.28 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
d3-MeFOSAA	8.249	573.2 -> 419.0	13820	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-HFPO-DA	5.902	286.9 -> 168.9	28905	10.44 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
d3-MeFOSA	11.064	515.0 -> 219.0	9720	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
d5-EtFOSAA	8.458	589.2 -> 419.0	11868	5.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
d7-MeFOSE	10.959	623.2 -> 58.9	64121	19.41 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 77.6%		
d9-EtFOSE	11.256	639.2 -> 58.9	90962	19.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 77.8%		
d5-EtFOSA	11.360	531.1 -> 219.0	11004	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
Target Compounds					QValue
4:2FTS	5.236	327.1 -> 307.0	36343	21.01 µg/L	93
		327.1 -> 80.9	15405		
6:2FTS	6.911	427.1 -> 407.0	37596	19.78 µg/L	98
		427.1 -> 80.9	15426		
8:2FTS	7.978	527.1 -> 507.0	34017	19.68 µg/L	99
		527.1 -> 80.8	14554		
EtFOSAA	8.459	584.2 -> 419.1	44738	19.62 µg/L	m 97
		584.2 -> 526.0	21689		
FOSA	9.774	498.1 -> 77.9	141624	21.19 µg/L	98
		498.1 -> 478.0	3779		
MeFOSAA	8.249	570.1 -> 419.0	51036	21.19 µg/L	m 95
		570.1 -> 483.0	10701		
PFBA	2.957	212.8 -> 168.9	67542	19.28 µg/L	100
PFBS	5.453	298.7 -> 79.9	100483	21.67 µg/L	95
		298.7 -> 98.8	37786		
PFDA	8.192	512.9 -> 469.0	305610	21.49 µg/L	96
		512.9 -> 219.0	60753		
PFDoDA	9.106	613.1 -> 569.0	317329	18.48 µg/L	96
		613.1 -> 319.0	41610		
PFDS	9.269	599.0 -> 79.9	52213	20.36 µg/L	96

7.7.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.480	599.0 -> 98.8	25568	20.57	µg/L	99
		363.1 -> 319.0	363659			
PFHpS	7.823	363.1 -> 169.0	63506	20.45	µg/L	96
		449.0 -> 79.9	76288			
PFHxA	5.550	449.0 -> 98.9	38819	21.78	µg/L	100
		313.0 -> 269.0	394737			
PFHxS	7.230	313.0 -> 118.9	11460	21.63	µg/L	99
		398.7 -> 79.9	67769			
PFNA	7.685	398.7 -> 98.9	33658	21.77	µg/L	99
		463.0 -> 419.0	326243			
PFNS	8.823	463.0 -> 219.0	79570	19.68	µg/L	100
		548.8 -> 79.9	44477			
PFOA	7.138	548.8 -> 98.9	23137	20.68	µg/L	99
		413.0 -> 369.0	509126			
PFOS	8.343	413.0 -> 169.0	101566	17.96	µg/L	97
		498.9 -> 79.9	91001			
PFPeA	4.389	498.9 -> 98.8	42607	22.21	µg/L	100
		263.0 -> 219.0	357175			
PFPeS	6.507	349.1 -> 79.9	56780	21.12	µg/L	97
		349.1 -> 98.9	25166			
PFTeDA	9.912	713.1 -> 669.0	344427	22.20	µg/L	99
		713.1 -> 168.9	28576			
PFTrDA	9.529	663.0 -> 619.0	403759	17.60	µg/L	98
		663.0 -> 168.9	40559			
PFUnDA	8.660	563.1 -> 519.0	269334	21.19	µg/L	96
		563.1 -> 269.1	53065			
11Cl-PF3OUdS	9.568	630.9 -> 450.9	217826	20.96	µg/L	97
		632.9 -> 452.9	67365			
9Cl-PF3ONS	8.687	530.8 -> 351.0	264806	20.00	µg/L	100
		532.8 -> 353.0	80138			
ADONA	6.731	376.9 -> 250.9	583198	20.06	µg/L	99
		376.9 -> 84.8	155449			
HFPO-DA	5.903	284.9 -> 168.9	53279	19.29	µg/L	97
		284.9 -> 184.9	6640			
3:3FTCA	3.879	241.0 -> 177.0	14608	20.64	µg/L	98
		241.0 -> 117.0	1379			
5:3FTCA	6.217	341.0 -> 237.1	52878	21.50	µg/L	100
		341.0 -> 217.0	36203			
7:3FTCA	7.661	441.0 -> 316.9	25510	19.97	µg/L	94
		441.0 -> 336.9	63644			
EtFOSA	11.362	526.0 -> 219.0	101818	22.09	µg/L	78
		526.0 -> 169.0	114269			
EtFOSE	11.282	630.0 -> 58.9	413915	117.54	µg/L	100
		511.9 -> 219.0	79178			
MeFOSA	11.078	511.9 -> 169.0	93425	21.62	µg/L	76
		616.1 -> 58.9	304054			
MeFOSE	10.973	699.1 -> 79.9	43287	115.45	µg/L	100
		699.1 -> 98.8	23566			
PFDoDS	10.052	295.0 -> 201.0	28746	18.91	µg/L	99
		295.0 -> 84.9	6982			
NFDHA	5.428	279.0 -> 85.1	189220	22.22	µg/L	94
		229.0 -> 84.9	178659			
PFMBA	4.791	314.8 -> 134.9	262758	21.08	µg/L	100
		314.8 -> 82.9	8347			
PFMPA	3.553			21.25	µg/L	100
PFEESA	5.984			19.16	µg/L	98

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

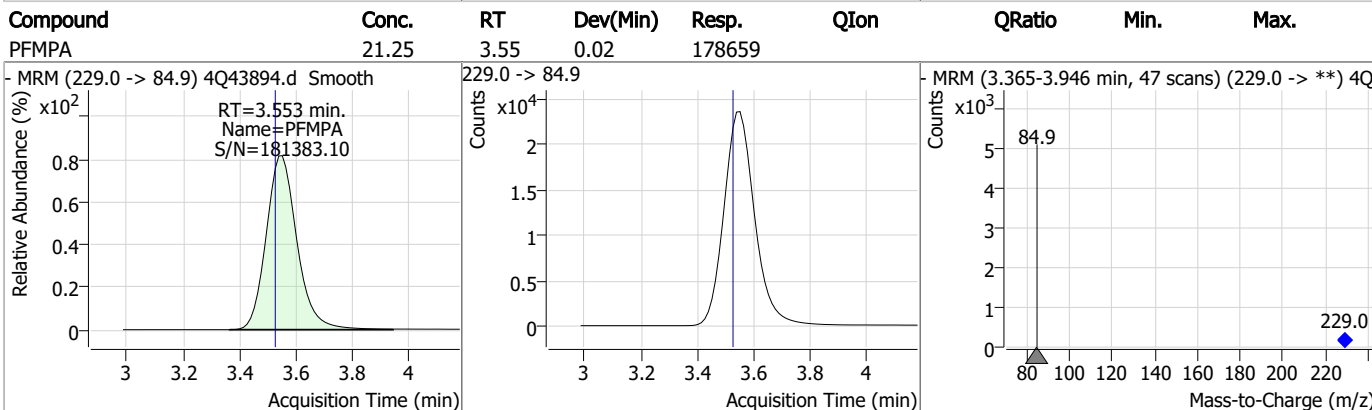
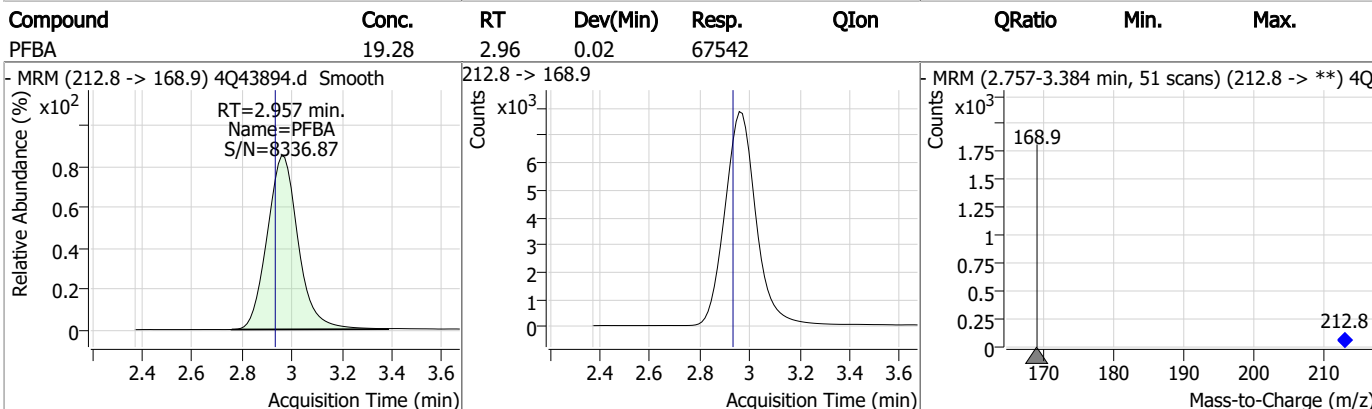
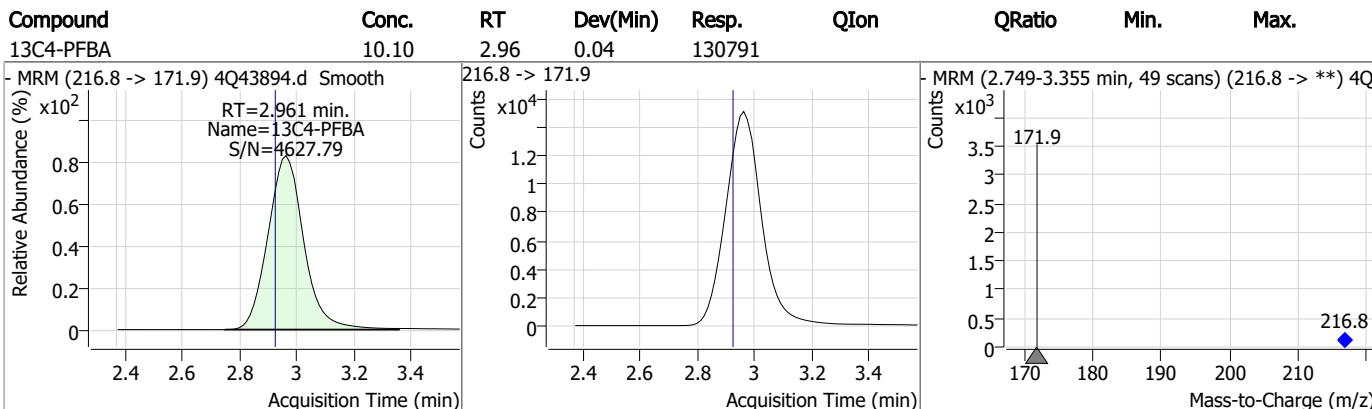
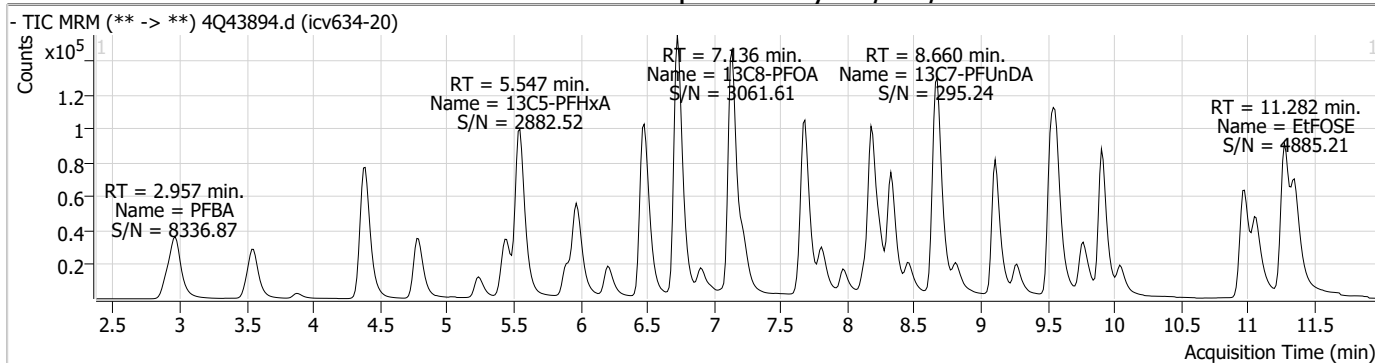
Perfluorinated Compounds by LC/MS/MS

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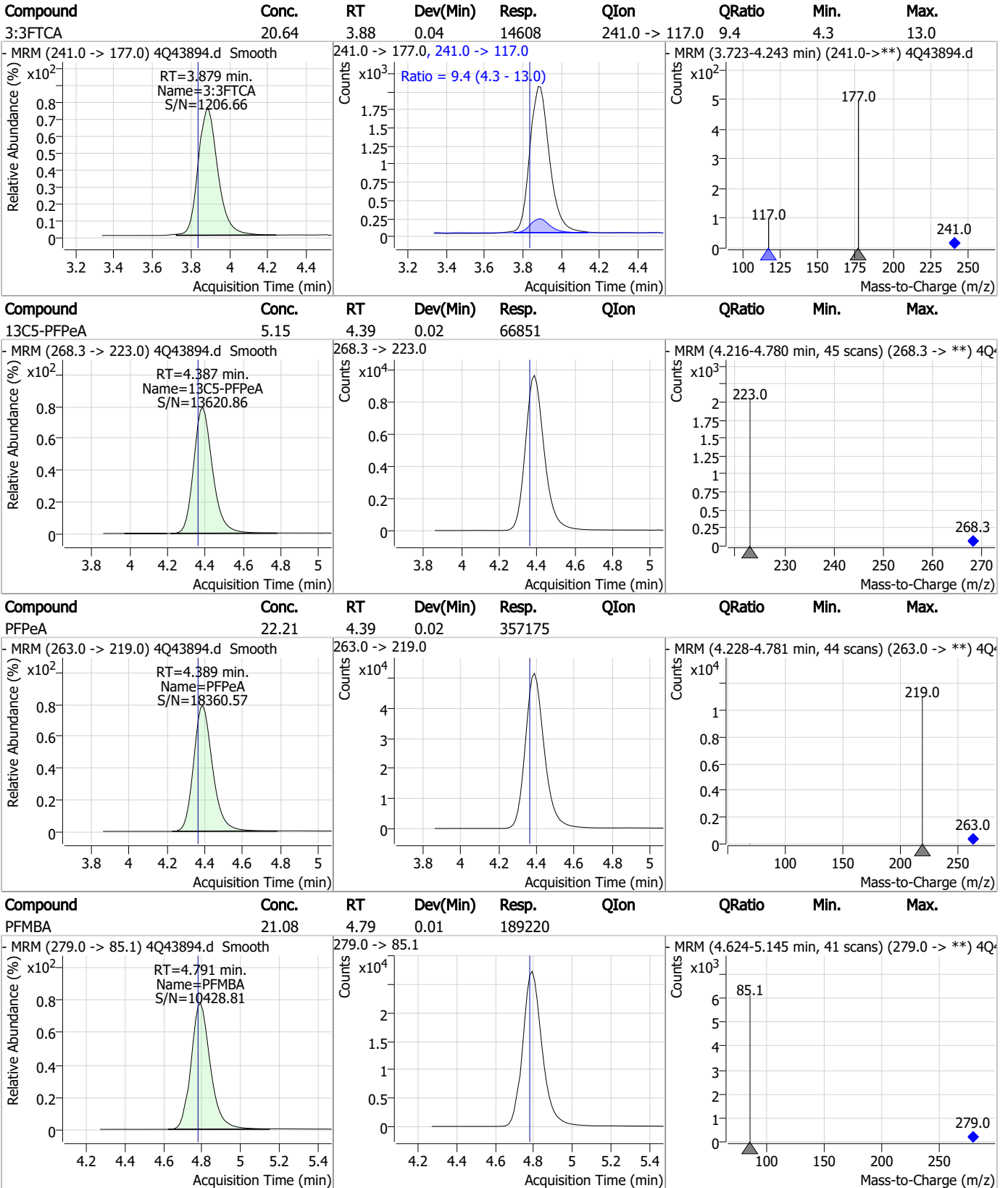
7.7.10

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Perfluorinated Compounds by LC/MS/MS

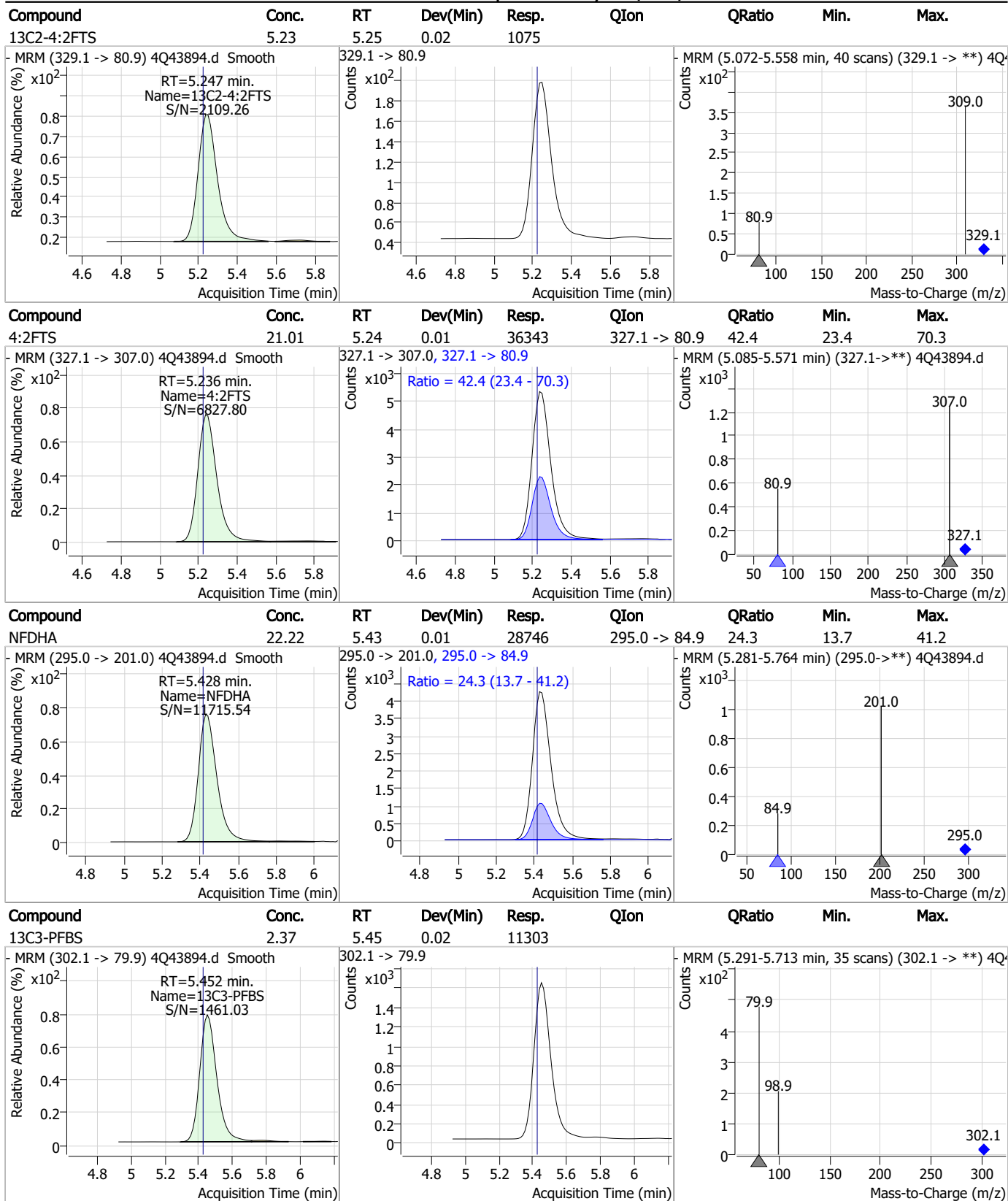


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

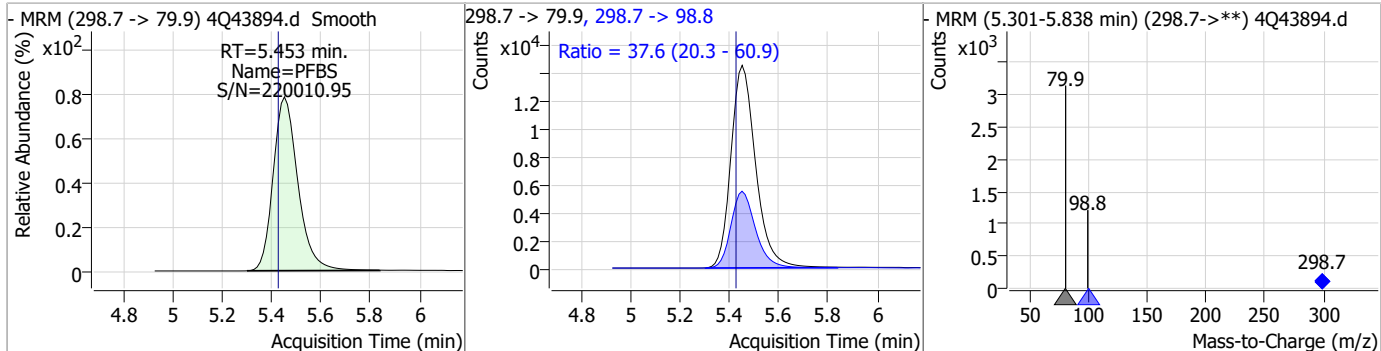
Perfluorinated Compounds by LC/MS/MS



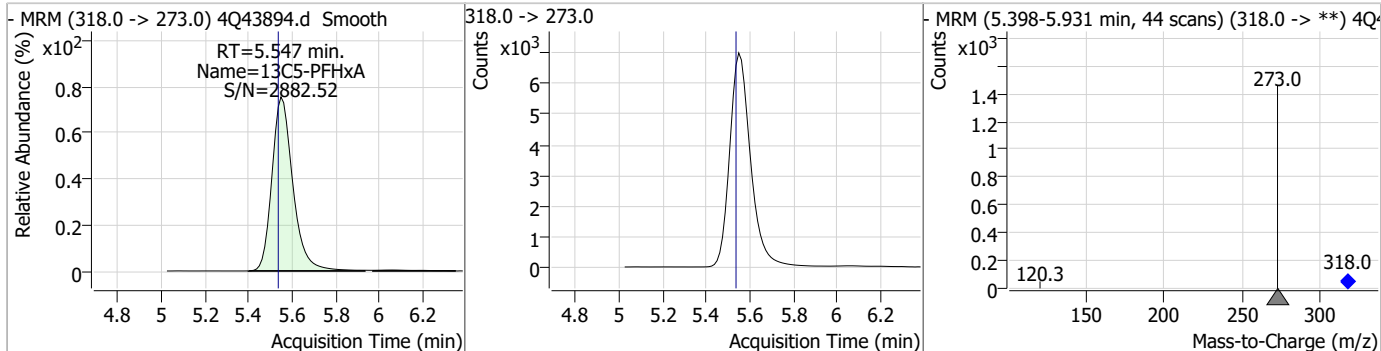
7.7.10
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Perfluorinated Compounds by LC/MS/MS

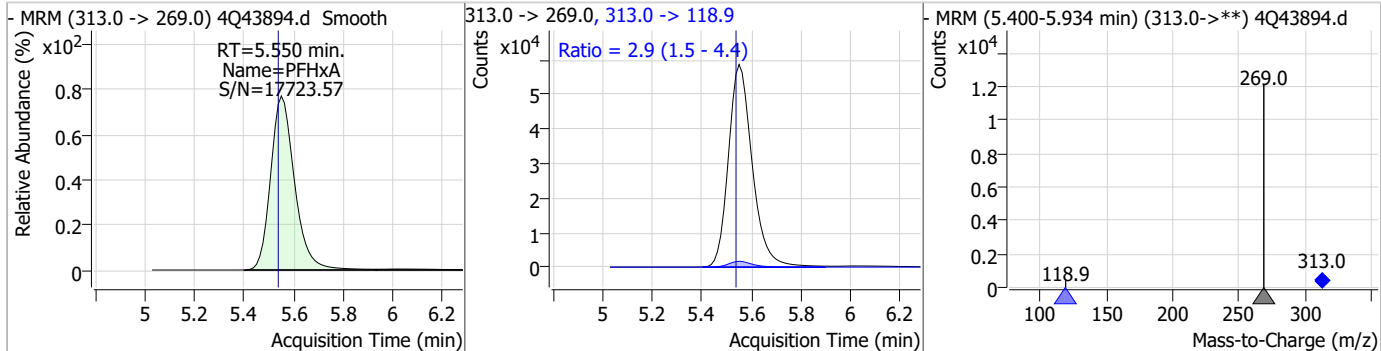
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.67	5.45	0.02	100483	298.7 -> 98.8	37.6	20.3	60.9



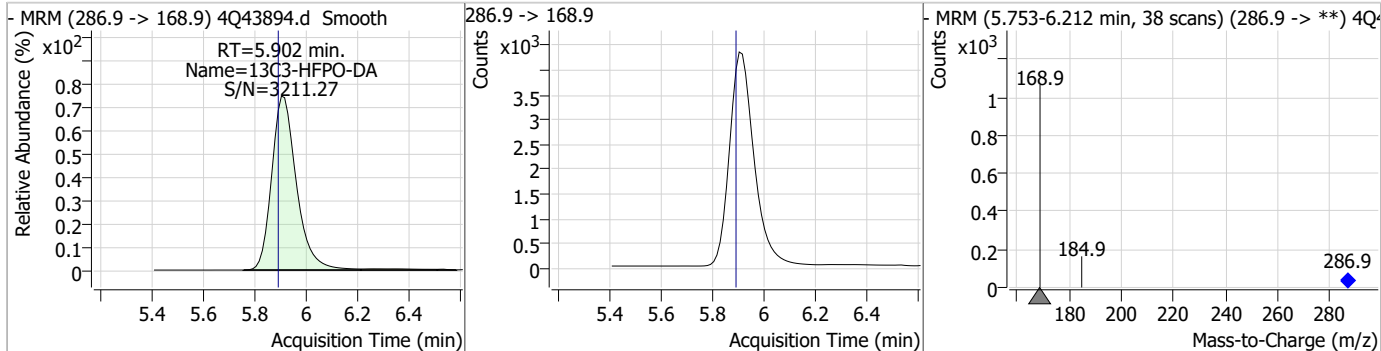
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.55	0.01	46251				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.78	5.55	0.01	394737	313.0 -> 118.9	2.9	1.5	4.4

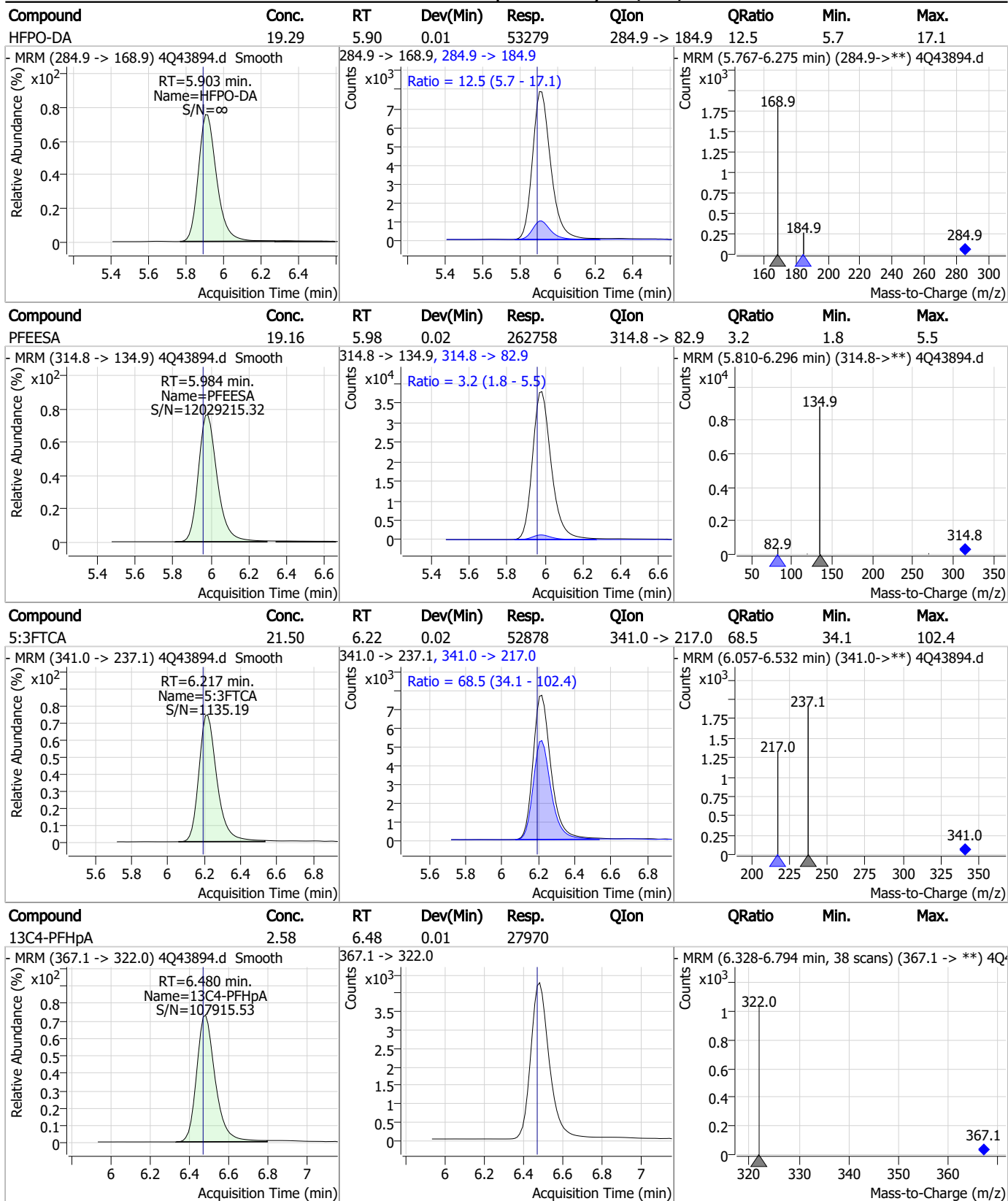


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.44	5.90	0.01	28905				



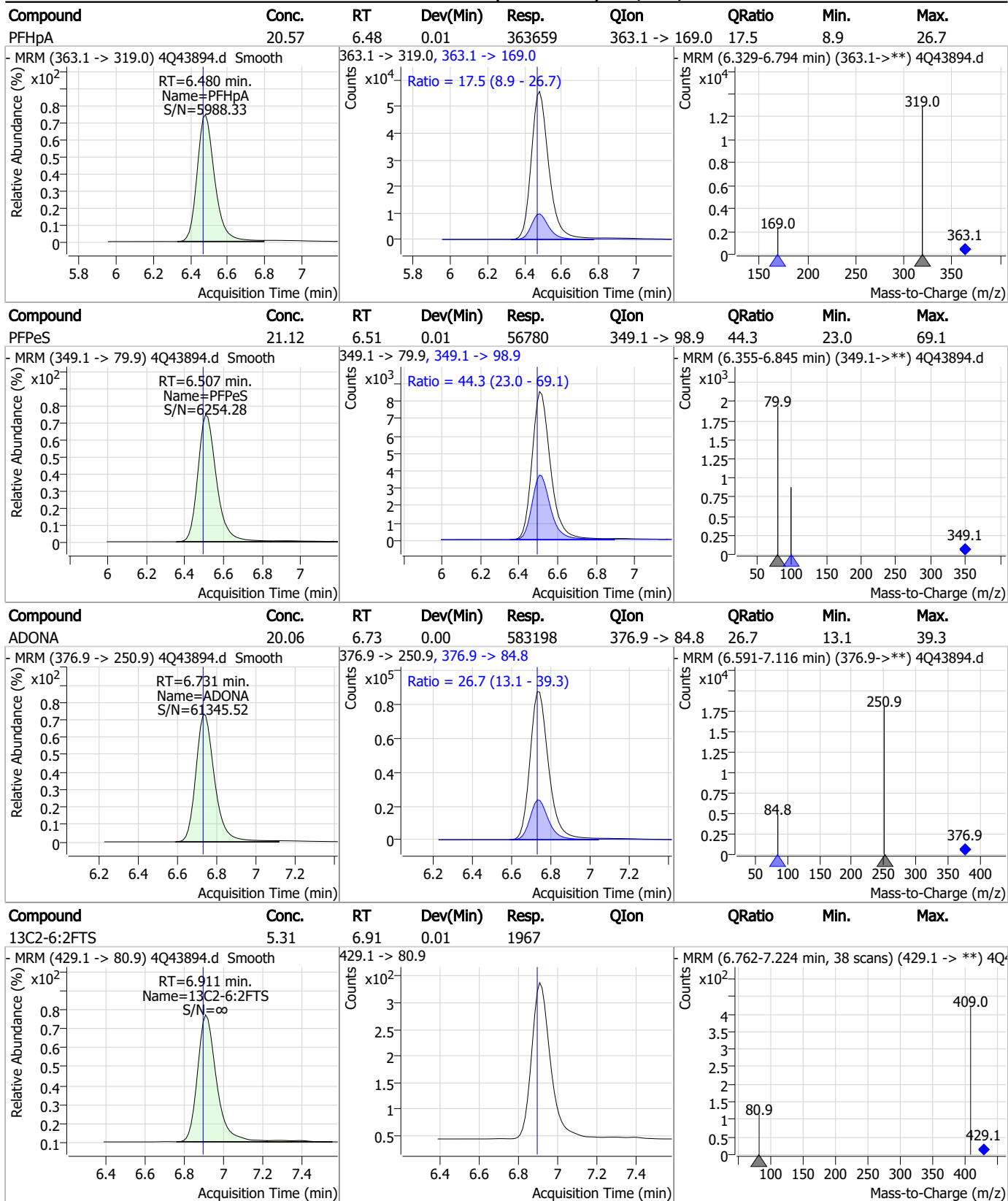
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



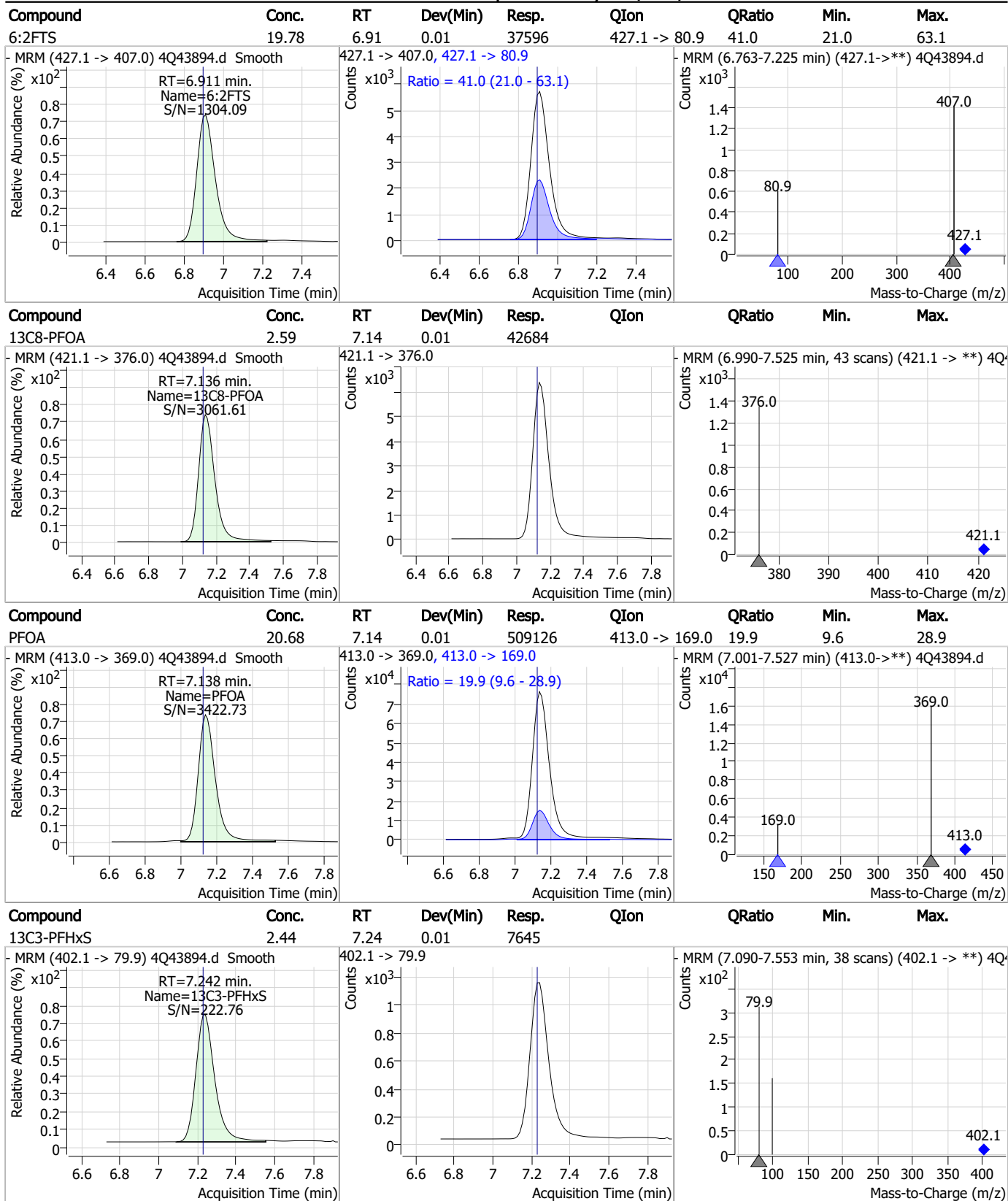
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10
7

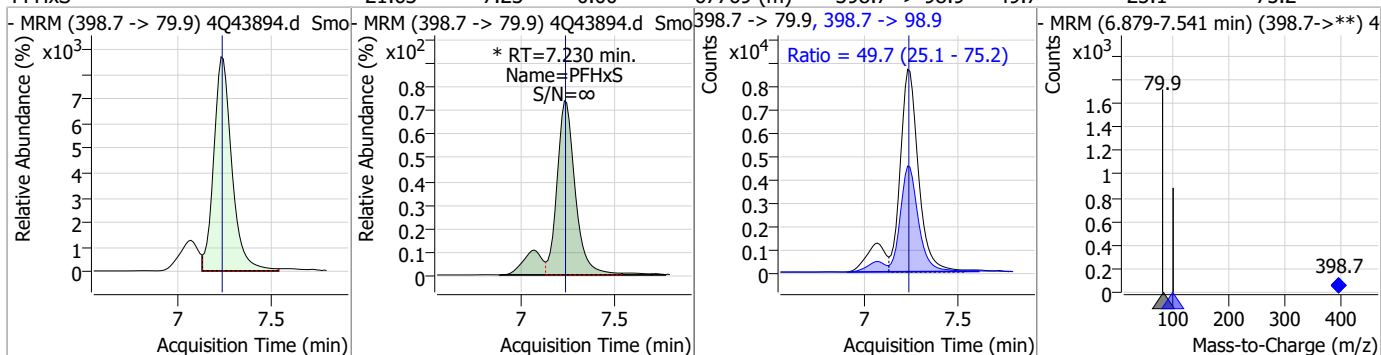
Perfluorinated Compounds by LC/MS/MS



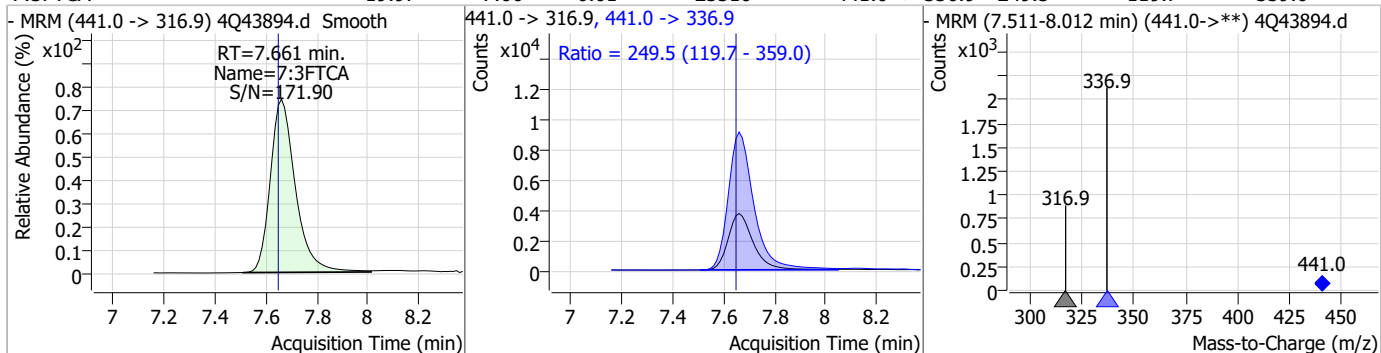
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

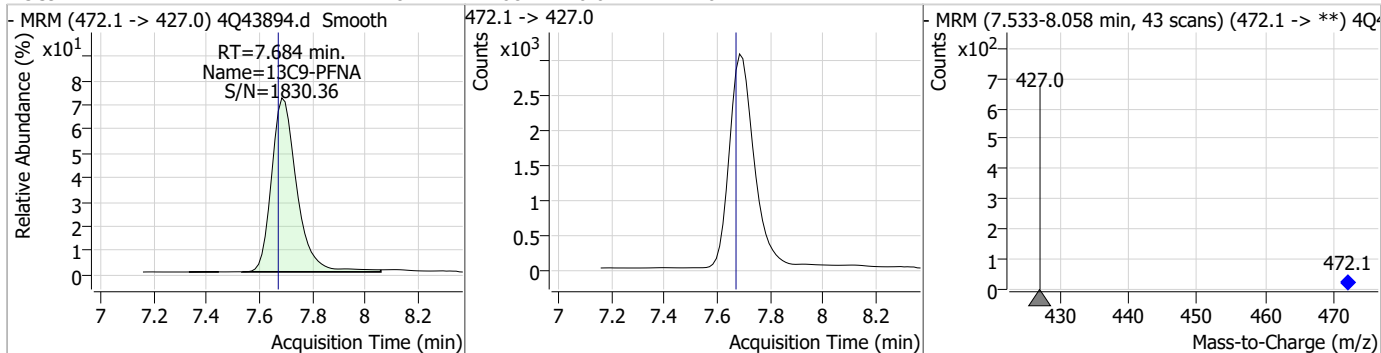
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	21.63	7.23	0.00	67769 (m)	398.7 -> 98.9	49.7	25.1	75.2



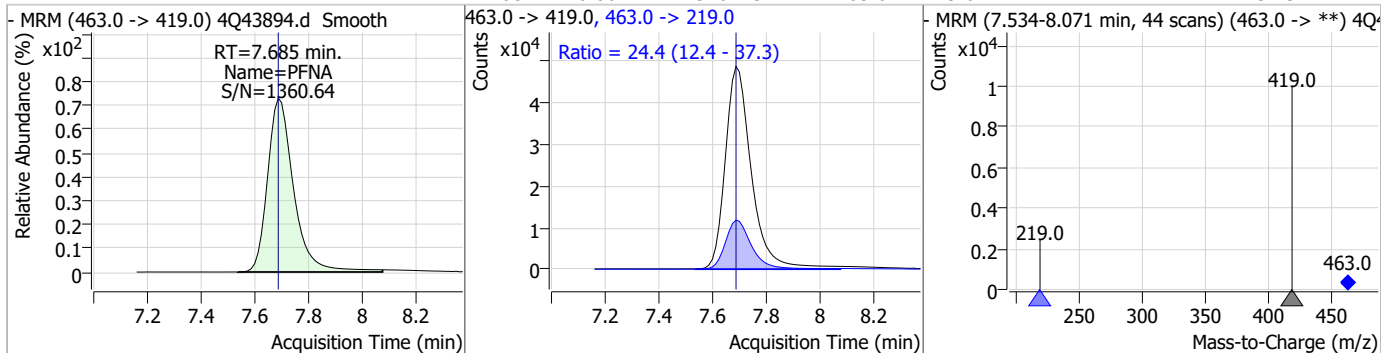
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	19.97	7.66	0.01	25510	441.0 -> 336.9	249.5	119.7	359.0



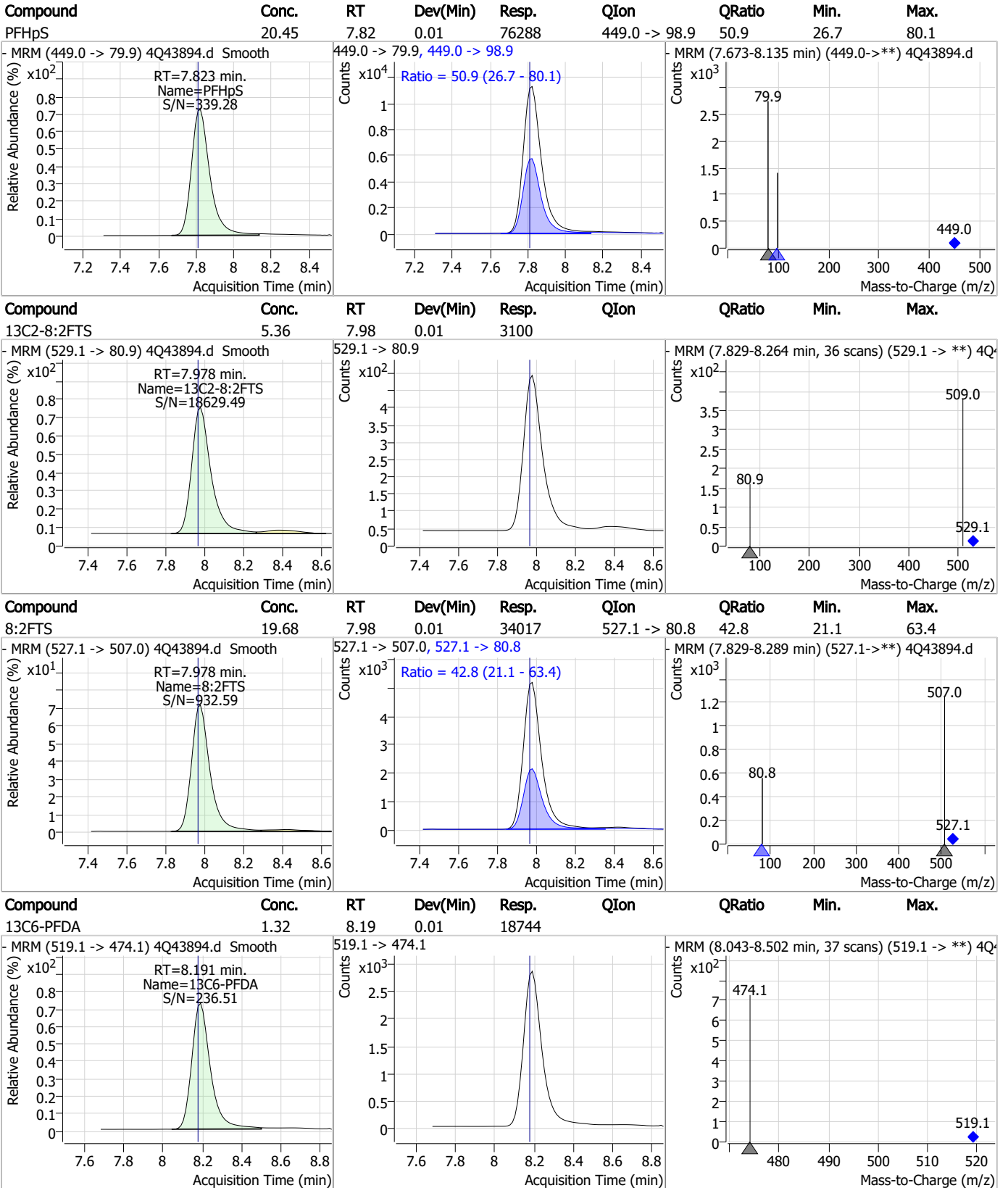
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.28	7.68	0.01	20224				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.77	7.68	0.00	326243	463.0 -> 219.0	24.4	12.4	37.3

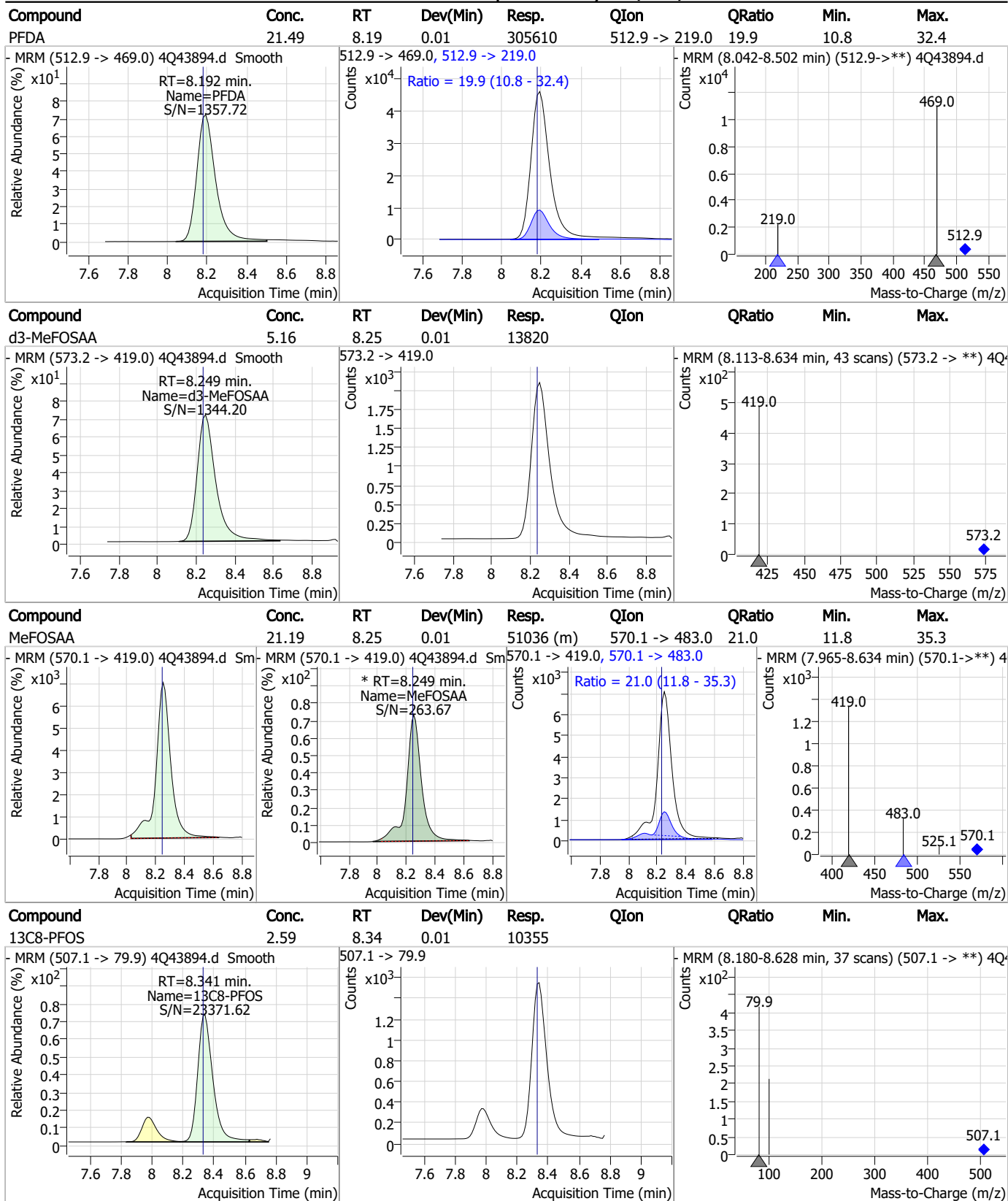


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

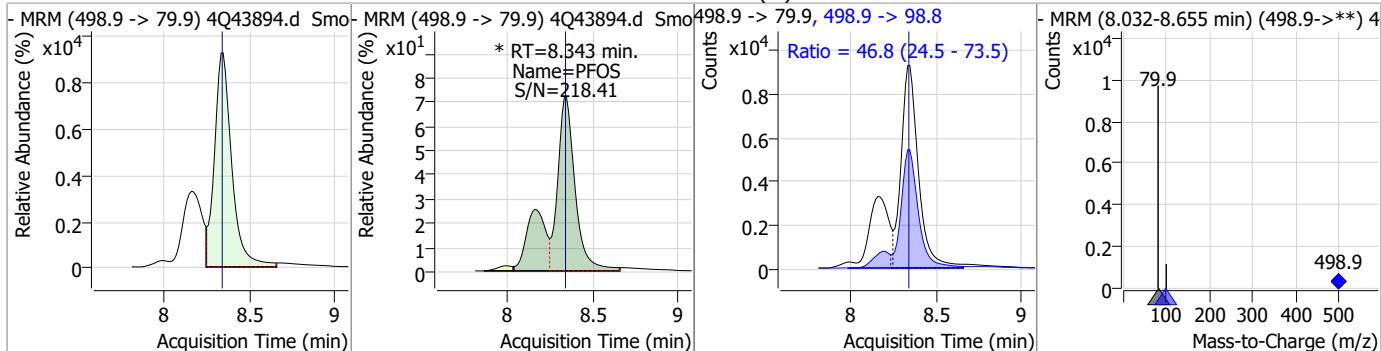
Perfluorinated Compounds by LC/MS/MS



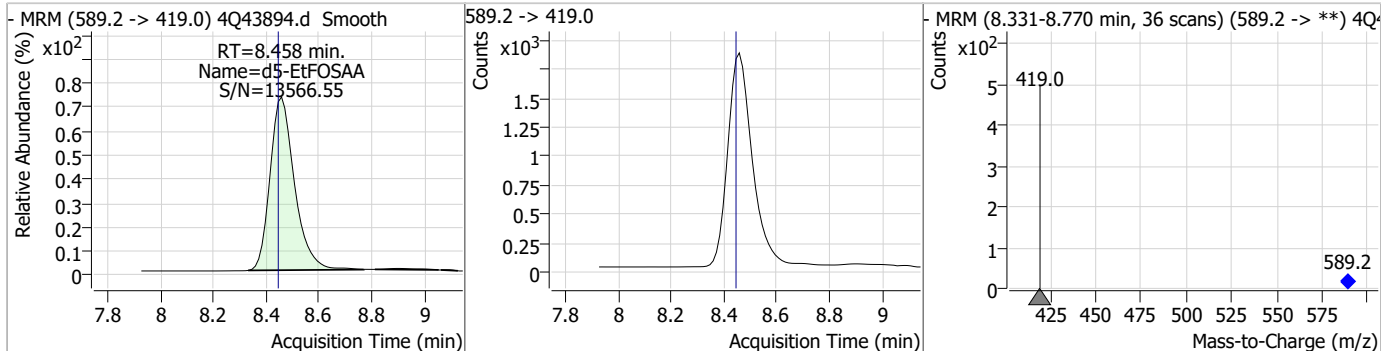
7.7.10
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Perfluorinated Compounds by LC/MS/MS

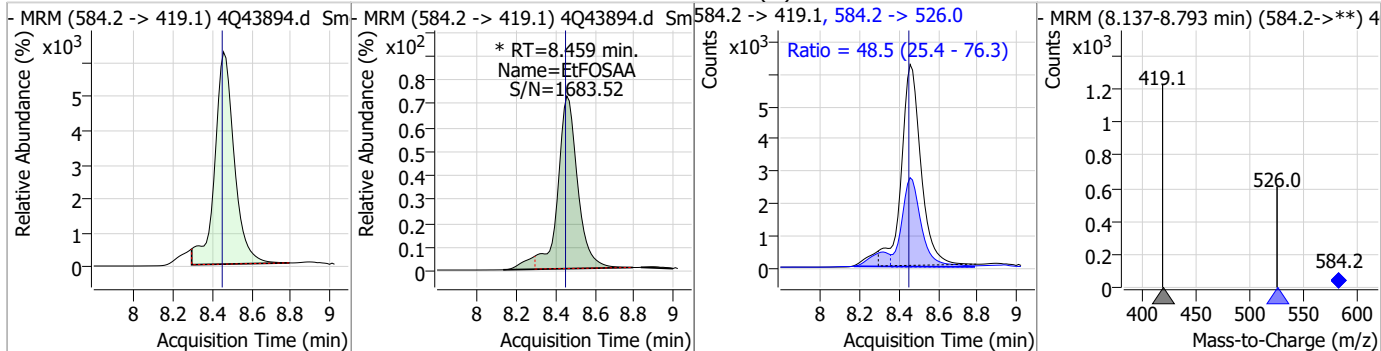
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.96	8.34	0.01	91001 (m)	498.9 -> 98.8	46.8	24.5	73.5



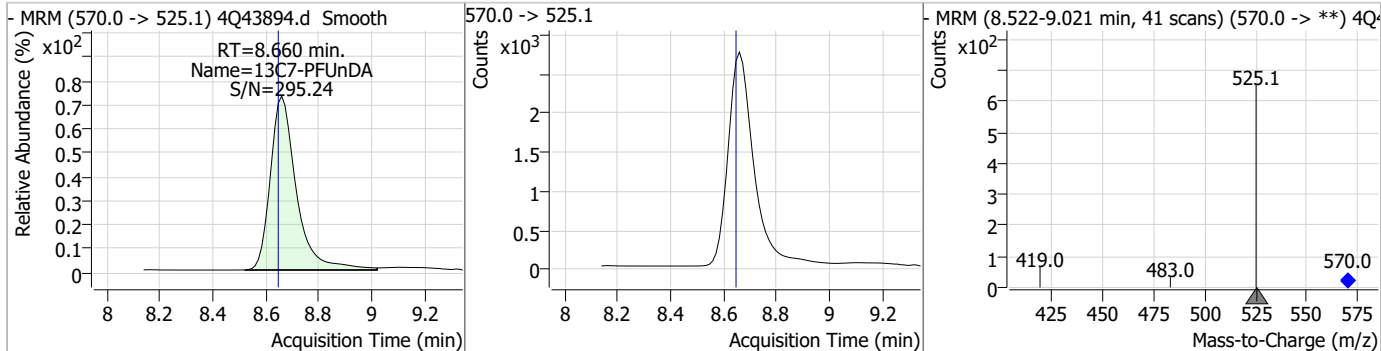
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.38	8.46	0.01	11868				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.62	8.46	0.01	44738 (m)	584.2 -> 526.0	48.5	25.4	76.3

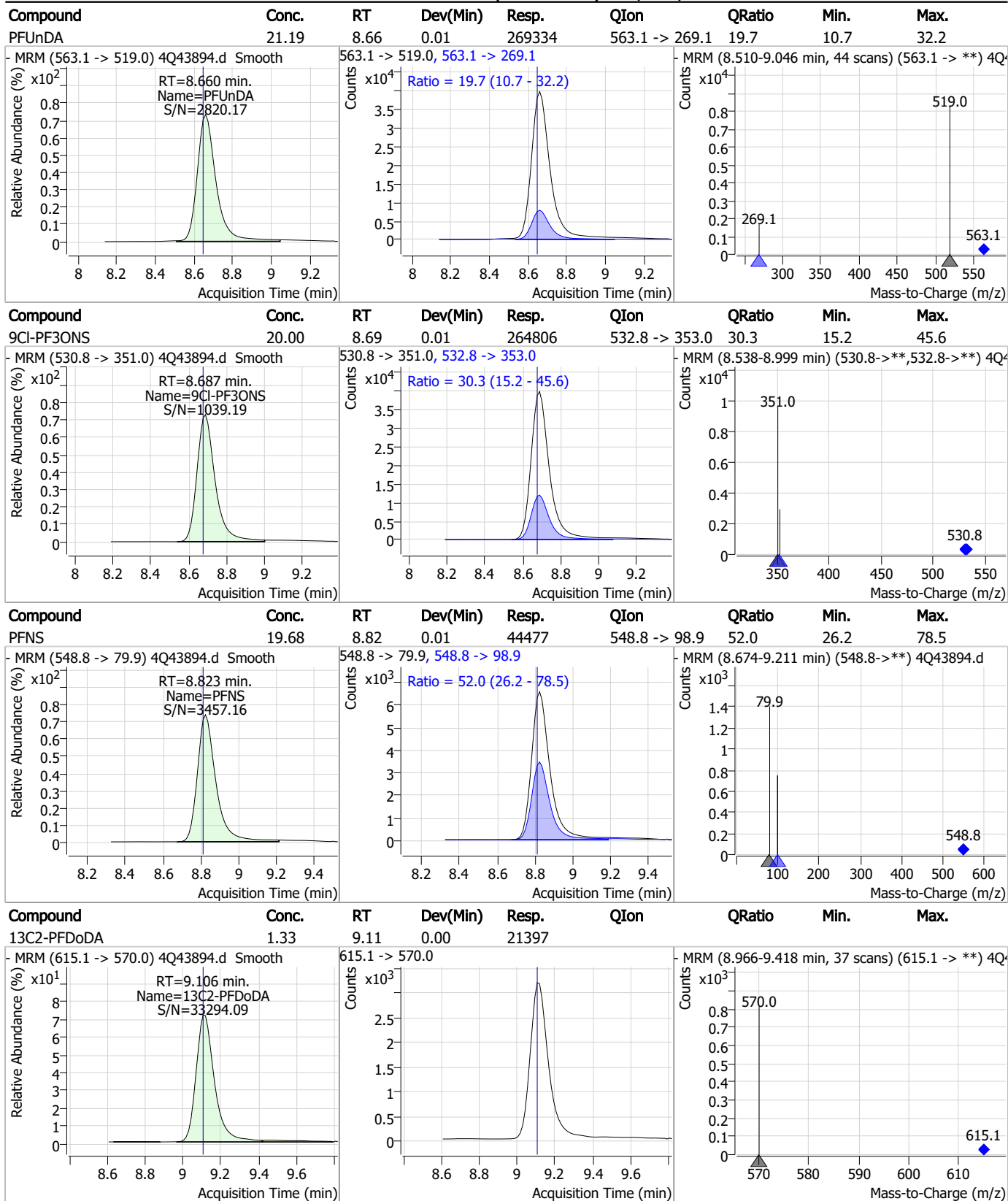


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.26	8.66	0.01	18716				



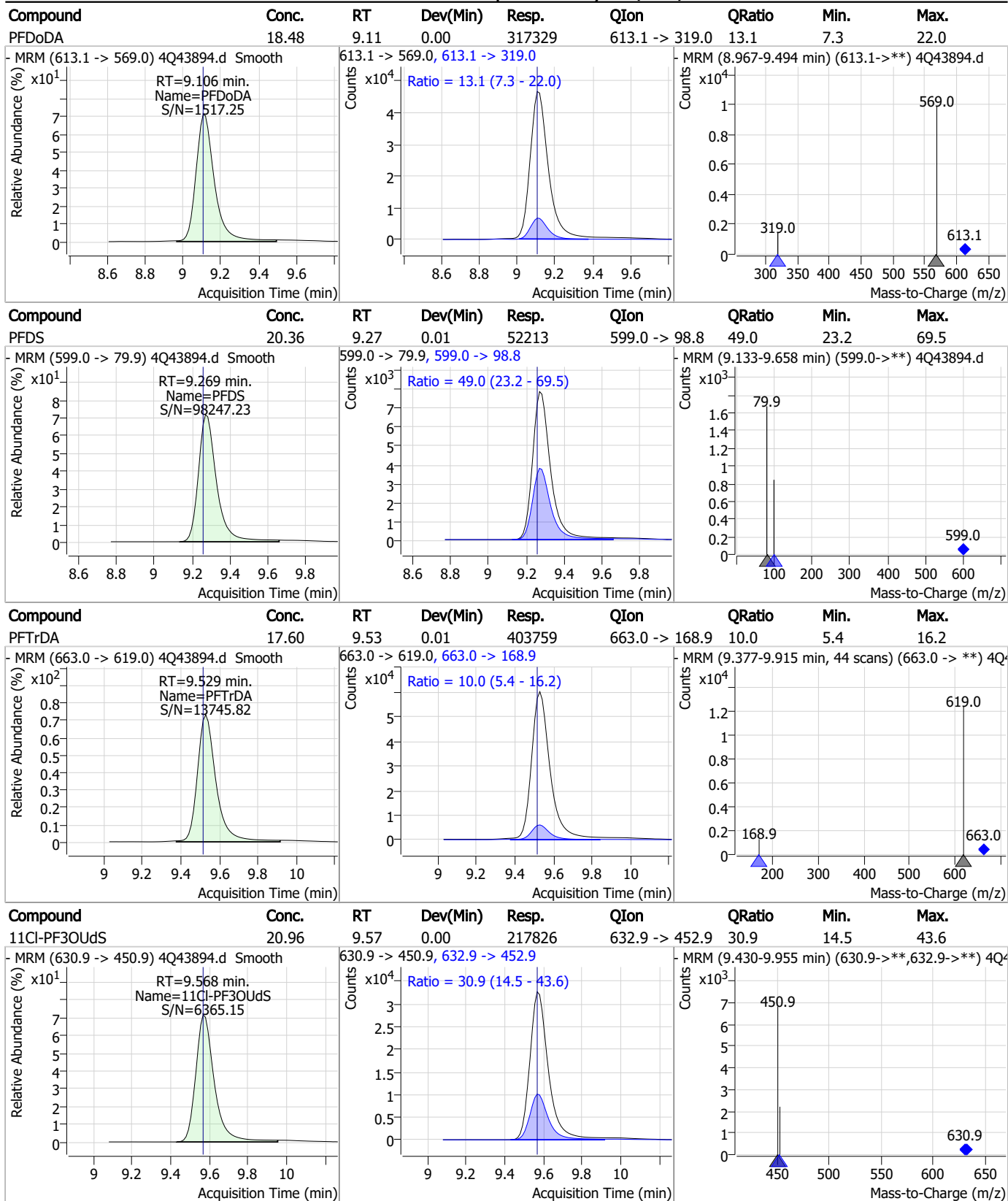
7.7.10
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Perfluorinated Compounds by LC/MS/MS



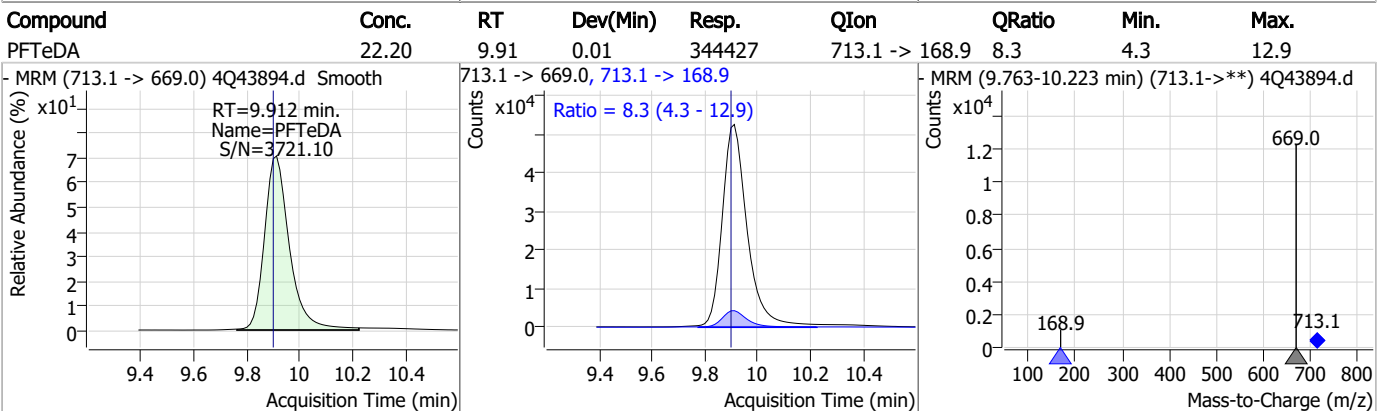
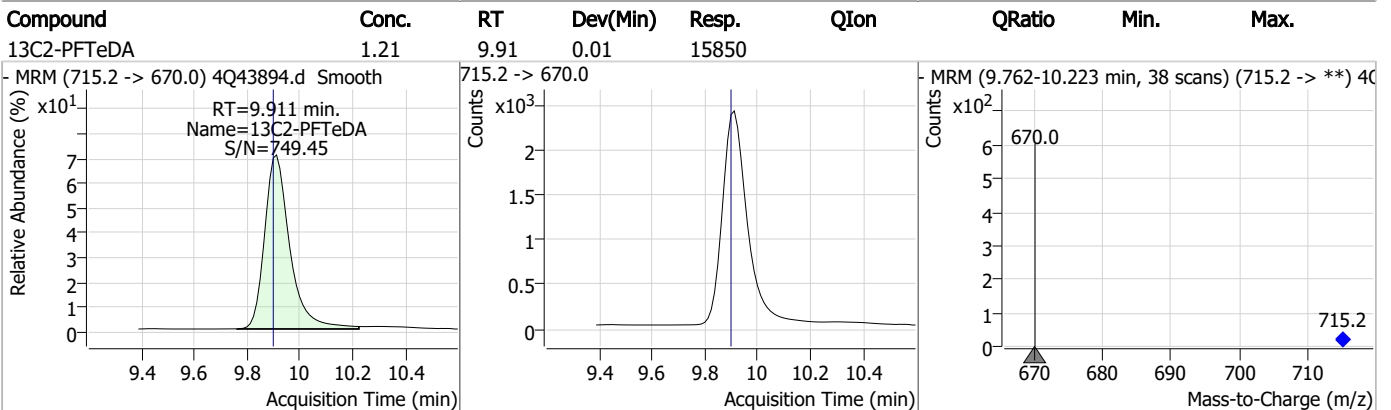
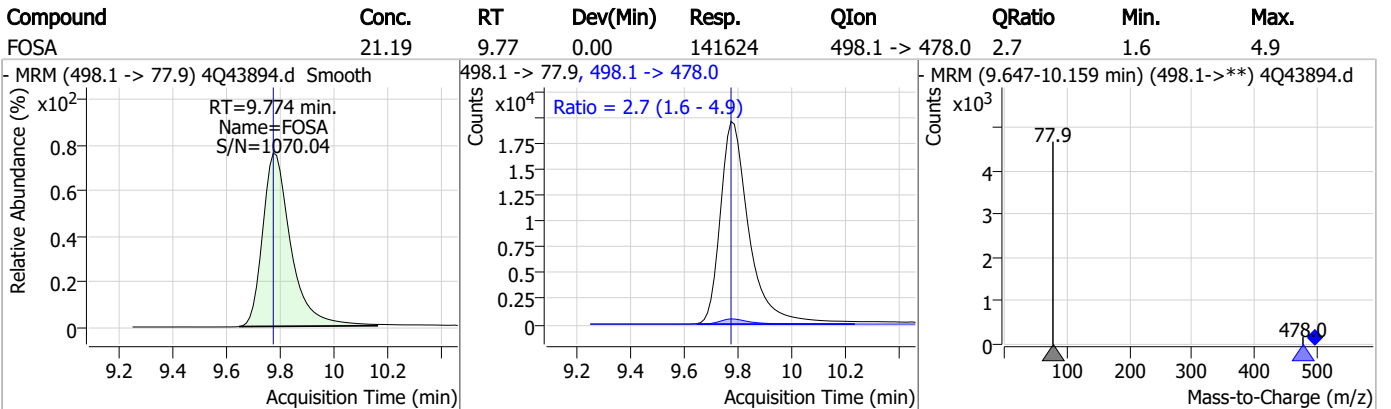
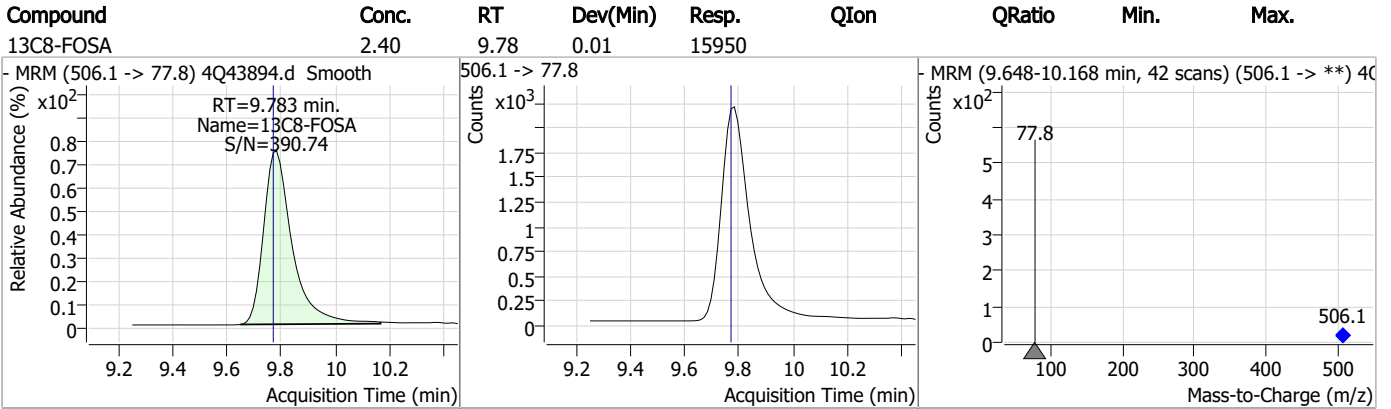
7.7.10
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Perfluorinated Compounds by LC/MS/MS



7.7.10 7

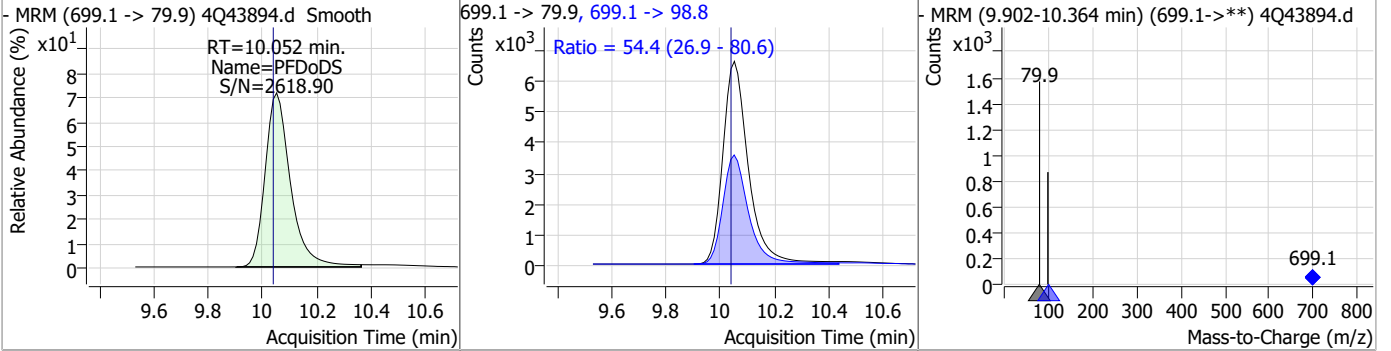
Perfluorinated Compounds by LC/MS/MS



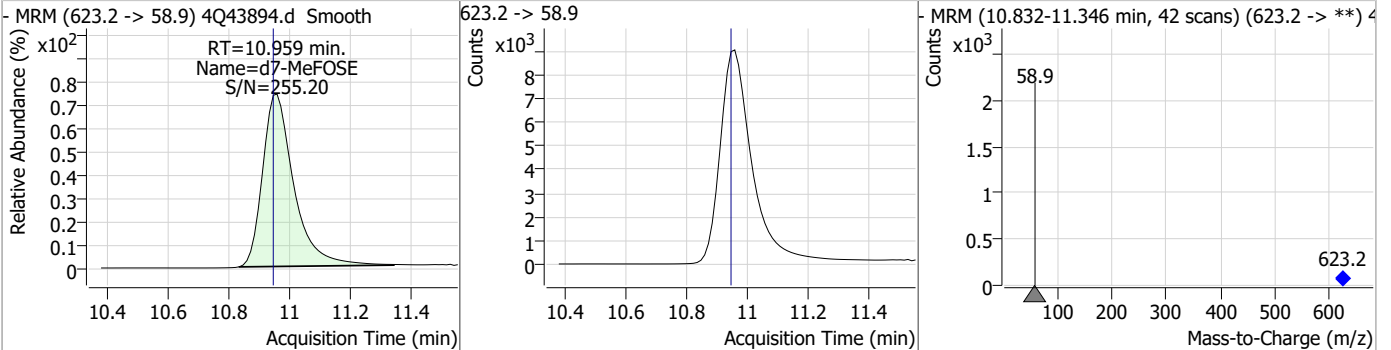
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

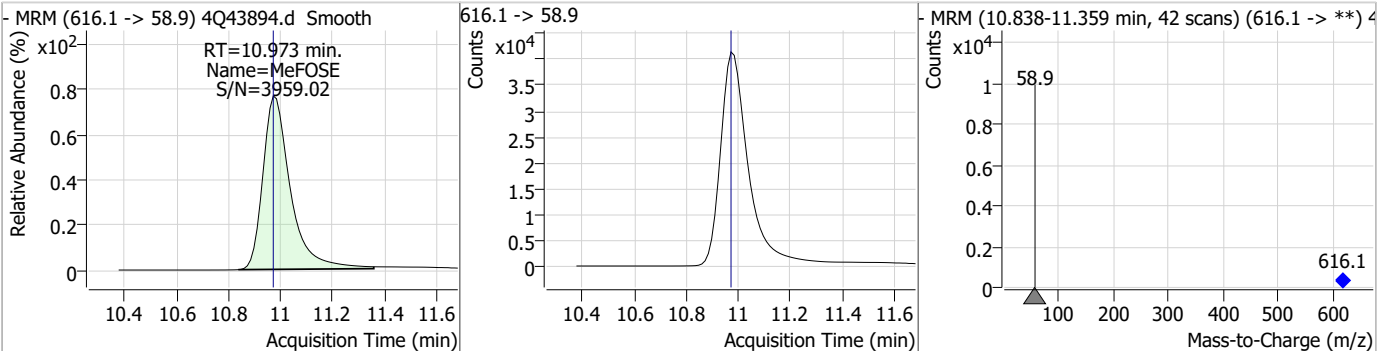
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	18.91	10.05	0.01	43287	699.1 -> 98.8	54.4	26.9	80.6



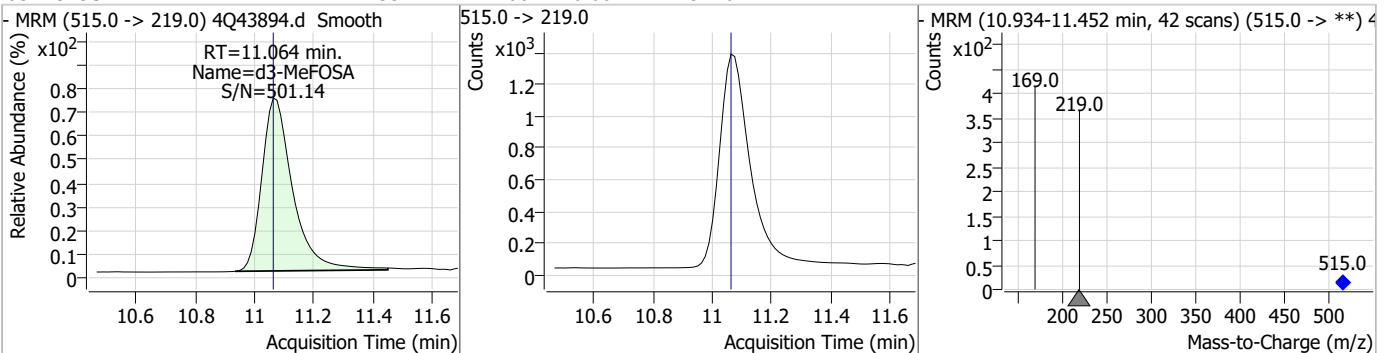
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.41	10.96	0.01	64121				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	115.45	10.97	0.00	304054				



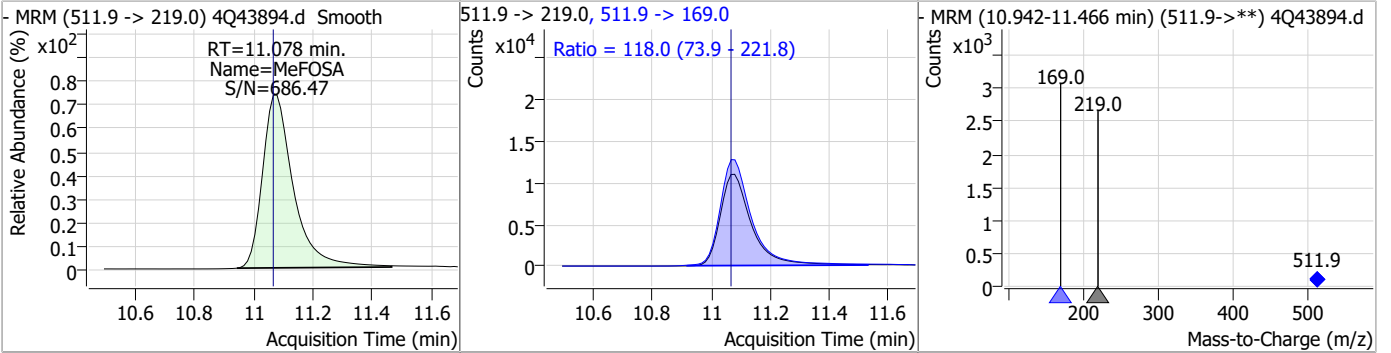
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.33	11.06	0.00	9720				



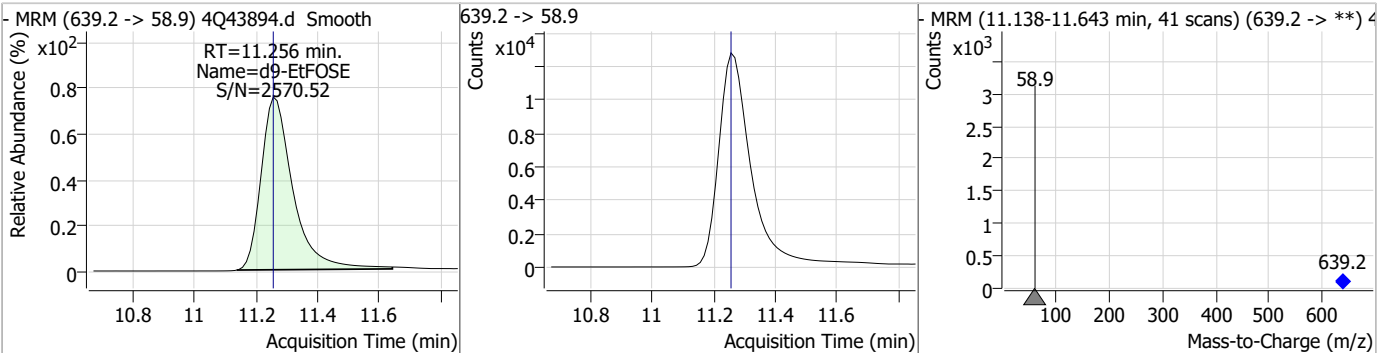
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

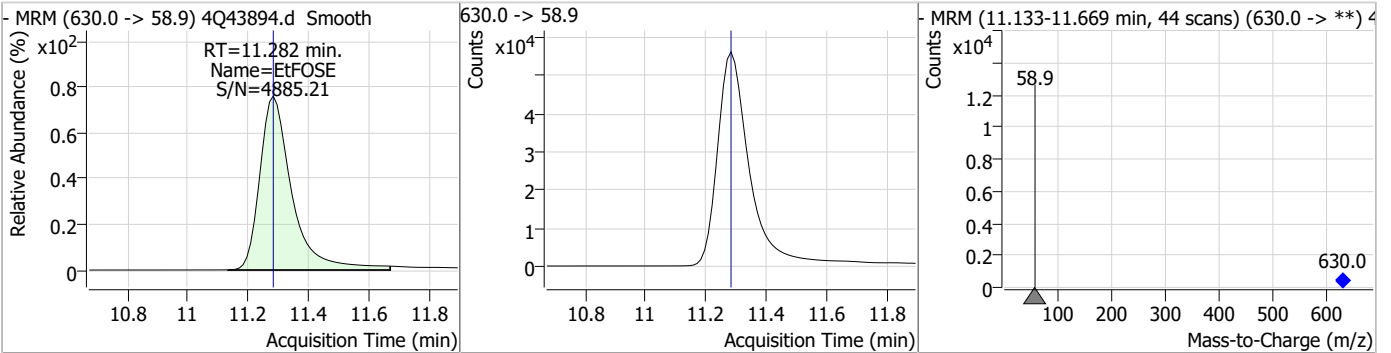
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	21.62	11.08	0.01	79178	511.9 -> 169.0	118.0	73.9	221.8



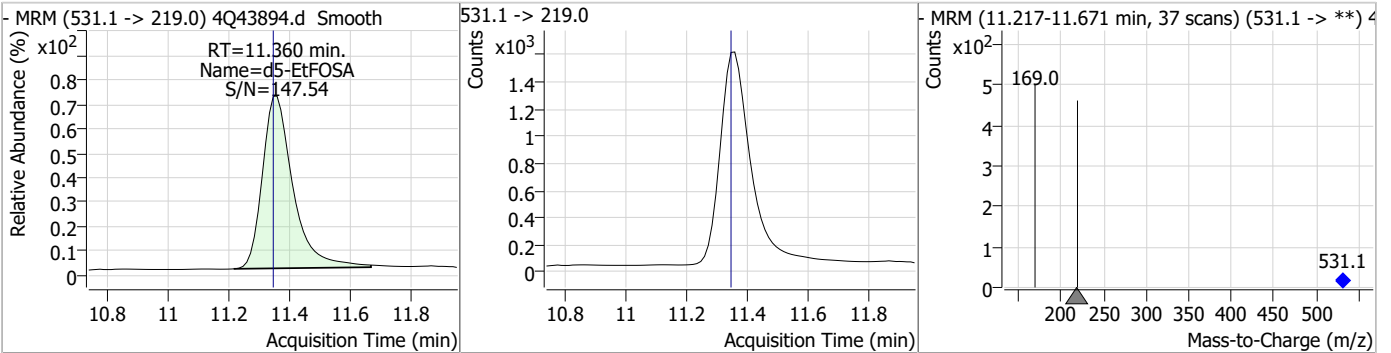
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.44	11.26	0.00	90962	639.2 -> 58.9			



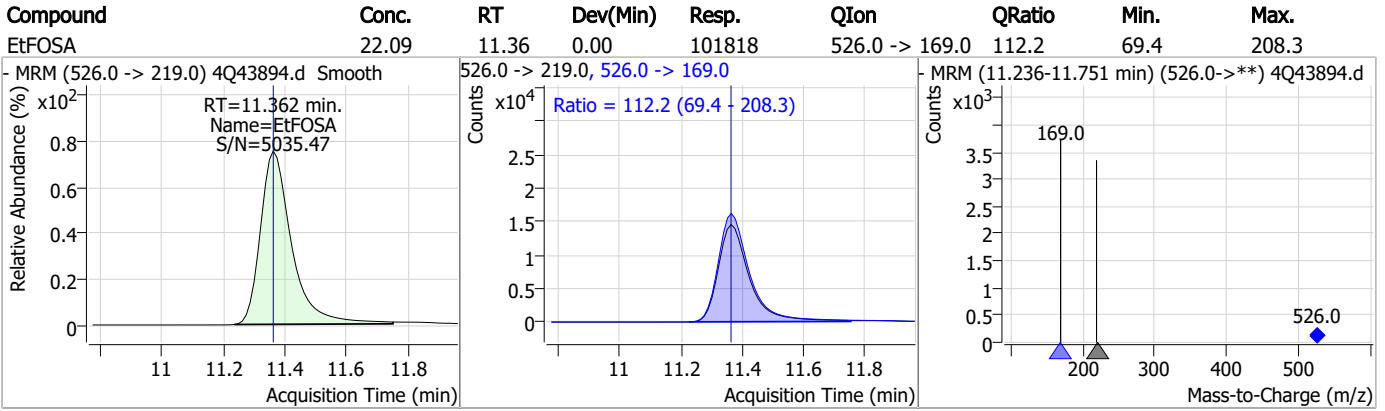
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	117.54	11.28	0.00	413915	630.0 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	11.36	0.01	11004	531.1 -> 219.0			



Perfluorinated Compounds by LC/MS/MS



7.7.10
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Manual Integration Approval Summary

Sample Number: S4Q634-ICV634 Method: EPA DRAFT 1633
Lab FileID: 4Q43894.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 13:20 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.7.10.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43895.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 1:35:25 PM
 Sample Name : icv634-4
 Vial : P1-B3
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.990	216.8 -> 171.9	136957	10.00 µg/L	0.066
M5-PFPeA	4.400	268.3 -> 223.0	70717	5.00 µg/L	0.037
M5-PFHxA	5.547	318.0 -> 273.0	48764	2.50 µg/L	0.012
M4-PFHpA	6.480	367.1 -> 322.0	29013	2.50 µg/L	0.012
M8-PFOA	7.136	421.1 -> 376.0	46078	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	21117	1.25 µg/L	0.013
M6-PFDA	8.191	519.1 -> 474.1	20281	1.25 µg/L	0.013
M7-PFUnDA	8.660	570.0 -> 525.1	20063	1.25 µg/L	0.013
M2-PFDoDA	9.106	615.1 -> 570.0	22329	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	15785	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	17104	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11932	2.50 µg/L	0.025
M3-PFHxS	7.242	402.1 -> 79.9	8020	2.50 µg/L	0.012
M8-PFOS	8.341	507.1 -> 79.9	11596	2.50 µg/L	0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1099	5.00 µg/L	0.025
M2-6:2FTS	6.911	429.1 -> 80.9	2057	5.00 µg/L	0.012
M2-8:2FTS	7.978	529.1 -> 80.9	3256	5.00 µg/L	0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	14953	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	28932	10.00 µg/L	0.025
M5-EtFOSAA	8.458	589.2 -> 419.0	12315	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	71810	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	98159	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11972	2.50 µg/L	0.012
M3-MeFOSA	11.064	515.0 -> 219.0	10103	2.50 µg/L	0.000
13C4-PFOS	8.342	502.8 -> 79.9	11566	2.50 µg/L	0.012
13C3-PFBA	2.993	216.0 -> 172.0	73121	5.00 µg/L	0.065
18O2-PFHxS	7.241	403.0 -> 83.9	5173	2.50 µg/L	0.012
13C4-PFOA	7.136	417.1 -> 372.0	54623	2.50 µg/L	0.012
13C2-PFDA	8.191	515.1 -> 470.1	17040	1.25 µg/L	0.013
13C5-PFNA	7.684	468.0 -> 423.0	24797	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	44958	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1099	5.23 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-6:2FTS	6.911	429.1 -> 80.9	2057	5.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3256	5.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-PFDoDA	9.106	615.1 -> 570.0	22329	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFTeDA	9.911	715.2 -> 670.0	15785	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFBS	5.452	302.1 -> 79.9	11932	2.45 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFHxS	7.242	402.1 -> 79.9	8020	2.50 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 = 100.0%	
13C4-PFBA	2.990	216.8 -> 171.9	136957	9.95 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.480	367.1 -> 322.0	29013	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFHxA	5.547	318.0 -> 273.0	48764	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFPeA	4.400	268.3 -> 223.0	70717	5.11 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C6-PFDA	8.191	519.1 -> 474.1	20281	1.39 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C7-PFUnDA	8.660	570.0 -> 525.1	20063	1.32 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-FOSA	9.783	506.1 -> 77.8	17104	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-PFOA	7.136	421.1 -> 376.0	46078	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C8-PFOS	8.341	507.1 -> 79.9	11596	2.66 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C9-PFNA	7.684	472.1 -> 427.0	21117	1.25 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSAA	8.249	573.2 -> 419.0	14953	5.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	28932	9.78 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSA	11.064	515.0 -> 219.0	10103	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.1%	
d5-EtFOSAA	8.458	589.2 -> 419.0	12315	5.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d7-MeFOSE	10.959	623.2 -> 58.9	71810	19.96 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.8%	
d9-EtFOSE	11.256	639.2 -> 58.9	98159	19.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.1%	
d5-EtFOSA	11.360	531.1 -> 219.0	11972	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	17022	9.63 µg/L	92
		327.1 -> 80.9	7103		
6:2FTS	6.911	427.1 -> 407.0	19013	9.57 µg/L	100
		427.1 -> 80.9	7983		
8:2FTS	7.978	527.1 -> 507.0	16889	9.30 µg/L	93
		527.1 -> 80.8	7840		
EtFOSAA	8.459	584.2 -> 419.1	5858	2.48 µg/L	m 90
		584.2 -> 526.0	2583		
FOSA	9.774	498.1 -> 77.9	17018	2.37 µg/L	99
		498.1 -> 478.0	486		
MeFOSAA	8.249	570.1 -> 419.0	6285	2.41 µg/L	m 90
		570.1 -> 483.0	1173		
PFBA	2.996	212.8 -> 168.9	35422	9.66 µg/L	100
PFBS	5.453	298.7 -> 79.9	10405	2.13 µg/L	98
		298.7 -> 98.8	4122		
PFDA	8.192	512.9 -> 469.0	36831	2.39 µg/L	97
		512.9 -> 219.0	7422		
PFDODA	9.106	613.1 -> 569.0	43500	2.43 µg/L	99
		613.1 -> 319.0	6222		
PFDS	9.269	599.0 -> 79.9	6110	2.13 µg/L	97

7.7.11
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2952			
PFHpA	6.480	363.1 -> 319.0	45710	2.49	µg/L	100
		363.1 -> 169.0	8223			
PFHpS	7.823	449.0 -> 79.9	9547	2.29	µg/L	98
		449.0 -> 98.9	4967			
PFHxA	5.550	313.0 -> 269.0	46362	2.43	µg/L	99
		313.0 -> 118.9	1480			
PFHxS	7.243	398.7 -> 79.9	7386	2.25	µg/L	m 97
		398.7 -> 98.9	3843			
PFNA	7.685	463.0 -> 419.0	37870	2.42	µg/L	100
		463.0 -> 219.0	9515			
PFNS	8.823	548.8 -> 79.9	5473	2.16	µg/L	99
		548.8 -> 98.9	2902			
PFOA	7.137	413.0 -> 369.0	64985	2.44	µg/L	99
		413.0 -> 169.0	12350			
PFOS	8.343	498.9 -> 79.9	12171	2.14	µg/L	m 97
		498.9 -> 98.8	6199			
PFPeA	4.402	263.0 -> 219.0	82728	4.86	µg/L	100
PFPeS	6.519	349.1 -> 79.9	6083	2.16	µg/L	99
		349.1 -> 98.9	2767			
PFTeDA	9.912	713.1 -> 669.0	39752	2.57	µg/L	98
		713.1 -> 168.9	3141			
PFTrDA	9.529	663.0 -> 619.0	55701	2.33	µg/L	99
		663.0 -> 168.9	5752			
PFUnDA	8.660	563.1 -> 519.0	34545	2.54	µg/L	95
		563.1 -> 269.1	6627			
11CI-PF3OUdS	9.568	630.9 -> 450.9	48981	4.71	µg/L	97
		632.9 -> 452.9	14928			
9CI-PF3ONS	8.687	530.8 -> 351.0	61516	4.64	µg/L	98
		532.8 -> 353.0	18165			
ADONA	6.743	376.9 -> 250.9	136907	4.71	µg/L	99
		376.9 -> 84.8	36276			
HFPO-DA	5.915	284.9 -> 168.9	14361	5.19	µg/L	98
		284.9 -> 184.9	1759			
3:3FTCA	3.892	241.0 -> 177.0	9341	12.48	µg/L	98
		241.0 -> 117.0	863			
5:3FTCA	6.217	341.0 -> 237.1	158885	61.29	µg/L	99
		341.0 -> 217.0	109735			
7:3FTCA	7.661	441.0 -> 316.9	85269	63.30	µg/L	99
		441.0 -> 336.9	203049			
EtFOSA	11.362	526.0 -> 219.0	24230	4.83	µg/L	m 98
		526.0 -> 169.0	33119			
EtFOSE	11.282	630.0 -> 58.9	46860	12.33	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	20921	5.50	µg/L	m 95
		511.9 -> 169.0	29592			
MeFOSE	10.973	616.1 -> 58.9	35294	11.97	µg/L	m 100
PFDoDS	10.052	699.1 -> 79.9	5598	2.18	µg/L	97
		699.1 -> 98.8	3120			
NFDHA	5.441	295.0 -> 201.0	6718	4.92	µg/L	99
		295.0 -> 84.9	1820			
PFMBA	4.791	279.0 -> 85.1	45480	4.79	µg/L	100
PFMPA	3.565	229.0 -> 84.9	42809	4.81	µg/L	100
PFEESA	5.984	314.8 -> 134.9	63619	4.40	µg/L	100
		314.8 -> 82.9	2308			

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

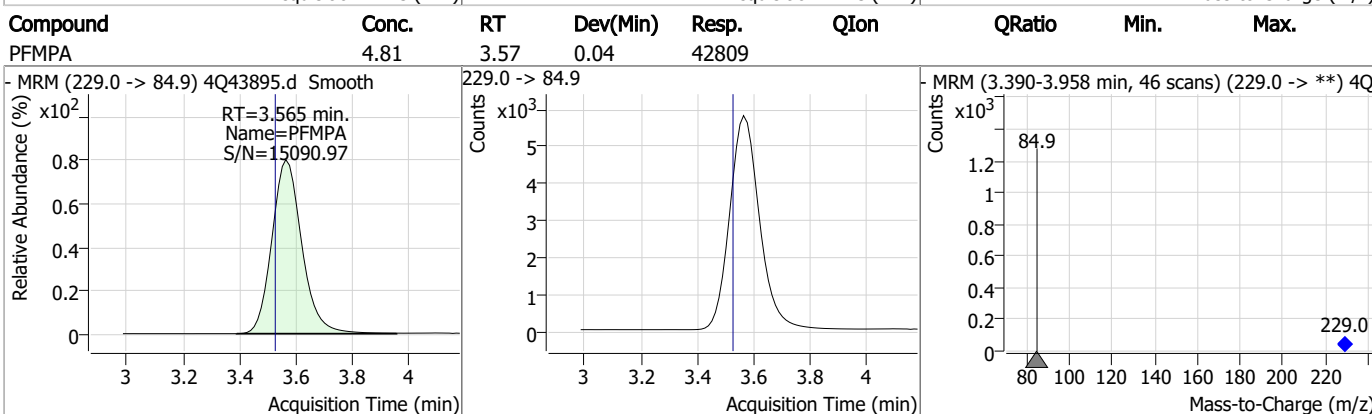
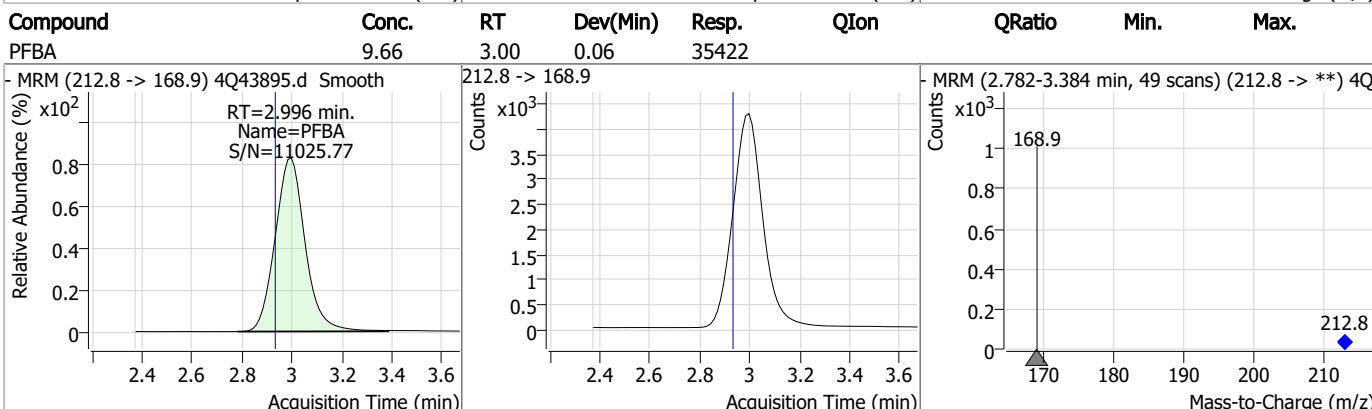
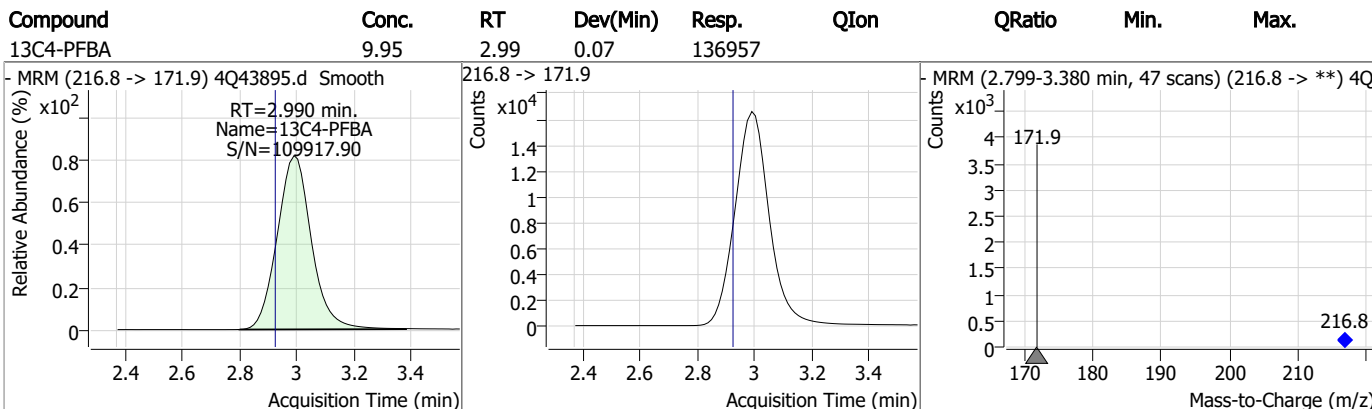
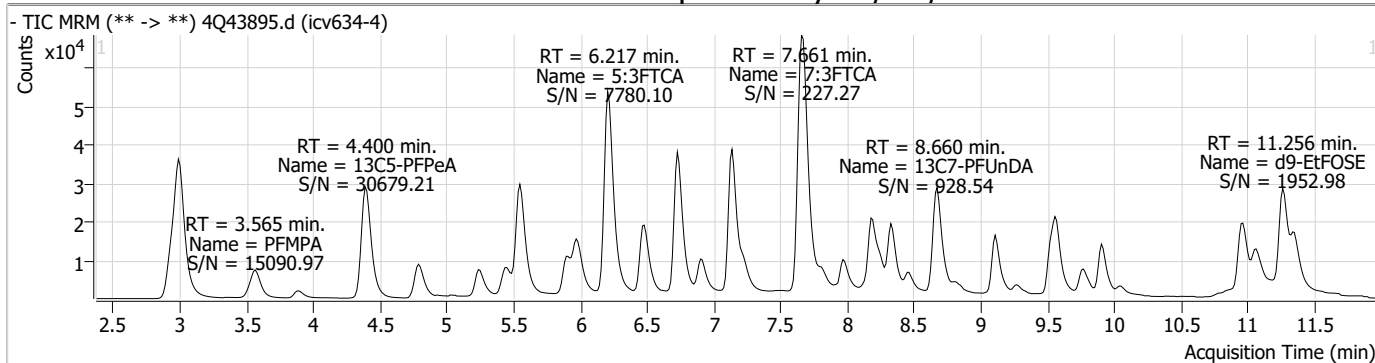
Perfluorinated Compounds by LC/MS/MS

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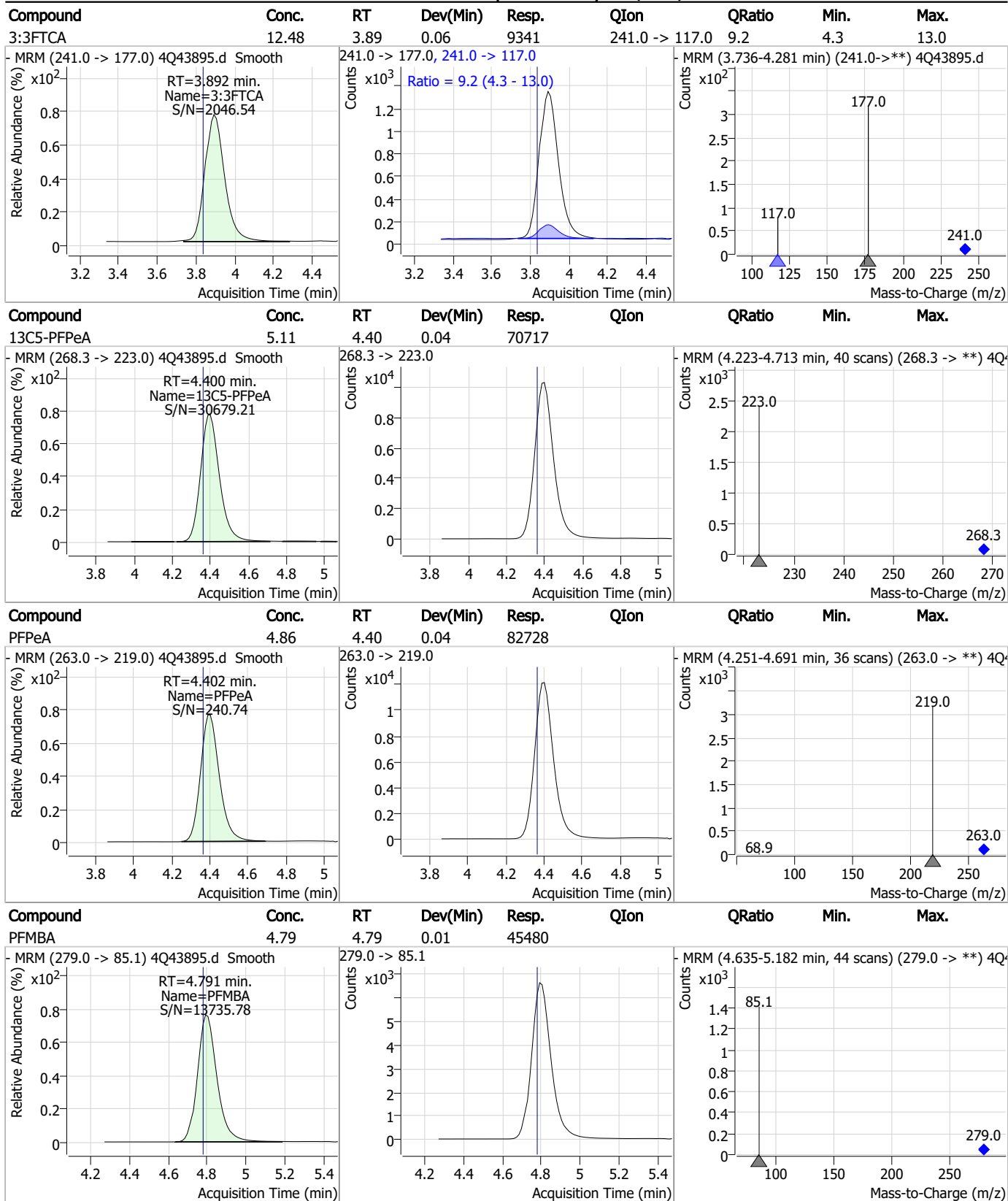
7.7.11

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Perfluorinated Compounds by LC/MS/MS

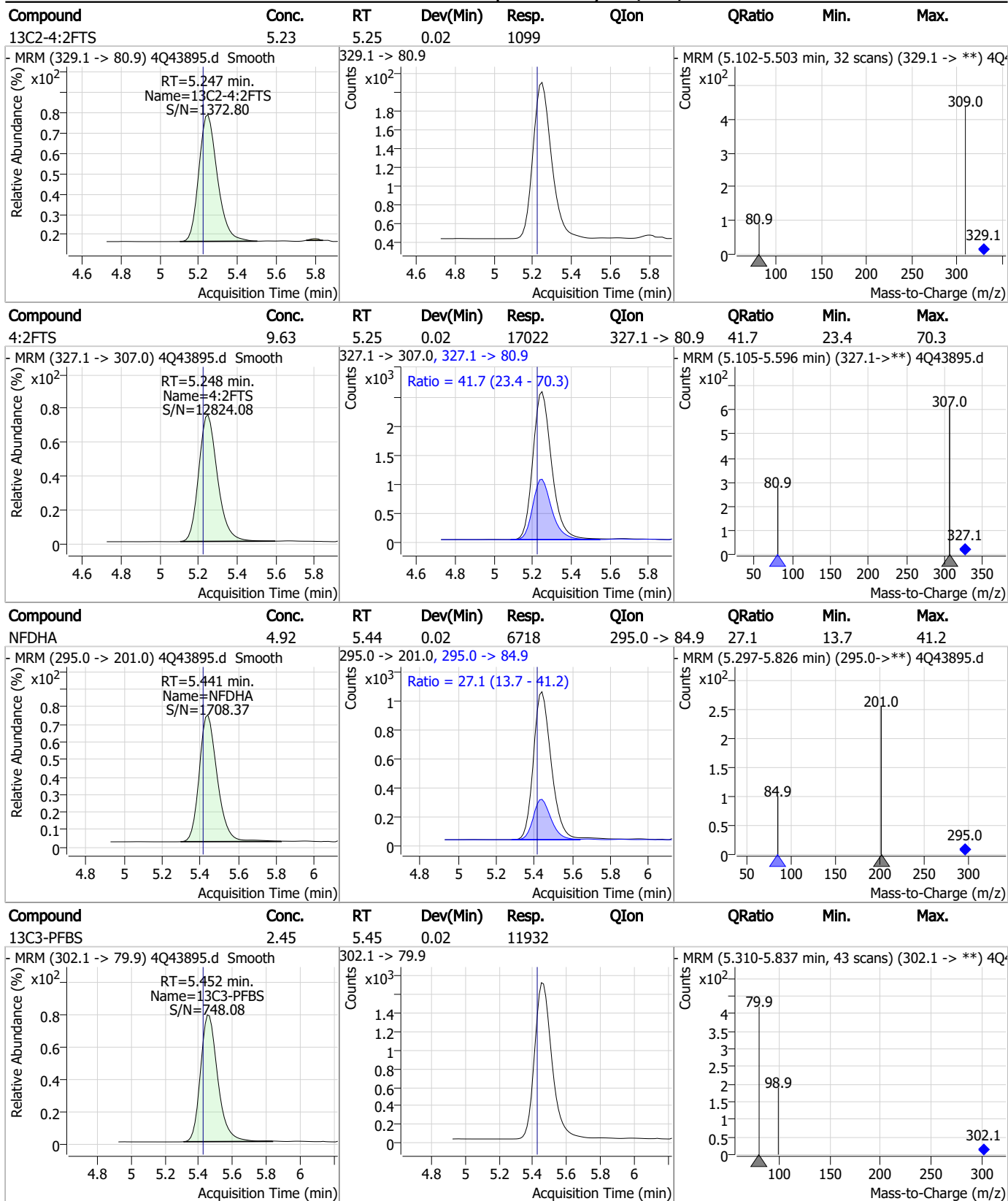


Perfluorinated Compounds by LC/MS/MS



7.7.11
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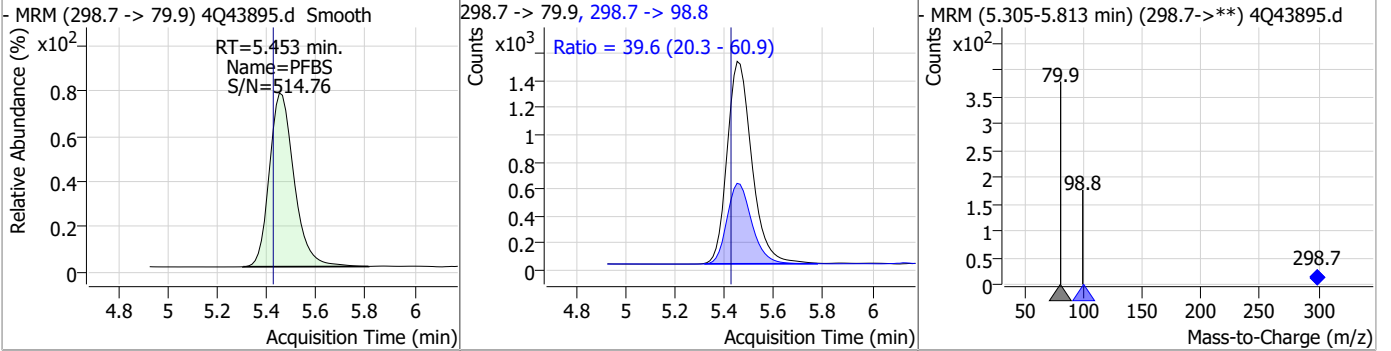
Perfluorinated Compounds by LC/MS/MS



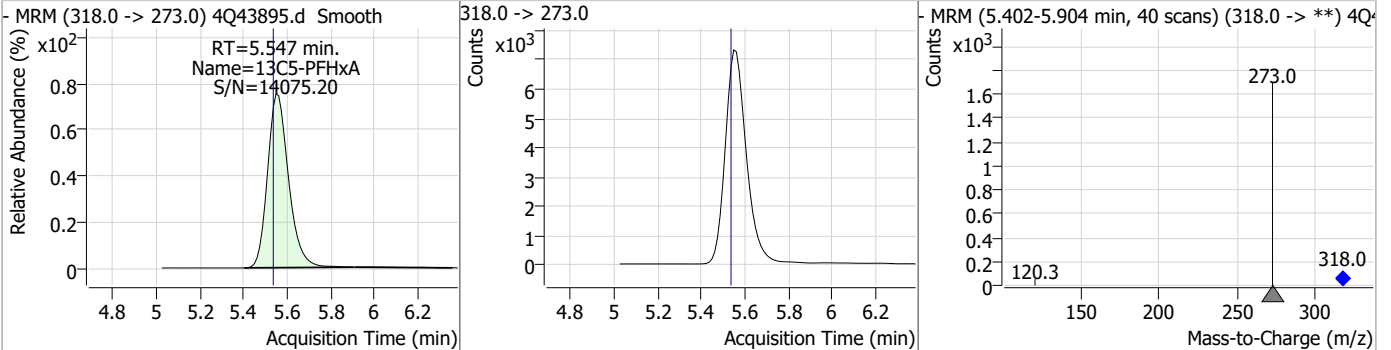
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Perfluorinated Compounds by LC/MS/MS

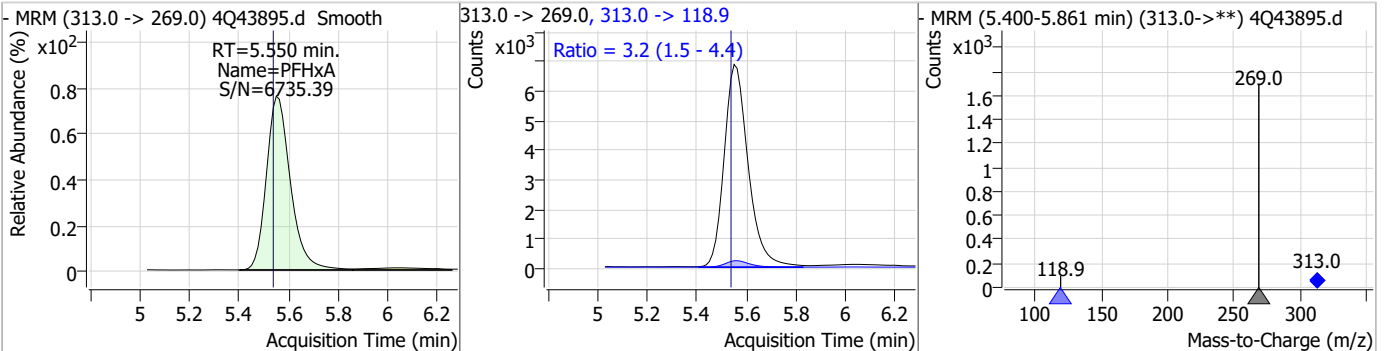
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.13	5.45	0.02	10405	298.7 -> 98.8	39.6	20.3	60.9



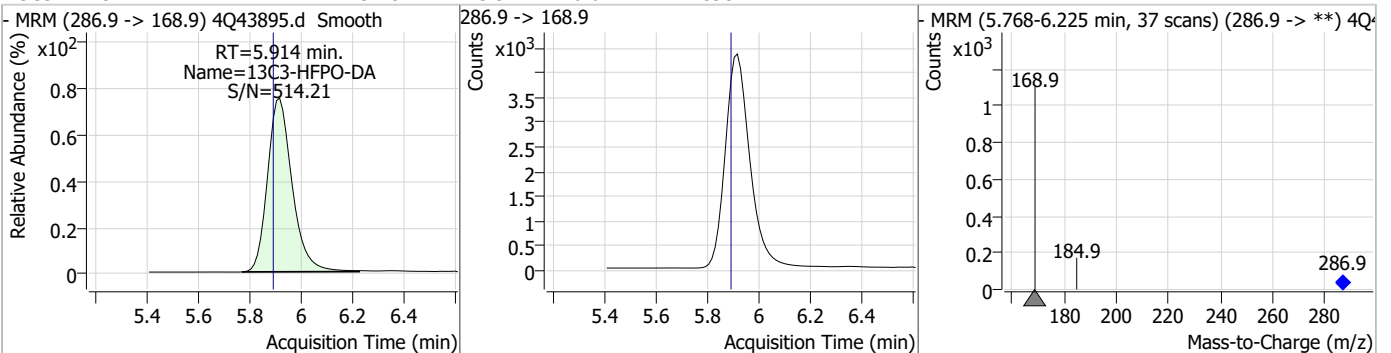
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.55	0.01	48764				



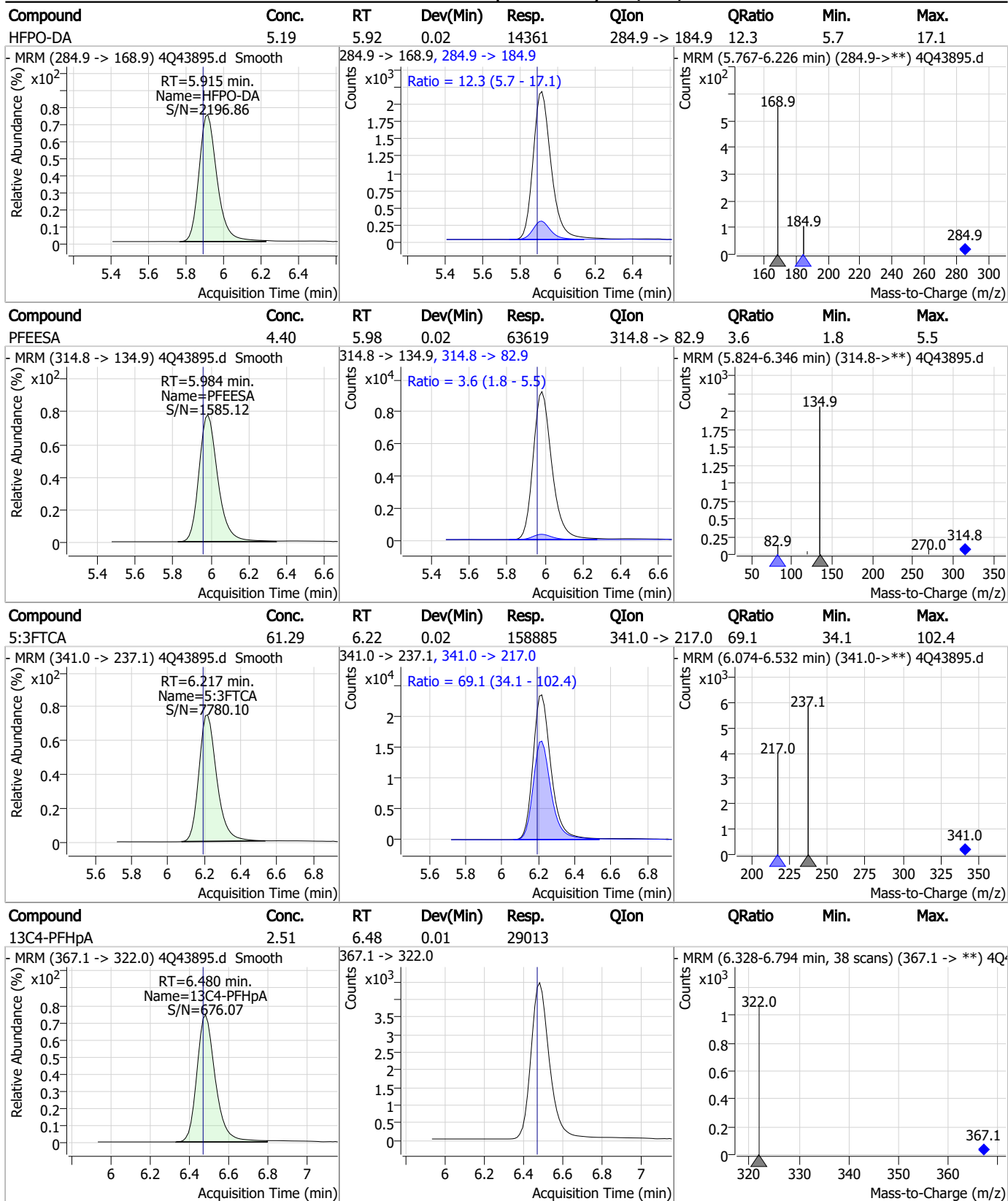
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.43	5.55	0.01	46362	313.0 -> 118.9	3.2	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.78	5.91	0.02	28932				

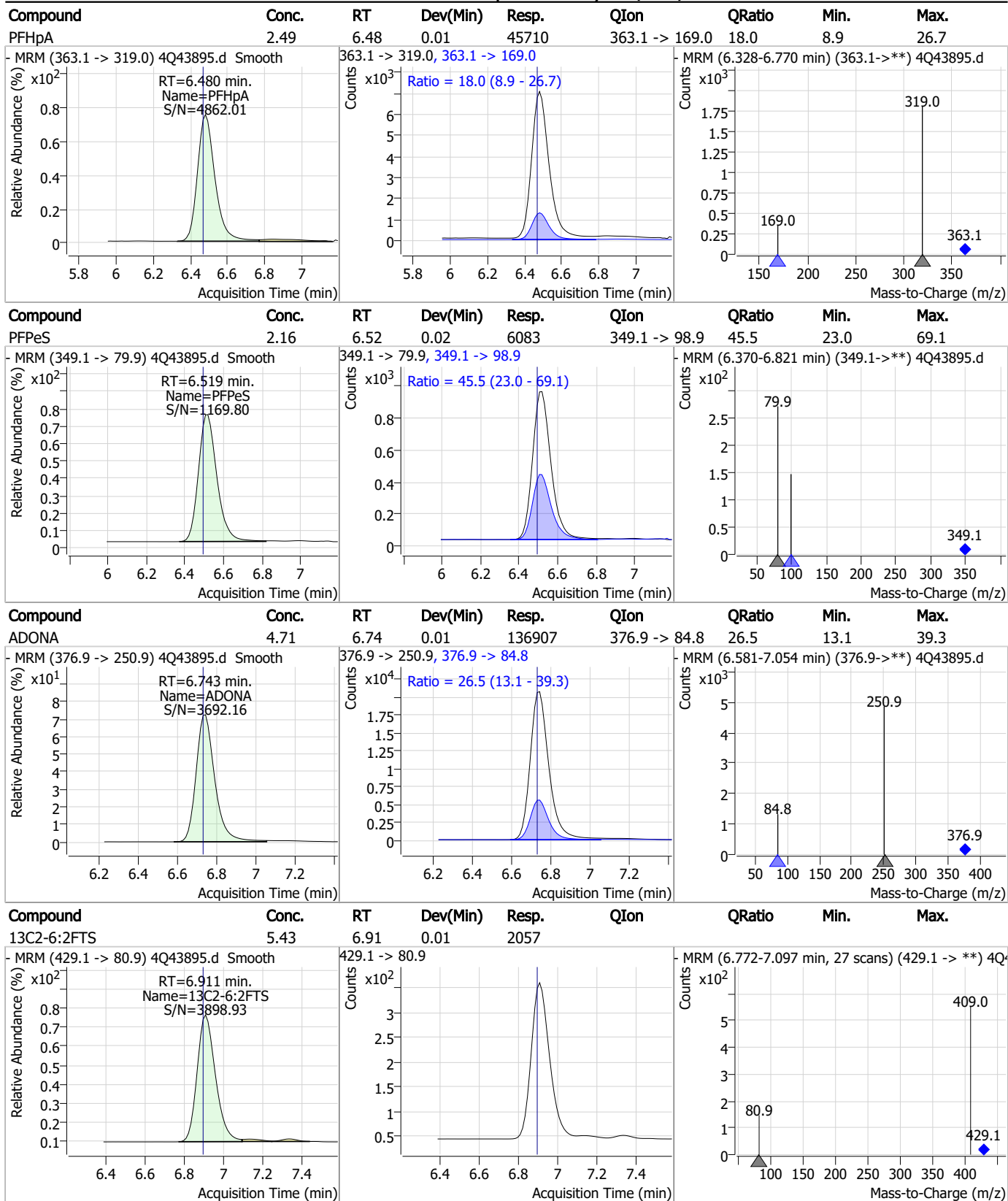


Perfluorinated Compounds by LC/MS/MS



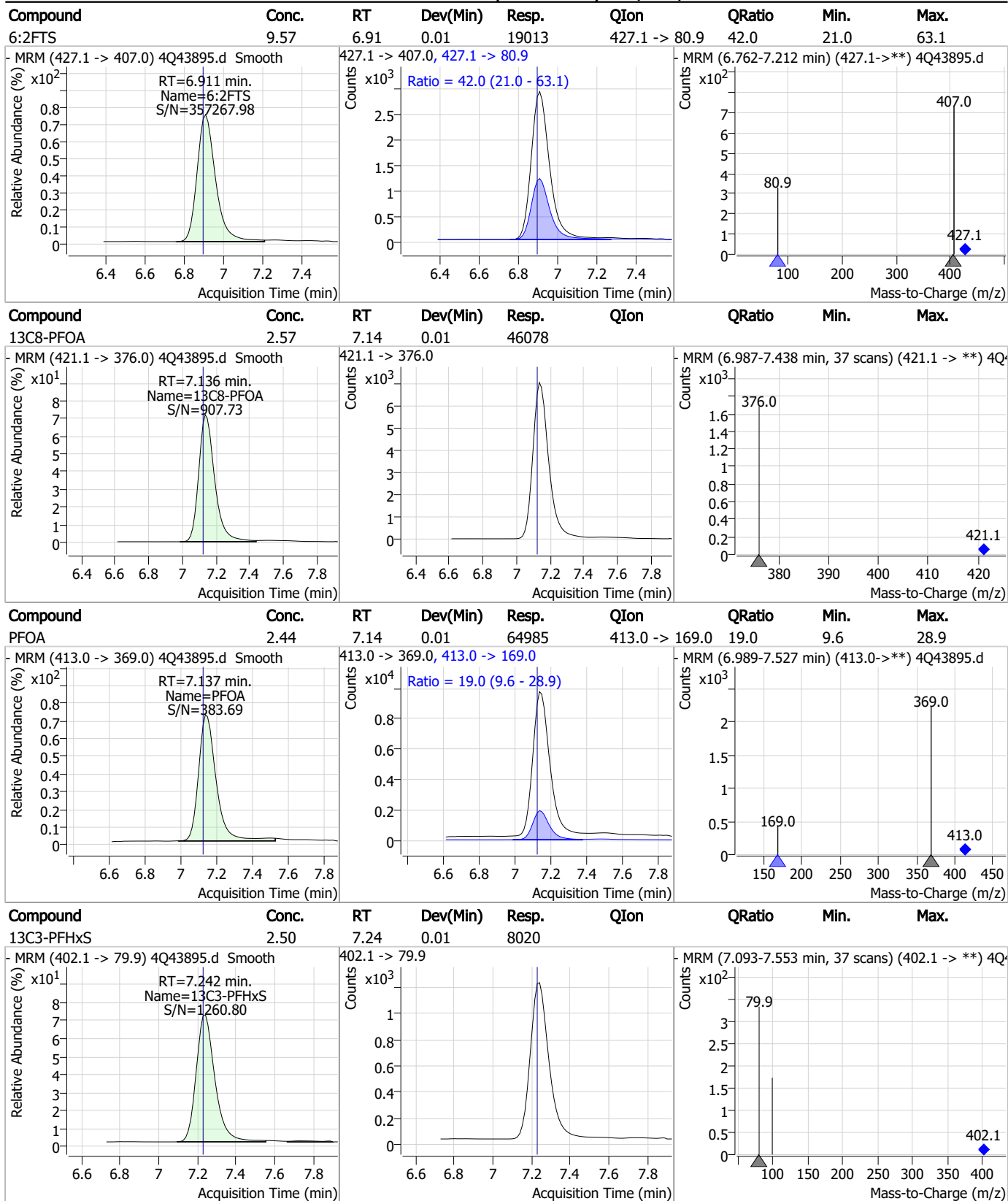
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Perfluorinated Compounds by LC/MS/MS



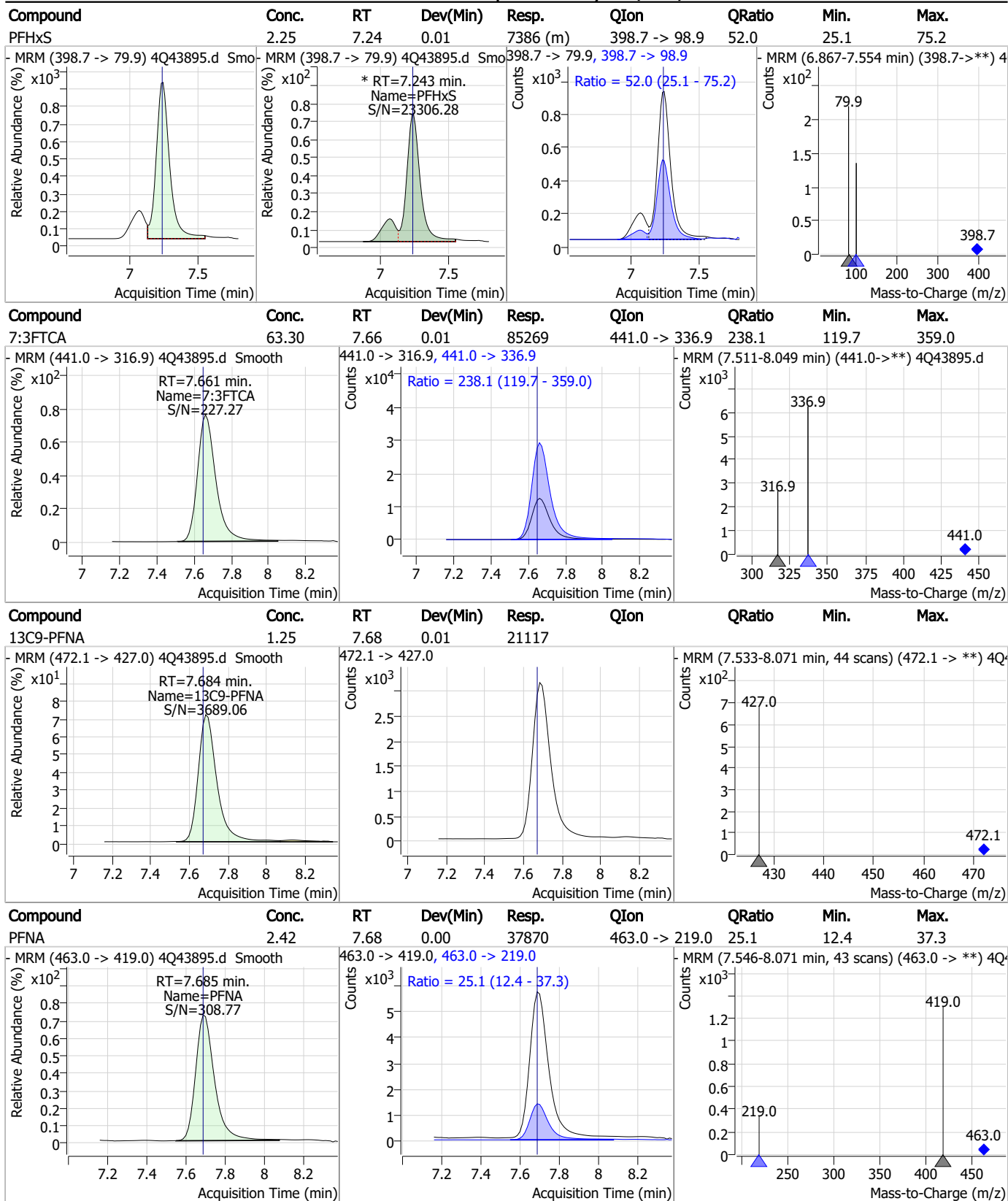
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Perfluorinated Compounds by LC/MS/MS



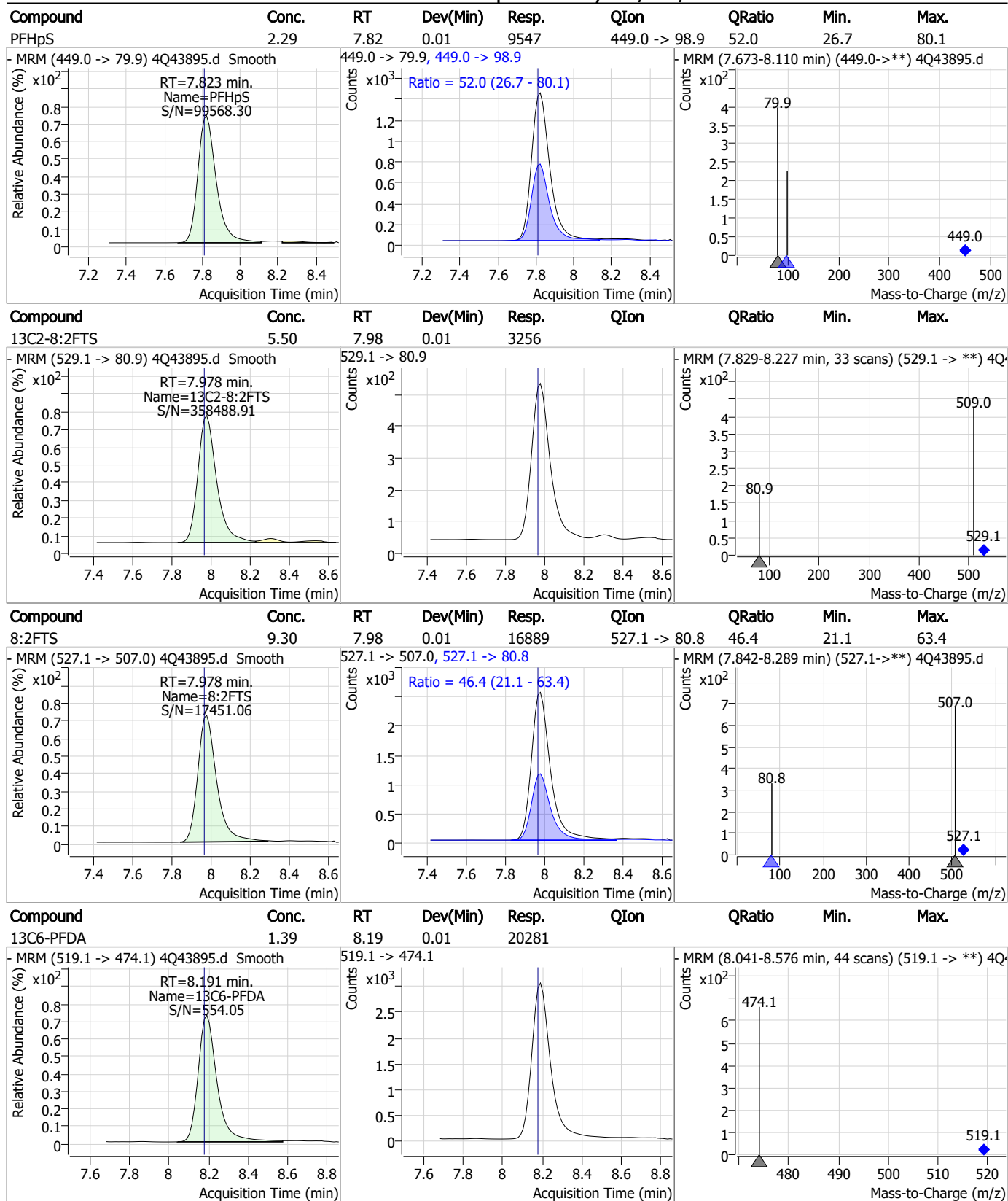
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Perfluorinated Compounds by LC/MS/MS



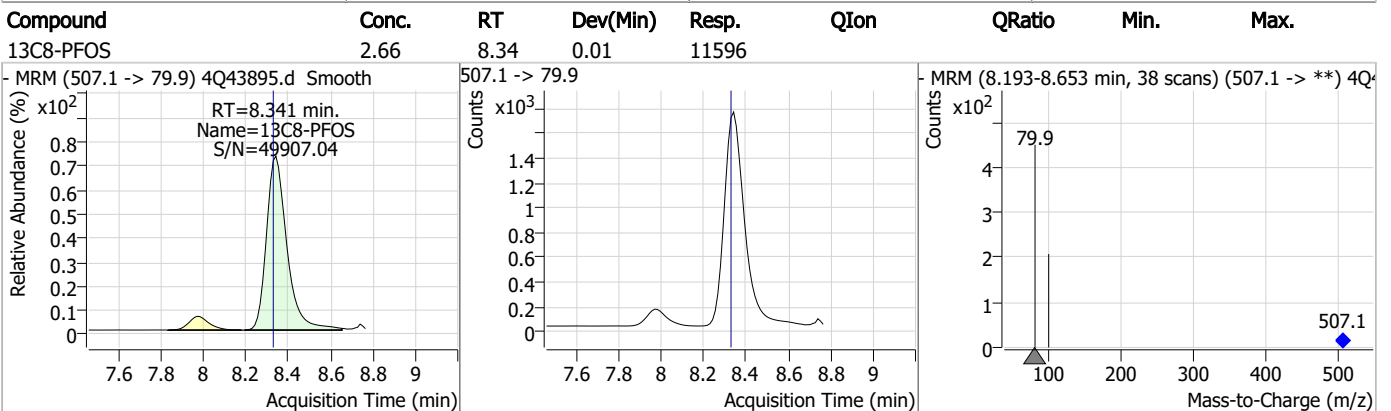
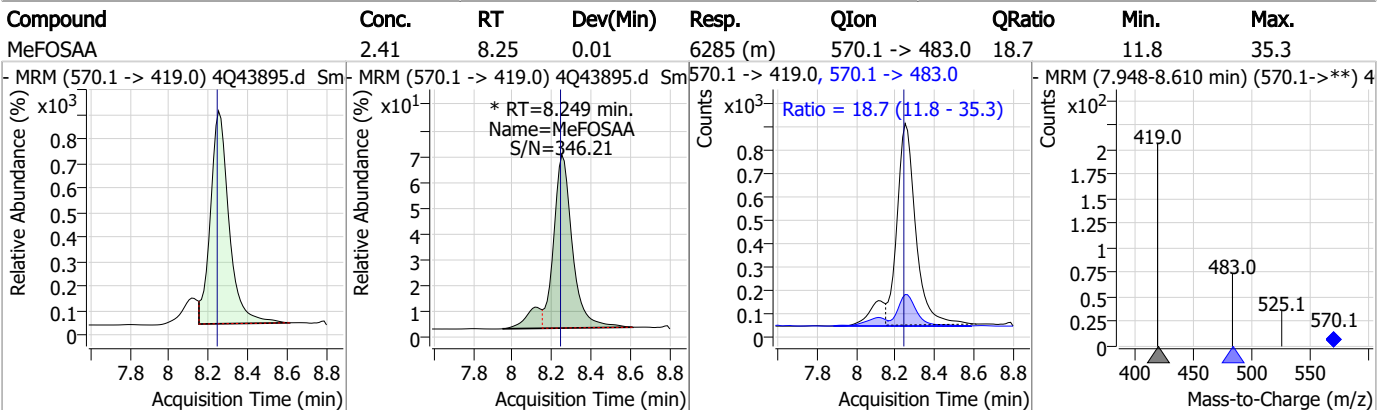
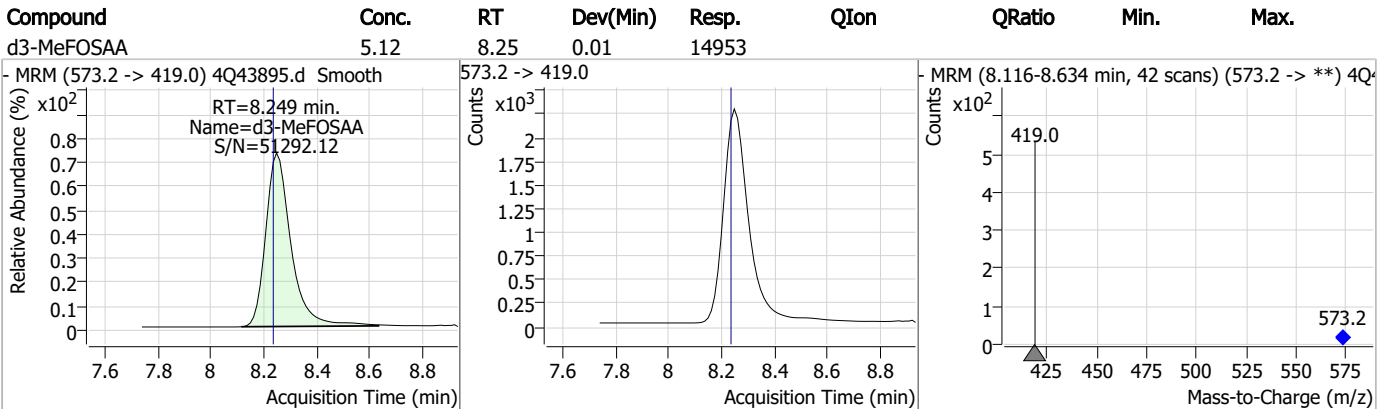
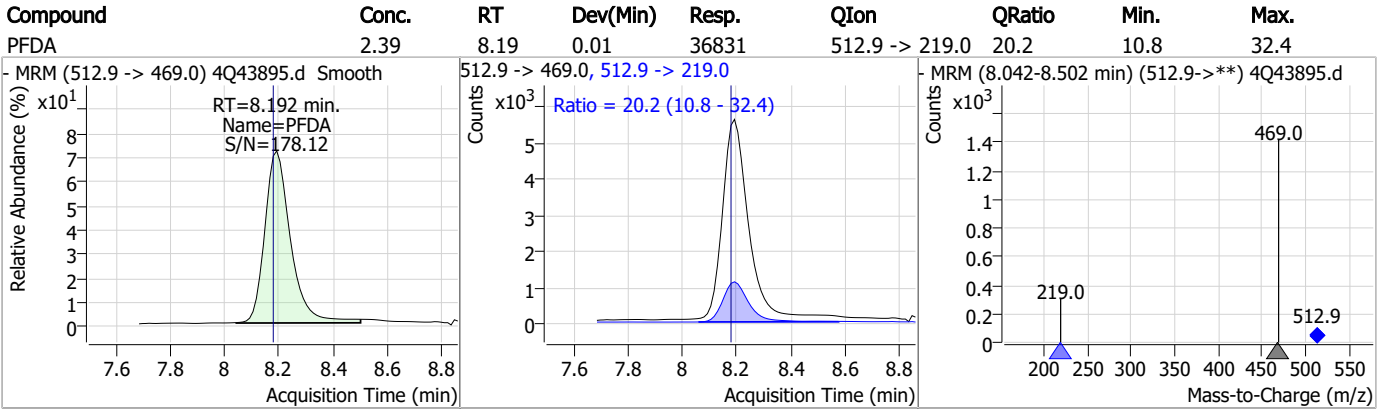
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Perfluorinated Compounds by LC/MS/MS

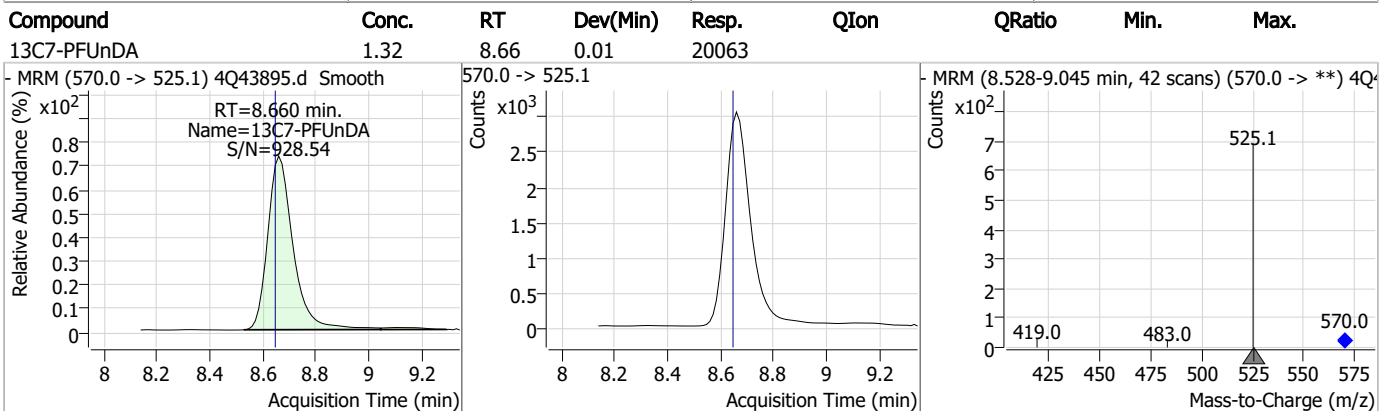
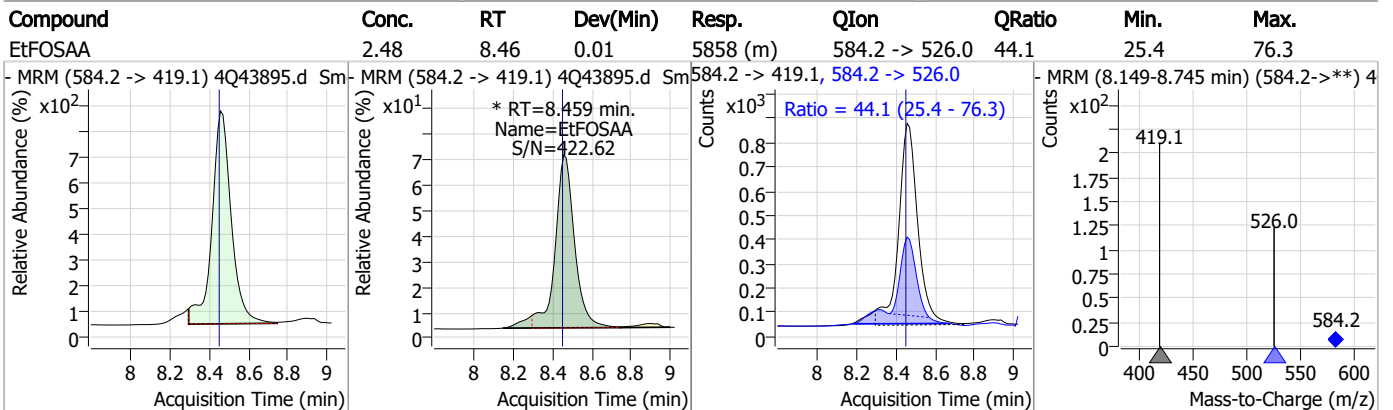
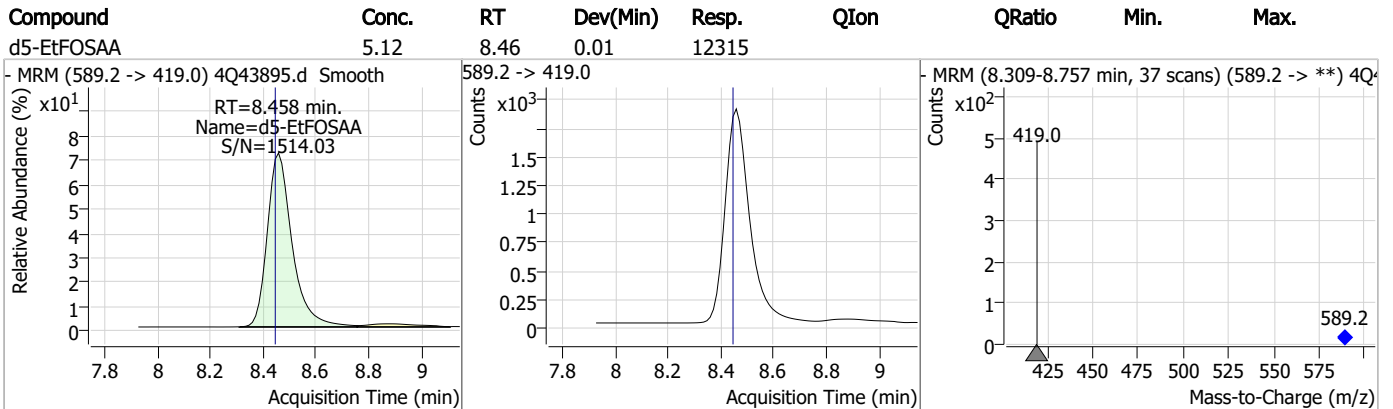
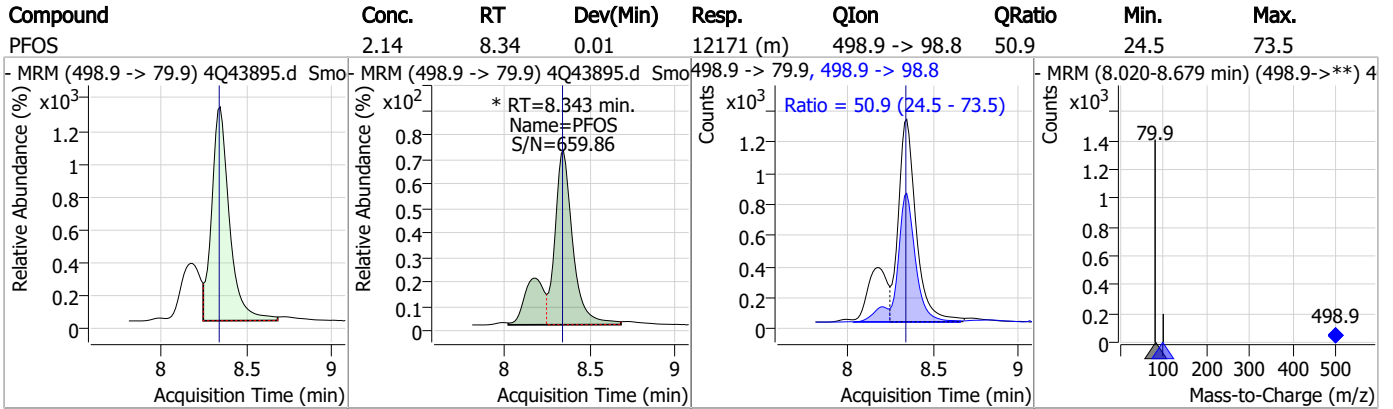


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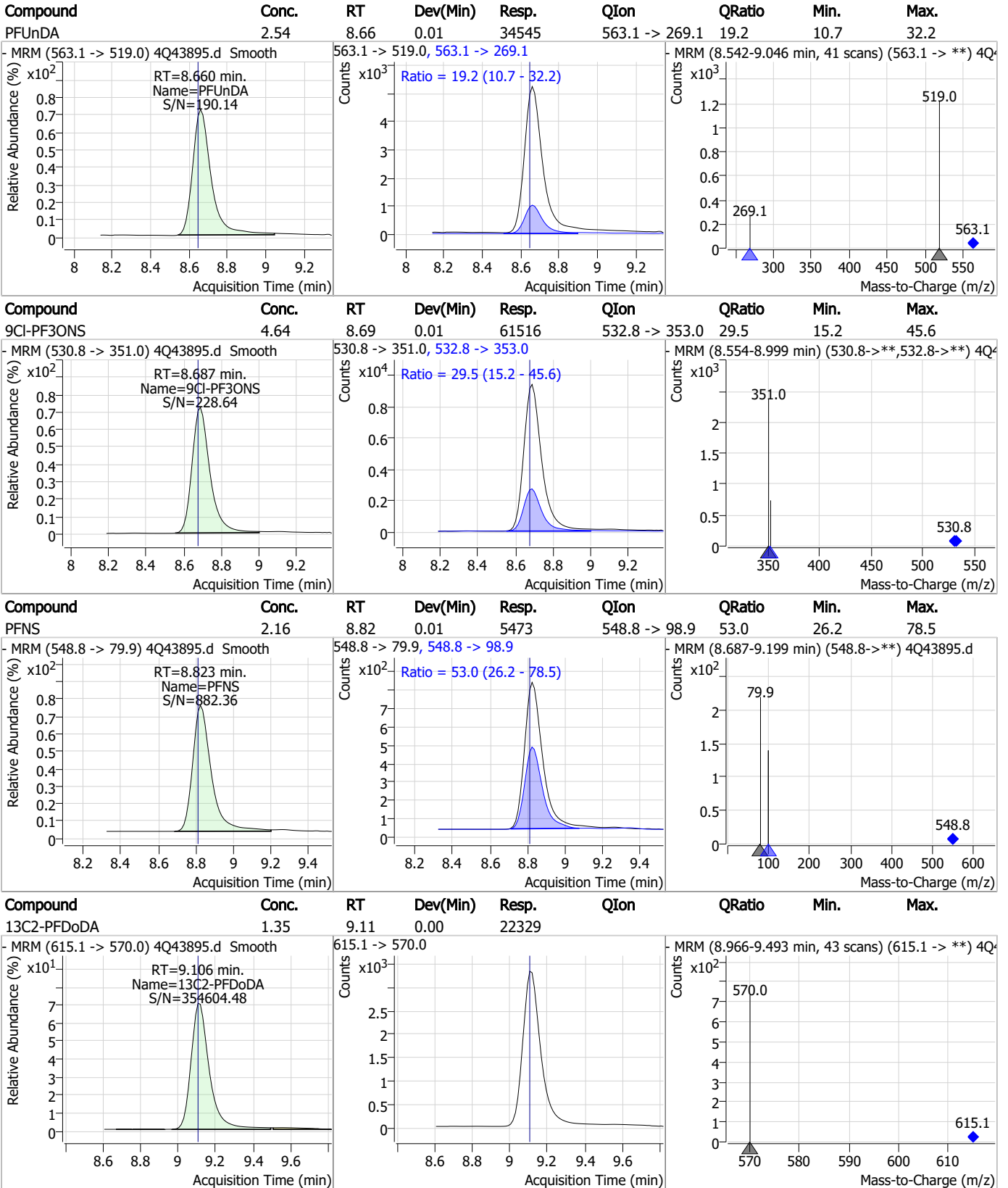
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

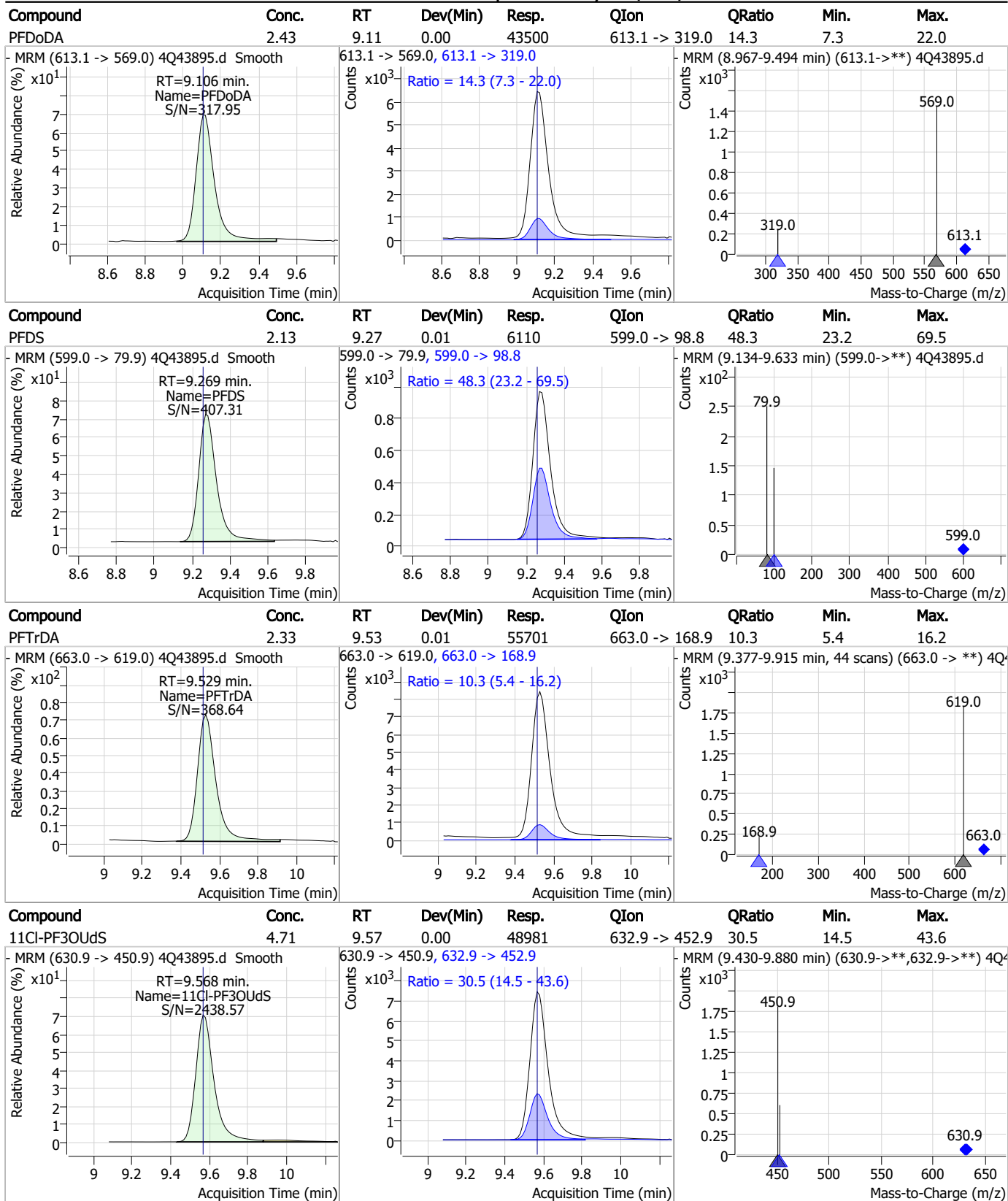


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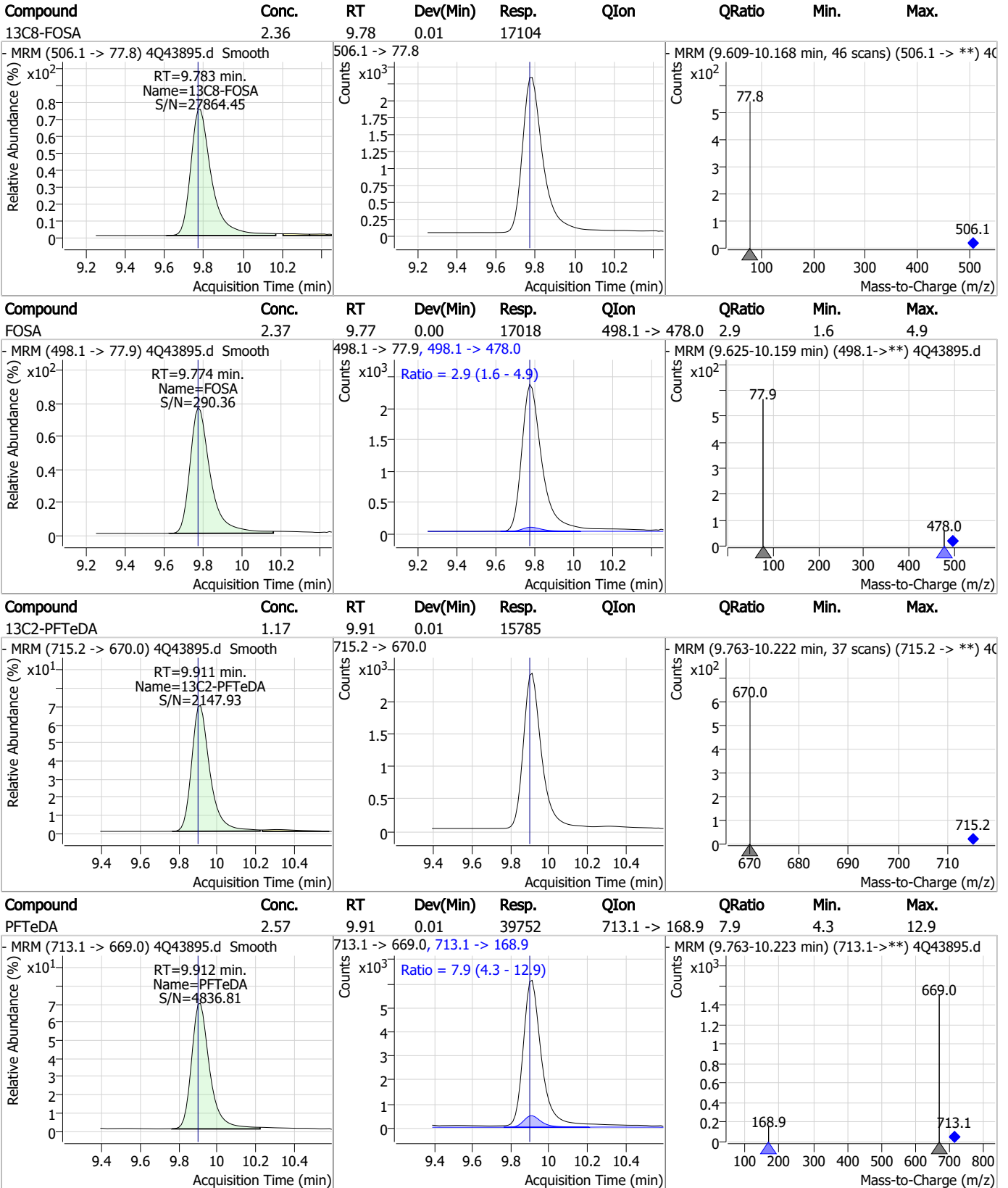
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

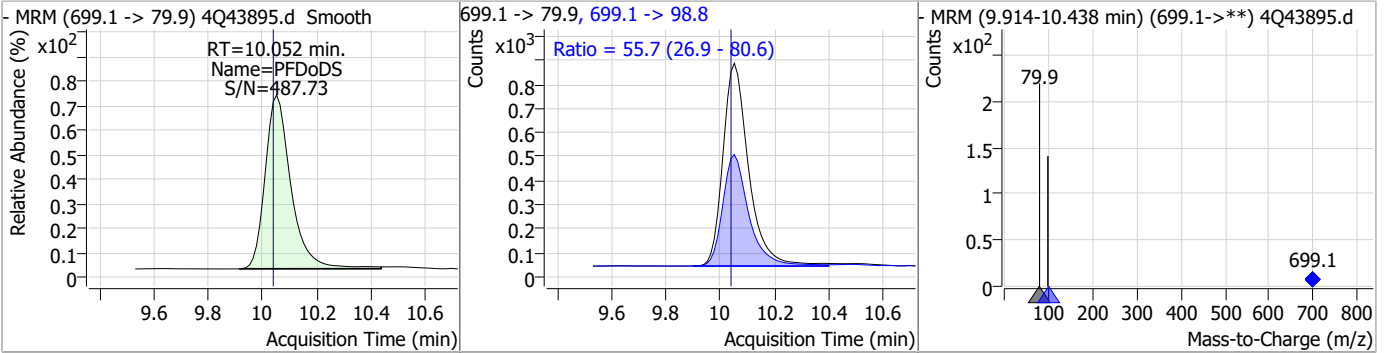


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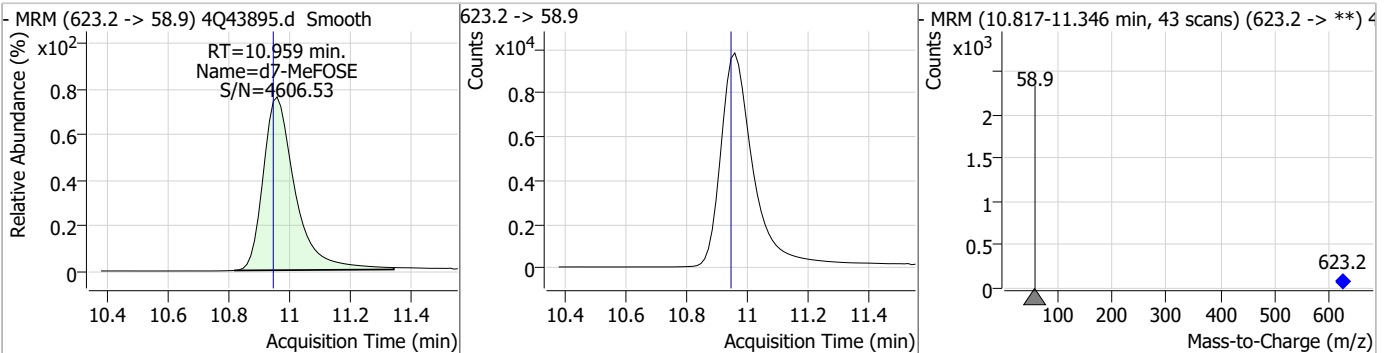


Perfluorinated Compounds by LC/MS/MS

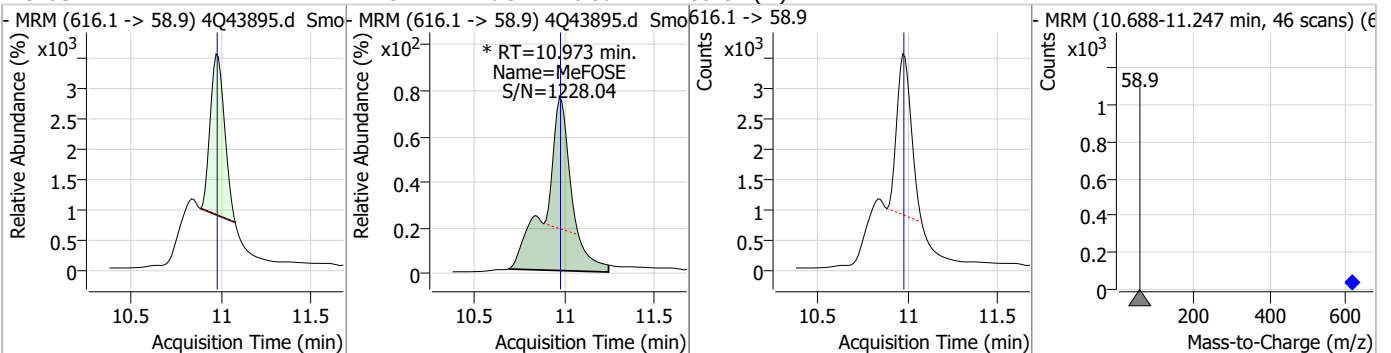
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.18	10.05	0.01	5598	699.1 -> 98.8	55.7	26.9	80.6



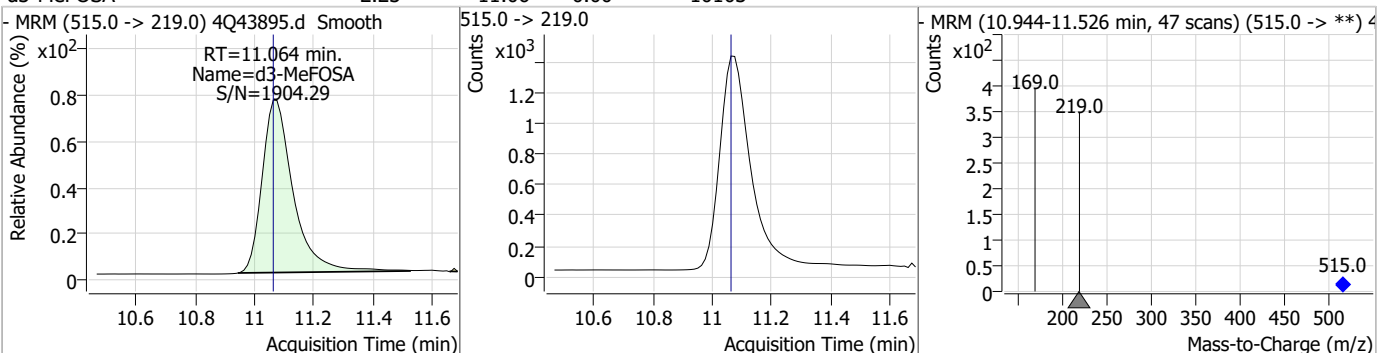
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.96	10.96	0.01	71810				



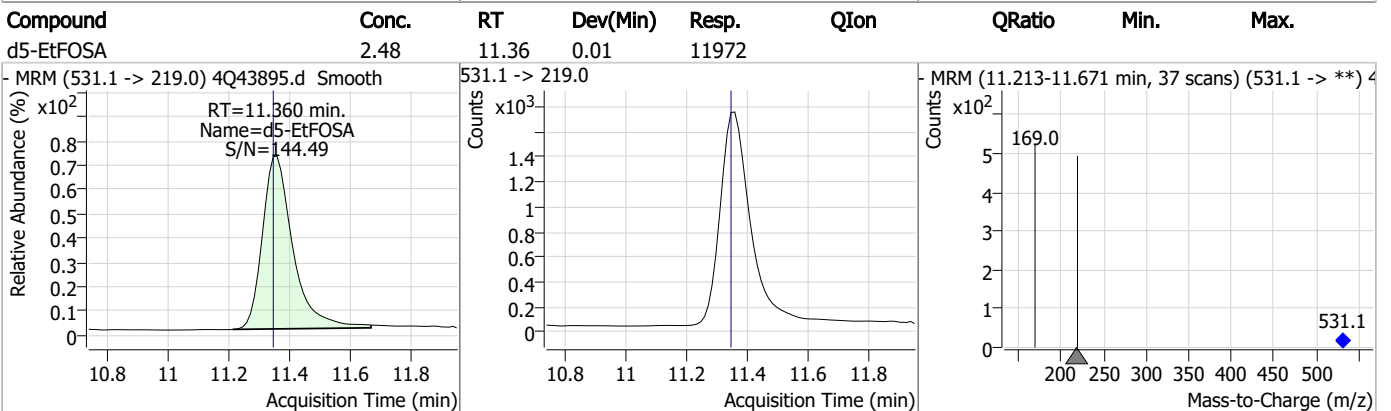
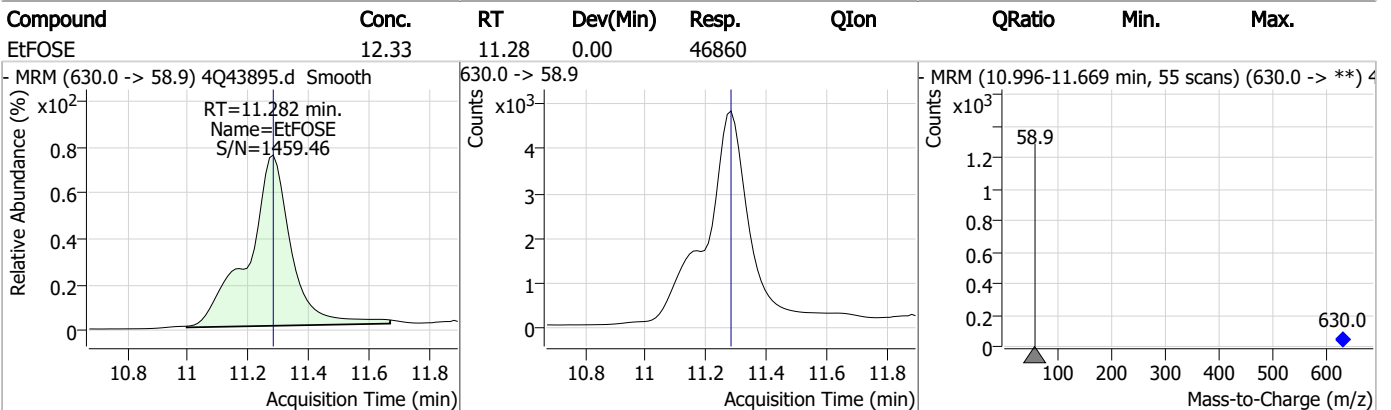
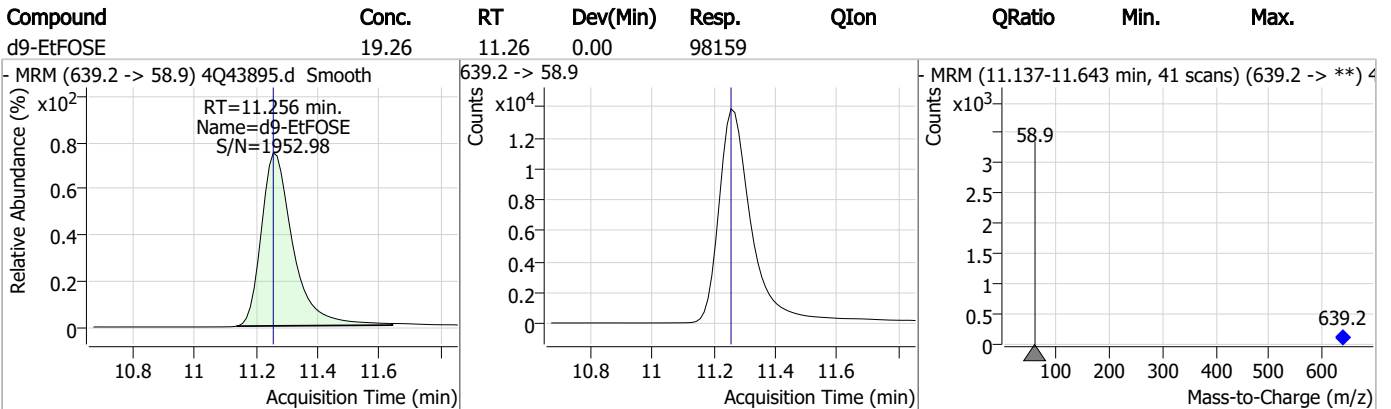
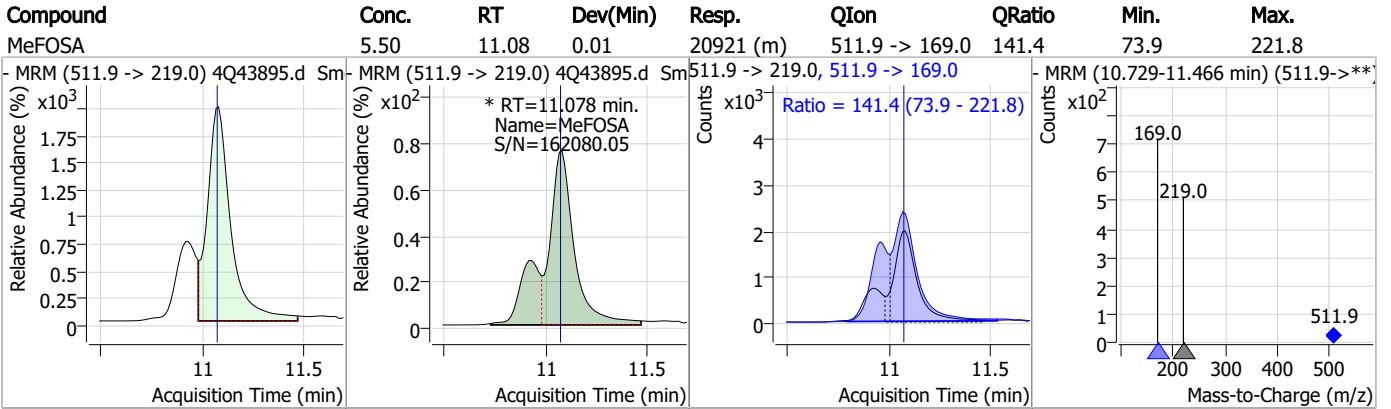
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.97	10.97	0.00	35294 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.23	11.06	0.00	10103				

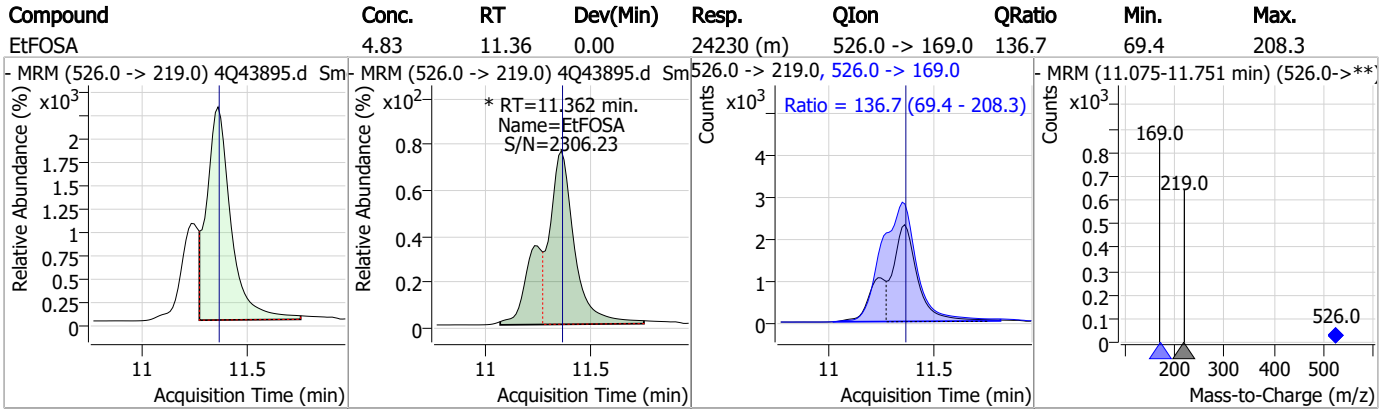


Perfluorinated Compounds by LC/MS/MS



7.7.11
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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q634-ICV634 Method: EPA DRAFT 1633
Lab FileID: 4Q43895.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 13:35 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.11.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44138.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 2:38:30 PM
 Sample Name : cc634-1.0LL
 Vial : P1-A2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	137512	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	73301	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	49953	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	28970	2.50 µg/L	0.000
M8-PFOA	7.148	421.1 -> 376.0	46123	2.50 µg/L	0.000
M9-PFNA	7.696	472.1 -> 427.0	22118	1.25 µg/L	0.000
M6-PFDA	8.203	519.1 -> 474.1	20035	1.25 µg/L	0.000
M7-PFUnDA	8.672	570.0 -> 525.1	20870	1.25 µg/L	0.000
M2-PFDoDA	9.118	615.1 -> 570.0	22400	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	16273	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	19826	2.50 µg/L	0.000
M3-PFBS	5.452	302.1 -> 79.9	12580	2.50 µg/L	0.000
M3-PFHxS	7.242	402.1 -> 79.9	7880	2.50 µg/L	0.000
M8-PFOS	8.341	507.1 -> 79.9	11250	2.50 µg/L	-0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1142	5.00 µg/L	0.000
M2-6:2FTS	6.923	429.1 -> 80.9	2153	5.00 µg/L	0.000
M2-8:2FTS	7.990	529.1 -> 80.9	3690	5.00 µg/L	0.000
M3-MeFOSAA	8.261	573.2 -> 419.0	13689	5.00 µg/L	0.000
M3-HFPO-DA	5.914	286.9 -> 168.9	28077	10.00 µg/L	0.000
M5-EtFOSAA	8.470	589.2 -> 419.0	12059	5.00 µg/L	0.000
M7-MeFOSE	10.972	623.2 -> 58.9	80922	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	111944	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11798	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	10815	2.50 µg/L	-0.012
13C4-PFOS	8.354	502.8 -> 79.9	11745	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	74113	5.00 µg/L	-0.013
18O2-PFHxS	7.241	403.0 -> 83.9	5580	2.50 µg/L	0.000
13C4-PFOA	7.149	417.1 -> 372.0	57049	2.50 µg/L	0.000
13C2-PFDA	8.204	515.1 -> 470.1	19412	1.25 µg/L	0.000
13C5-PFNA	7.697	468.0 -> 423.0	25978	1.25 µg/L	0.000
13C2-PFHxA	5.560	315.1 -> 270.0	44407	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1142	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-6:2FTS	6.923	429.1 -> 80.9	2153	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-8:2FTS	7.990	529.1 -> 80.9	3690	5.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.6%		
13C2-PFDoDA	9.118	615.1 -> 570.0	22400	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-PFTeDA	9.911	715.2 -> 670.0	16273	1.06 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.1%		
13C3-PFBS	5.452	302.1 -> 79.9	12580	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-PFHxS	7.242	402.1 -> 79.9	7880	2.28 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 = 91.1%	
13C4-PFBA	2.924	216.8 -> 171.9	137512	9.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C4-PFHpA	6.492	367.1 -> 322.0	28970	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFHxA	5.559	318.0 -> 273.0	49953	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C5-PFPeA	4.387	268.3 -> 223.0	73301	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C6-PFDA	8.203	519.1 -> 474.1	20035	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C7-PFUnDA	8.672	570.0 -> 525.1	20870	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-FOSA	9.783	506.1 -> 77.8	19826	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C8-PFOA	7.148	421.1 -> 376.0	46123	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-PFOS	8.341	507.1 -> 79.9	11250	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C9-PFNA	7.696	472.1 -> 427.0	22118	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSAA	8.261	573.2 -> 419.0	13689	4.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	28077	9.61 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
d3-MeFOSA	11.076	515.0 -> 219.0	10815	2.35 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
d5-EtFOSAA	8.470	589.2 -> 419.0	12059	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d7-MeFOSE	10.972	623.2 -> 58.9	80922	22.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
d9-EtFOSE	11.269	639.2 -> 58.9	111944	21.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.5%	
d5-EtFOSA	11.360	531.1 -> 219.0	11798	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	1470	0.80 µg/L	96
		327.1 -> 80.9	662		
6:2FTS	6.924	427.1 -> 407.0	1619	0.78 µg/L	98
		427.1 -> 80.9	671		
8:2FTS	7.991	527.1 -> 507.0	1650	0.80 µg/L	94
		527.1 -> 80.8	651		
EtFOSAA	8.471	584.2 -> 419.1	434	0.19 µg/L	m 90
		584.2 -> 526.0	195		
FOSA	9.786	498.1 -> 77.9	1668	0.20 µg/L	99
		498.1 -> 478.0	50		
MeFOSAA	8.274	570.1 -> 419.0	368	0.15 µg/L	m 80
		570.1 -> 483.0	101		
PFBA	2.920	212.8 -> 168.9	2785	0.76 µg/L	100
PFBS	5.453	298.7 -> 79.9	831	0.16 µg/L	80
		298.7 -> 98.8	396		
PFDA	8.204	512.9 -> 469.0	2787	0.18 µg/L	94
		512.9 -> 219.0	474		
PFDODA	9.119	613.1 -> 569.0	3885	0.22 µg/L	97
		613.1 -> 319.0	490		
PFDS	9.282	599.0 -> 79.9	533	0.19 µg/L	94

7.7.12
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8	298	0.19	µg/L	99
		363.1 -> 319.0	3396			
PFHpS	7.836	363.1 -> 169.0	589	0.18	µg/L	93
		449.0 -> 79.9	743			
PFHxA	5.562	449.0 -> 98.9	426	0.20	µg/L	100
		313.0 -> 269.0	3946			
PFHxS	7.243	313.0 -> 118.9	113	0.22	µg/L	84
		398.7 -> 79.9	705			
PFNA	7.709	398.7 -> 98.9	324	0.18	µg/L	100
		463.0 -> 419.0	2937			
PFNS	8.836	463.0 -> 219.0	745	0.19	µg/L	81
		548.8 -> 79.9	473			
PFOA	7.150	548.8 -> 98.9	168	0.17	µg/L	99
		413.0 -> 369.0	4540			
PFOS	8.355	413.0 -> 169.0	878	0.19	µg/L	89
		498.9 -> 79.9	1048			
PFPeA	4.389	498.9 -> 98.8	549	0.37	µg/L	100
		263.0 -> 219.0	6439			
PFPeS	6.519	349.1 -> 79.9	405	0.15	µg/L	95
		349.1 -> 98.9	195			
PFTeDA	9.912	713.1 -> 669.0	3200	0.20	µg/L	98
		713.1 -> 168.9	287			
PFTrDA	9.529	663.0 -> 619.0	4436	0.18	µg/L	94
		663.0 -> 168.9	508			
PFUnDA	8.673	563.1 -> 519.0	2548	0.18	µg/L	94
		563.1 -> 269.1	539			
11CI-PF3OUdS	9.568	630.9 -> 450.9	3620	0.36	µg/L	96
		632.9 -> 452.9	1162			
9CI-PF3ONS	8.700	530.8 -> 351.0	4787	0.37	µg/L	100
		532.8 -> 353.0	1415			
ADONA	6.756	376.9 -> 250.9	9940	0.35	µg/L	96
		376.9 -> 84.8	2876			
HFPO-DA	5.915	284.9 -> 168.9	1133	0.42	µg/L	#
		284.9 -> 184.9	70			
3:3FTCA	3.848	241.0 -> 177.0	784	1.01	µg/L	92
		241.0 -> 117.0	95			
5:3FTCA	6.217	341.0 -> 237.1	13840	5.21	µg/L	97
		341.0 -> 217.0	9121			
7:3FTCA	7.673	441.0 -> 316.9	7494	5.43	µg/L	97
		441.0 -> 336.9	17276			
EtFOSA	11.362	526.0 -> 219.0	2005	0.41	µg/L	59
		526.0 -> 169.0	2483			
EtFOSE	11.282	630.0 -> 58.9	4194	0.97	µg/L	m
		511.9 -> 219.0	1627			
MeFOSA	11.090	511.9 -> 169.0	2240	0.40	µg/L	m
		616.1 -> 58.9	3115			
MeFOSE	10.985	699.1 -> 79.9	394	0.16	µg/L	89
		699.1 -> 98.8	253			
PFDoDS	10.052	295.0 -> 201.0	456	0.33	µg/L	96
		295.0 -> 84.9	111			
NFDHA	5.441	279.0 -> 85.1	3581	0.36	µg/L	100
		229.0 -> 84.9	3453			
PFMBA	3.528	314.8 -> 134.9	4584	0.31	µg/L	99
		314.8 -> 82.9	155			

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

7.7.12
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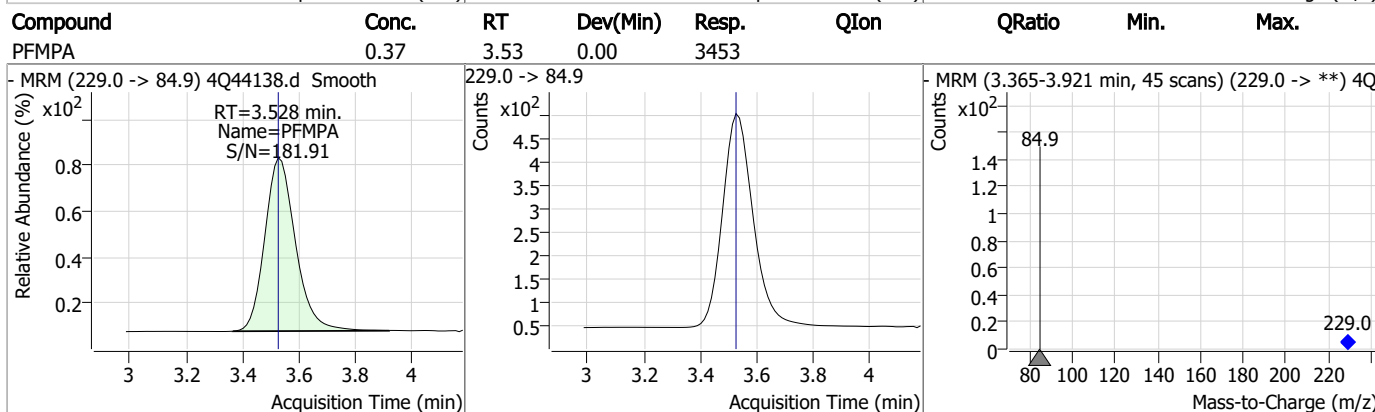
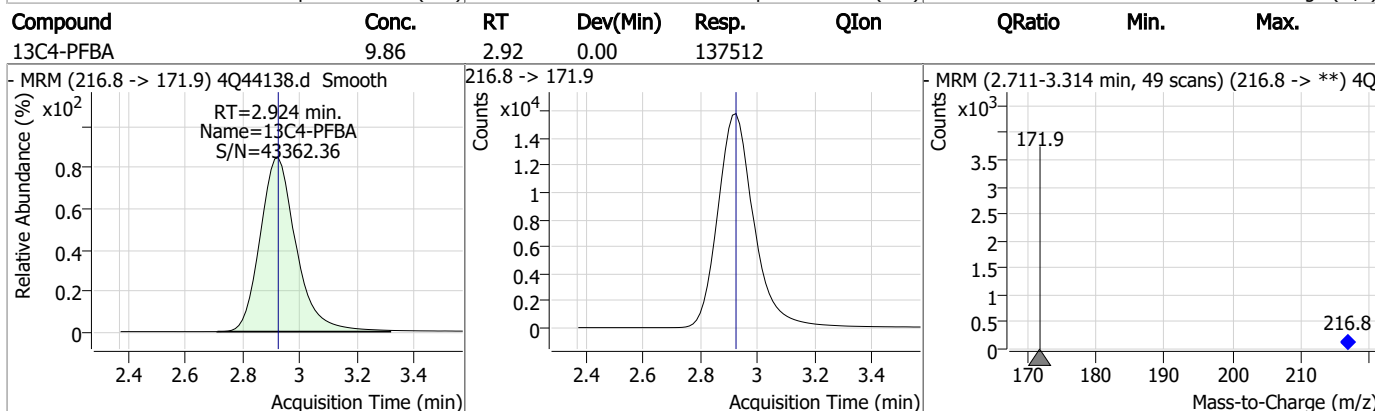
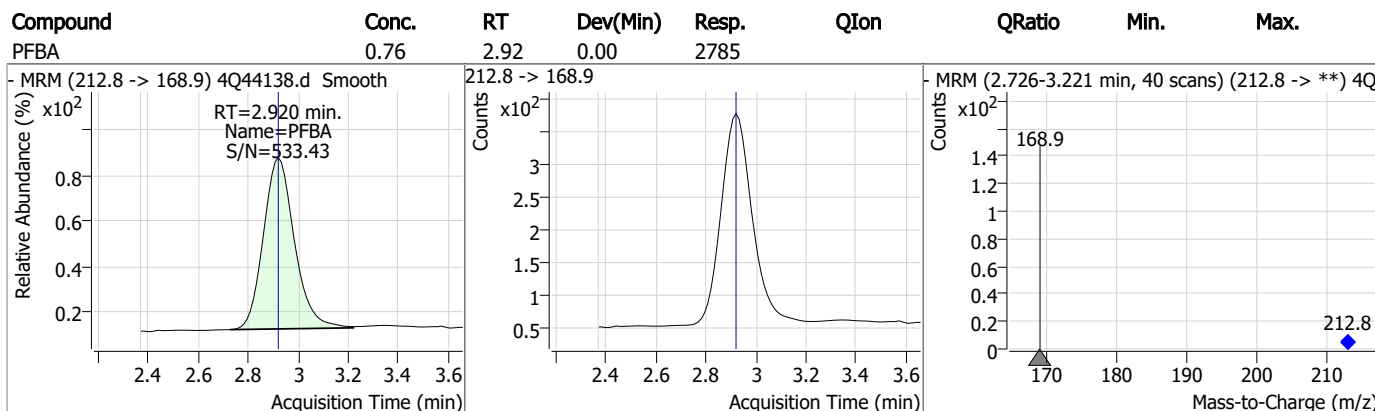
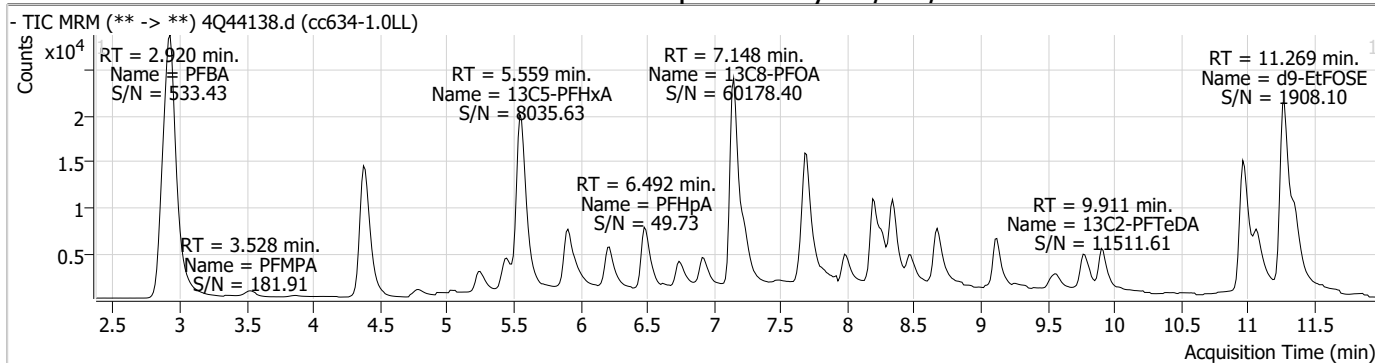
Perfluorinated Compounds by LC/MS/MS

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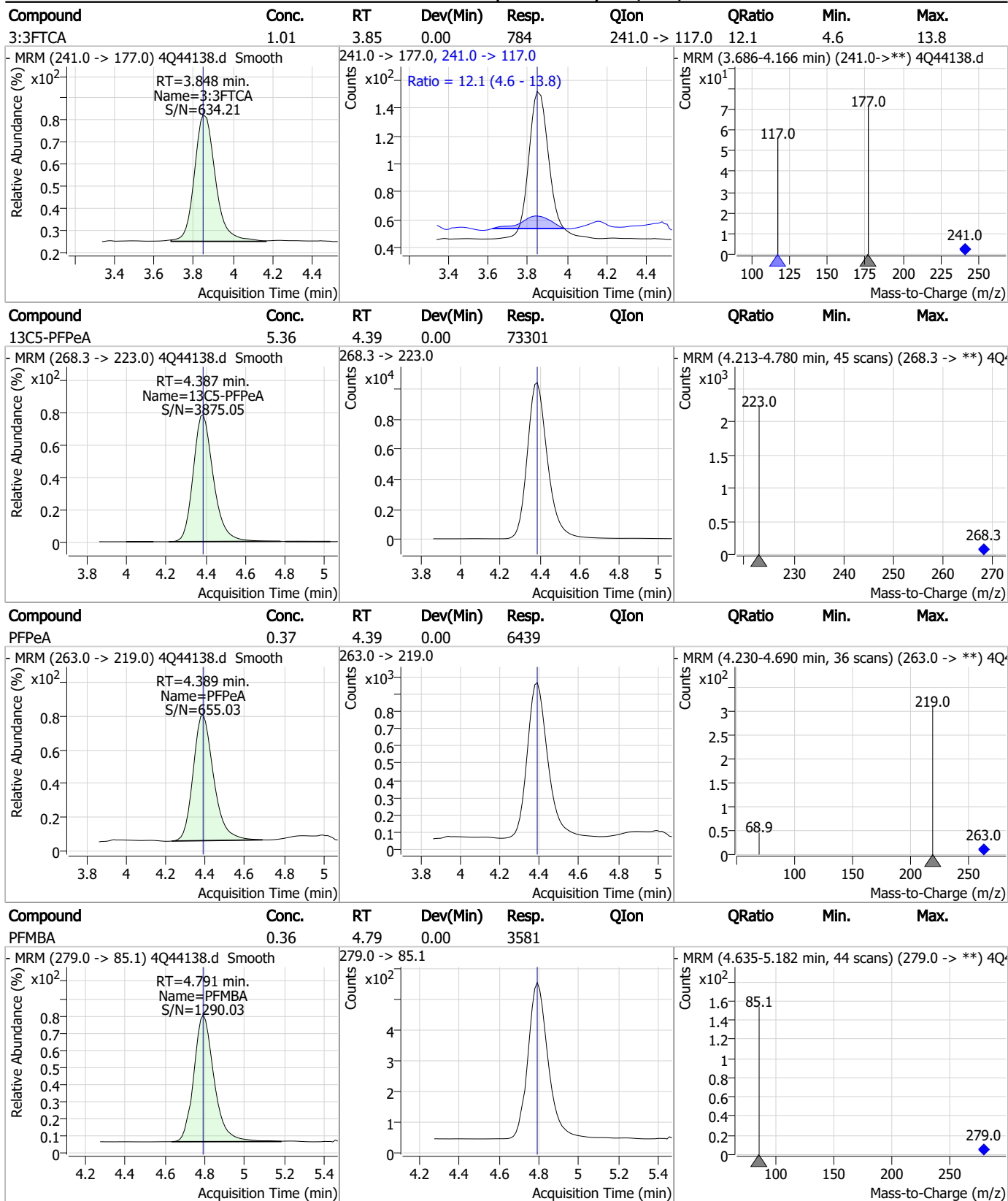
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Perfluorinated Compounds by LC/MS/MS

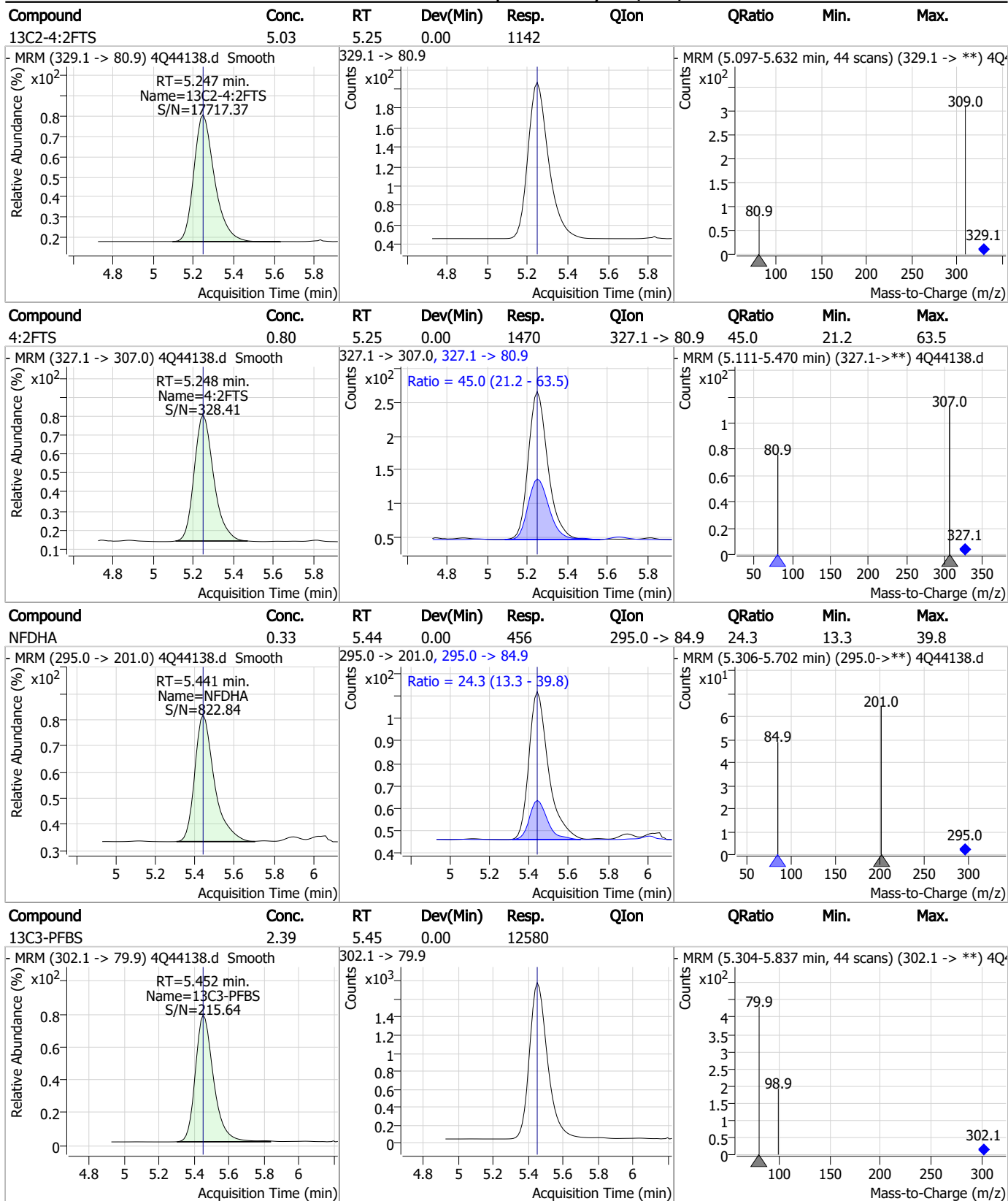


Perfluorinated Compounds by LC/MS/MS



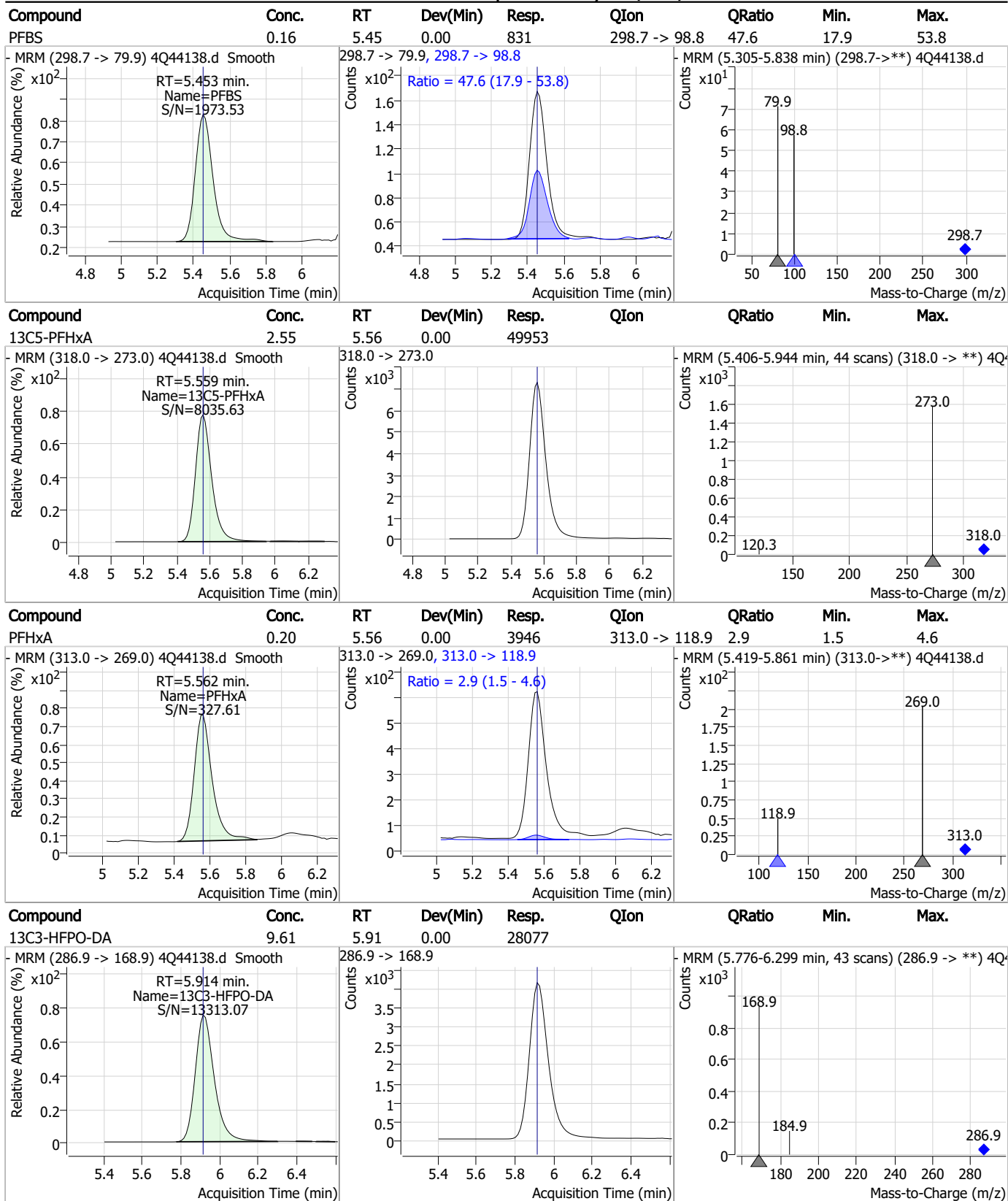
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Perfluorinated Compounds by LC/MS/MS



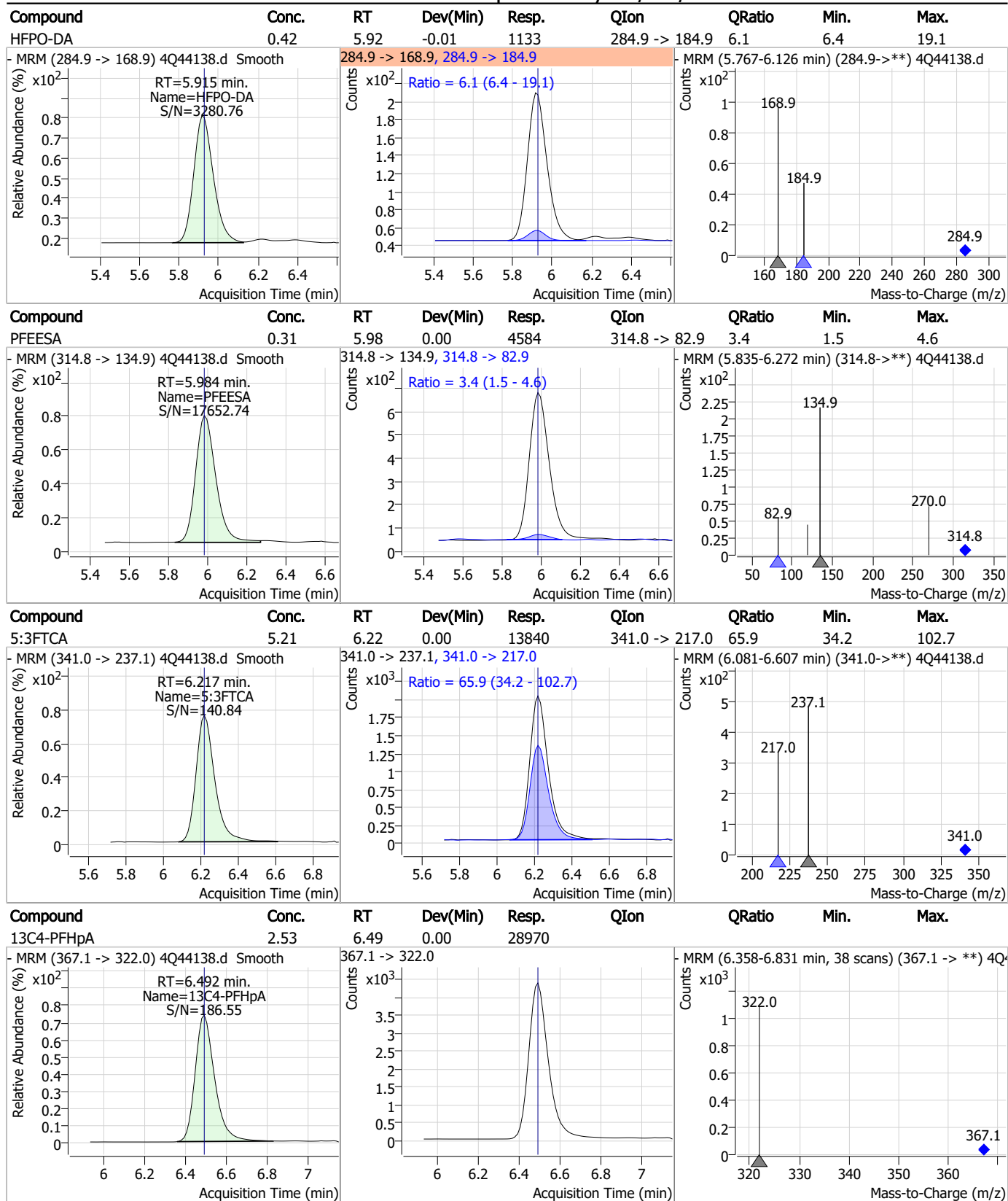
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Perfluorinated Compounds by LC/MS/MS



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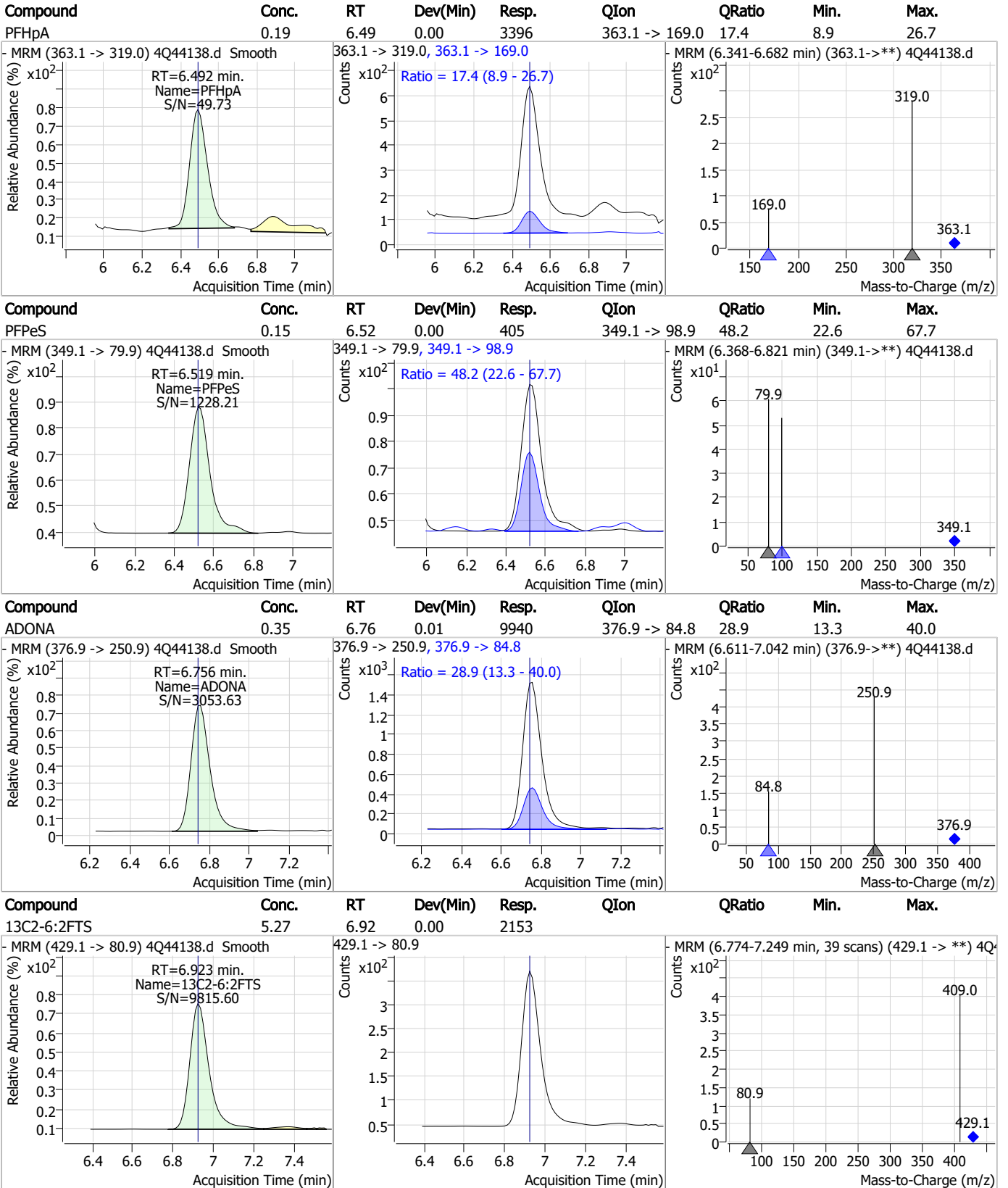
Perfluorinated Compounds by LC/MS/MS



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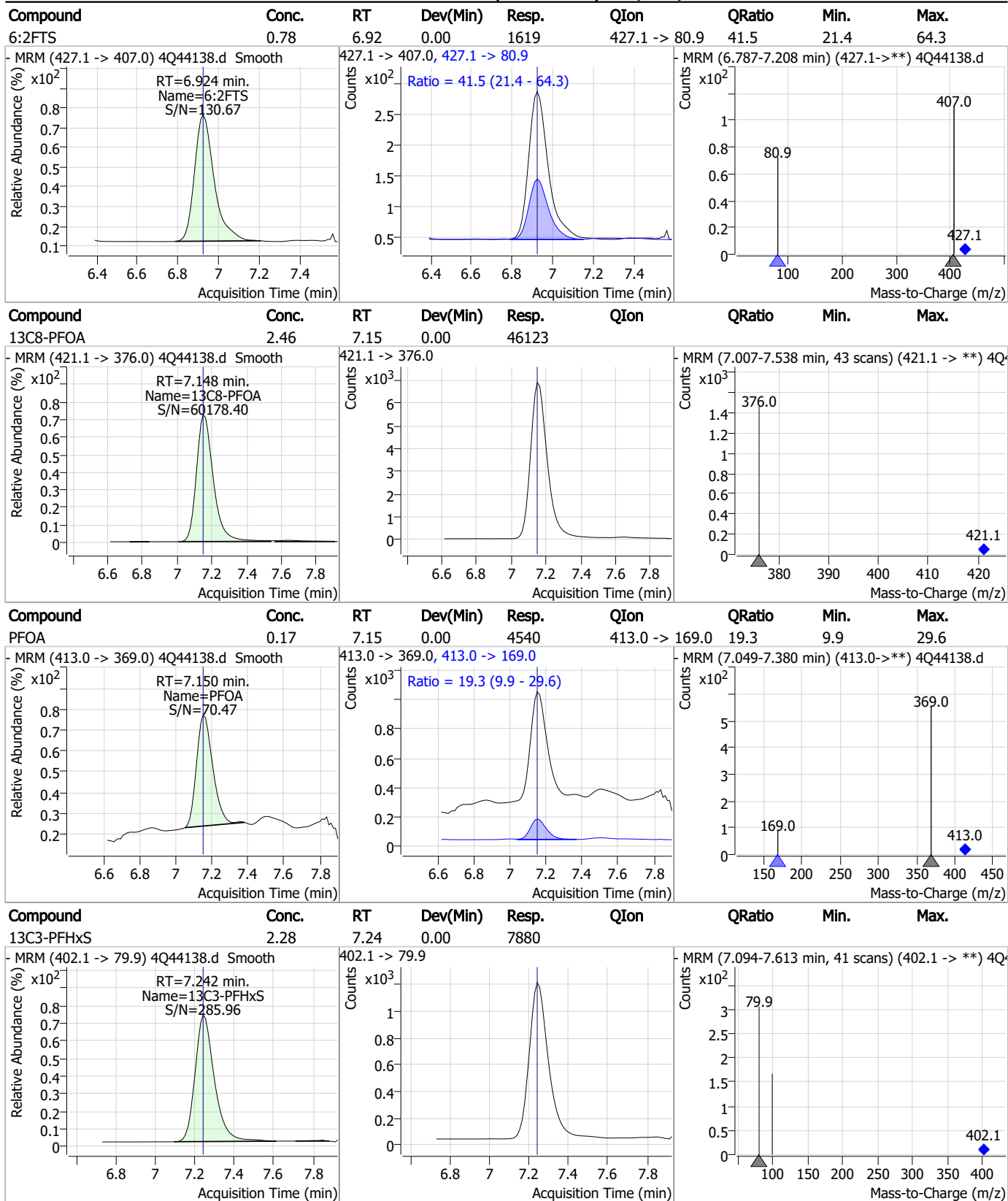
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Perfluorinated Compounds by LC/MS/MS



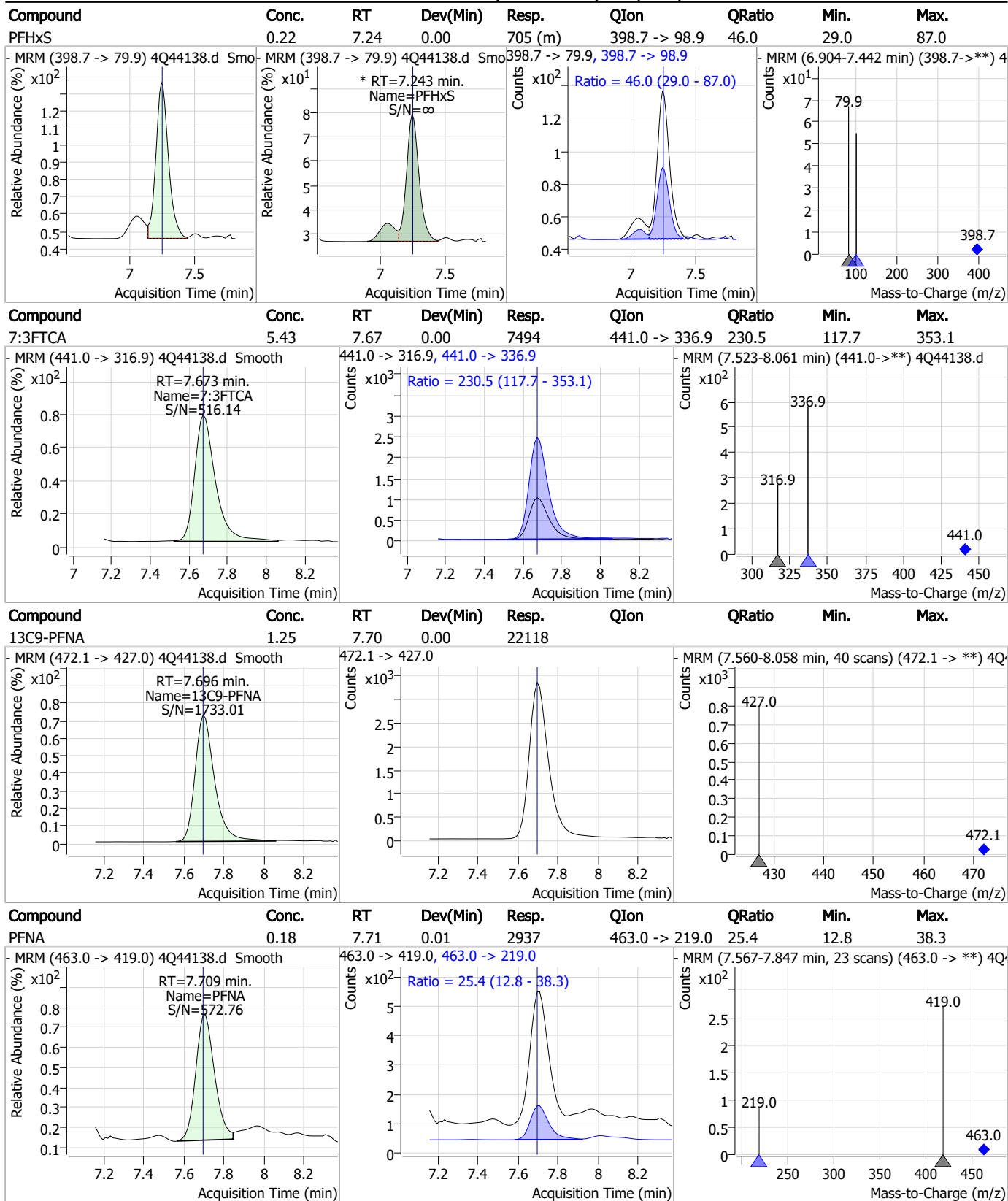
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Perfluorinated Compounds by LC/MS/MS



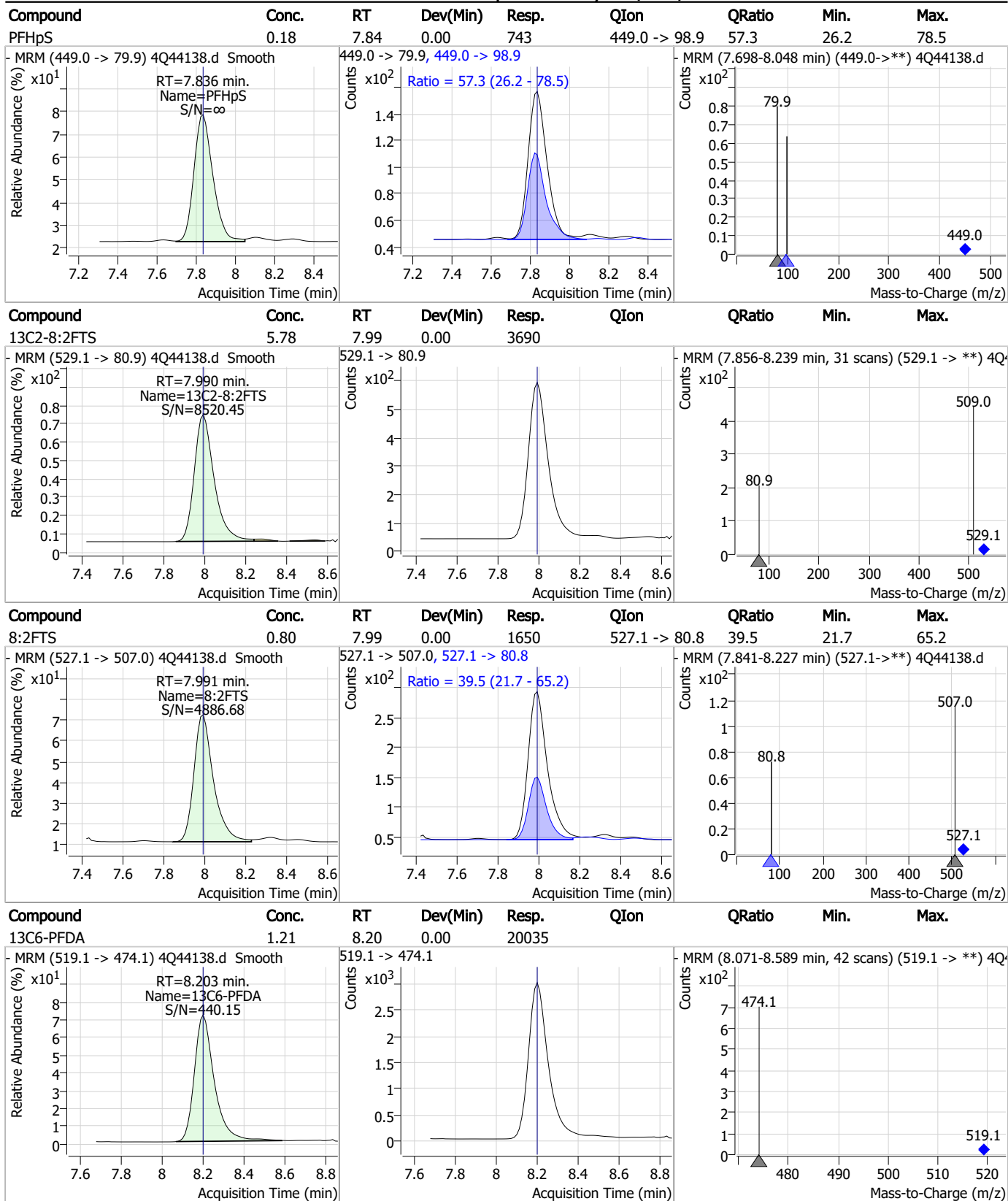
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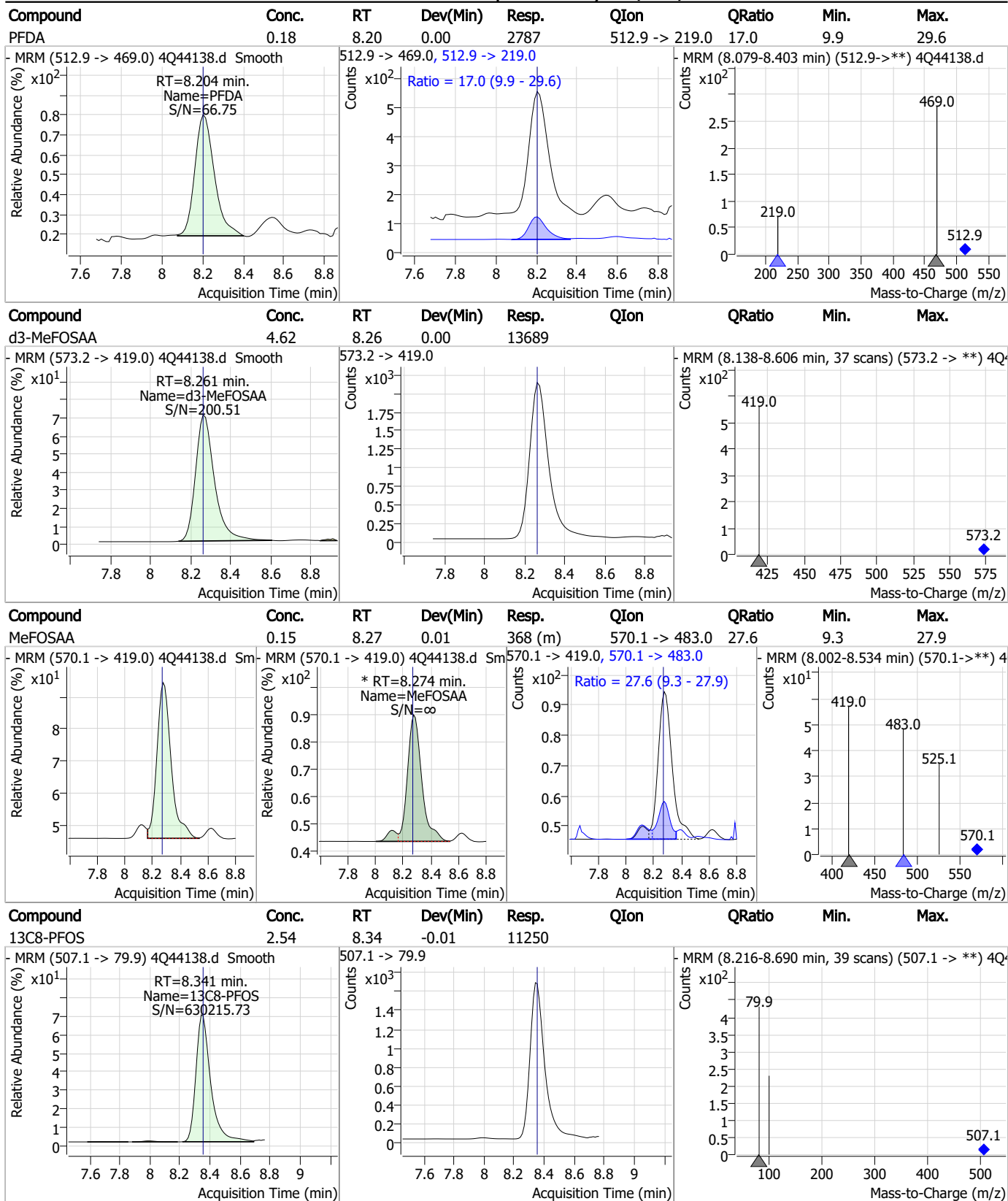
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Perfluorinated Compounds by LC/MS/MS



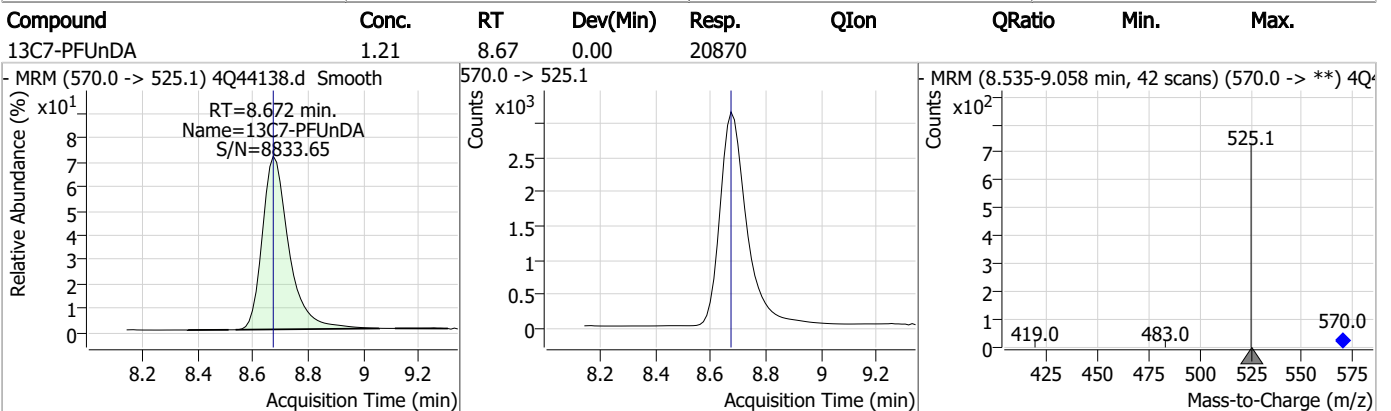
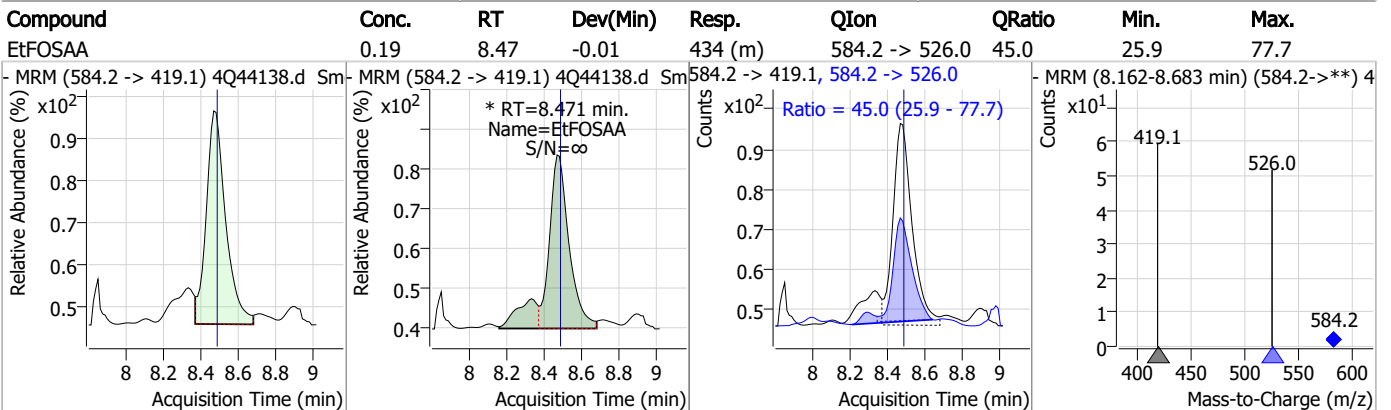
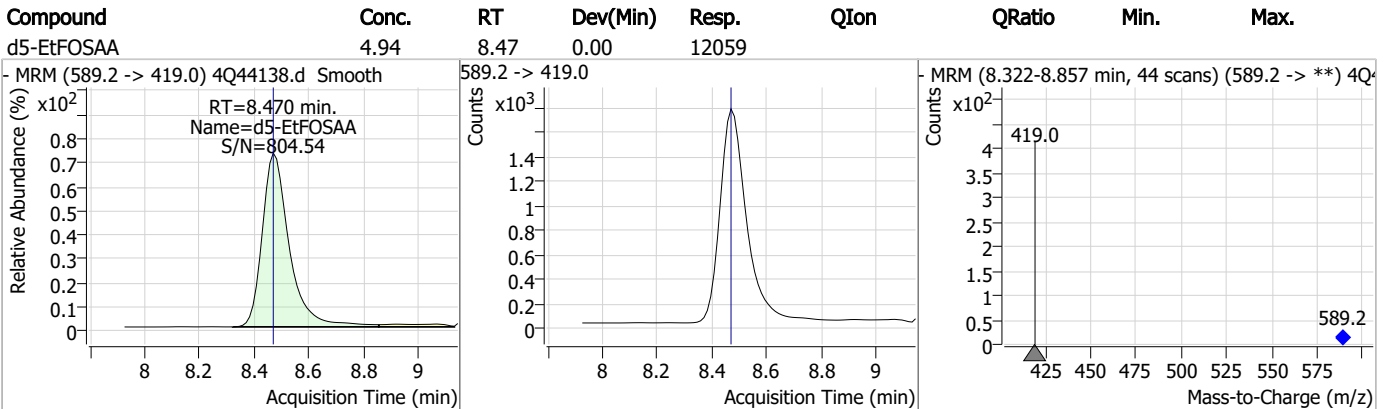
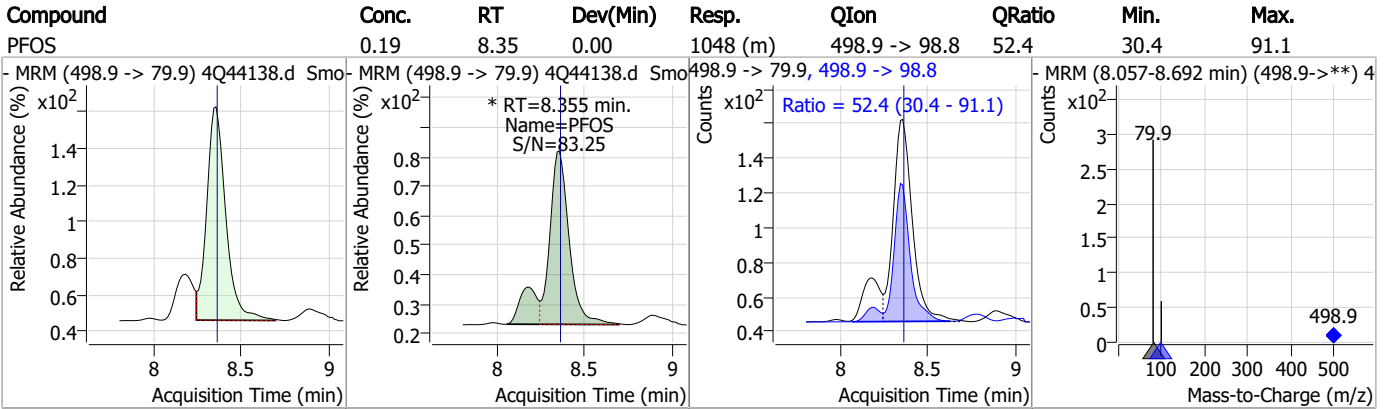
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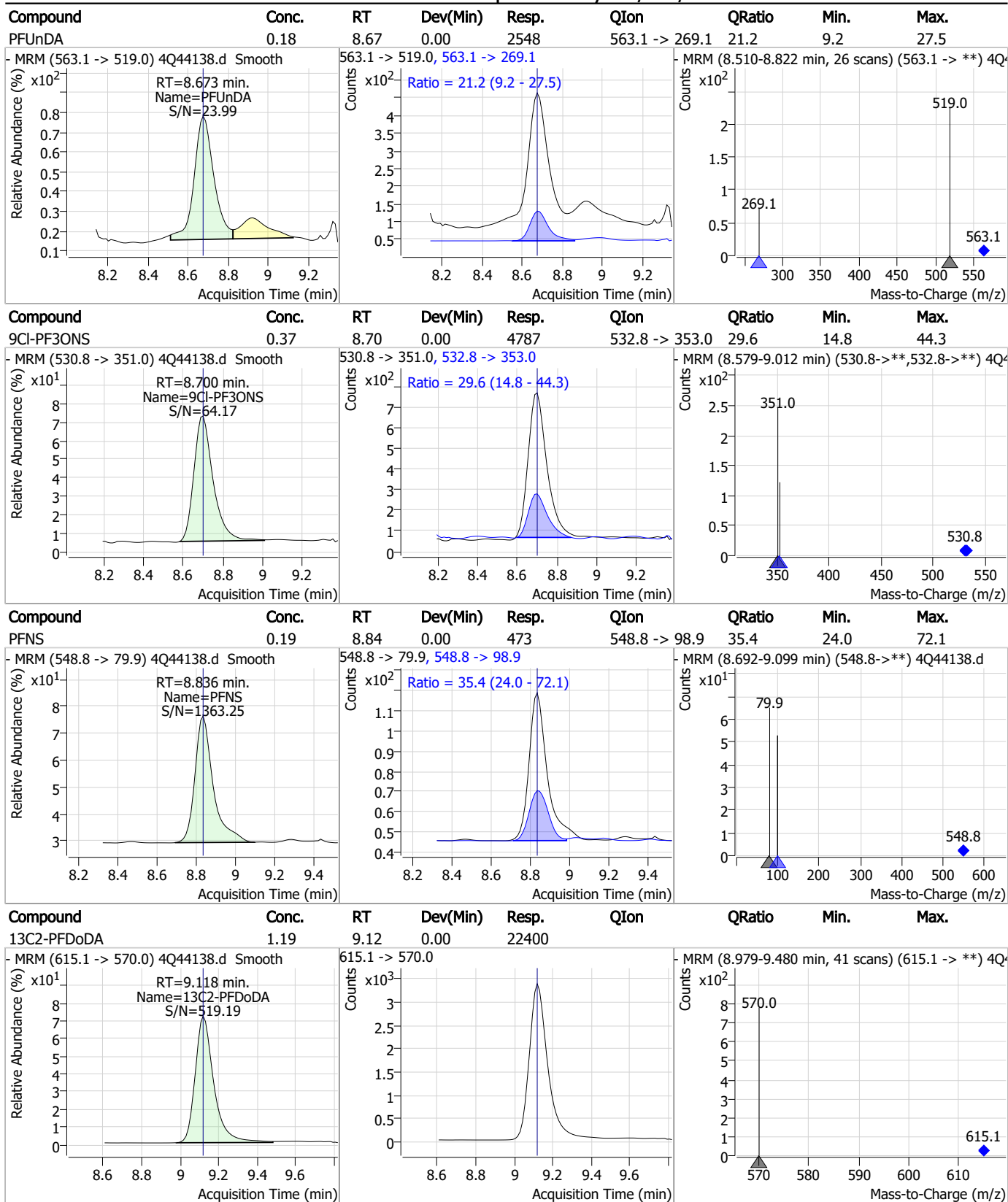


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Perfluorinated Compounds by LC/MS/MS



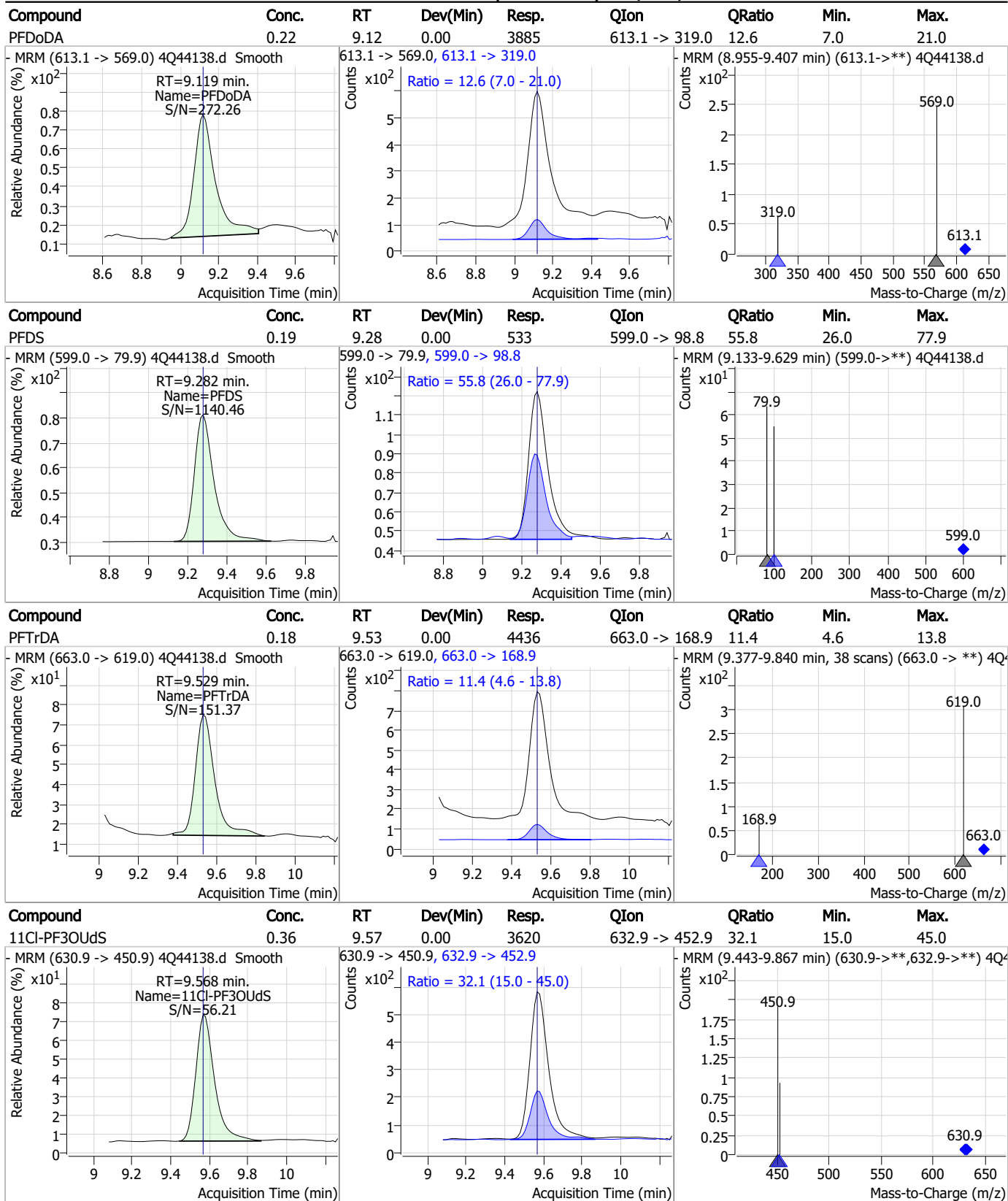
Perfluorinated Compounds by LC/MS/MS



7.7.12
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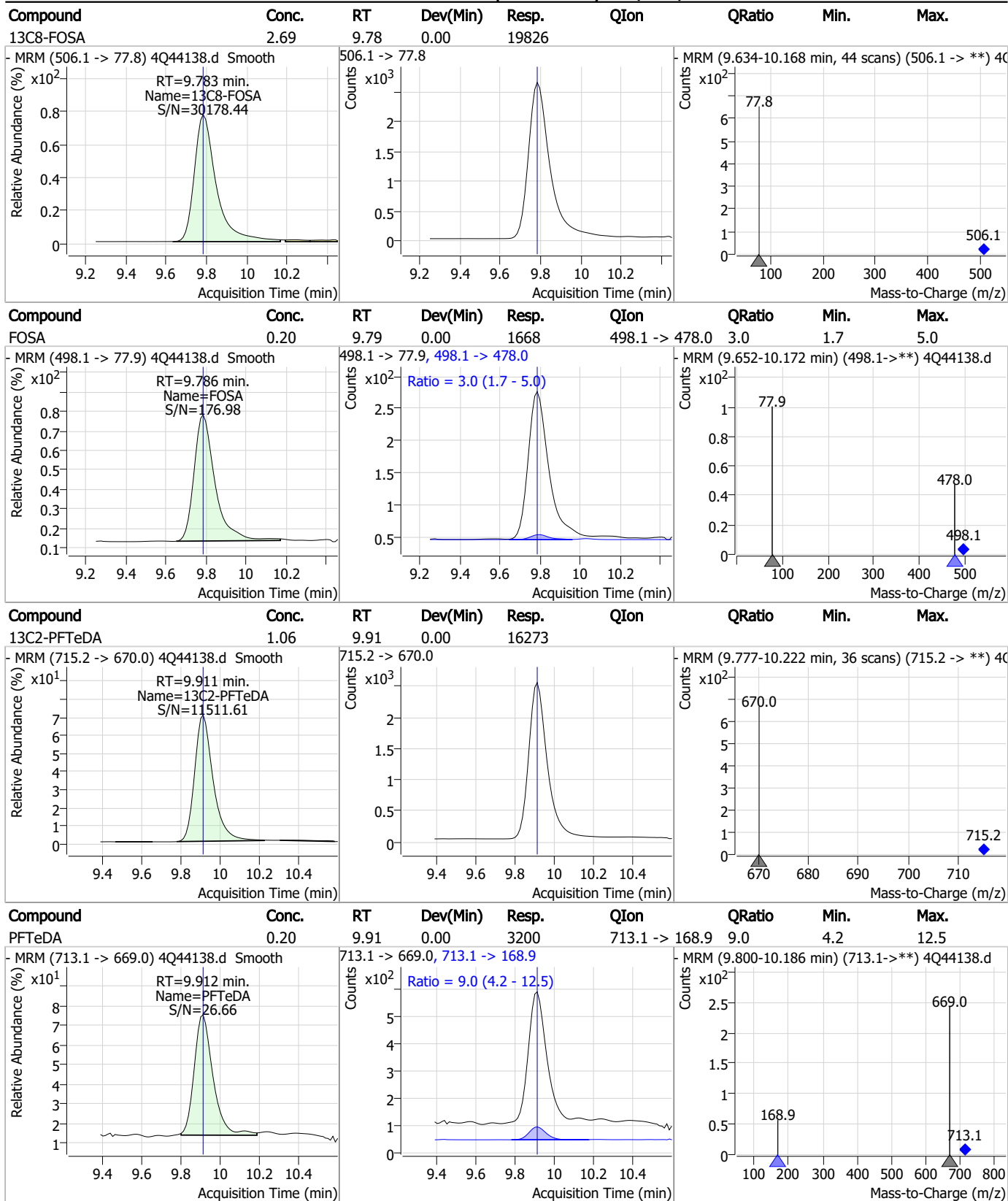


Perfluorinated Compounds by LC/MS/MS



7.7.12
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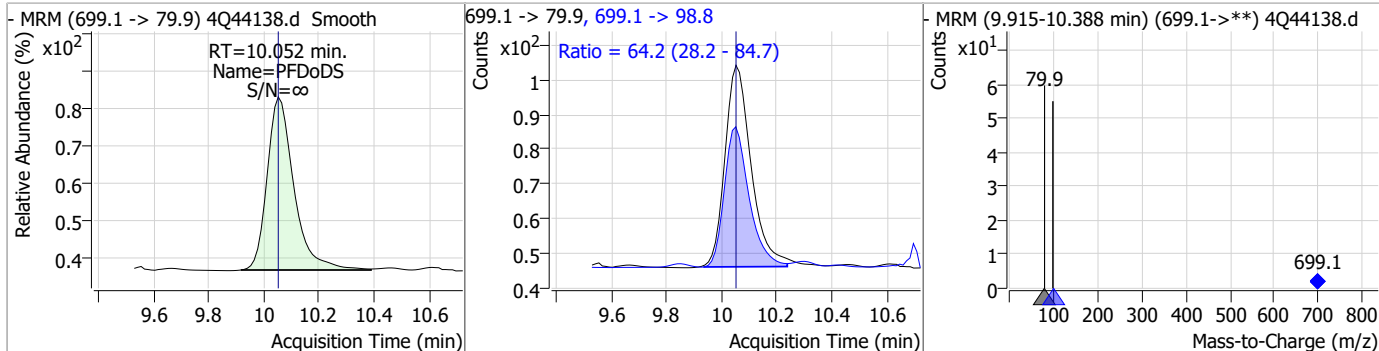
Perfluorinated Compounds by LC/MS/MS



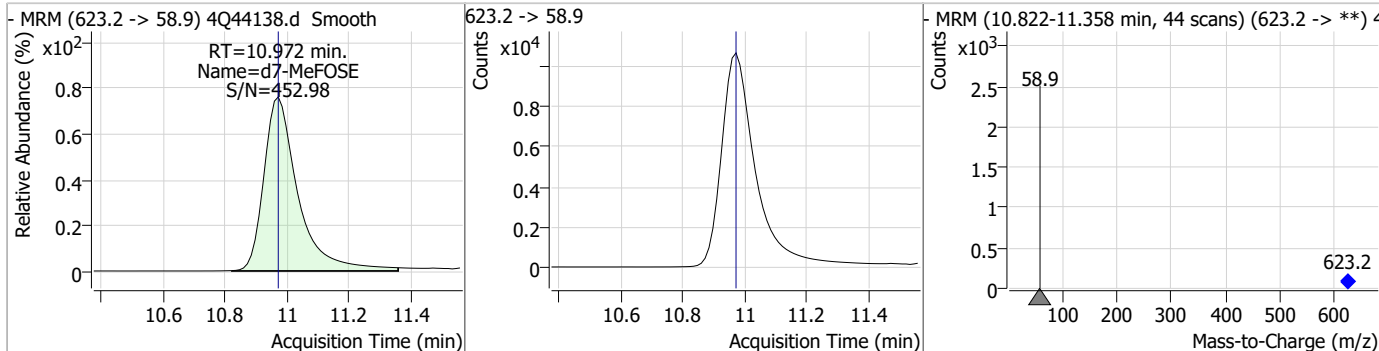
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Perfluorinated Compounds by LC/MS/MS

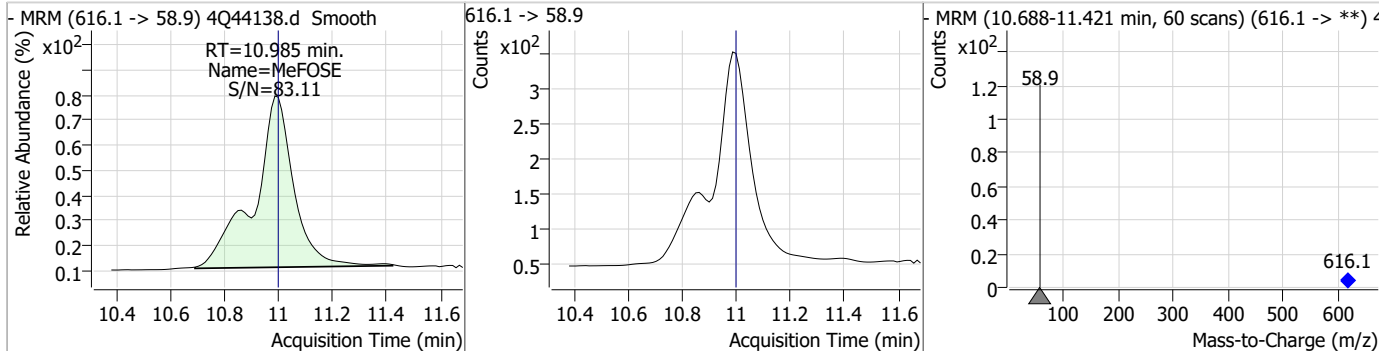
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.16	10.05	0.00	394	699.1 -> 98.8	64.2	28.2	84.7



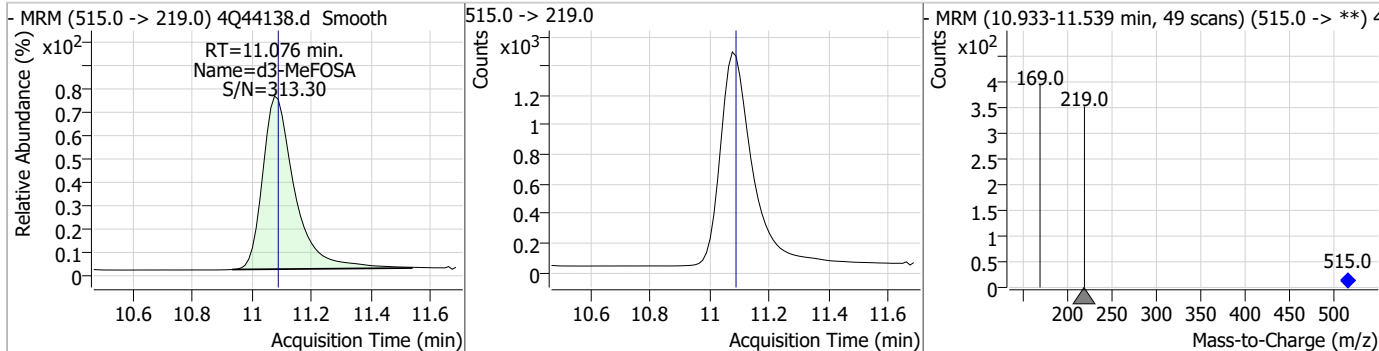
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.14	10.97	0.00	80922				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.94	10.99	-0.01	3115				



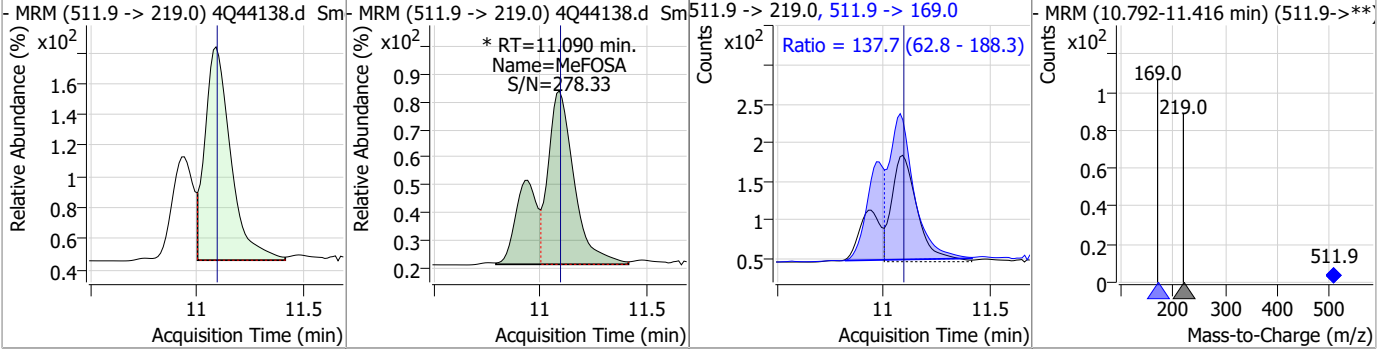
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	11.08	-0.01	10815				



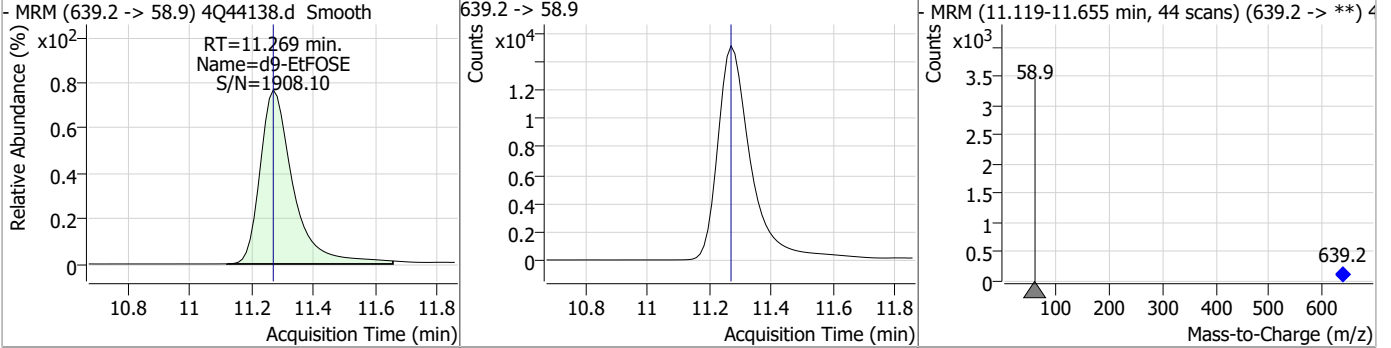
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Perfluorinated Compounds by LC/MS/MS

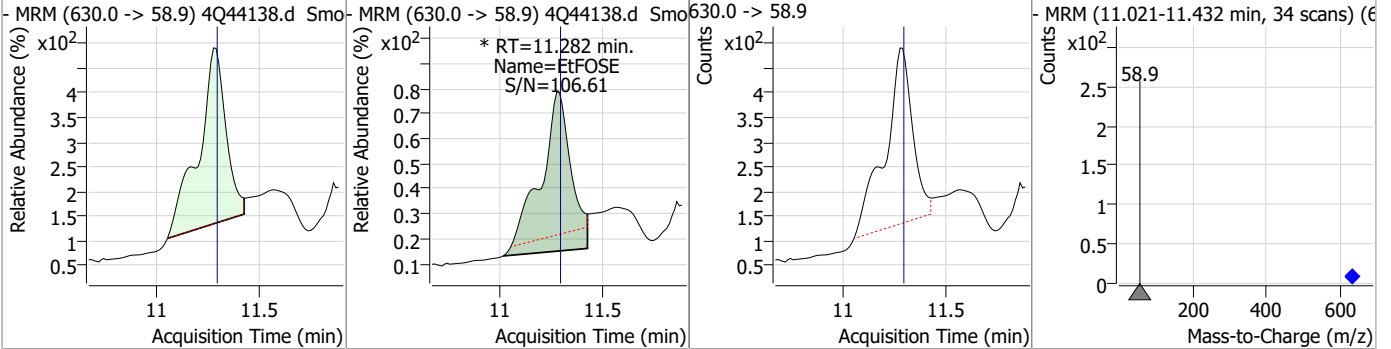
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.40	11.09	0.00	1627 (m)	511.9 -> 169.0	137.7	62.8	188.3



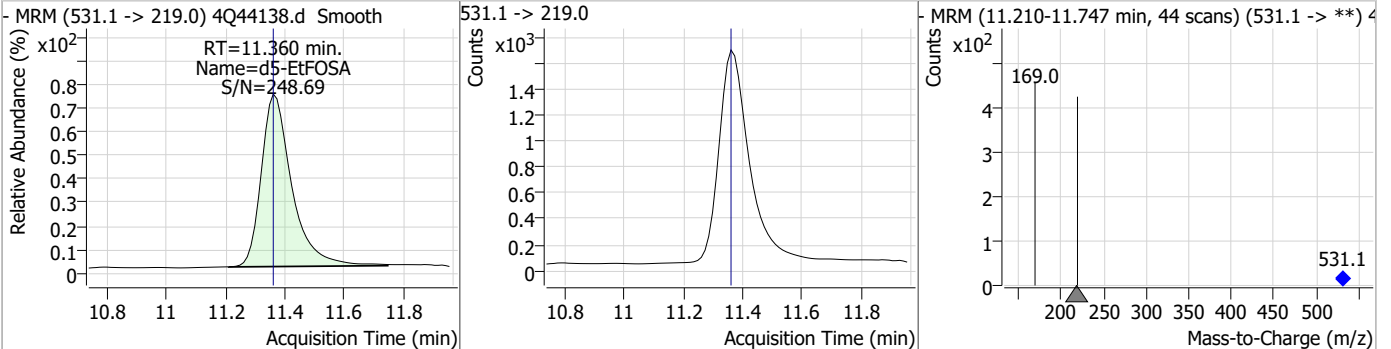
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.63	11.27	0.00	111944				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.97	11.28	-0.01	4194 (m)				

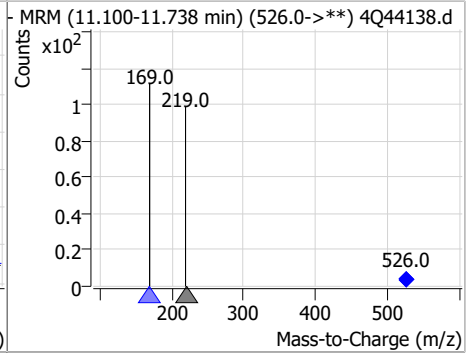
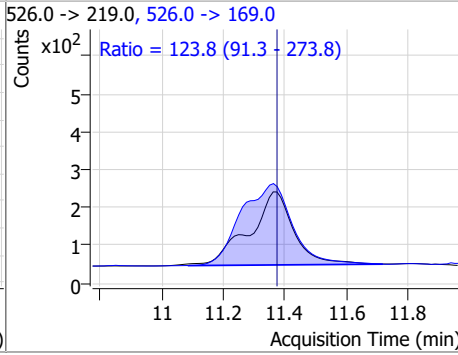
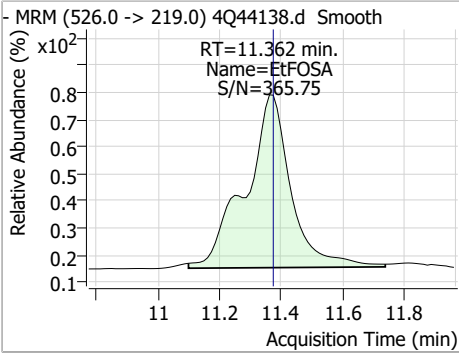


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.41	11.36	0.00	11798				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.41	11.36	-0.01	2005	526.0 -> 169.0	123.8	91.3	273.8



7.7.12
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Manual Integration Approval Summary

Sample Number: S4Q639-CC634 Method: EPA DRAFT 1633
Lab FileID: 4Q44138.D Analyst approved: 05/10/23 11:10 Martha Valls
Injection Time: 05/09/23 14:38 Supervisor approved: 05/10/23 17:21 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.47	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSE	1691-99-2		11.28	Split peak

7.7.12.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44149.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 5:25:16 PM
 Sample Name : cc634-4
 Vial : P1-A5
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	145433	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	73509	5.00 µg/L	0.000
M5-PFHxA	5.572	318.0 -> 273.0	50401	2.50 µg/L	0.012
M4-PFHpA	6.504	367.1 -> 322.0	30671	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	47265	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	21877	1.25 µg/L	0.012
M6-PFDA	8.203	519.1 -> 474.1	20967	1.25 µg/L	0.000
M7-PFUnDA	8.672	570.0 -> 525.1	21525	1.25 µg/L	0.000
M2-PFDoDA	9.118	615.1 -> 570.0	22675	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	16886	1.25 µg/L	0.000
M8-FOSA	9.783	506.1 -> 77.8	20031	2.50 µg/L	0.000
M3-PFBS	5.464	302.1 -> 79.9	12133	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	8167	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	12264	2.50 µg/L	0.000
M2-4:2FTS	5.260	329.1 -> 80.9	1243	5.00 µg/L	0.012
M2-6:2FTS	6.936	429.1 -> 80.9	2323	5.00 µg/L	0.013
M2-8:2FTS	7.990	529.1 -> 80.9	3790	5.00 µg/L	0.000
M3-MeFOSAA	8.273	573.2 -> 419.0	15532	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	27555	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	13587	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	79348	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	104136	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	12426	2.50 µg/L	0.000
M3-MeFOSA	11.076	515.0 -> 219.0	11479	2.50 µg/L	-0.012
13C4-PFOS	8.354	502.8 -> 79.9	12183	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	76373	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	5461	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	55510	2.50 µg/L	0.014
13C2-PFDA	8.204	515.1 -> 470.1	18402	1.25 µg/L	0.000
13C5-PFNA	7.709	468.0 -> 423.0	27825	1.25 µg/L	0.012
13C2-PFHxA	5.573	315.1 -> 270.0	46864	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.260	329.1 -> 80.9	1243	5.60 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2323	5.81 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C2-8:2FTS	7.990	529.1 -> 80.9	3790	6.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.4%		
13C2-PFDoDA	9.118	615.1 -> 570.0	22675	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.911	715.2 -> 670.0	16886	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C3-PFBS	5.464	302.1 -> 79.9	12133	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.2%		
13C3-PFHxS	7.254	402.1 -> 79.9	8167	2.41 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 = 96.5%	
13C4-PFBA	2.924	216.8 -> 171.9	145433	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.504	367.1 -> 322.0	30671	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFHxA	5.572	318.0 -> 273.0	50401	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C5-PFPeA	4.387	268.3 -> 223.0	73509	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C6-PFDA	8.203	519.1 -> 474.1	20967	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C7-PFUnDA	8.672	570.0 -> 525.1	21525	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-FOSA	9.783	506.1 -> 77.8	20031	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C8-PFOA	7.163	421.1 -> 376.0	47265	2.59 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-PFOS	8.354	507.1 -> 79.9	12264	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C9-PFNA	7.709	472.1 -> 427.0	21877	1.16 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.5%	
d3-MeFOSAA	8.273	573.2 -> 419.0	15532	5.05 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	27555	8.94 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.4%	
d3-MeFOSA	11.076	515.0 -> 219.0	11479	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
d5-EtFOSAA	8.483	589.2 -> 419.0	13587	5.37 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.3%	
d7-MeFOSE	10.972	623.2 -> 58.9	79348	20.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.7%	
d9-EtFOSE	11.269	639.2 -> 58.9	104136	19.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
d5-EtFOSA	11.360	531.1 -> 219.0	12426	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
Target Compounds					QValue
4:2FTS	5.260	327.1 -> 307.0 327.1 -> 80.9	19361 8699	9.68 µg/L	96
6:2FTS	6.936	427.1 -> 407.0 427.1 -> 80.9	21196 9019	9.45 µg/L	99
8:2FTS	7.991	527.1 -> 507.0 527.1 -> 80.8	20910 8407	9.90 µg/L	95
EtFOSAA	8.483	584.2 -> 419.1 584.2 -> 526.0	5663 3147	2.17 µg/L	m 95
FOSA	9.786	498.1 -> 77.9 498.1 -> 478.0	20605 637	2.45 µg/L	99
MeFOSAA	8.274	570.1 -> 419.0 570.1 -> 483.0	6383 1456	2.36 µg/L	m 91
PFBA	2.932	212.8 -> 168.9	37611	9.66 µg/L	100
PFBS	5.465	298.7 -> 79.9 298.7 -> 98.8	11365 4139	2.28 µg/L	99
PFDA	8.204	512.9 -> 469.0 512.9 -> 219.0	40224 7684	2.53 µg/L	99
PFDoDA	9.119	613.1 -> 569.0 613.1 -> 319.0	45819 6597	2.52 µg/L	99
PFDS	9.282	599.0 -> 79.9	6615	2.18 µg/L	100

7.7.13
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.505	599.0 -> 98.8	3441	2.46	µg/L	98
		363.1 -> 319.0	47621			
PFHpS	7.836	363.1 -> 169.0	8152	2.19	µg/L	98
		449.0 -> 79.9	9665			
PFHxA	5.575	449.0 -> 98.9	4942	2.44	µg/L	100
		313.0 -> 269.0	48147			
PFHxS	7.255	313.0 -> 118.9	1370	2.28	µg/L	94
		398.7 -> 79.9	7649			
PFNA	7.709	398.7 -> 98.9	4122	2.46	µg/L	98
		463.0 -> 419.0	39822			
PFNS	8.836	463.0 -> 219.0	9850	2.05	µg/L	88
		548.8 -> 79.9	5500			
PFOA	7.164	548.8 -> 98.9	3080	2.38	µg/L	99
		413.0 -> 369.0	64816			
PFOS	8.355	413.0 -> 169.0	13026	2.01	µg/L	91
		498.9 -> 79.9	12090			
PFPeA	4.389	498.9 -> 98.8	6501	4.84	µg/L	100
		263.0 -> 219.0	85588			
PFPeS	6.531	349.1 -> 79.9	6686	2.33	µg/L	100
		349.1 -> 98.9	3024			
PFTeDA	9.912	713.1 -> 669.0	42152	2.55	µg/L	100
		713.1 -> 168.9	3560			
PFTrDA	9.541	663.0 -> 619.0	58923	2.42	µg/L	98
		663.0 -> 168.9	5858			
PFUnDA	8.685	563.1 -> 519.0	36896	2.52	µg/L	96
		563.1 -> 269.1	7425			
11CI-PF3OUdS	9.581	630.9 -> 450.9	50850	5.13	µg/L	98
		632.9 -> 452.9	15889			
9CI-PF3ONS	8.700	530.8 -> 351.0	65409	5.18	µg/L	96
		532.8 -> 353.0	20771			
ADONA	6.756	376.9 -> 250.9	141457	5.10	µg/L	100
		376.9 -> 84.8	37924			
HFPO-DA	5.928	284.9 -> 168.9	12919	4.91	µg/L	100
		284.9 -> 184.9	1646			
3:3FTCA	3.867	241.0 -> 177.0	9855	12.66	µg/L	100
		241.0 -> 117.0	891			
5:3FTCA	6.231	341.0 -> 237.1	187752	70.07	µg/L	99
		341.0 -> 217.0	127511			
7:3FTCA	7.686	441.0 -> 316.9	103260	74.16	µg/L	99
		441.0 -> 336.9	244539			
EtFOSA	11.375	526.0 -> 219.0	25124	4.83	µg/L	72
		526.0 -> 169.0	35680			
EtFOSE	11.295	630.0 -> 58.9	49805	12.35	µg/L	100
		511.9 -> 219.0	20749			
MeFOSA	11.090	511.9 -> 169.0	31509	4.80	µg/L	77
		616.1 -> 58.9	37350			
MeFOSE	10.985	699.1 -> 79.9	5515	11.46	µg/L	100
		699.1 -> 98.8	3184			
PFDoDS	10.052	295.0 -> 201.0	5708	2.03	µg/L	98
		295.0 -> 84.9	1598			
NFDHA	5.453	279.0 -> 85.1	47672	4.05	µg/L	97
		279.0 -> 85.1	47672			
PFMBA	4.803	229.0 -> 84.9	45908	4.83	µg/L	100
		229.0 -> 84.9	45908			
PFMPA	3.540	314.8 -> 134.9	64561	4.97	µg/L	100
		314.8 -> 82.9	2223			
PFEESA	5.997	314.8 -> 134.9	64561	4.32	µg/L	99
		314.8 -> 82.9	2223			

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

7.7.13
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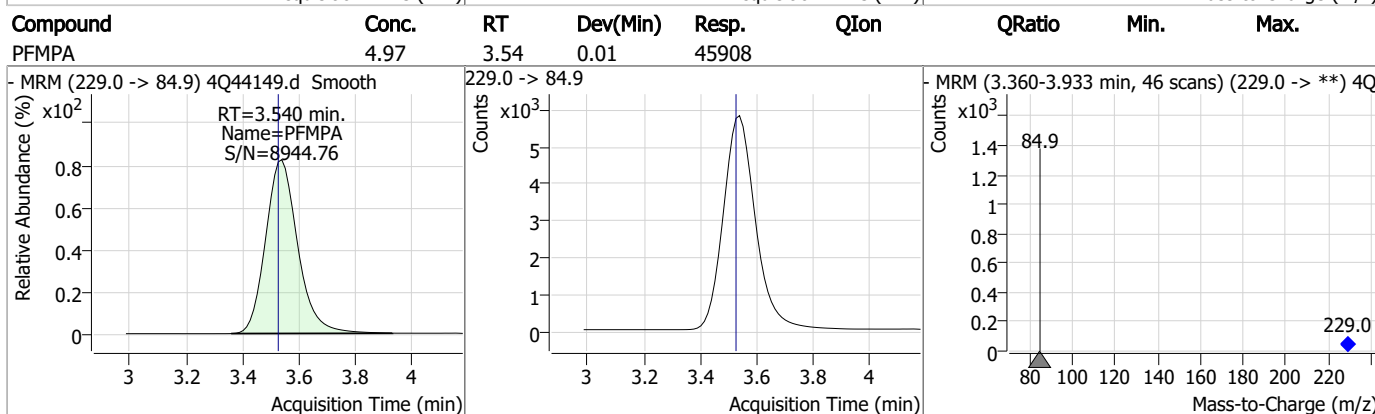
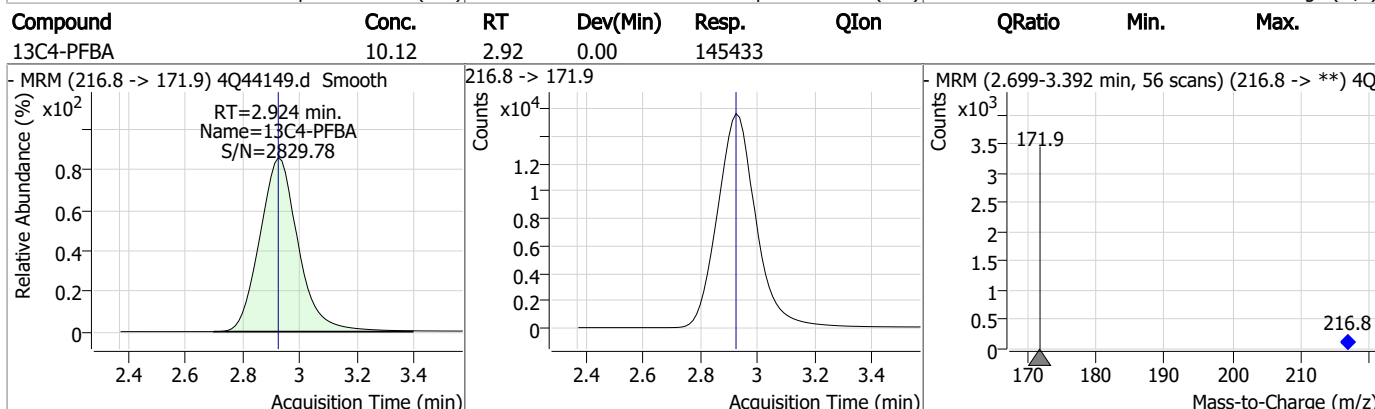
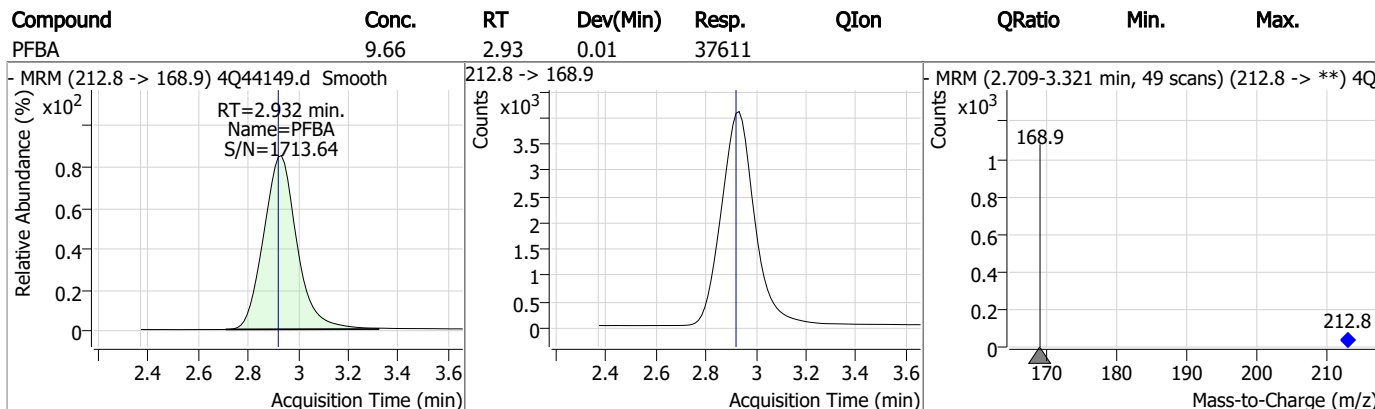
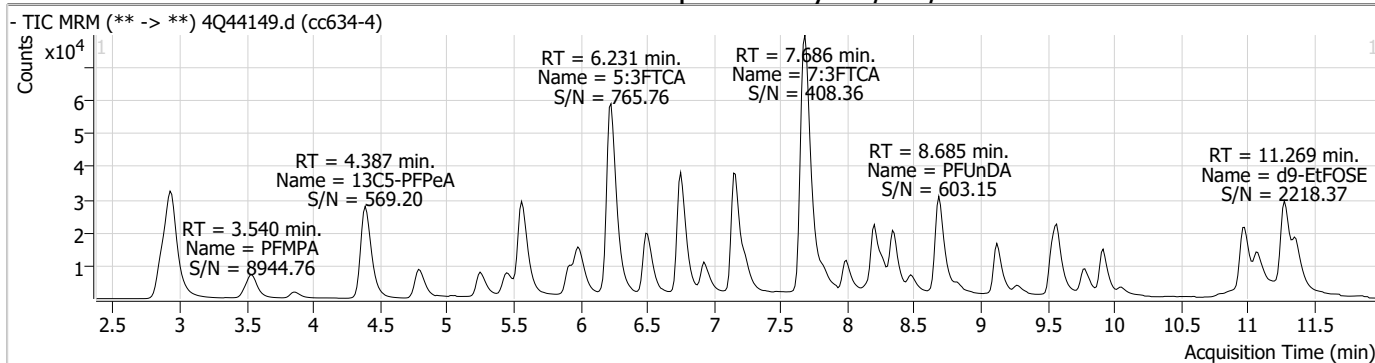
Perfluorinated Compounds by LC/MS/MS

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

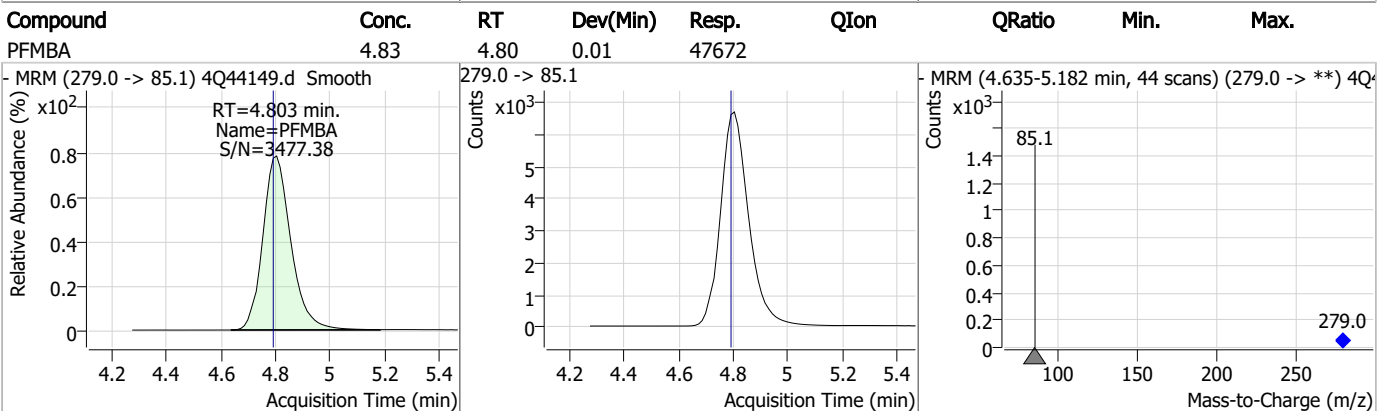
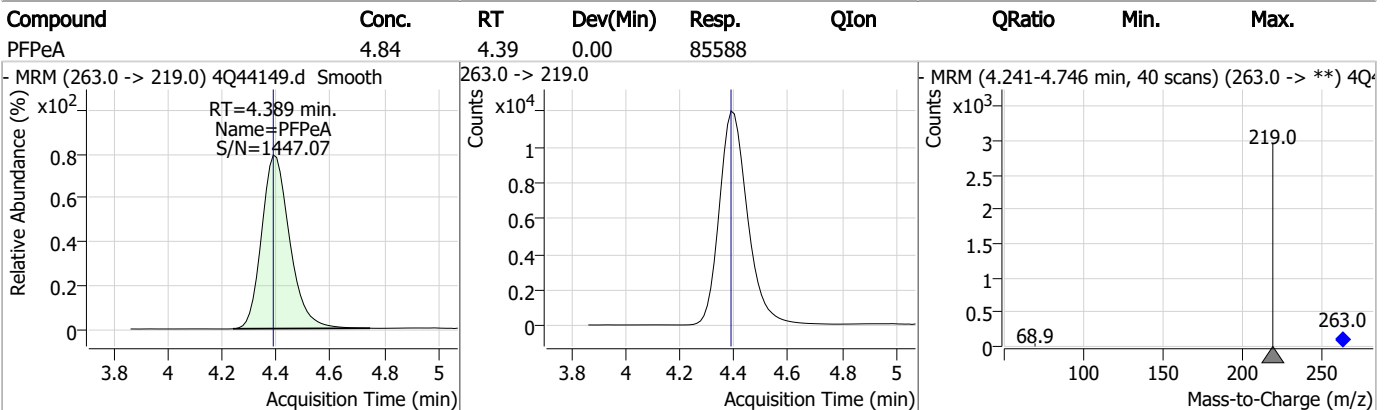
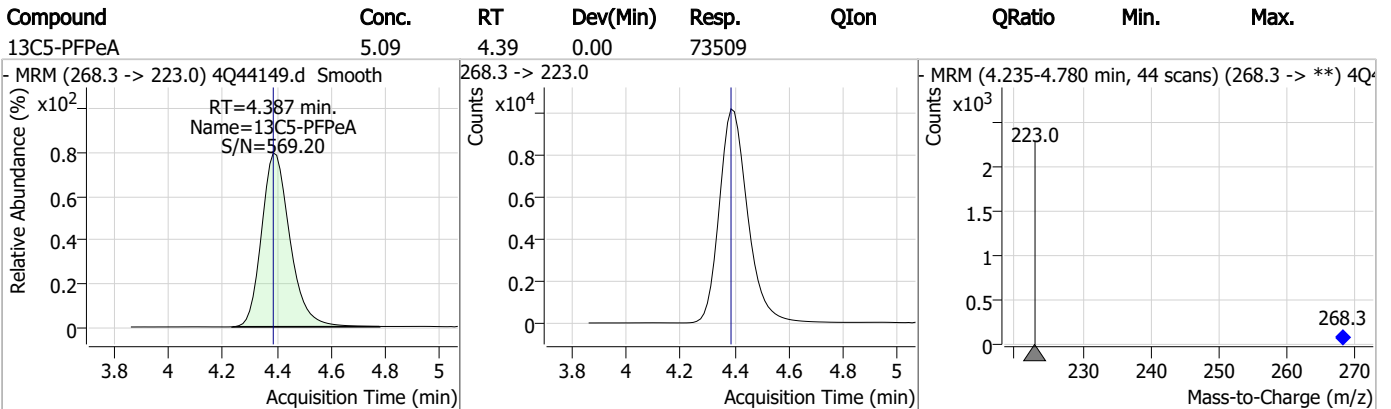
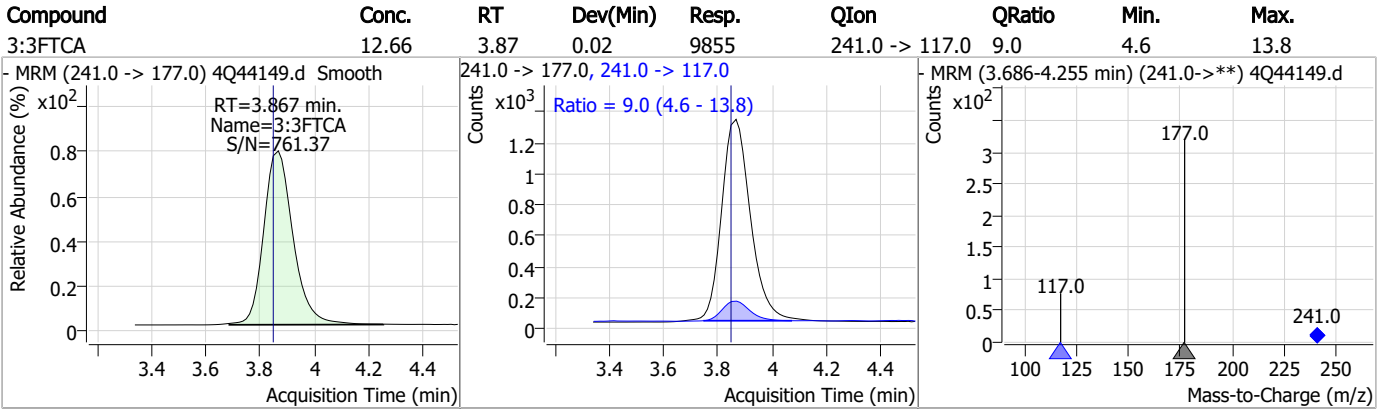
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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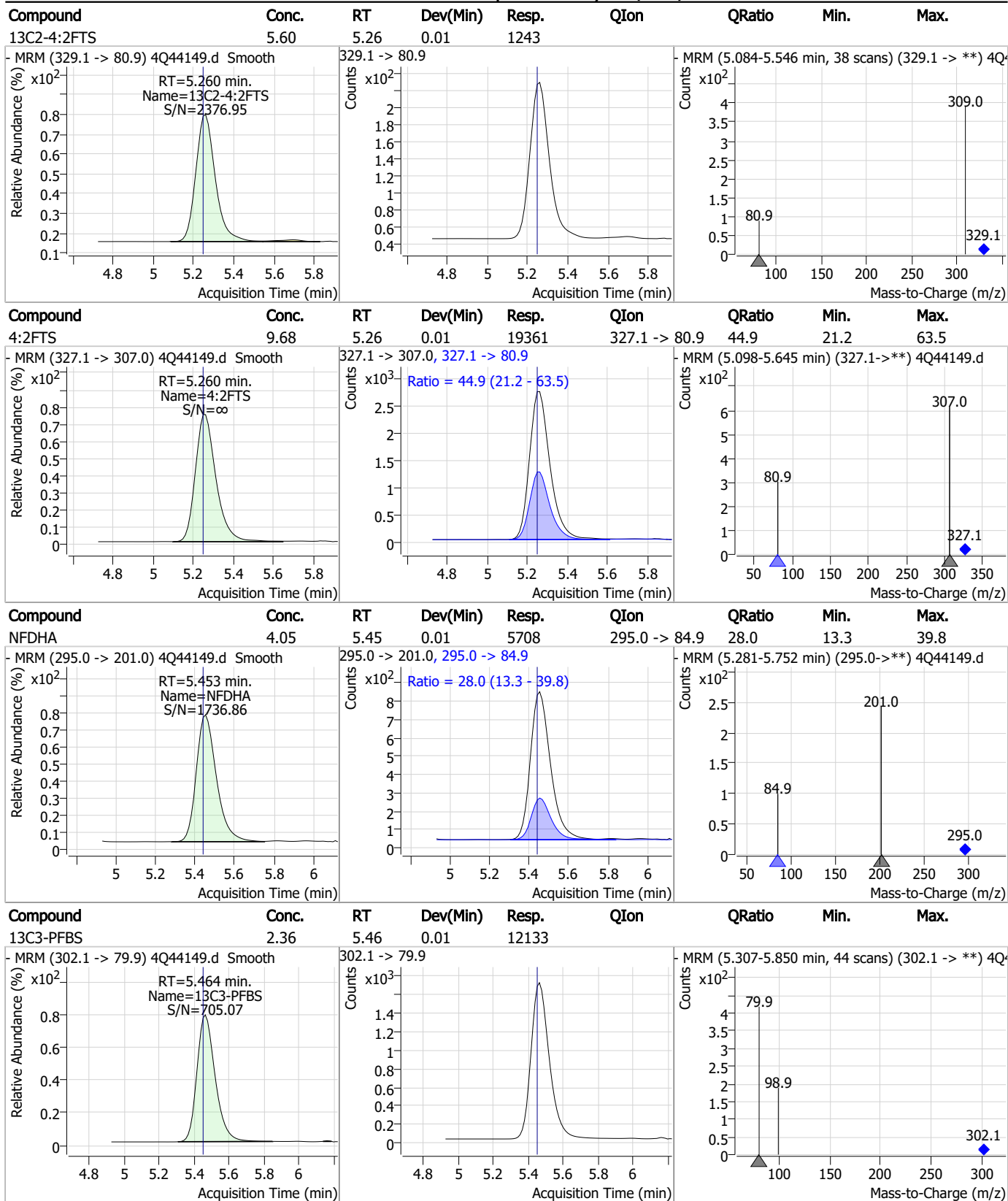
Perfluorinated Compounds by LC/MS/MS



7.7.13 7



Perfluorinated Compounds by LC/MS/MS

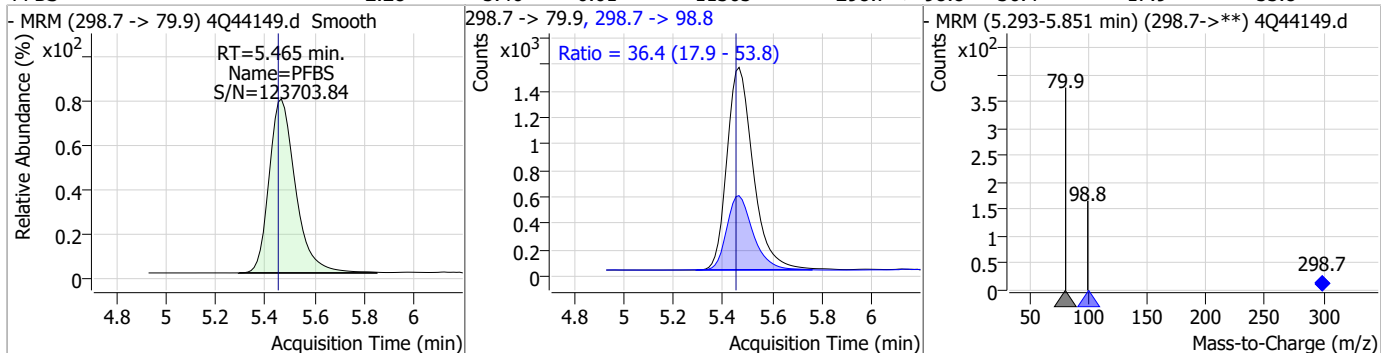


7.7.13
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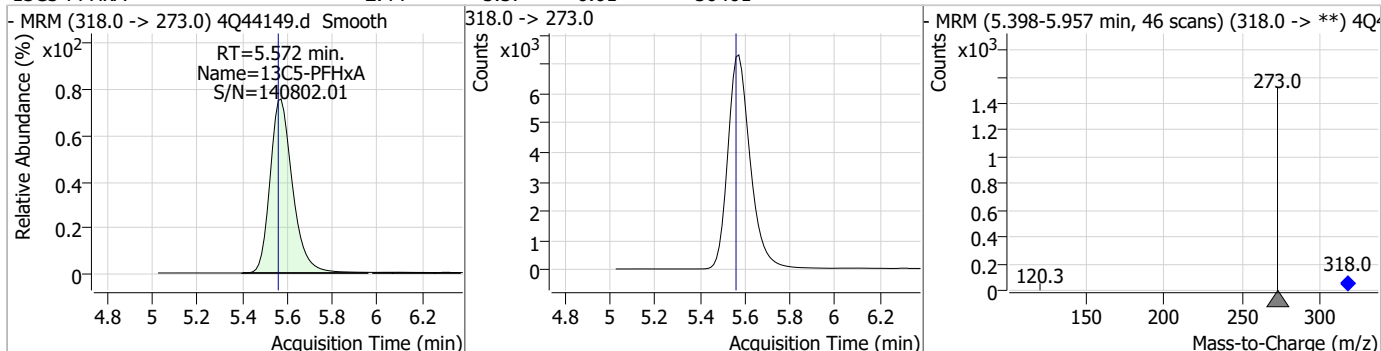


Perfluorinated Compounds by LC/MS/MS

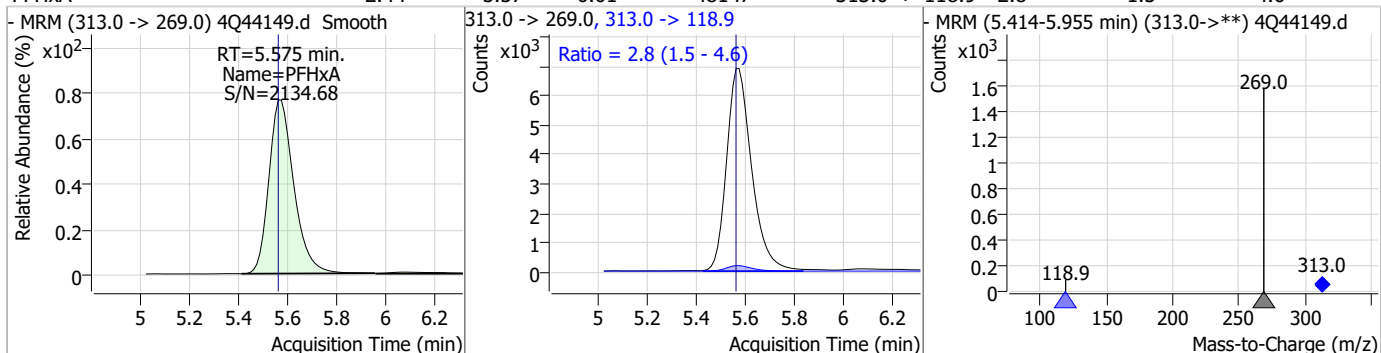
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.28	5.46	0.01	11365	298.7 -> 98.8	36.4	17.9	53.8



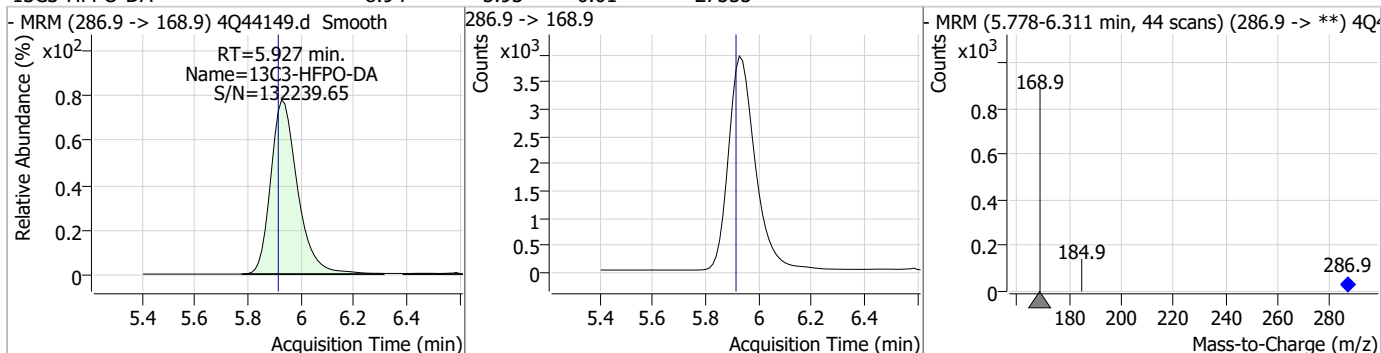
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.57	0.01	50401	318.0 -> 273.0	2.8	1.5	4.6



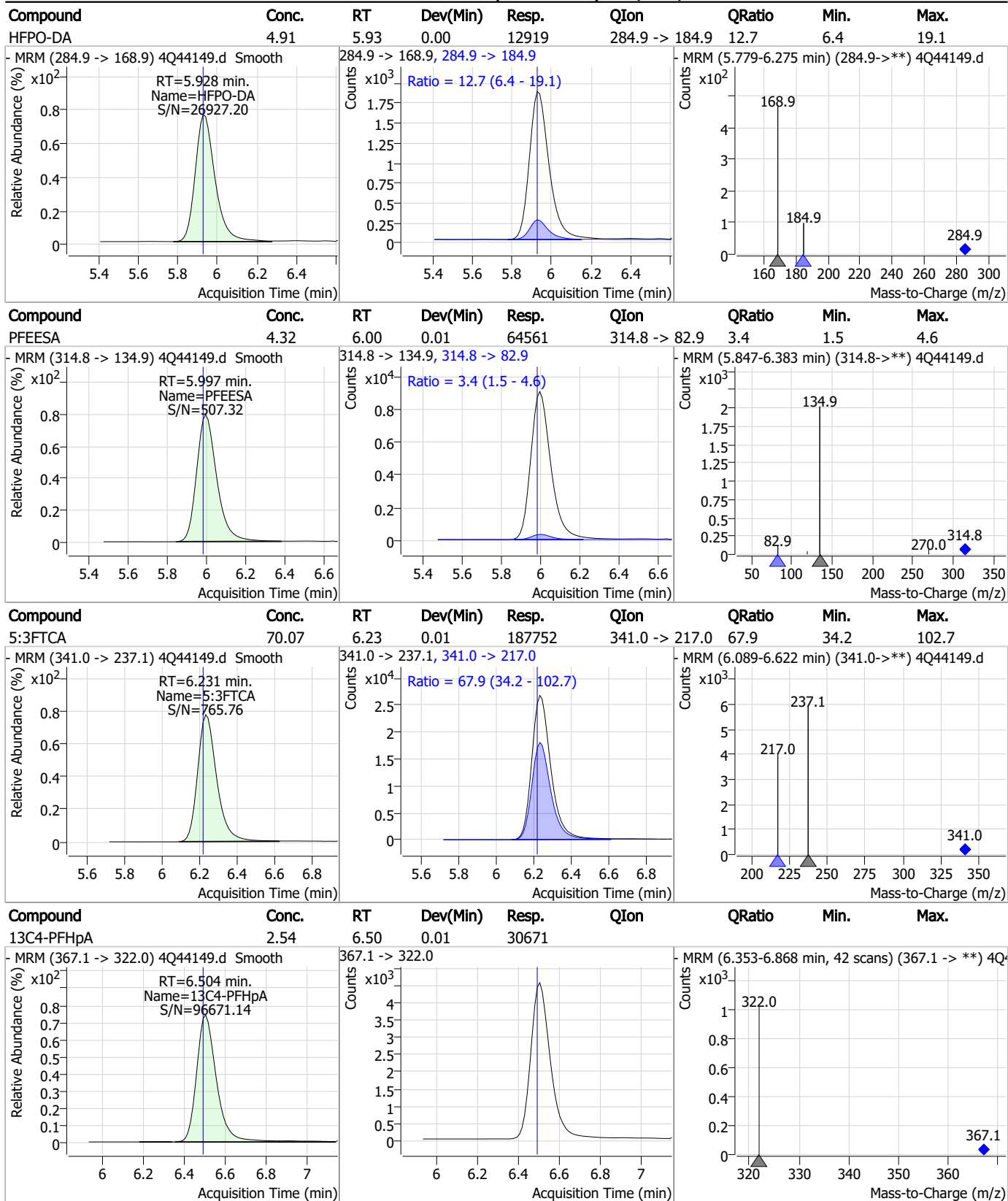
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.44	5.57	0.01	48147	313.0 -> 118.9	2.8	1.5	4.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.94	5.93	0.01	27555	286.9 -> 168.9	2.8	1.5	4.6

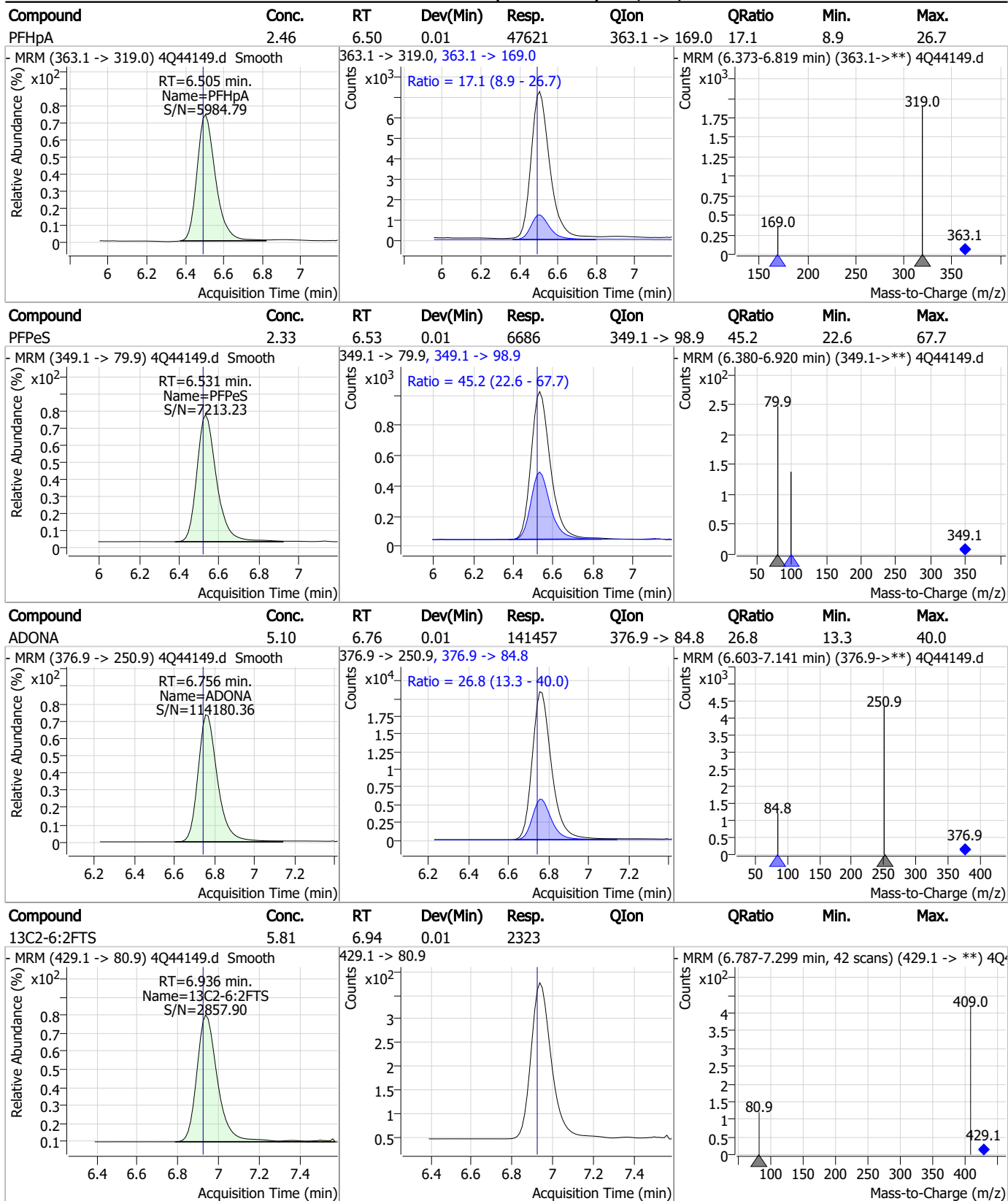


Perfluorinated Compounds by LC/MS/MS



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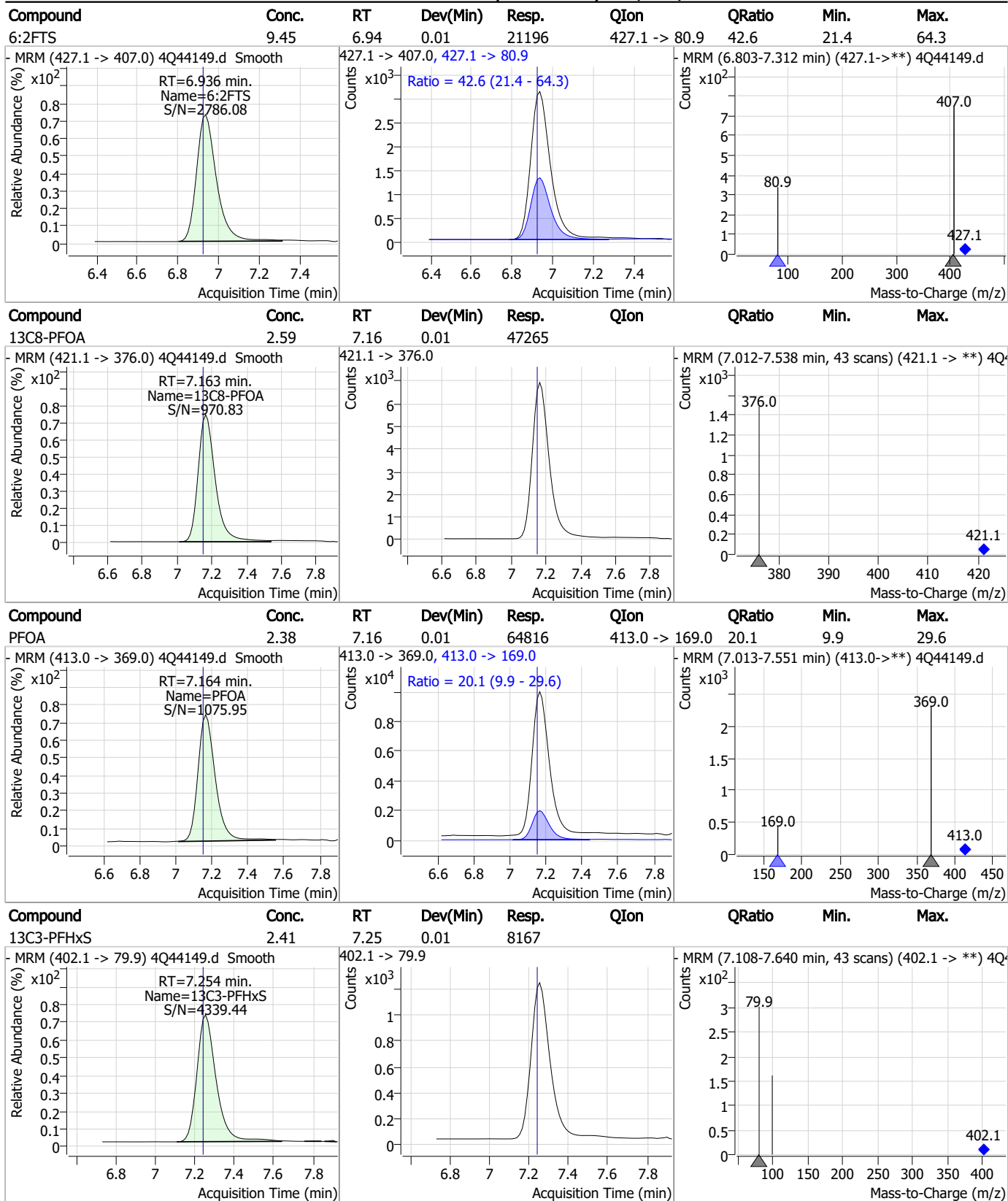
Perfluorinated Compounds by LC/MS/MS



7.7.13
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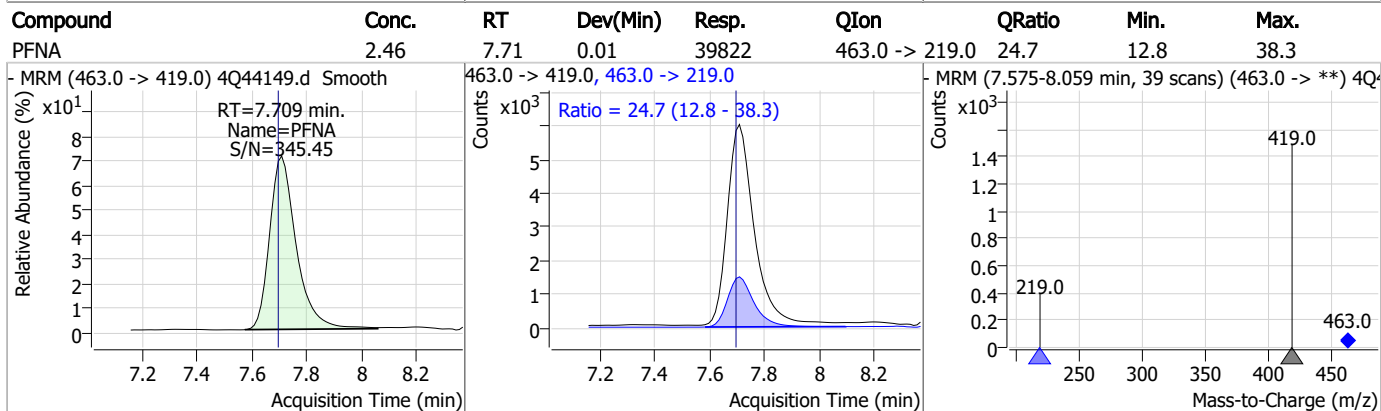
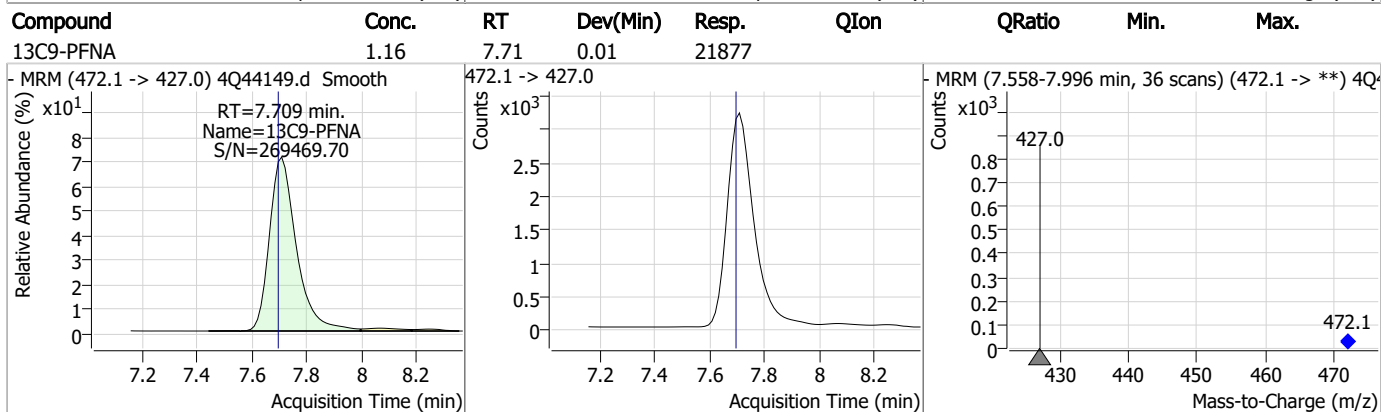
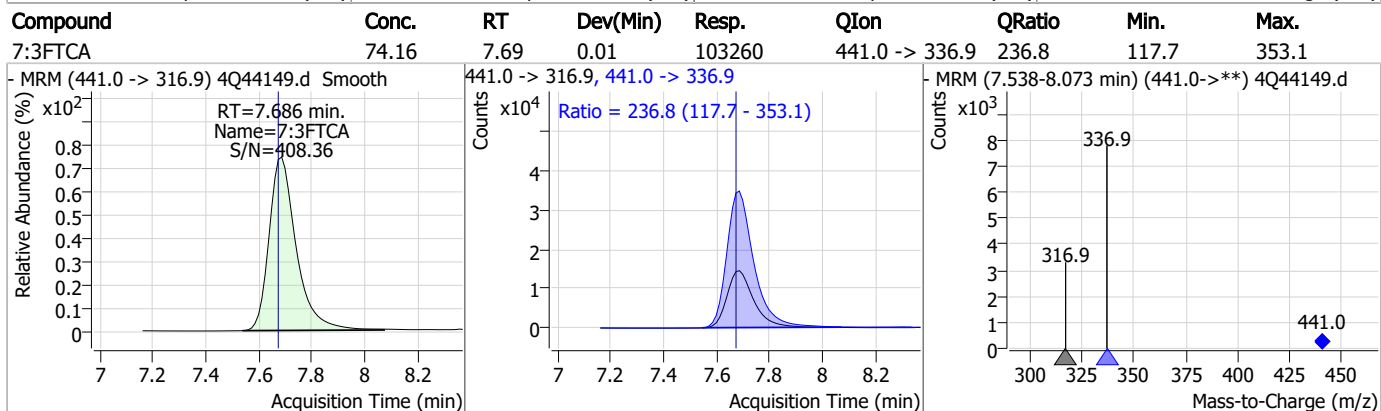
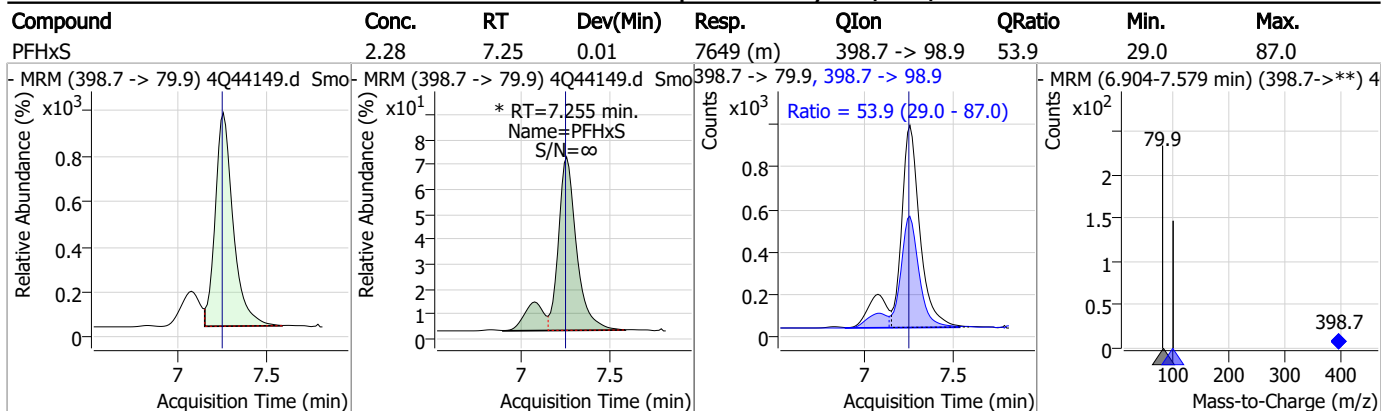
Perfluorinated Compounds by LC/MS/MS



7.7.13

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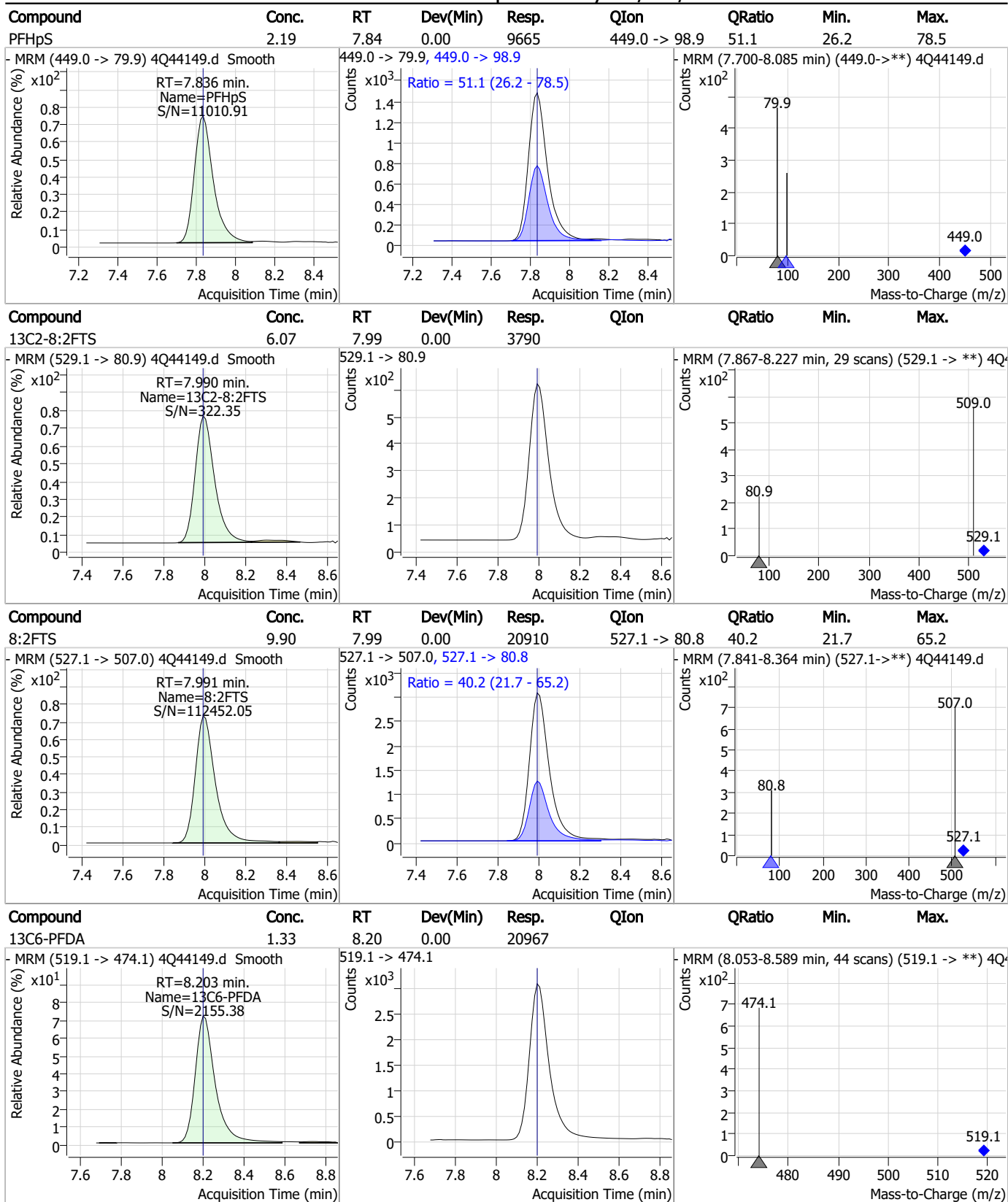
Perfluorinated Compounds by LC/MS/MS



7.7.13
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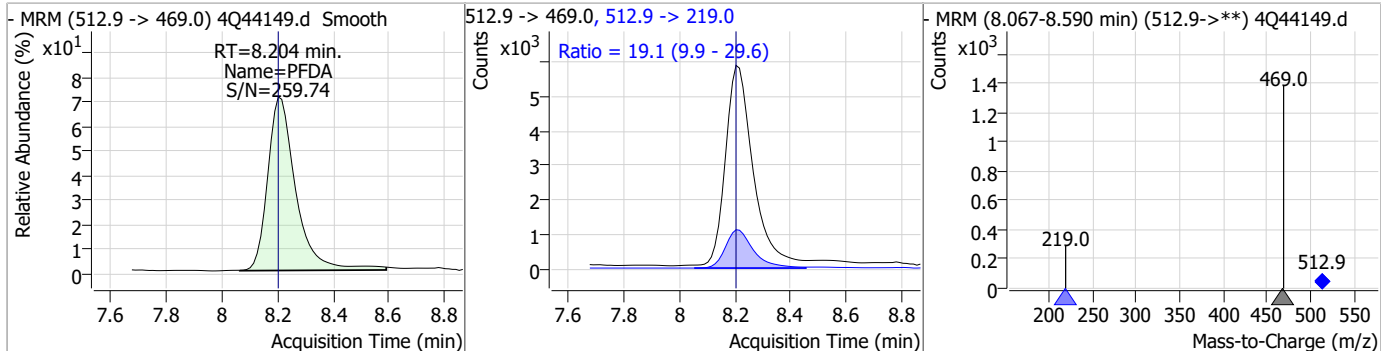
Perfluorinated Compounds by LC/MS/MS



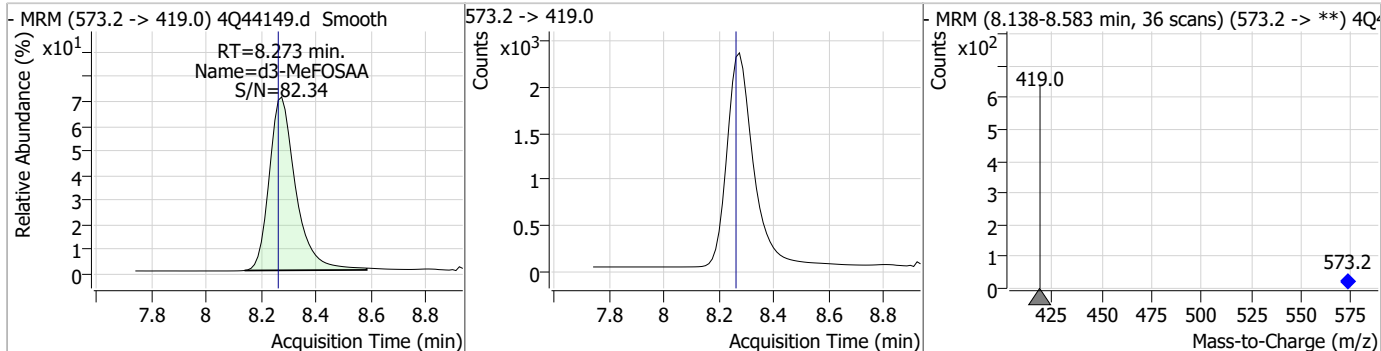
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Perfluorinated Compounds by LC/MS/MS

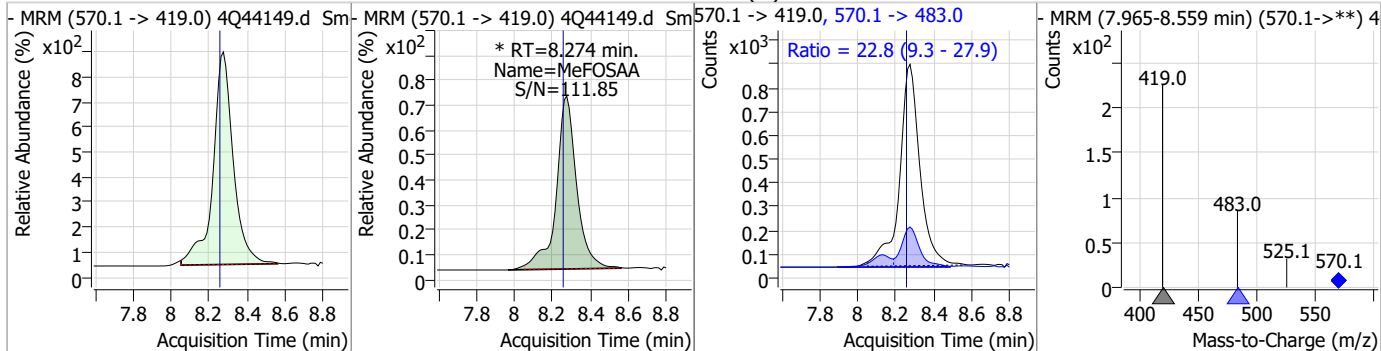
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.53	8.20	0.00	40224	512.9 -> 219.0	19.1	9.9	29.6



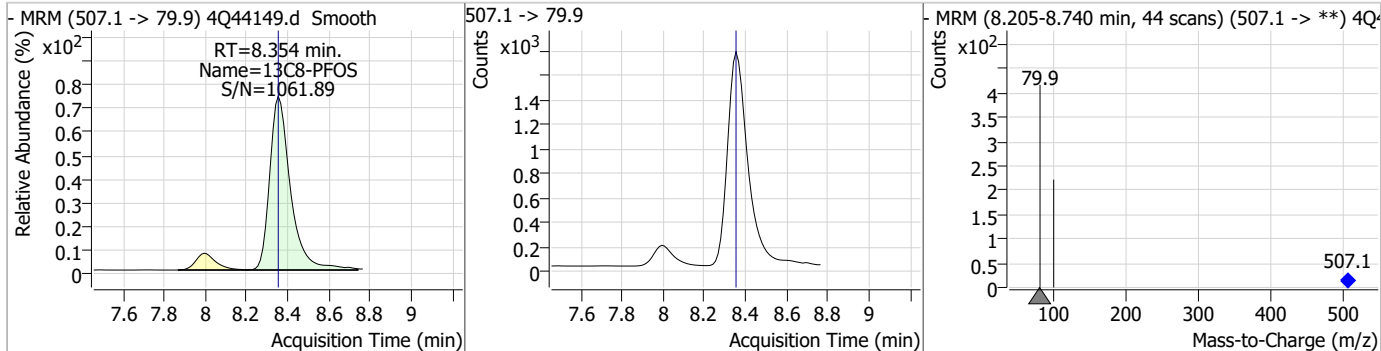
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.05	8.27	0.01	15532				



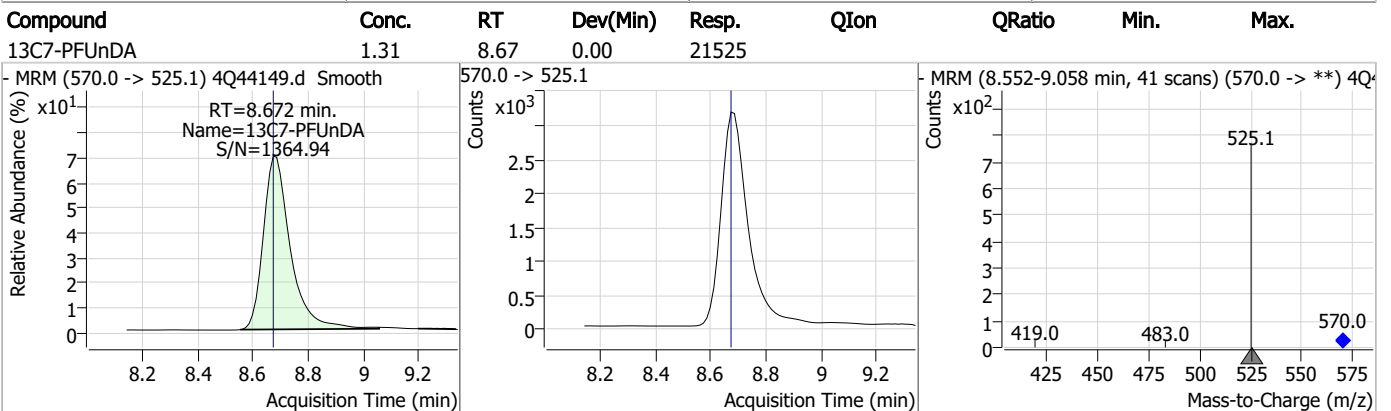
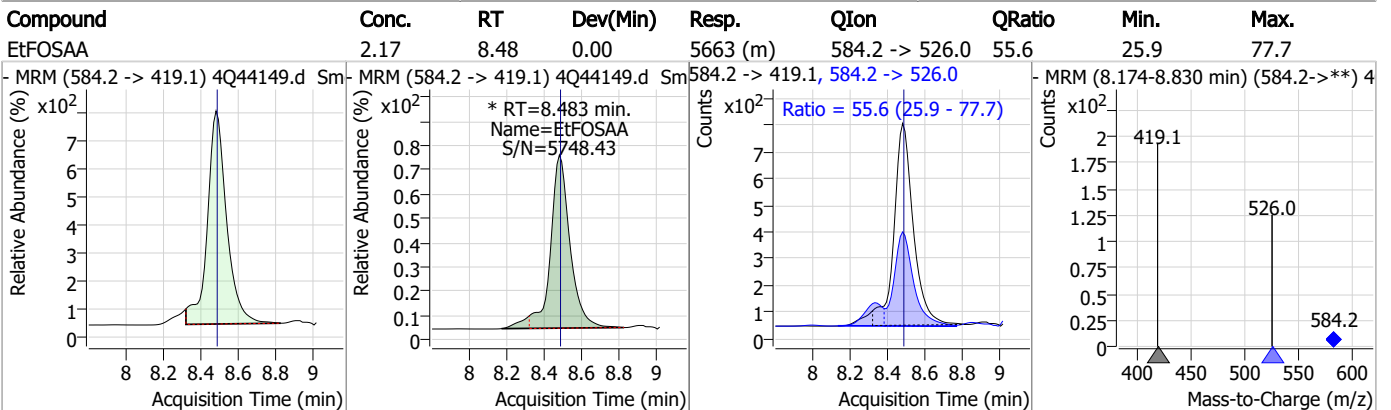
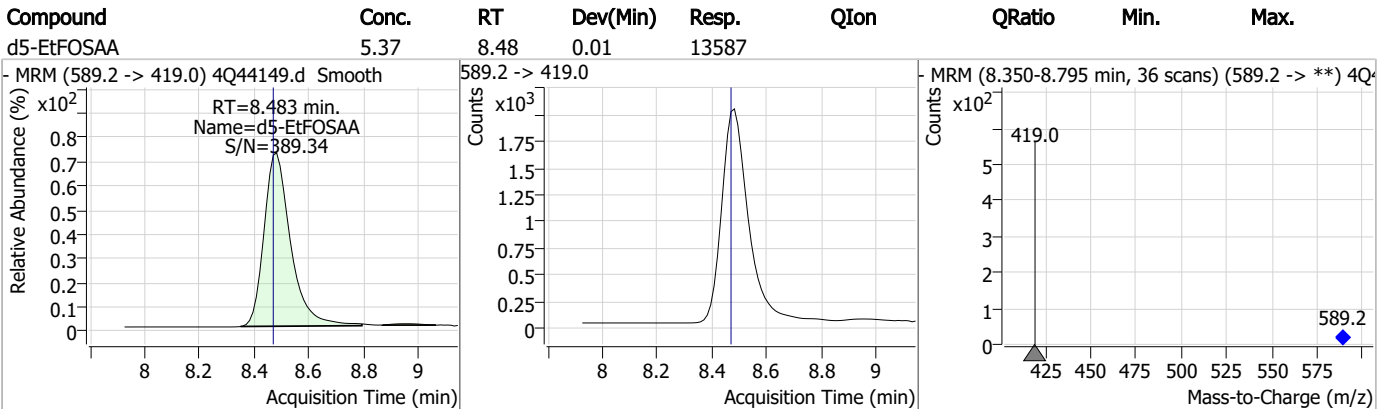
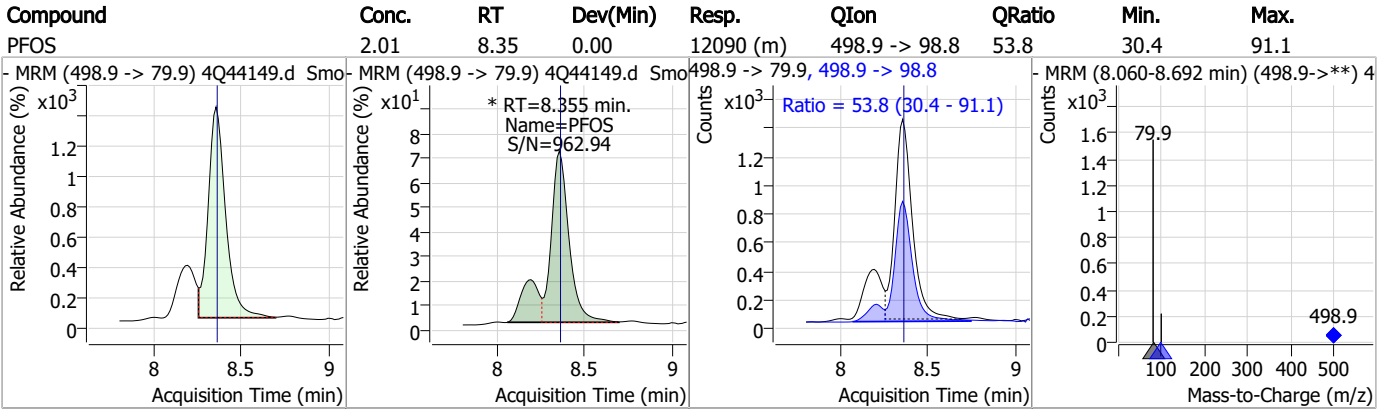
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.36	8.27	0.01	6383 (m)	570.1 -> 483.0	22.8	9.3	27.9



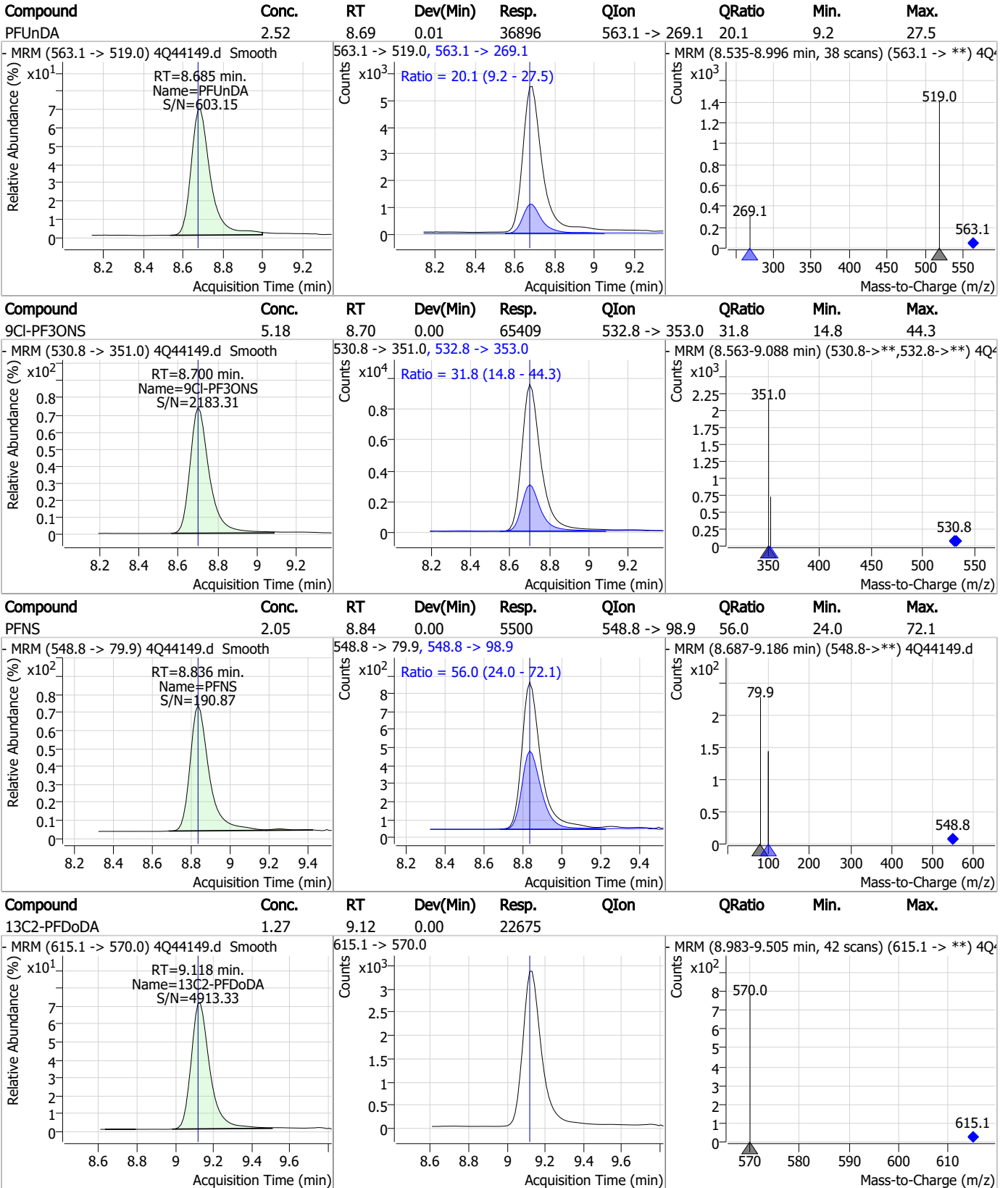
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.67	8.35	0.00	12264				



Perfluorinated Compounds by LC/MS/MS



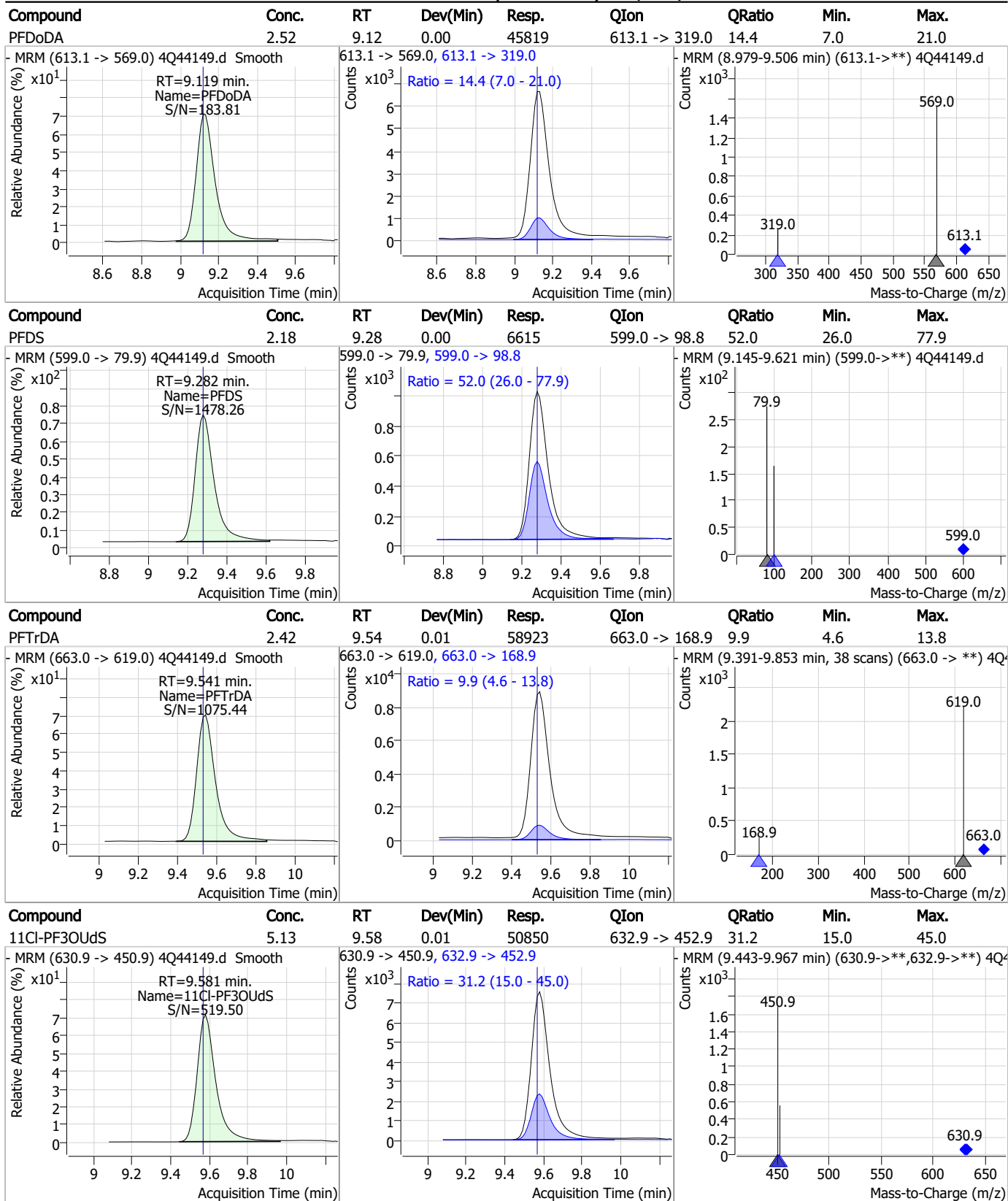
Perfluorinated Compounds by LC/MS/MS



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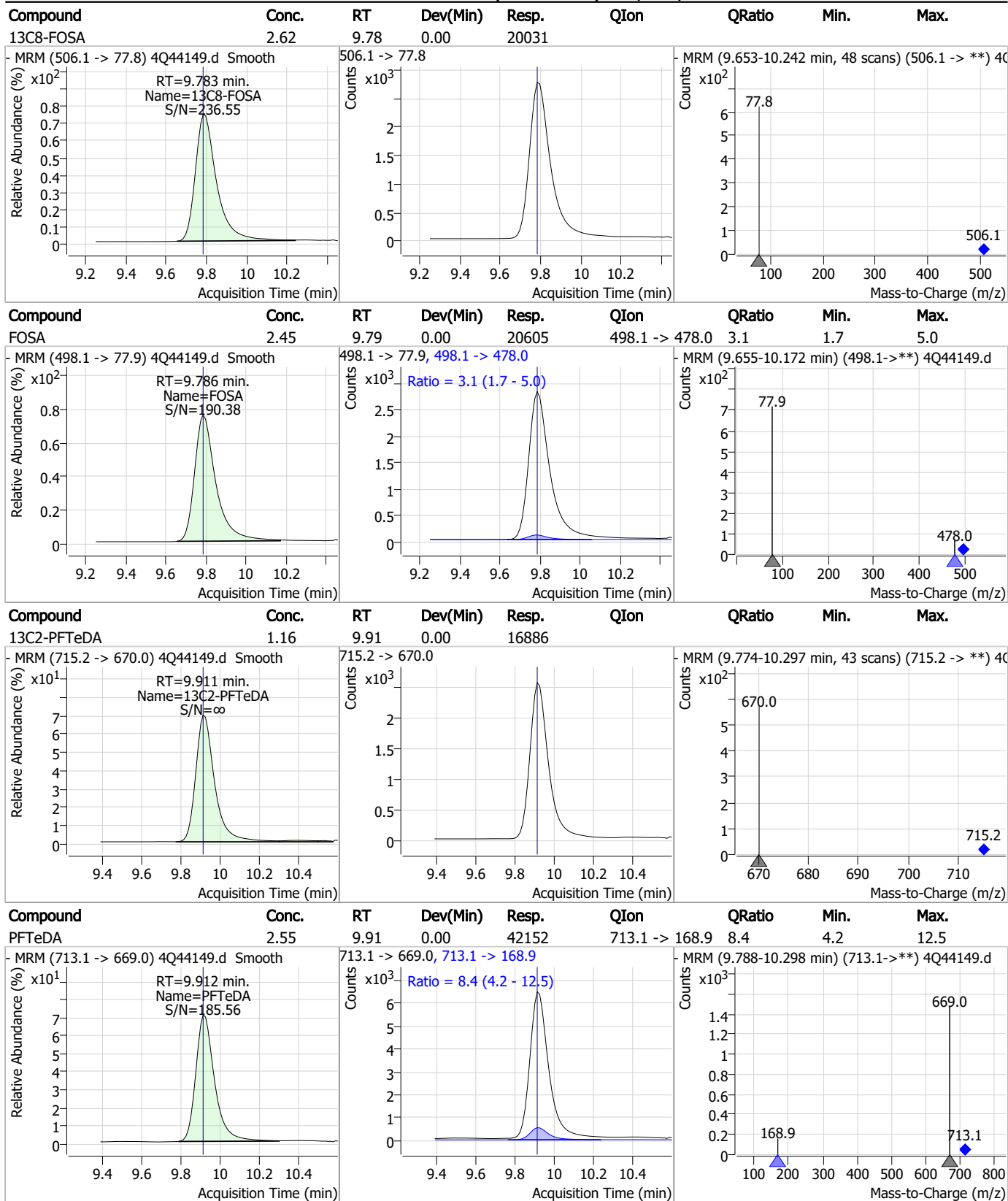


Perfluorinated Compounds by LC/MS/MS



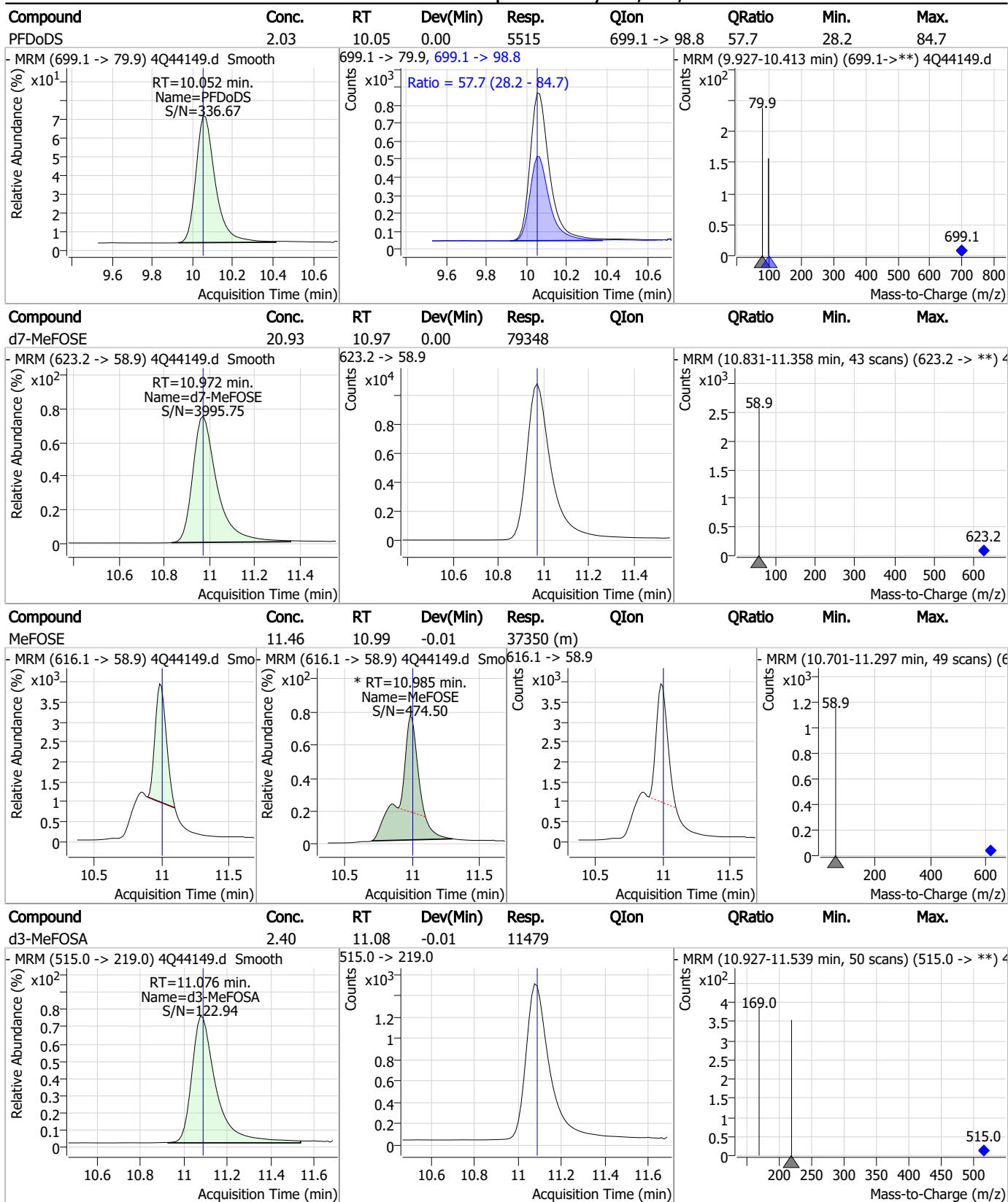
7.7.13
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Perfluorinated Compounds by LC/MS/MS



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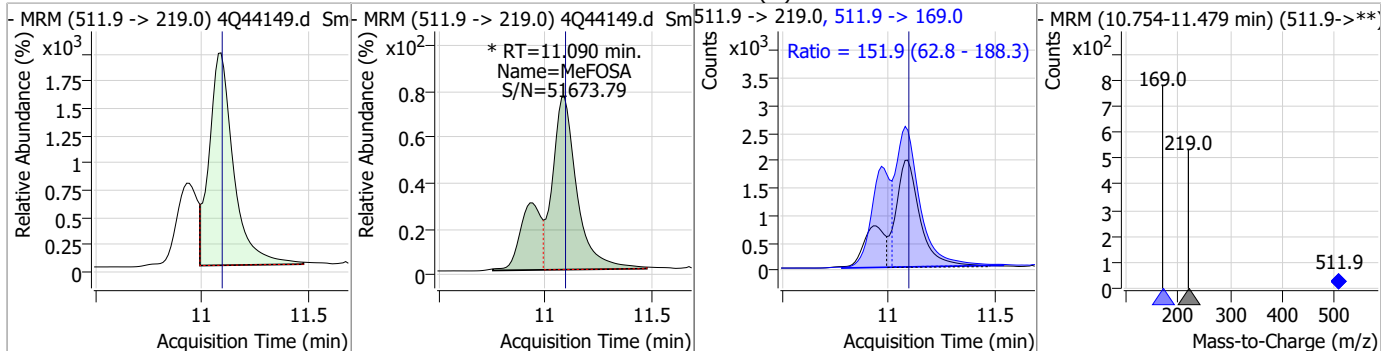
Perfluorinated Compounds by LC/MS/MS



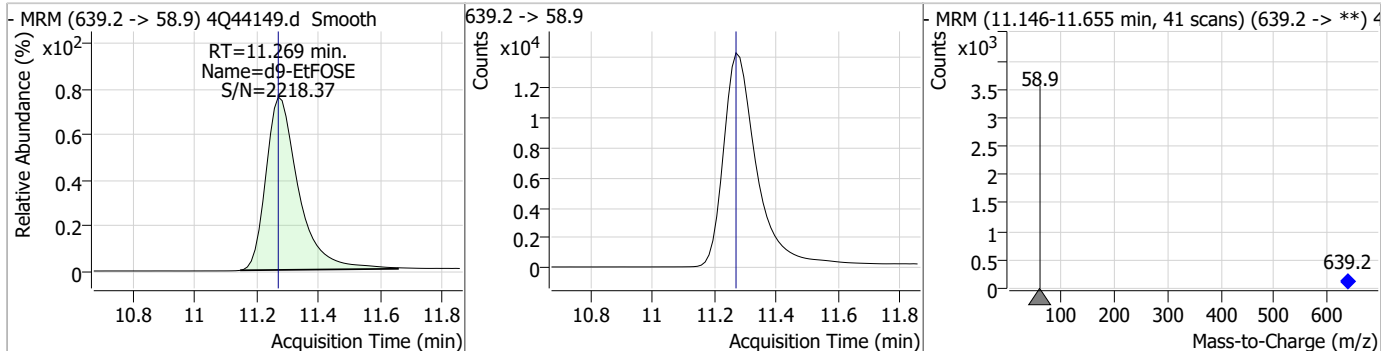
7.7.13
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Perfluorinated Compounds by LC/MS/MS

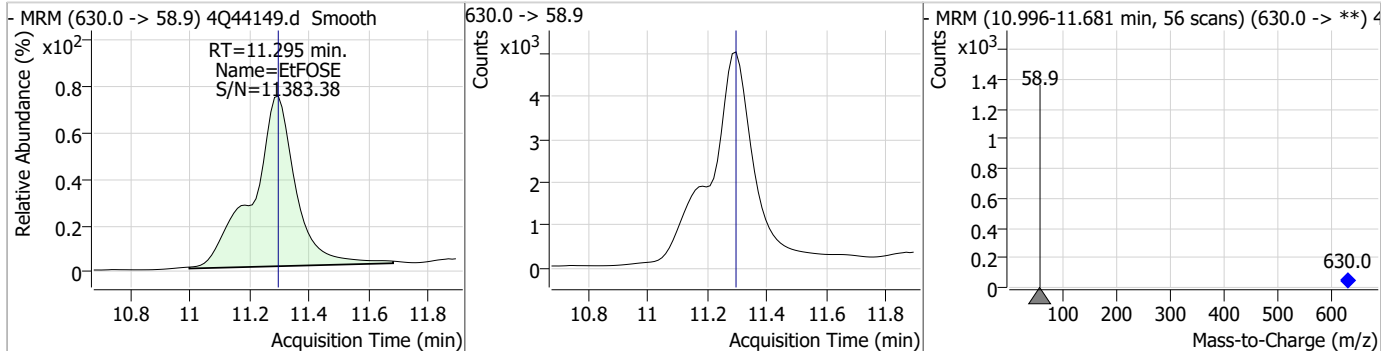
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.80	11.09	0.00	20749 (m)	511.9 -> 169.0	151.9	62.8	188.3



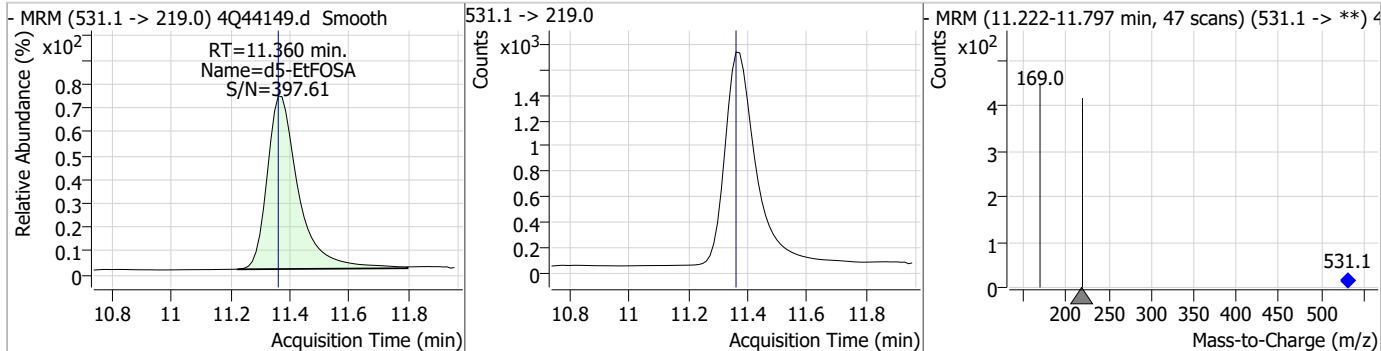
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.40	11.27	0.00	104136				



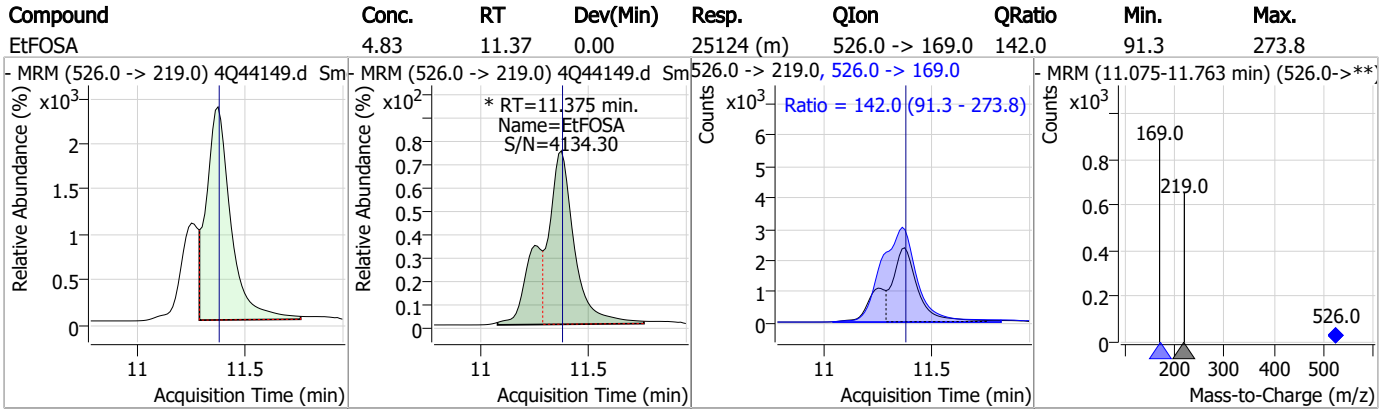
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.35	11.29	0.00	49805				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.45	11.36	0.00	12426				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q639-CC634 Method: EPA DRAFT 1633
Lab FileID: 4Q44149.D Analyst approved: 05/10/23 11:10 Martha Valls
Injection Time: 05/09/23 17:25 Supervisor approved: 05/10/23 17:21 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44158.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 7:31:44 PM
 Sample Name : cc634-4
 Vial : P1-A5
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	143428	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	74448	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	50975	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	30708	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	46100	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	23032	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	20254	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	21943	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	23318	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	17545	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	20151	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	12508	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	8104	2.50 µg/L	0.012
M8-PFOS	8.366	507.1 -> 79.9	11299	2.50 µg/L	0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1335	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2468	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3746	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	15900	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	26995	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	13894	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	81730	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	108350	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	12486	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	11033	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	12618	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	75482	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	5466	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	57019	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	18625	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	27184	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	46079	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1335	6.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.2%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2468	6.16 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.3%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3746	5.99 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.8%		
13C2-PFDoDA	9.130	615.1 -> 570.0	23318	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C2-PFTeDA	9.924	715.2 -> 670.0	17545	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-PFBS	5.464	302.1 -> 79.9	12508	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C3-PFHxS	7.254	402.1 -> 79.9	8104	2.39 µg/L	0.012

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7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C4-PFBA	2.924	216.8 -> 171.9	143428	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.492	367.1 -> 322.0	30708	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C5-PFHxA	5.559	318.0 -> 273.0	50975	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C5-PFPeA	4.387	268.3 -> 223.0	74448	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C6-PFDA	8.216	519.1 -> 474.1	20254	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C7-PFUnDA	8.685	570.0 -> 525.1	21943	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C8-FOSA	9.796	506.1 -> 77.8	20151	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C8-PFOA	7.163	421.1 -> 376.0	46100	2.46 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C8-PFOS	8.366	507.1 -> 79.9	11299	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C9-PFNA	7.709	472.1 -> 427.0	23032	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
d3-MeFOSAA	8.273	573.2 -> 419.0	15900	4.99 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C3-HFPO-DA	5.927	286.9 -> 168.9	26995	8.91 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 89.1%		
d3-MeFOSA	11.089	515.0 -> 219.0	11033	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.2%		
d5-EtFOSAA	8.483	589.2 -> 419.0	13894	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
d7-MeFOSE	10.972	623.2 -> 58.9	81730	20.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 83.3%		
d9-EtFOSE	11.281	639.2 -> 58.9	108350	19.49 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 78.0%		
d5-EtFOSA	11.373	531.1 -> 219.0	12486	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.9%		
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	19122	8.90 µg/L	98
		327.1 -> 80.9	8313		
6:2FTS	6.936	427.1 -> 407.0	22817	9.57 µg/L	99
		427.1 -> 80.9	9645		
8:2FTS	8.003	527.1 -> 507.0	21953	10.51 µg/L	98
		527.1 -> 80.8	9206		
EtFOSAA	8.496	584.2 -> 419.1	6193	2.32 µg/L	97
		584.2 -> 526.0	3078		
FOSA	9.786	498.1 -> 77.9	20720	2.45 µg/L	99
		498.1 -> 478.0	624		
MeFOSAA	8.286	570.1 -> 419.0	6617	2.39 µg/L	86
		570.1 -> 483.0	1647		
PFBA	2.932	212.8 -> 168.9	37831	9.85 µg/L	100
PFBS	5.465	298.7 -> 79.9	10739	2.09 µg/L	96
		298.7 -> 98.8	4112		
PFDA	8.216	512.9 -> 469.0	38745	2.52 µg/L	99
		512.9 -> 219.0	7479		
PFDODA	9.131	613.1 -> 569.0	45611	2.44 µg/L	98
		613.1 -> 319.0	6715		
PFDS	9.294	599.0 -> 79.9	6377	2.28 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8	3382	2.41	µg/L	100
		363.1 -> 319.0	46738			
PFHpS	7.836	363.1 -> 169.0	8329	2.40	µg/L	100
		449.0 -> 79.9	9787			
PFHxA	5.562	449.0 -> 98.9	5137	2.33	µg/L	99
		313.0 -> 269.0	46592			
PFHxS	7.255	313.0 -> 118.9	1589	2.35	µg/L	m
		398.7 -> 79.9	7806			
PFNA	7.709	398.7 -> 98.9	3756	2.29	µg/L	99
		463.0 -> 419.0	39156			
PFNS	8.848	463.0 -> 219.0	10241	2.25	µg/L	92
		548.8 -> 79.9	5538			
PFOA	7.164	548.8 -> 98.9	2949	2.35	µg/L	97
		413.0 -> 369.0	62393			
PFOS	8.355	413.0 -> 169.0	13083	2.30	µg/L	m
		498.9 -> 79.9	12733			
PFPeA	4.389	498.9 -> 98.8	6703	4.87	µg/L	100
		263.0 -> 219.0	87196			
PFPeS	6.519	349.1 -> 79.9	6407	2.25	µg/L	97
		349.1 -> 98.9	2764			
PFTeDA	9.924	713.1 -> 669.0	42238	2.46	µg/L	98
		713.1 -> 168.9	3799			
PFTrDA	9.541	663.0 -> 619.0	61693	2.47	µg/L	99
		663.0 -> 168.9	5899			
PFUnDA	8.685	563.1 -> 519.0	36343	2.44	µg/L	96
		563.1 -> 269.1	7310			
11CI-PF3OUdS	9.581	630.9 -> 450.9	50940	5.25	µg/L	99
		632.9 -> 452.9	15561			
9CI-PF3ONS	8.712	530.8 -> 351.0	64925	5.25	µg/L	99
		532.8 -> 353.0	18813			
ADONA	6.756	376.9 -> 250.9	136168	5.02	µg/L	99
		376.9 -> 84.8	36885			
HFPO-DA	5.928	284.9 -> 168.9	12741	4.94	µg/L	99
		284.9 -> 184.9	1601			
3:3FTCA	3.867	241.0 -> 177.0	9997	12.69	µg/L	100
		241.0 -> 117.0	912			
5:3FTCA	6.217	341.0 -> 237.1	188703	69.63	µg/L	98
		341.0 -> 217.0	126043			
7:3FTCA	7.686	441.0 -> 316.9	104598	74.28	µg/L	99
		441.0 -> 336.9	248746			
EtFOSA	11.375	526.0 -> 219.0	25380	4.85	µg/L	m
		526.0 -> 169.0	35516			
EtFOSE	11.295	630.0 -> 58.9	50205	11.97	µg/L	100
		511.9 -> 219.0	21882			
MeFOSA	11.090	511.9 -> 169.0	30169	5.26	µg/L	m
		616.1 -> 58.9	37130			
MeFOSE	10.997	699.1 -> 79.9	5648	11.06	µg/L	m
		699.1 -> 98.8	3199			
PFDoDS	10.064	295.0 -> 201.0	5908	2.26	µg/L	100
		295.0 -> 84.9	1505			
NFDHA	5.453	279.0 -> 85.1	47623	4.14	µg/L	98
		229.0 -> 84.9	45908			
PFMBA	4.803	314.8 -> 134.9	65206	4.90	µg/L	100
		314.8 -> 82.9	2505			
PFMPA	3.540			4.31	µg/L	98
PFEESA	5.984					

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

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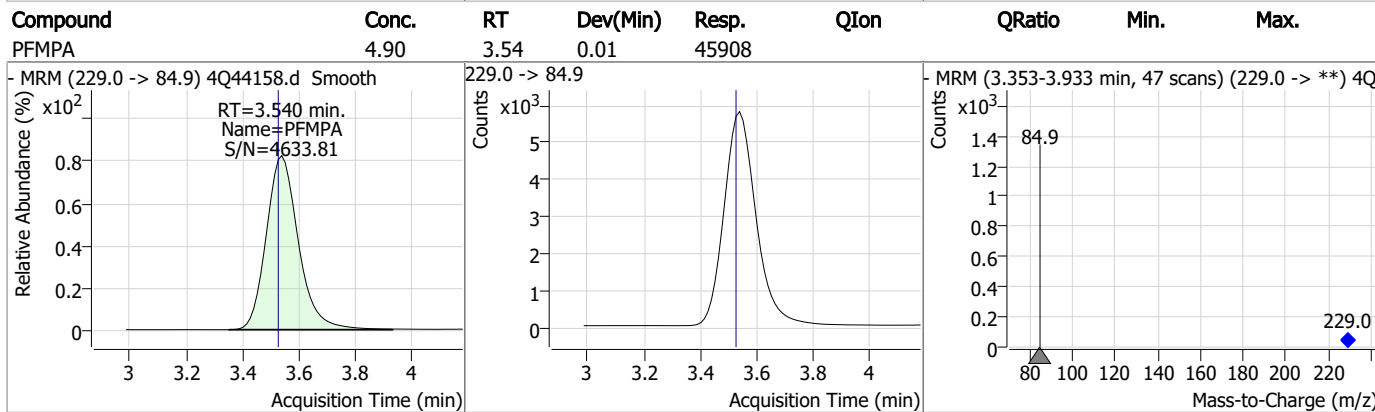
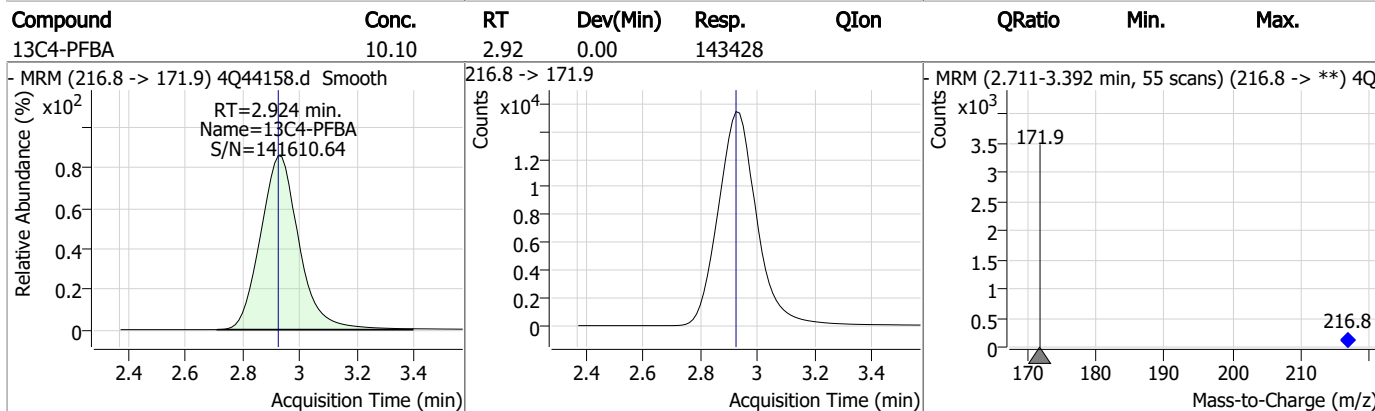
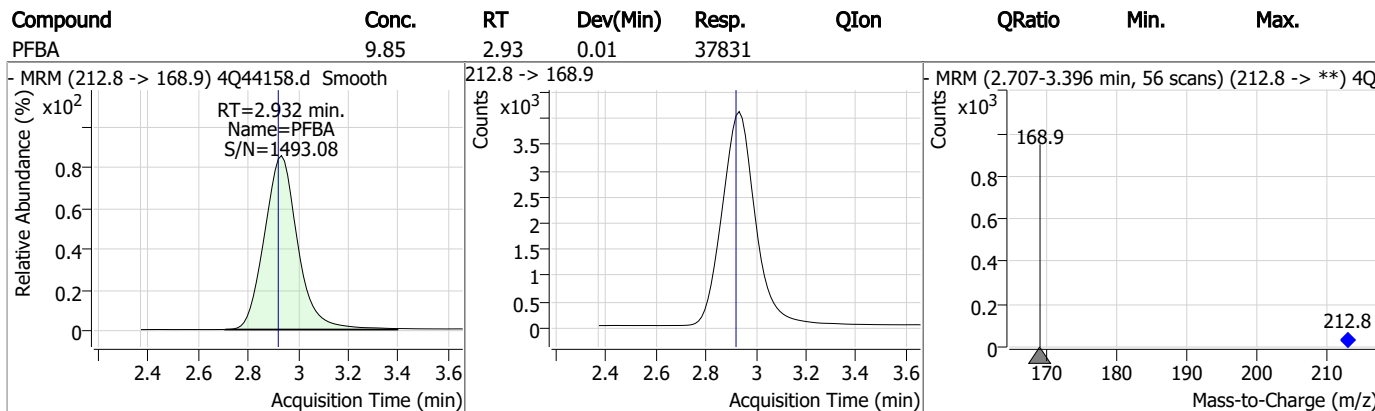
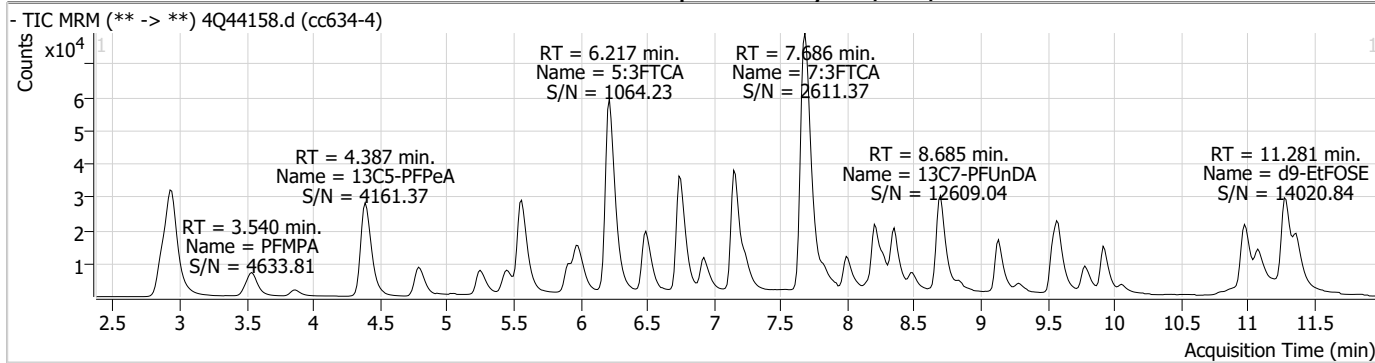
Perfluorinated Compounds by LC/MS/MS

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

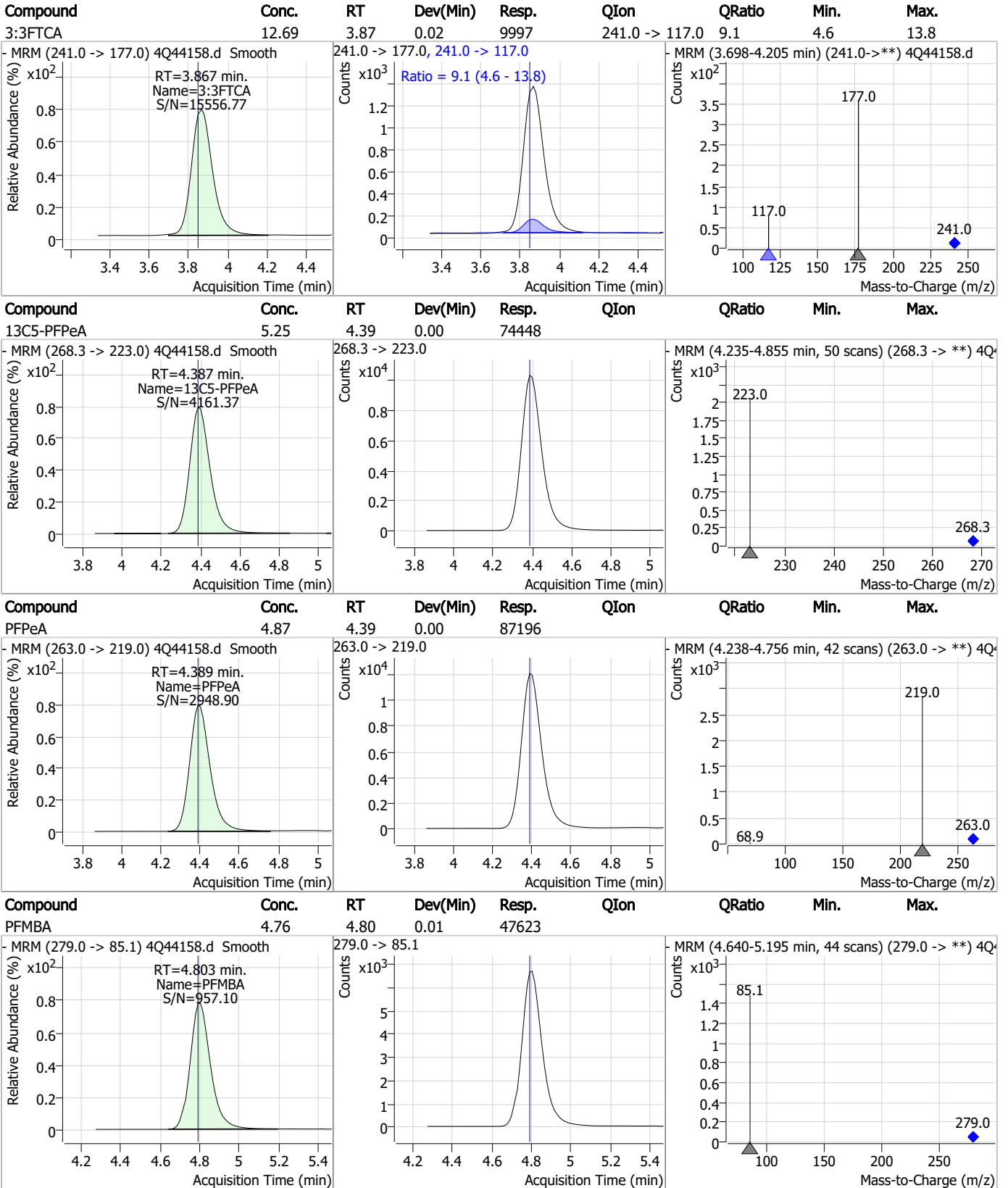
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Perfluorinated Compounds by LC/MS/MS



7.7.14
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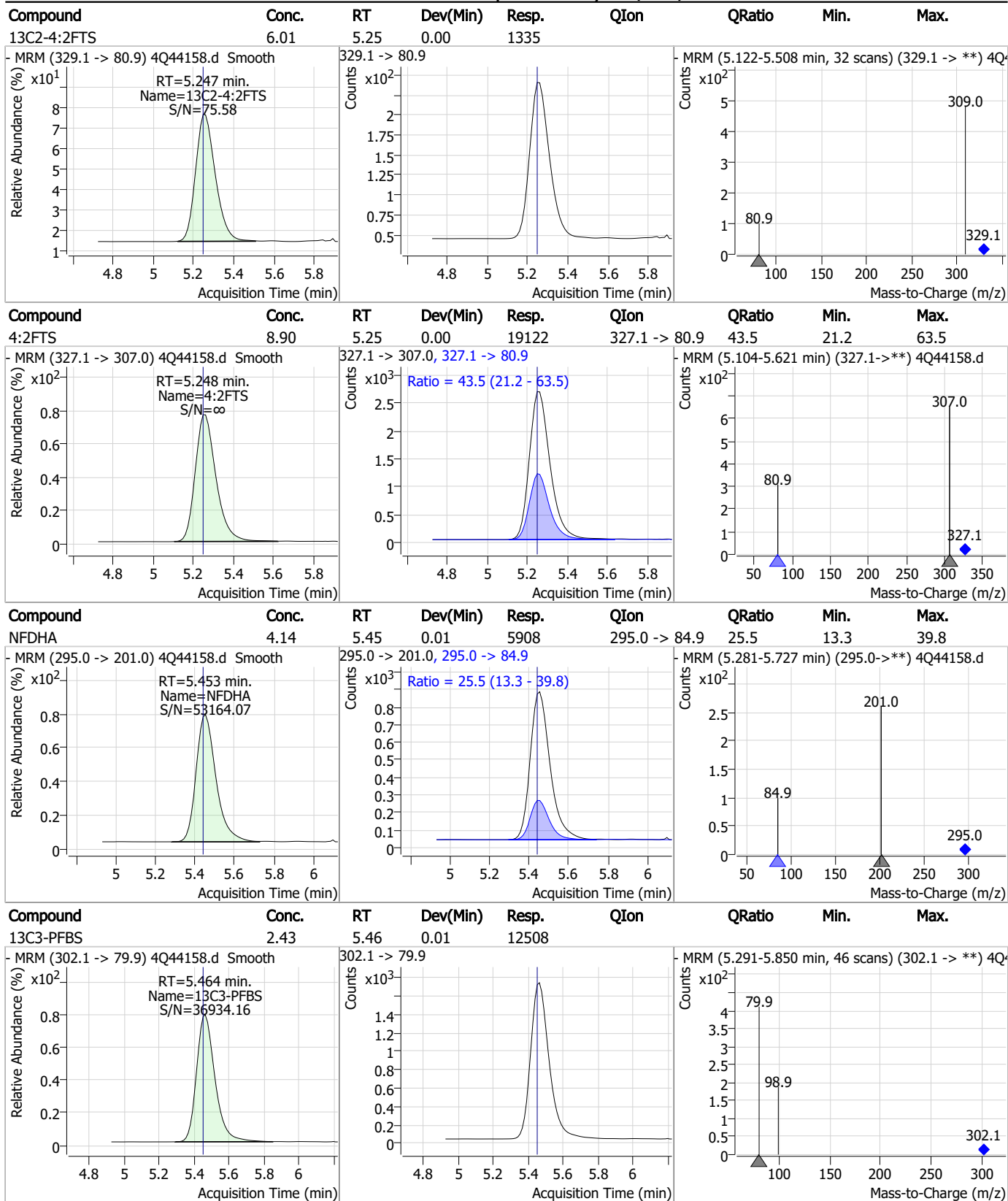
Perfluorinated Compounds by LC/MS/MS



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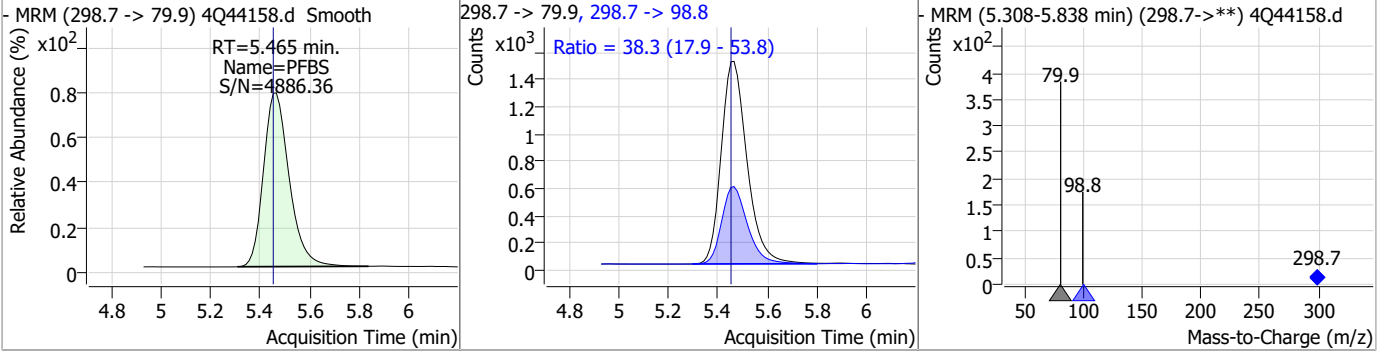
Perfluorinated Compounds by LC/MS/MS



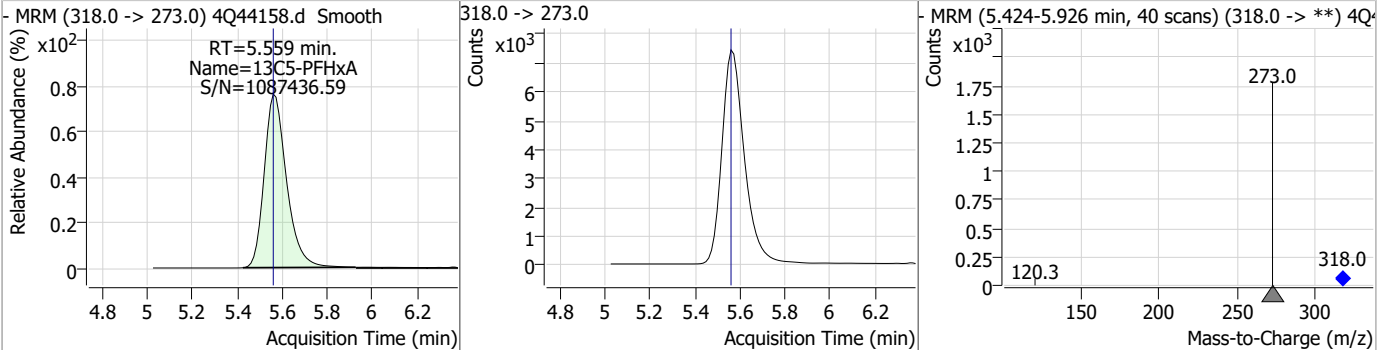
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Perfluorinated Compounds by LC/MS/MS

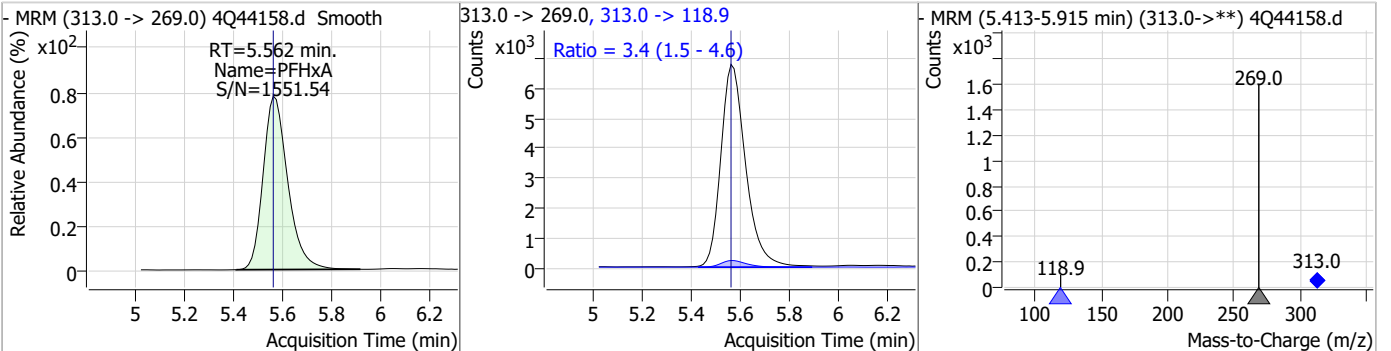
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.09	5.46	0.01	10739	298.7 -> 98.8	38.3	17.9	53.8



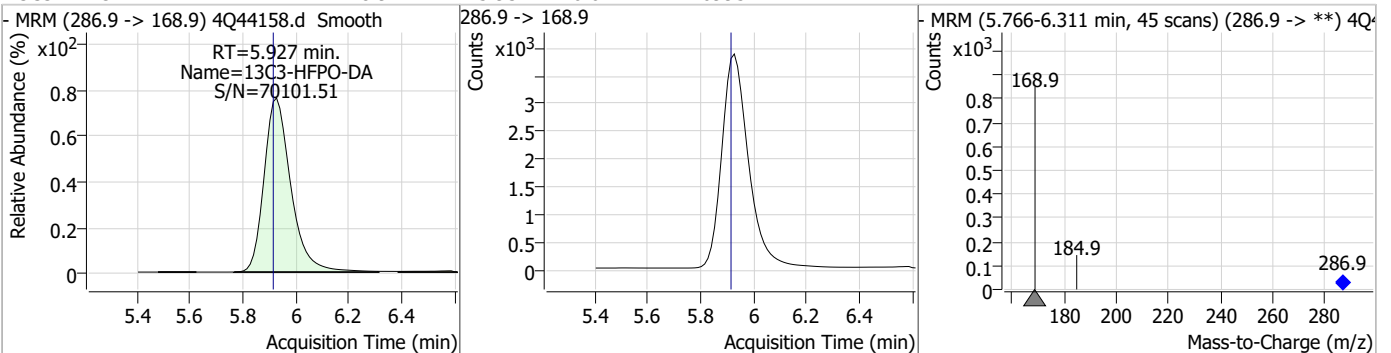
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.56	0.00	50975				



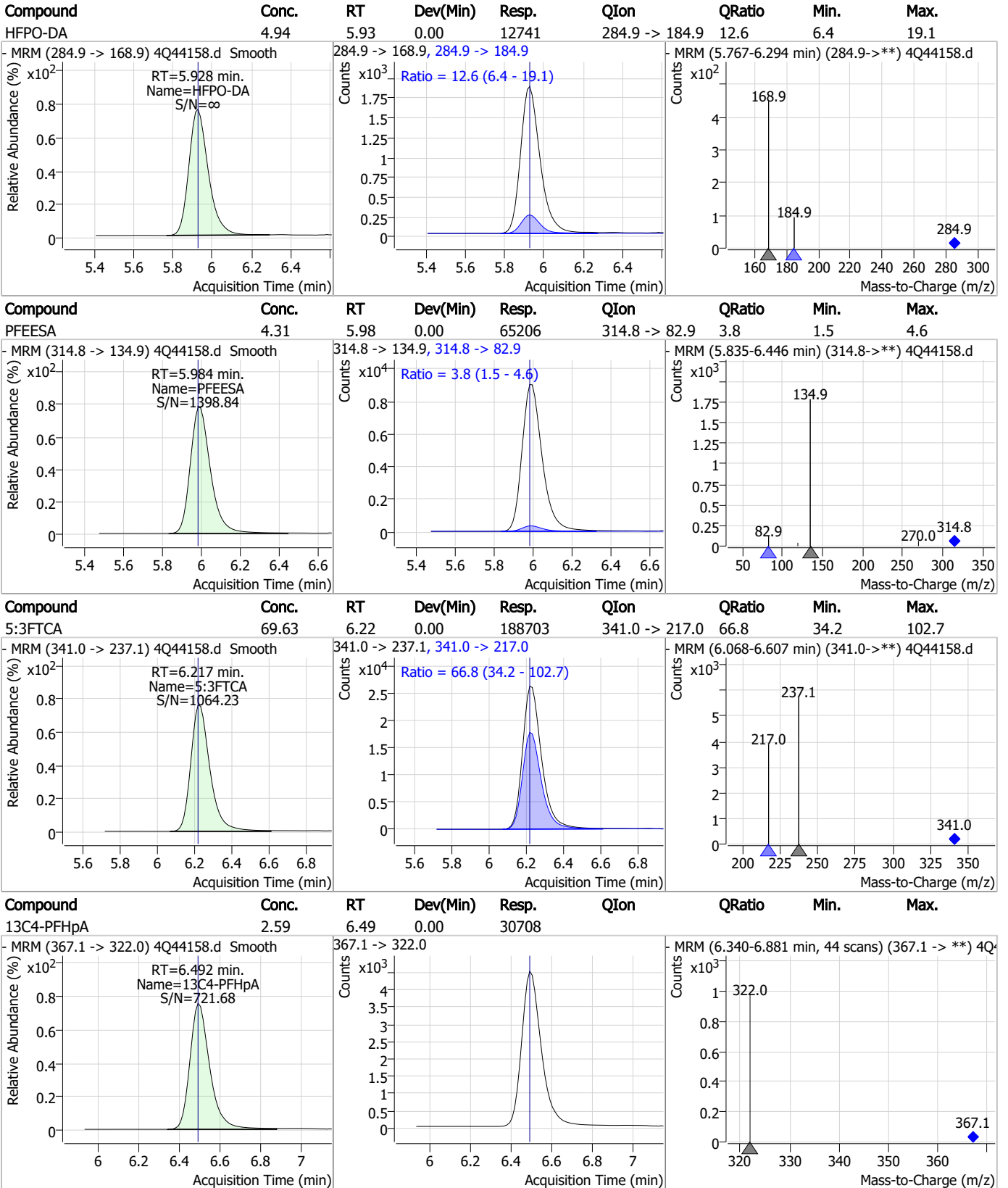
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.33	5.56	0.00	46592	313.0 -> 118.9	3.4	1.5	4.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.91	5.93	0.01	26995				



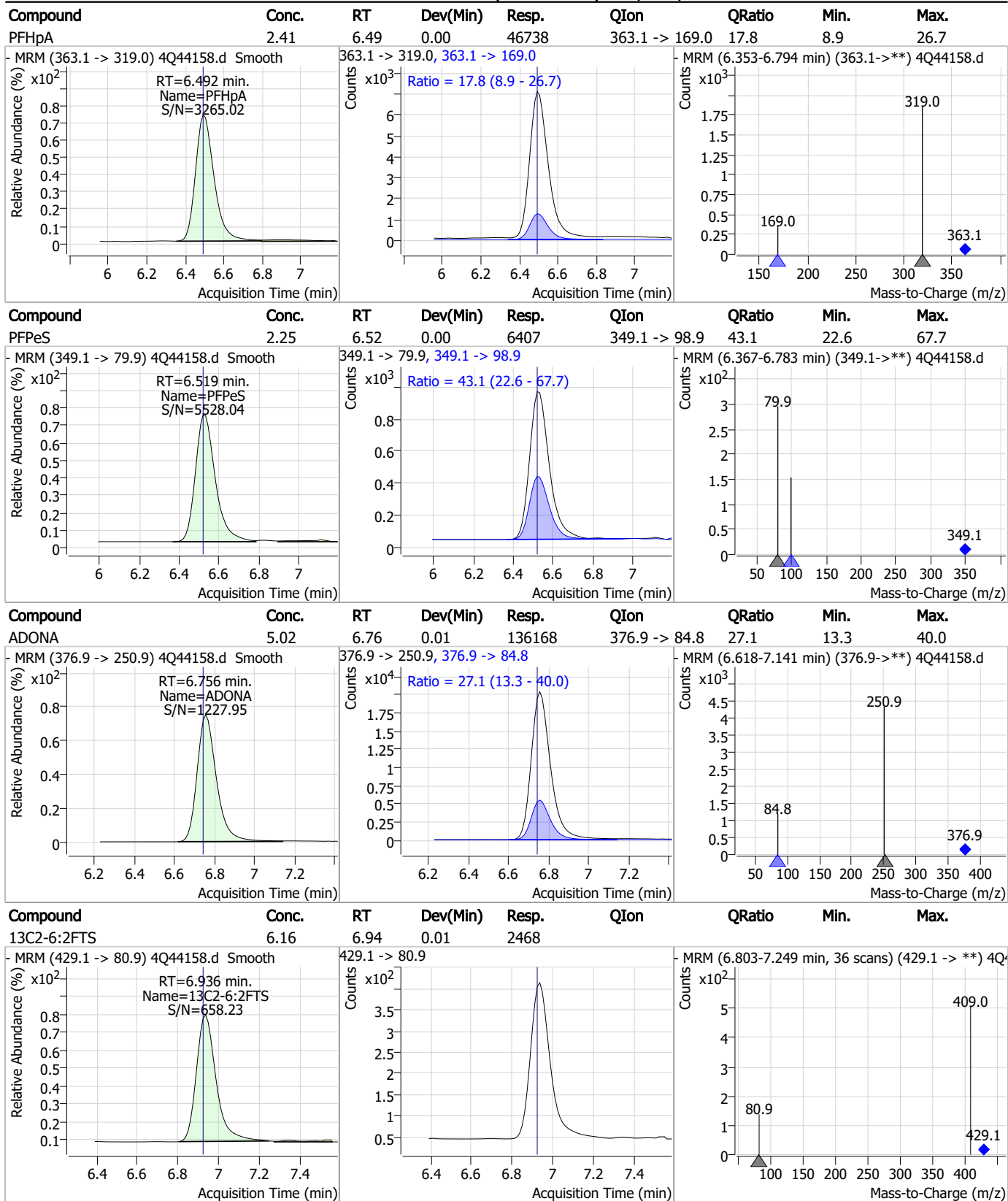
Perfluorinated Compounds by LC/MS/MS



7.7.14
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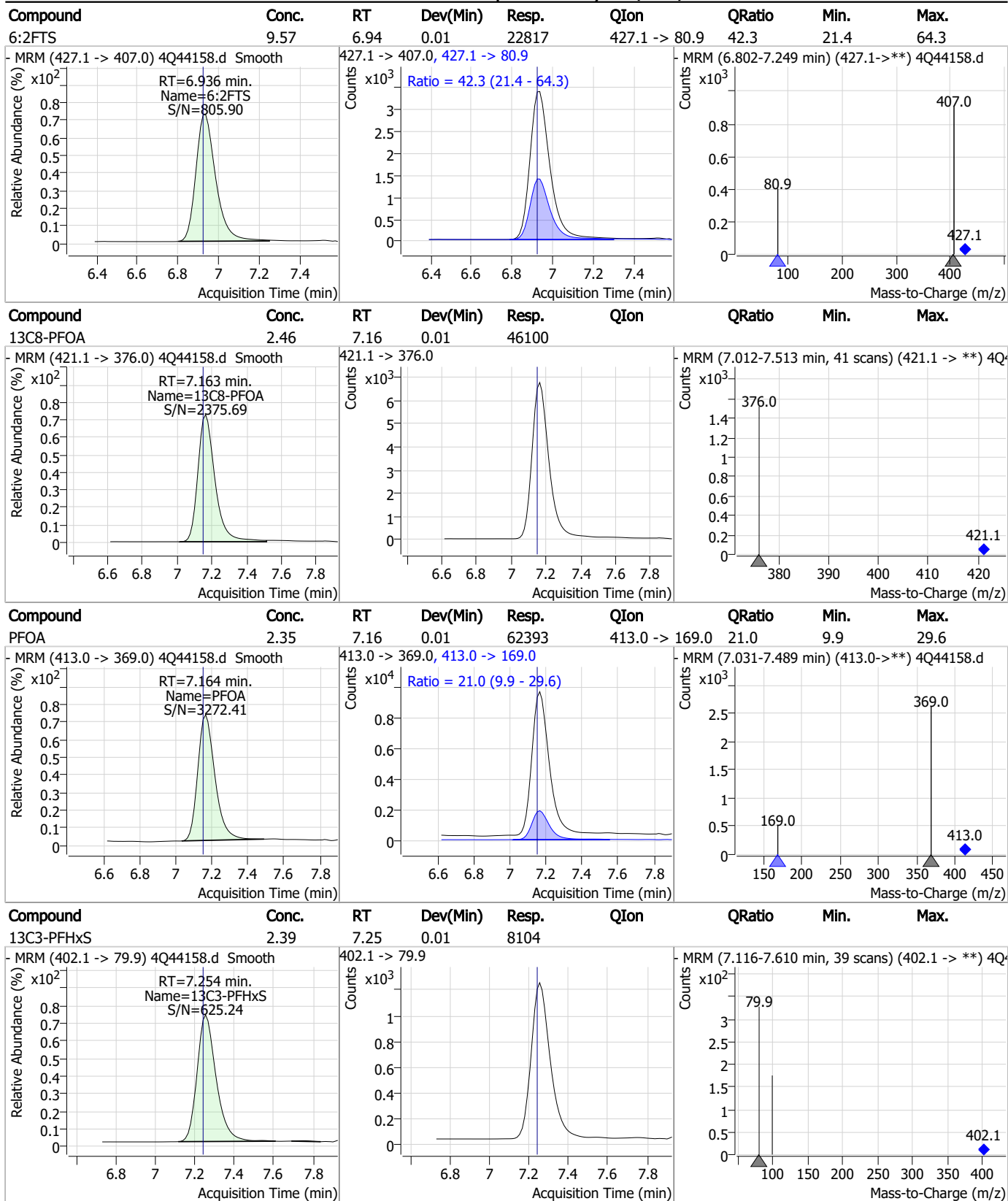


Perfluorinated Compounds by LC/MS/MS



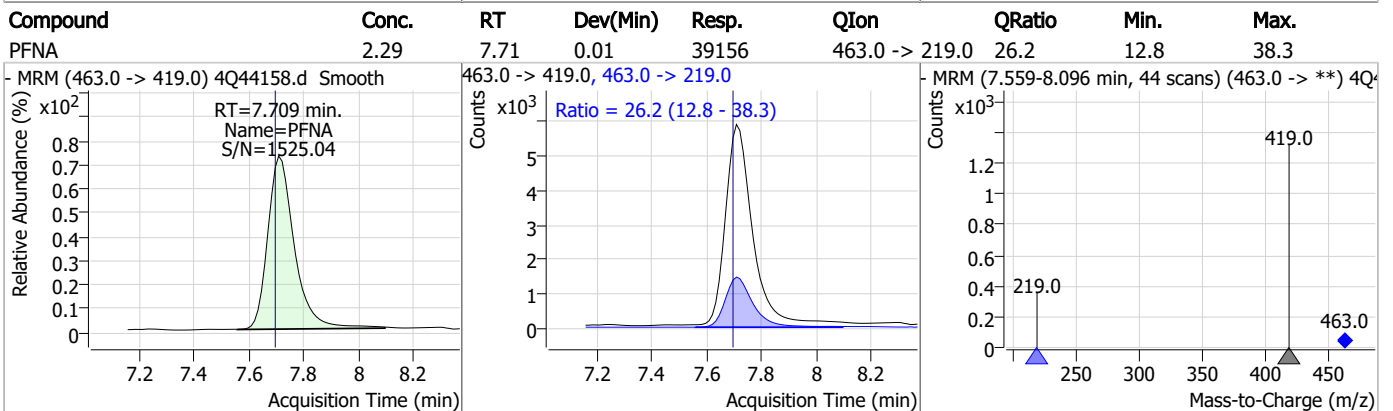
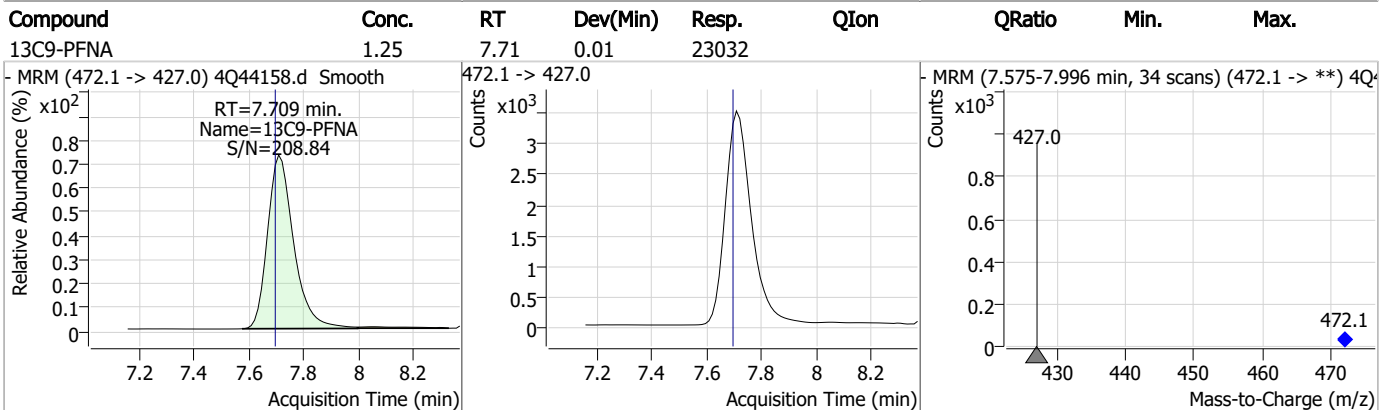
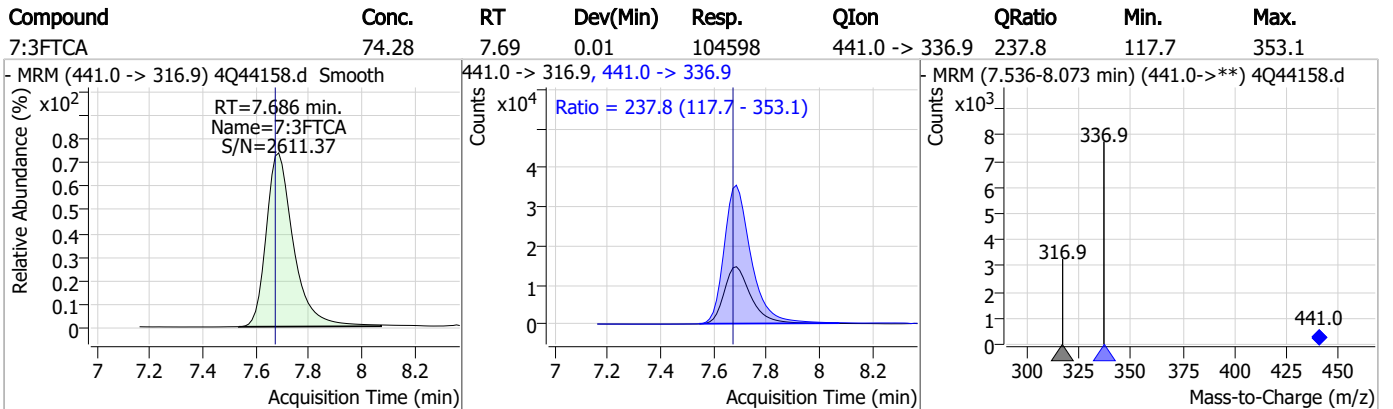
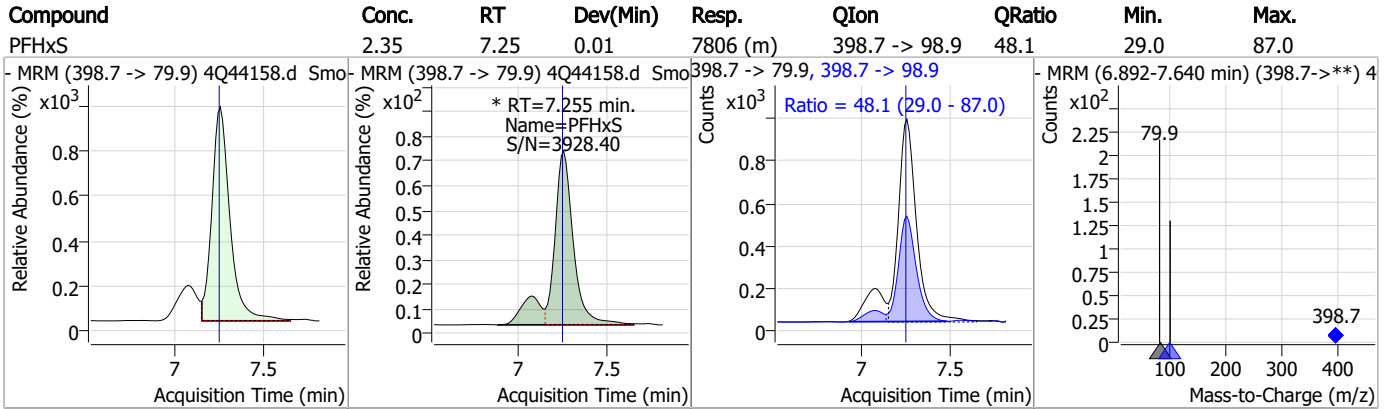
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Perfluorinated Compounds by LC/MS/MS



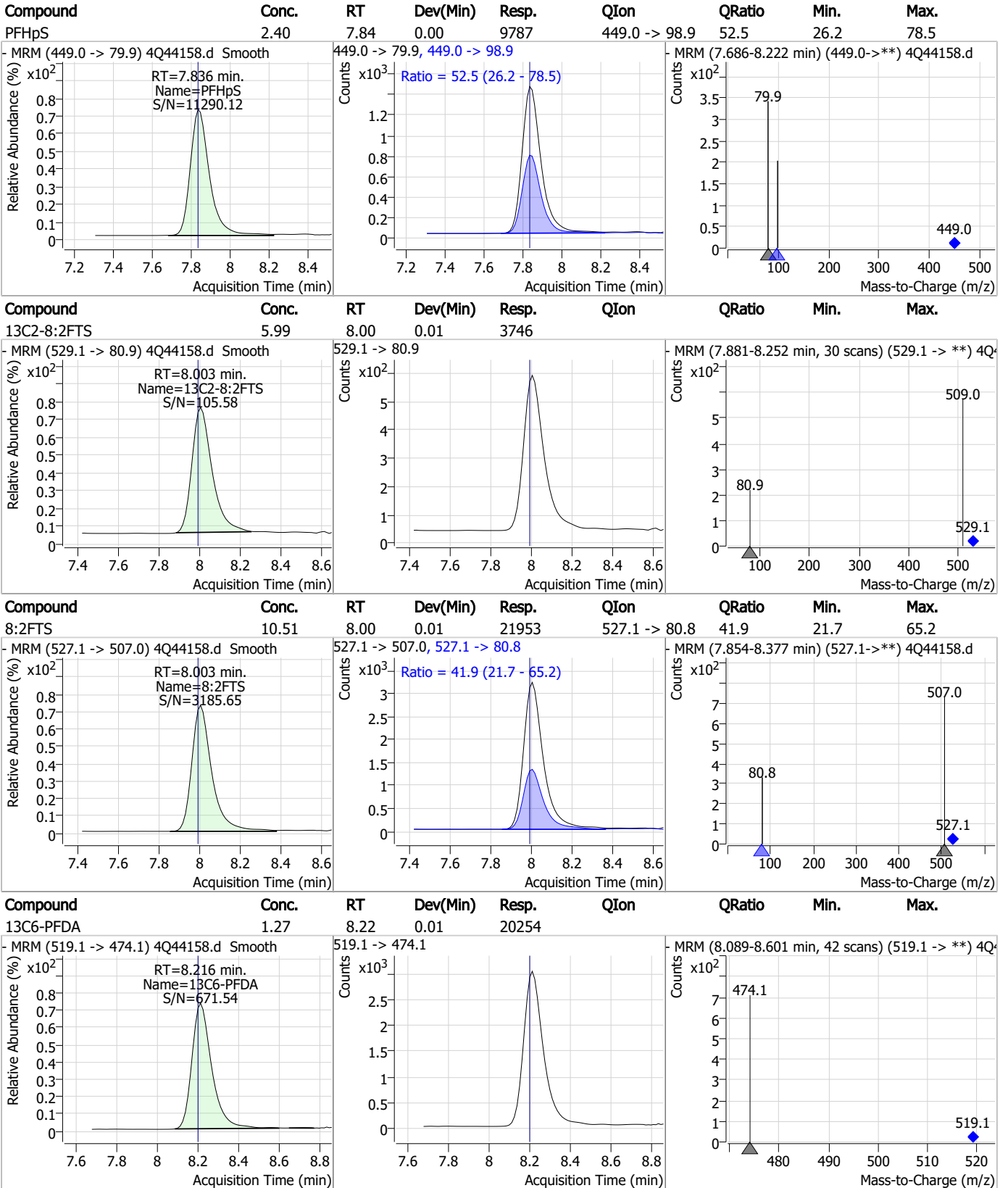
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Perfluorinated Compounds by LC/MS/MS



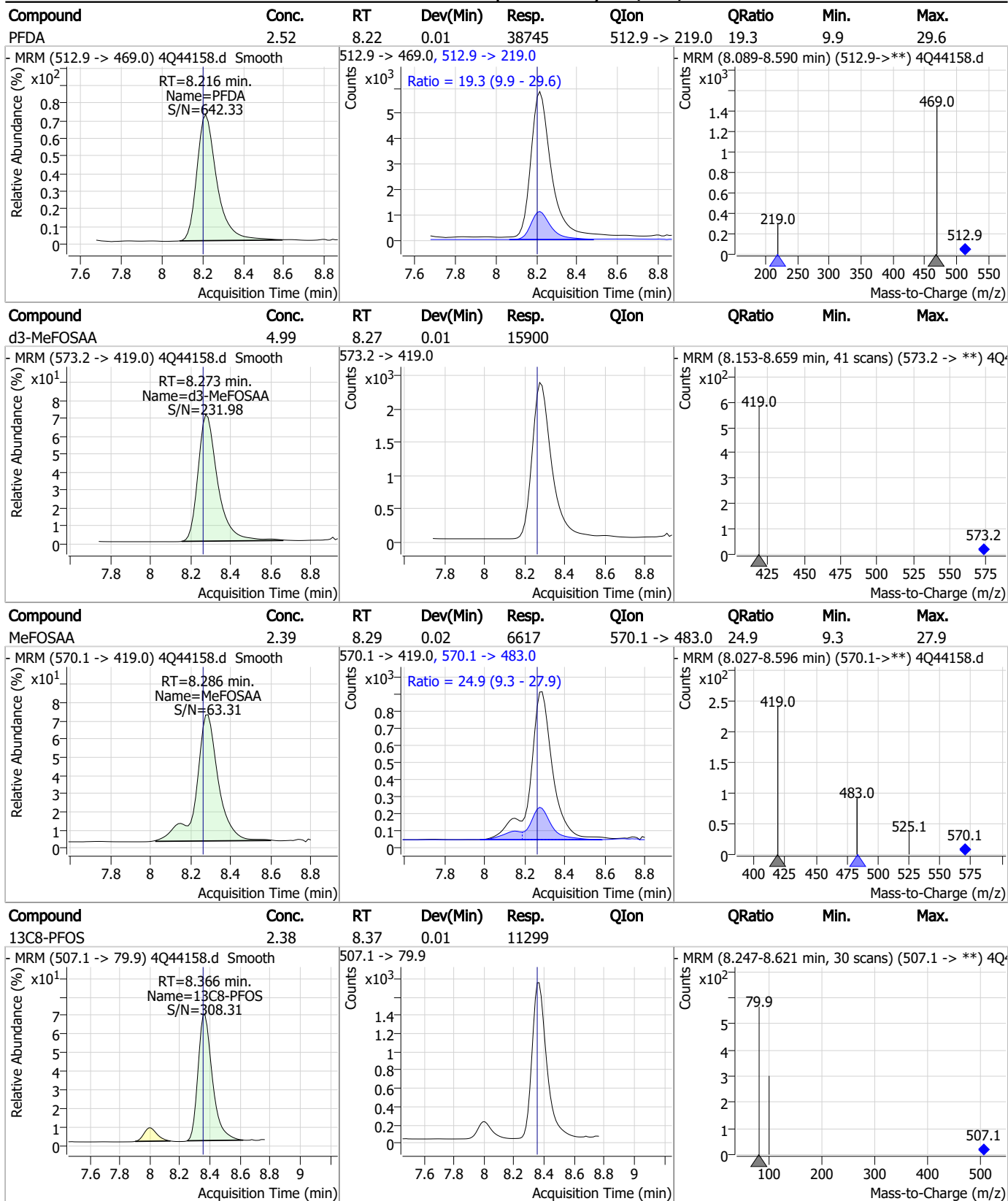
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Perfluorinated Compounds by LC/MS/MS



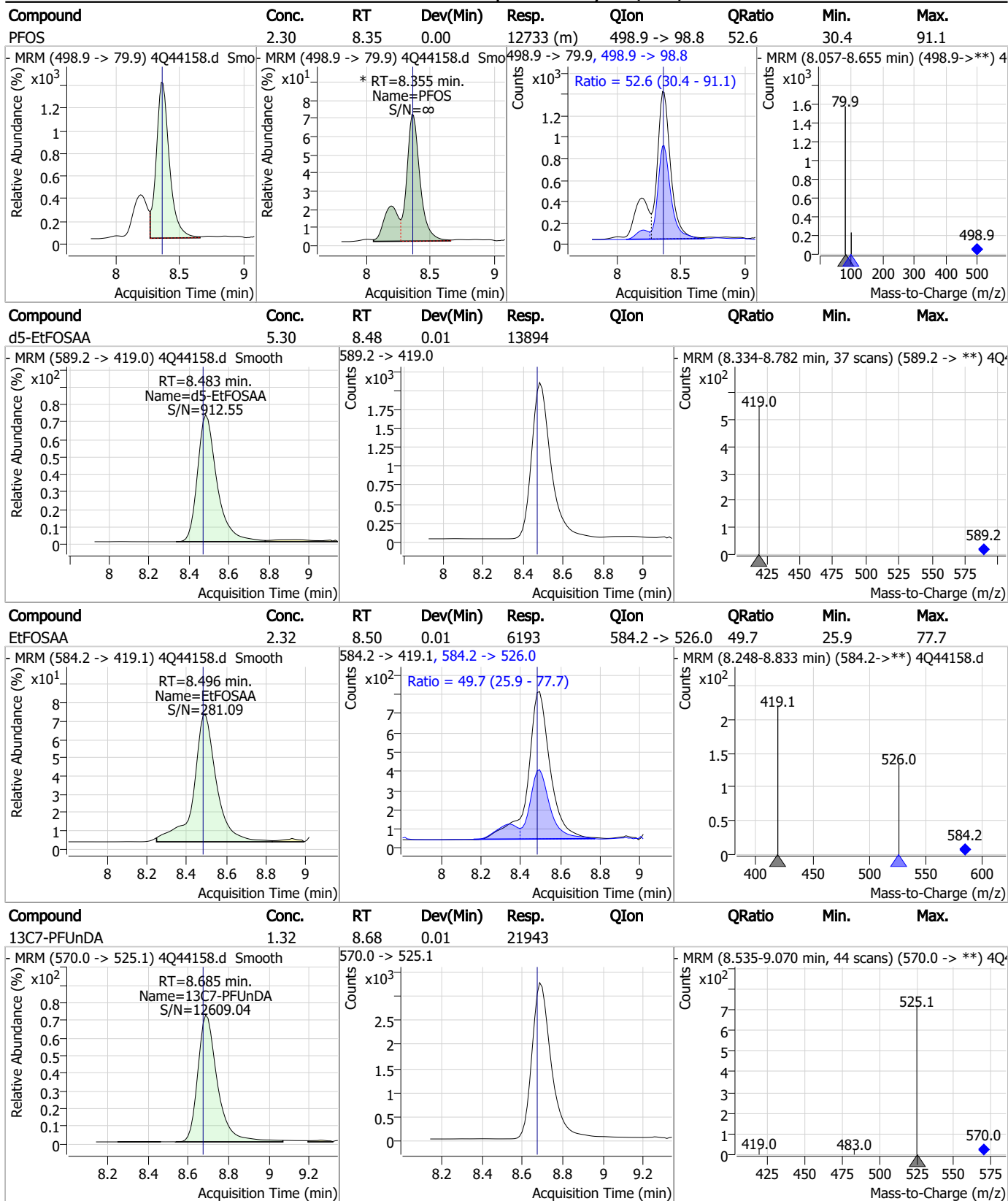
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Perfluorinated Compounds by LC/MS/MS



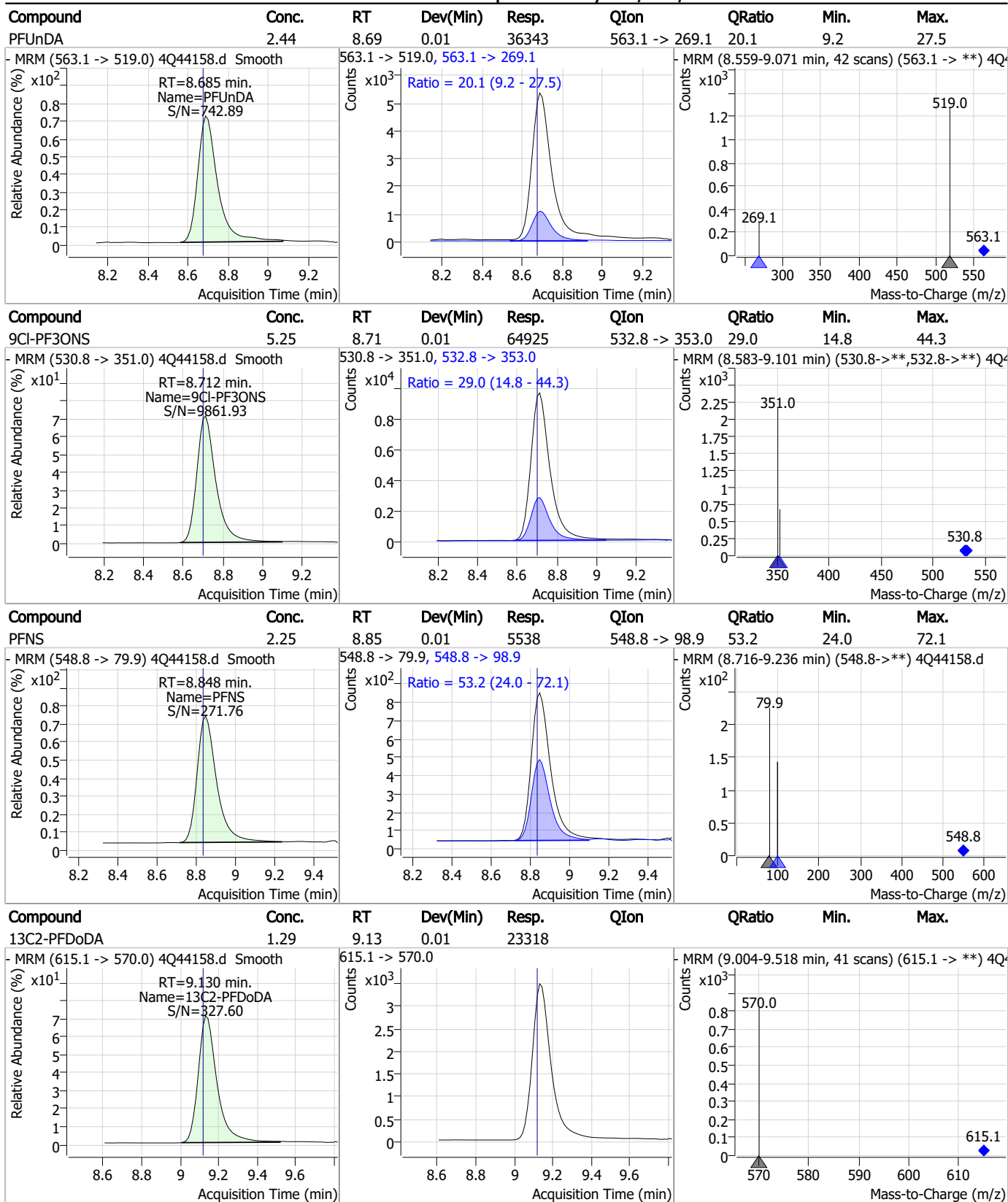
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Perfluorinated Compounds by LC/MS/MS



7.7.14

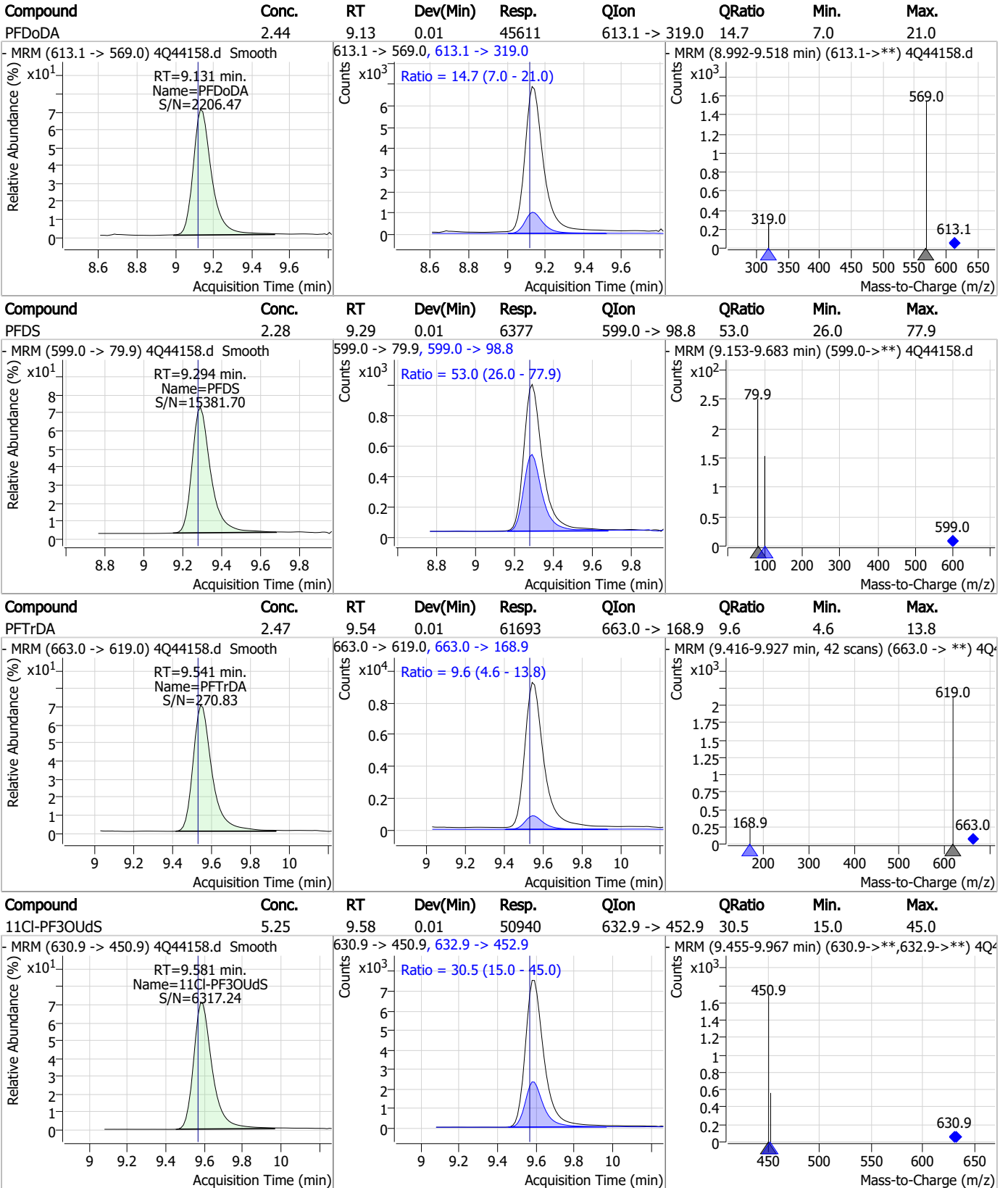
Perfluorinated Compounds by LC/MS/MS



7.7.14
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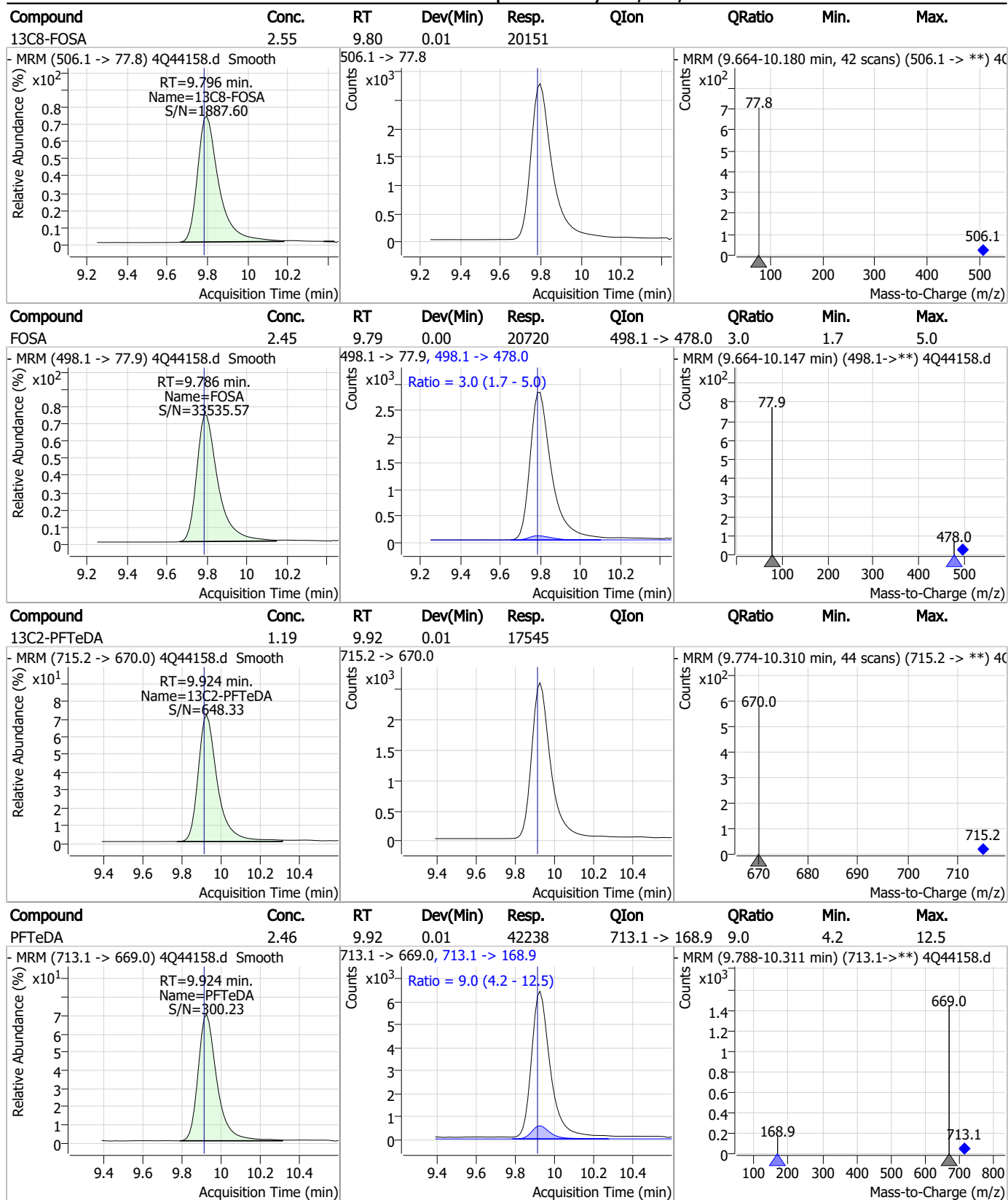
Perfluorinated Compounds by LC/MS/MS



7.7.14
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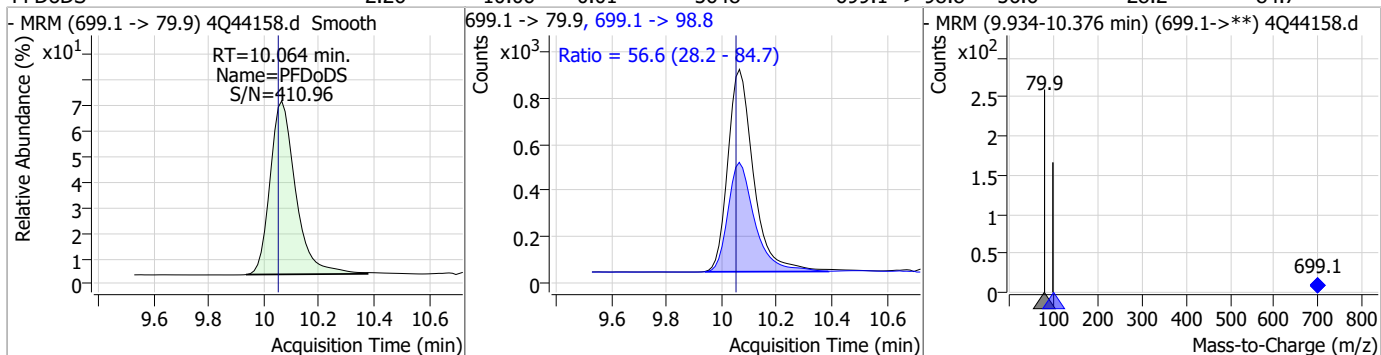
Perfluorinated Compounds by LC/MS/MS



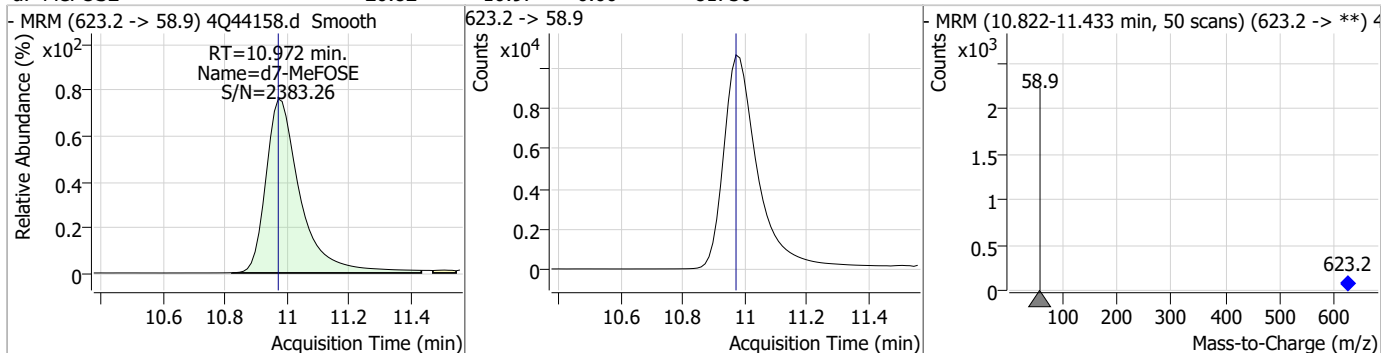
7.7.14

Perfluorinated Compounds by LC/MS/MS

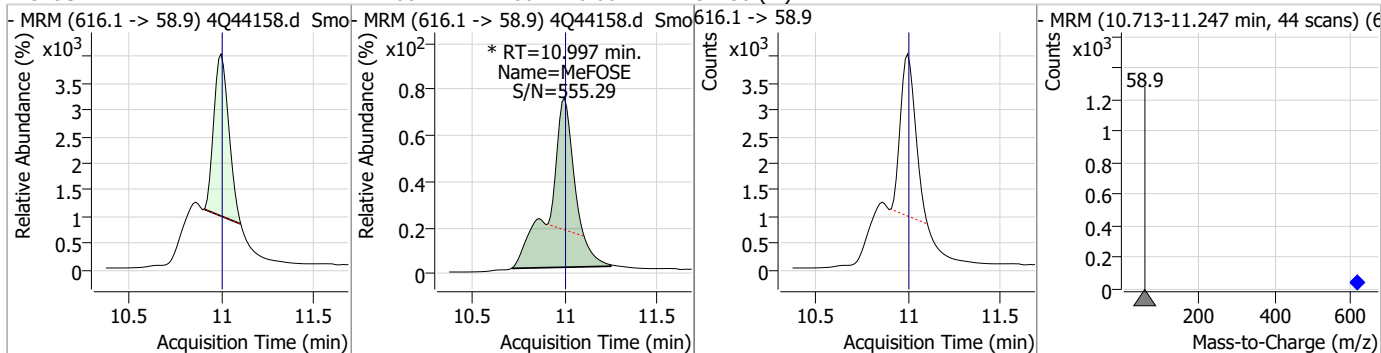
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.26	10.06	0.01	5648	699.1 -> 98.8	56.6	28.2	84.7



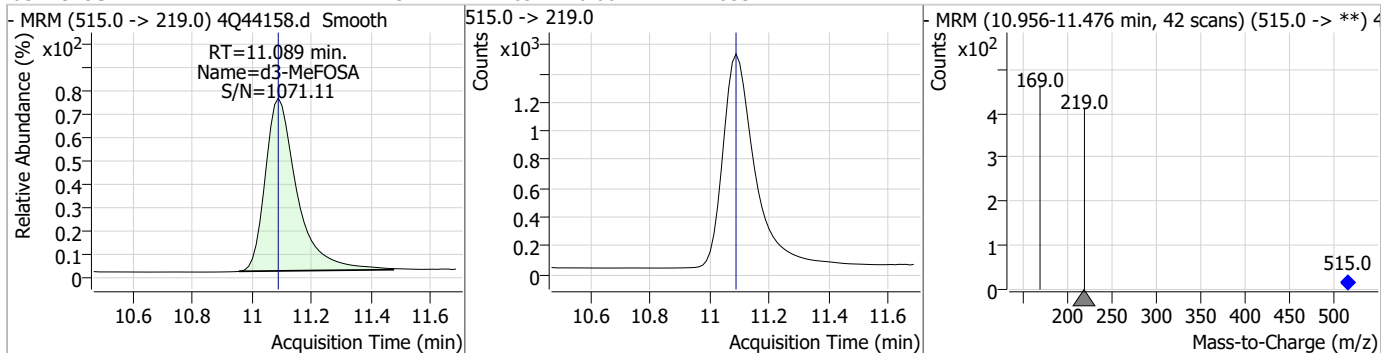
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.82	10.97	0.00	81730				



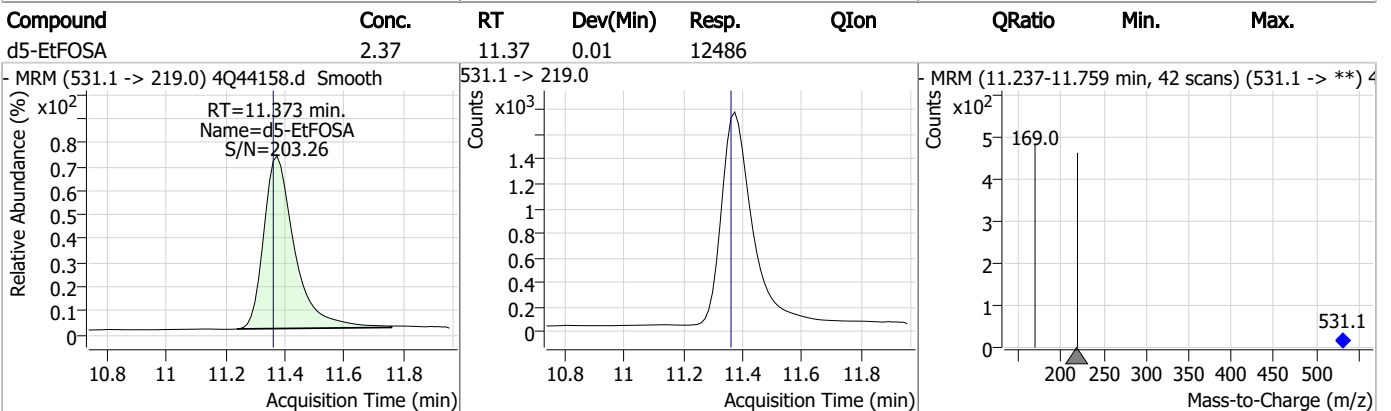
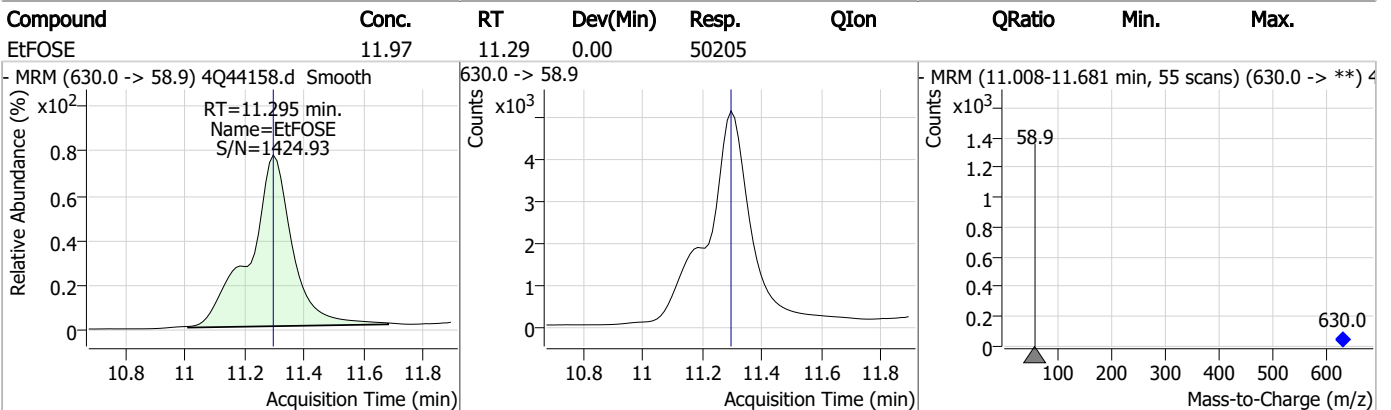
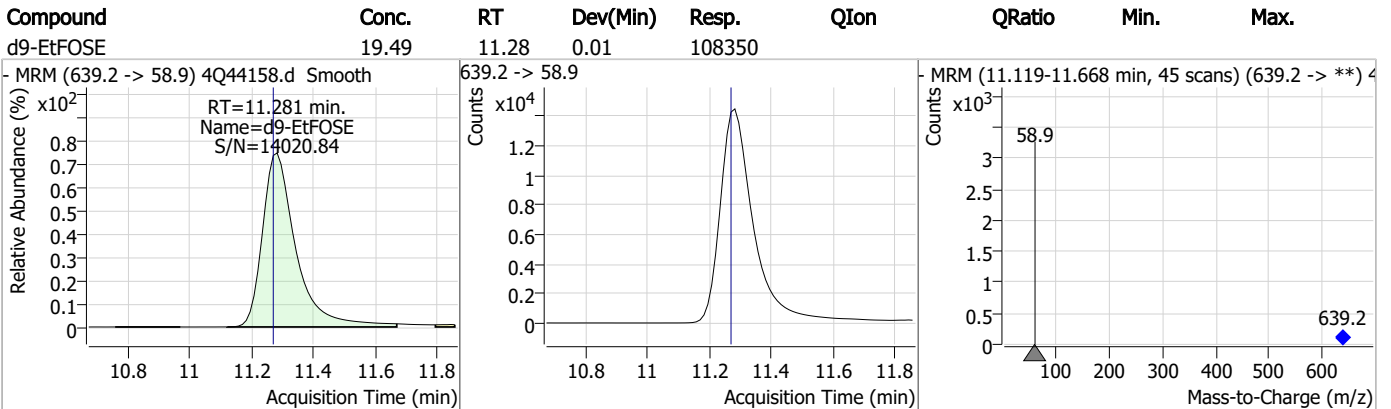
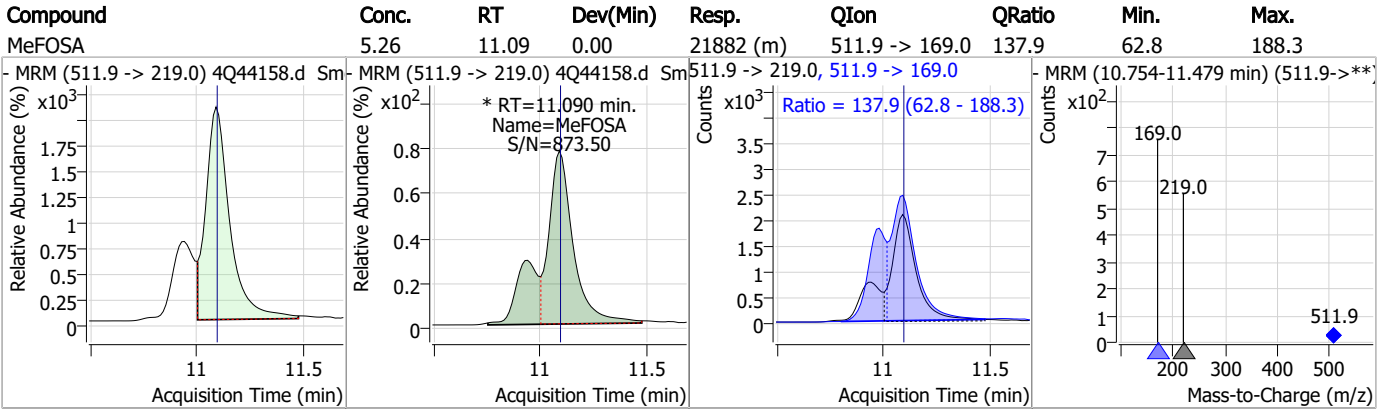
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.06	11.00	0.00	37130 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.23	11.09	0.00	11033				

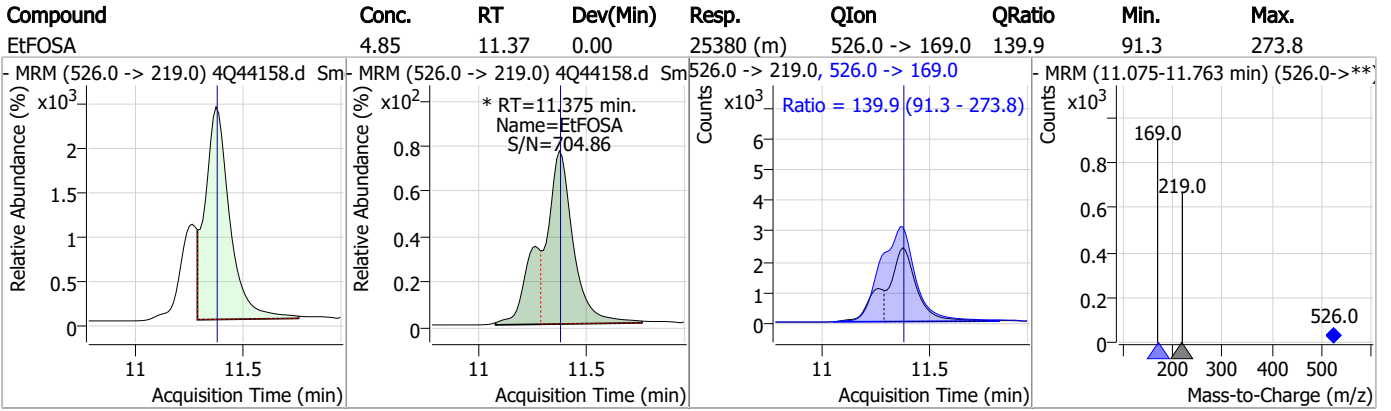


Perfluorinated Compounds by LC/MS/MS



7.7.14
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Perfluorinated Compounds by LC/MS/MS



7.7.14

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Manual Integration Approval Summary

Sample Number: S4Q639-CC634 Method: EPA DRAFT 1633
Lab FileID: 4Q44158.D Analyst approved: 05/10/23 11:10 Martha Valls
Injection Time: 05/09/23 19:31 Supervisor approved: 05/10/23 17:21 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.14.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44165.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 9:10:09 PM
 Sample Name : cc634-4
 Vial : P1-A5
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	144863	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	74509	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	50591	2.50 µg/L	0.000
M4-PFHpA	6.492	367.1 -> 322.0	30363	2.50 µg/L	0.000
M8-PFOA	7.163	421.1 -> 376.0	48627	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	22820	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	20274	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	22227	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	23329	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	16820	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	20526	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	12163	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7800	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	11124	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1422	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2494	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	3993	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	16462	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	27667	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	13724	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	80381	25.00 µg/L	0.000
M9-EtFOSE	11.269	639.2 -> 58.9	107996	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	12602	2.50 µg/L	0.000
M3-MeFOSA	11.089	515.0 -> 219.0	11449	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	11852	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	76215	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	5493	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	56110	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	19366	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	26694	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	46059	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1422	6.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.4%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2494	6.20 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.9%		
13C2-8:2FTS	8.003	529.1 -> 80.9	3993	6.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.1%		
13C2-PFDoDA	9.130	615.1 -> 570.0	23329	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-PFTeDA	9.924	715.2 -> 670.0	16820	1.10 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.1%		
13C3-PFBS	5.464	302.1 -> 79.9	12163	2.35 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFHxS	7.254	402.1 -> 79.9	7800	2.29 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 = 91.6%	
13C4-PFBA	2.924	216.8 -> 171.9	144863	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.492	367.1 -> 322.0	30363	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFHxA	5.559	318.0 -> 273.0	50591	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.387	268.3 -> 223.0	74509	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C6-PFDA	8.216	519.1 -> 474.1	20274	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C7-PFUnDA	8.685	570.0 -> 525.1	22227	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C8-FOSA	9.796	506.1 -> 77.8	20526	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C8-PFOA	7.163	421.1 -> 376.0	48627	2.64 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-PFOS	8.354	507.1 -> 79.9	11124	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C9-PFNA	7.709	472.1 -> 427.0	22820	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSAA	8.273	573.2 -> 419.0	16462	5.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.0%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	27667	9.13 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
d3-MeFOSA	11.089	515.0 -> 219.0	11449	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
d5-EtFOSAA	8.483	589.2 -> 419.0	13724	5.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.4%	
d7-MeFOSE	10.972	623.2 -> 58.9	80381	21.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
d9-EtFOSE	11.269	639.2 -> 58.9	107996	20.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.7%	
d5-EtFOSA	11.360	531.1 -> 219.0	12602	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	19829	8.67 µg/L	99
		327.1 -> 80.9	8568		
6:2FTS	6.936	427.1 -> 407.0	23902	9.92 µg/L	96
		427.1 -> 80.9	9685		
8:2FTS	8.003	527.1 -> 507.0	22529	10.12 µg/L	94
		527.1 -> 80.8	8875		
EtFOSAA	8.483	584.2 -> 419.1	6086	2.31 µg/L	m 94
		584.2 -> 526.0	3415		
FOSA	9.786	498.1 -> 77.9	21203	2.47 µg/L	100
		498.1 -> 478.0	704		
MeFOSAA	8.274	570.1 -> 419.0	6837	2.38 µg/L	m 93
		570.1 -> 483.0	1482		
PFBA	2.932	212.8 -> 168.9	37527	9.67 µg/L	100
PFBS	5.465	298.7 -> 79.9	11024	2.21 µg/L	100
		298.7 -> 98.8	3949		
PFDA	8.216	512.9 -> 469.0	39698	2.58 µg/L	97
		512.9 -> 219.0	7364		
PFDODA	9.131	613.1 -> 569.0	46980	2.51 µg/L	99
		613.1 -> 319.0	6679		
PFDS	9.294	599.0 -> 79.9	6728	2.44 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8	3380	2.43	µg/L	99
		363.1 -> 319.0	46637			
PFHpS	7.836	363.1 -> 169.0	8485	2.26	µg/L	99
		449.0 -> 79.9	9044			
PFHxA	5.562	449.0 -> 98.9	4689	2.39	µg/L	100
		313.0 -> 269.0	47435			
PFHxS	7.255	313.0 -> 118.9	1479	2.35	µg/L	92
		398.7 -> 79.9	7509			
PFNA	7.709	398.7 -> 98.9	3894	2.36	µg/L	98
		463.0 -> 419.0	39900			
PFNS	8.836	463.0 -> 219.0	9867	2.31	µg/L	91
		548.8 -> 79.9	5620			
PFOA	7.164	548.8 -> 98.9	3058	2.24	µg/L	98
		413.0 -> 369.0	62716			
PFOS	8.355	413.0 -> 169.0	12831	2.26	µg/L	87
		498.9 -> 79.9	12296			
PFPeA	4.389	498.9 -> 98.8	6233	4.88	µg/L	100
		263.0 -> 219.0	87510			
PFPeS	6.519	349.1 -> 79.9	6258	2.28	µg/L	99
		349.1 -> 98.9	2879			
PFTeDA	9.924	713.1 -> 669.0	42457	2.58	µg/L	99
		713.1 -> 168.9	3370			
PFTrDA	9.541	663.0 -> 619.0	59614	2.38	µg/L	97
		663.0 -> 168.9	6086			
PFUnDA	8.685	563.1 -> 519.0	37571	2.49	µg/L	97
		563.1 -> 269.1	7397			
11CI-PF3OUdS	9.581	630.9 -> 450.9	52996	5.33	µg/L	98
		632.9 -> 452.9	16457			
9CI-PF3ONS	8.700	530.8 -> 351.0	65050	5.13	µg/L	98
		532.8 -> 353.0	19725			
ADONA	6.756	376.9 -> 250.9	139759	5.02	µg/L	99
		376.9 -> 84.8	36674			
HFPO-DA	5.928	284.9 -> 168.9	13123	4.96	µg/L	99
		284.9 -> 184.9	1738			
3:3FTCA	3.867	241.0 -> 177.0	9816	12.45	µg/L	98
		241.0 -> 117.0	966			
5:3FTCA	6.231	341.0 -> 237.1	186357	69.29	µg/L	99
		341.0 -> 217.0	128254			
7:3FTCA	7.686	441.0 -> 316.9	108365	77.54	µg/L	94
		441.0 -> 336.9	244866			
EtFOSA	11.375	526.0 -> 219.0	26031	4.93	µg/L	67
		526.0 -> 169.0	35092			
EtFOSE	11.295	630.0 -> 58.9	49093	11.74	µg/L	100
		511.9 -> 219.0	20904			
MeFOSA	11.090	511.9 -> 169.0	31472	4.85	µg/L	78
		616.1 -> 58.9	37221			
MeFOSE	10.997	699.1 -> 79.9	5885	11.27	µg/L	100
		699.1 -> 98.8	3251			
PFDoDS	10.064	295.0 -> 201.0	5859	2.39	µg/L	98
		295.0 -> 84.9	1489			
NFDHA	5.453	279.0 -> 85.1	47899	4.14	µg/L	98
		279.0 -> 85.1	47899			
PFMBA	4.791	229.0 -> 84.9	45564	4.79	µg/L	100
		229.0 -> 84.9	45564			
PFMPA	3.540	314.8 -> 134.9	64581	4.86	µg/L	100
		314.8 -> 82.9	2293			
PFEESA	5.997	314.8 -> 134.9	64581	4.30	µg/L	99
		314.8 -> 82.9	2293			

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

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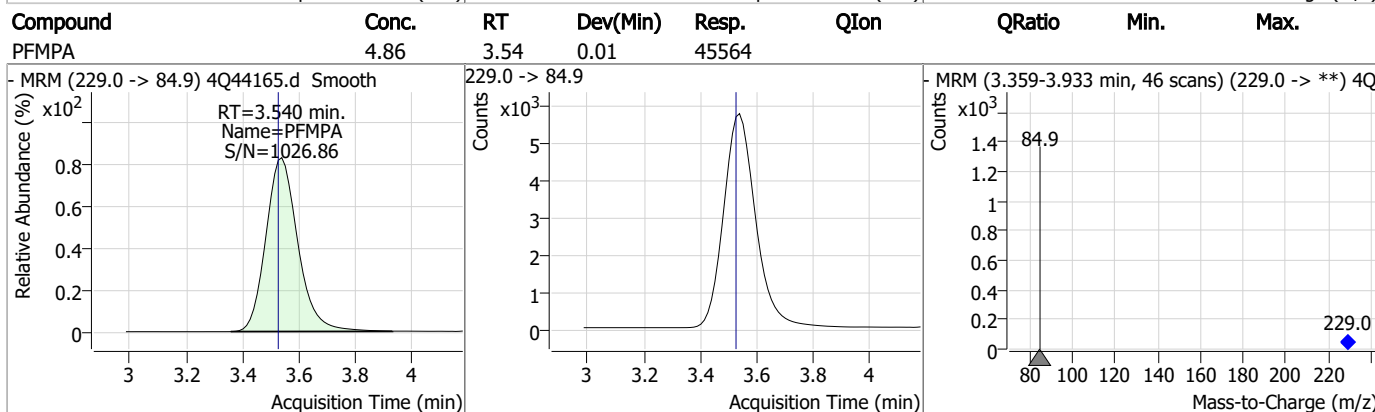
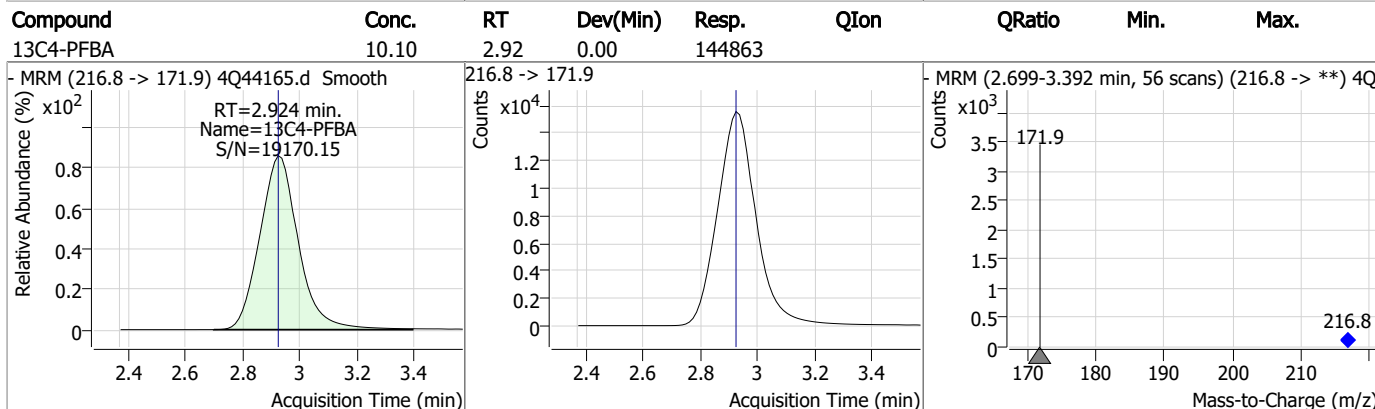
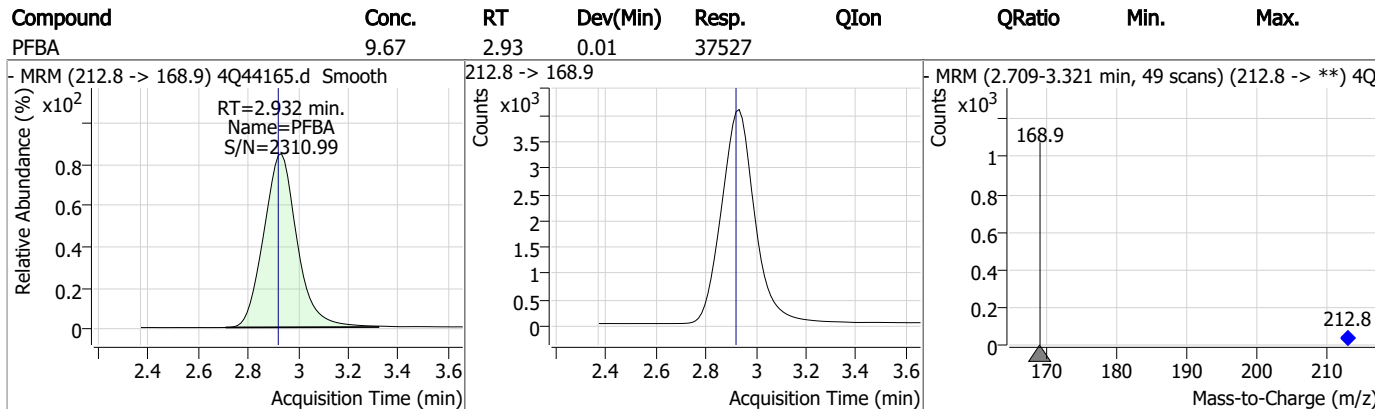
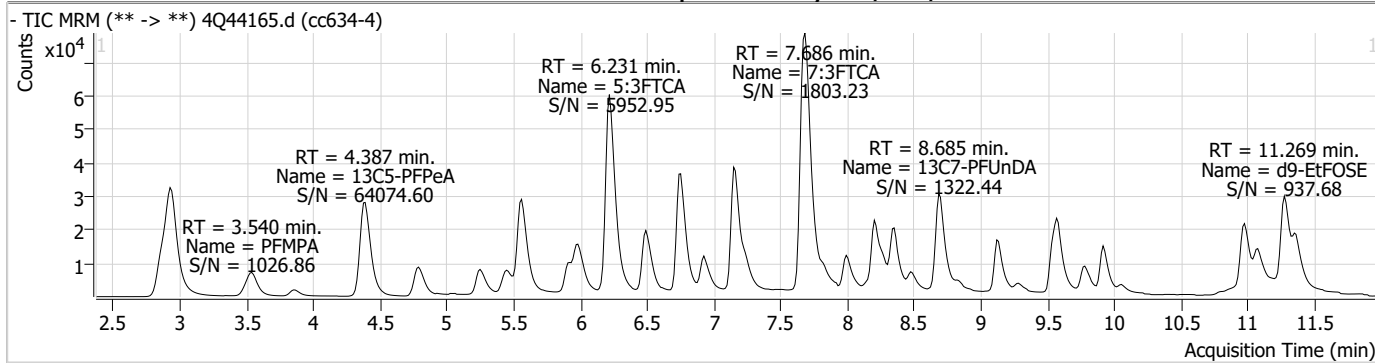
Perfluorinated Compounds by LC/MS/MS

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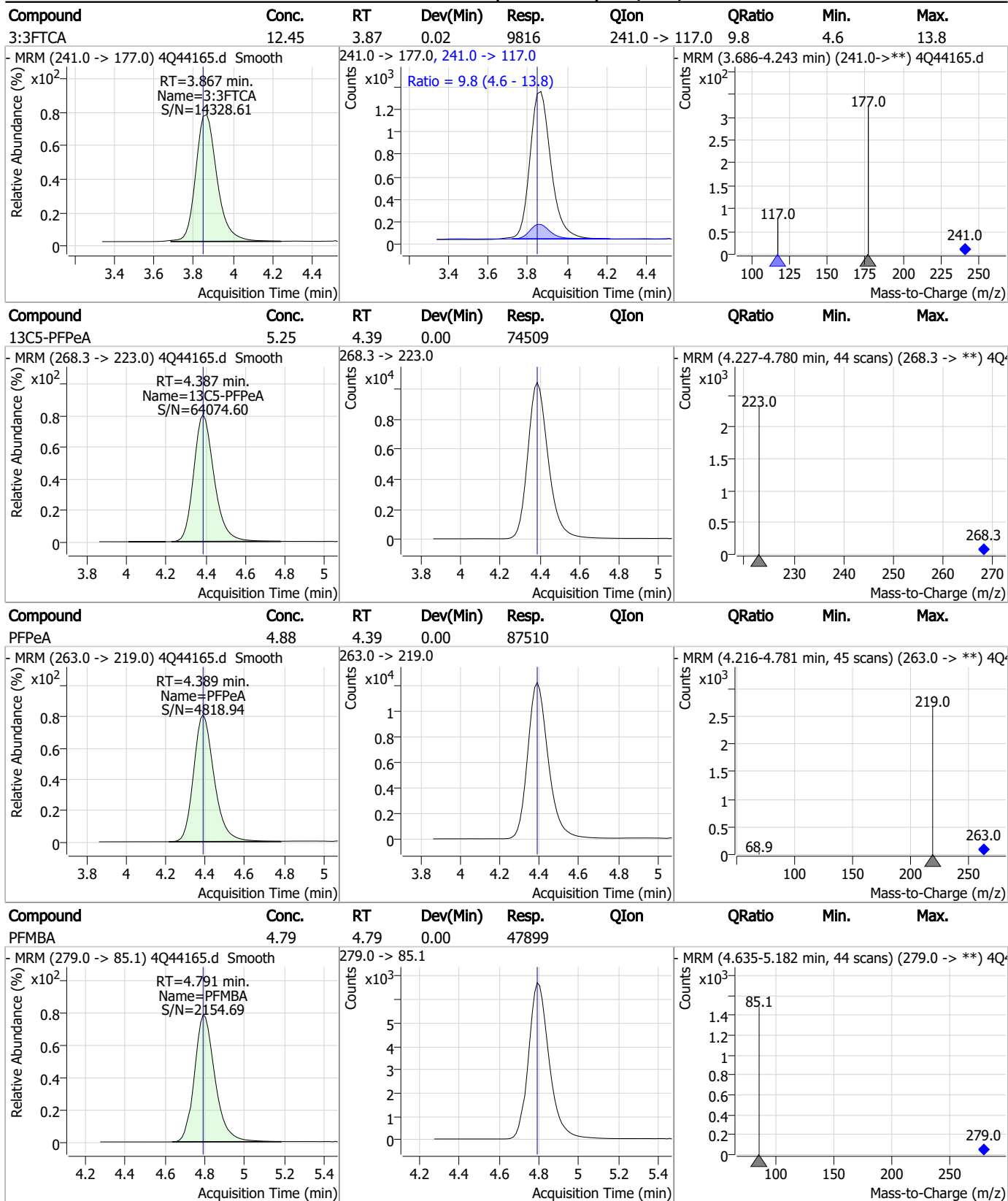
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Perfluorinated Compounds by LC/MS/MS



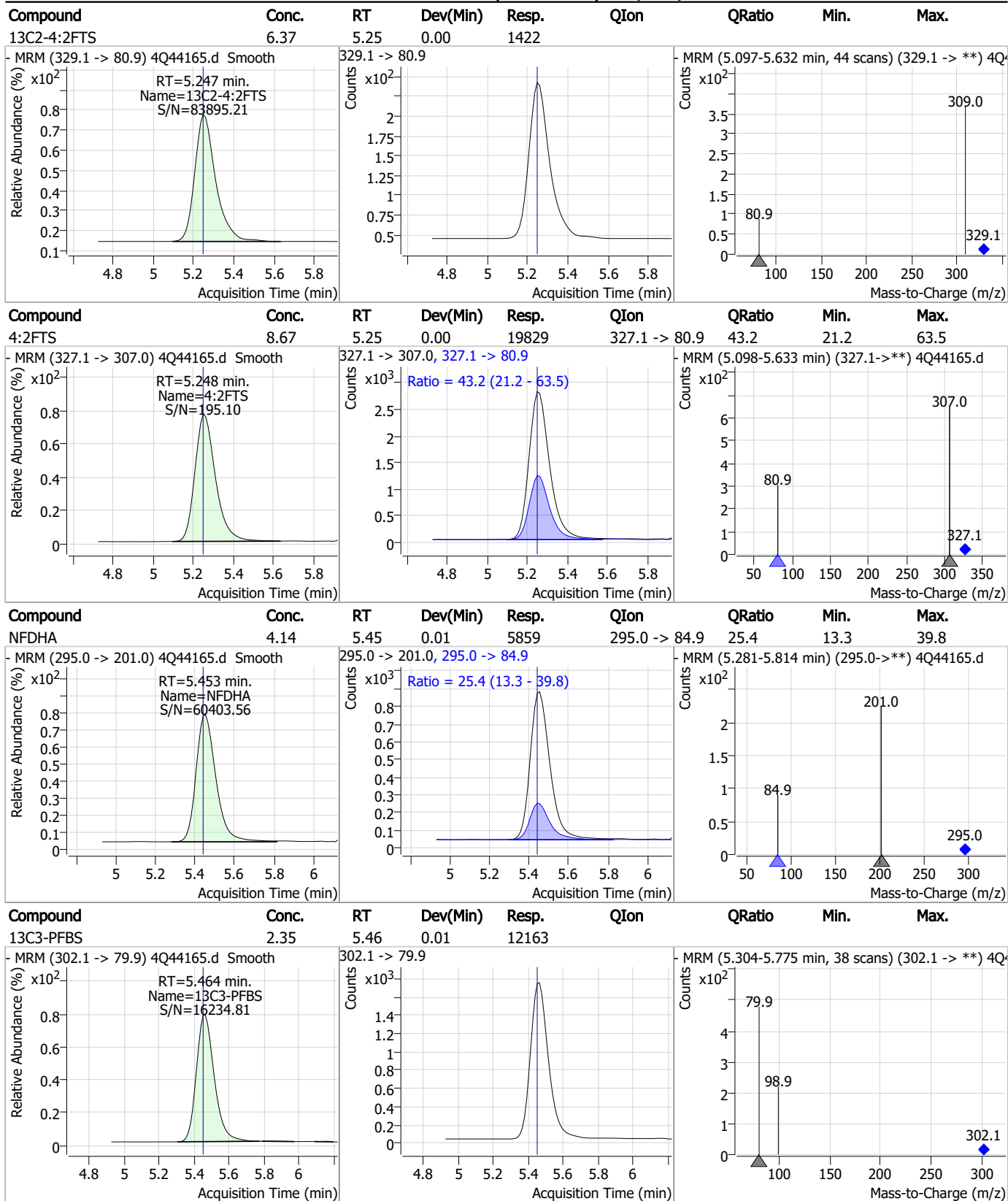
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Perfluorinated Compounds by LC/MS/MS



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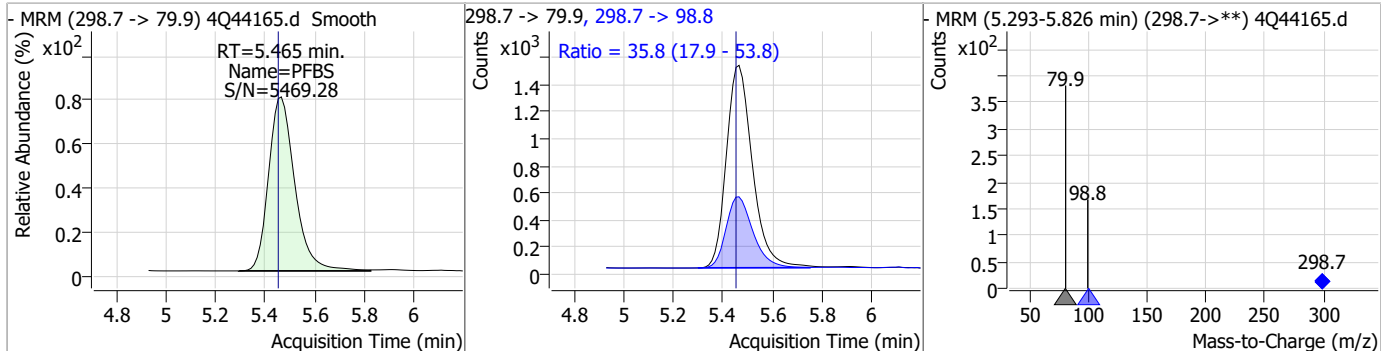
Perfluorinated Compounds by LC/MS/MS



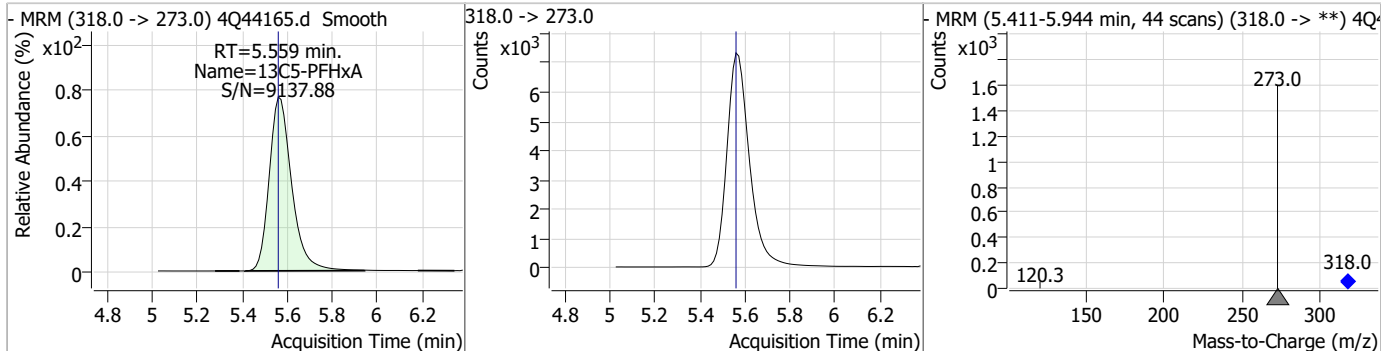
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Perfluorinated Compounds by LC/MS/MS

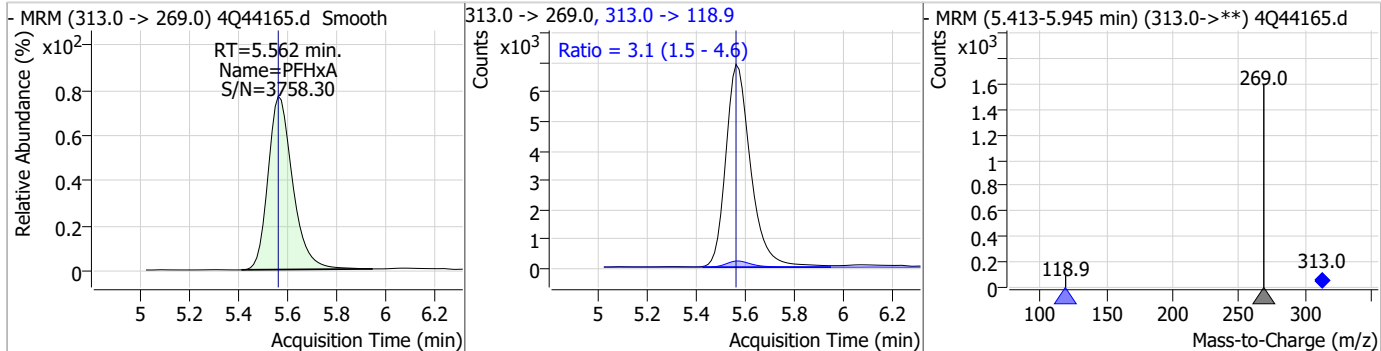
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.21	5.46	0.01	11024	298.7 -> 98.8	35.8	17.9	53.8



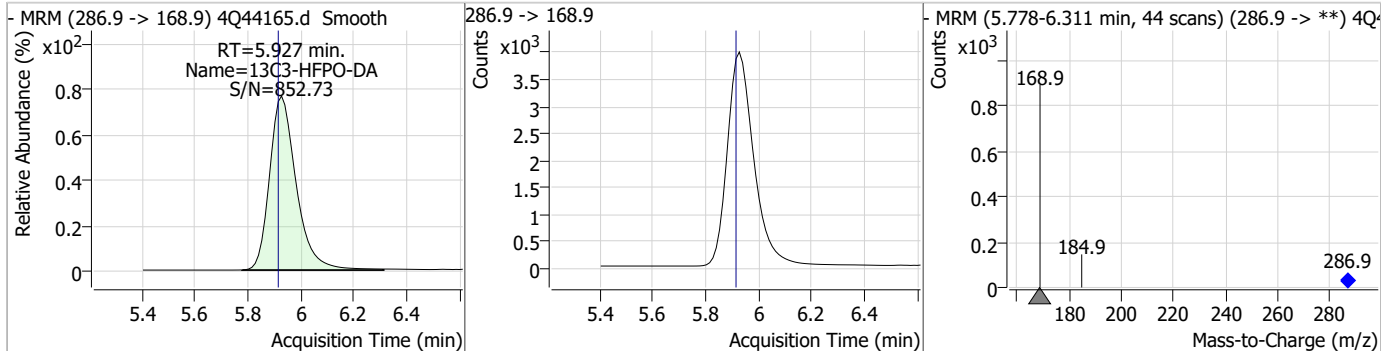
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.56	0.00	50591	318.0 -> 273.0			



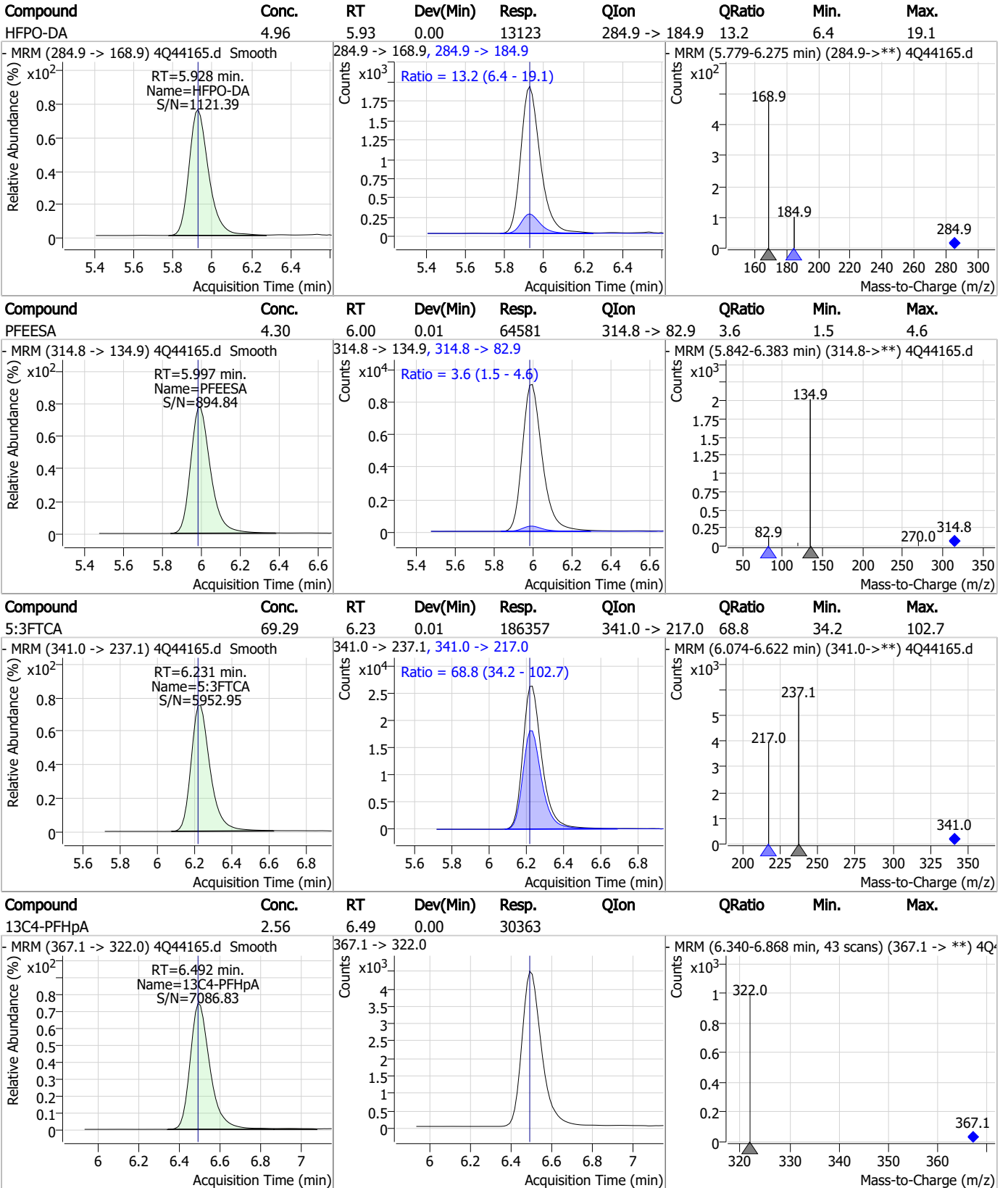
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.39	5.56	0.00	47435	313.0 -> 118.9	3.1	1.5	4.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.13	5.93	0.01	27667	286.9 -> 168.9			



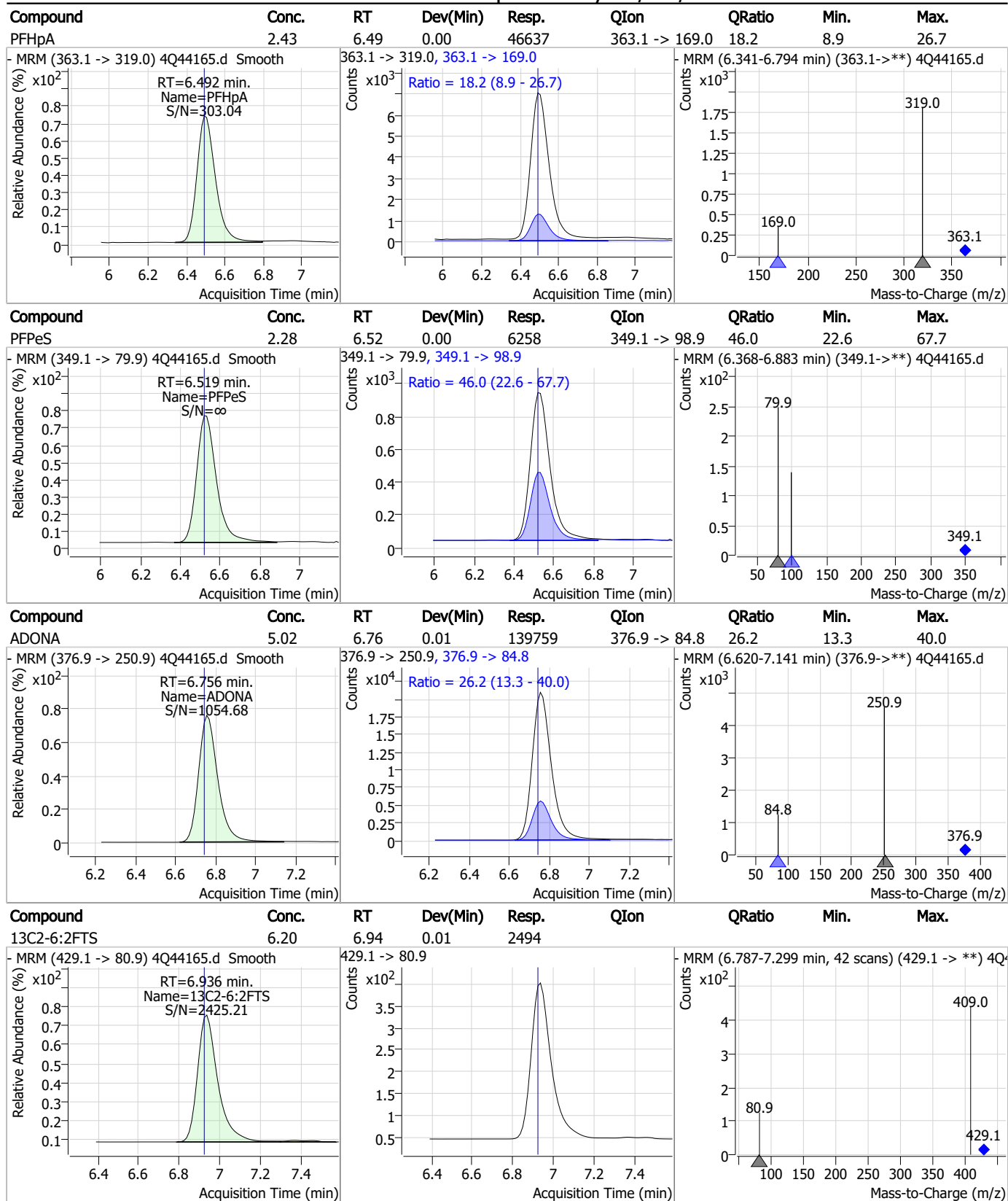
Perfluorinated Compounds by LC/MS/MS



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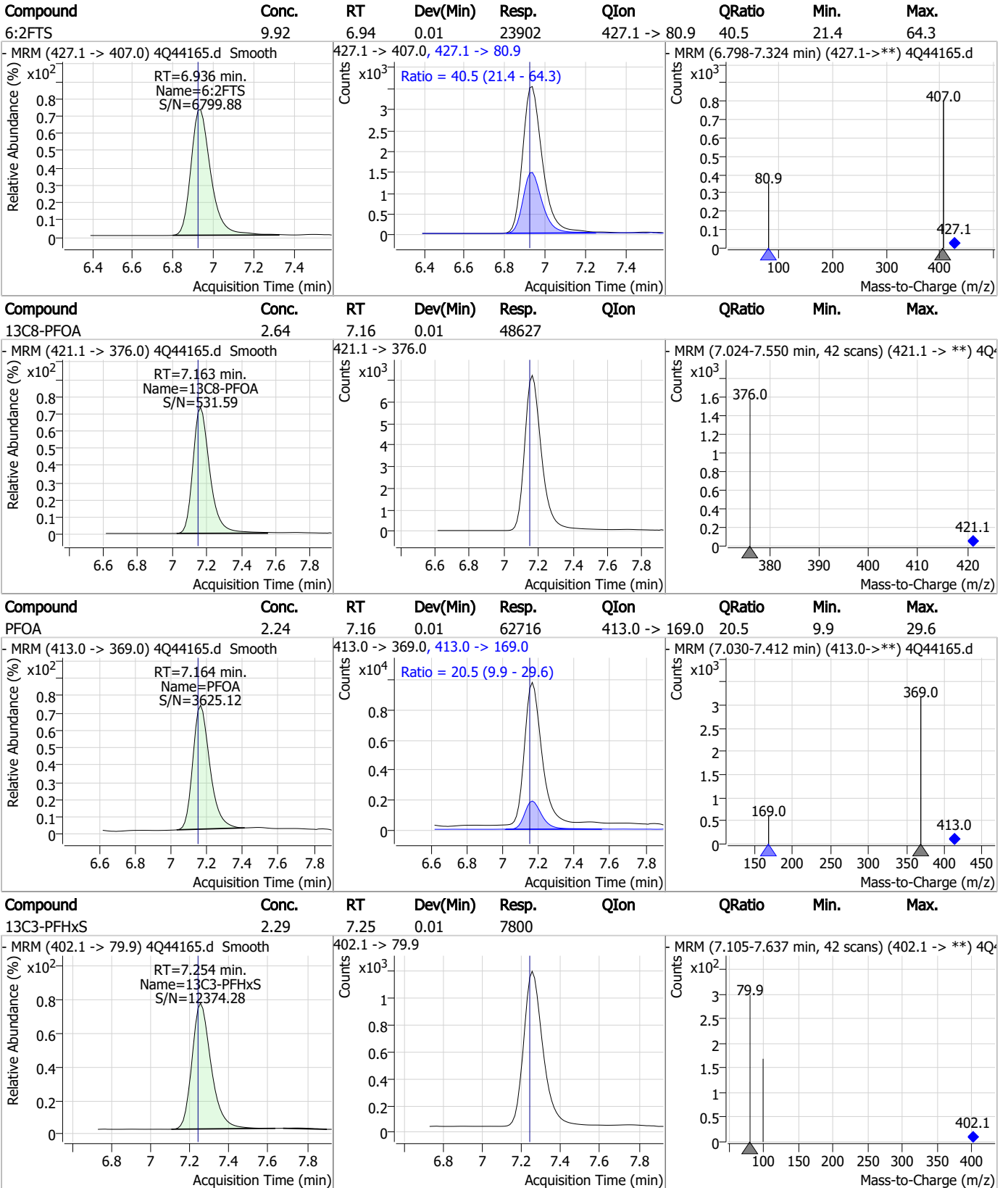
Perfluorinated Compounds by LC/MS/MS



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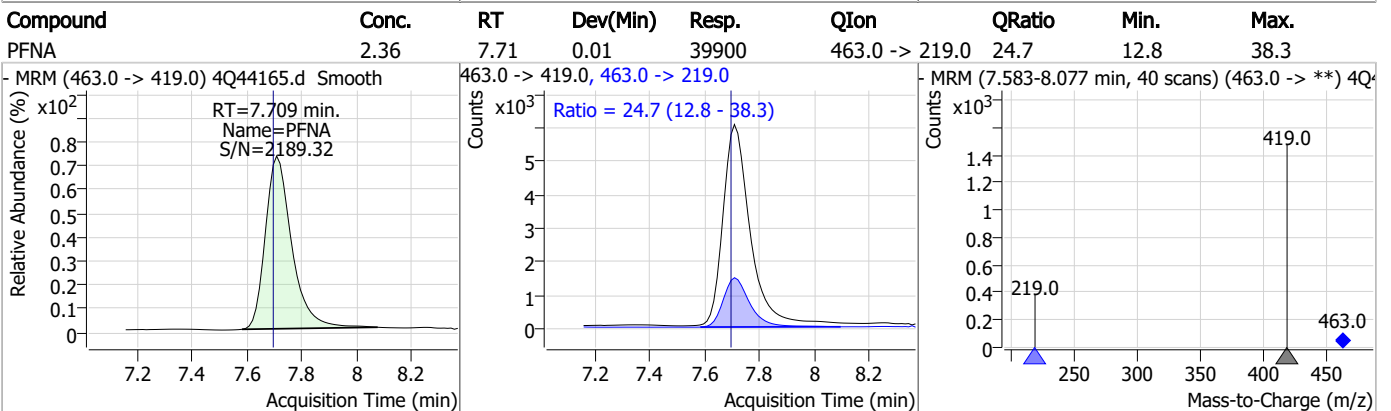
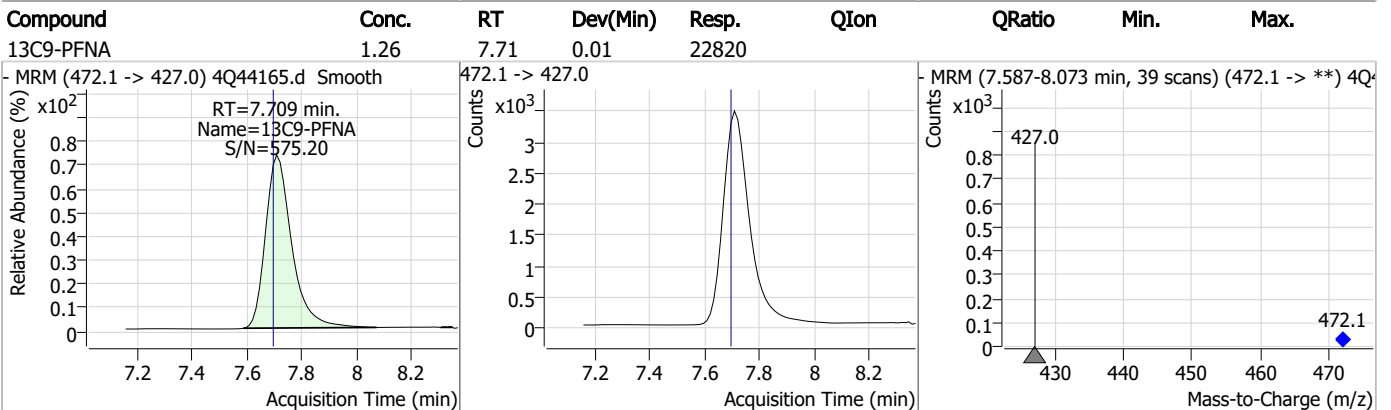
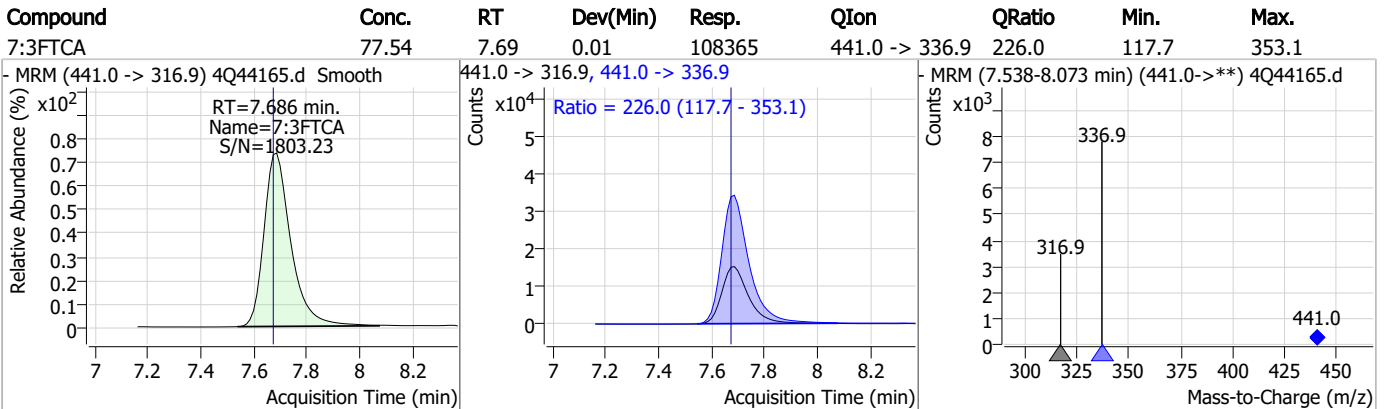
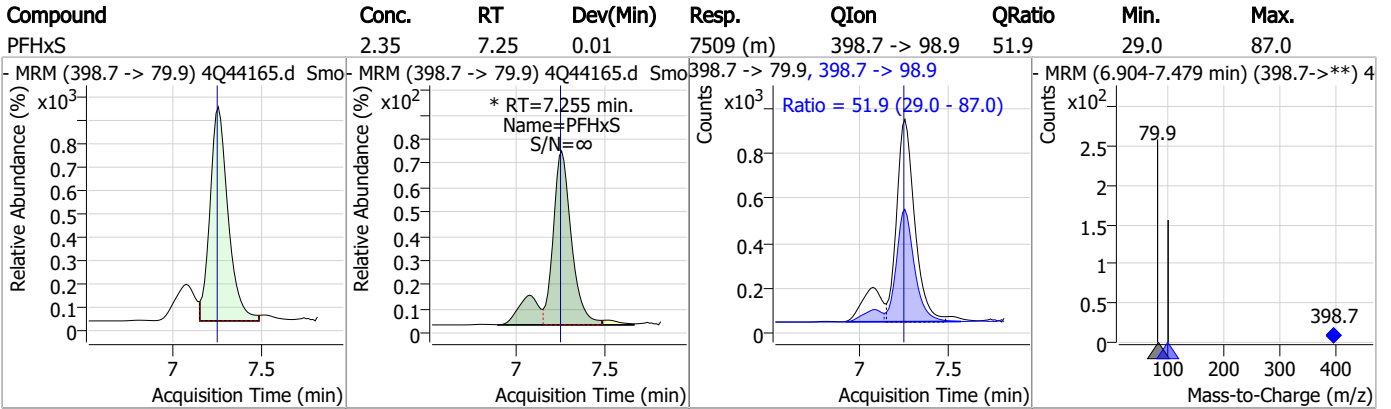
Perfluorinated Compounds by LC/MS/MS



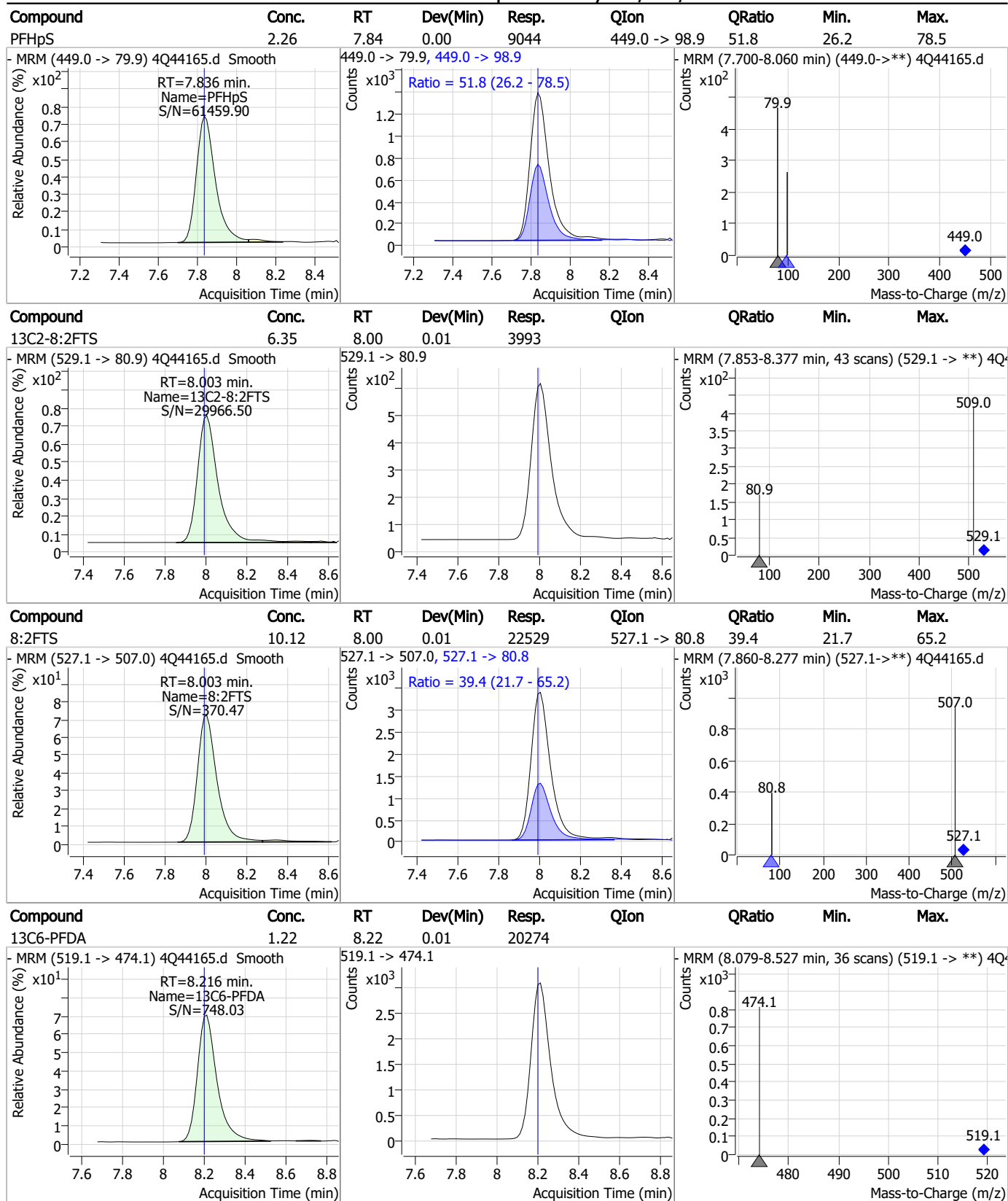
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

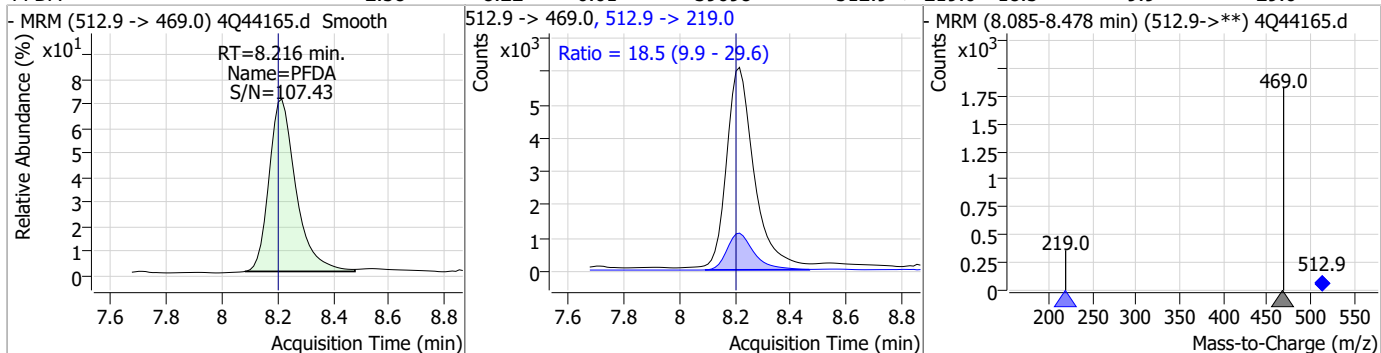


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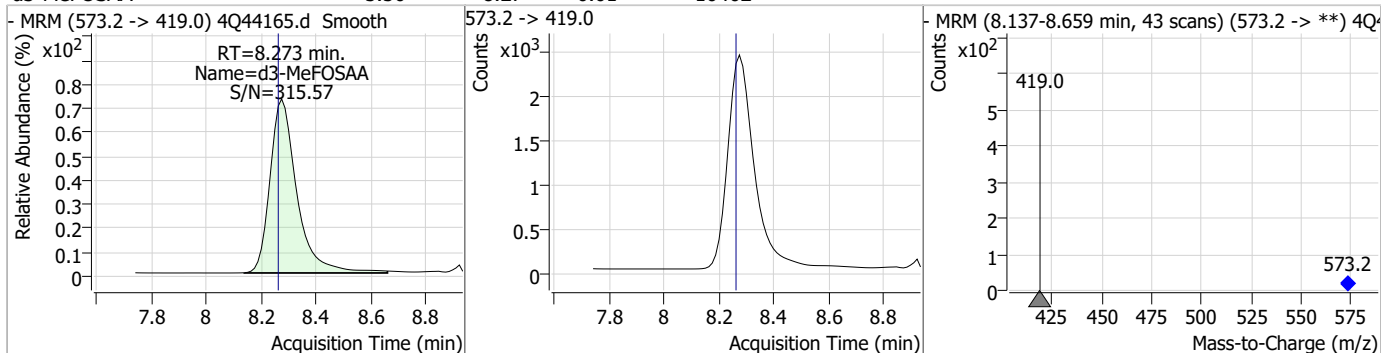


Perfluorinated Compounds by LC/MS/MS

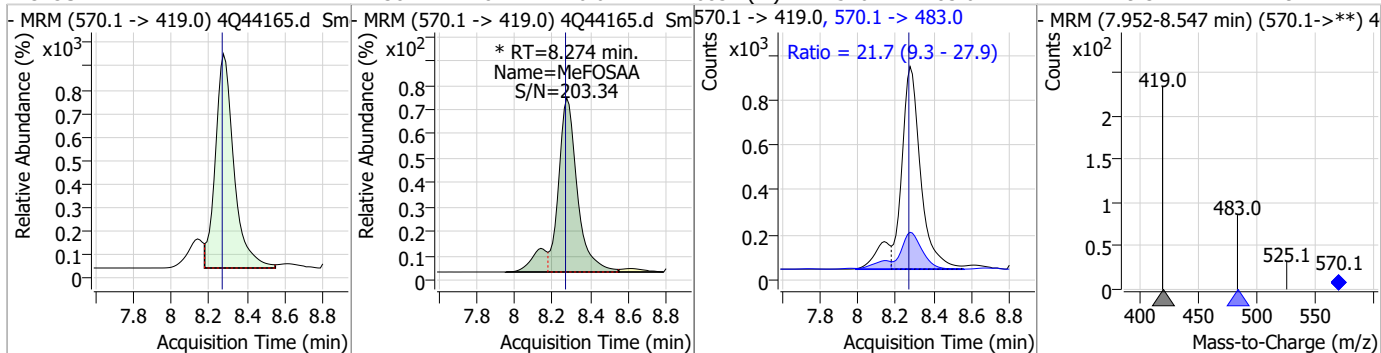
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.58	8.22	0.01	39698	512.9 -> 219.0	18.5	9.9	29.6



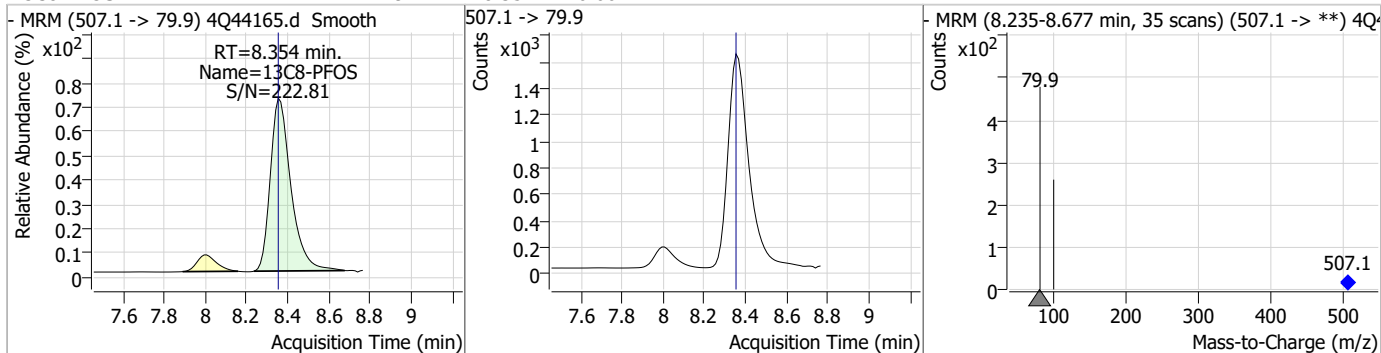
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.50	8.27	0.01	16462				



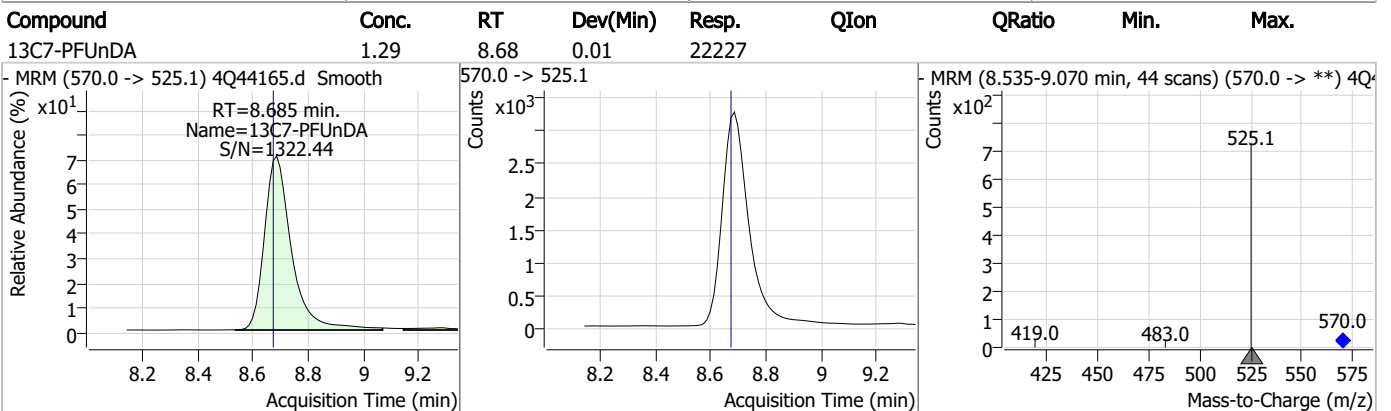
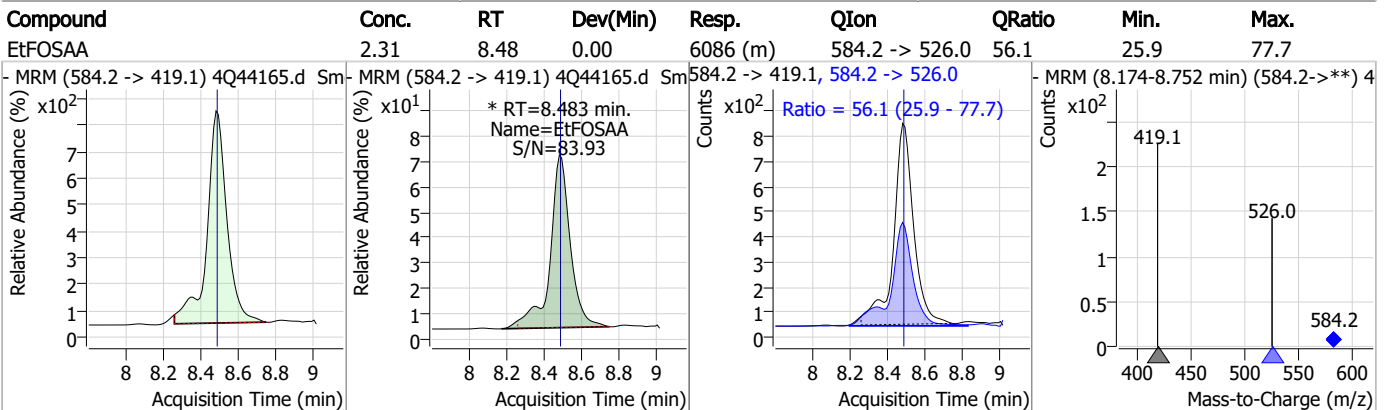
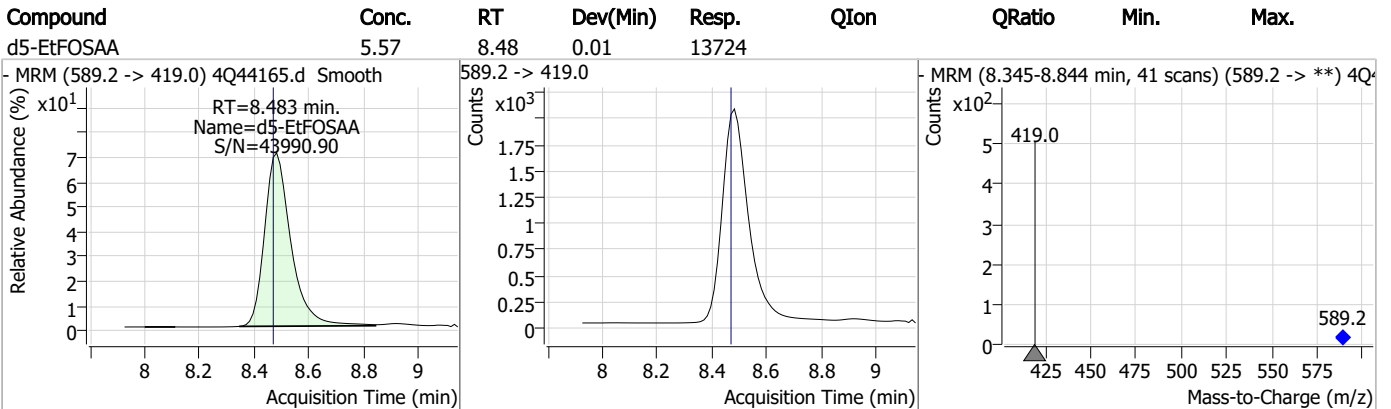
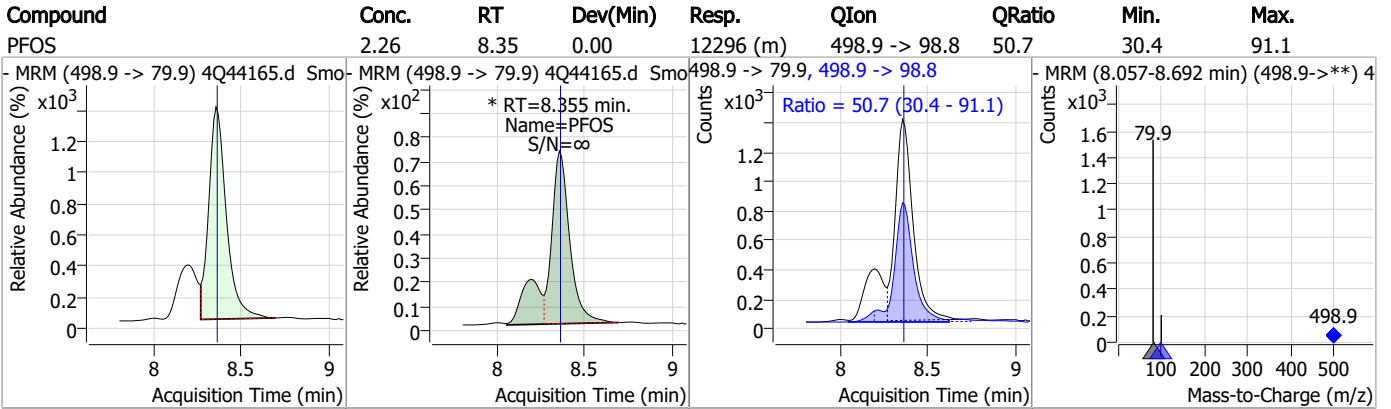
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.38	8.27	0.01	6837 (m)	570.1 -> 483.0	21.7	9.3	27.9



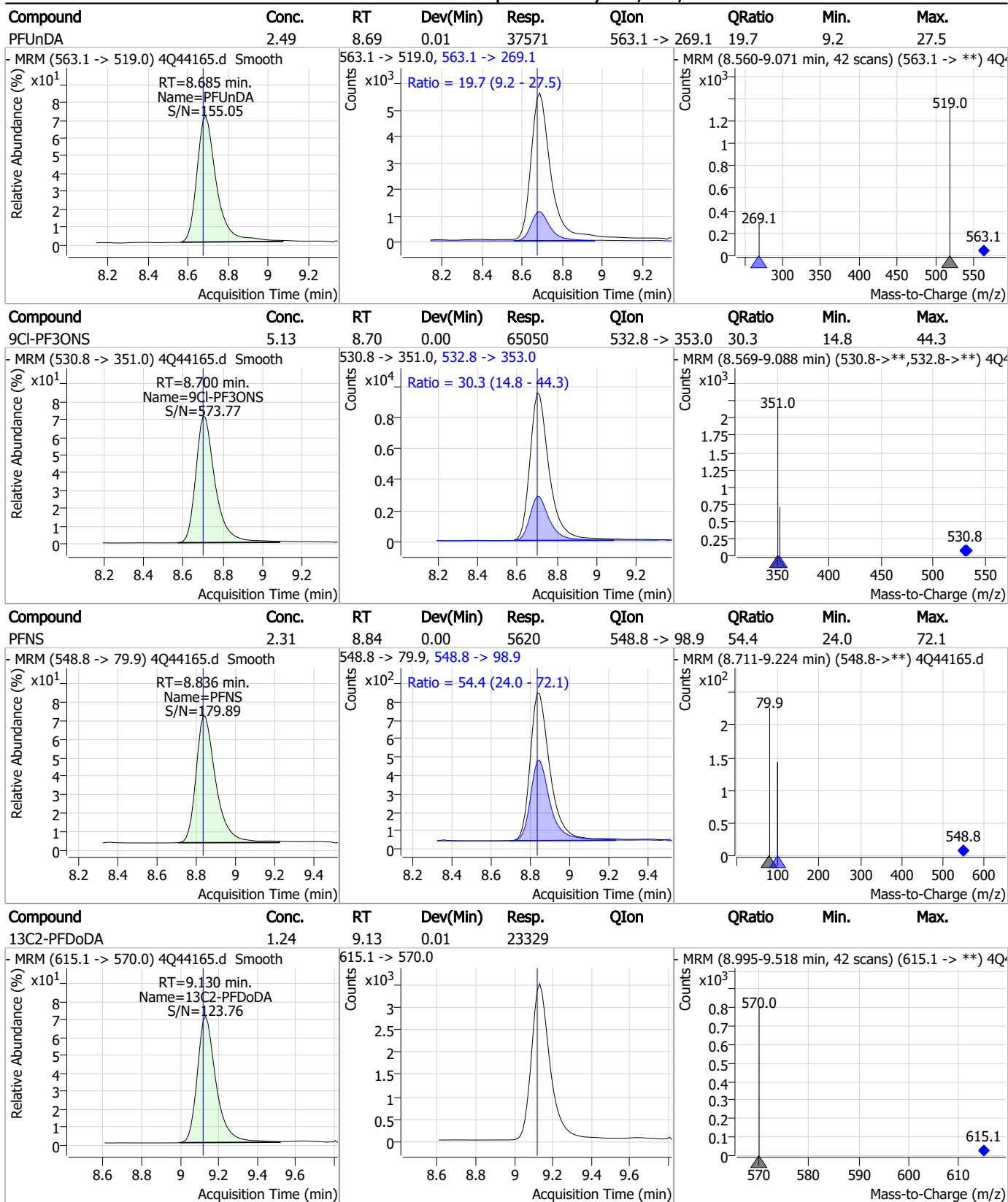
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.35	0.00	11124				



Perfluorinated Compounds by LC/MS/MS

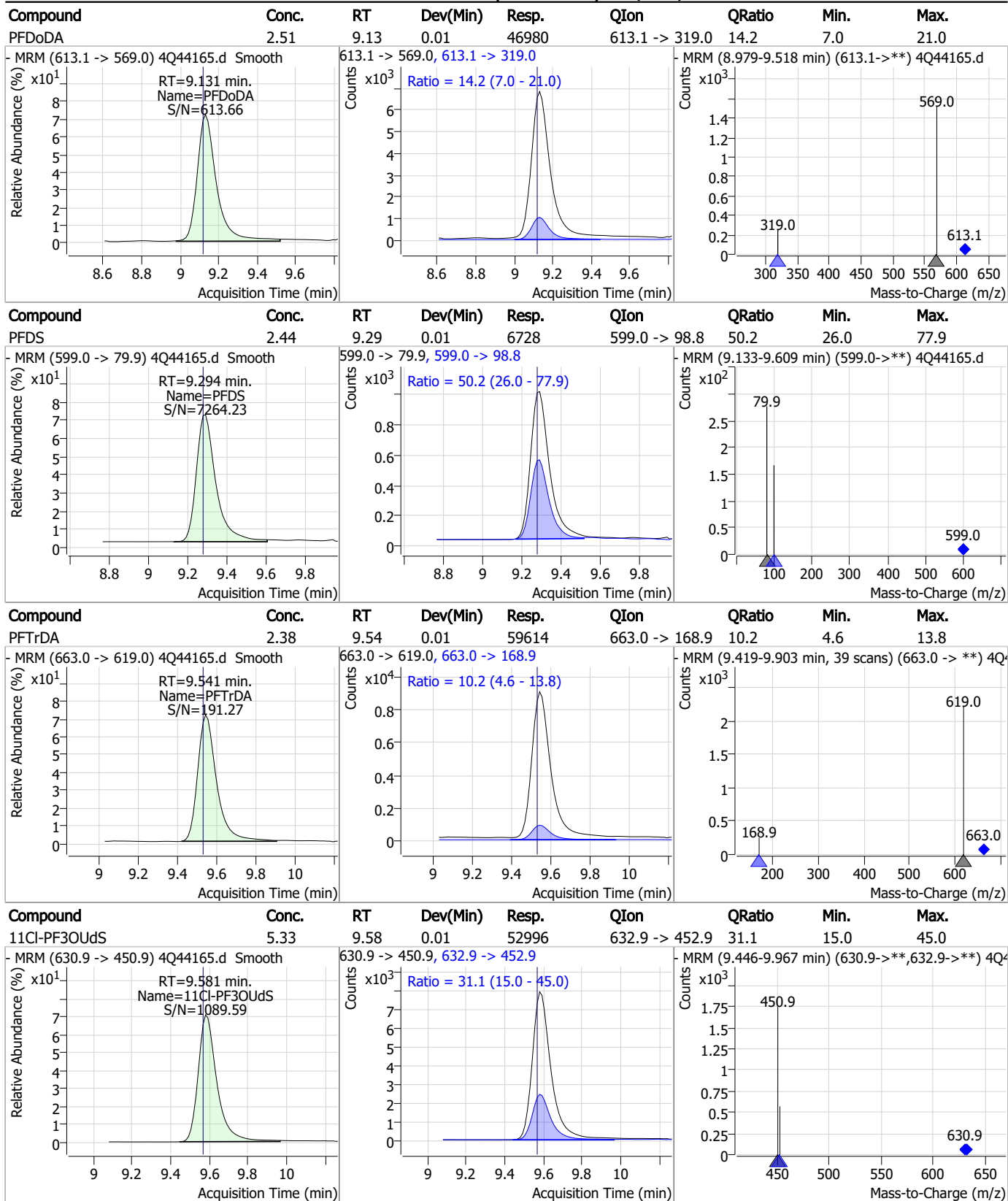


Perfluorinated Compounds by LC/MS/MS



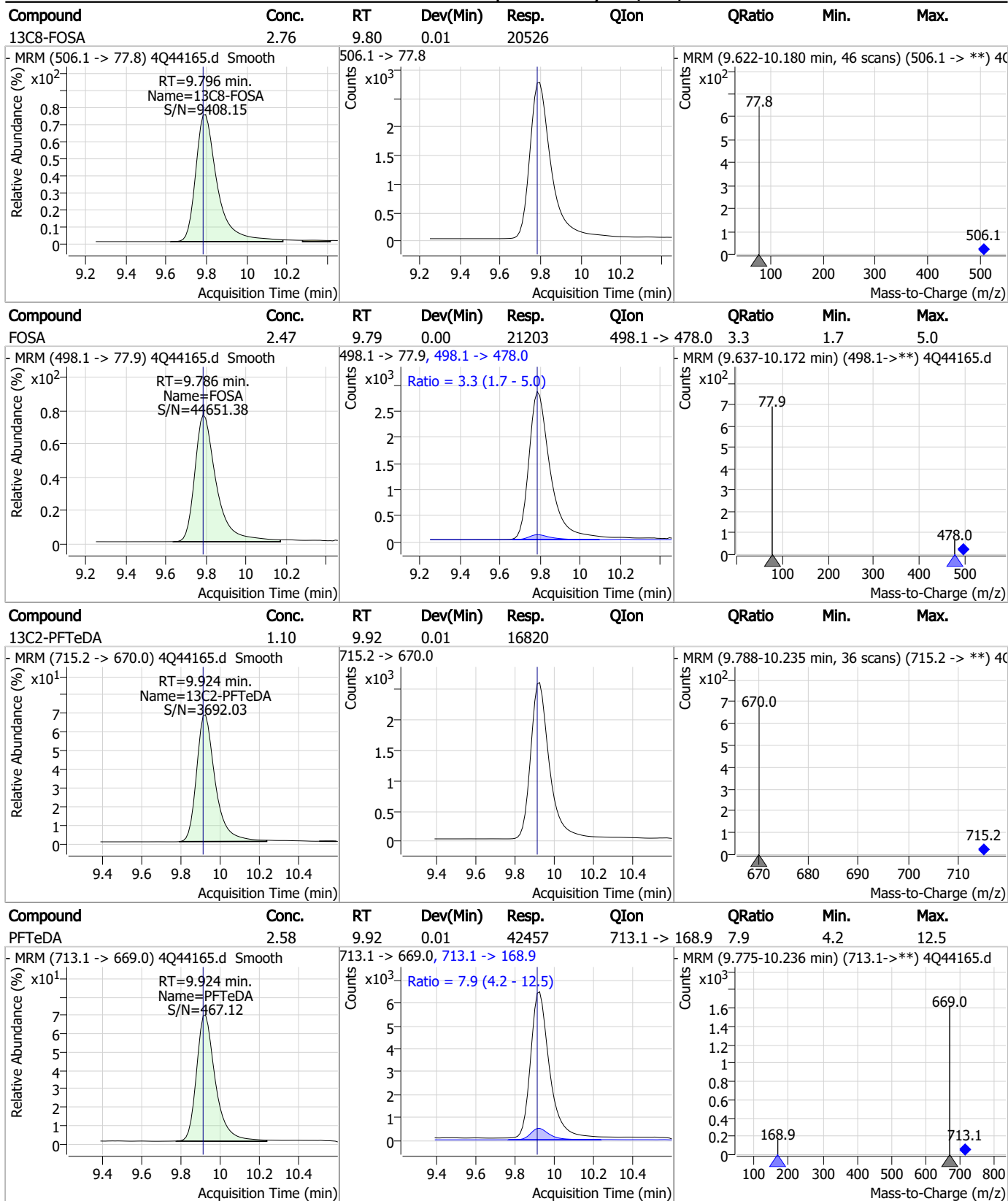
7.7.15
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Perfluorinated Compounds by LC/MS/MS



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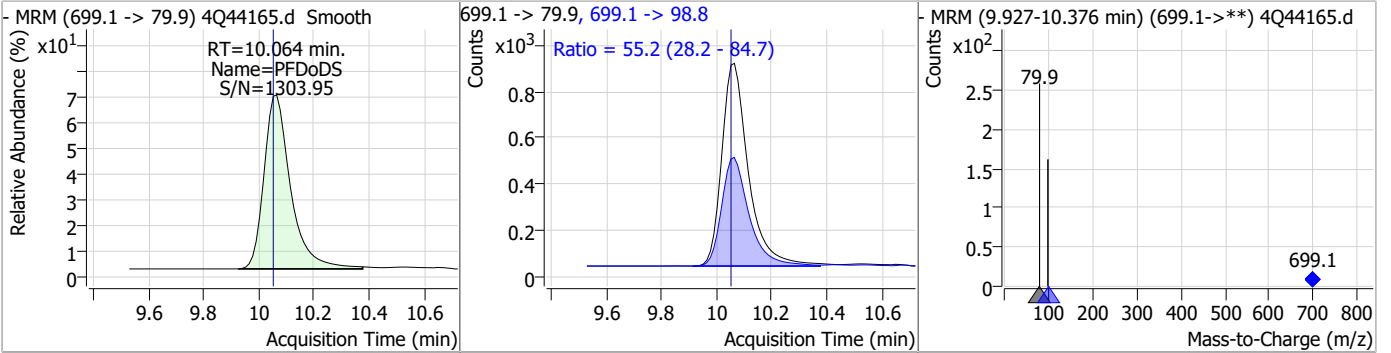
Perfluorinated Compounds by LC/MS/MS



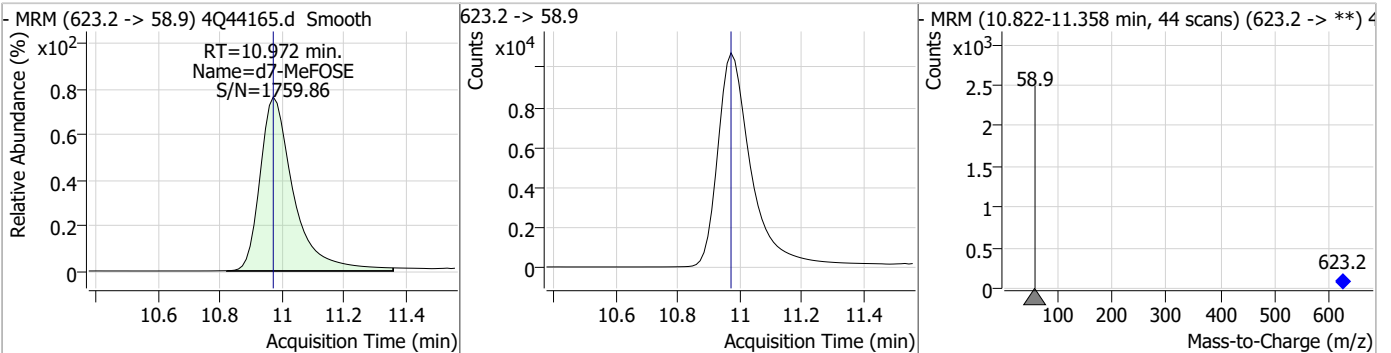
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Perfluorinated Compounds by LC/MS/MS

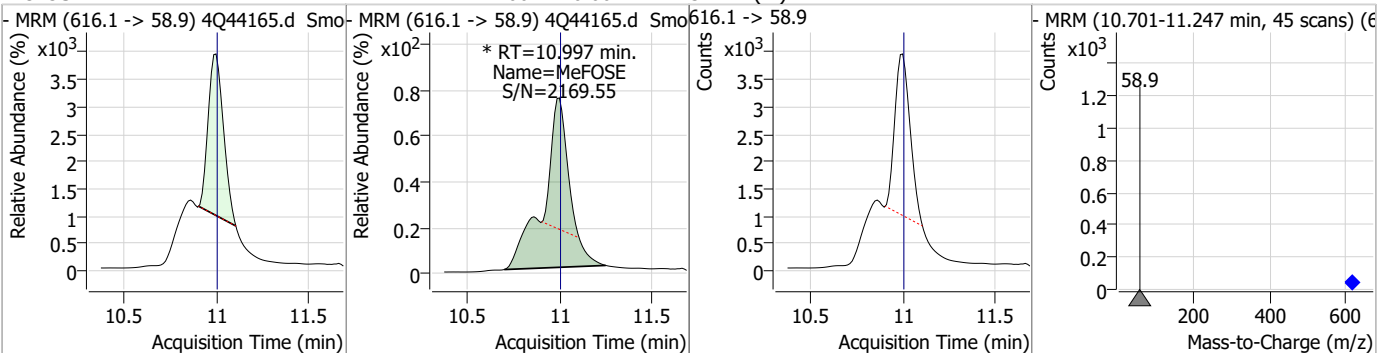
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.39	10.06	0.01	5885	699.1 -> 98.8	55.2	28.2	84.7



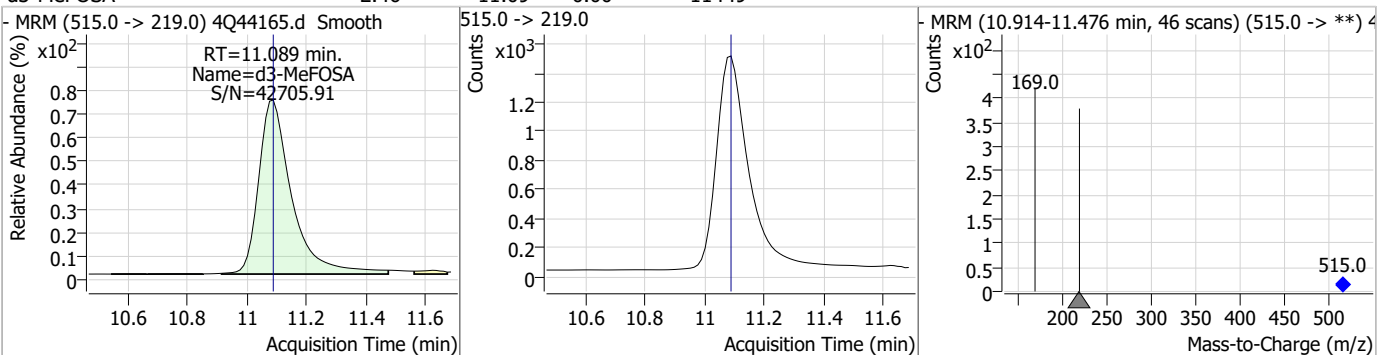
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.80	10.97	0.00	80381				



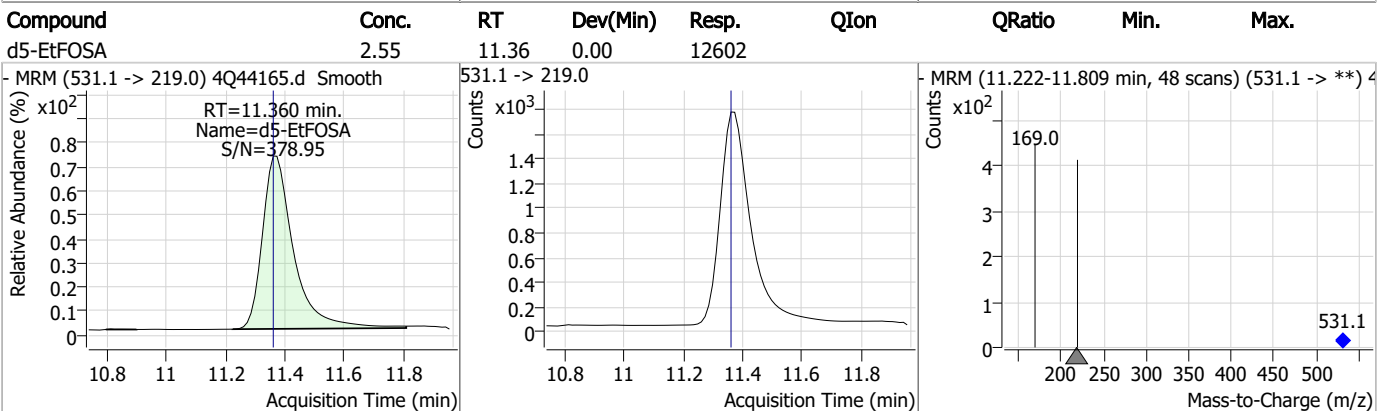
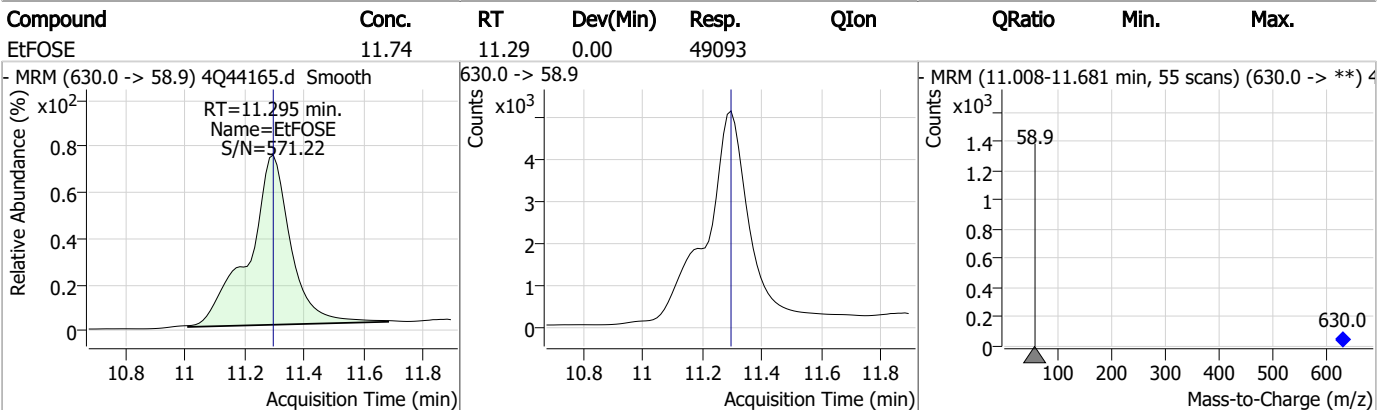
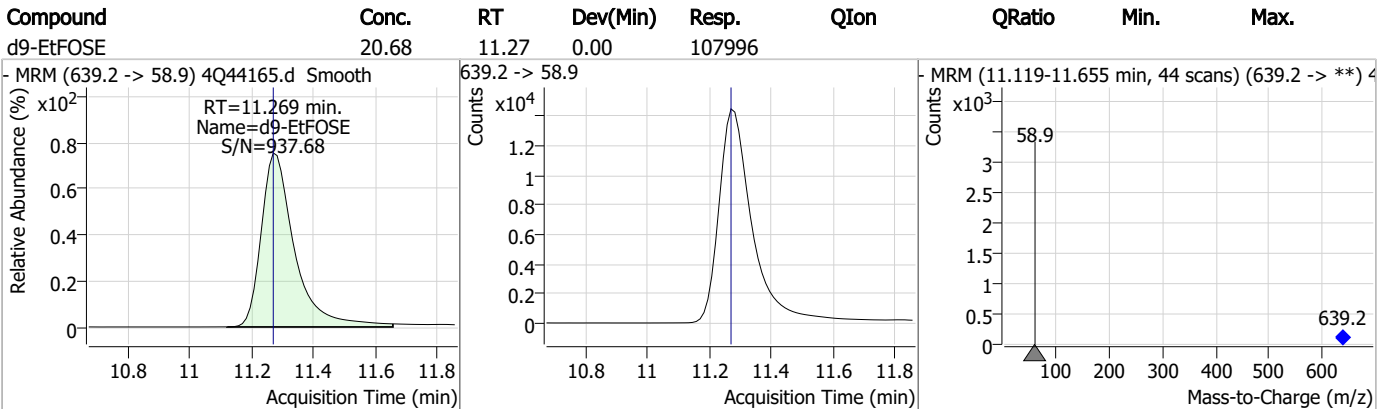
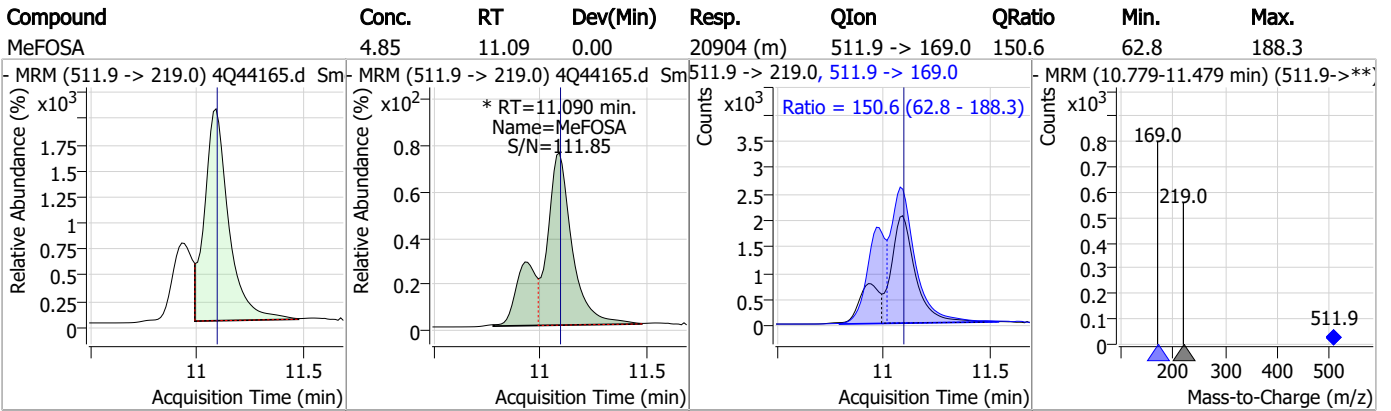
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.27	11.00	0.00	37221 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	11.09	0.00	11449				

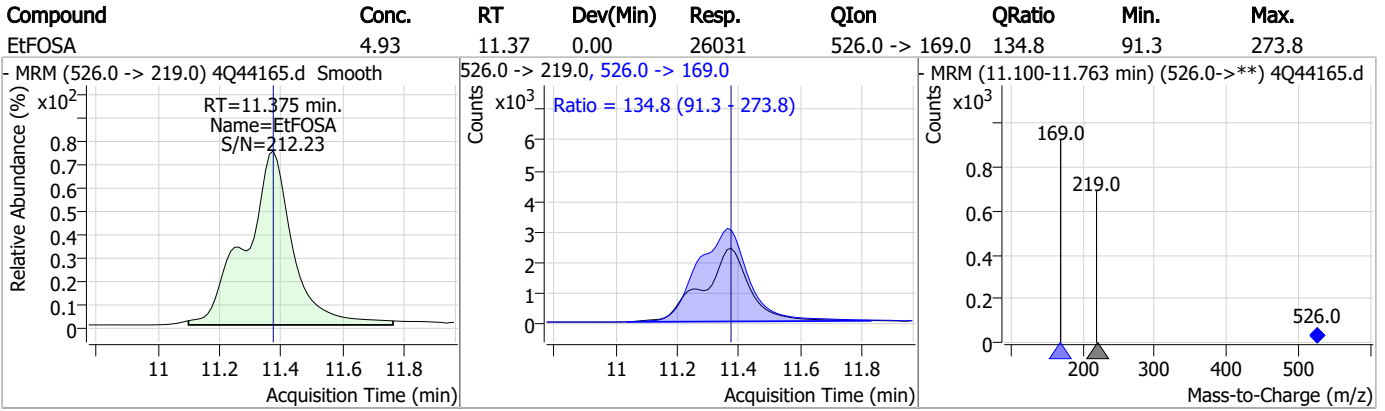


Perfluorinated Compounds by LC/MS/MS



7.7.15
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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q639-CC634
Lab FileID: 4Q44165.D
Injection Time: 05/09/23 21:10

Method: EPA DRAFT 1633
Analyst approved: 05/10/23 11:10 Martha Valls
Supervisor approved: 05/10/23 17:27 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak

7.7.15.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44172.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 10:48:37 PM
 Sample Name : cc634-4
 Vial : P1-A5
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	145502	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	75137	5.00 µg/L	0.000
M5-PFHxA	5.559	318.0 -> 273.0	51844	2.50 µg/L	0.000
M4-PFHpA	6.504	367.1 -> 322.0	30984	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	47143	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	23990	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	20659	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	22931	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	24535	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	17882	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	21058	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	12632	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	7919	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	10848	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1352	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2599	5.00 µg/L	0.013
M2-8:2FTS	8.003	529.1 -> 80.9	4113	5.00 µg/L	0.012
M3-MeFOSAA	8.273	573.2 -> 419.0	16736	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	27330	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	14828	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	83126	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	112349	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	12423	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	11602	2.50 µg/L	0.000
13C4-PFOS	8.367	502.8 -> 79.9	12493	2.50 µg/L	0.012
13C3-PFBA	2.928	216.0 -> 172.0	76073	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	5746	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	57582	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	19950	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	26686	1.25 µg/L	0.012
13C2-PFHxA	5.560	315.1 -> 270.0	47242	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1352	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.8%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2599	6.17 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.5%		
13C2-8:2FTS	8.003	529.1 -> 80.9	4113	6.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.2%		
13C2-PFDoDA	9.130	615.1 -> 570.0	24535	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFTeDA	9.924	715.2 -> 670.0	17882	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C3-PFBS	5.464	302.1 -> 79.9	12632	2.33 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C3-PFHxS	7.254	402.1 -> 79.9	7919	2.22 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 = 88.9%	
13C4-PFBA	2.924	216.8 -> 171.9	145502	10.16 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFHpA	6.504	367.1 -> 322.0	30984	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.559	318.0 -> 273.0	51844	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFPeA	4.387	268.3 -> 223.0	75137	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C6-PFDA	8.216	519.1 -> 474.1	20659	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C7-PFUnDA	8.685	570.0 -> 525.1	22931	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-FOSA	9.796	506.1 -> 77.8	21058	2.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C8-PFOA	7.163	421.1 -> 376.0	47143	2.49 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOS	8.354	507.1 -> 79.9	10848	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C9-PFNA	7.709	472.1 -> 427.0	23990	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%	
d3-MeFOSAA	8.273	573.2 -> 419.0	16736	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	27330	8.79 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.9%	
d3-MeFOSA	11.089	515.0 -> 219.0	11602	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
d5-EtFOSAA	8.483	589.2 -> 419.0	14828	5.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
d7-MeFOSE	10.972	623.2 -> 58.9	83126	21.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.5%	
d9-EtFOSE	11.281	639.2 -> 58.9	112349	20.41 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	12423	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	20314	9.34 µg/L	97
		327.1 -> 80.9	8921		
6:2FTS	6.936	427.1 -> 407.0	23386	9.32 µg/L	100
		427.1 -> 80.9	10079		
8:2FTS	8.003	527.1 -> 507.0	24140	10.53 µg/L	94
		527.1 -> 80.8	9515		
EtFOSAA	8.483	584.2 -> 419.1	6980	2.45 µg/L	m 94
		584.2 -> 526.0	3344		
FOSA	9.786	498.1 -> 77.9	21619	2.45 µg/L	99
		498.1 -> 478.0	636		
MeFOSAA	8.274	570.1 -> 419.0	7044	2.41 µg/L	100
		570.1 -> 483.0	1323		
PFBA	2.932	212.8 -> 168.9	37812	9.70 µg/L	100
PFBS	5.465	298.7 -> 79.9	10819	2.09 µg/L	92
		298.7 -> 98.8	4376		
PFDA	8.216	512.9 -> 469.0	39935	2.55 µg/L	99
		512.9 -> 219.0	8129		
PFDoDA	9.131	613.1 -> 569.0	47916	2.43 µg/L	99
		613.1 -> 319.0	6514		
PFDS	9.294	599.0 -> 79.9	6835	2.54 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3556			
PFHpA	6.505	363.1 -> 319.0	47386	2.42	µg/L	97
		363.1 -> 169.0	7796			
PFHpS	7.836	449.0 -> 79.9	9482	2.43	µg/L	98
		449.0 -> 98.9	5078			
PFHxA	5.562	313.0 -> 269.0	47677	2.35	µg/L	99
		313.0 -> 118.9	1645			
PFHxS	7.255	398.7 -> 79.9	7418	2.29	µg/L	m 94
		398.7 -> 98.9	3982			
PFNA	7.709	463.0 -> 419.0	41096	2.31	µg/L	99
		463.0 -> 219.0	10196			
PFNS	8.848	548.8 -> 79.9	5654	2.39	µg/L	92
		548.8 -> 98.9	3028			
PFOA	7.164	413.0 -> 369.0	64536	2.37	µg/L	98
		413.0 -> 169.0	13301			
PFOS	8.355	498.9 -> 79.9	12238	2.31	µg/L	m 92
		498.9 -> 98.8	6687			
PFPeA	4.389	263.0 -> 219.0	87124	4.82	µg/L	100
PFPeS	6.531	349.1 -> 79.9	6558	2.36	µg/L	99
		349.1 -> 98.9	2986			
PFTeDA	9.924	713.1 -> 669.0	43918	2.51	µg/L	100
		713.1 -> 168.9	3721			
PFTrDA	9.541	663.0 -> 619.0	64257	2.44	µg/L	99
		663.0 -> 168.9	6243			
PFUnDA	8.685	563.1 -> 519.0	37844	2.43	µg/L	95
		563.1 -> 269.1	7728			
11CI-PF3OUdS	9.593	630.9 -> 450.9	52398	5.33	µg/L	100
		632.9 -> 452.9	15813			
9CI-PF3ONS	8.712	530.8 -> 351.0	66873	5.34	µg/L	100
		532.8 -> 353.0	19807			
ADONA	6.756	376.9 -> 250.9	141880	5.16	µg/L	99
		376.9 -> 84.8	37506			
HFPO-DA	5.928	284.9 -> 168.9	13369	5.12	µg/L	97
		284.9 -> 184.9	1534			
3:3FTCA	3.867	241.0 -> 177.0	9983	12.55	µg/L	98
		241.0 -> 117.0	1002			
5:3FTCA	6.231	341.0 -> 237.1	188555	68.41	µg/L	99
		341.0 -> 217.0	127854			
7:3FTCA	7.686	441.0 -> 316.9	105449	73.63	µg/L	97
		441.0 -> 336.9	253736			
EtFOSA	11.375	526.0 -> 219.0	25444	4.89	µg/L	73
		526.0 -> 169.0	36708			
EtFOSE	11.295	630.0 -> 58.9	50636	11.64	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	21539	4.93	µg/L	m 81
		511.9 -> 169.0	31620			
MeFOSE	10.997	616.1 -> 58.9	41287	12.09	µg/L	m 100
PFDoDS	10.064	699.1 -> 79.9	5764	2.40	µg/L	99
		699.1 -> 98.8	3292			
NFDHA	5.453	295.0 -> 201.0	5463	3.77	µg/L	98
		295.0 -> 84.9	1405			
PFMBA	4.791	279.0 -> 85.1	48299	4.79	µg/L	100
PFMPA	3.540	229.0 -> 84.9	45858	4.85	µg/L	100
PFEESA	5.997	314.8 -> 134.9	64982	4.23	µg/L	99
		314.8 -> 82.9	2181			

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

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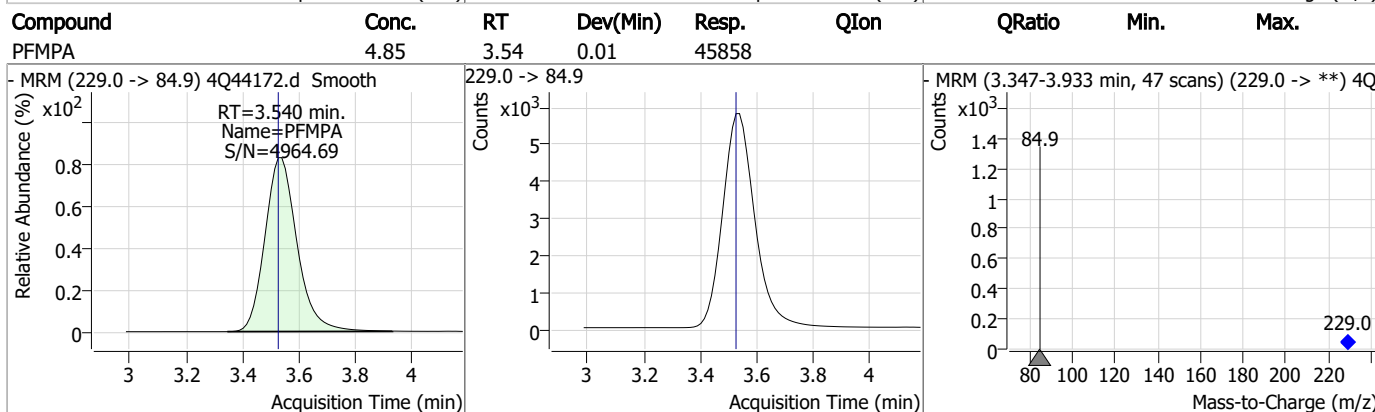
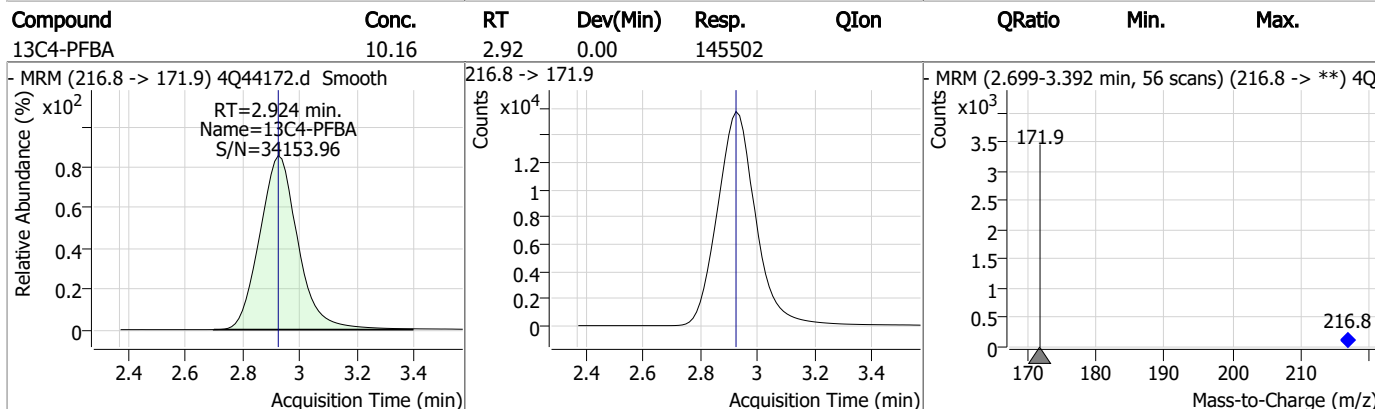
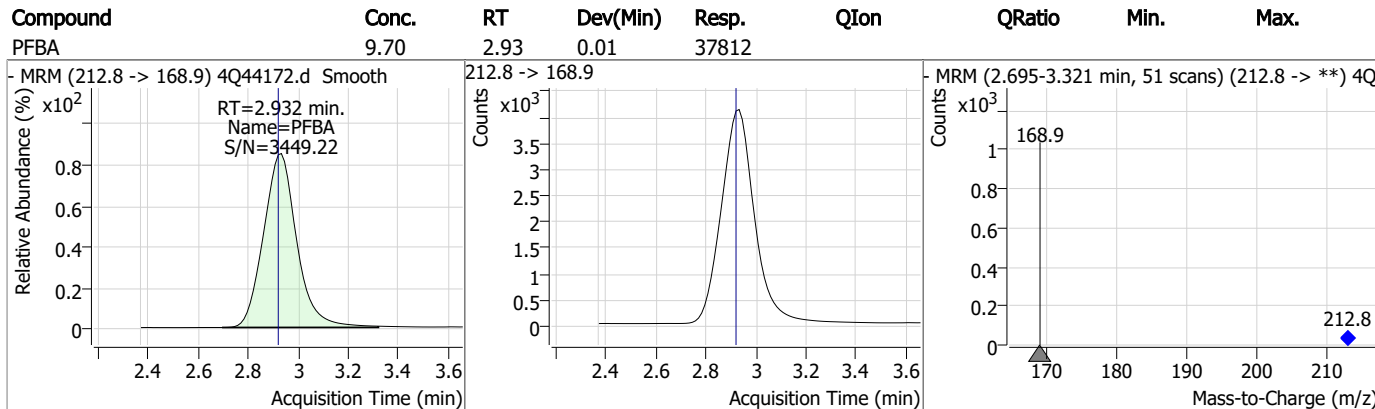
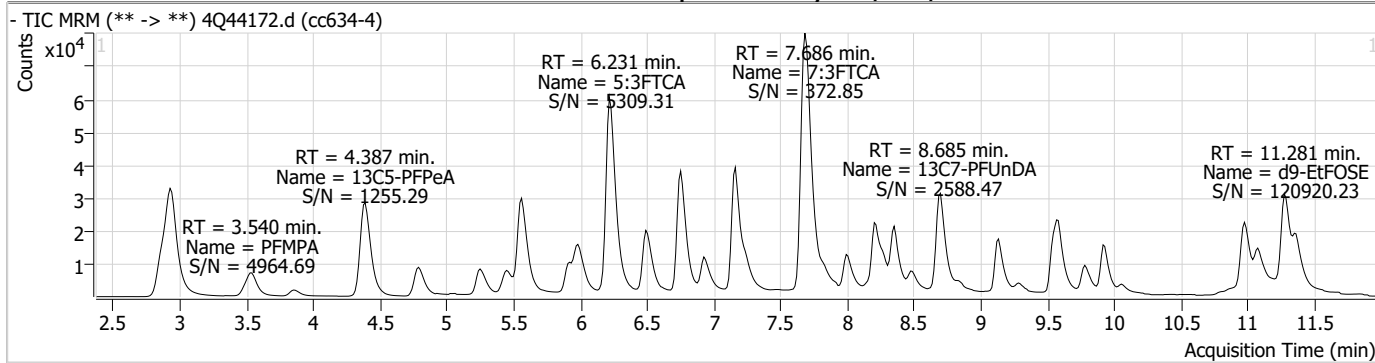
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.16

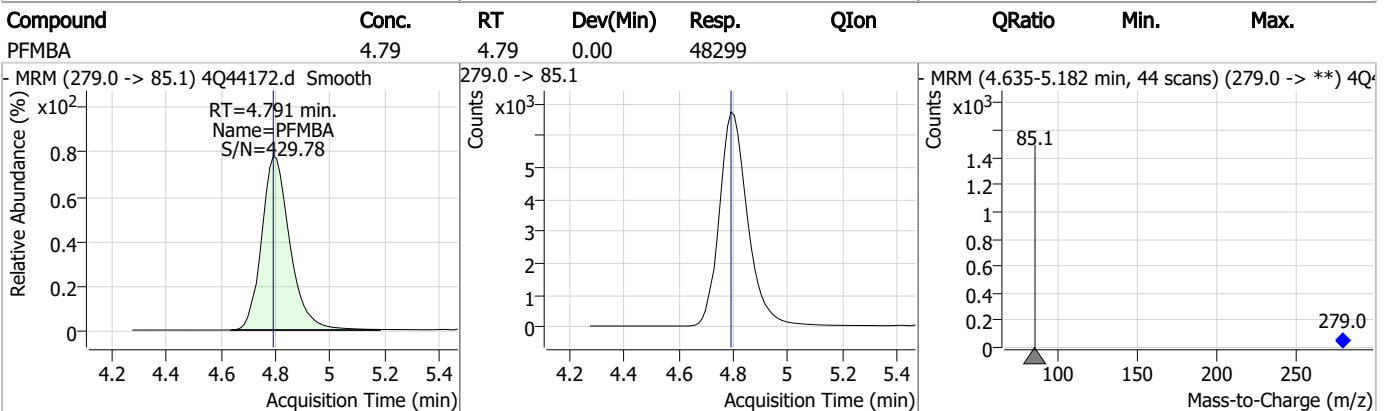
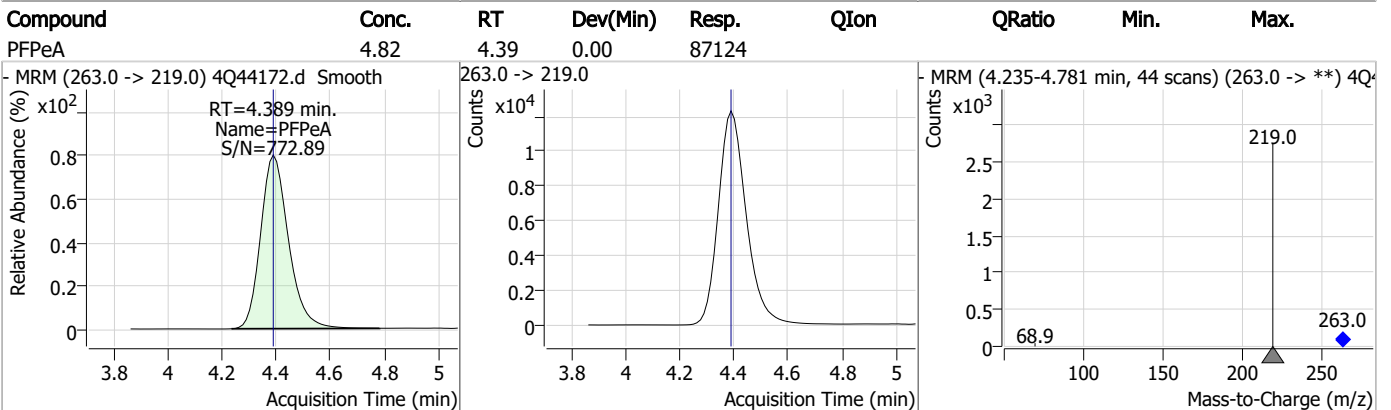
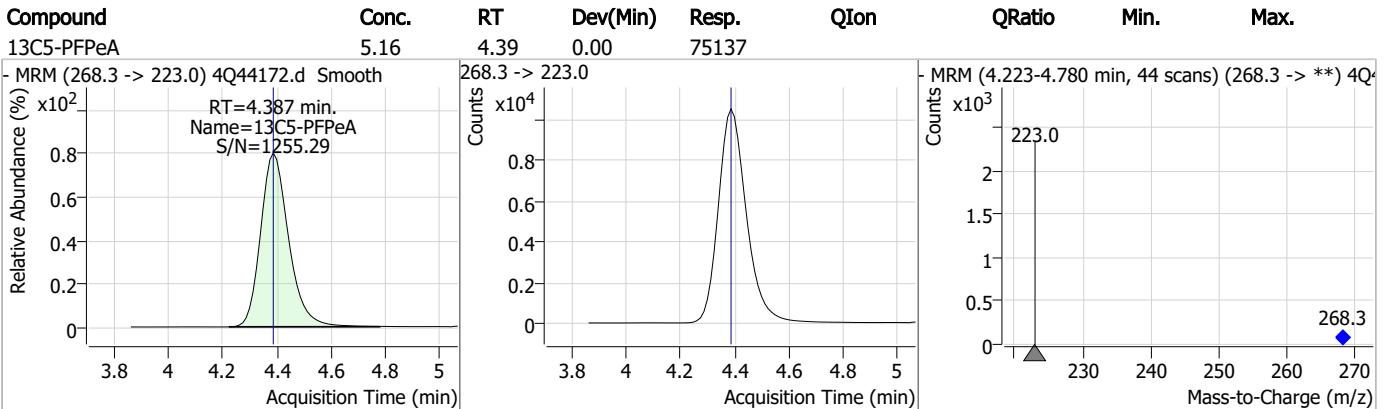
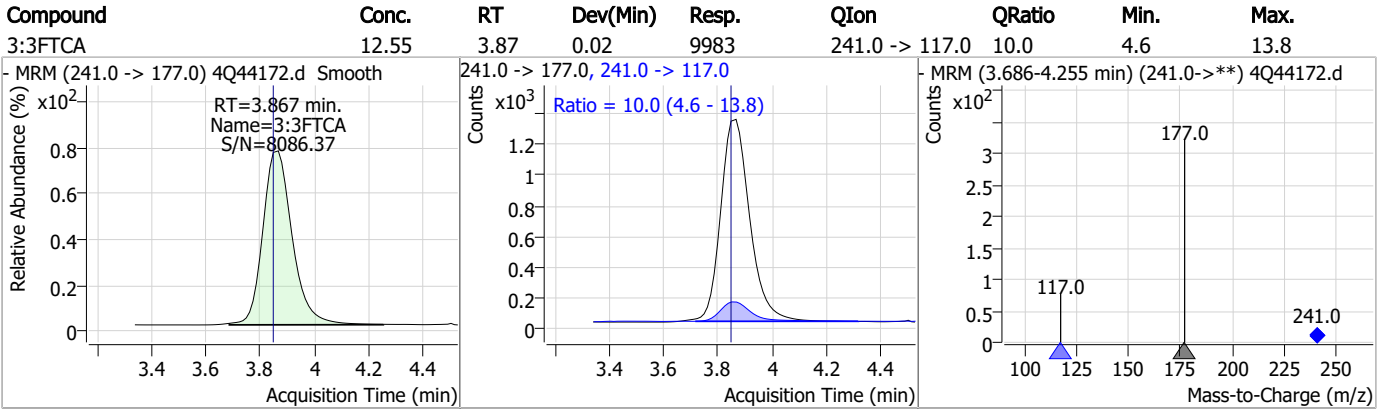
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Perfluorinated Compounds by LC/MS/MS

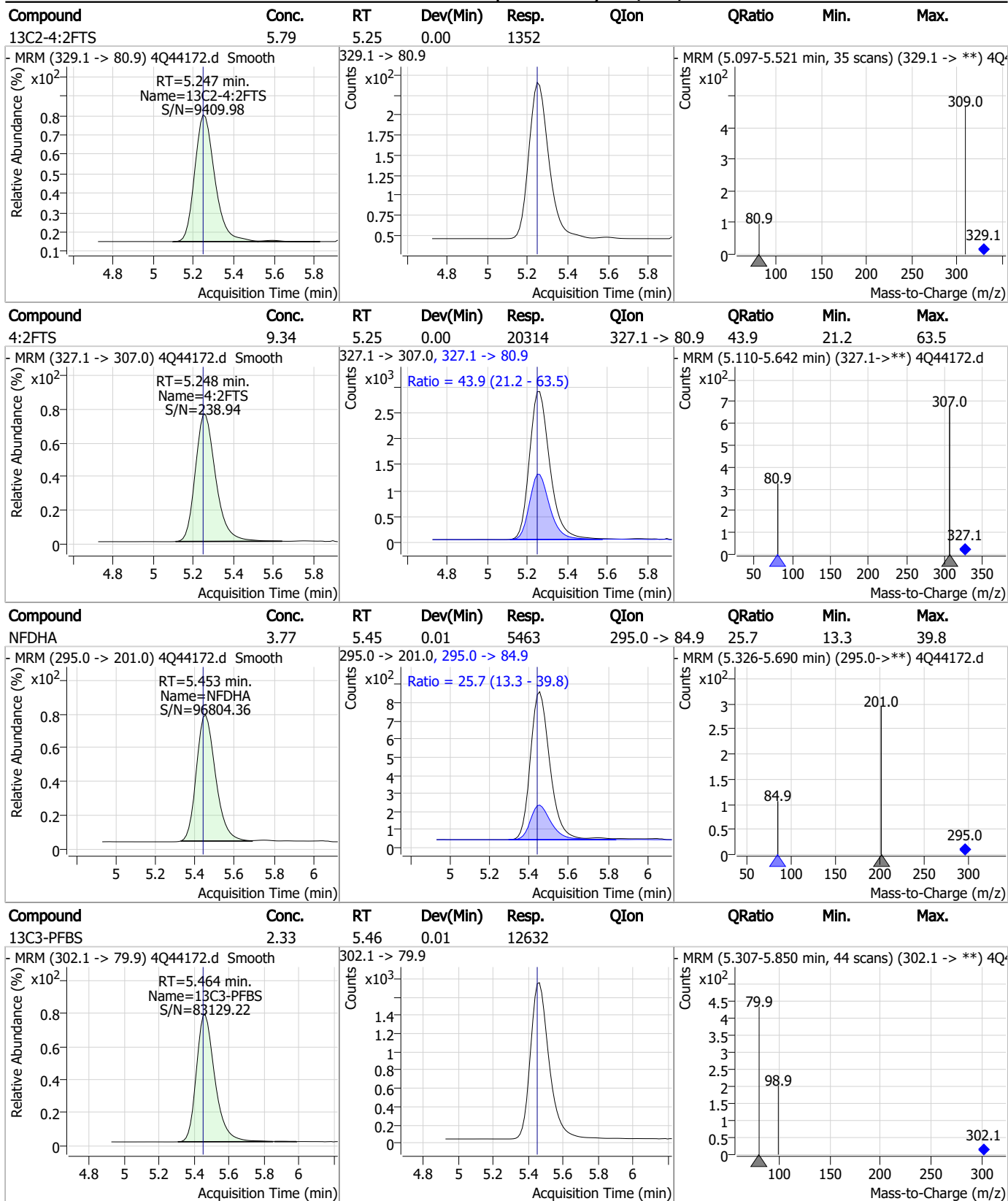


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Perfluorinated Compounds by LC/MS/MS



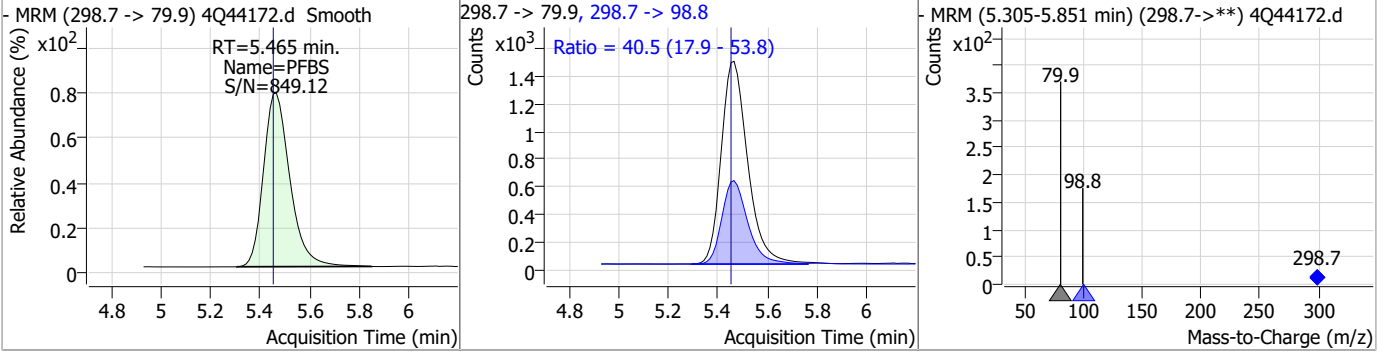
Perfluorinated Compounds by LC/MS/MS



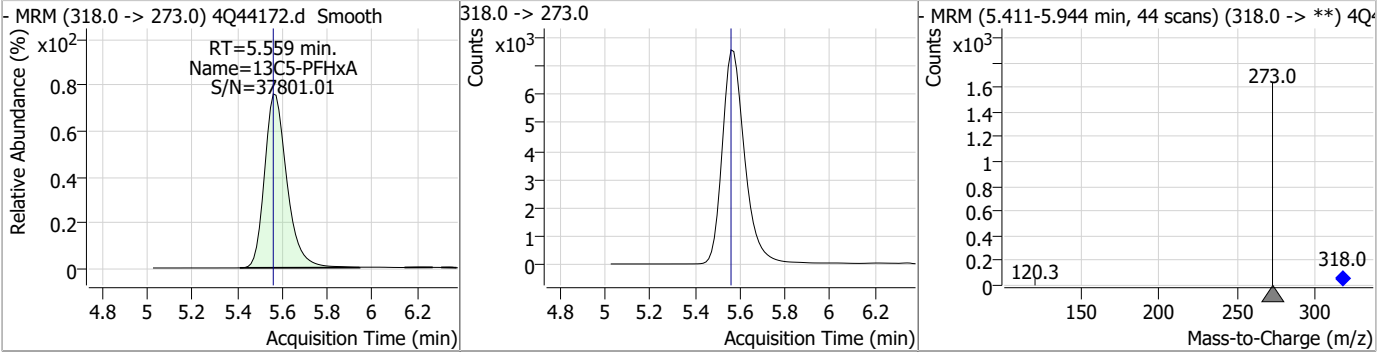
7.7.16
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Perfluorinated Compounds by LC/MS/MS

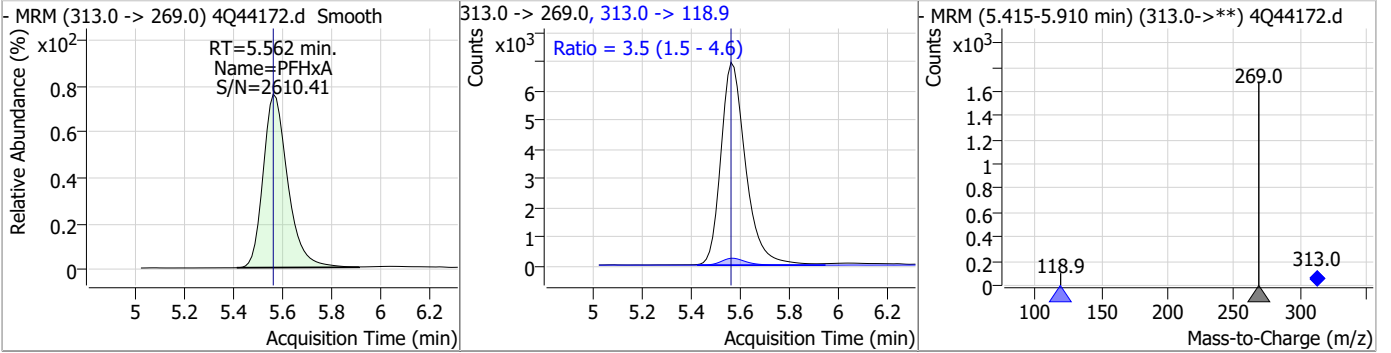
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.09	5.46	0.01	10819	298.7 -> 98.8	40.5	17.9	53.8



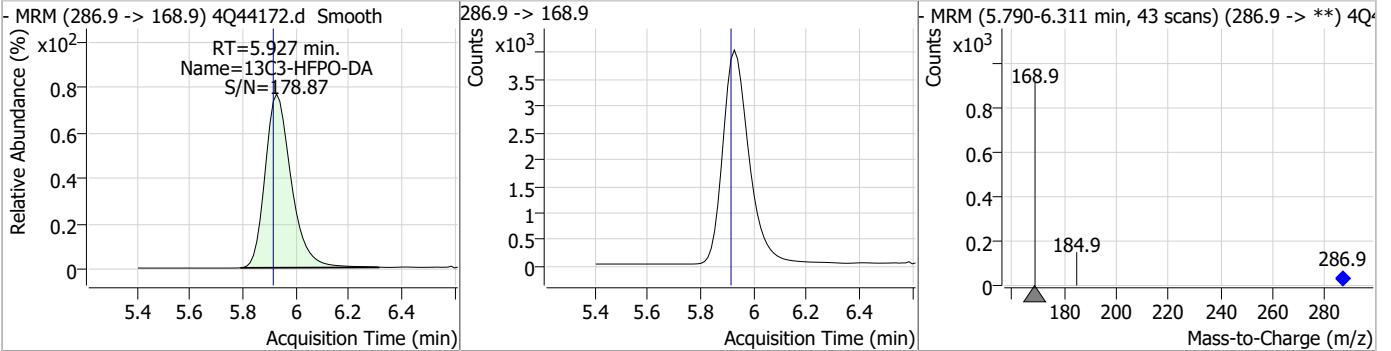
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.56	0.00	51844				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.35	5.56	0.00	47677	313.0 -> 118.9	3.5	1.5	4.6

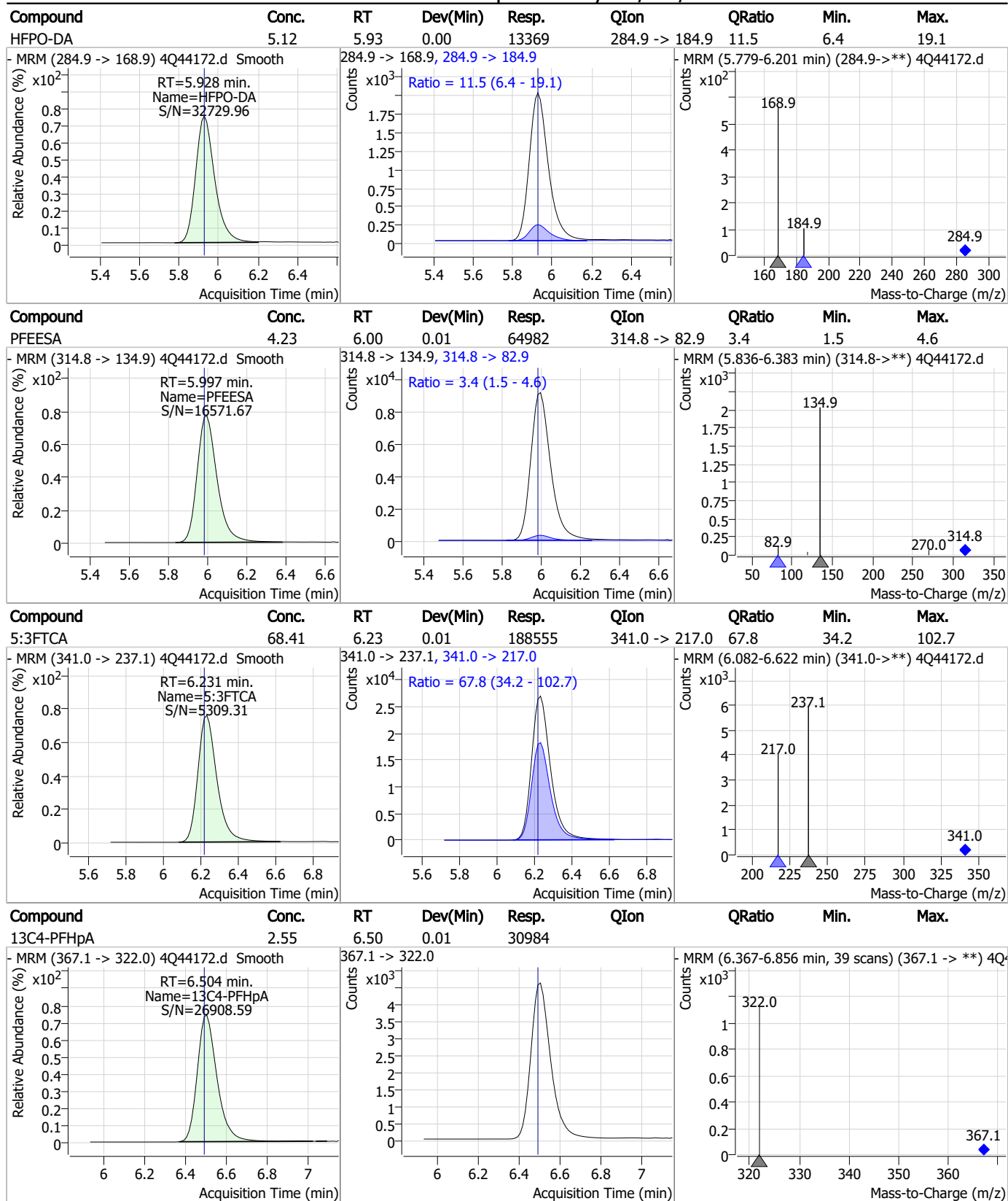


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.79	5.93	0.01	27330				



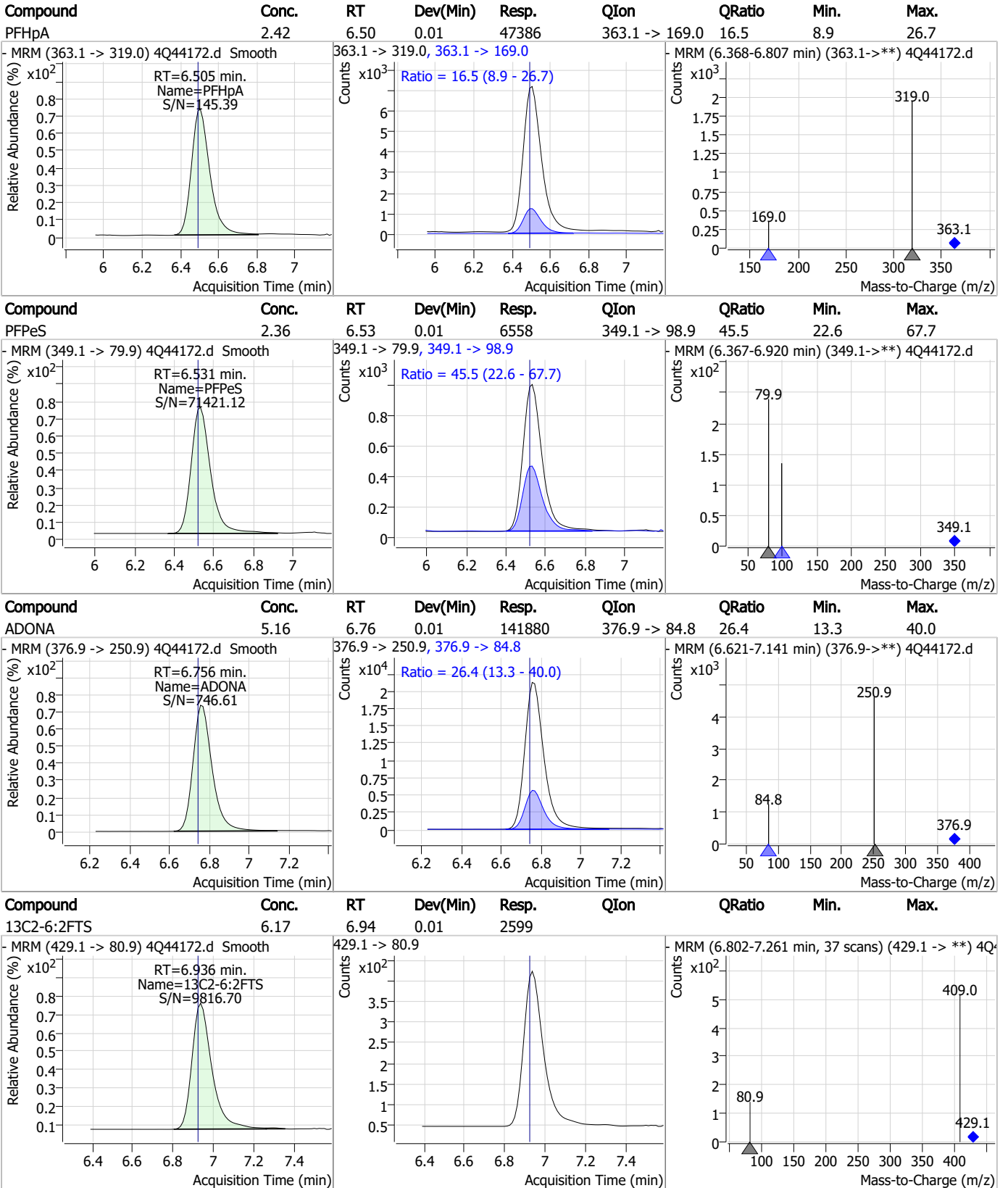
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Perfluorinated Compounds by LC/MS/MS



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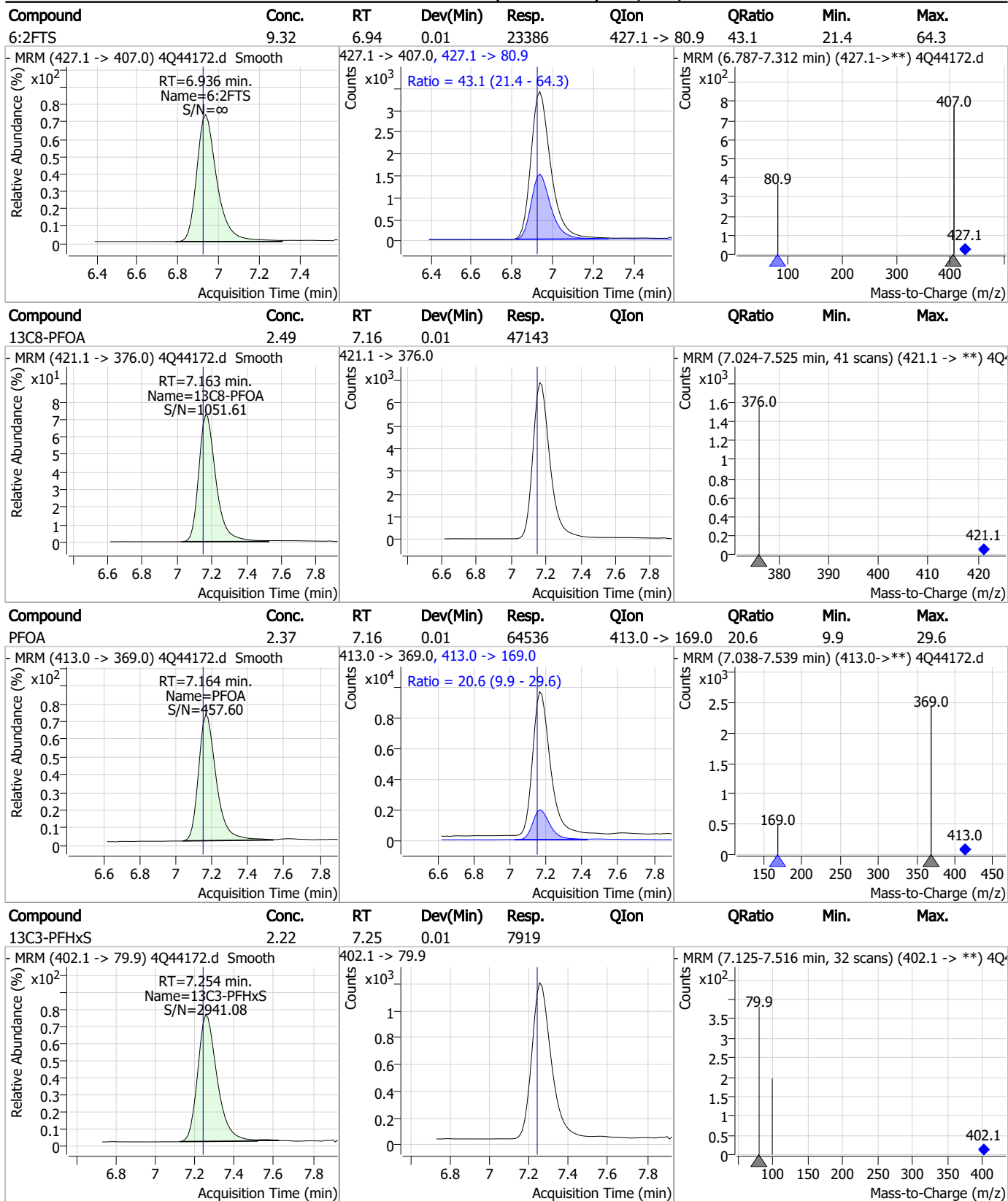
Perfluorinated Compounds by LC/MS/MS



7.7.16 7



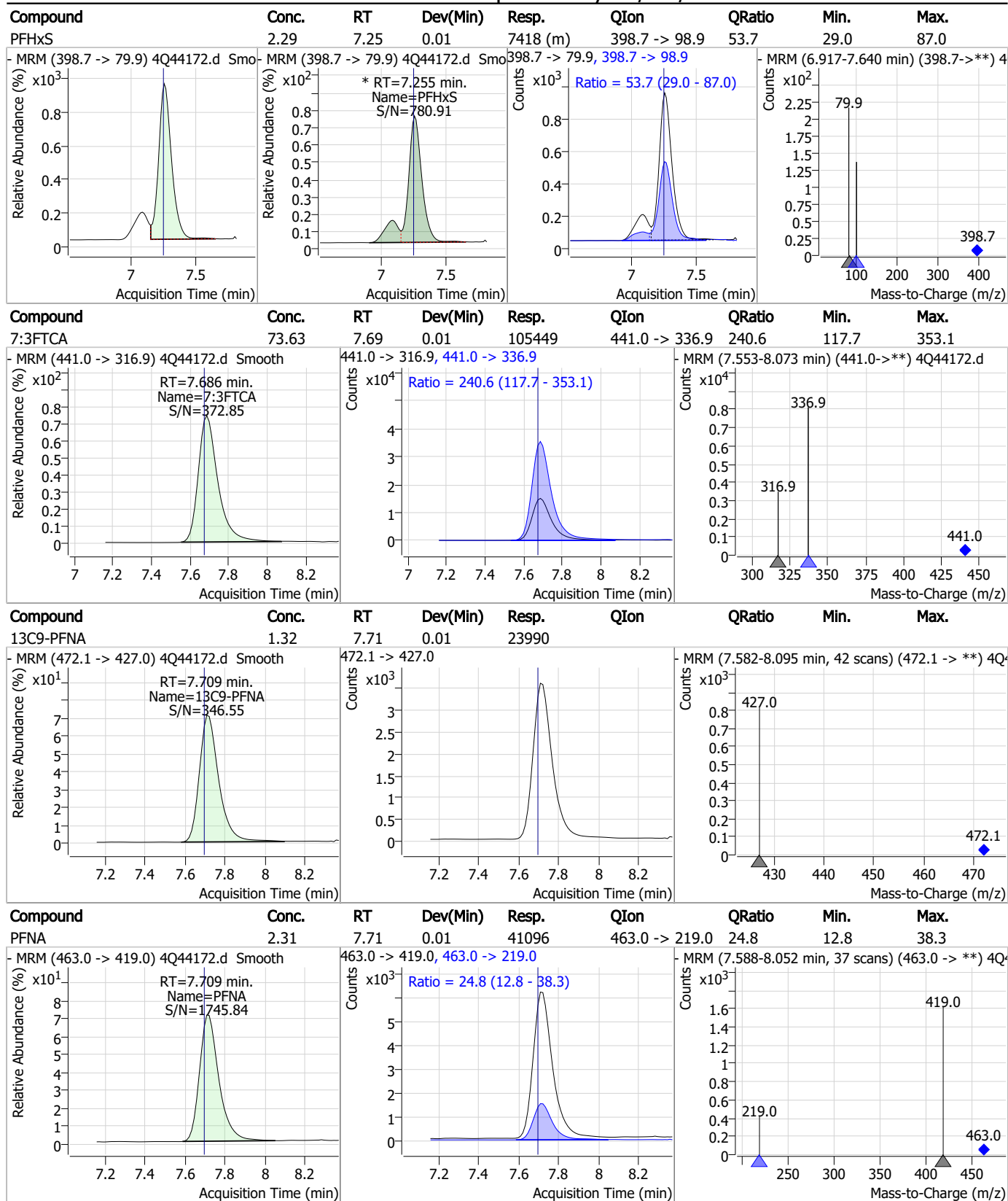
Perfluorinated Compounds by LC/MS/MS



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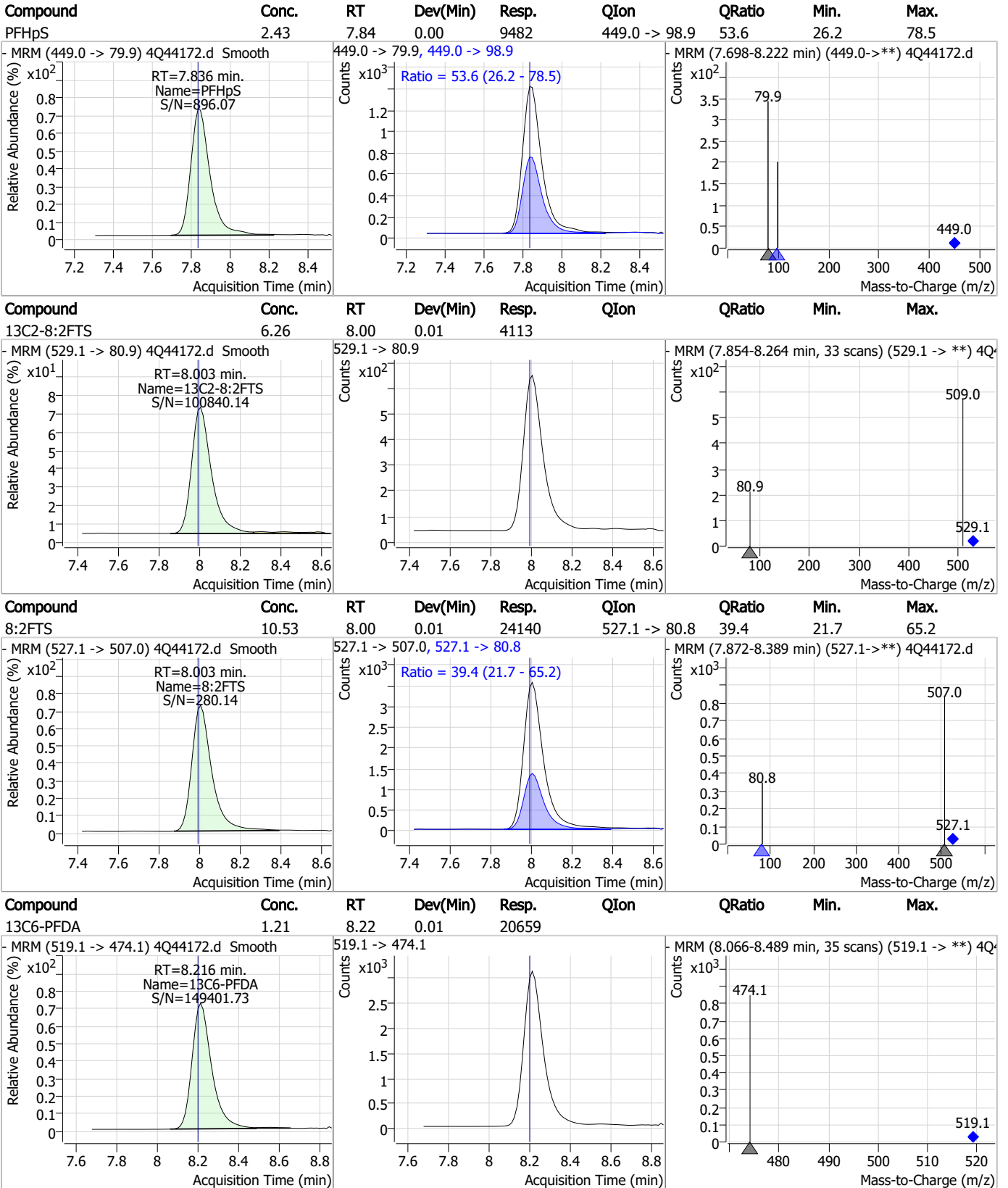


Perfluorinated Compounds by LC/MS/MS



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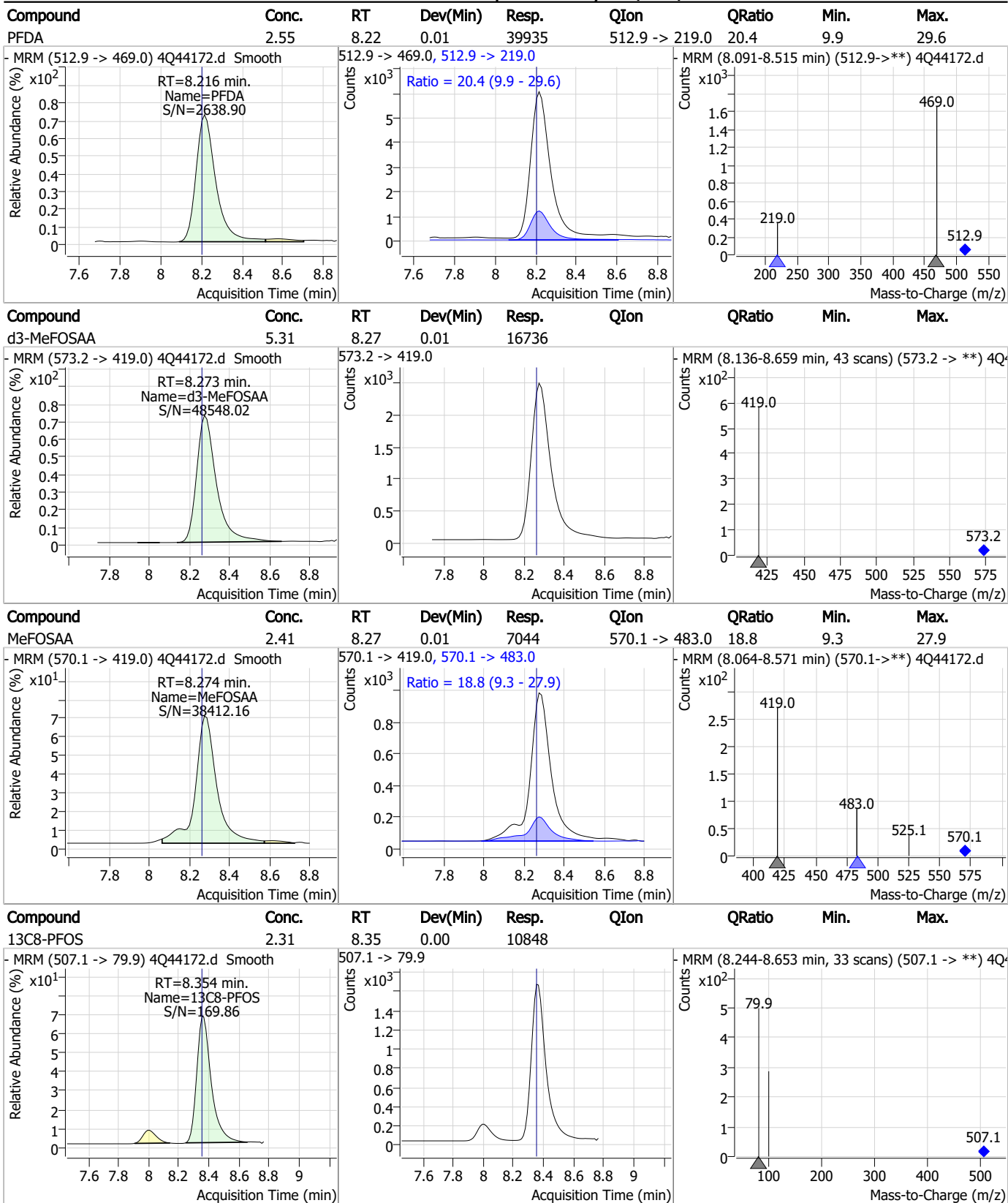
Perfluorinated Compounds by LC/MS/MS



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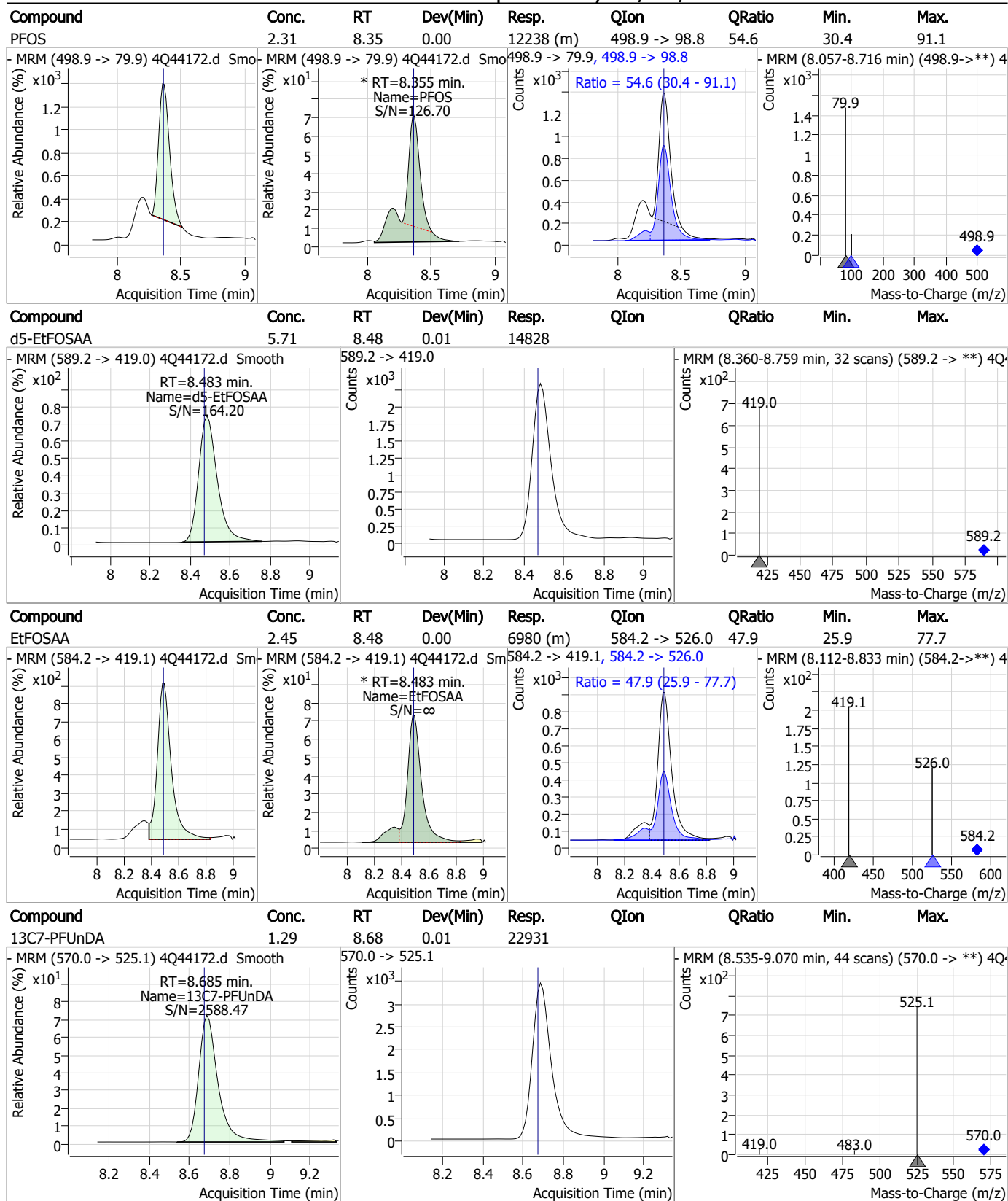
Perfluorinated Compounds by LC/MS/MS



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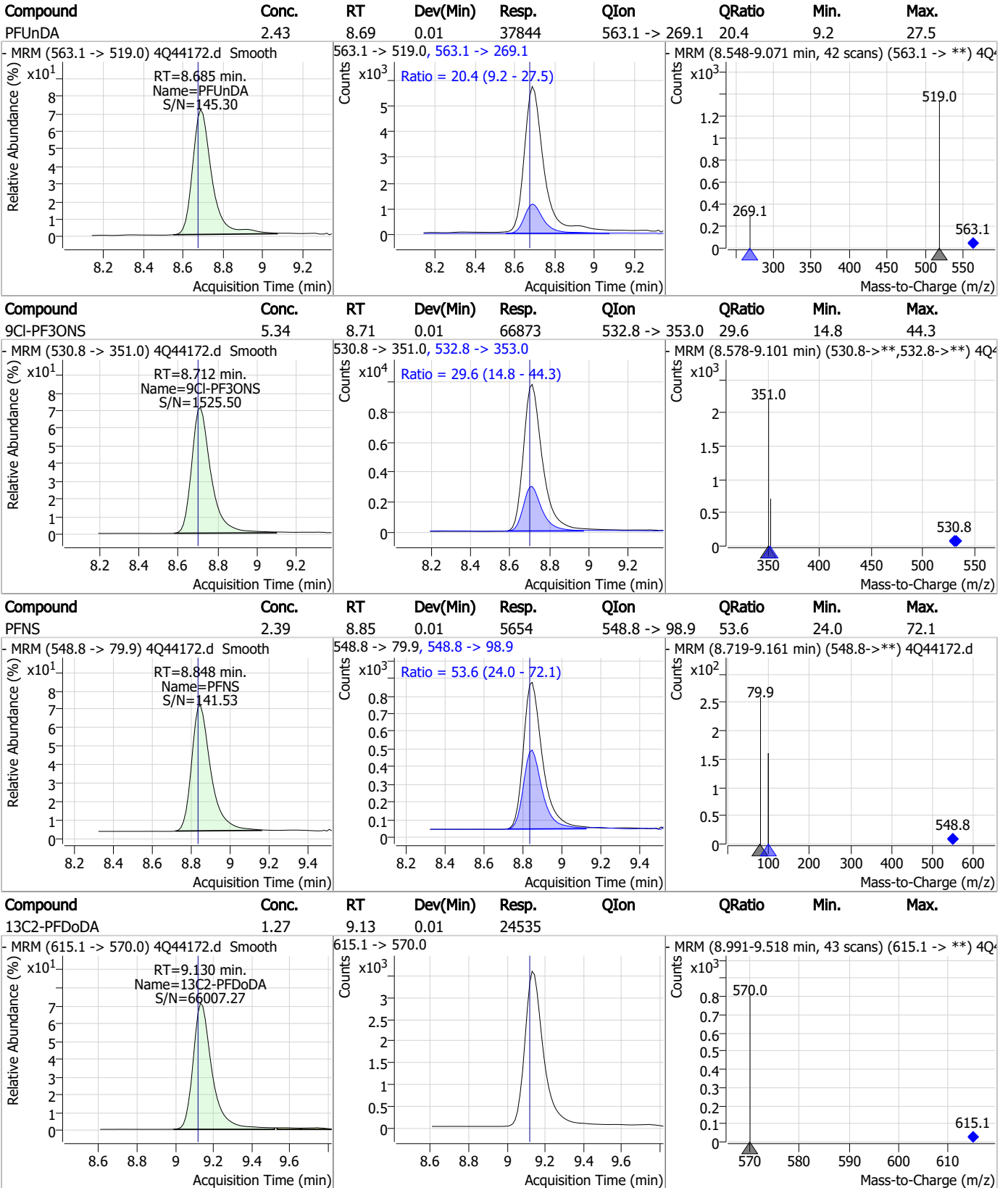
Perfluorinated Compounds by LC/MS/MS



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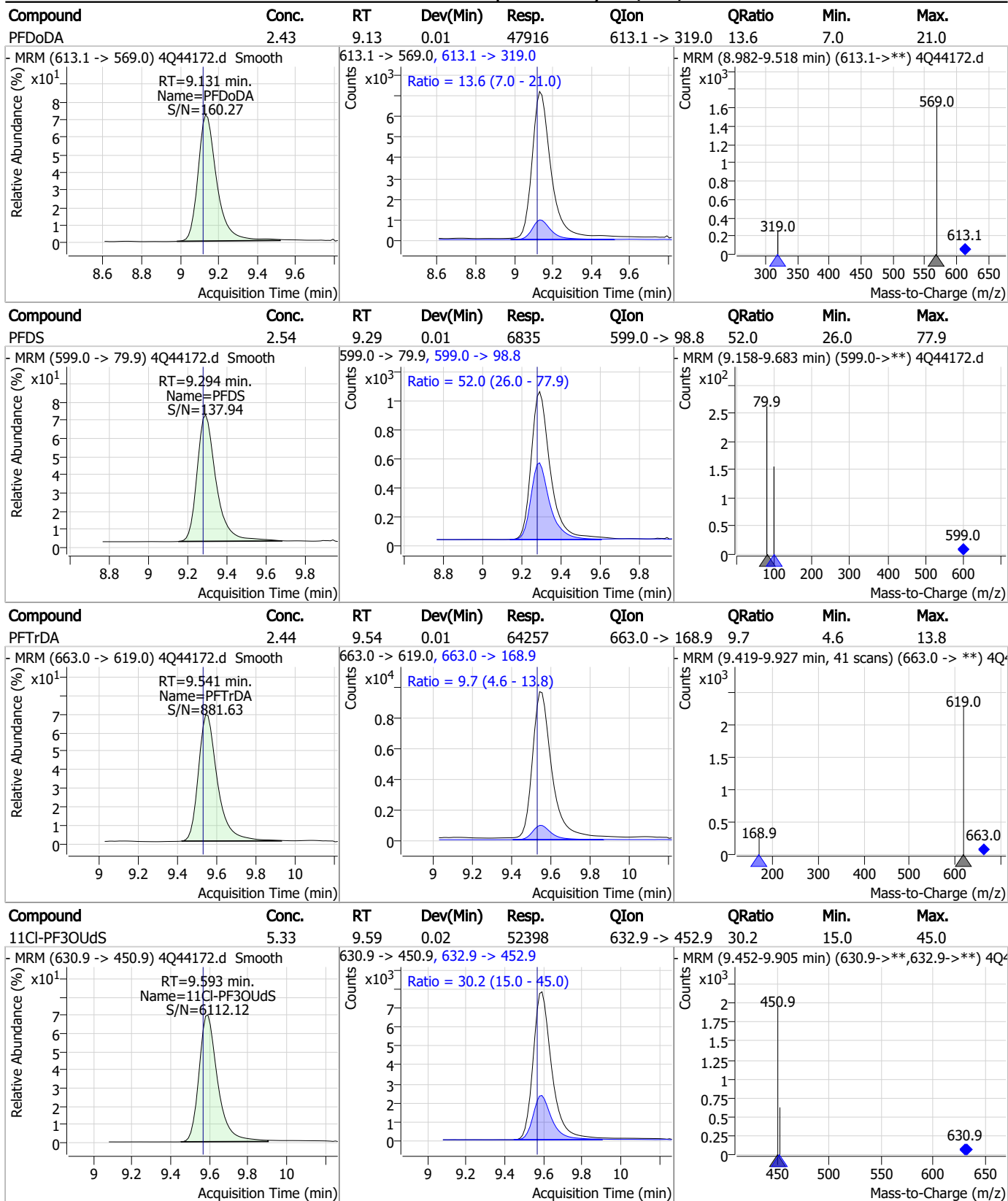
Perfluorinated Compounds by LC/MS/MS



7.7.16 7



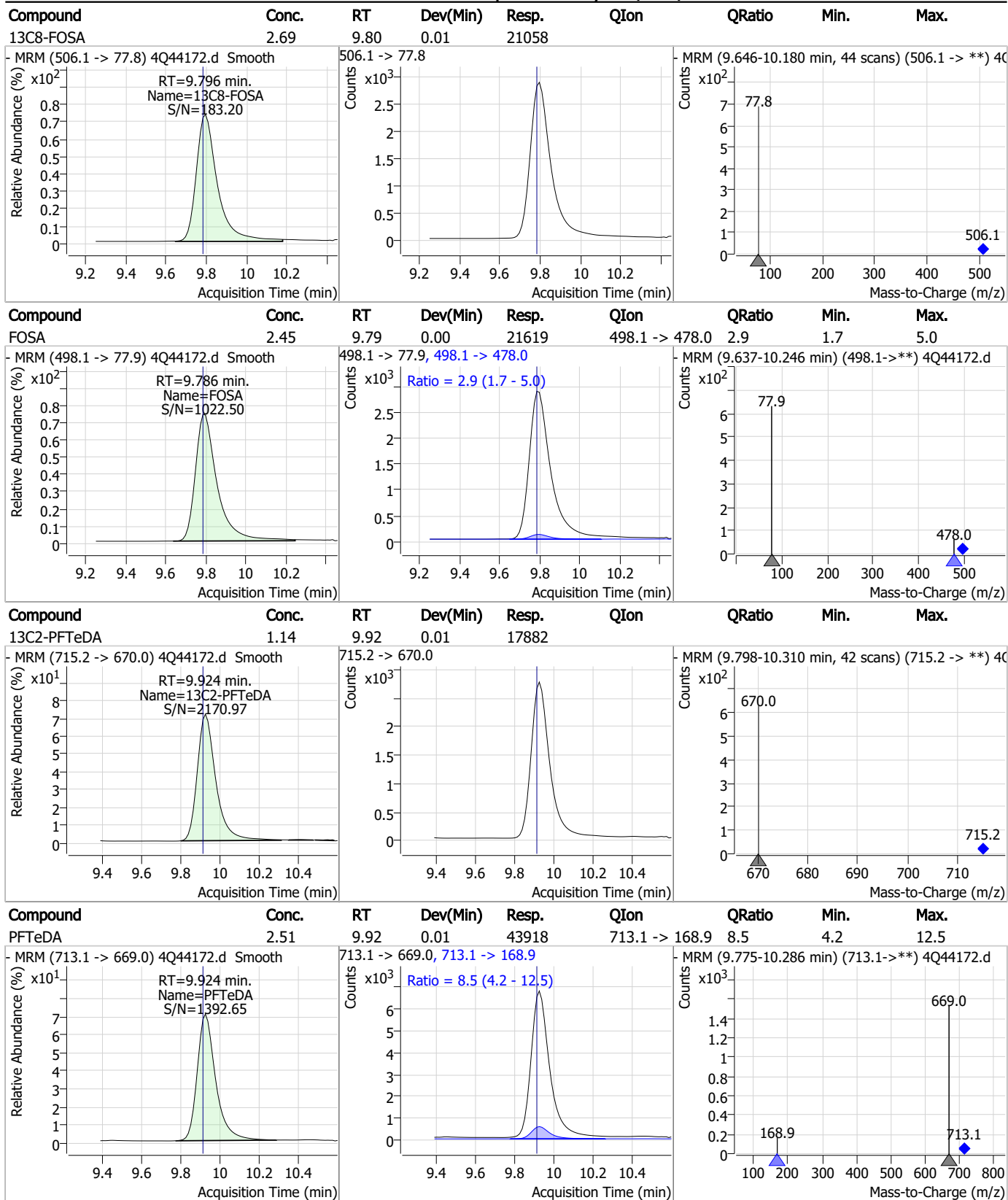
Perfluorinated Compounds by LC/MS/MS



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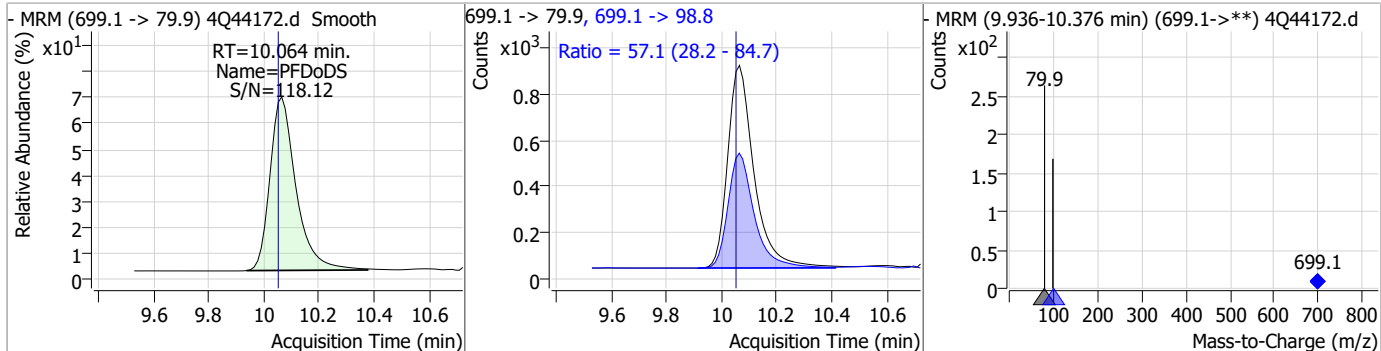
Perfluorinated Compounds by LC/MS/MS



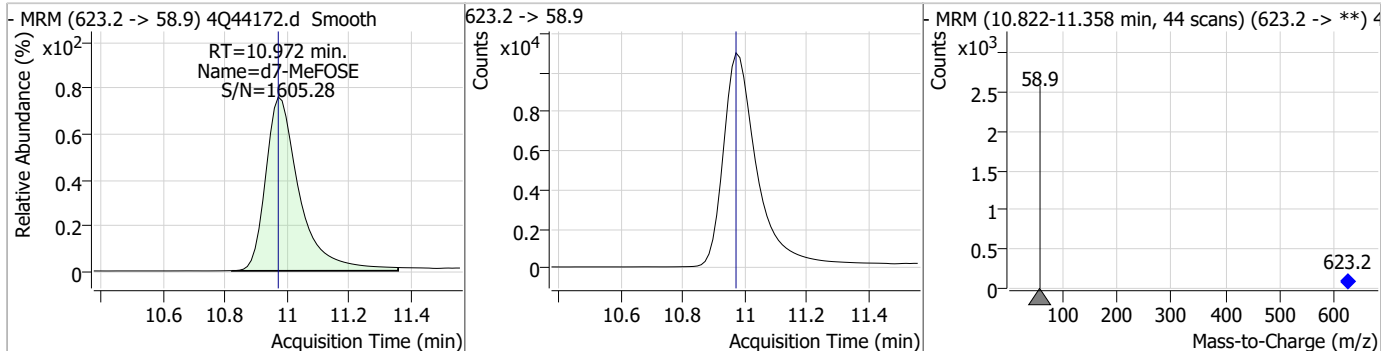
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Perfluorinated Compounds by LC/MS/MS

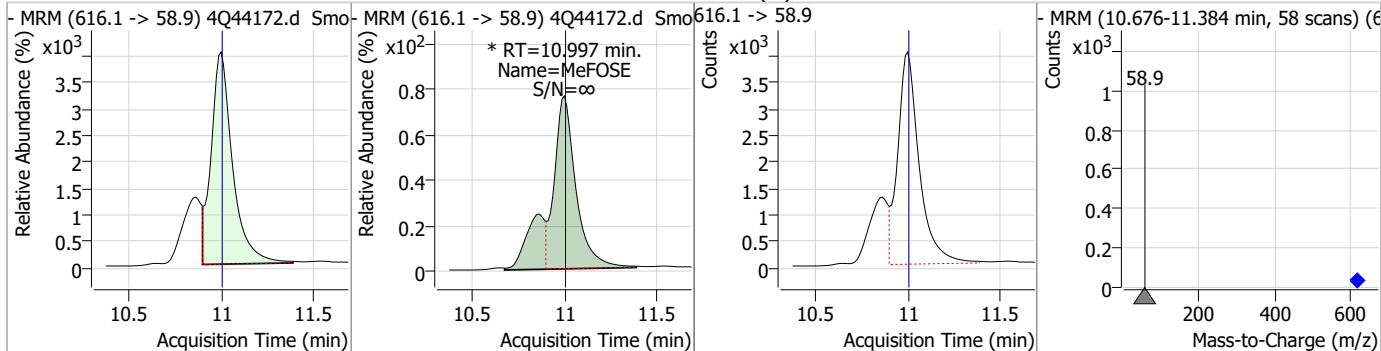
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.40	10.06	0.01	5764	699.1 -> 98.8	57.1	28.2	84.7



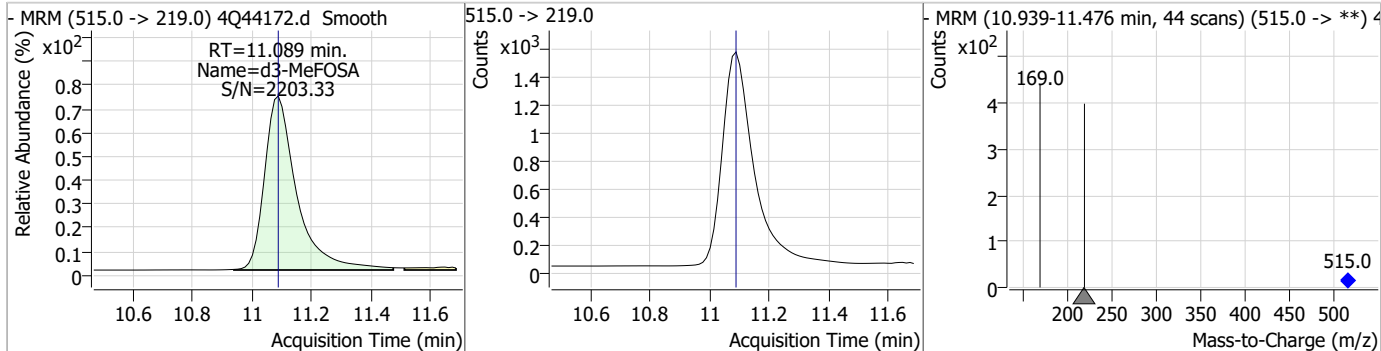
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.39	10.97	0.00	83126				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.09	11.00	0.00	41287 (m)				



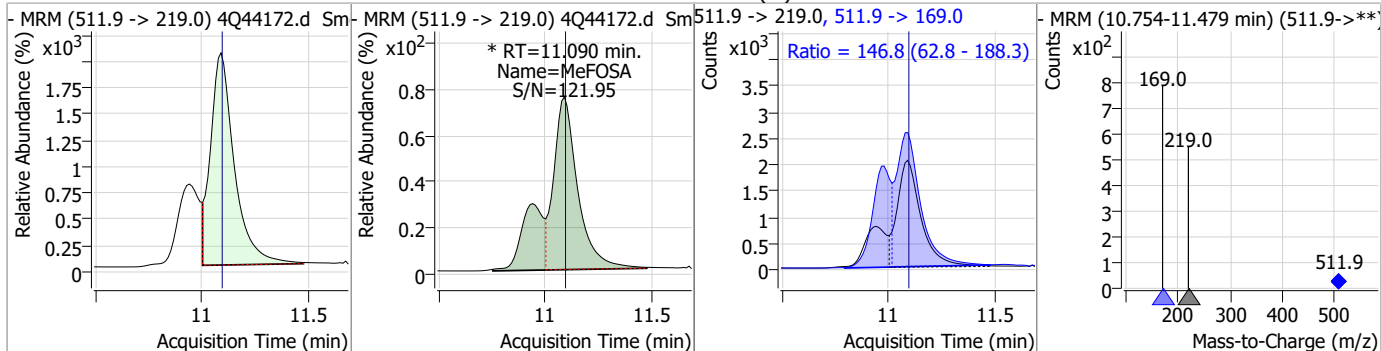
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.37	11.09	0.00	11602				



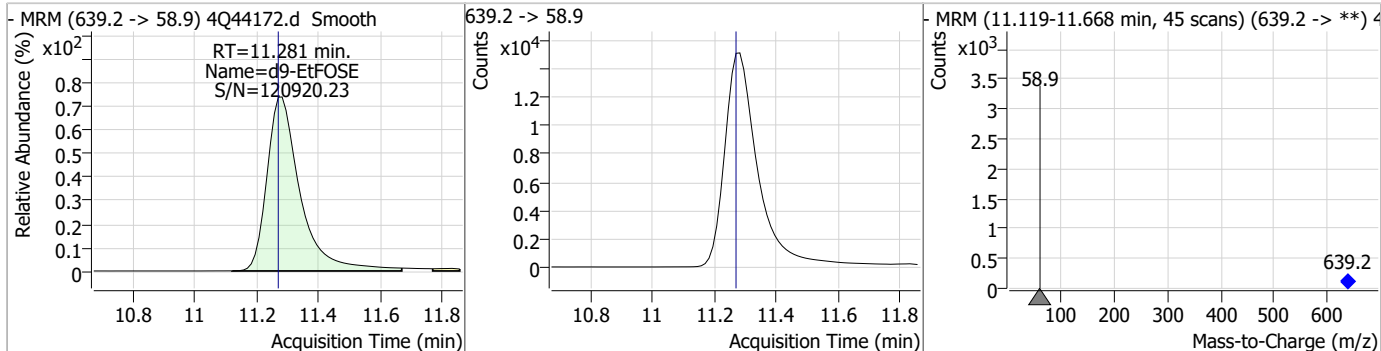
7.7.16
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Perfluorinated Compounds by LC/MS/MS

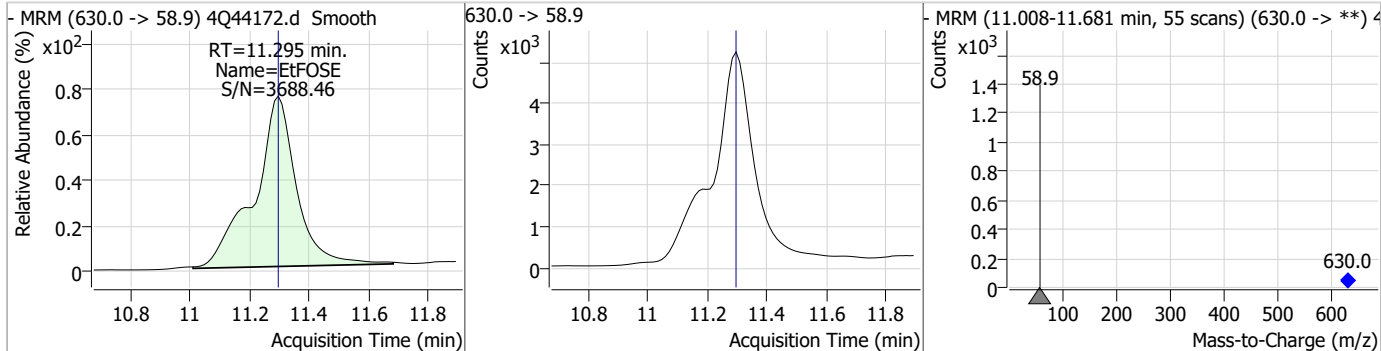
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.93	11.09	0.00	21539 (m)	511.9 -> 169.0	146.8	62.8	188.3



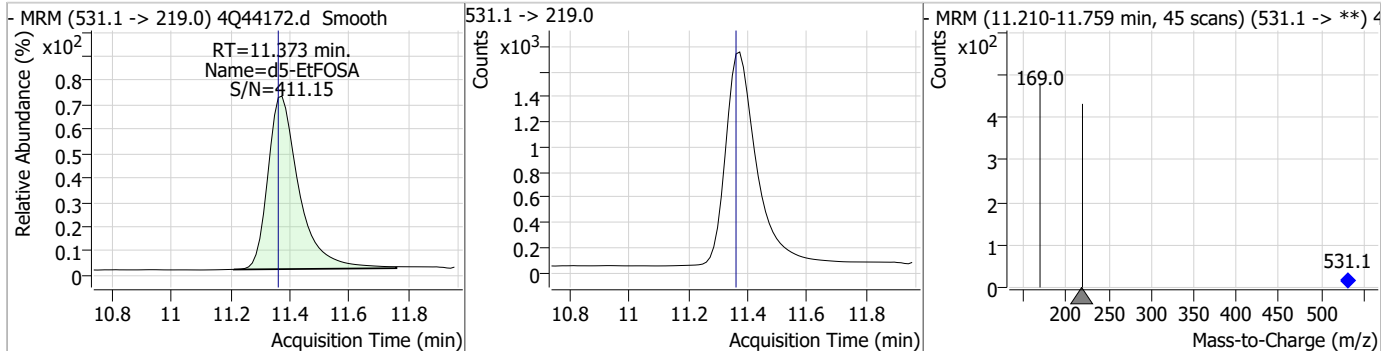
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.41	11.28	0.01	112349				



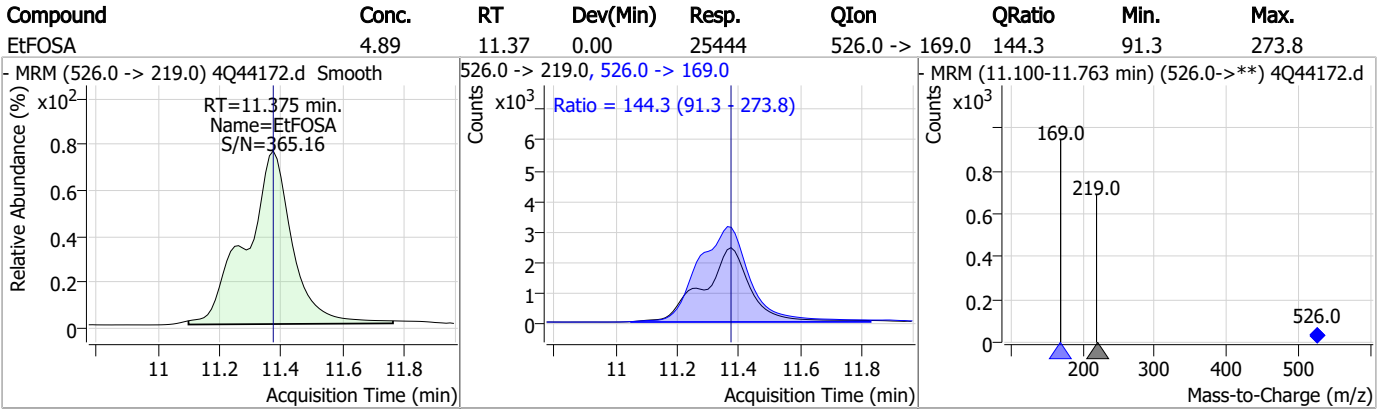
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.64	11.29	0.00	50636				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.39	11.37	0.01	12423				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q639-CC634 Method: EPA DRAFT 1633
Lab FileID: 4Q44172.D Analyst approved: 05/10/23 11:10 Martha Valls
Injection Time: 05/09/23 22:48 Supervisor approved: 05/10/23 17:27 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q44173.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/9/2023 11:02:41 PM
 Sample Name : cc634-1.0LL
 Vial : P1-A2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q639.batch.bin
 Sample Information : OP96548,S4Q639,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	147942	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	73737	5.00 µg/L	0.000
M5-PFHxA	5.572	318.0 -> 273.0	51910	2.50 µg/L	0.012
M4-PFHpA	6.504	367.1 -> 322.0	31482	2.50 µg/L	0.012
M8-PFOA	7.163	421.1 -> 376.0	47536	2.50 µg/L	0.014
M9-PFNA	7.709	472.1 -> 427.0	23712	1.25 µg/L	0.012
M6-PFDA	8.216	519.1 -> 474.1	21274	1.25 µg/L	0.012
M7-PFUnDA	8.685	570.0 -> 525.1	23314	1.25 µg/L	0.012
M2-PFDoDA	9.130	615.1 -> 570.0	23753	1.25 µg/L	0.012
M2-PFTeDA	9.924	715.2 -> 670.0	17182	1.25 µg/L	0.012
M8-FOSA	9.796	506.1 -> 77.8	21178	2.50 µg/L	0.012
M3-PFBS	5.464	302.1 -> 79.9	12133	2.50 µg/L	0.012
M3-PFHxS	7.254	402.1 -> 79.9	8655	2.50 µg/L	0.012
M8-PFOS	8.354	507.1 -> 79.9	11523	2.50 µg/L	0.000
M2-4:2FTS	5.247	329.1 -> 80.9	1388	5.00 µg/L	0.000
M2-6:2FTS	6.936	429.1 -> 80.9	2531	5.00 µg/L	0.013
M2-8:2FTS	7.990	529.1 -> 80.9	4650	5.00 µg/L	0.000
M3-MeFOSAA	8.273	573.2 -> 419.0	16786	5.00 µg/L	0.012
M3-HFPO-DA	5.927	286.9 -> 168.9	27619	10.00 µg/L	0.012
M5-EtFOSAA	8.483	589.2 -> 419.0	15172	5.00 µg/L	0.012
M7-MeFOSE	10.972	623.2 -> 58.9	77640	25.00 µg/L	0.000
M9-EtFOSE	11.281	639.2 -> 58.9	108299	25.00 µg/L	0.012
M5-EtFOSA	11.373	531.1 -> 219.0	12139	2.50 µg/L	0.012
M3-MeFOSA	11.089	515.0 -> 219.0	11168	2.50 µg/L	0.000
13C4-PFOS	8.354	502.8 -> 79.9	12531	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	78548	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	5387	2.50 µg/L	0.012
13C4-PFOA	7.163	417.1 -> 372.0	58425	2.50 µg/L	0.014
13C2-PFDA	8.216	515.1 -> 470.1	19821	1.25 µg/L	0.012
13C5-PFNA	7.709	468.0 -> 423.0	27630	1.25 µg/L	0.012
13C2-PFHxA	5.573	315.1 -> 270.0	47997	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1388	6.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.8%		
13C2-6:2FTS	6.936	429.1 -> 80.9	2531	6.41 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.2%		
13C2-8:2FTS	7.990	529.1 -> 80.9	4650	7.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 151.0%		
13C2-PFDoDA	9.130	615.1 -> 570.0	23753	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.924	715.2 -> 670.0	17182	1.10 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.0%		
13C3-PFBS	5.464	302.1 -> 79.9	12133	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C3-PFHxS	7.254	402.1 -> 79.9	8655	2.59 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 = 103.7%	
13C4-PFBA	2.924	216.8 -> 171.9	147942	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.504	367.1 -> 322.0	31482	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.572	318.0 -> 273.0	51910	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	4.387	268.3 -> 223.0	73737	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C6-PFDA	8.216	519.1 -> 474.1	21274	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C7-PFUnDA	8.685	570.0 -> 525.1	23314	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-FOSA	9.796	506.1 -> 77.8	21178	2.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.8%	
13C8-PFOA	7.163	421.1 -> 376.0	47536	2.48 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-PFOS	8.354	507.1 -> 79.9	11523	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C9-PFNA	7.709	472.1 -> 427.0	23712	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSAA	8.273	573.2 -> 419.0	16786	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C3-HFPO-DA	5.927	286.9 -> 168.9	27619	8.75 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
d3-MeFOSA	11.089	515.0 -> 219.0	11168	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
d5-EtFOSAA	8.483	589.2 -> 419.0	15172	5.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	77640	19.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d9-EtFOSE	11.281	639.2 -> 58.9	108299	19.62 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.5%	
d5-EtFOSA	11.373	531.1 -> 219.0	12139	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	1728	0.77 µg/L	100
		327.1 -> 80.9	736		
6:2FTS	6.936	427.1 -> 407.0	1944	0.80 µg/L	99
		427.1 -> 80.9	825		
8:2FTS	7.991	527.1 -> 507.0	1674	0.65 µg/L	89
		527.1 -> 80.8	845		
EtFOSAA	8.483	584.2 -> 419.1	503	0.17 µg/L	m 82
		584.2 -> 526.0	323		
FOSA	9.786	498.1 -> 77.9	1943	0.22 µg/L	100
		498.1 -> 478.0	66		
MeFOSAA	8.274	570.1 -> 419.0	483	0.17 µg/L	#m 58
		570.1 -> 483.0	180		
PFBA	2.932	212.8 -> 168.9	2975	0.75 µg/L	100
PFBS	5.465	298.7 -> 79.9	1011	0.20 µg/L	96
		298.7 -> 98.8	341		
PFDA	8.216	512.9 -> 469.0	3023	0.19 µg/L	96
		512.9 -> 219.0	653		
PFDODA	9.131	613.1 -> 569.0	3736	0.20 µg/L	96
		613.1 -> 319.0	591		
PFDS	9.294	599.0 -> 79.9	546	0.19 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.505	599.0 -> 98.8	284	0.16	µg/L	97
		363.1 -> 319.0	3249			
PFHpS	7.836	363.1 -> 169.0	620	0.16	µg/L	71
		449.0 -> 79.9	656			
PFHxA	5.575	449.0 -> 98.9	477	0.18	µg/L	98
		313.0 -> 269.0	3676			
PFHxS	7.255	313.0 -> 118.9	139	0.17	µg/L	m
		398.7 -> 79.9	593			
PFNA	7.709	398.7 -> 98.9	344	0.19	µg/L	93
		463.0 -> 419.0	3314			
PFNS	8.848	463.0 -> 219.0	722	0.18	µg/L	86
		548.8 -> 79.9	455			
PFOA	7.164	548.8 -> 98.9	261	0.18	µg/L	97
		413.0 -> 369.0	5026			
PFOS	8.355	413.0 -> 169.0	1060	0.19	µg/L	m
		498.9 -> 79.9	1079			
PFPeA	4.389	498.9 -> 98.8	545	0.39	µg/L	100
		263.0 -> 219.0	6870			
PFPeS	6.531	349.1 -> 79.9	495	0.16	µg/L	92
		349.1 -> 98.9	250			
PFTeDA	9.924	713.1 -> 669.0	3343	0.20	µg/L	94
		713.1 -> 168.9	353			
PFTrDA	9.541	663.0 -> 619.0	4563	0.18	µg/L	95
		663.0 -> 168.9	506			
PFUnDA	8.685	563.1 -> 519.0	3100	0.20	µg/L	95
		563.1 -> 269.1	638			
11Cl-PF3OUdS	9.593	630.9 -> 450.9	4075	0.41	µg/L	98
		632.9 -> 452.9	1176			
9Cl-PF3ONS	8.700	530.8 -> 351.0	4975	0.39	µg/L	88
		532.8 -> 353.0	1784			
ADONA	6.756	376.9 -> 250.9	10919	0.39	µg/L	99
		376.9 -> 84.8	2978			
HFPO-DA	5.928	284.9 -> 168.9	1147	0.43	µg/L	92
		284.9 -> 184.9	109			
3:3FTCA	3.867	241.0 -> 177.0	832	1.07	µg/L	99
		241.0 -> 117.0	81			
5:3FTCA	6.231	341.0 -> 237.1	14497	5.25	µg/L	95
		341.0 -> 217.0	9319			
7:3FTCA	7.686	441.0 -> 316.9	8056	5.62	µg/L	94
		441.0 -> 336.9	19820			
EtFOSA	11.375	526.0 -> 219.0	1984	0.39	µg/L	70
		526.0 -> 169.0	2779			
EtFOSE	11.295	630.0 -> 58.9	4186	1.00	µg/L	m
		511.9 -> 219.0	1710			
MeFOSA	11.090	511.9 -> 169.0	2622	0.41	µg/L	m
		616.1 -> 58.9	2986			
MeFOSE	10.997	699.1 -> 79.9	470	0.94	µg/L	m
		699.1 -> 98.8	267			
PFDoDS	10.064	295.0 -> 201.0	538	0.18	µg/L	100
		295.0 -> 84.9	82			
NFDHA	5.453	279.0 -> 85.1	3695	0.37	µg/L	78
		229.0 -> 84.9	3656			
PFMBA	4.791	314.8 -> 134.9	4952	0.39	µg/L	100
		314.8 -> 82.9	239			
PFMPA	3.540			0.32	µg/L	#
PFEESA	5.997			0.32	µg/L	#

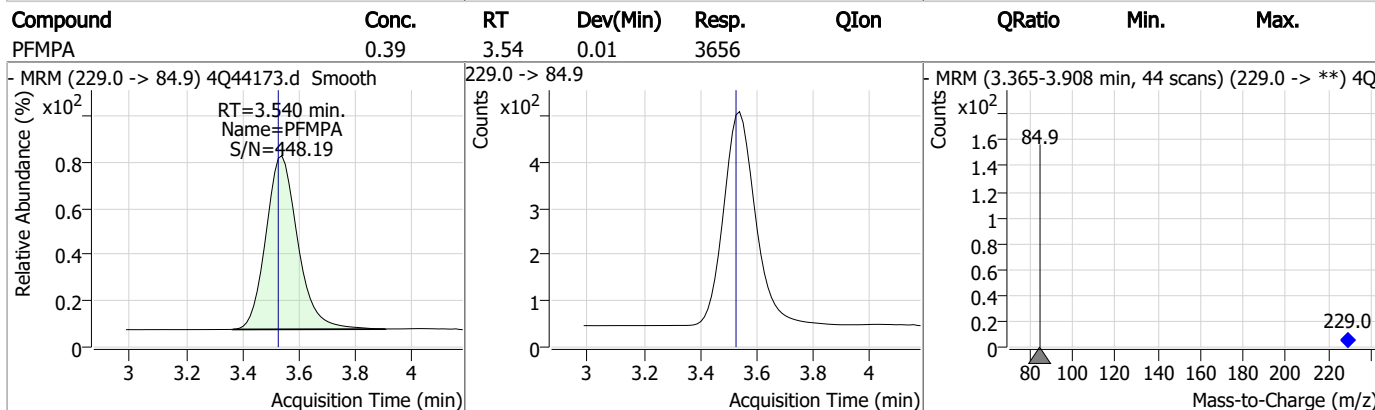
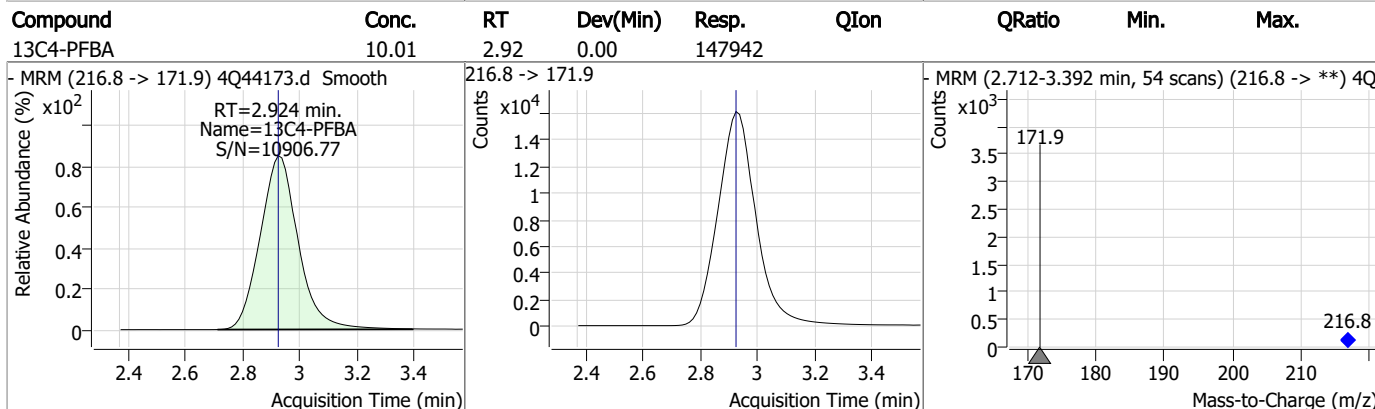
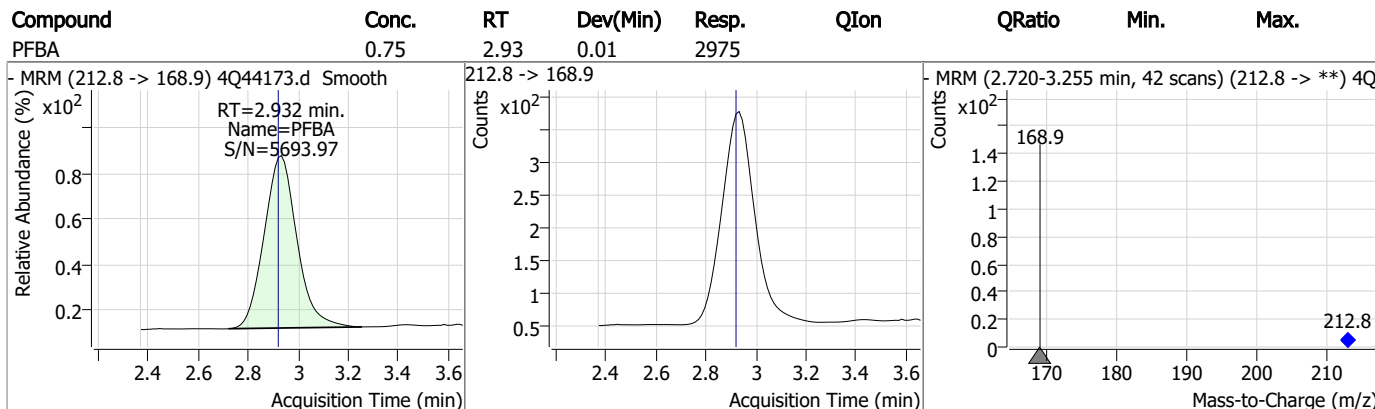
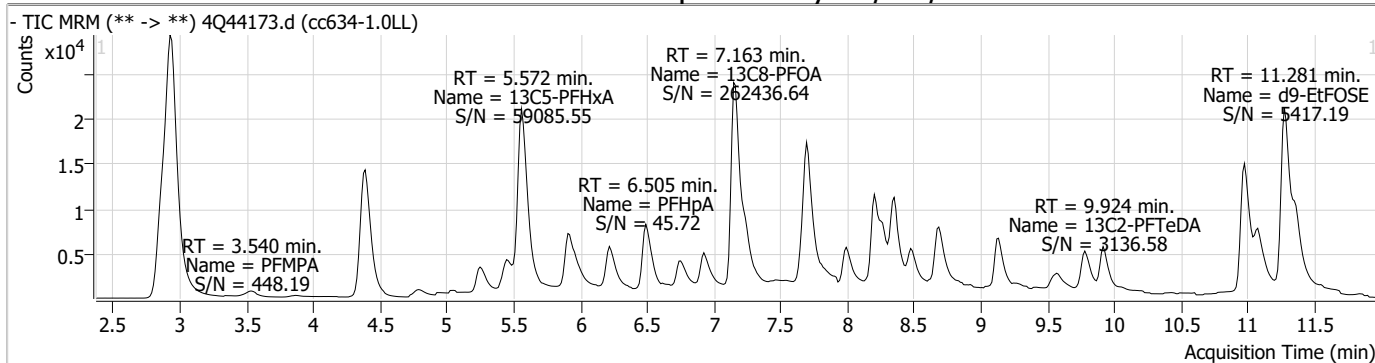
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

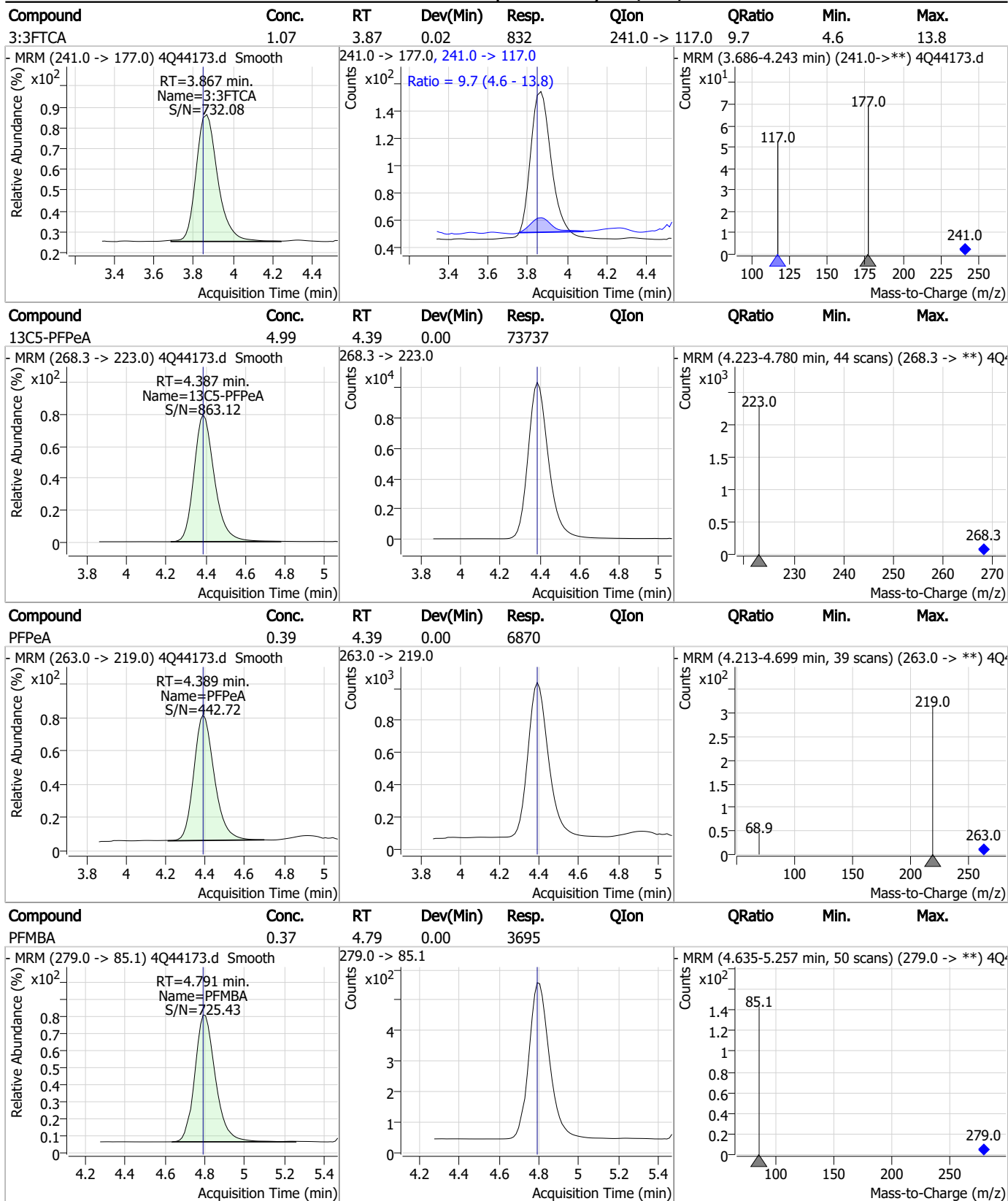
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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Perfluorinated Compounds by LC/MS/MS

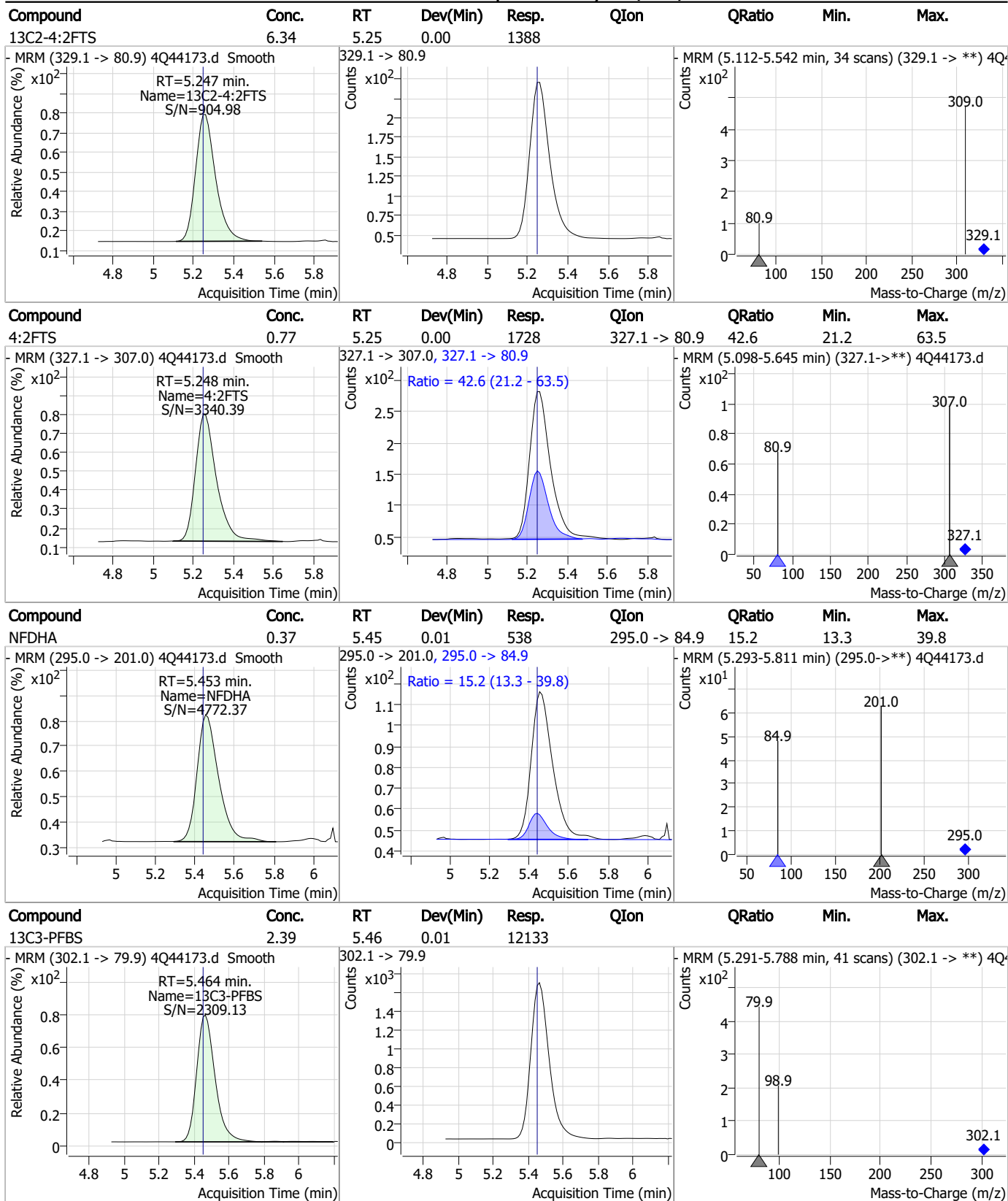


Perfluorinated Compounds by LC/MS/MS



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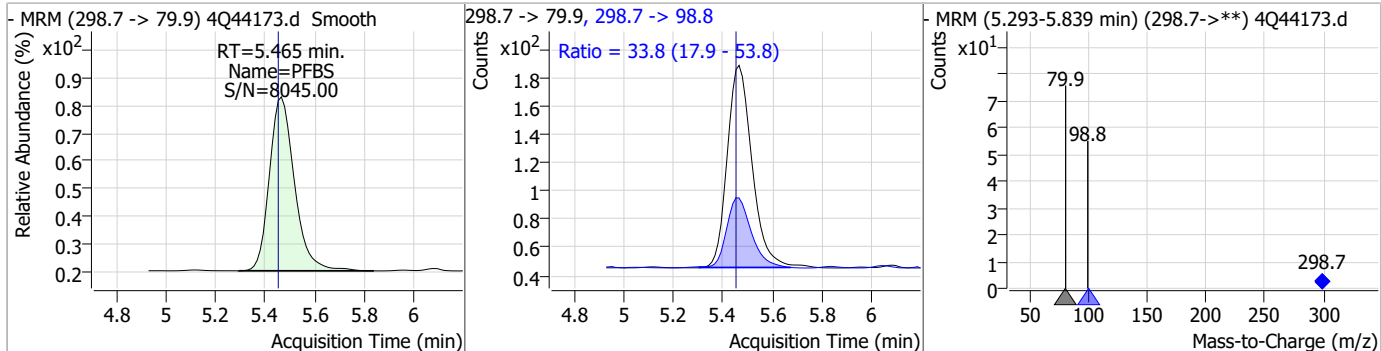
Perfluorinated Compounds by LC/MS/MS



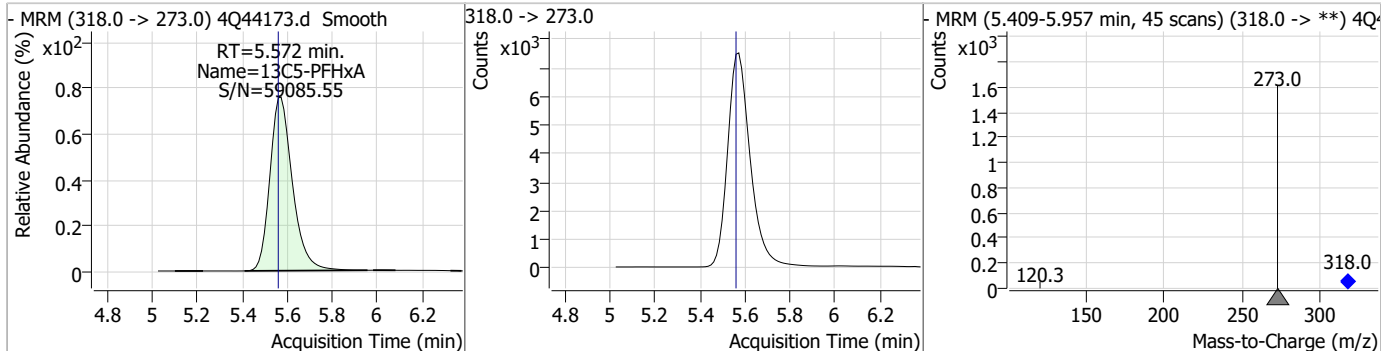
7.7.17

Perfluorinated Compounds by LC/MS/MS

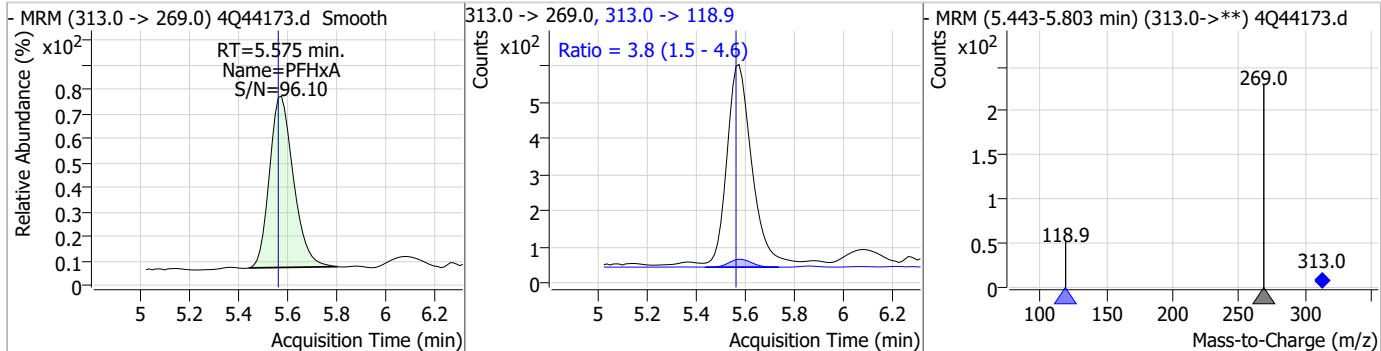
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.20	5.46	0.01	1011	298.7 -> 98.8	33.8	17.9	53.8



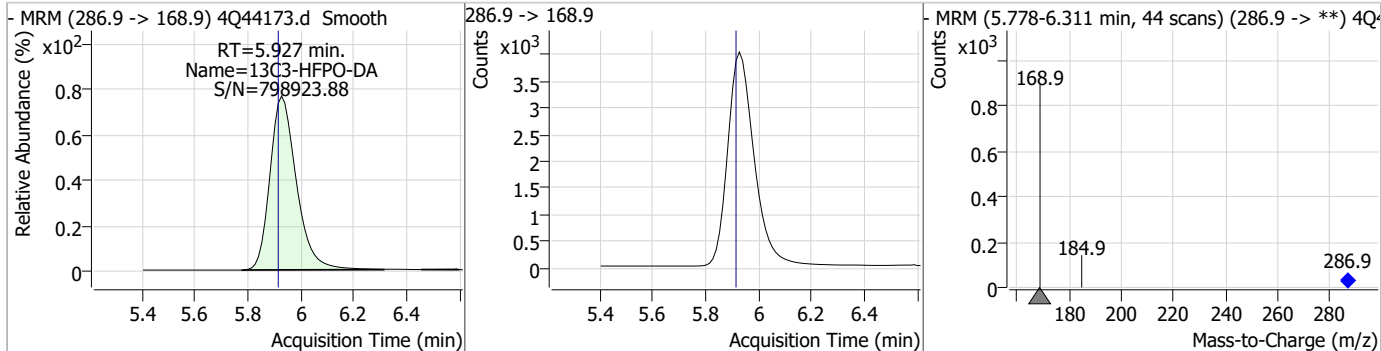
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.57	0.01	51910				



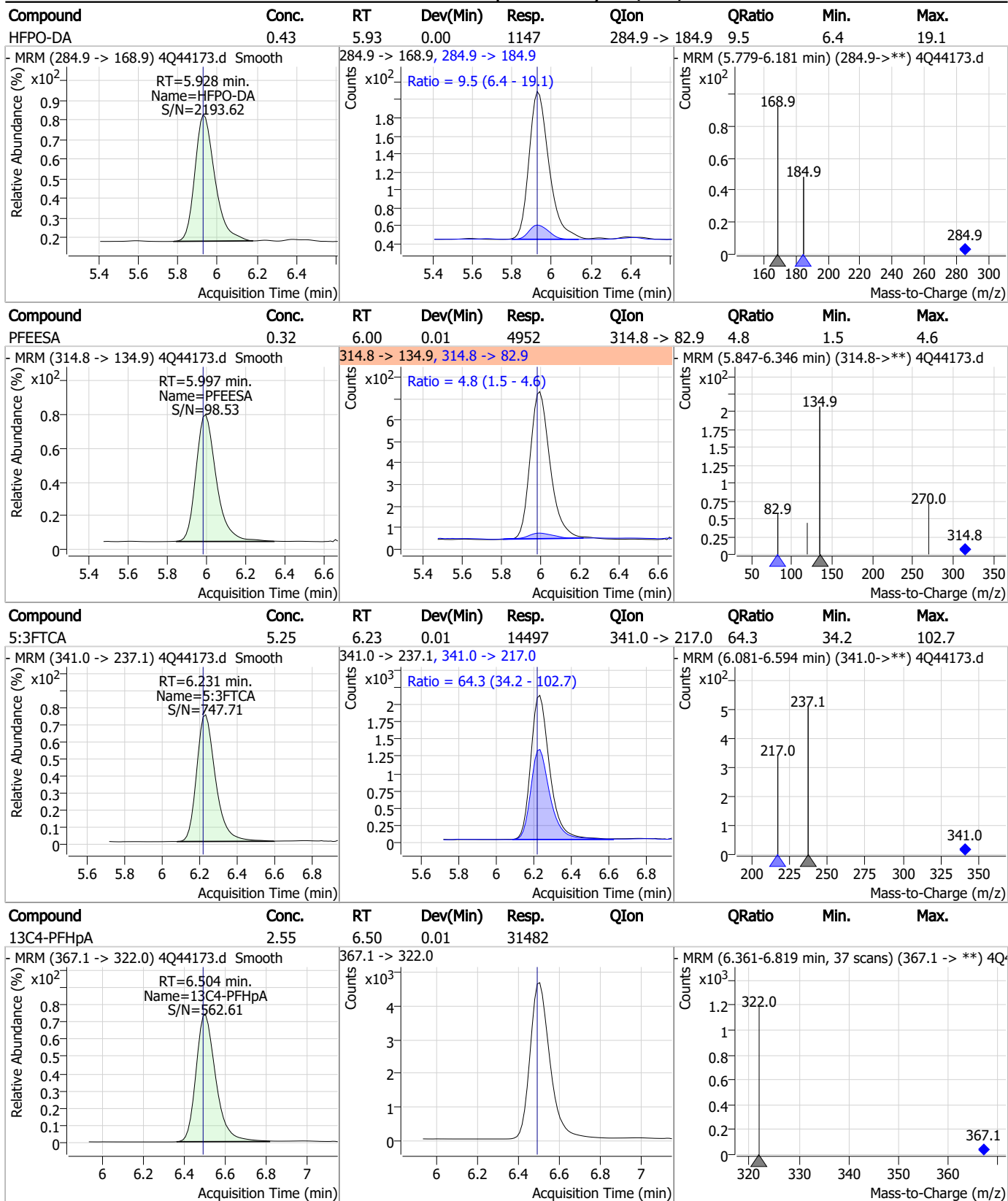
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.18	5.57	0.01	3676	313.0 -> 118.9	3.8	1.5	4.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.75	5.93	0.01	27619				

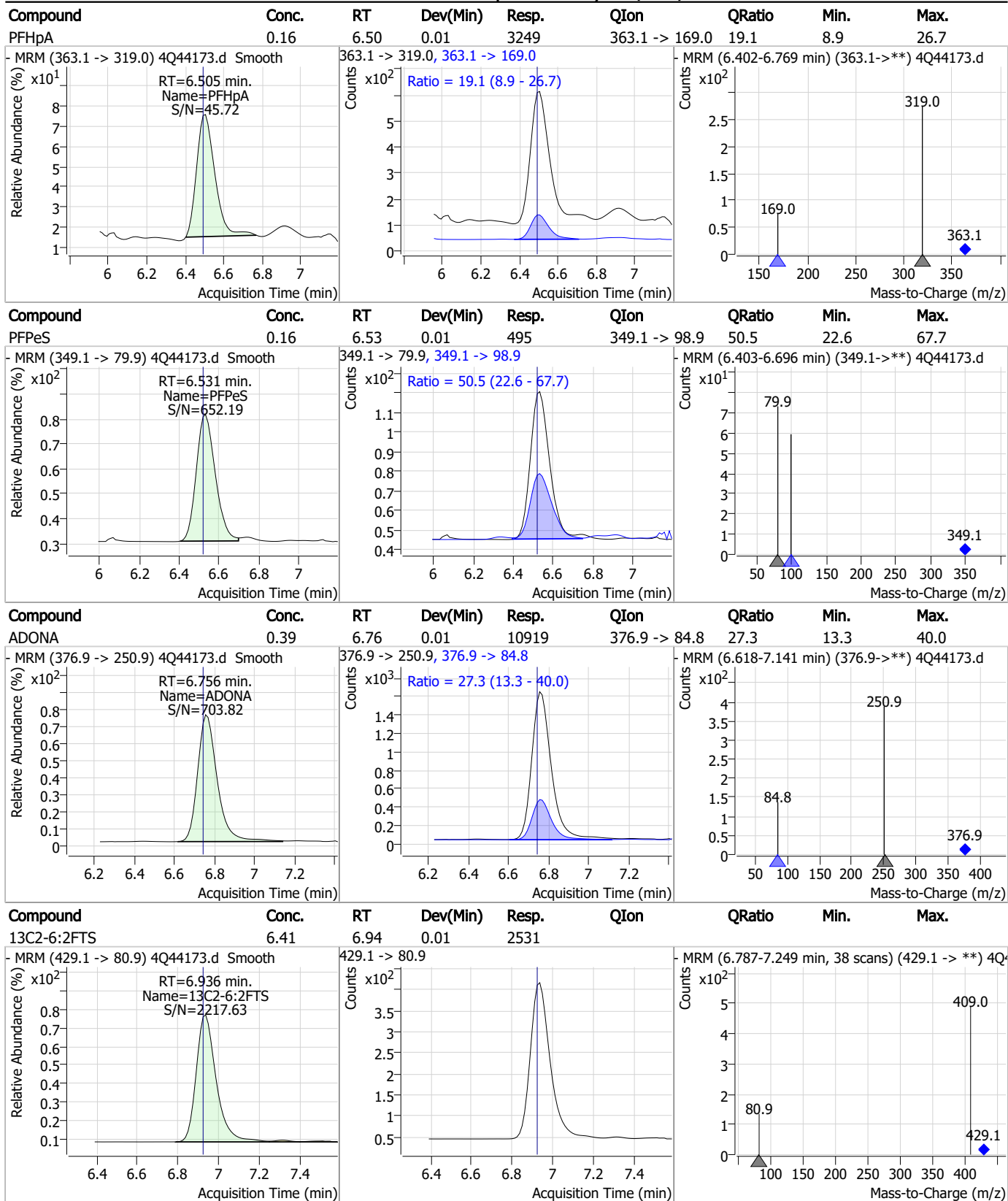


Perfluorinated Compounds by LC/MS/MS



7.7.17

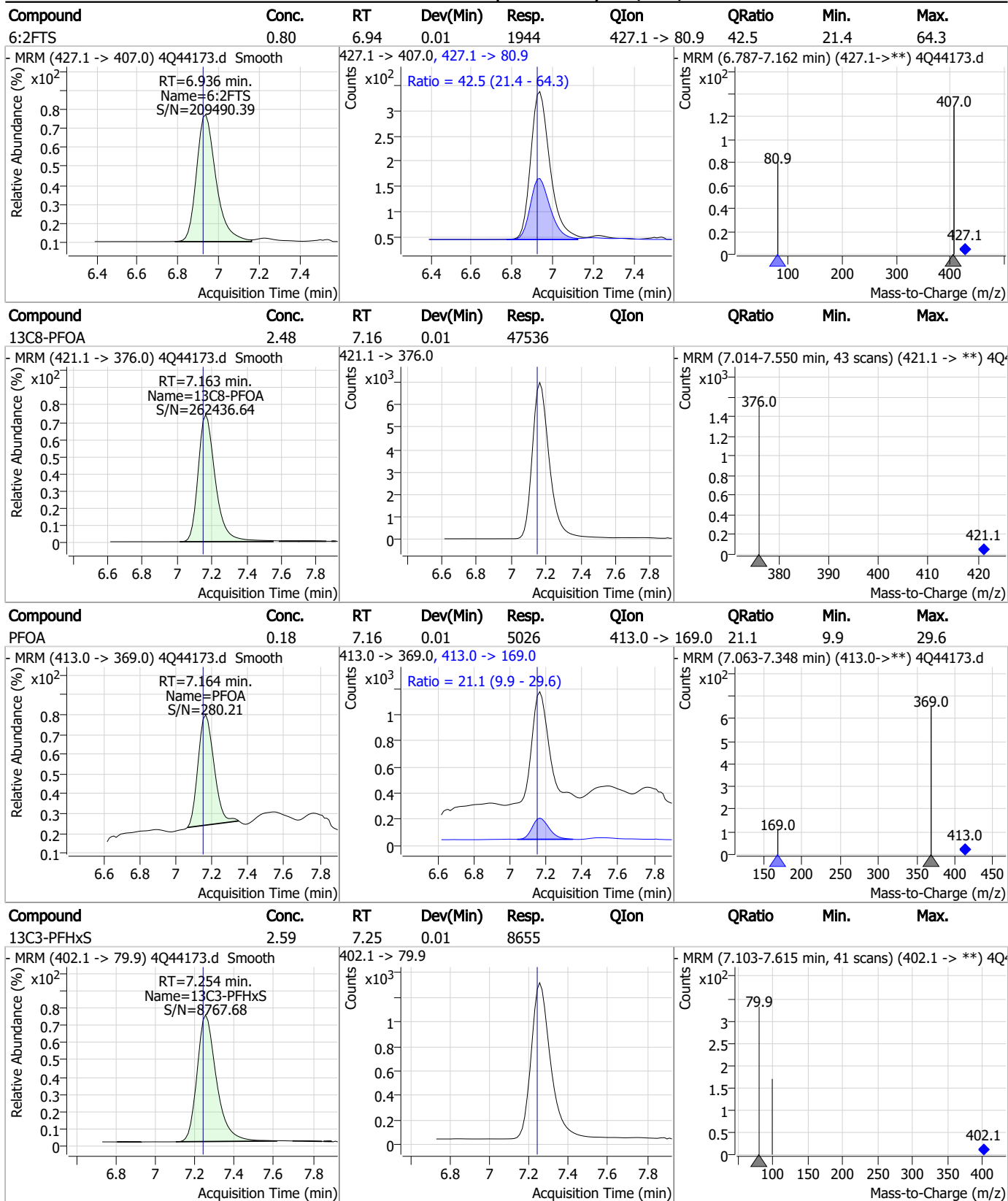
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

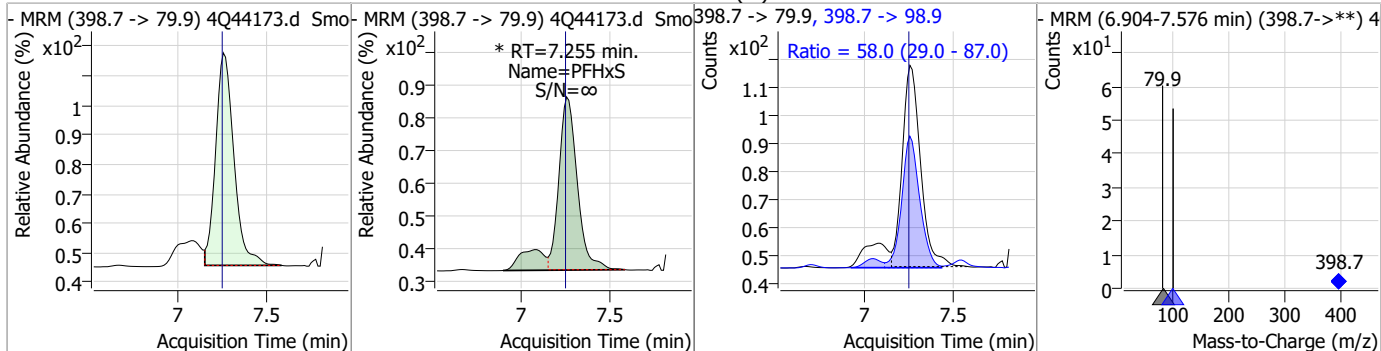


7.7.17

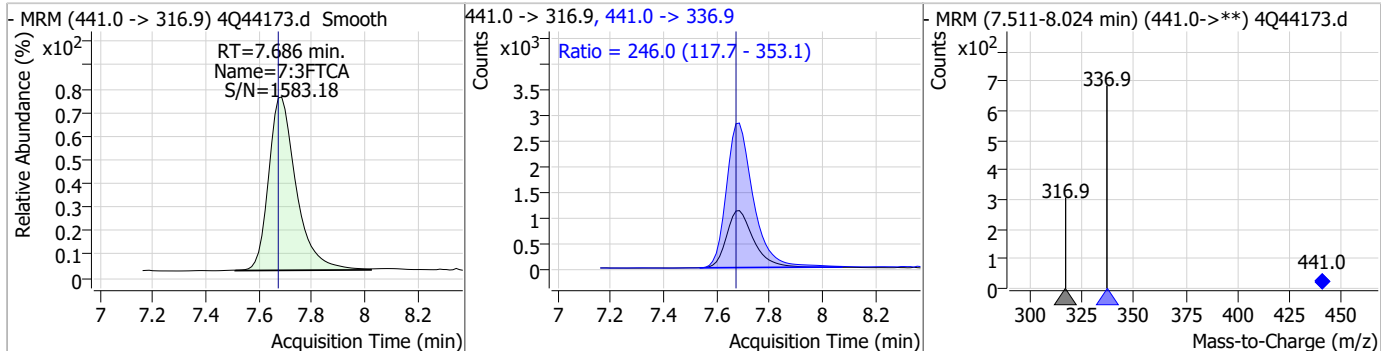


Perfluorinated Compounds by LC/MS/MS

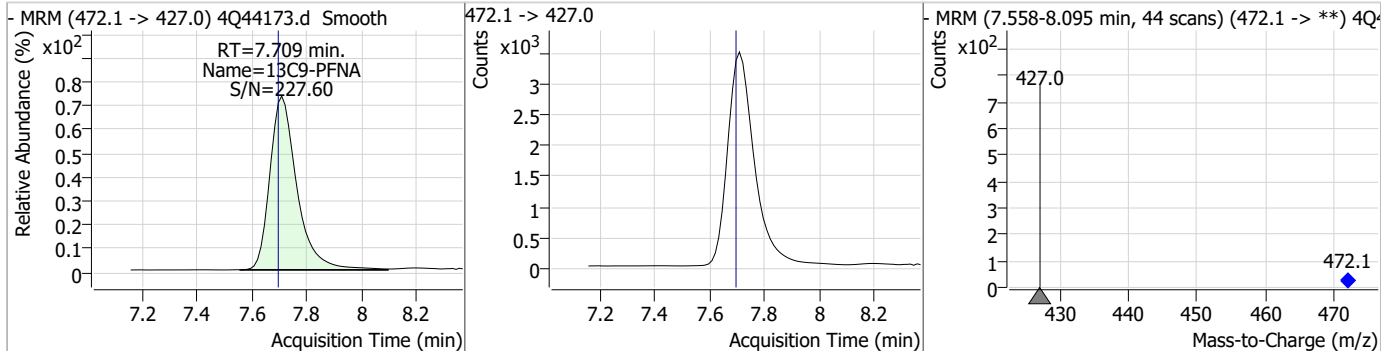
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.17	7.25	0.01	593 (m)	398.7 -> 98.9	58.0	29.0	87.0



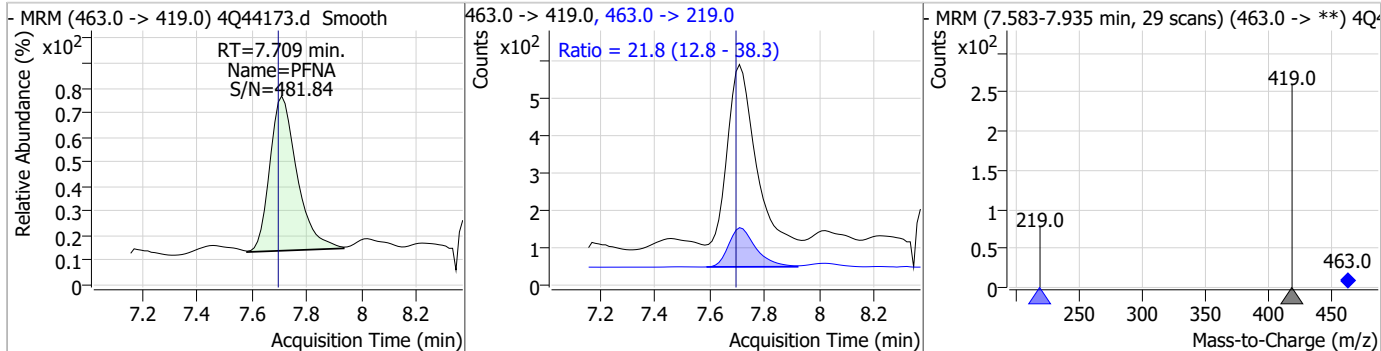
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	5.62	7.69	0.01	8056	441.0 -> 336.9	246.0	117.7	353.1



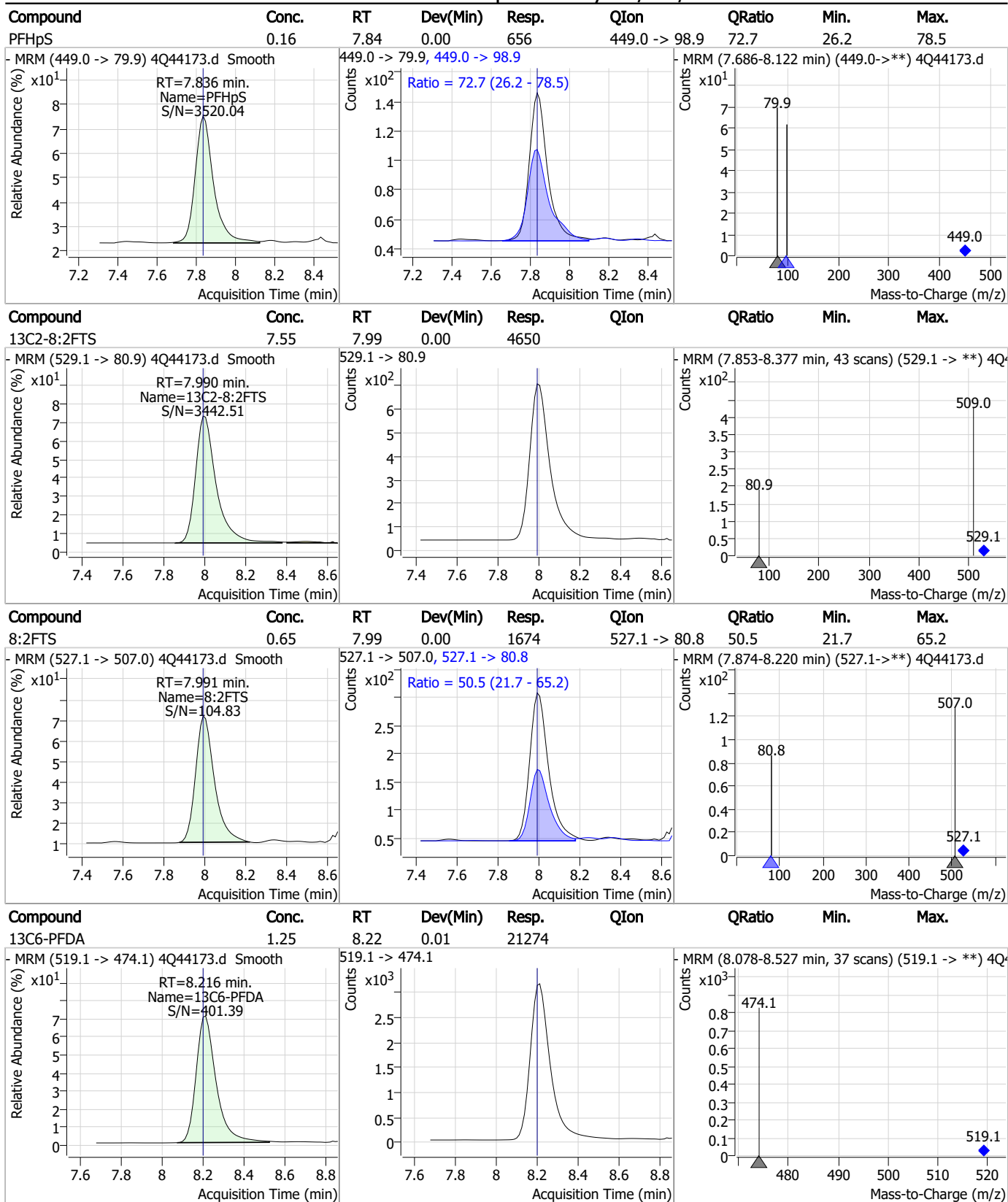
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.71	0.01	23712				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.19	7.71	0.01	3314	463.0 -> 219.0	21.8	12.8	38.3



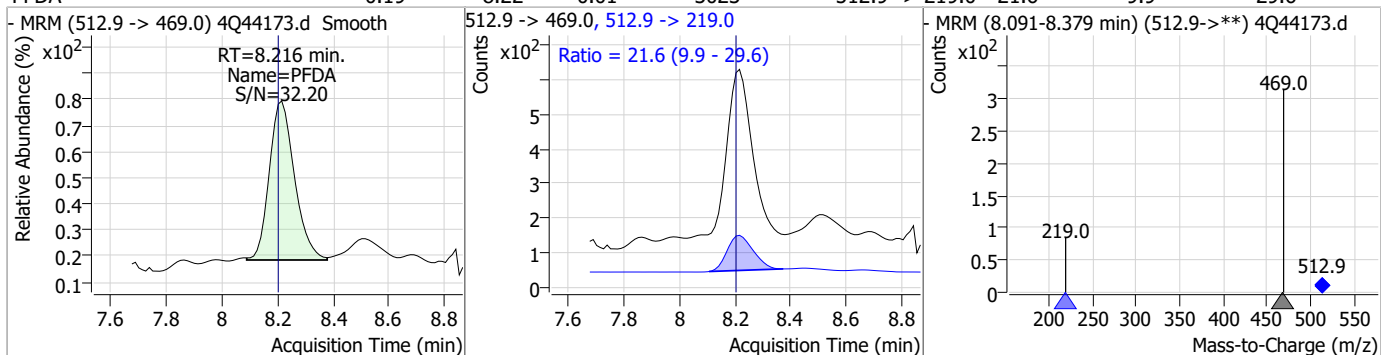
Perfluorinated Compounds by LC/MS/MS



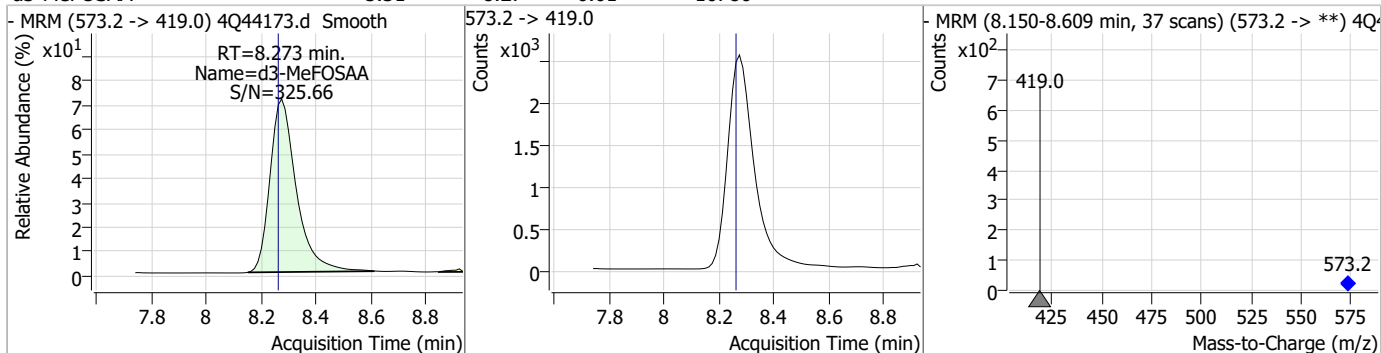
7.7.17

Perfluorinated Compounds by LC/MS/MS

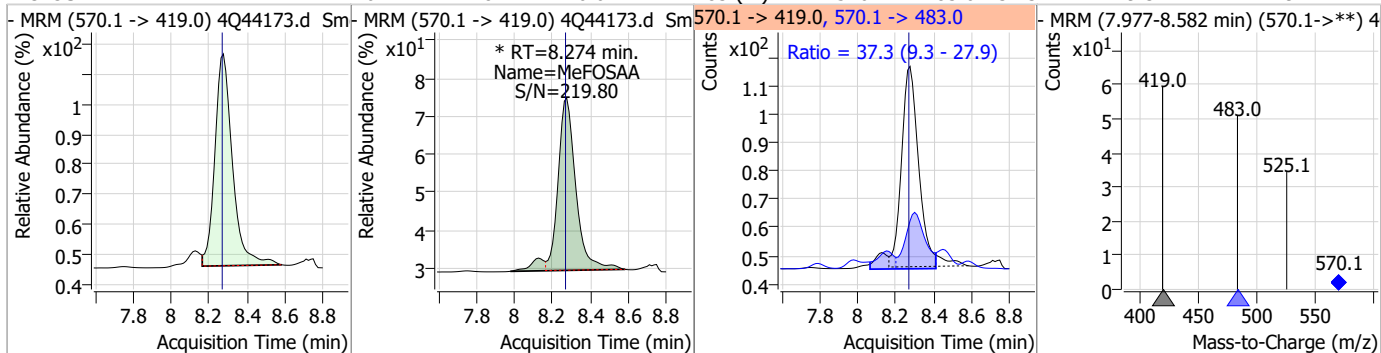
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.19	8.22	0.01	3023	512.9 -> 219.0	21.6	9.9	29.6



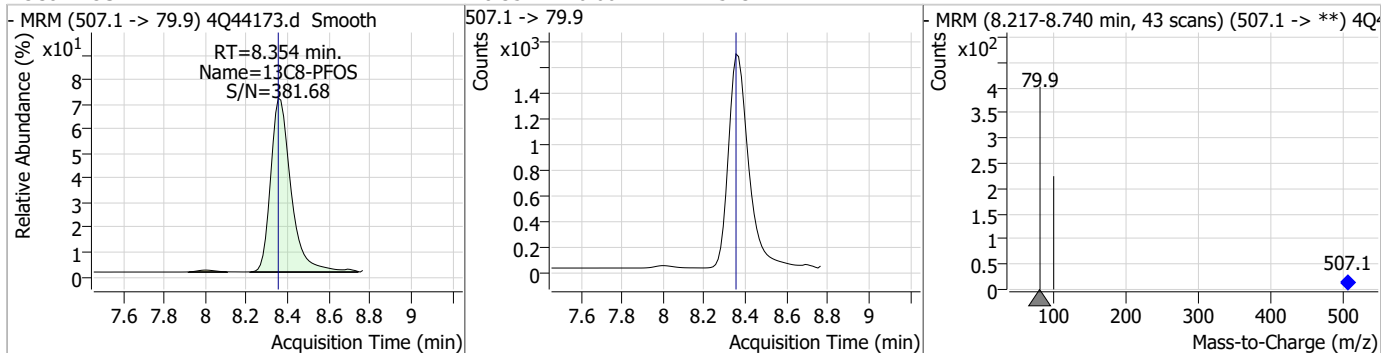
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.31	8.27	0.01	16786				



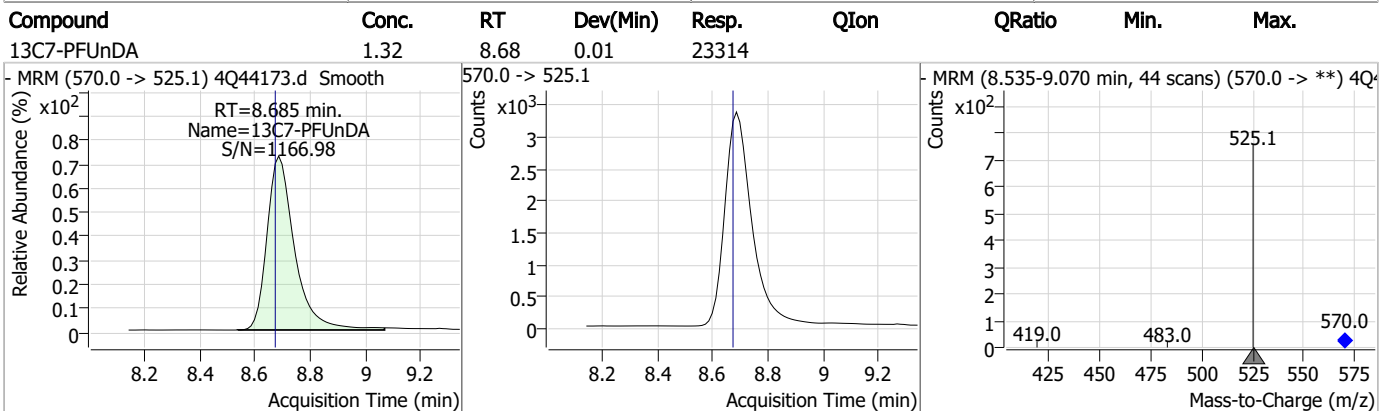
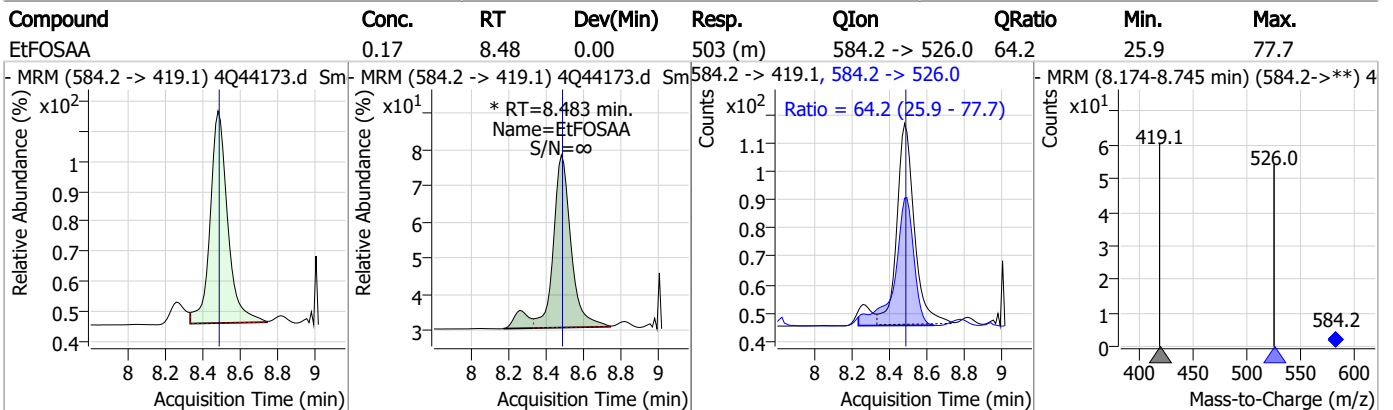
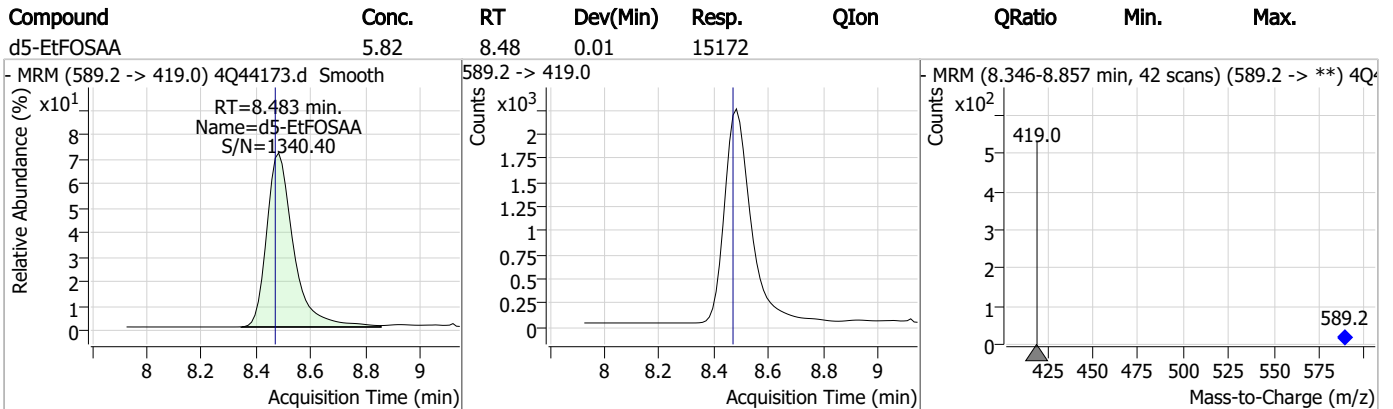
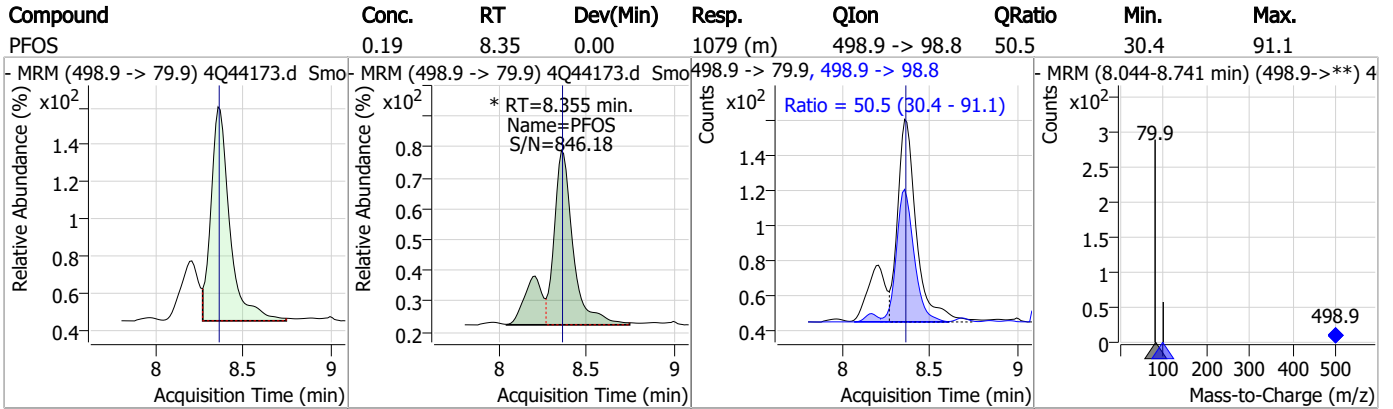
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.17	8.27	0.01	483 (m)	570.1 -> 483.0	37.3	9.3	27.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.44	8.35	0.00	11523				

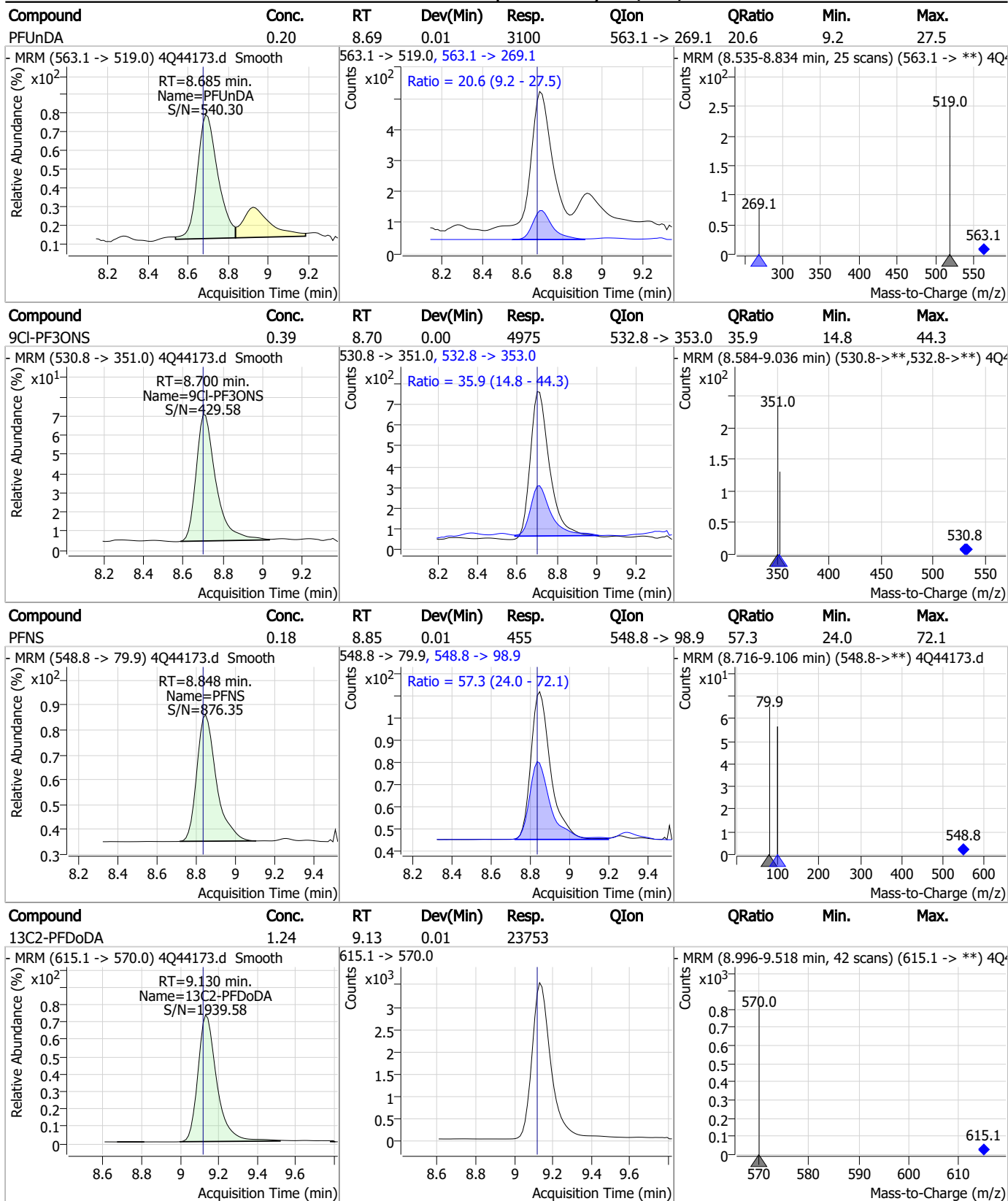


Perfluorinated Compounds by LC/MS/MS



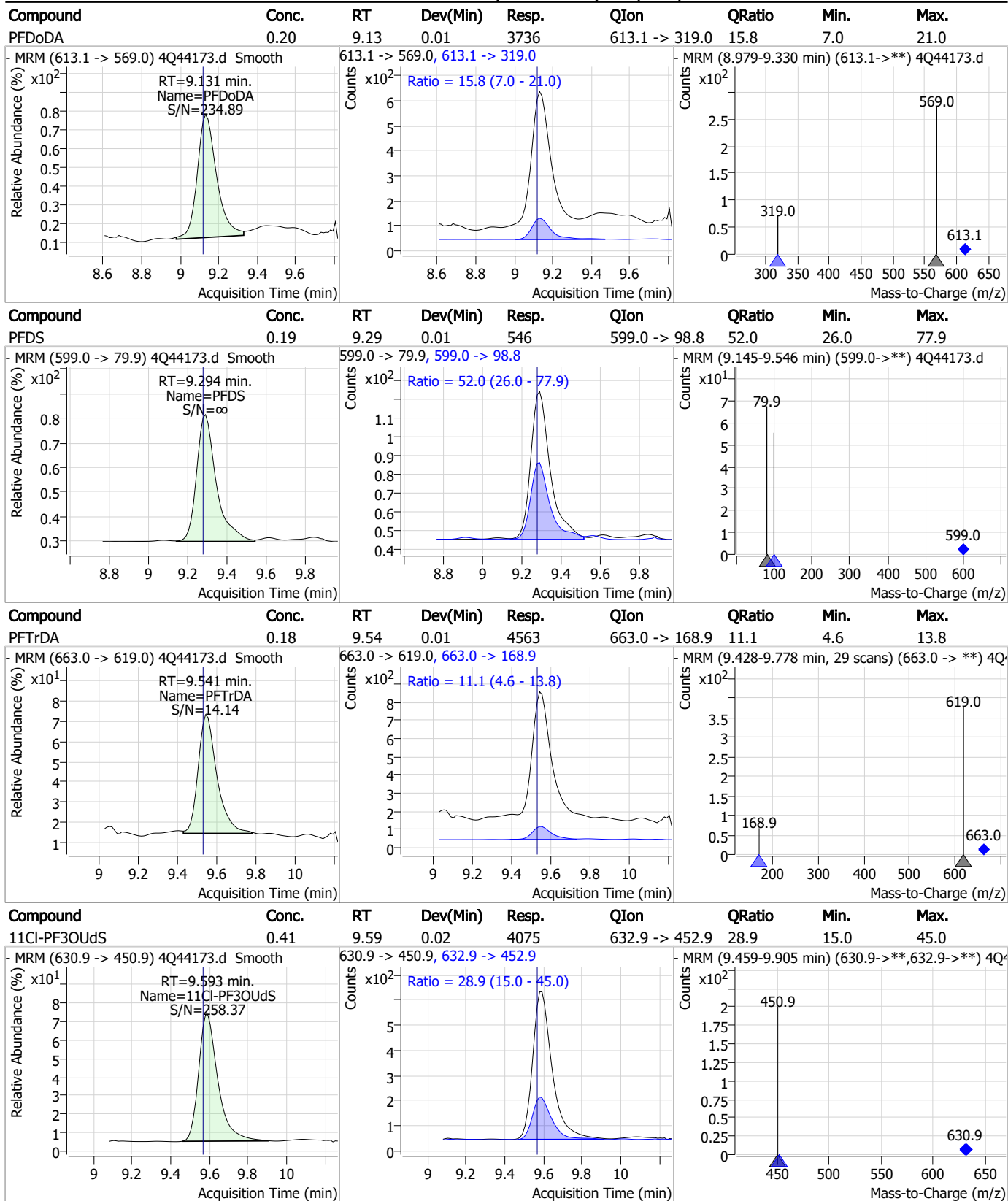
7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17

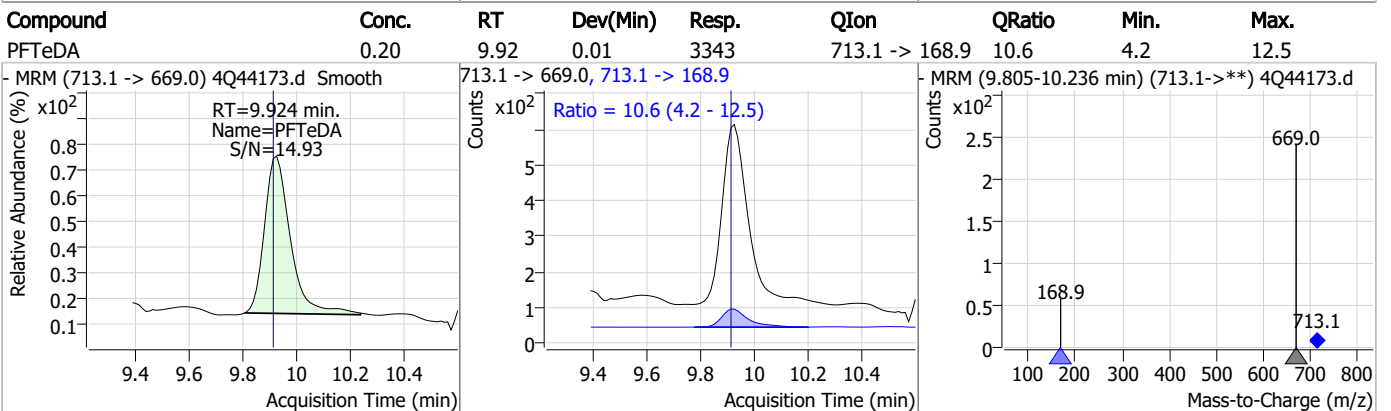
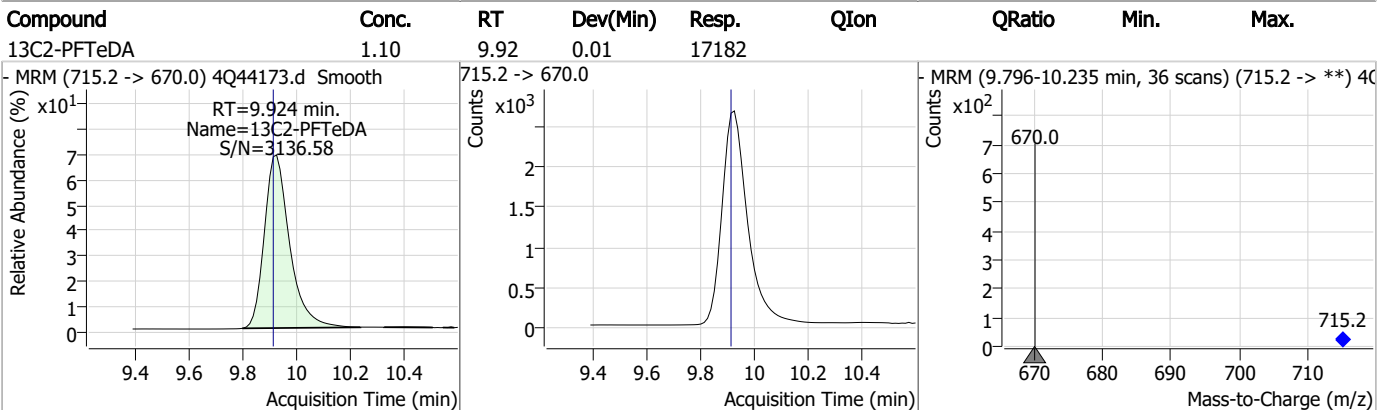
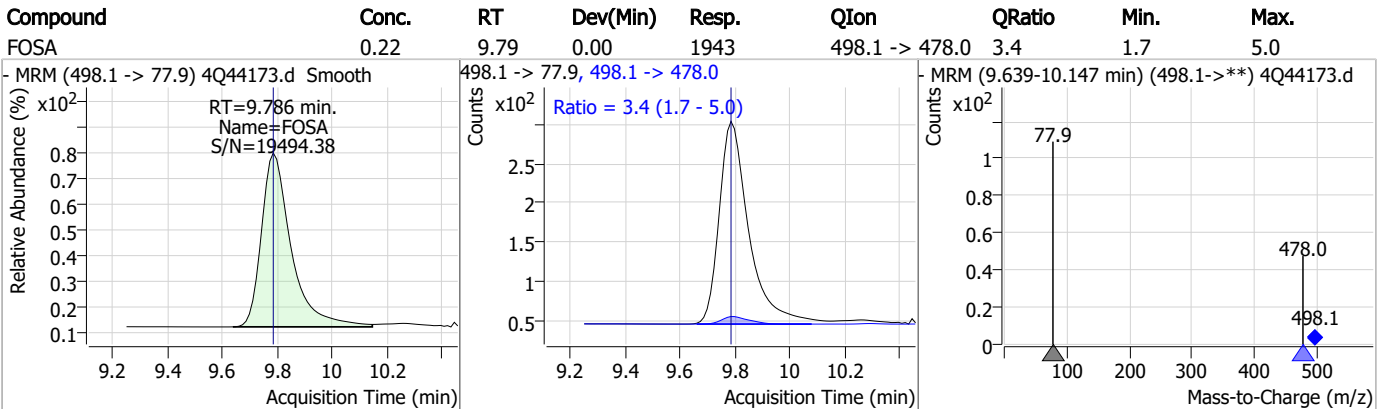
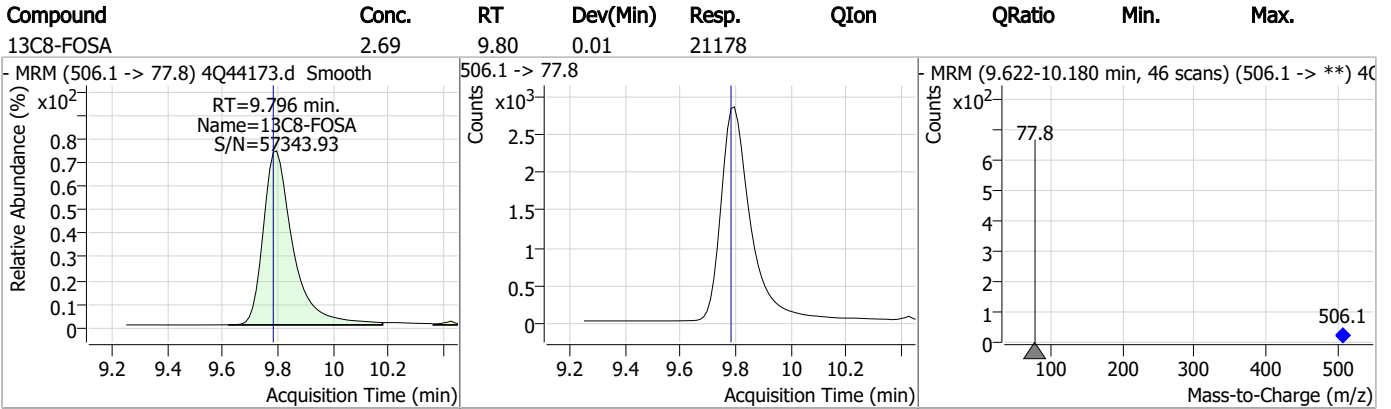
Perfluorinated Compounds by LC/MS/MS



7.7.17

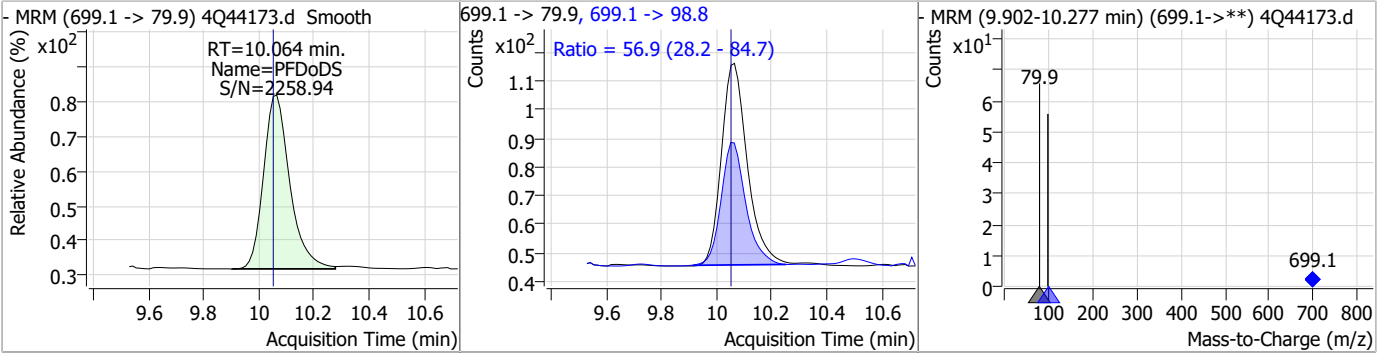


Perfluorinated Compounds by LC/MS/MS

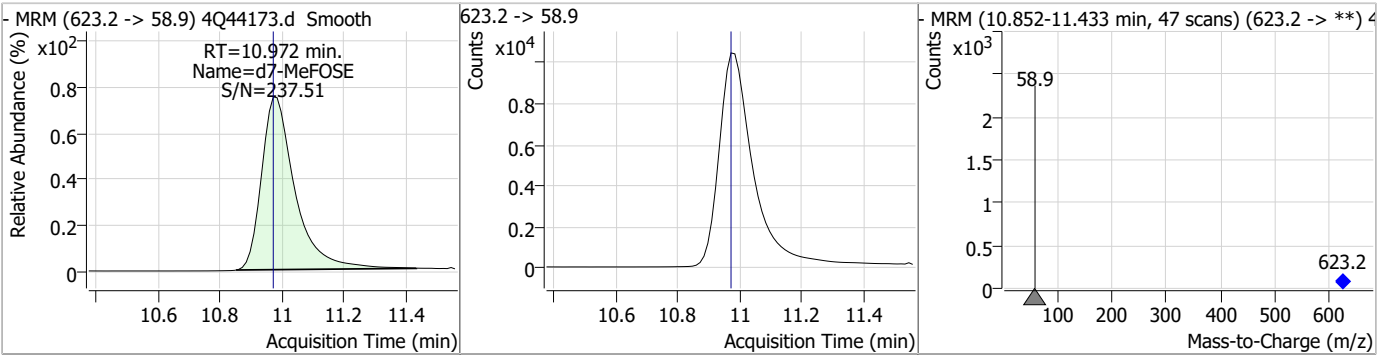


Perfluorinated Compounds by LC/MS/MS

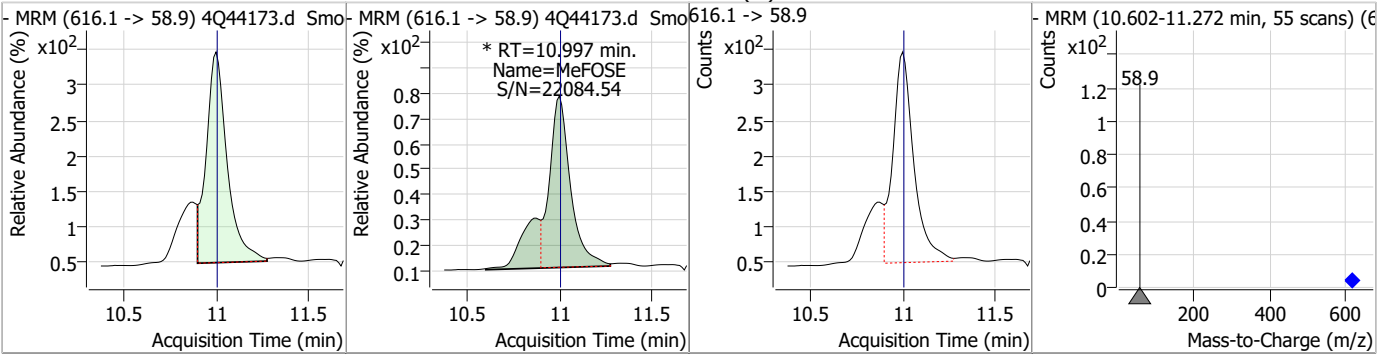
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.18	10.06	0.01	470	699.1 -> 98.8	56.9	28.2	84.7



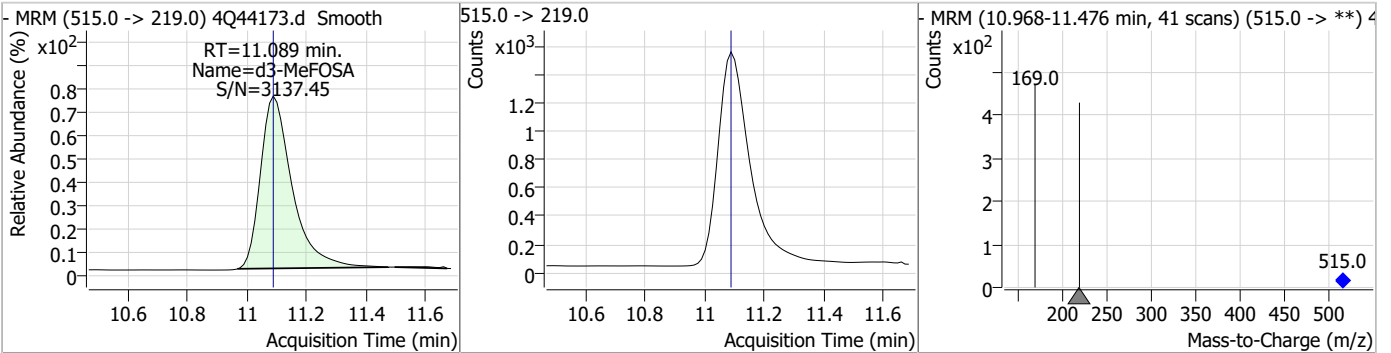
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.91	10.97	0.00	77640				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.94	11.00	0.00	2986 (m)				

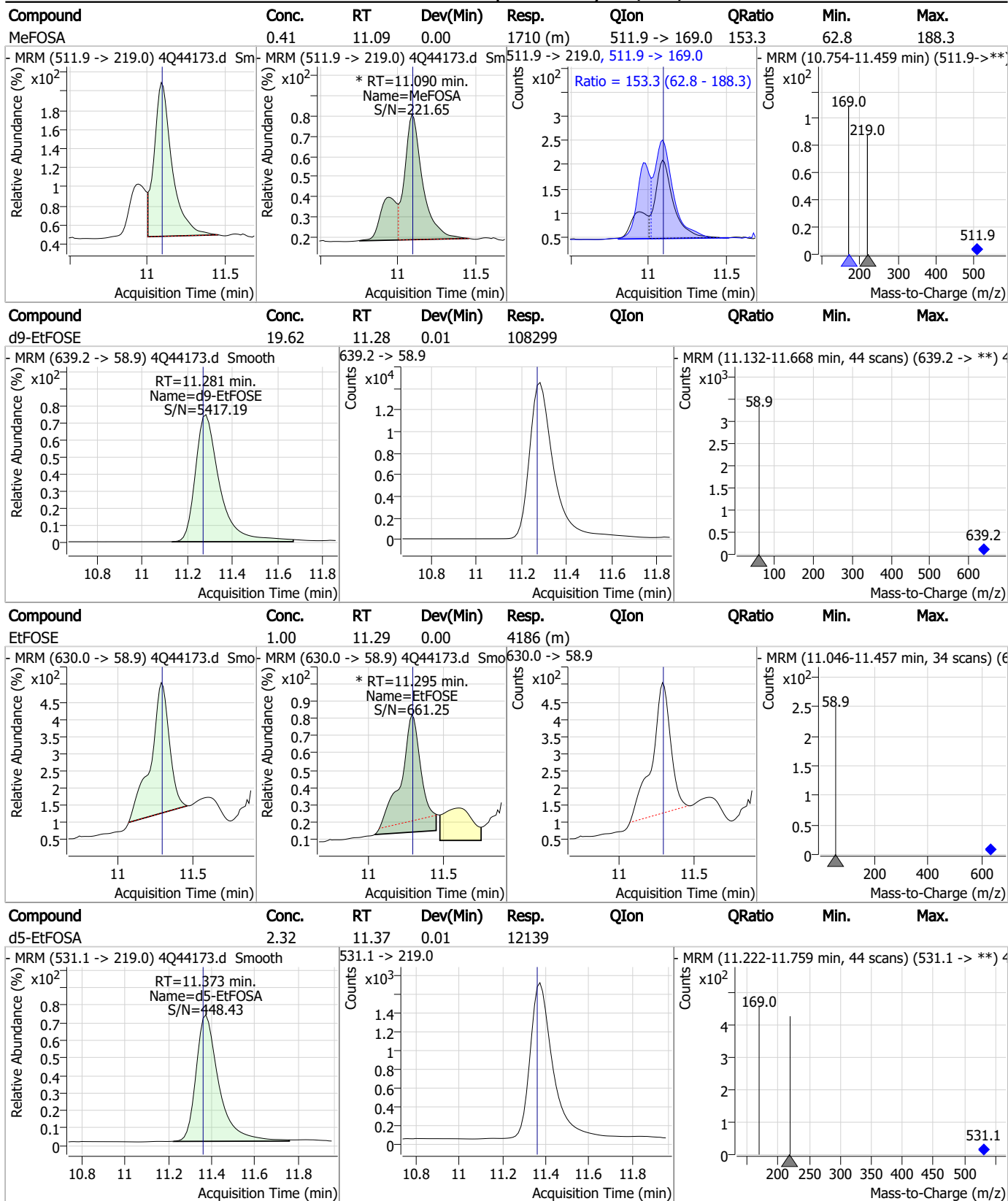


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.27	11.09	0.00	11168				



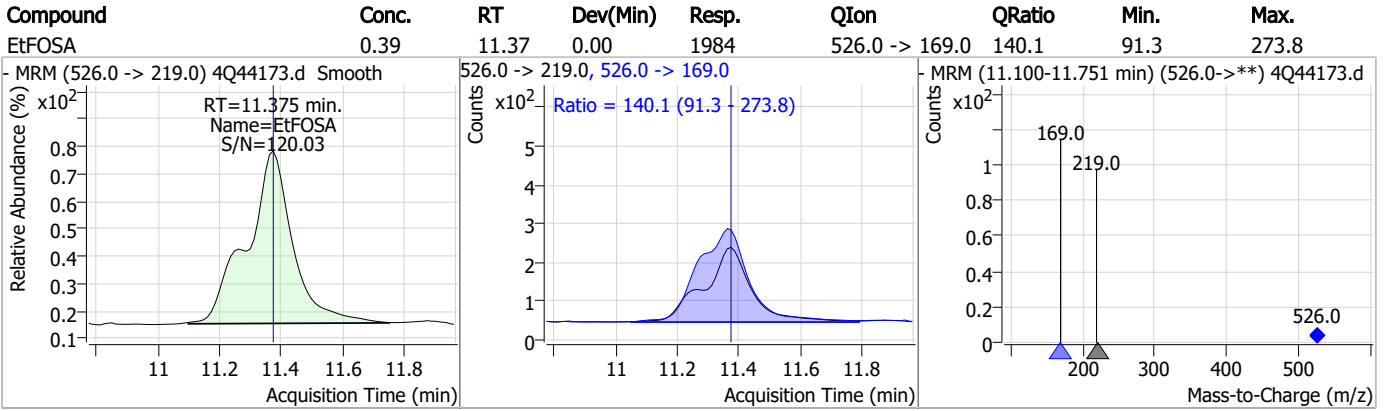
7.7.17

Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.17
7

Manual Integration Approval Summary

Sample Number: S4Q639-CC634 Method: EPA DRAFT 1633
Lab FileID: 4Q44173.D Analyst approved: 05/10/23 11:10 Martha Valls
Injection Time: 05/09/23 23:02 Supervisor approved: 05/10/23 17:27 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSE	1691-99-2		11.29	Split peak

7.7.17.1
7

QQQ Check Tune Report



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

Source Parameters

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

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	0.70	0.72	0.02	Pass	516372
302.00	301.93	-0.07	Pass	0.70	0.70	0.00	Pass	1505403
601.98	601.91	-0.07	Pass	0.70	0.70	0.00	Pass	3546345
1033.99	1033.91	-0.08	Pass	0.70	0.67	-0.03	Pass	1119463
1633.95	1633.76	-0.19	Pass	0.70	0.66	-0.04	Pass	945818
2233.91	2233.62	-0.29	Pass	0.70	0.70	0.00	Pass	381101

Analyzer: MS2 Polarity: Negative Width: Unit

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

Analyzer: MS1 Polarity: Negative Width: Wide

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

Analyzer: MS2 Polarity: Negative Width: Wide

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

Analyzer: MS1 Polarity: Negative Width: Widest

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

Analyzer: MS2 Polarity: Negative Width: Widest

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

7.7.18
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17546.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 4:06:08 PM
 Sample Name : ic265-1
 Vial : P1-A2
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	156529	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49763	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	56672	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	48201	2.50 µg/L	-0.012
M8-PFOA	7.077	421.1 -> 376.0	72136	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	24914	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16557	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	22543	1.25 µg/L	0.012
M2-PFDoDA	8.949	615.1 -> 570.0	22078	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14515	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	21507	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18679	2.50 µg/L	-0.012
M3-PFHxS	7.179	402.1 -> 79.9	11558	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	10978	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1547	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2146	5.00 µg/L	-0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2042	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	19643	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	34994	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	15090	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	92222	25.00 µg/L	0.012
M9-EtFOSE	10.907	639.2 -> 58.9	103944	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9407	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7868	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	12801	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	65210	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8787	2.50 µg/L	-0.012
13C4-PFOA	7.077	417.1 -> 372.0	71489	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	19794	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	23508	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	47367	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1547	4.76 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2146	5.23 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2042	4.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22078	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14515	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFBS	5.397	302.1 -> 79.9	18679	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFHxS	7.179	402.1 -> 79.9	11558	2.53 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 = 101.0%	
13C4-PFBA	2.913	216.8 -> 171.9	156529	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.420	367.1 -> 322.0	48201	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFHxA	5.478	318.0 -> 273.0	56672	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFPeA	4.272	268.3 -> 223.0	49763	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.076	519.1 -> 474.1	16557	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	22543	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-FOSA	9.636	506.1 -> 77.8	21507	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOA	7.077	421.1 -> 376.0	72136	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C8-PFOS	8.239	507.1 -> 79.9	10978	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C9-PFNA	7.595	472.1 -> 427.0	24914	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.0%	
d3-MeFOSAA	8.133	573.2 -> 419.0	19643	5.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	34994	9.95 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSA	10.752	515.0 -> 219.0	7868	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15090	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d7-MeFOSE	10.672	623.2 -> 58.9	92222	26.25 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	103944	25.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d5-EtFOSA	10.984	531.1 -> 219.0	9407	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	1786	0.76 µg/L	94
		327.1 -> 80.9	632		
6:2FTS	6.838	427.1 -> 407.0	1690	0.72 µg/L	95
		427.1 -> 80.9	600		
8:2FTS	7.865	527.1 -> 507.0	777	0.66 µg/L	90
		527.1 -> 80.8	358		
EtFOSAA	8.330	584.2 -> 419.1	663	0.24 µg/L	88
		584.2 -> 526.0	307		
FOSA	9.639	498.1 -> 77.9	1585	0.20 µg/L	99
		498.1 -> 478.0	44		
MeFOSAA	8.134	570.1 -> 419.0	709	0.17 µg/L	92
		570.1 -> 483.0	115		
PFBA	2.907	212.8 -> 168.9	4326	0.77 µg/L	100
PFBS	5.410	298.7 -> 79.9	1548	0.17 µg/L	98
		298.7 -> 98.8	628		
PFDA	8.076	512.9 -> 469.0	3620	0.18 µg/L	97
		512.9 -> 219.0	666		
PFDODA	8.950	613.1 -> 569.0	3473	0.20 µg/L	98
		613.1 -> 319.0	495		
PFDS	9.113	599.0 -> 79.9	642	0.17 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	284			
PFHpA	6.433	363.1 -> 319.0	4767	0.20	µg/L	97
		363.1 -> 169.0	720			
PFHpS	7.735	449.0 -> 79.9	1079	0.18	µg/L	95
		449.0 -> 98.9	509			
PFHxA	5.481	313.0 -> 269.0	4680	0.20	µg/L	99
		313.0 -> 118.9	199			
PFHxS	7.180	398.7 -> 79.9	1275	0.19	µg/L	m 98
		398.7 -> 98.9	585			
PFNA	7.596	463.0 -> 419.0	3334	0.18	µg/L	94
		463.0 -> 219.0	759			
PFNS	8.693	548.8 -> 79.9	919	0.17	µg/L	91
		548.8 -> 98.9	500			
PFOA	7.078	413.0 -> 369.0	7317	0.21	µg/L	97
		413.0 -> 169.0	1212			
PFOS	8.240	498.9 -> 79.9	930	0.16	µg/L	m 85
		498.9 -> 98.8	505			
PFPeA	4.274	263.0 -> 219.0	5544	0.38	µg/L	100
PFPeS	6.471	349.1 -> 79.9	1238	0.19	µg/L	92
		349.1 -> 98.9	508			
PFTeDA	9.677	713.1 -> 669.0	2977	0.20	µg/L	99
		713.1 -> 168.9	193			
PFTrDA	9.333	663.0 -> 619.0	4530	0.22	µg/L	95
		663.0 -> 168.9	331			
PFUnDA	8.531	563.1 -> 519.0	2564	0.16	µg/L	94
		563.1 -> 269.1	447			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	4859	0.36	µg/L	98
		632.9 -> 452.9	1541			
9Cl-PF3ONS	8.557	530.8 -> 351.0	7837	0.38	µg/L	91
		532.8 -> 353.0	2051			
ADONA	6.683	376.9 -> 250.9	20155	0.36	µg/L	98
		376.9 -> 84.8	5310			
HFPO-DA	5.845	284.9 -> 168.9	1309	0.39	µg/L	97
		284.9 -> 184.9	180			
3:3FTCA	3.790	241.0 -> 177.0	946	1.02	µg/L	93
		241.0 -> 117.0	102			
5:3FTCA	6.174	341.0 -> 237.1	20235	5.15	µg/L	94
		341.0 -> 217.0	14212			
7:3FTCA	7.586	441.0 -> 316.9	9110	5.14	µg/L	99
		441.0 -> 336.9	18666			
EtFOSA	10.986	526.0 -> 219.0	1465	0.36	µg/L	m 72
		526.0 -> 169.0	1968			
EtFOSE	10.932	630.0 -> 58.9	4435	0.99	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	1391	0.39	µg/L	m 68
		511.9 -> 169.0	1881			
MeFOSE	10.686	616.1 -> 58.9	4005	0.97	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	342	0.17	µg/L	93
		699.1 -> 98.8	206			
NFDHA	5.361	295.0 -> 201.0	1000	0.41	µg/L	95
		295.0 -> 84.9	243			
PFMBA	4.688	279.0 -> 85.1	3899	0.38	µg/L	100
PFMPA	3.442	229.0 -> 84.9	2851	0.39	µg/L	100
PFEESA	5.938	314.8 -> 134.9	10482	0.35	µg/L	99
		314.8 -> 82.9	386			

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

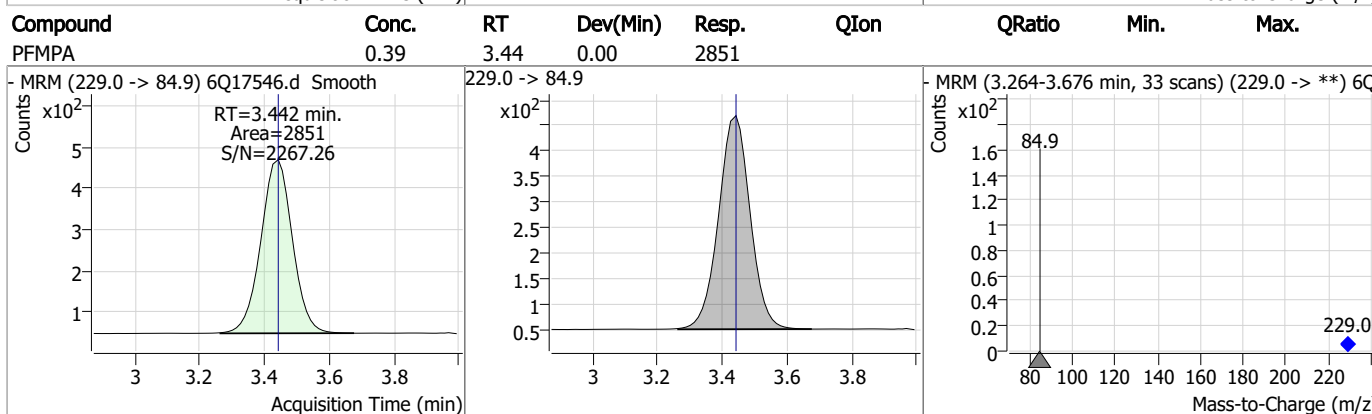
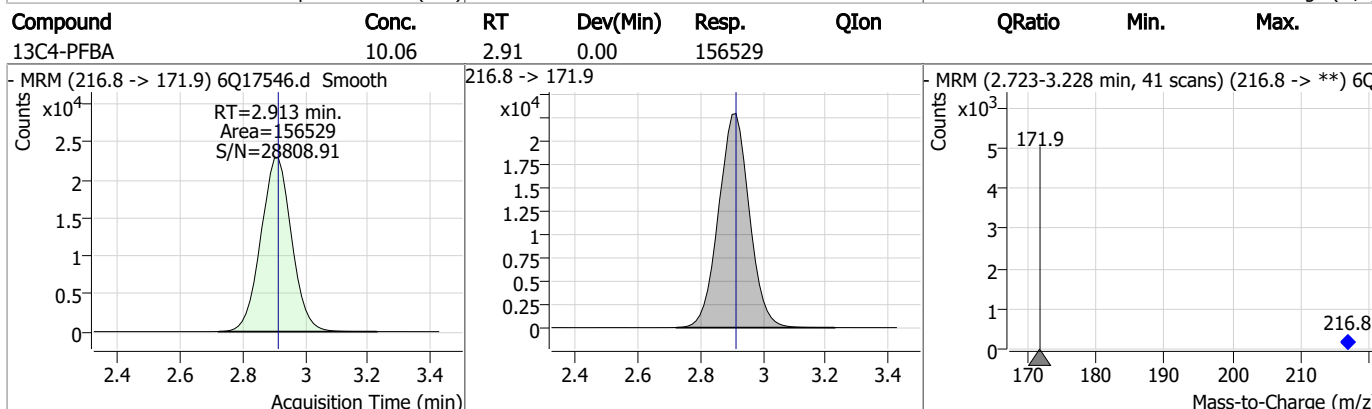
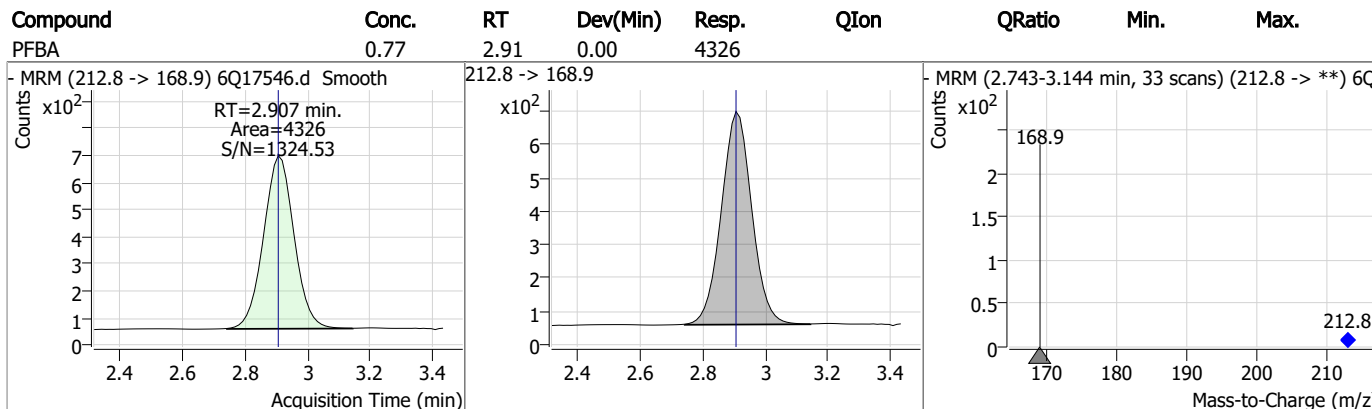
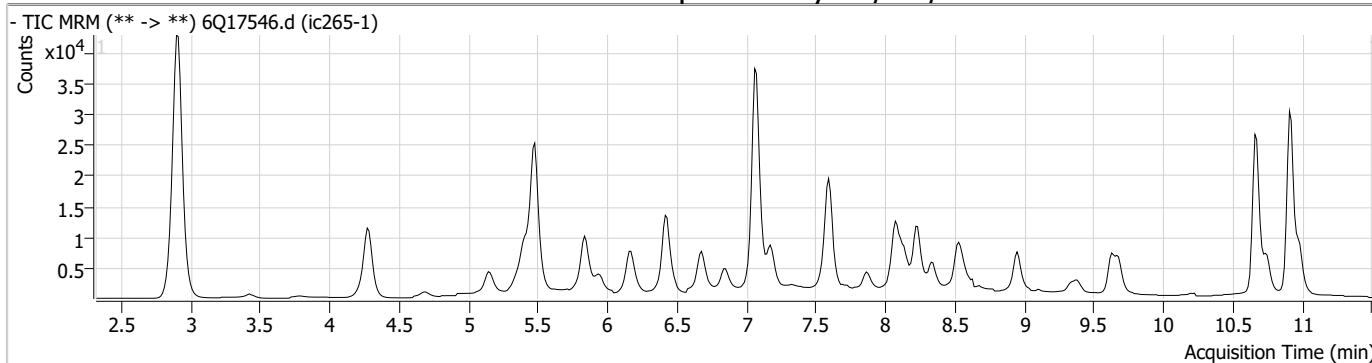
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.19
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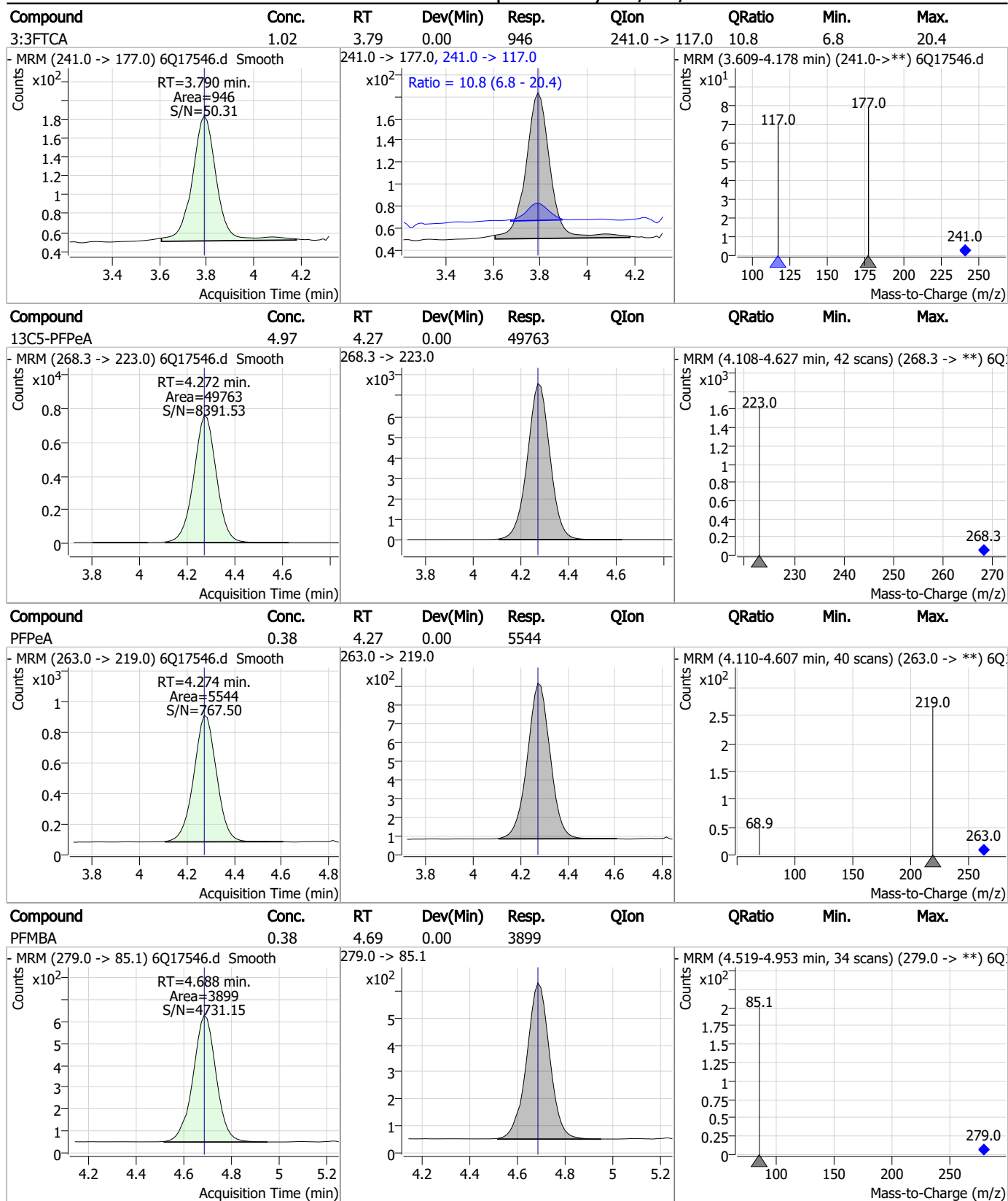


Perfluorinated Compounds by LC/MS/MS



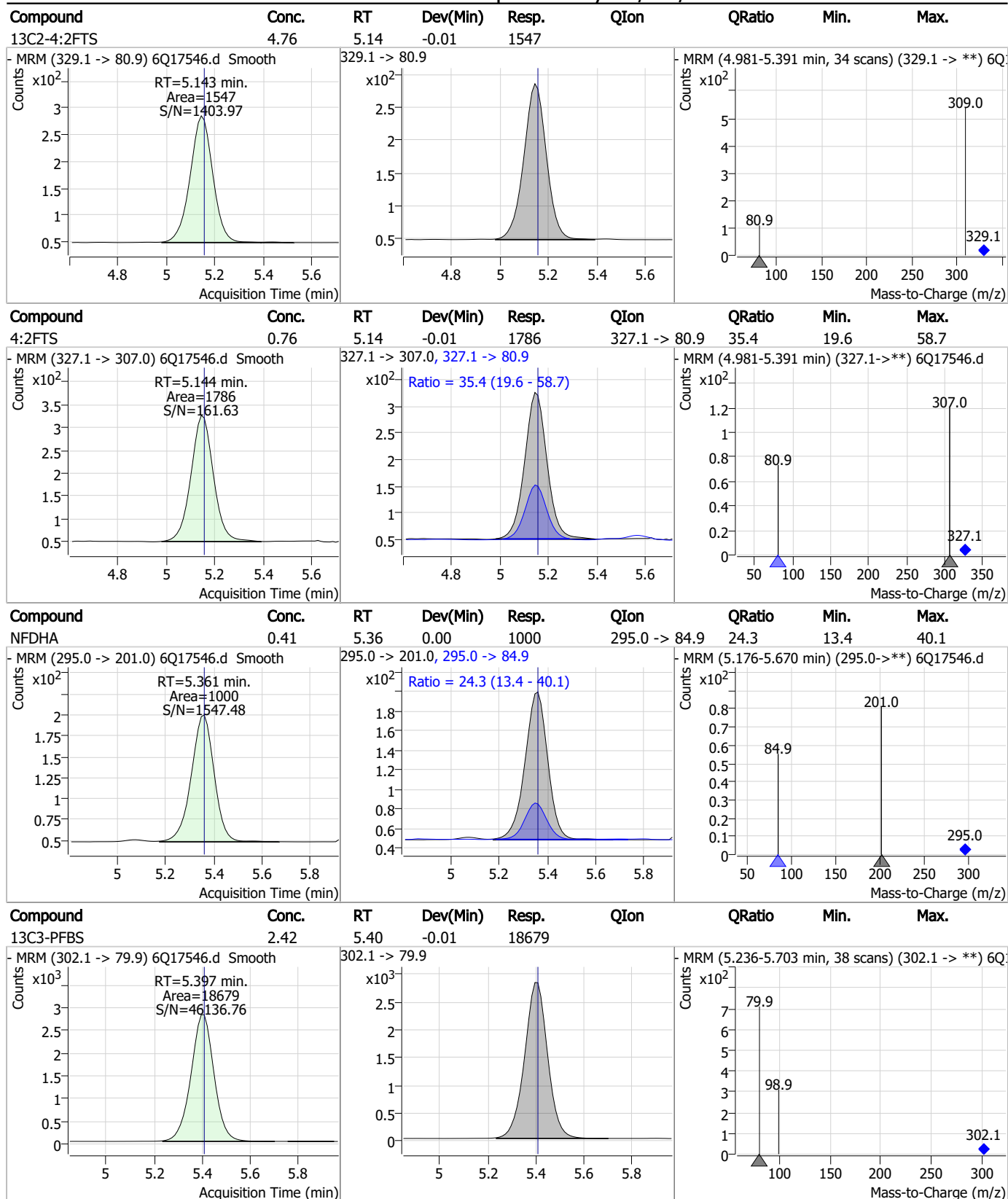
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Perfluorinated Compounds by LC/MS/MS



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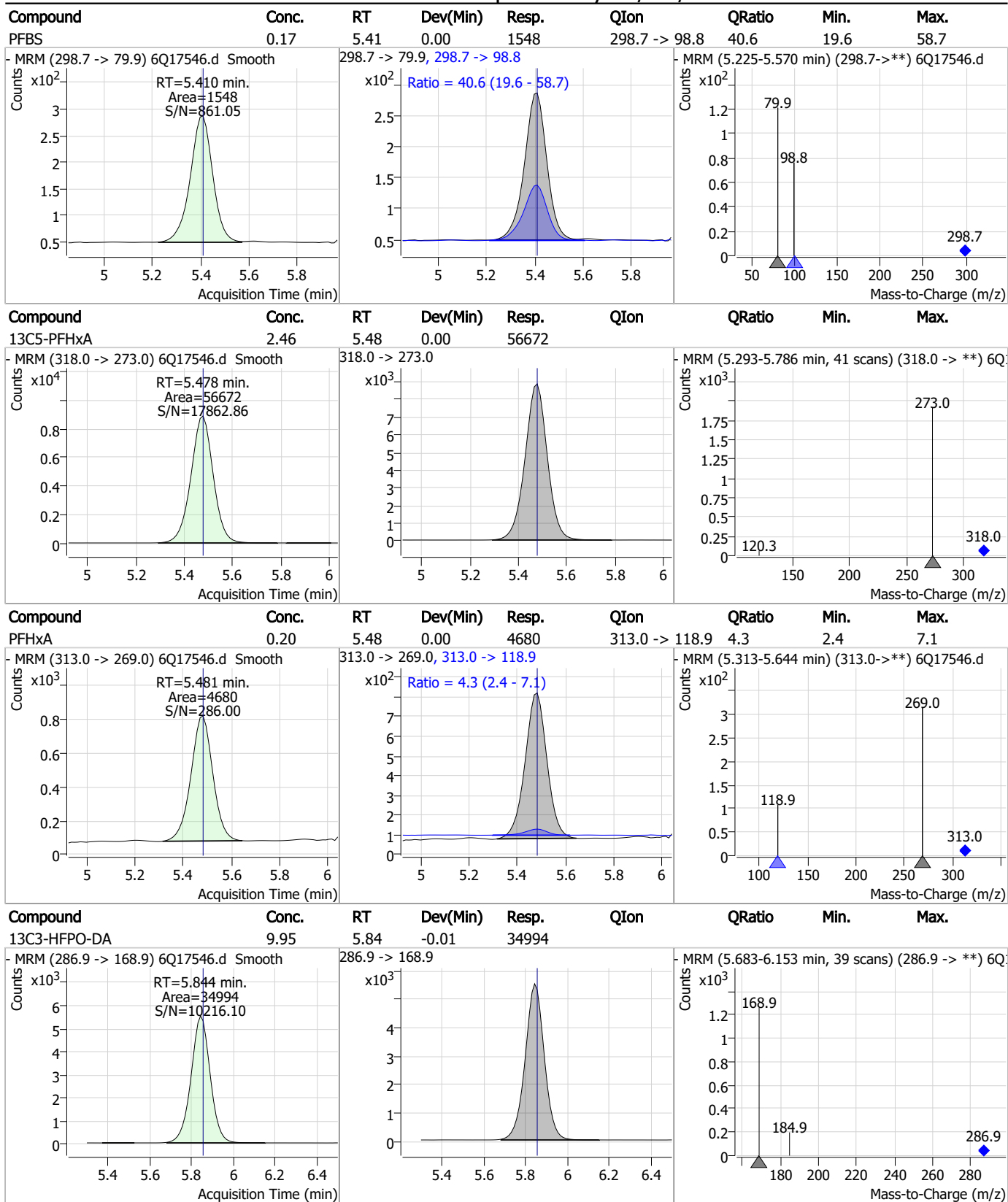
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

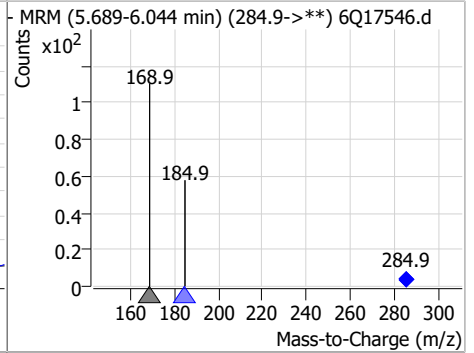
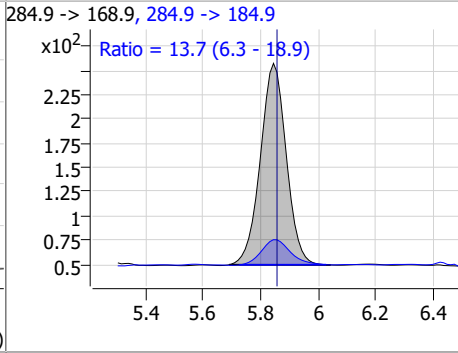
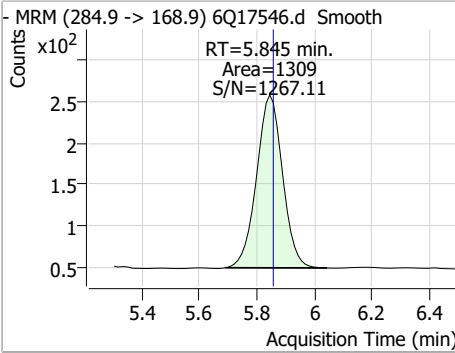


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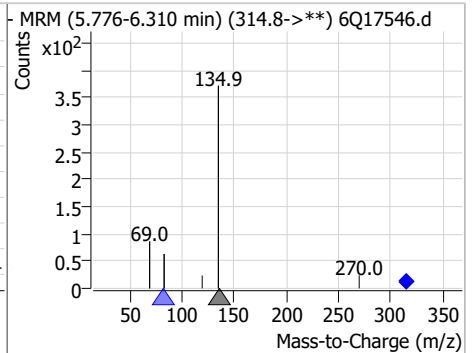
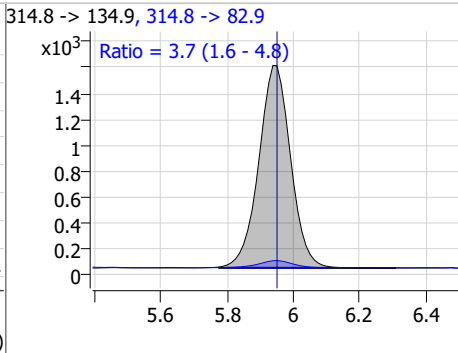
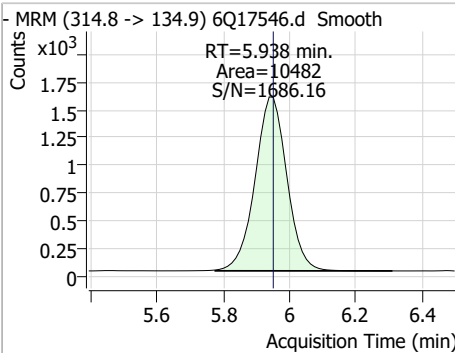
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Perfluorinated Compounds by LC/MS/MS

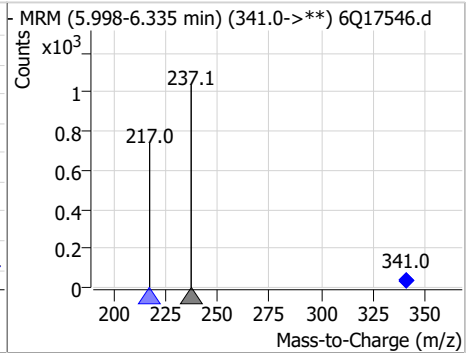
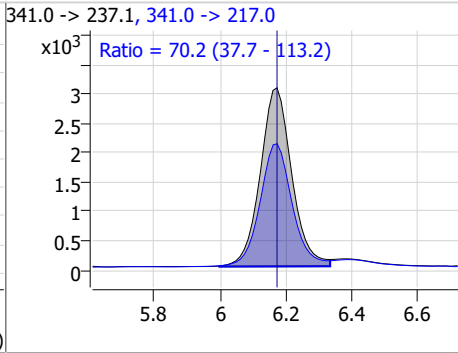
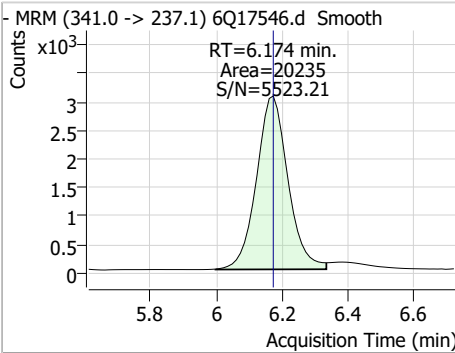
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.39	5.84	-0.01	1309	284.9 -> 184.9	13.7	6.3	18.9



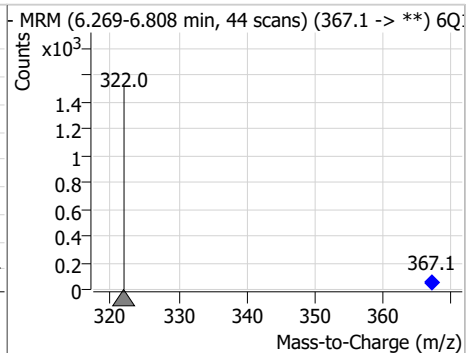
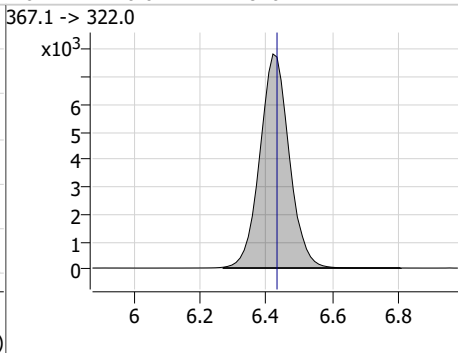
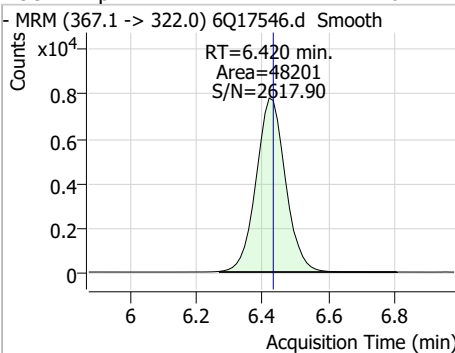
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.35	5.94	-0.01	10482	314.8 -> 82.9	3.7	1.6	4.8



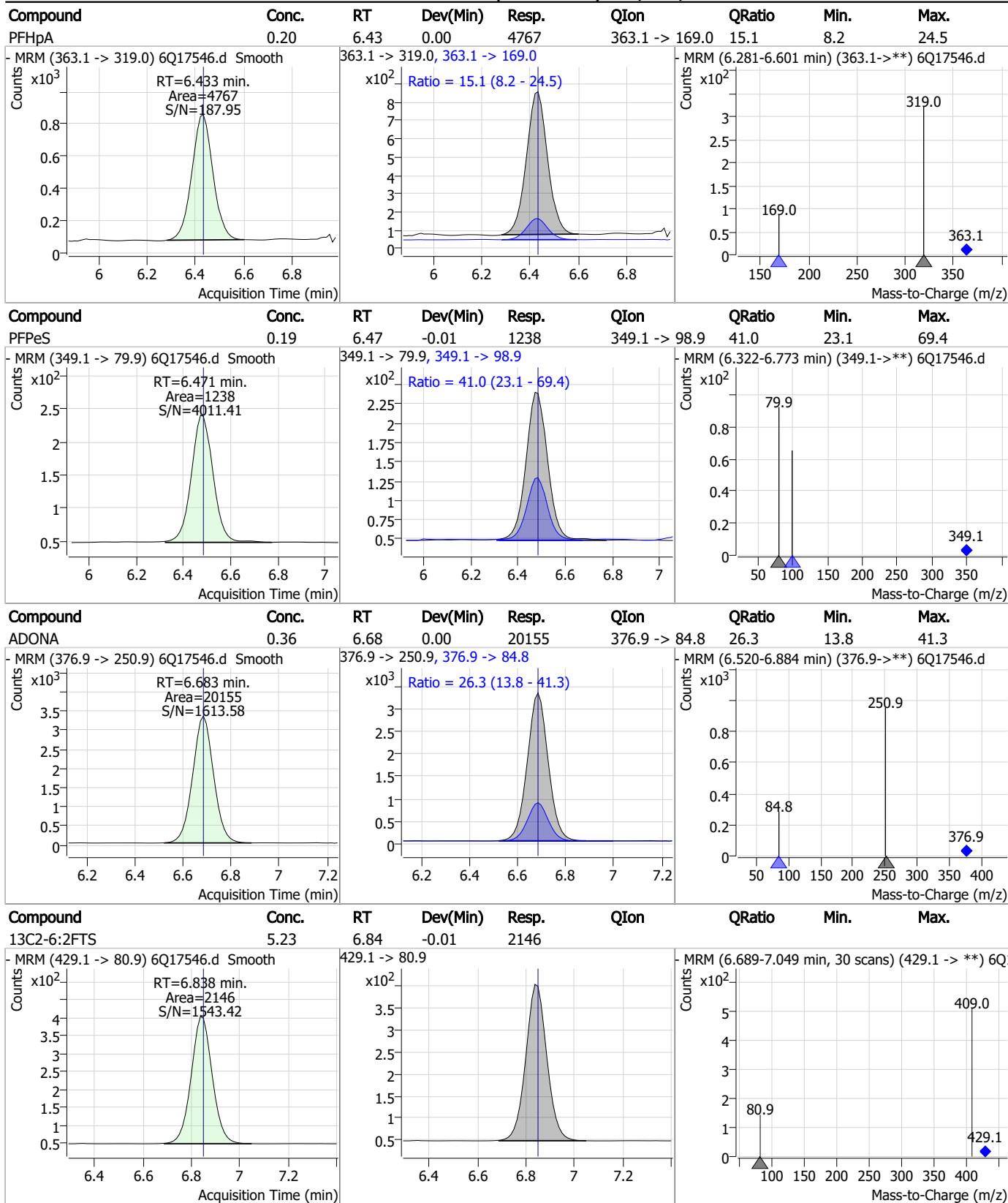
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.15	6.17	0.00	20235	341.0 -> 217.0	70.2	37.7	113.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.40	6.42	-0.01	48201	367.1 -> 322.0			

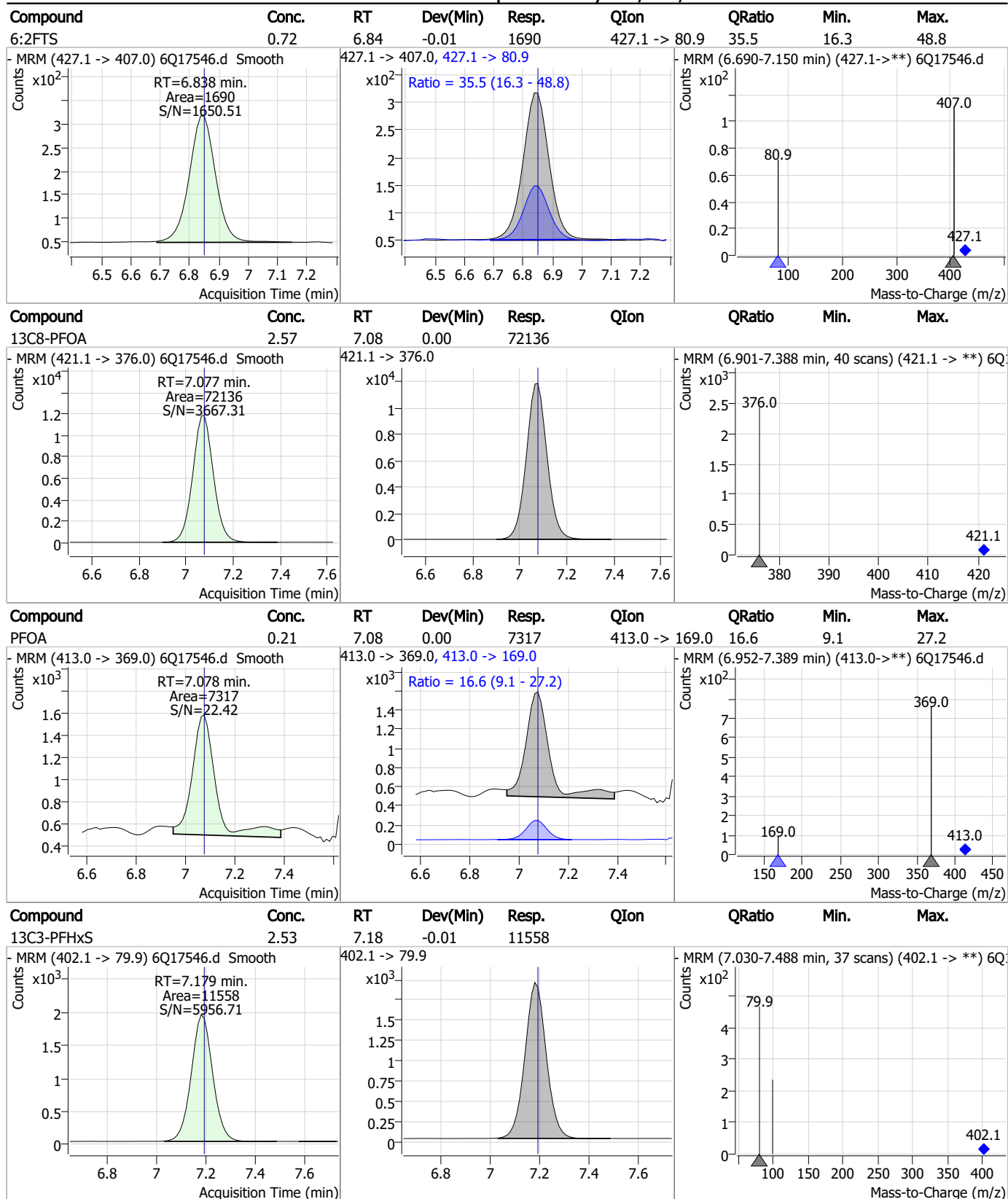


Perfluorinated Compounds by LC/MS/MS



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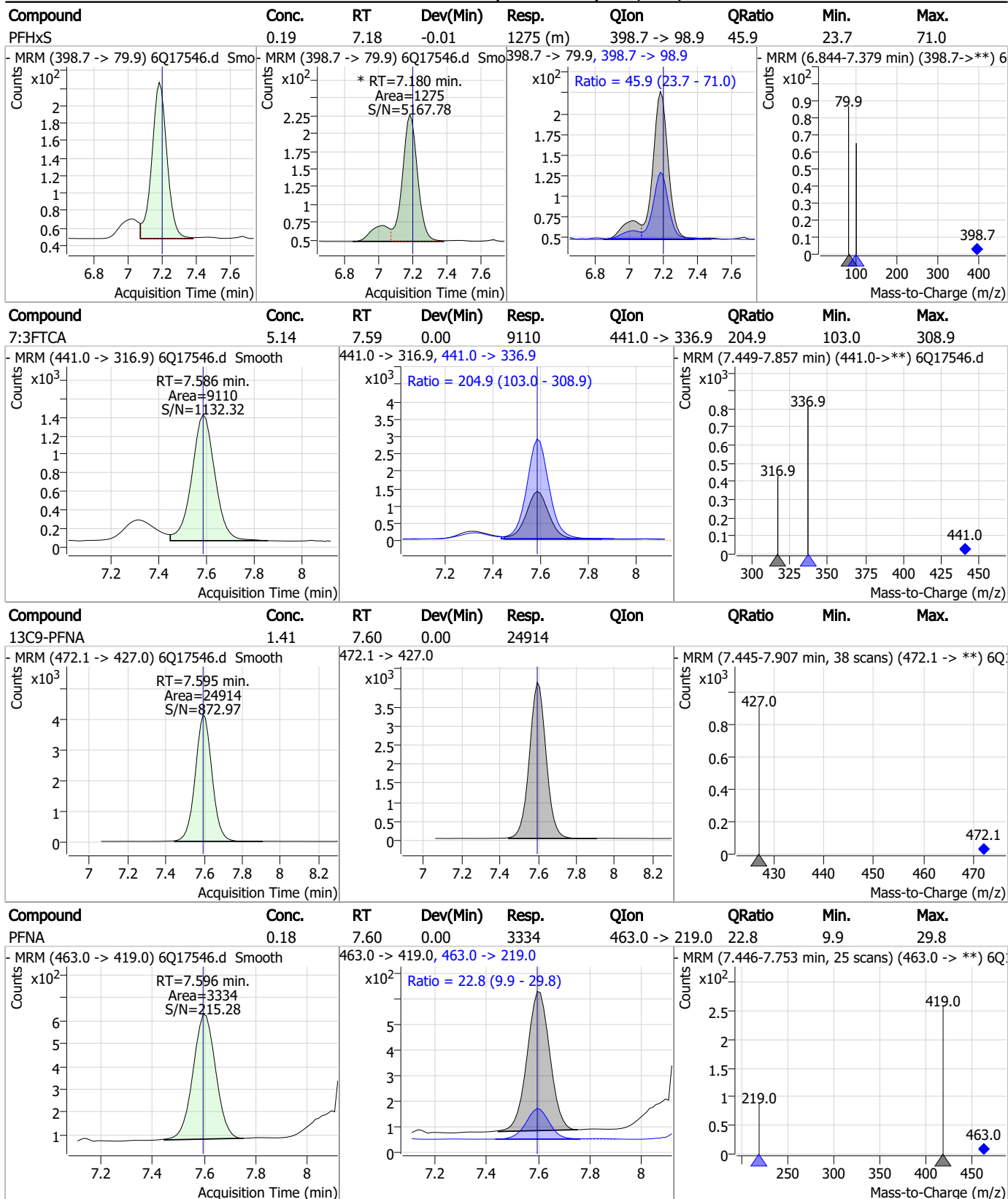
Perfluorinated Compounds by LC/MS/MS



7.7.19

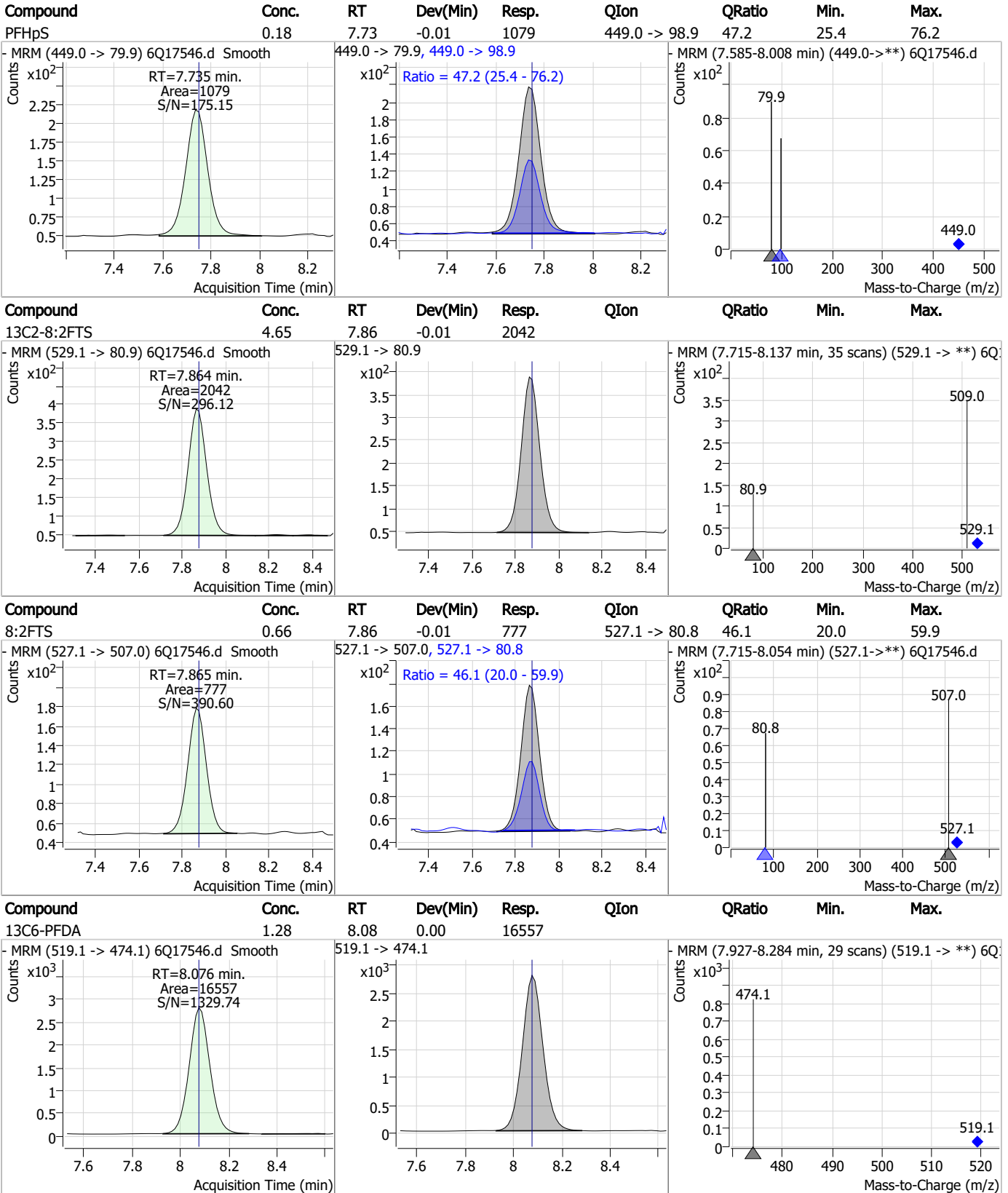
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Perfluorinated Compounds by LC/MS/MS



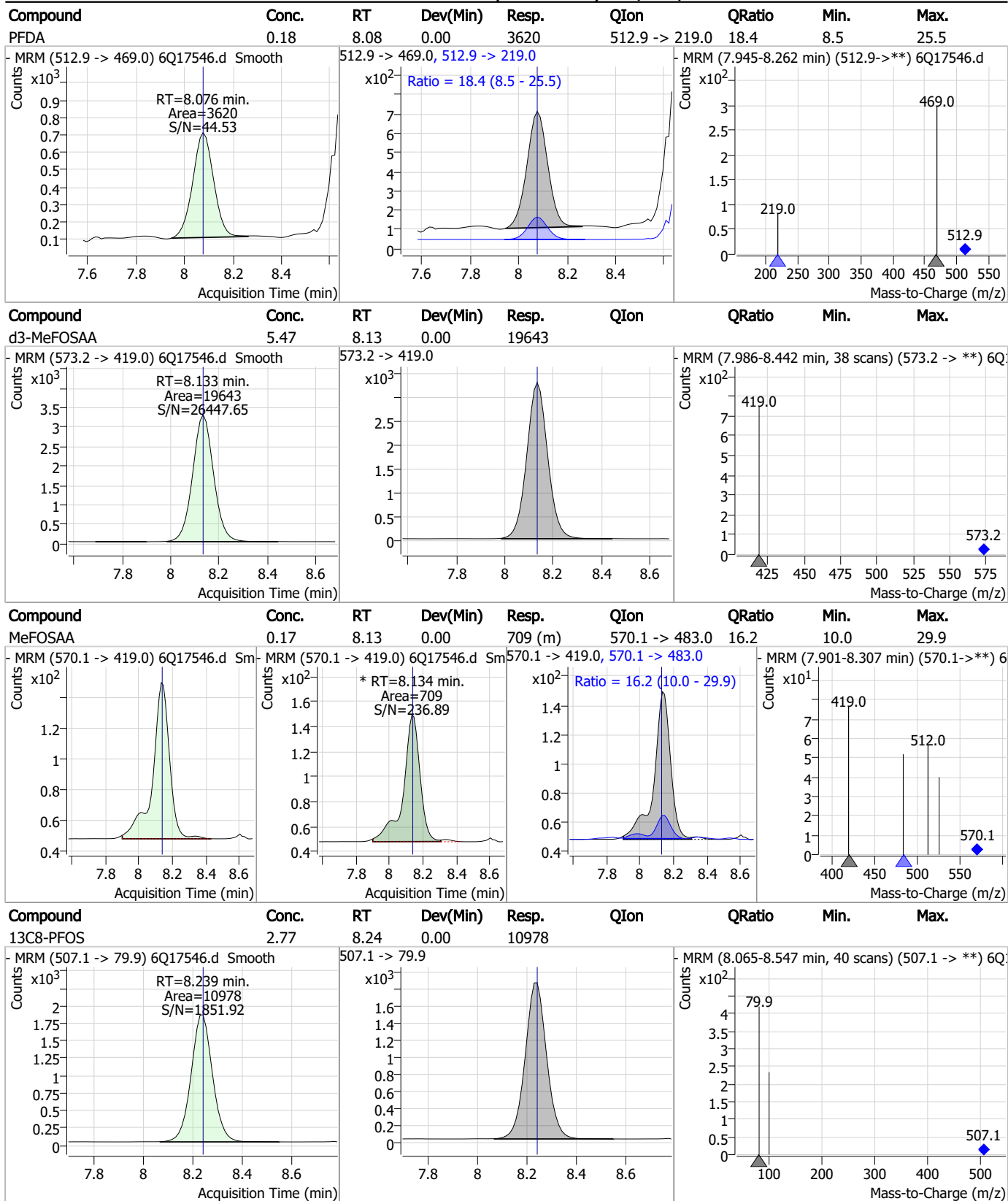
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Perfluorinated Compounds by LC/MS/MS



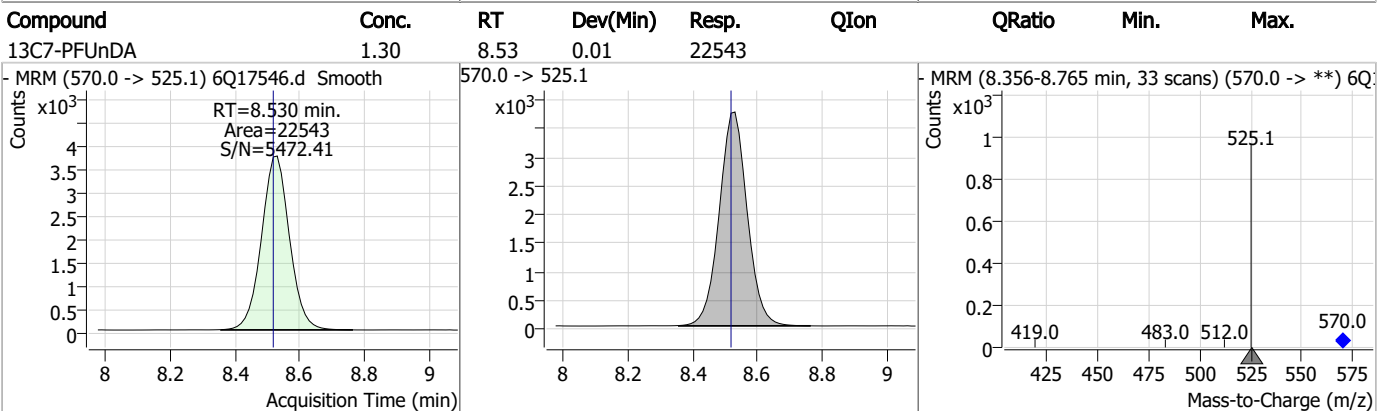
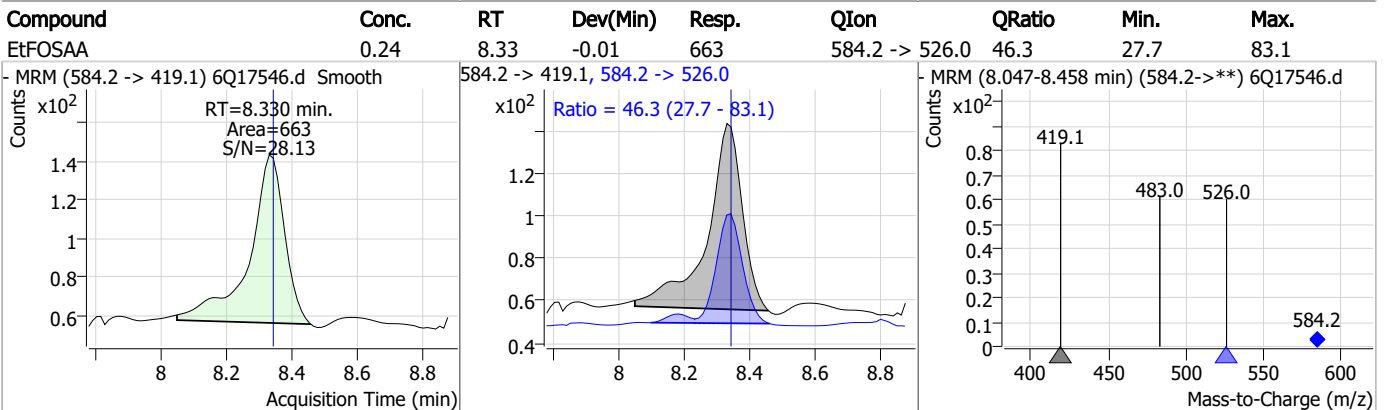
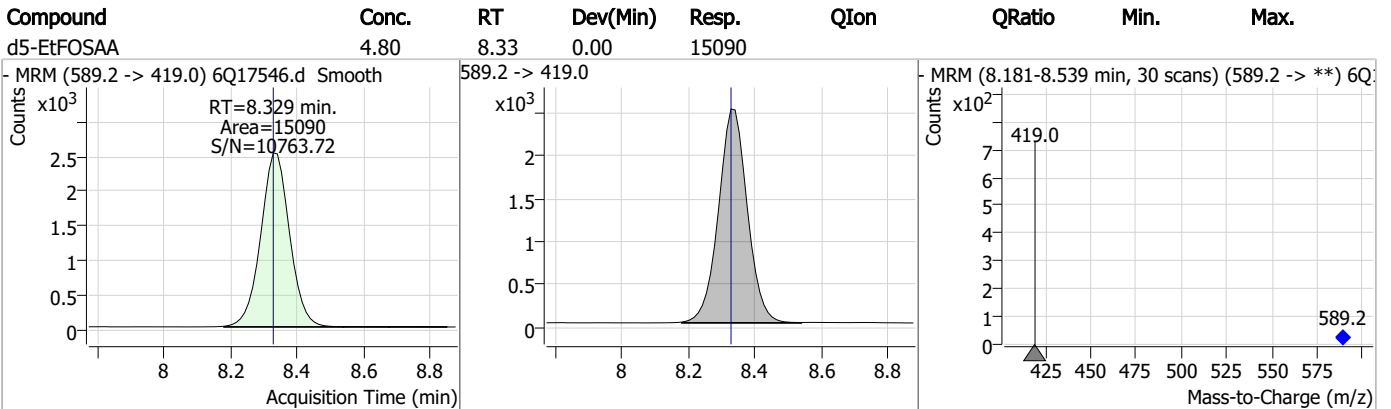
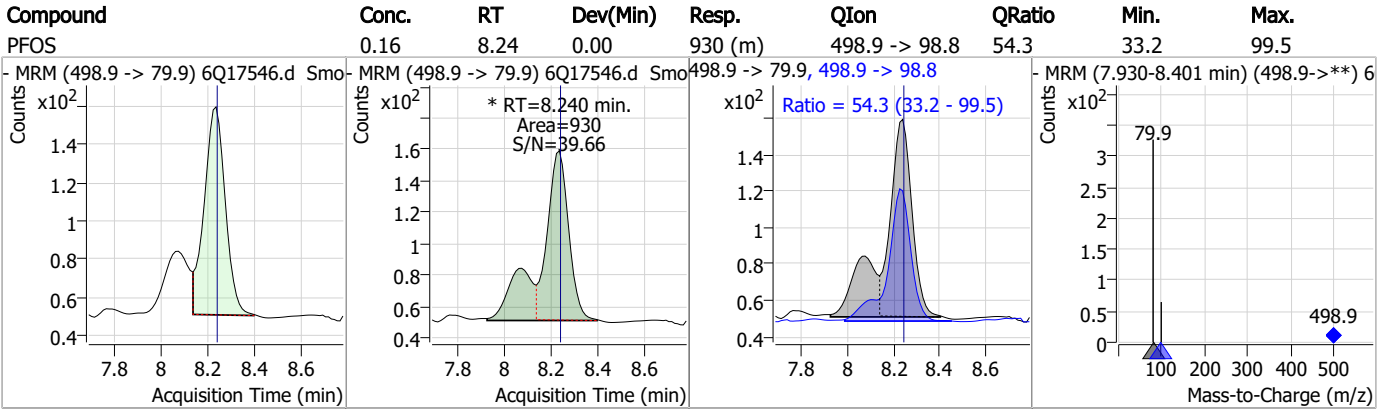
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Perfluorinated Compounds by LC/MS/MS



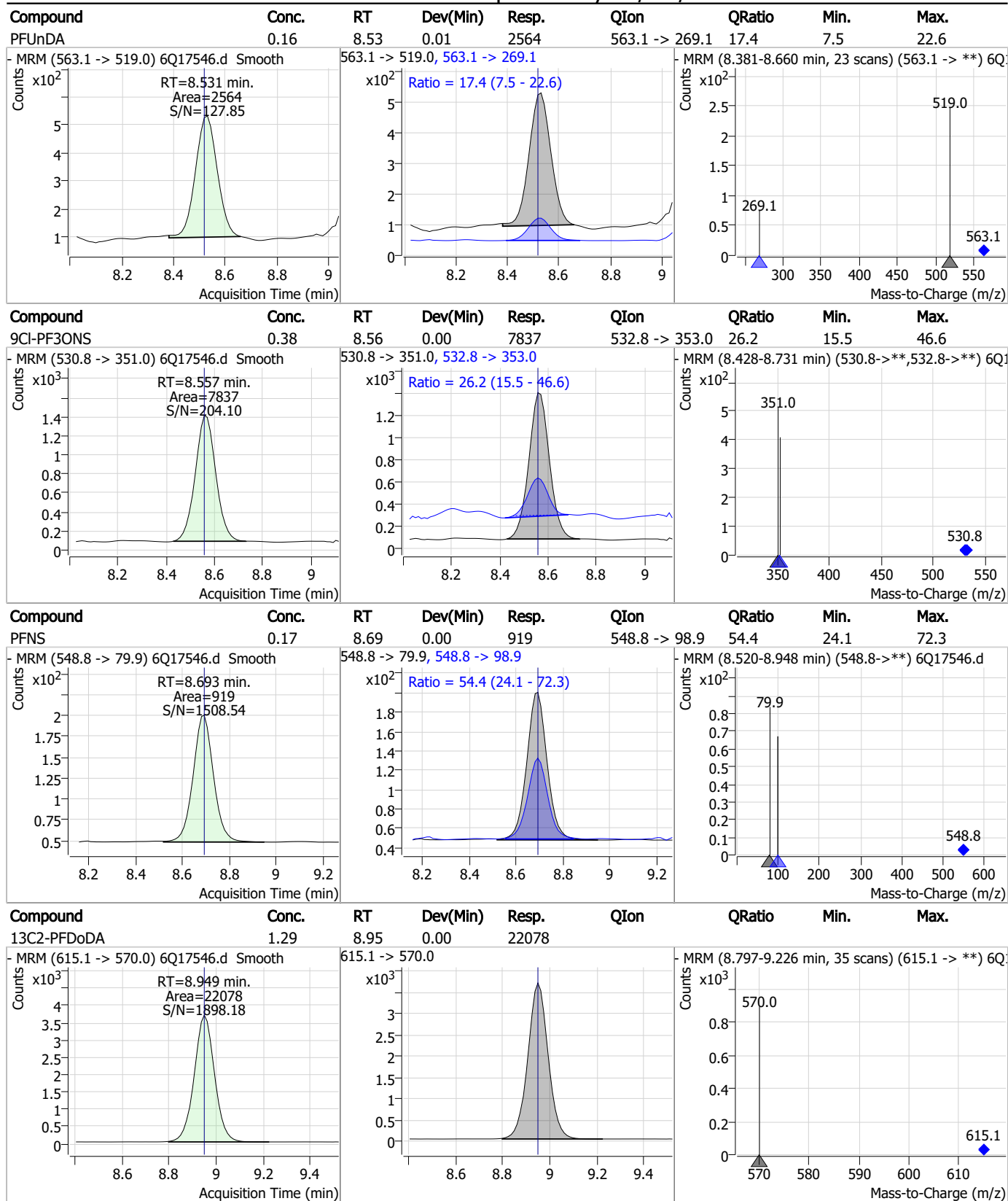
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Perfluorinated Compounds by LC/MS/MS



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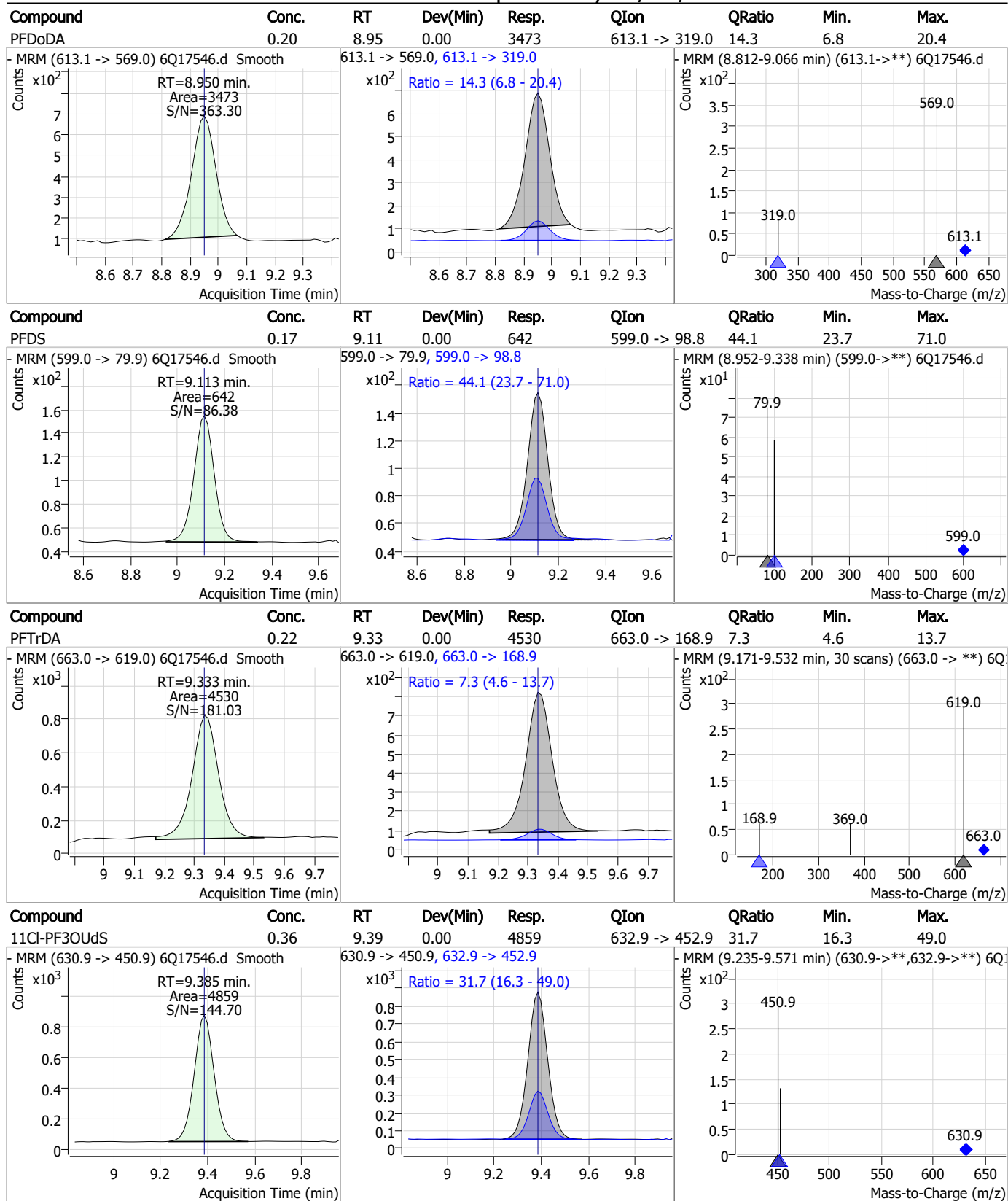
Perfluorinated Compounds by LC/MS/MS



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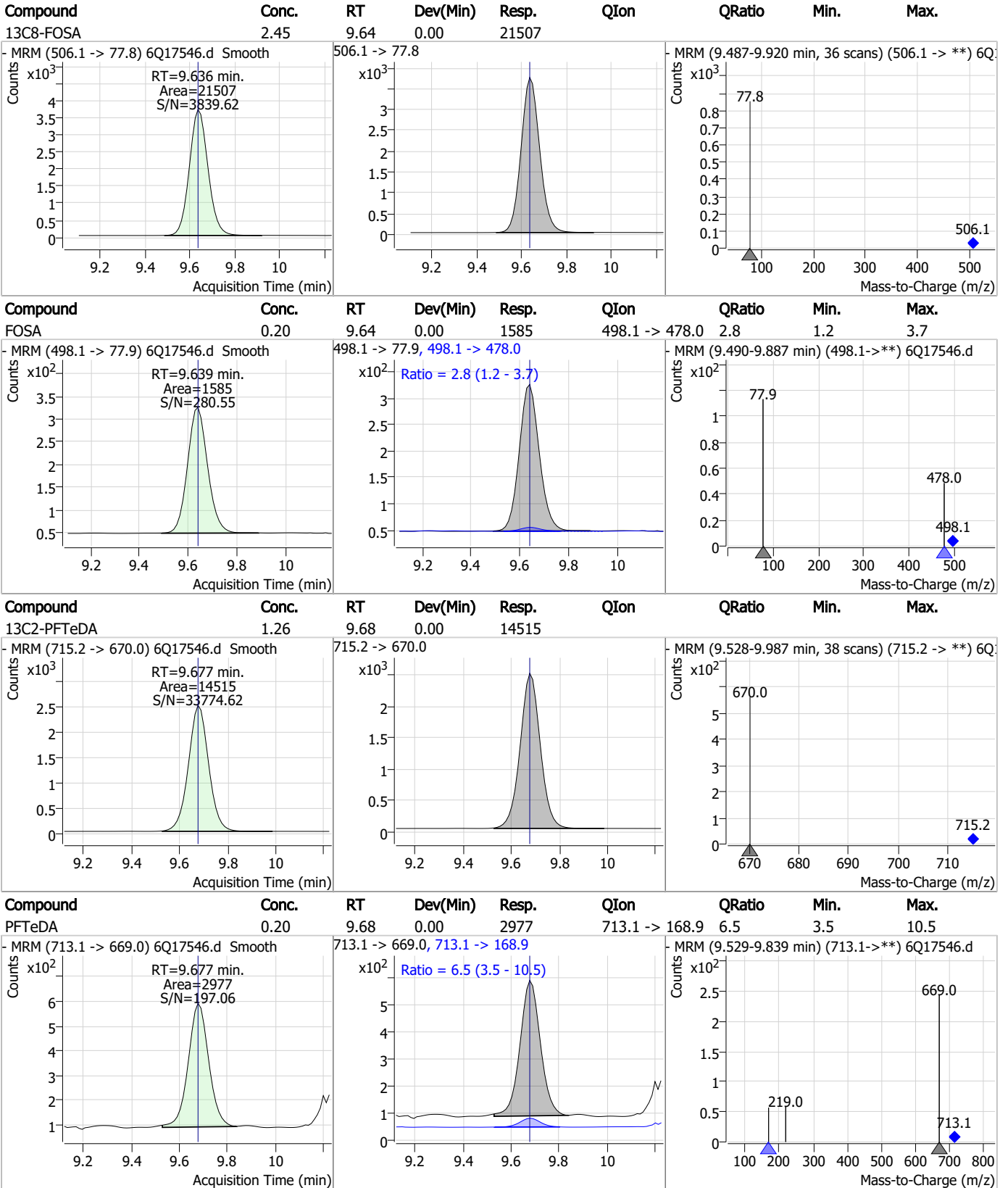
Perfluorinated Compounds by LC/MS/MS



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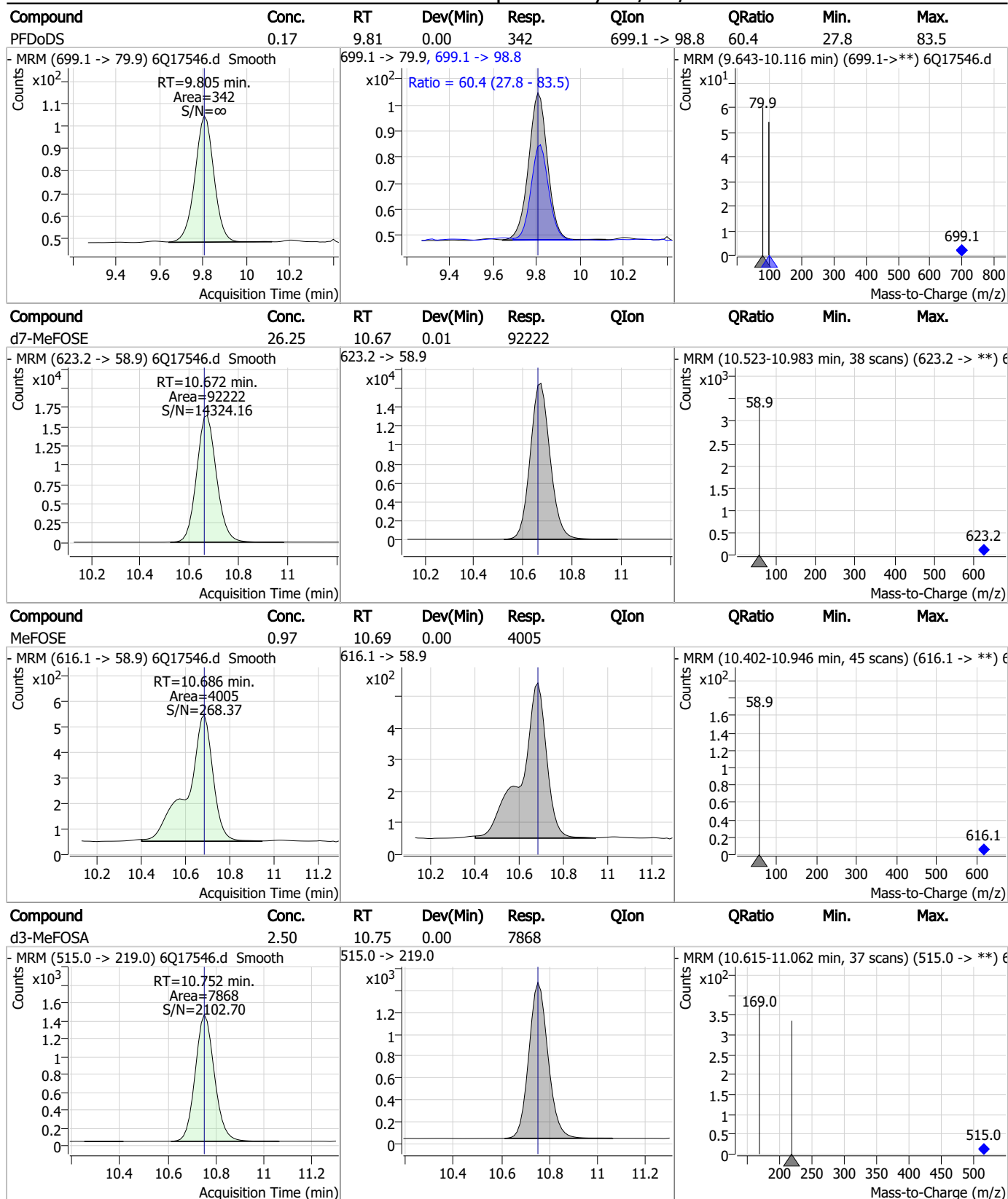
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

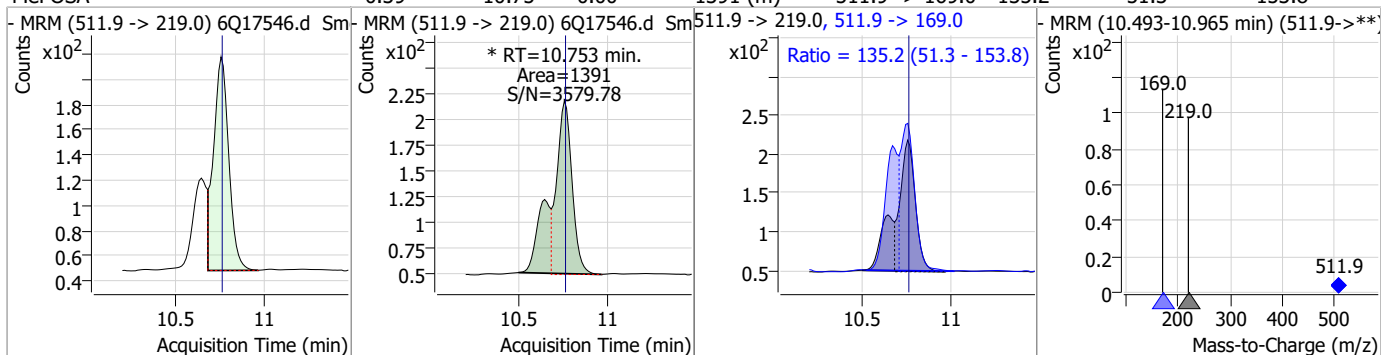


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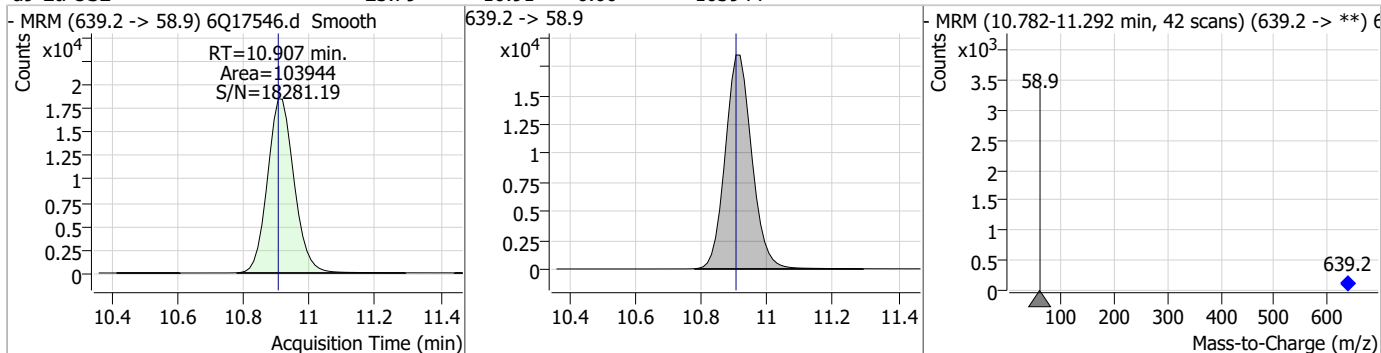
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Perfluorinated Compounds by LC/MS/MS

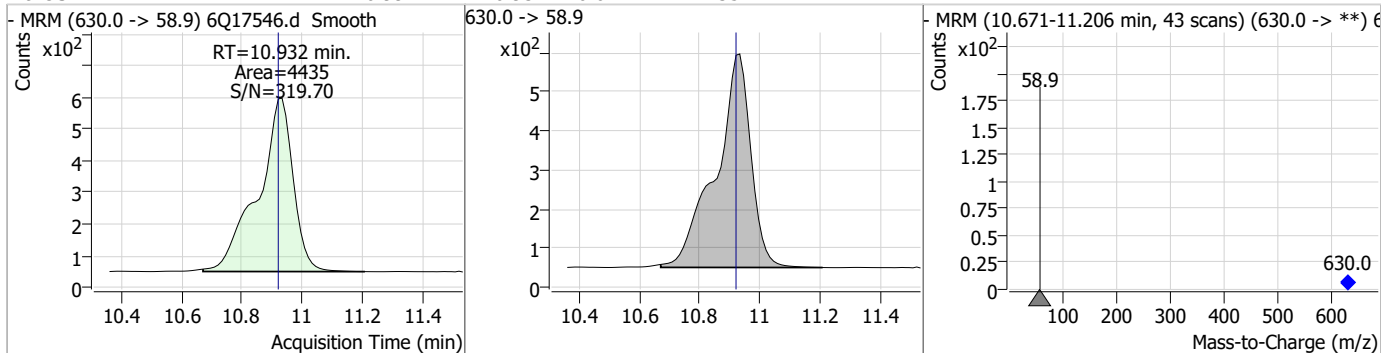
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.39	10.75	0.00	1391 (m)	511.9 -> 169.0	135.2	51.3	153.8



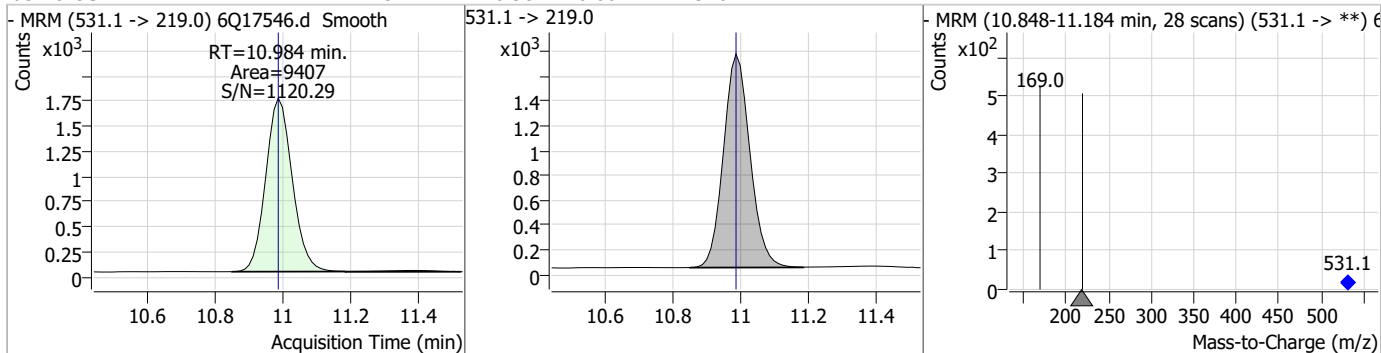
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.79	10.91	0.00	103944				



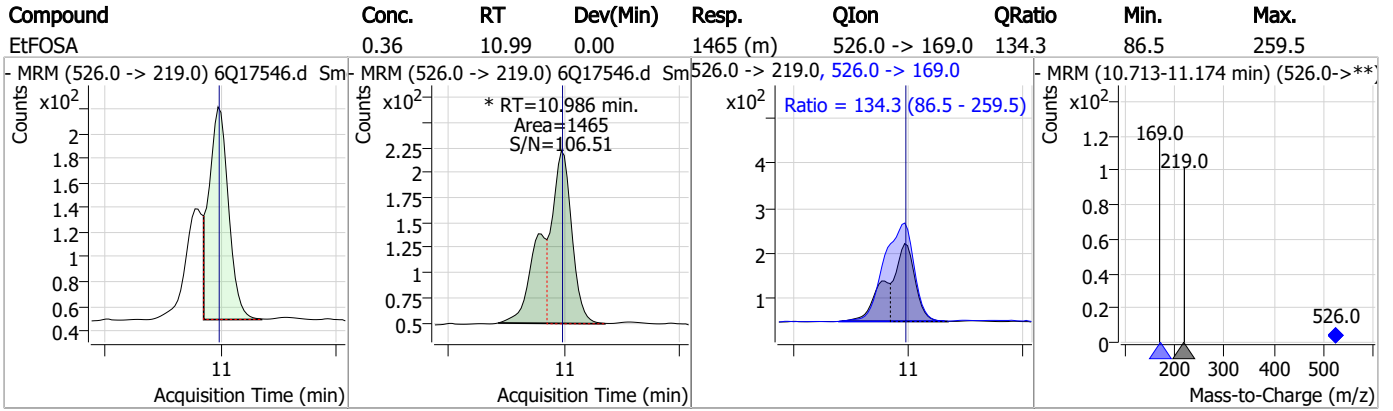
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.99	10.93	0.01	4435				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.51	10.98	0.00	9407				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q265-IC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17546.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 16:06 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
MeFOSAA	2355-31-9		8.13	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSA	31506-32-8		10.75	Split peak
EtFOSA	4151-50-2		10.99	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17547.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 4:20:36 PM
 Sample Name : ic265-2
 Vial : P1-A3
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	156731	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49769	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	58791	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	49099	2.50 µg/L	-0.012
M8-PFOA	7.077	421.1 -> 376.0	74989	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	25127	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16759	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	24425	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	21863	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14959	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	22467	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	18193	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10395	2.50 µg/L	-0.012
M8-PFOS	8.226	507.1 -> 79.9	9414	2.50 µg/L	-0.012
M2-4:2FTS	5.156	329.1 -> 80.9	1584	5.00 µg/L	0.000
M2-6:2FTS	6.850	429.1 -> 80.9	1855	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2255	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	18408	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	34880	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	15339	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	89822	25.00 µg/L	0.012
M9-EtFOSE	10.907	639.2 -> 58.9	103882	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9751	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7667	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12922	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	64462	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8976	2.50 µg/L	-0.012
13C4-PFOA	7.077	417.1 -> 372.0	70022	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	21339	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	23573	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	44789	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.156	329.1 -> 80.9	1584	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1855	4.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2255	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFDoDA	8.949	615.1 -> 570.0	21863	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14959	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C3-PFBS	5.409	302.1 -> 79.9	18193	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	10395	2.22 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 = 88.9%	
13C4-PFBA	2.913	216.8 -> 171.9	156731	10.19 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C4-PFHpA	6.420	367.1 -> 322.0	49099	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C5-PFHxA	5.478	318.0 -> 273.0	58791	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C5-PFPeA	4.272	268.3 -> 223.0	49769	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C6-PFDA	8.076	519.1 -> 474.1	16759	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C7-PFUnDA	8.518	570.0 -> 525.1	24425	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-FOSA	9.636	506.1 -> 77.8	22467	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-PFOA	7.077	421.1 -> 376.0	74989	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C8-PFOS	8.226	507.1 -> 79.9	9414	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C9-PFNA	7.595	472.1 -> 427.0	25127	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.6%	
d3-MeFOSAA	8.133	573.2 -> 419.0	18408	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	34880	10.49 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d3-MeFOSA	10.752	515.0 -> 219.0	7667	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15339	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d7-MeFOSE	10.672	623.2 -> 58.9	89822	25.33 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d9-EtFOSE	10.907	639.2 -> 58.9	103882	25.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d5-EtFOSA	10.984	531.1 -> 219.0	9751	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	3752	1.55 µg/L	100
		327.1 -> 80.9	1457		
6:2FTS	6.850	427.1 -> 407.0	3468	1.70 µg/L	100
		427.1 -> 80.9	1132		
8:2FTS	7.865	527.1 -> 507.0	2183	1.67 µg/L	98
		527.1 -> 80.8	904		
EtFOSAA	8.342	584.2 -> 419.1	1061	0.38 µg/L	88
		584.2 -> 526.0	495		
FOSA	9.639	498.1 -> 77.9	3150	0.38 µg/L	98
		498.1 -> 478.0	99		
MeFOSAA	8.147	570.1 -> 419.0	1442	0.38 µg/L	97
		570.1 -> 483.0	270		
PFBA	2.907	212.8 -> 168.9	8588	1.53 µg/L	100
PFBS	5.410	298.7 -> 79.9	3450	0.38 µg/L	92
		298.7 -> 98.8	1172		
PFDA	8.076	512.9 -> 469.0	8163	0.39 µg/L	99
		512.9 -> 219.0	1344		
PFDODA	8.950	613.1 -> 569.0	7771	0.45 µg/L	100
		613.1 -> 319.0	1059		
PFDS	9.113	599.0 -> 79.9	1212	0.38 µg/L	91

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	644			
PFHpA	6.433	363.1 -> 319.0	9813	0.40	µg/L	96
		363.1 -> 169.0	1432			
PFHpS	7.735	449.0 -> 79.9	2152	0.42	µg/L	94
		449.0 -> 98.9	1000			
PFHxA	5.481	313.0 -> 269.0	9041	0.38	µg/L	100
		313.0 -> 118.9	420			
PFHxS	7.180	398.7 -> 79.9	2350	0.38	µg/L	m 94
		398.7 -> 98.9	1214			
PFNA	7.596	463.0 -> 419.0	6621	0.35	µg/L	96
		463.0 -> 219.0	1432			
PFNS	8.693	548.8 -> 79.9	1898	0.41	µg/L	97
		548.8 -> 98.9	950			
PFOA	7.078	413.0 -> 369.0	11596	0.32	µg/L	96
		413.0 -> 169.0	2303			
PFOS	8.228	498.9 -> 79.9	1984	0.41	µg/L	m 82
		498.9 -> 98.8	1024			
PFPeA	4.274	263.0 -> 219.0	11219	0.77	µg/L	100
PFPeS	6.484	349.1 -> 79.9	2466	0.42	µg/L	93
		349.1 -> 98.9	1034			
PFTeDA	9.677	713.1 -> 669.0	5844	0.38	µg/L	97
		713.1 -> 168.9	466			
PFTrDA	9.333	663.0 -> 619.0	7774	0.38	µg/L	99
		663.0 -> 168.9	729			
PFUnDA	8.518	563.1 -> 519.0	5831	0.34	µg/L	93
		563.1 -> 269.1	1050			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	9900	0.74	µg/L	94
		632.9 -> 452.9	2912			
9Cl-PF3ONS	8.557	530.8 -> 351.0	15300	0.75	µg/L	92
		532.8 -> 353.0	5434			
ADONA	6.683	376.9 -> 250.9	42607	0.76	µg/L	95
		376.9 -> 84.8	10603			
HFPO-DA	5.845	284.9 -> 168.9	2739	0.81	µg/L	99
		284.9 -> 184.9	338			
3:3FTCA	3.790	241.0 -> 177.0	1804	1.94	µg/L	99
		241.0 -> 117.0	250			
5:3FTCA	6.174	341.0 -> 237.1	38827	9.52	µg/L	97
		341.0 -> 217.0	28394			
7:3FTCA	7.586	441.0 -> 316.9	17179	9.35	µg/L	86
		441.0 -> 336.9	39118			
EtFOSA	10.986	526.0 -> 219.0	3293	0.78	µg/L	63
		526.0 -> 169.0	4019			
EtFOSE	10.932	630.0 -> 58.9	8626	1.93	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	2827	0.80	µg/L	m 64
		511.9 -> 169.0	3923			
MeFOSE	10.686	616.1 -> 58.9	7366	1.83	µg/L	m 100
PFDoDS	9.805	699.1 -> 79.9	664	0.39	µg/L	96
		699.1 -> 98.8	390			
NFDHA	5.361	295.0 -> 201.0	1894	0.74	µg/L	99
		295.0 -> 84.9	497			
PFMBA	4.688	279.0 -> 85.1	7918	0.77	µg/L	100
PFMPA	3.442	229.0 -> 84.9	5643	0.77	µg/L	100
PFEESA	5.950	314.8 -> 134.9	21063	0.67	µg/L	99
		314.8 -> 82.9	723			

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

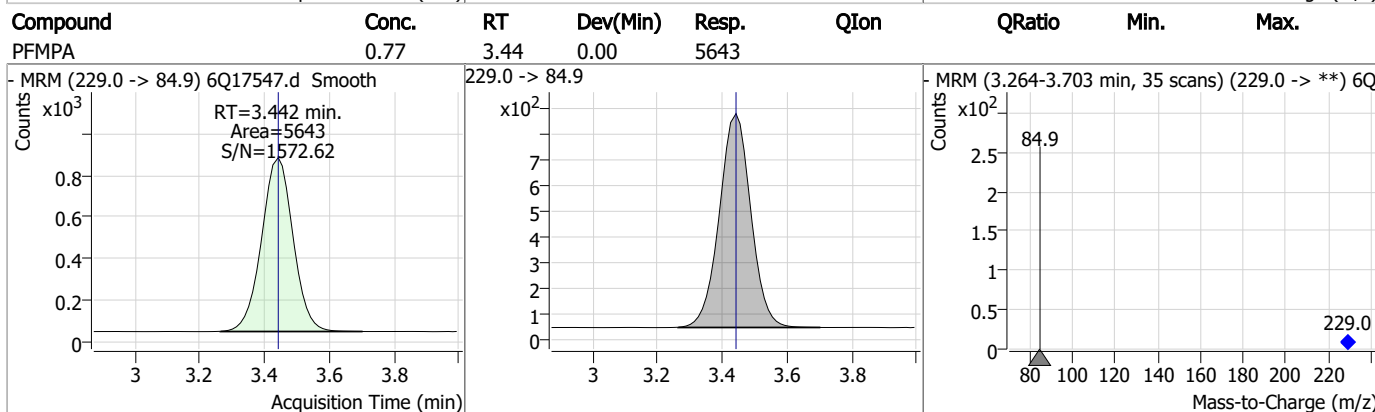
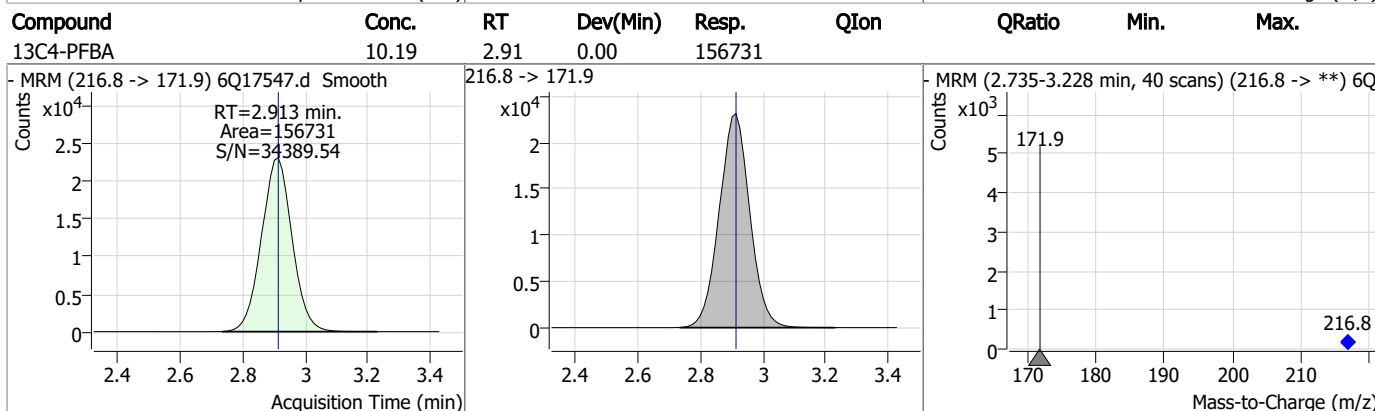
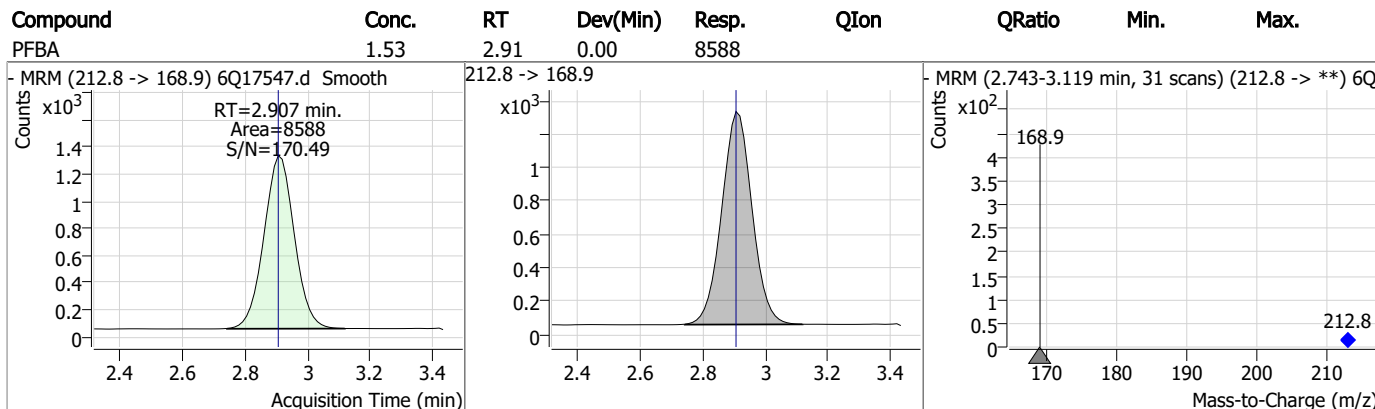
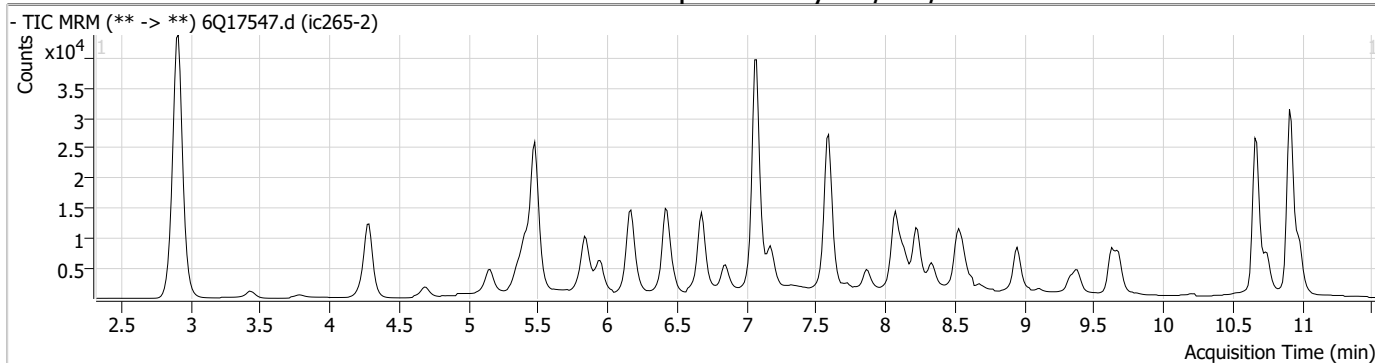
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.20
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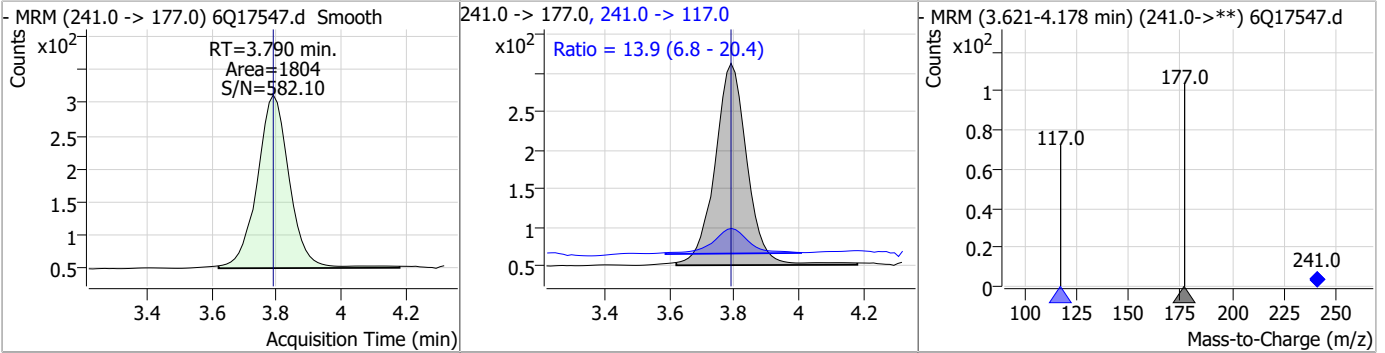


Perfluorinated Compounds by LC/MS/MS

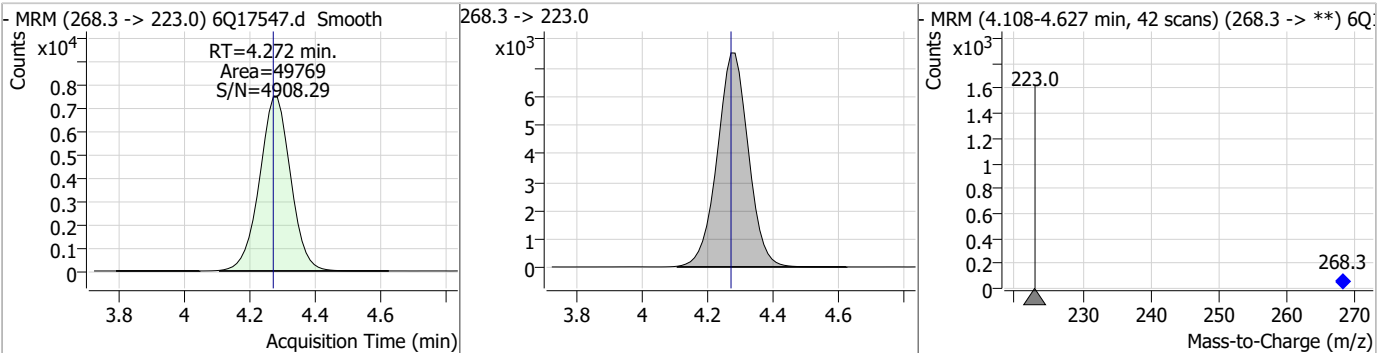


Perfluorinated Compounds by LC/MS/MS

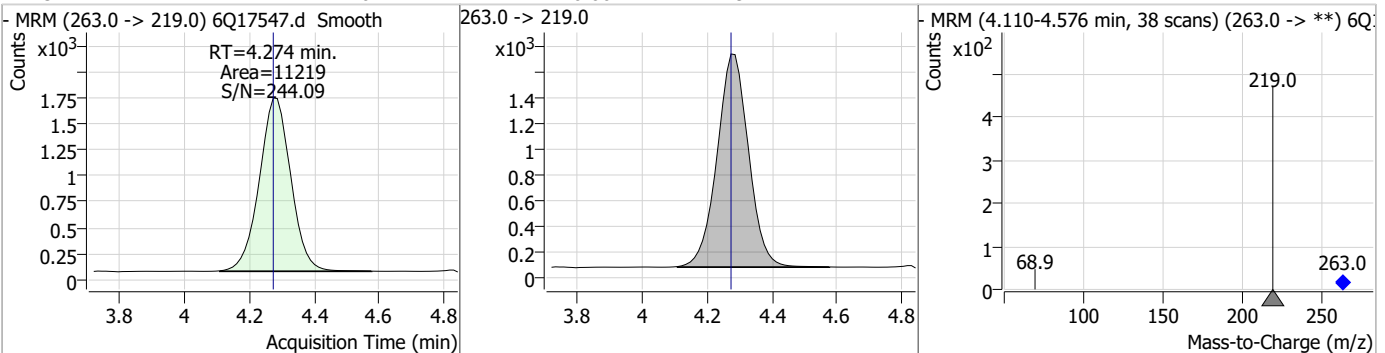
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.94	3.79	0.00	1804	241.0 -> 117.0	13.9	6.8	20.4



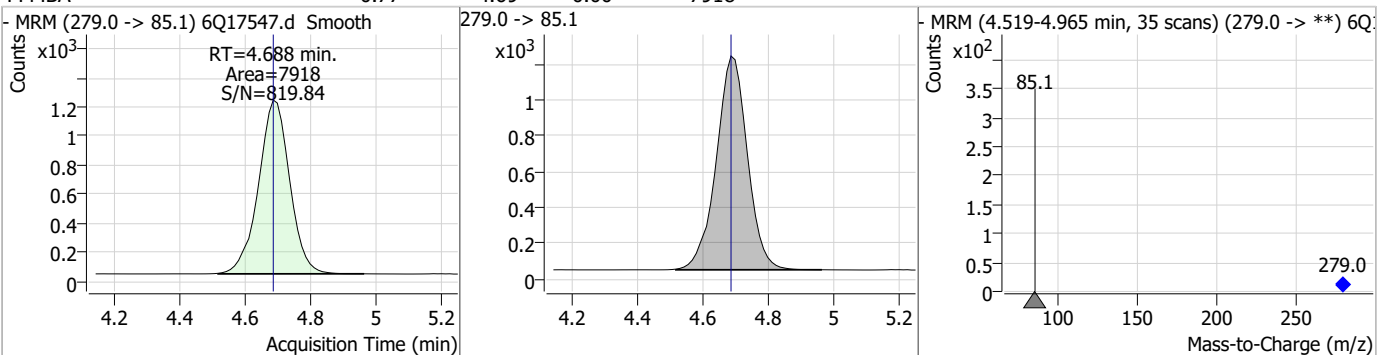
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.26	4.27	0.00	49769				



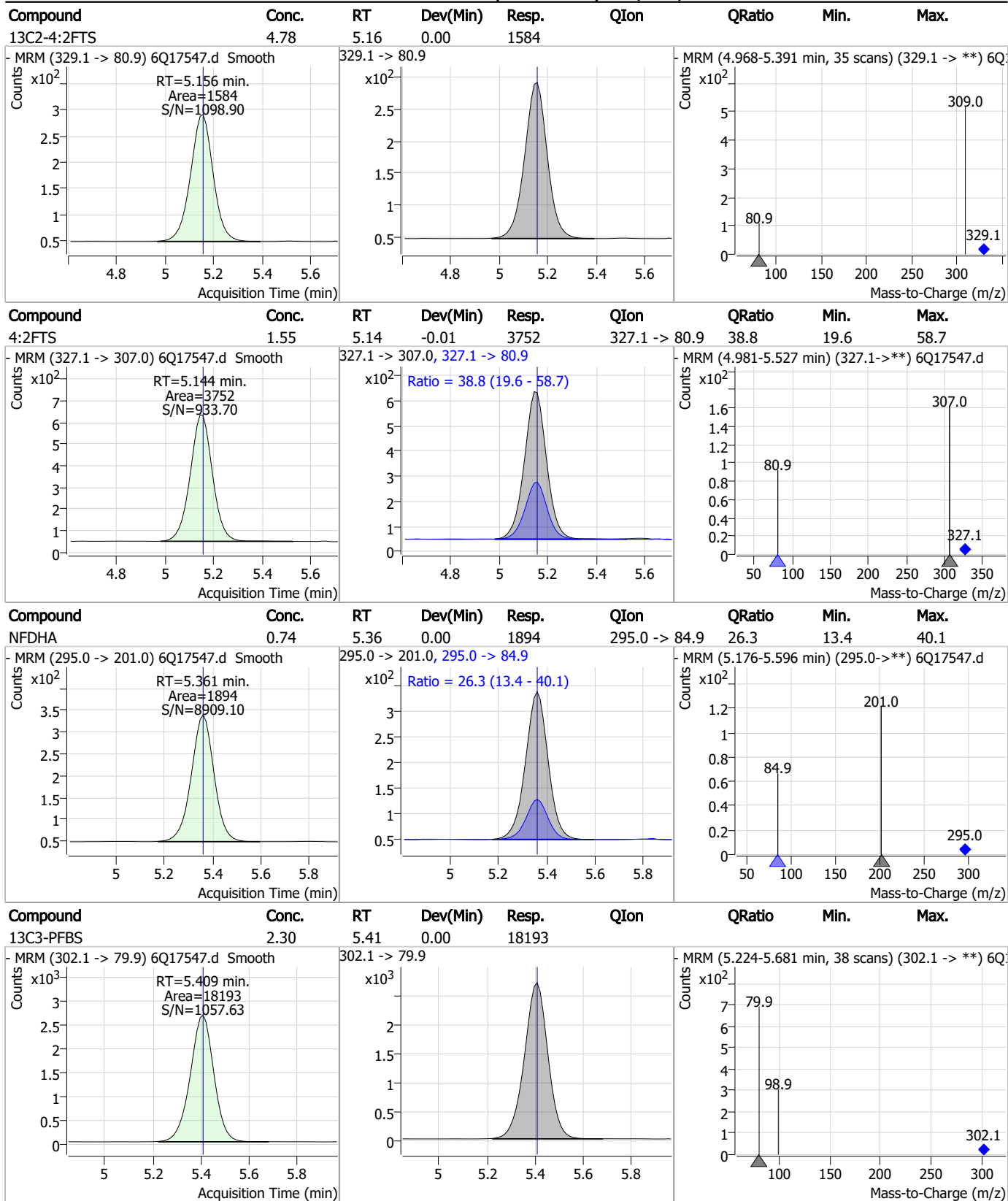
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.77	4.27	0.00	11219				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.77	4.69	0.00	7918				



Perfluorinated Compounds by LC/MS/MS

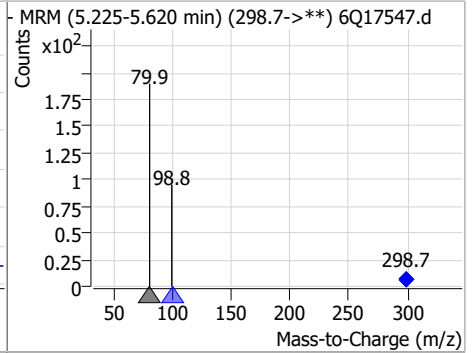
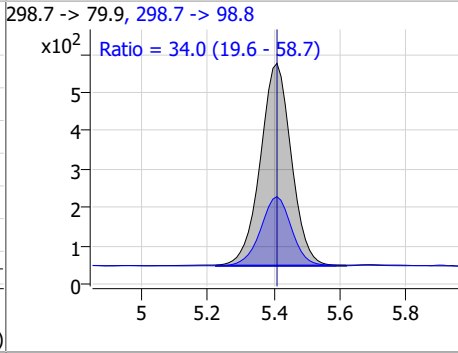
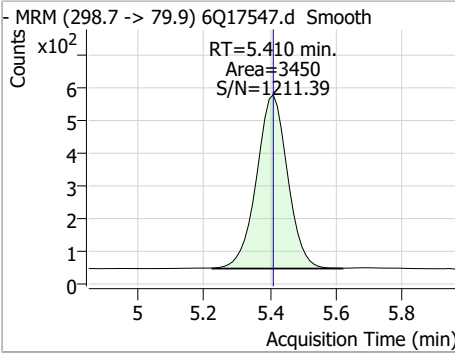


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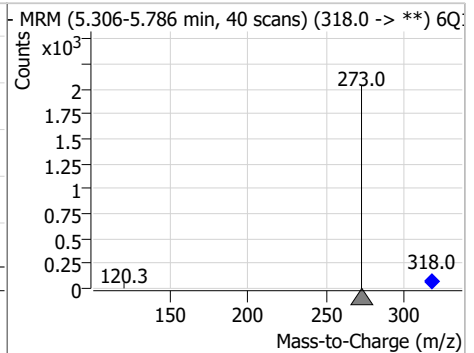
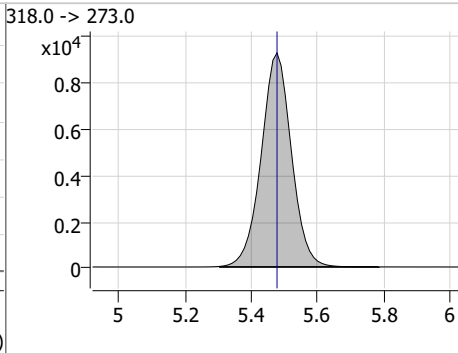
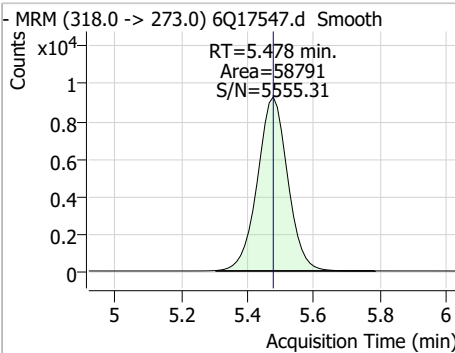
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Perfluorinated Compounds by LC/MS/MS

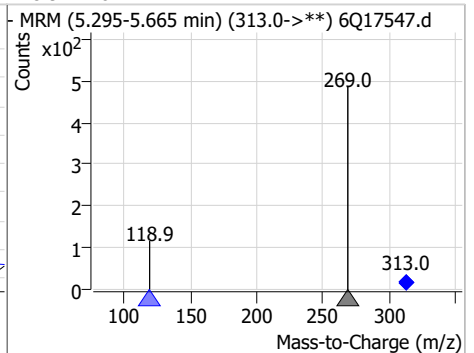
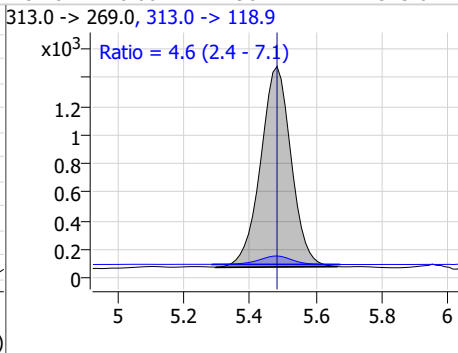
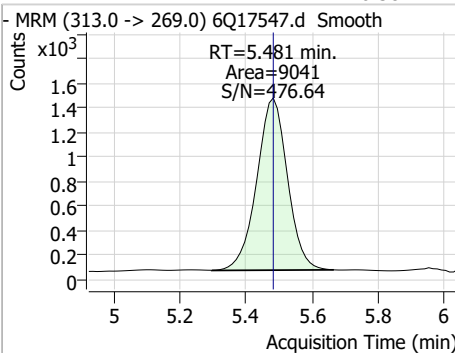
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.38	5.41	0.00	3450	298.7 -> 98.8	34.0	19.6	58.7



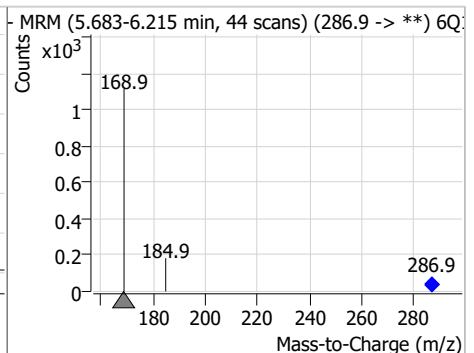
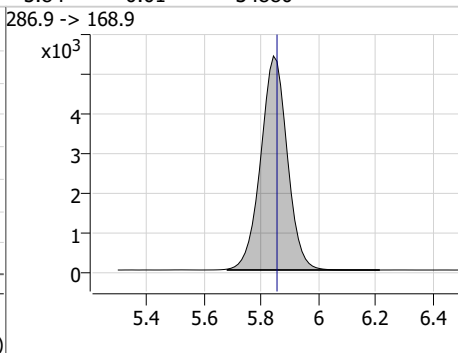
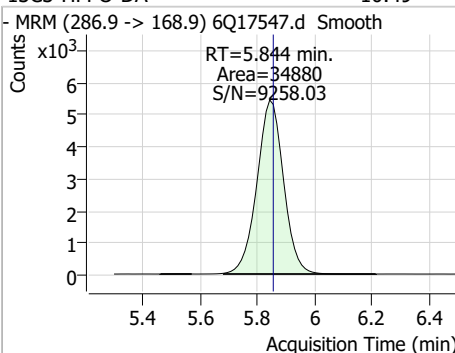
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.70	5.48	0.00	58791	318.0 -> 273.0	4.6	2.4	7.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.38	5.48	0.00	9041	313.0 -> 118.9	4.6	2.4	7.1

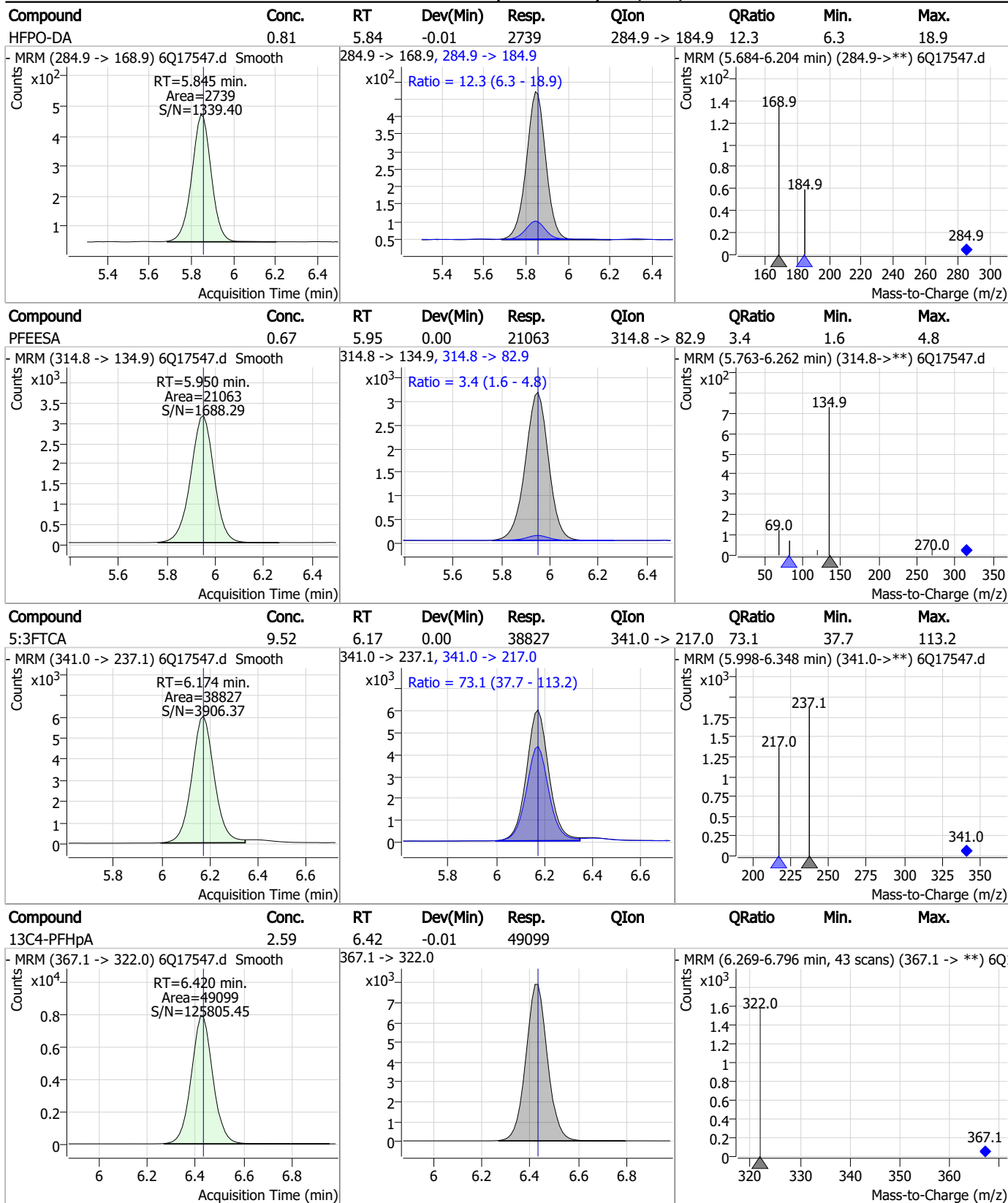


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.49	5.84	-0.01	34880	286.9 -> 168.9	4.6	2.4	7.1



7.7.20 7

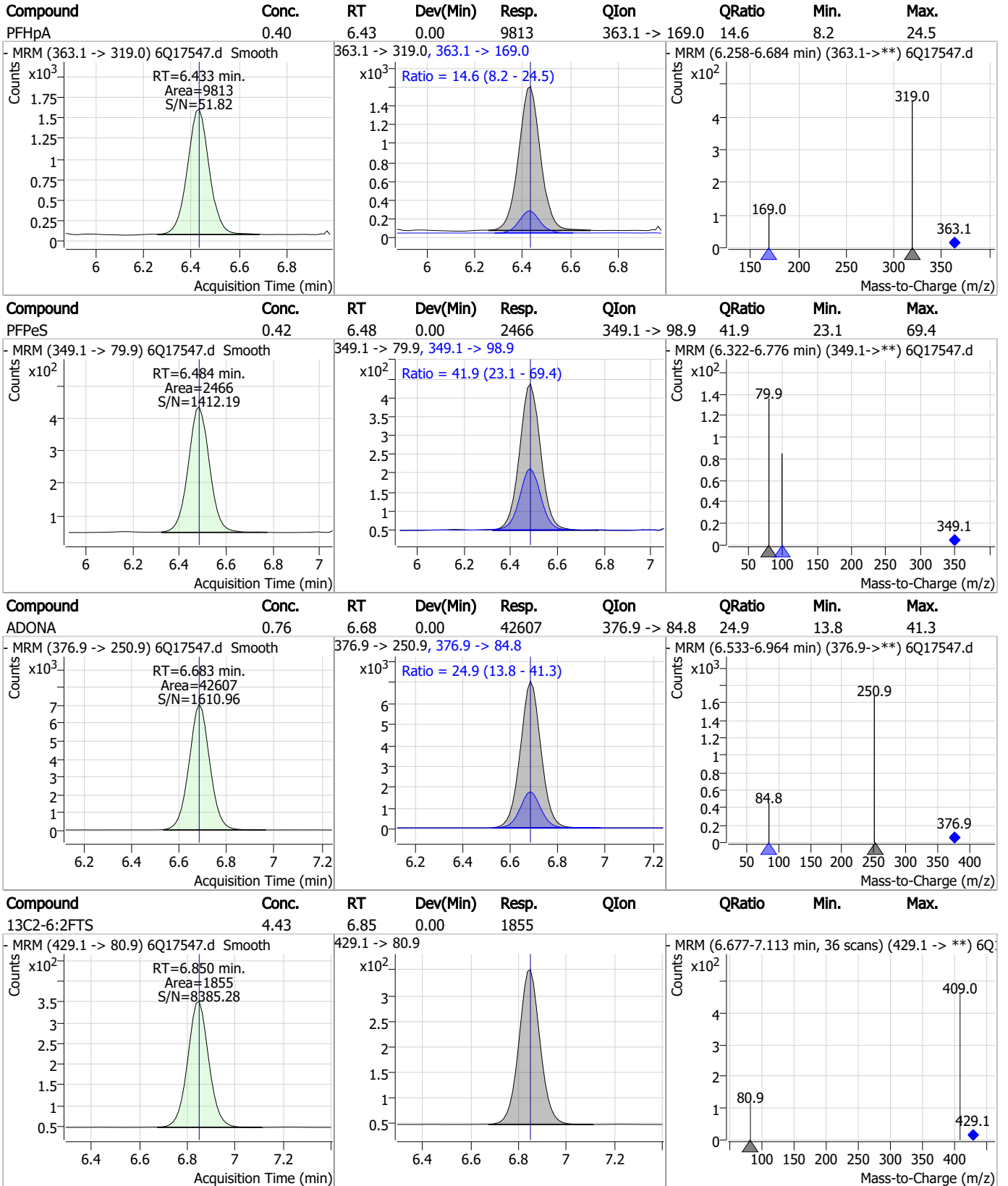
Perfluorinated Compounds by LC/MS/MS



7.7.20
7



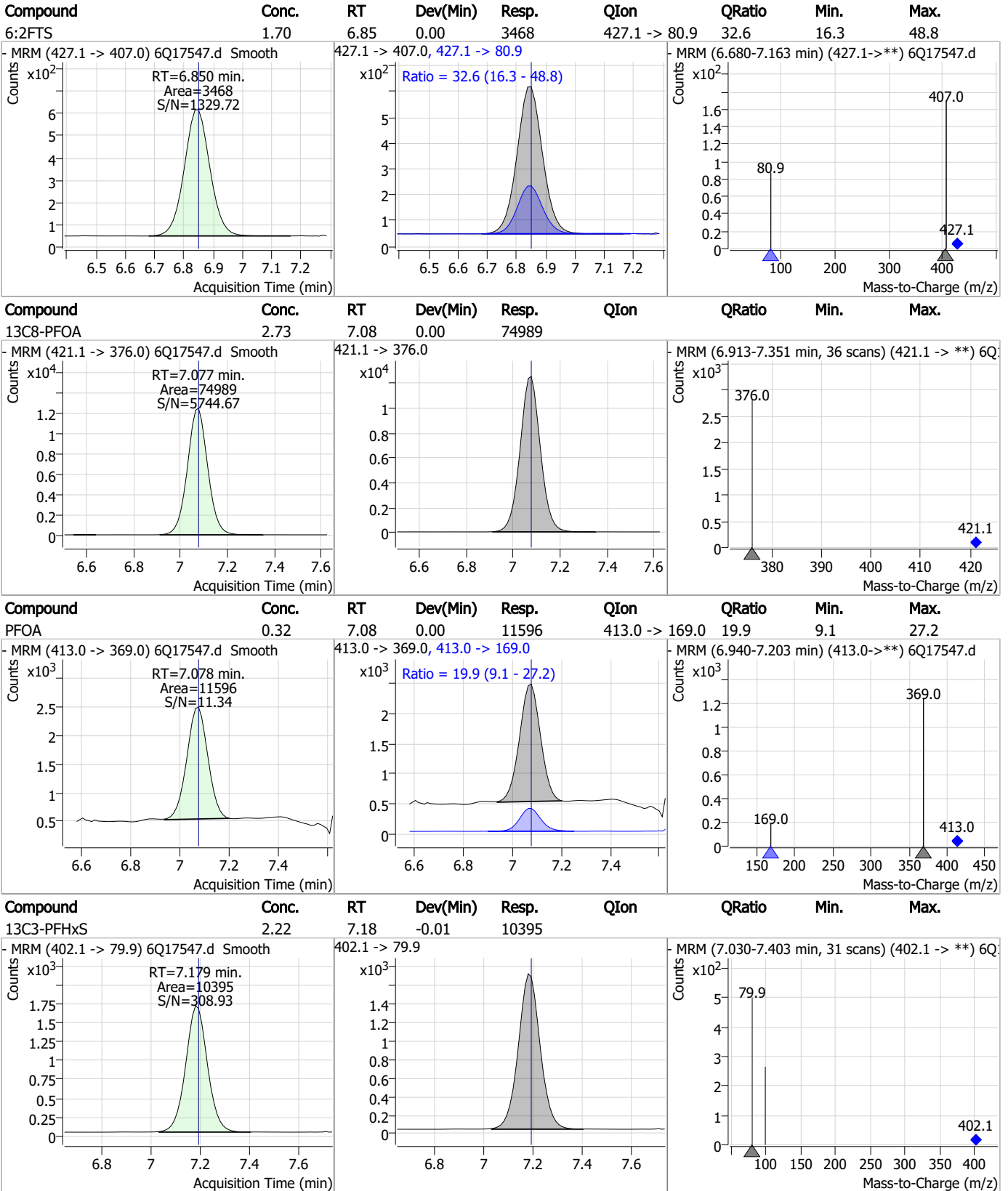
Perfluorinated Compounds by LC/MS/MS



7.7.20
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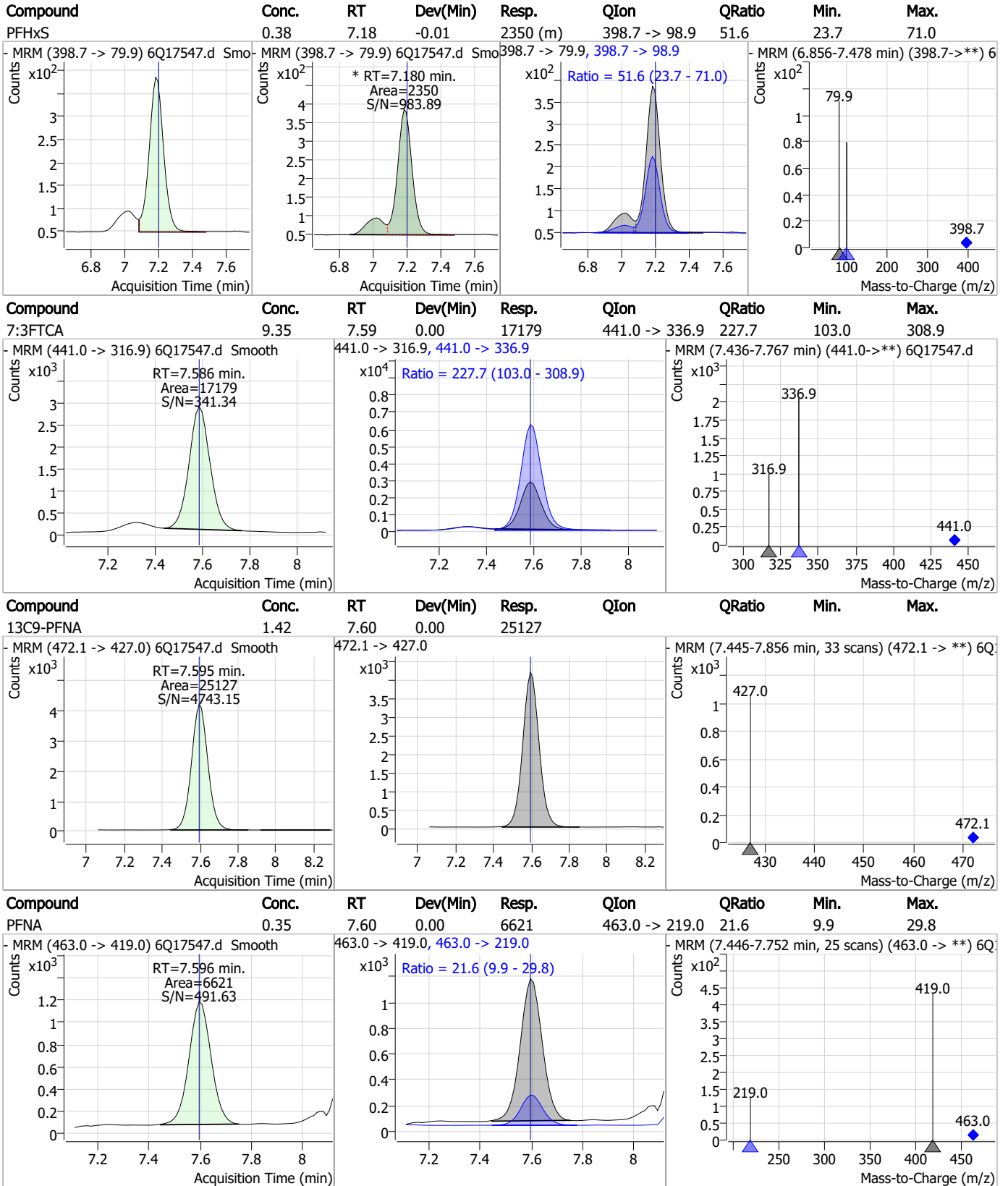
Perfluorinated Compounds by LC/MS/MS



7.7.20
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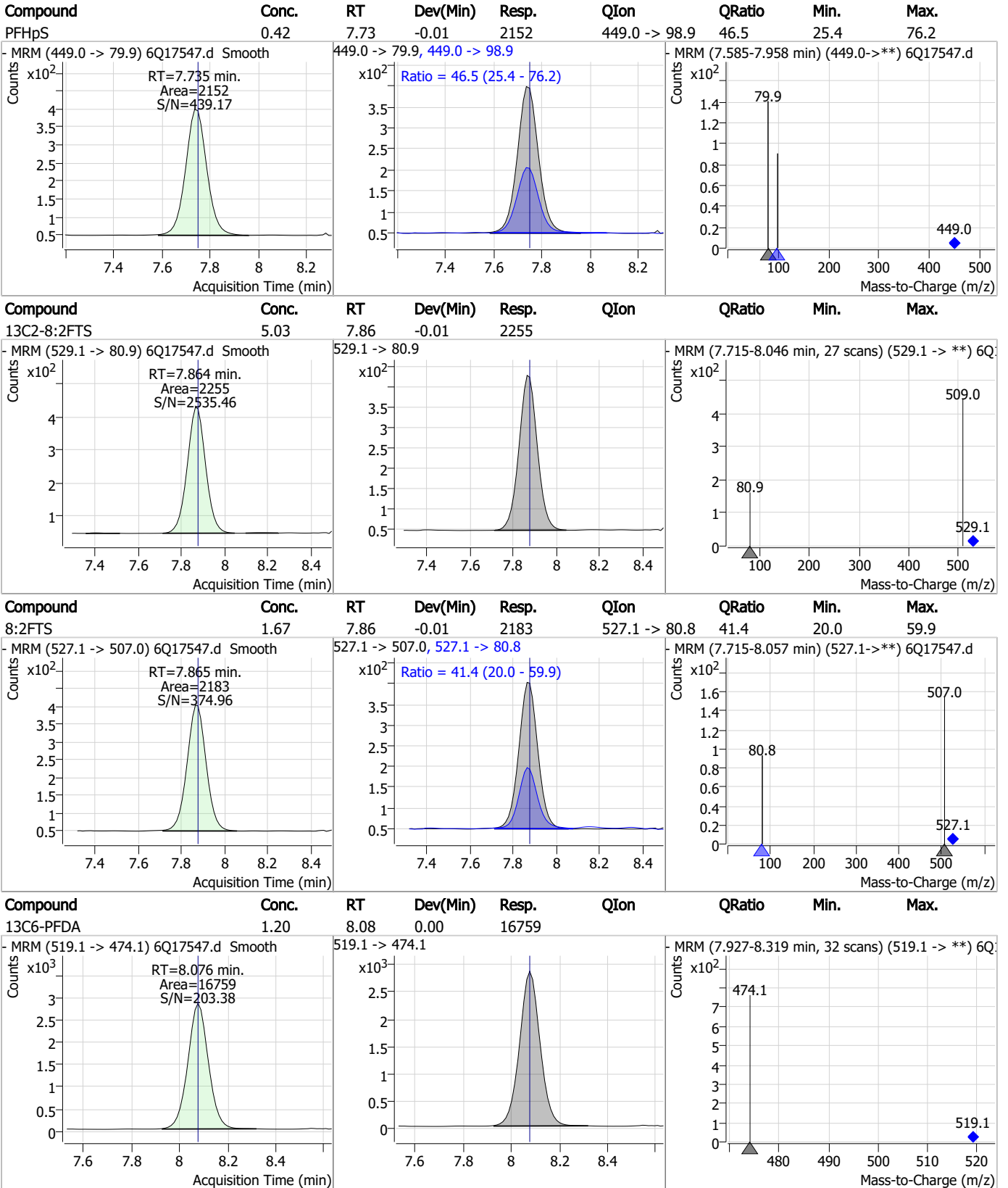
Perfluorinated Compounds by LC/MS/MS



7.7.20 7



Perfluorinated Compounds by LC/MS/MS

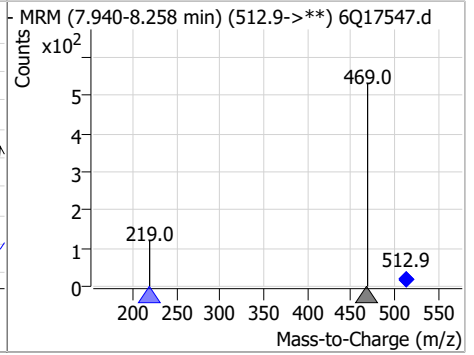
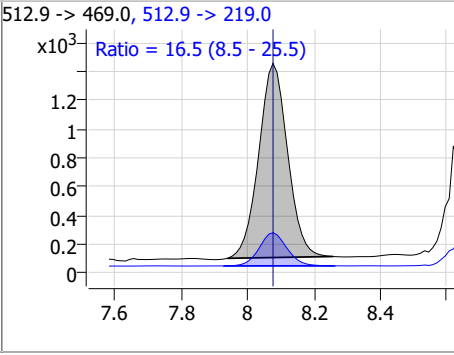
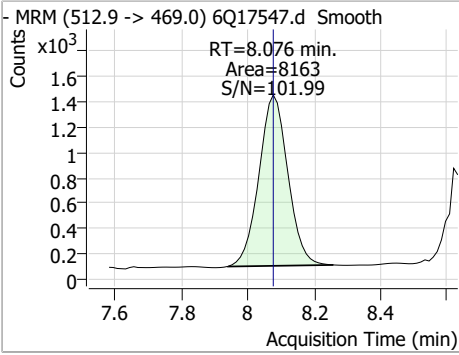


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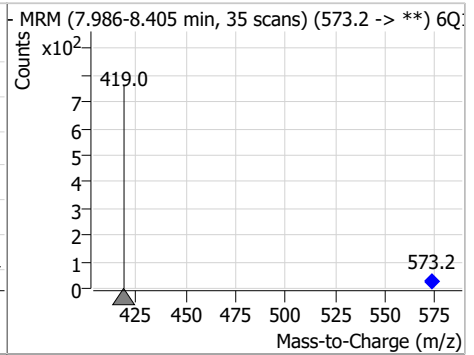
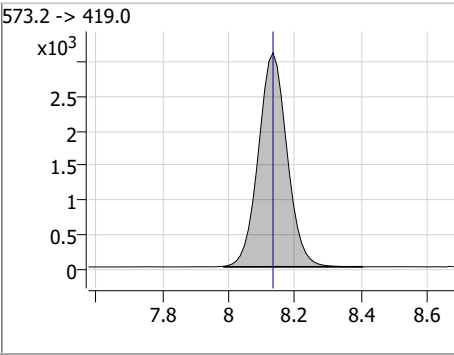
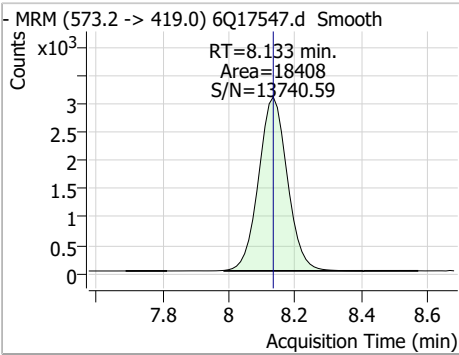


Perfluorinated Compounds by LC/MS/MS

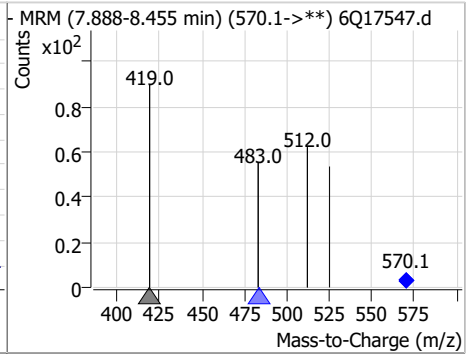
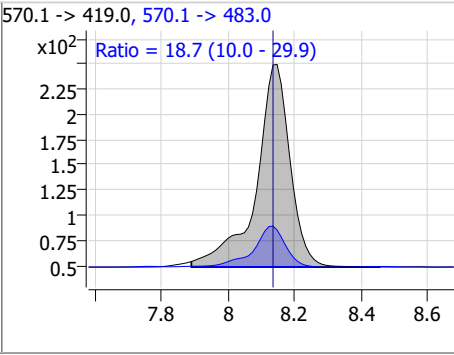
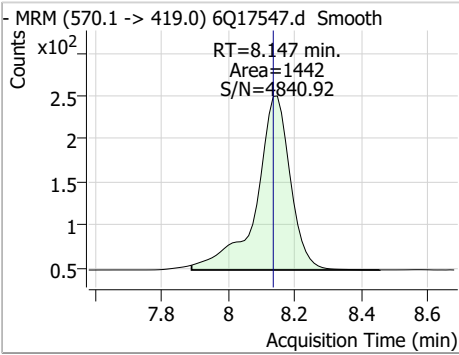
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.39	8.08	0.00	8163	512.9 -> 219.0	16.5	8.5	25.5



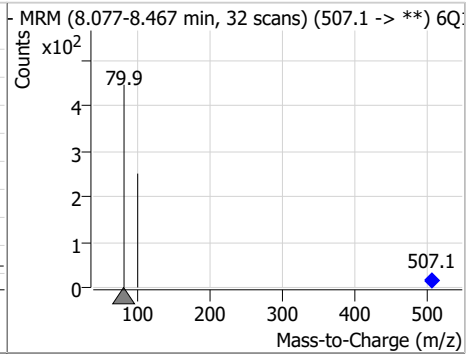
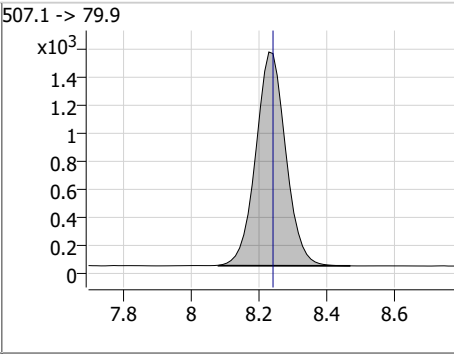
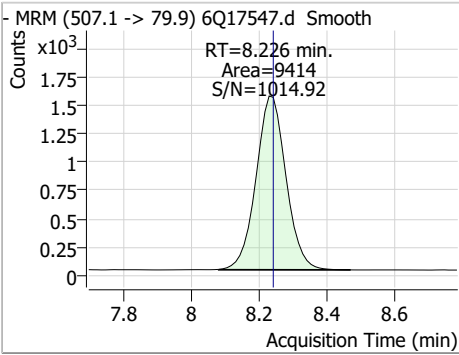
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.08	8.13	0.00	18408				



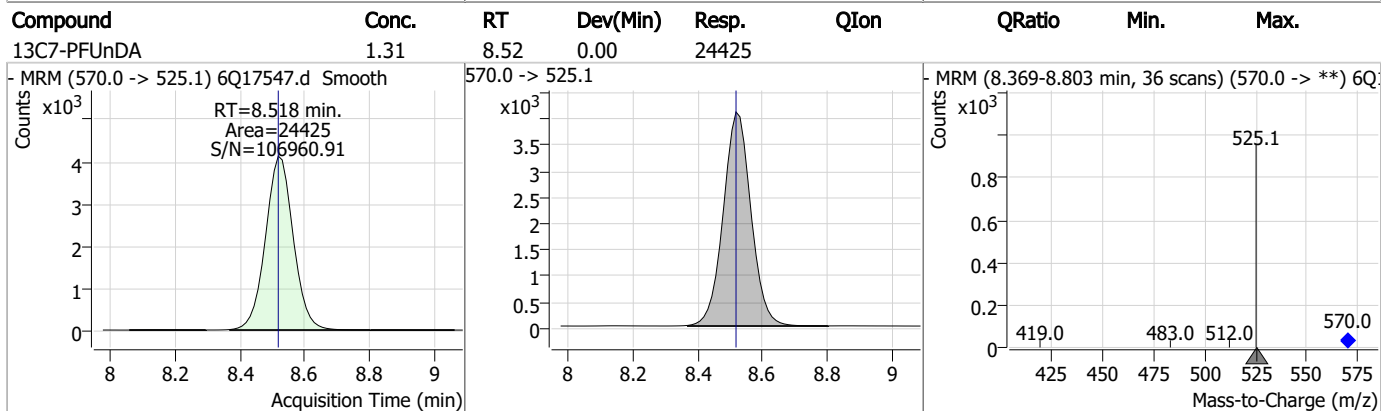
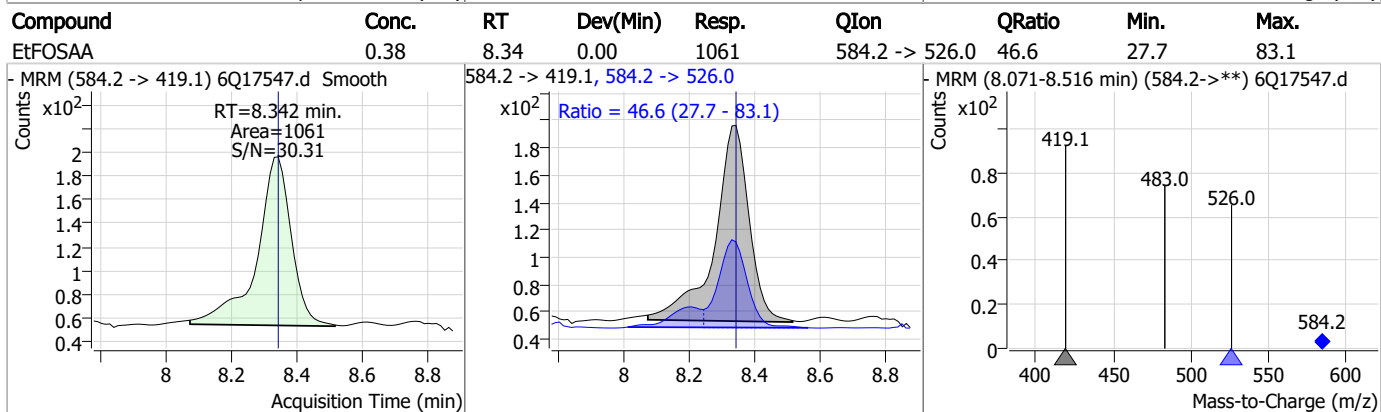
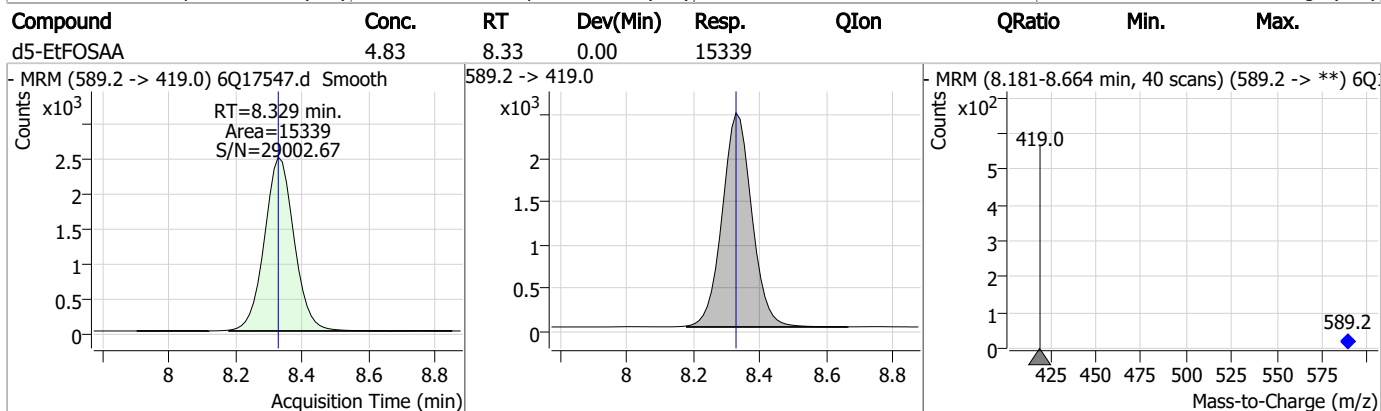
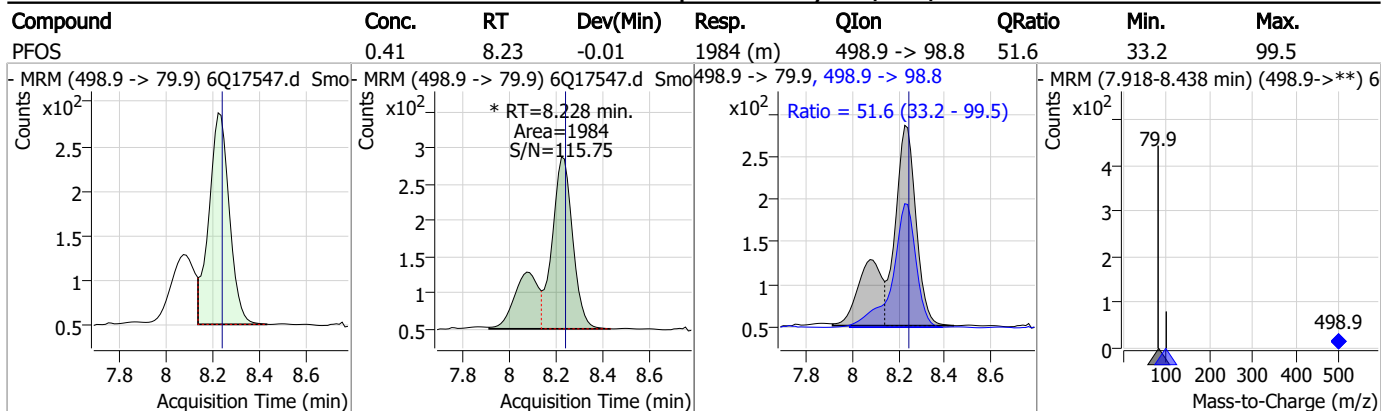
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.38	8.15	0.01	1442	570.1 -> 483.0	18.7	10.0	29.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.36	8.23	-0.01	9414				

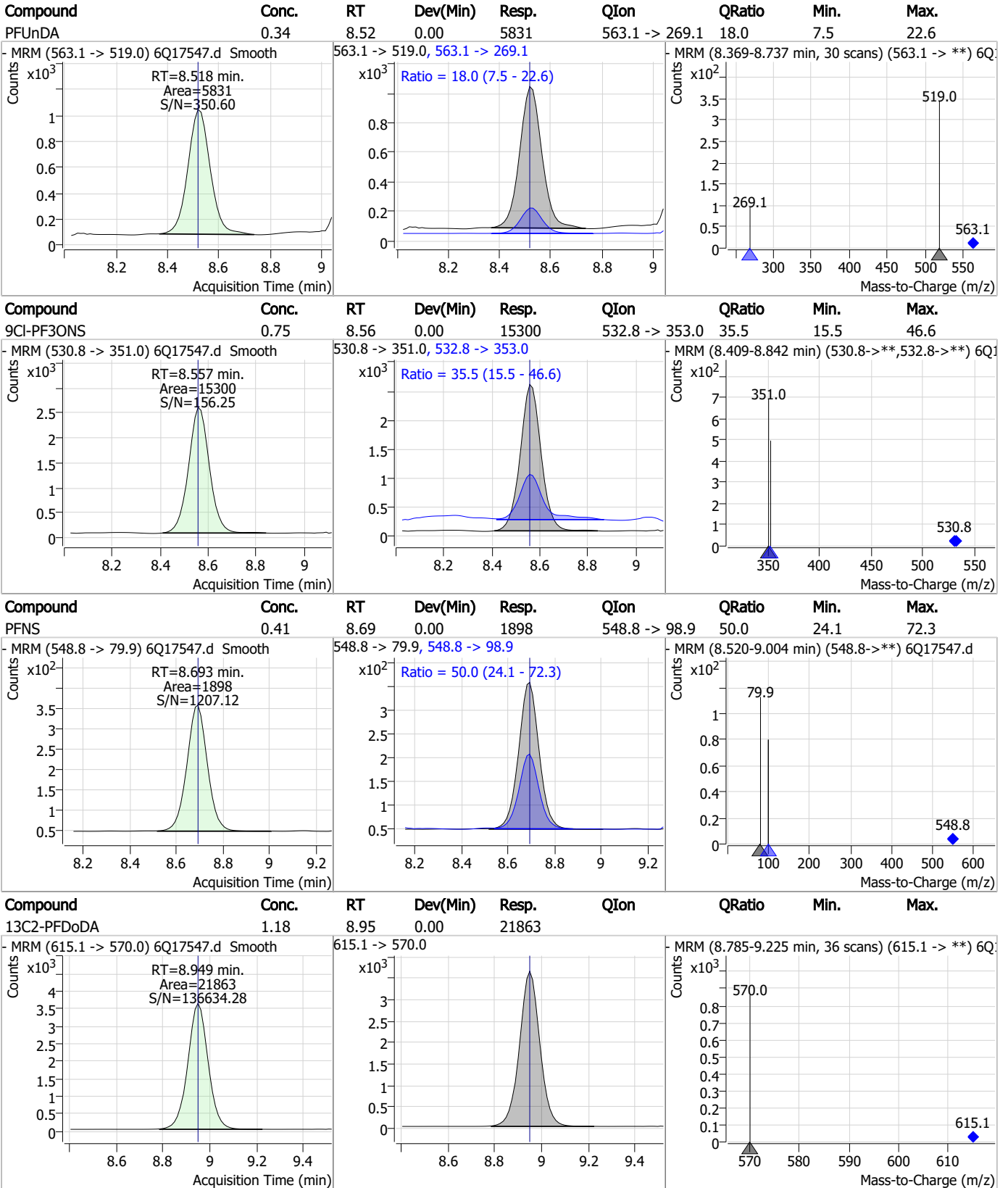


Perfluorinated Compounds by LC/MS/MS



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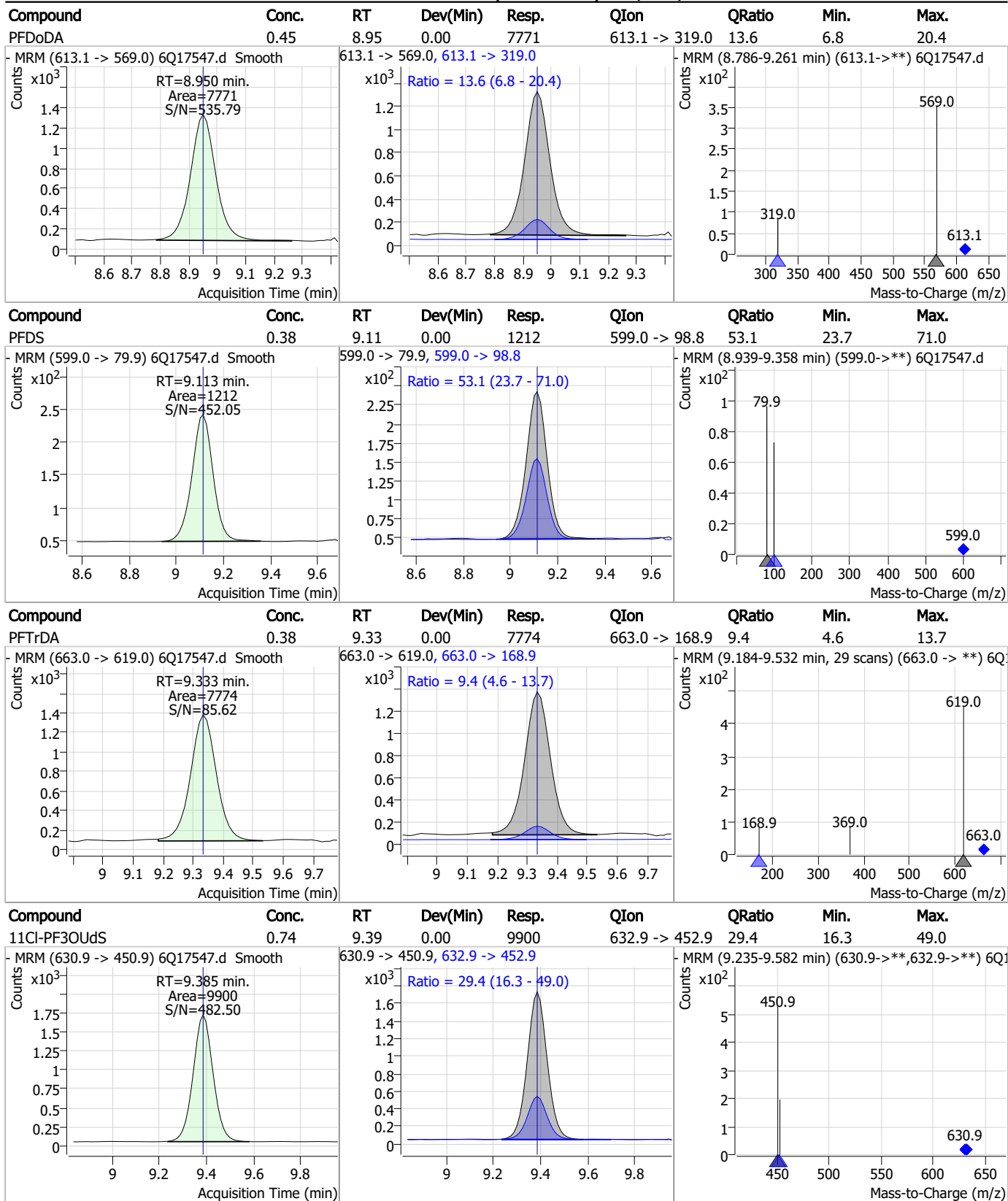
Perfluorinated Compounds by LC/MS/MS



7.7.20 7

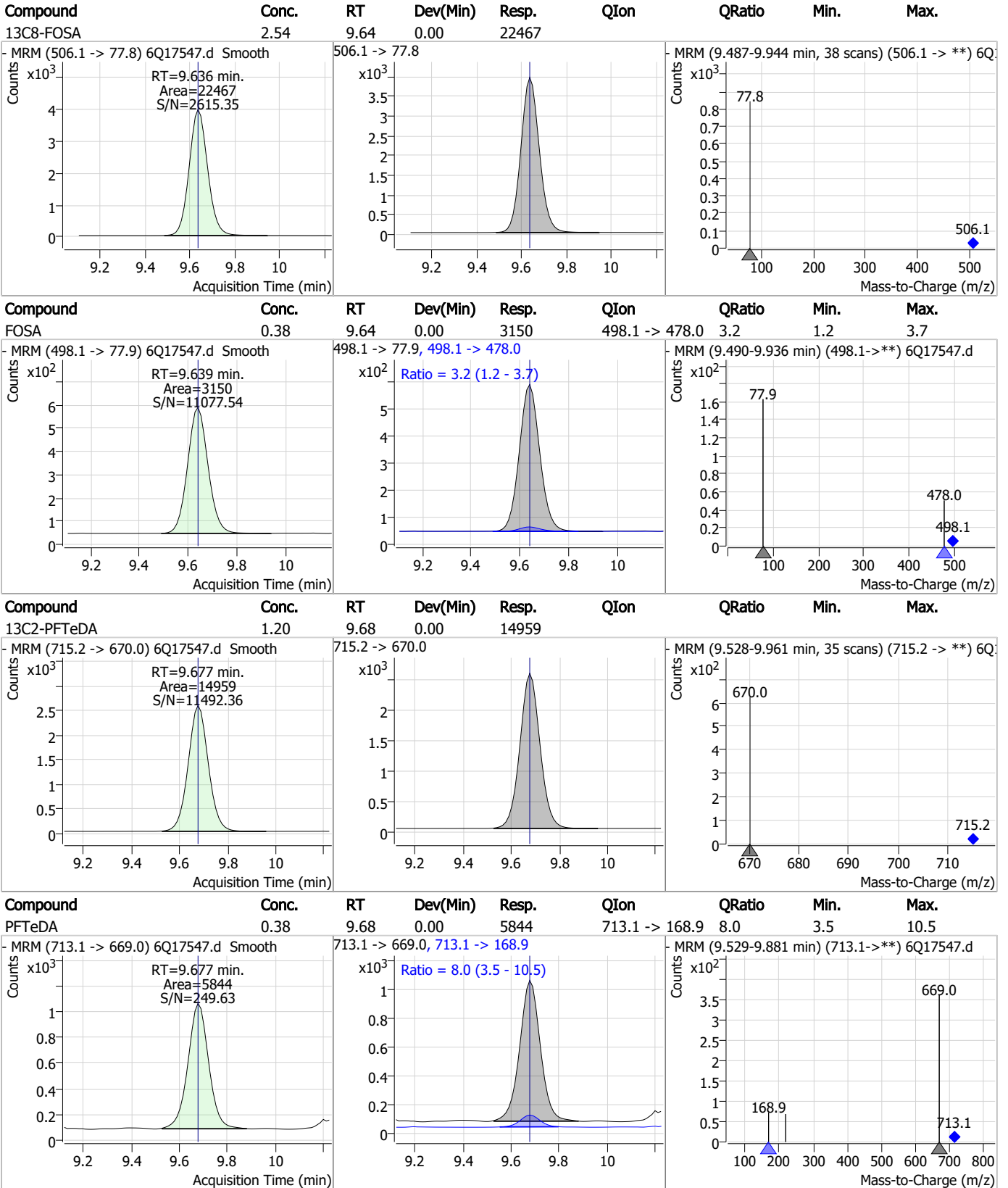


Perfluorinated Compounds by LC/MS/MS



7.7.20 7

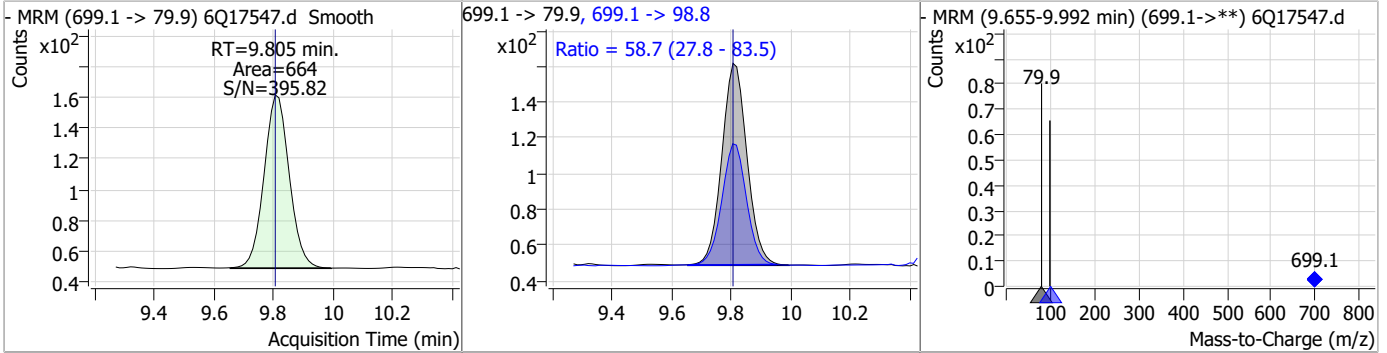
Perfluorinated Compounds by LC/MS/MS



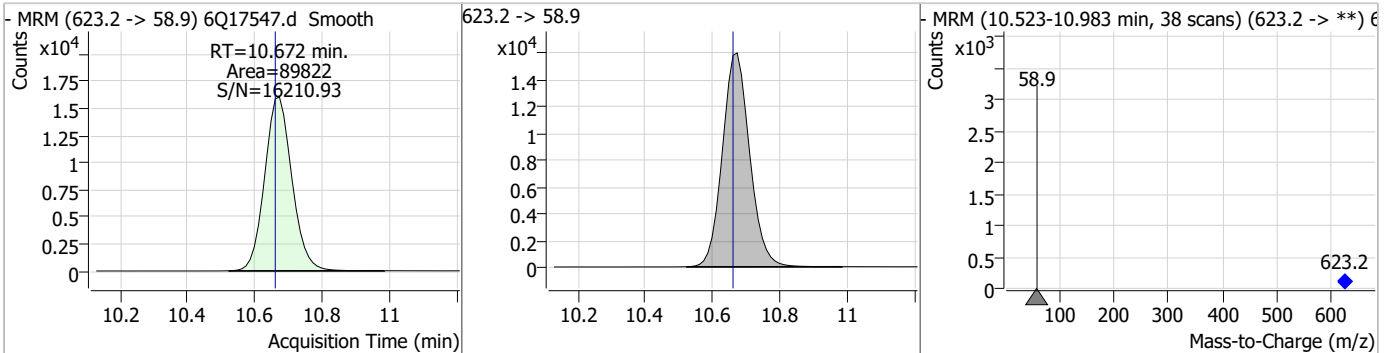
7.7.20 7

Perfluorinated Compounds by LC/MS/MS

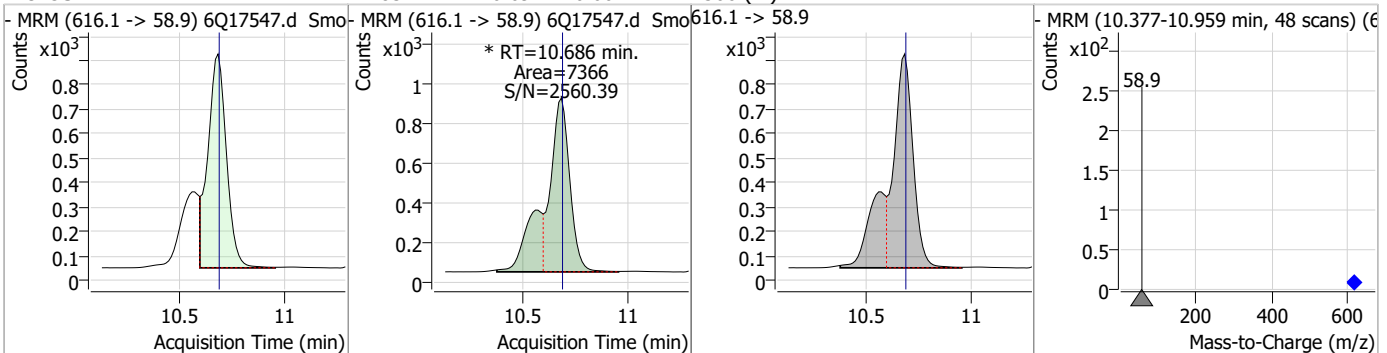
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.39	9.81	0.00	664	699.1 -> 98.8	58.7	27.8	83.5



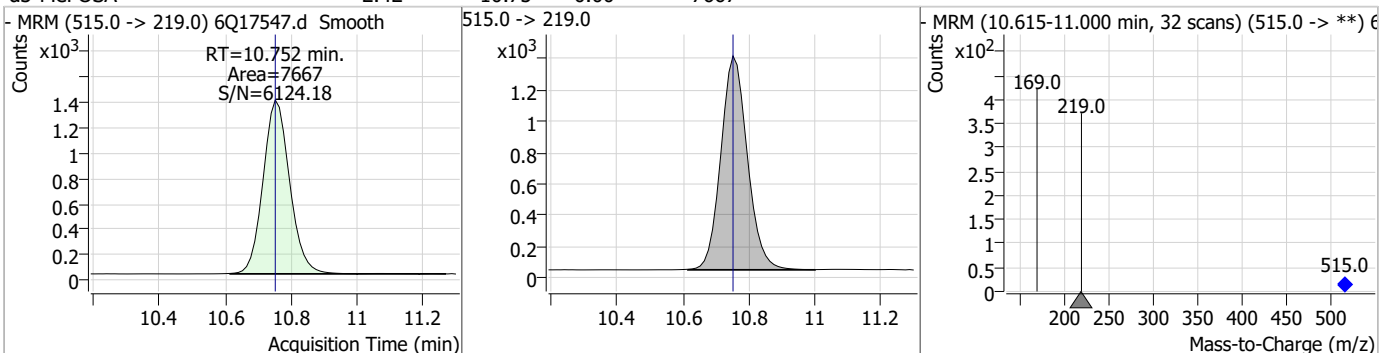
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.33	10.67	0.01	89822				



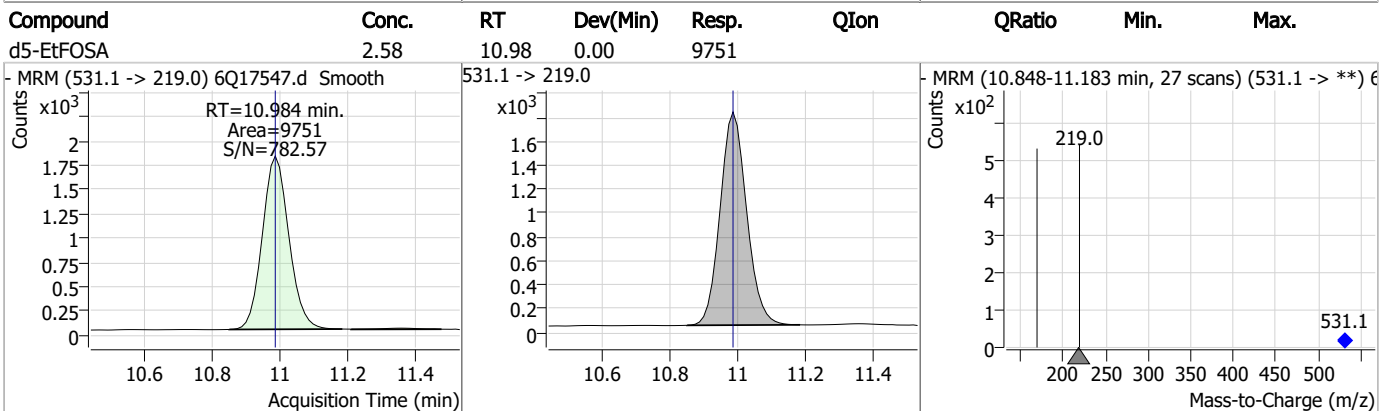
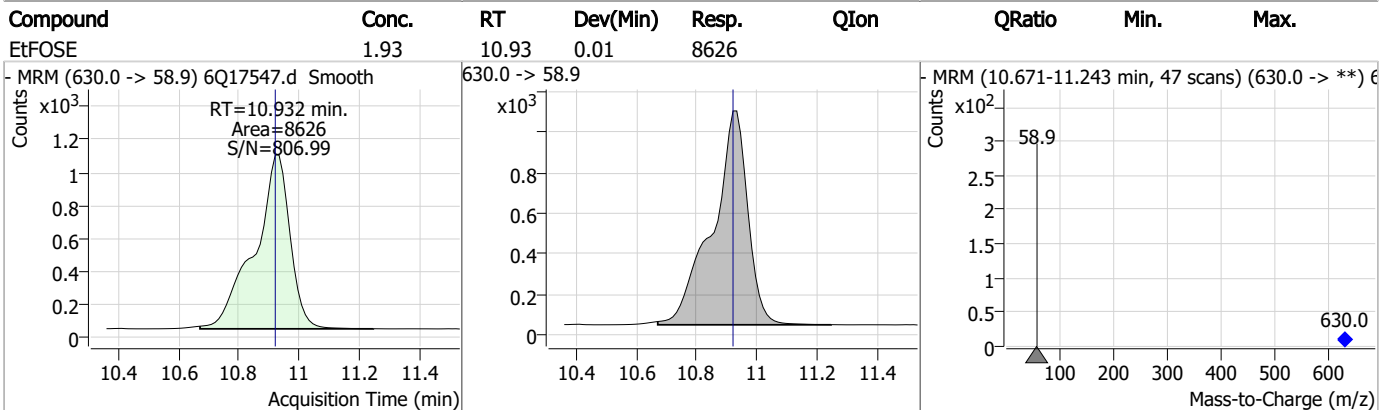
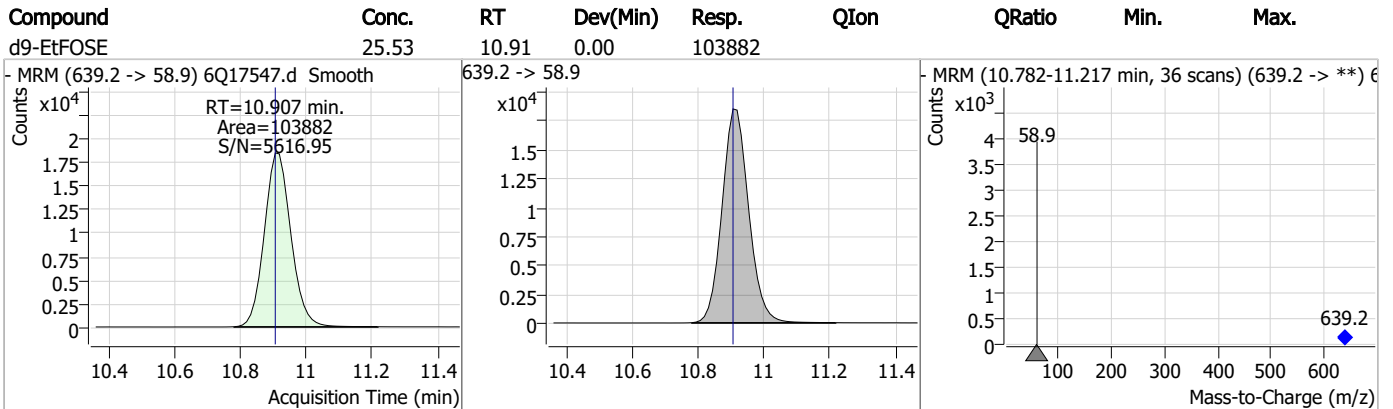
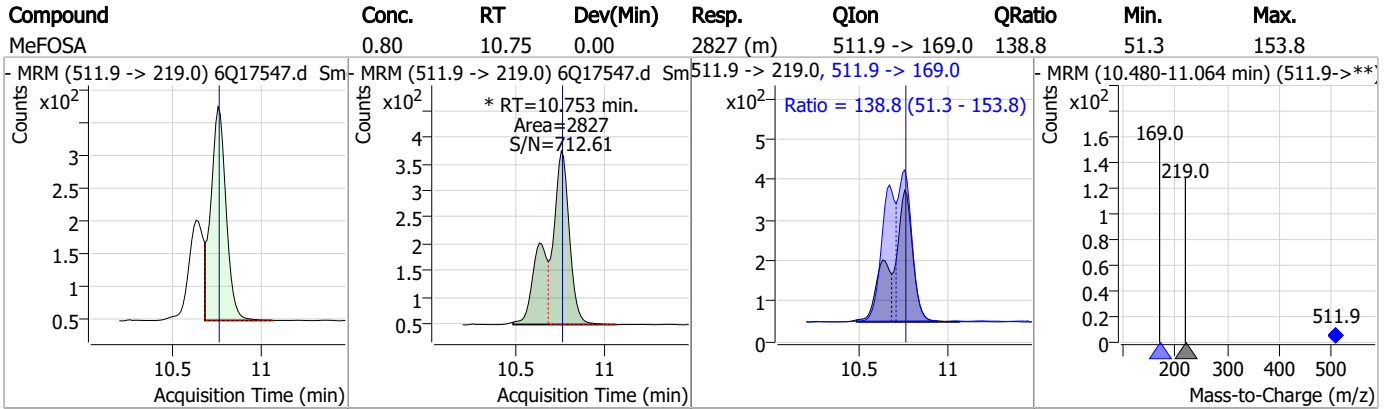
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.83	10.69	0.00	7366 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.42	10.75	0.00	7667				

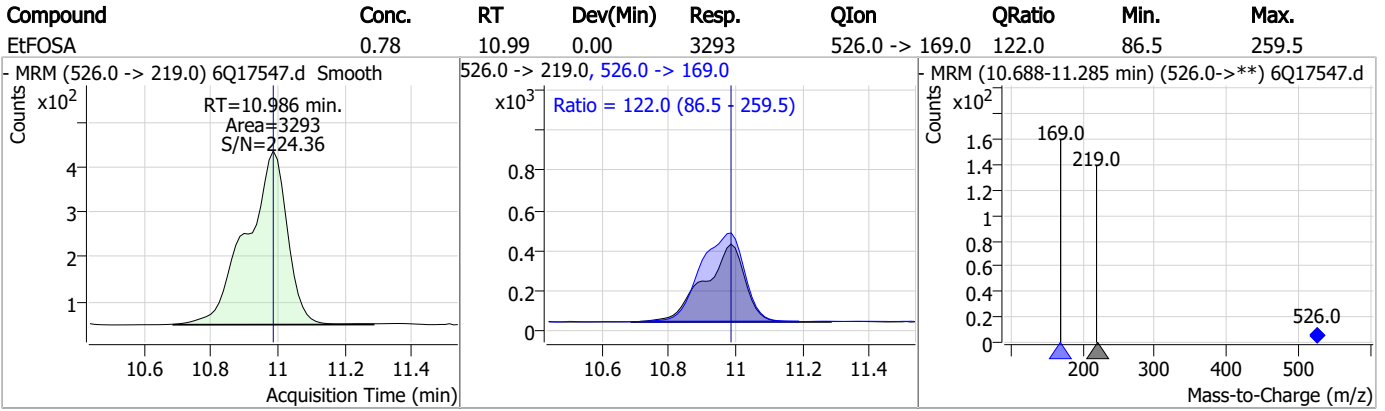


Perfluorinated Compounds by LC/MS/MS



7.7.20 7

Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q265-IC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17547.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 16:20 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSE	24448-09-7		10.69	Split peak
MeFOA	31506-32-8		10.75	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17548.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 4:35:05 PM
 Sample Name : ic265-3
 Vial : P1-A4
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	151516	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	48565	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	55059	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	47301	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	70849	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22419	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16937	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	20382	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	21207	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14682	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	21975	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	19740	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10928	2.50 µg/L	-0.012
M8-PFOS	8.226	507.1 -> 79.9	9672	2.50 µg/L	-0.012
M2-4:2FTS	5.143	329.1 -> 80.9	1552	5.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	2048	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2269	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	18073	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	31749	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	15289	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	93419	25.00 µg/L	0.012
M9-EtFOSE	10.907	639.2 -> 58.9	104796	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9051	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7694	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12051	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	63821	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7939	2.50 µg/L	-0.012
13C4-PFOA	7.077	417.1 -> 372.0	69993	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	21870	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	24274	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	45692	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1552	5.29 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-6:2FTS	6.850	429.1 -> 80.9	2048	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2269	5.72 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.4%		
13C2-PFDoDA	8.949	615.1 -> 570.0	21207	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.5%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14682	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C3-PFBS	5.409	302.1 -> 79.9	19740	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	10928	2.64 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 = 105.7%	
13C4-PFBA	2.913	216.8 -> 171.9	151516	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.432	367.1 -> 322.0	47301	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C5-PFHxA	5.478	318.0 -> 273.0	55059	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.272	268.3 -> 223.0	48565	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C6-PFDA	8.076	519.1 -> 474.1	16937	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C7-PFUnDA	8.518	570.0 -> 525.1	20382	1.06 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 85.0%	
13C8-FOSA	9.636	506.1 -> 77.8	21975	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C8-PFOA	7.077	421.1 -> 376.0	70849	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-PFOS	8.226	507.1 -> 79.9	9672	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C9-PFNA	7.595	472.1 -> 427.0	22419	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
d3-MeFOSAA	8.133	573.2 -> 419.0	18073	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	31749	9.36 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
d3-MeFOSA	10.752	515.0 -> 219.0	7694	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15289	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d7-MeFOSE	10.672	623.2 -> 58.9	93419	28.24 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	104796	27.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
d5-EtFOSA	10.984	531.1 -> 219.0	9051	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
Target Compounds					QValue
4:2FTS	5.156	327.1 -> 307.0	11230	4.74 µg/L	92
		327.1 -> 80.9	3828		
6:2FTS	6.850	427.1 -> 407.0	10723	4.76 µg/L	99
		427.1 -> 80.9	3532		
8:2FTS	7.865	527.1 -> 507.0	5993	4.55 µg/L	99
		527.1 -> 80.8	2370		
EtFOSAA	8.330	584.2 -> 419.1	3386	1.23 µg/L	92
		584.2 -> 526.0	1690		
FOSA	9.639	498.1 -> 77.9	9645	1.20 µg/L	98
		498.1 -> 478.0	304		
MeFOSAA	8.134	570.1 -> 419.0	4559	1.22 µg/L	95
		570.1 -> 483.0	809		
PFBA	2.907	212.8 -> 168.9	26416	4.87 µg/L	100
PFBS	5.410	298.7 -> 79.9	10294	1.05 µg/L	97
		298.7 -> 98.8	3826		
PFDA	8.076	512.9 -> 469.0	24944	1.19 µg/L	100
		512.9 -> 219.0	4213		
PFDoDA	8.950	613.1 -> 569.0	20218	1.20 µg/L	100
		613.1 -> 319.0	2778		
PFDS	9.101	599.0 -> 79.9	4119	1.26 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1897			
PFHpA	6.433	363.1 -> 319.0	30012	1.26	µg/L	99
		363.1 -> 169.0	4765			
PFHpS	7.735	449.0 -> 79.9	6082	1.17	µg/L	96
		449.0 -> 98.9	3269			
PFHxA	5.481	313.0 -> 269.0	26399	1.18	µg/L	100
		313.0 -> 118.9	1225			
PFHxS	7.180	398.7 -> 79.9	7278	1.13	µg/L	m 95
		398.7 -> 98.9	3182			
PFNA	7.596	463.0 -> 419.0	20359	1.20	µg/L	98
		463.0 -> 219.0	4176			
PFNS	8.693	548.8 -> 79.9	5772	1.20	µg/L	96
		548.8 -> 98.9	2938			
PFOA	7.078	413.0 -> 369.0	43812	1.27	µg/L	96
		413.0 -> 169.0	7090			
PFOS	8.228	498.9 -> 79.9	6206	1.24	µg/L	m 77
		498.9 -> 98.8	2985			
PFPeA	4.287	263.0 -> 219.0	34592	2.44	µg/L	100
PFPeS	6.484	349.1 -> 79.9	7050	1.15	µg/L	98
		349.1 -> 98.9	3363			
PFTeDA	9.677	713.1 -> 669.0	19158	1.26	µg/L	100
		713.1 -> 168.9	1336			
PFTrDA	9.333	663.0 -> 619.0	25329	1.27	µg/L	99
		663.0 -> 168.9	2181			
PFUnDA	8.518	563.1 -> 519.0	19793	1.38	µg/L	95
		563.1 -> 269.1	3381			
11CI-PF3OUdS	9.385	630.9 -> 450.9	29623	2.44	µg/L	99
		632.9 -> 452.9	9477			
9CI-PF3ONS	8.557	530.8 -> 351.0	45385	2.44	µg/L	94
		532.8 -> 353.0	15582			
ADONA	6.683	376.9 -> 250.9	128914	2.53	µg/L	96
		376.9 -> 84.8	32594			
HFPO-DA	5.845	284.9 -> 168.9	7443	2.43	µg/L	93
		284.9 -> 184.9	1150			
3:3FTCA	3.790	241.0 -> 177.0	5233	5.78	µg/L	98
		241.0 -> 117.0	674			
5:3FTCA	6.174	341.0 -> 237.1	115392	30.21	µg/L	99
		341.0 -> 217.0	86356			
7:3FTCA	7.586	441.0 -> 316.9	53790	31.26	µg/L	97
		441.0 -> 336.9	113338			
EtFOSA	10.986	526.0 -> 219.0	10566	2.69	µg/L	m 60
		526.0 -> 169.0	12404			
EtFOSE	10.932	630.0 -> 58.9	27381	6.08	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	8641	2.45	µg/L	m 67
		511.9 -> 169.0	11727			
MeFOSE	10.686	616.1 -> 58.9	24294	5.81	µg/L	m 100
PFDoDS	9.805	699.1 -> 79.9	1976	1.14	µg/L	99
		699.1 -> 98.8	1114			
NFDHA	5.361	295.0 -> 201.0	5901	2.47	µg/L	99
		295.0 -> 84.9	1599			
PFMBA	4.688	279.0 -> 85.1	24866	2.48	µg/L	100
PFMPA	3.442	229.0 -> 84.9	17411	2.42	µg/L	100
PFEESA	5.950	314.8 -> 134.9	62502	2.14	µg/L	100
		314.8 -> 82.9	2086			

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

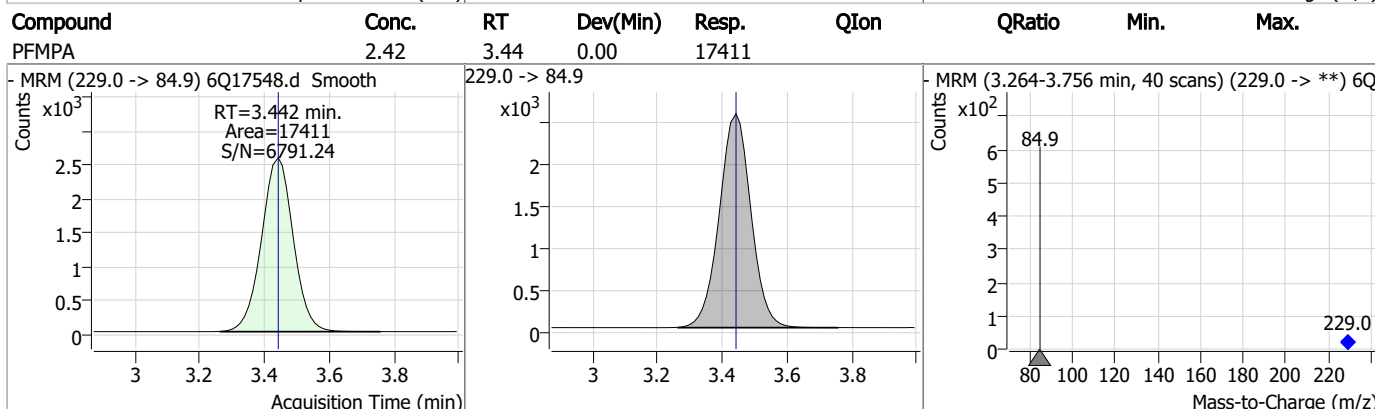
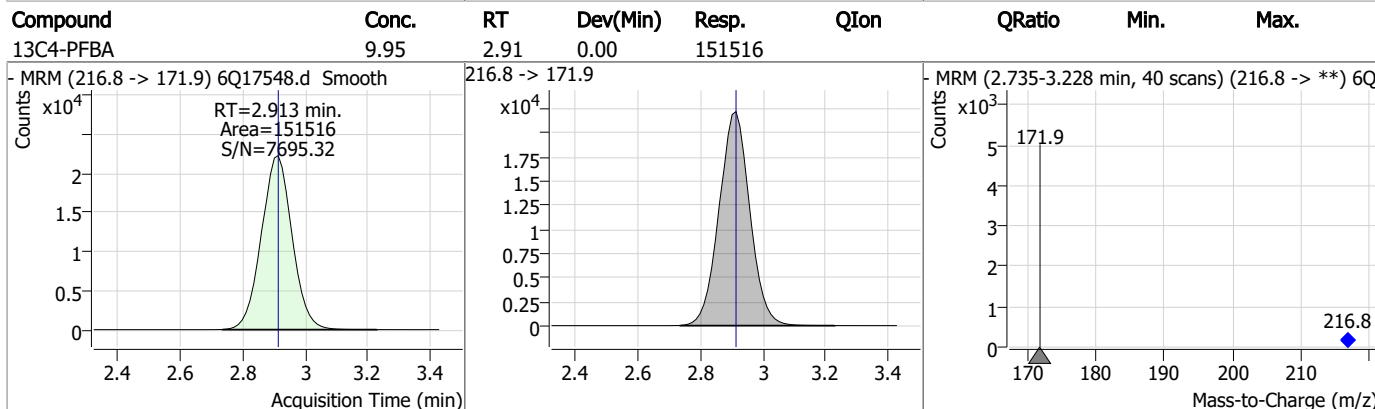
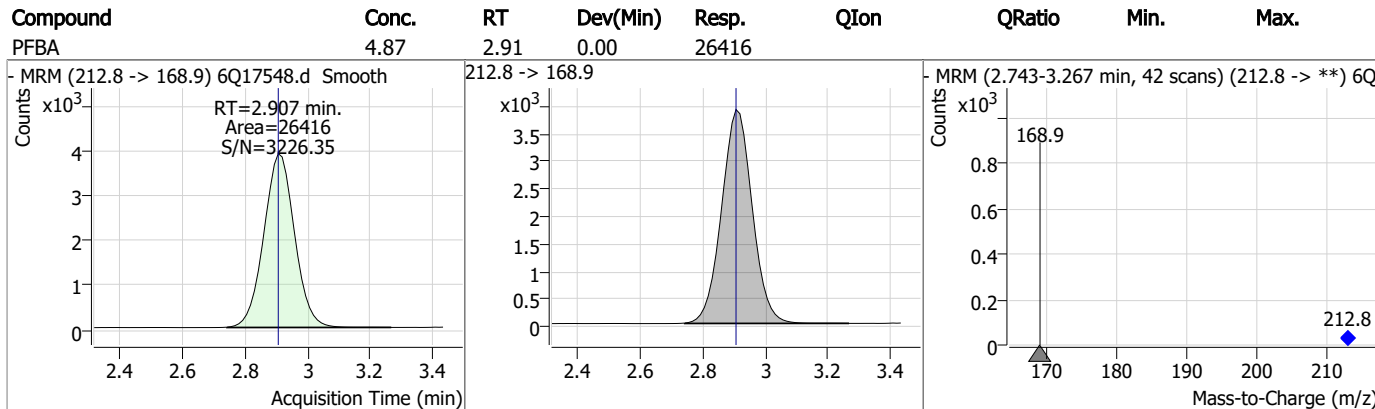
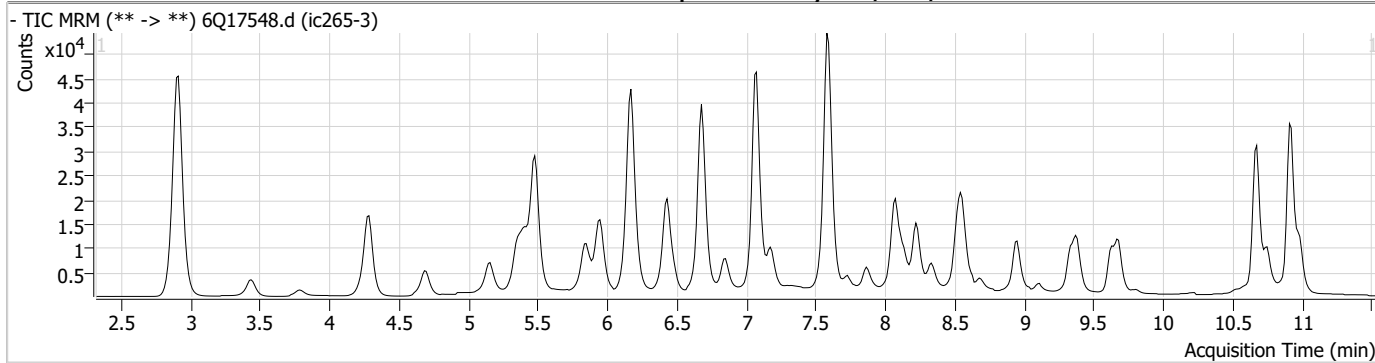
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.21

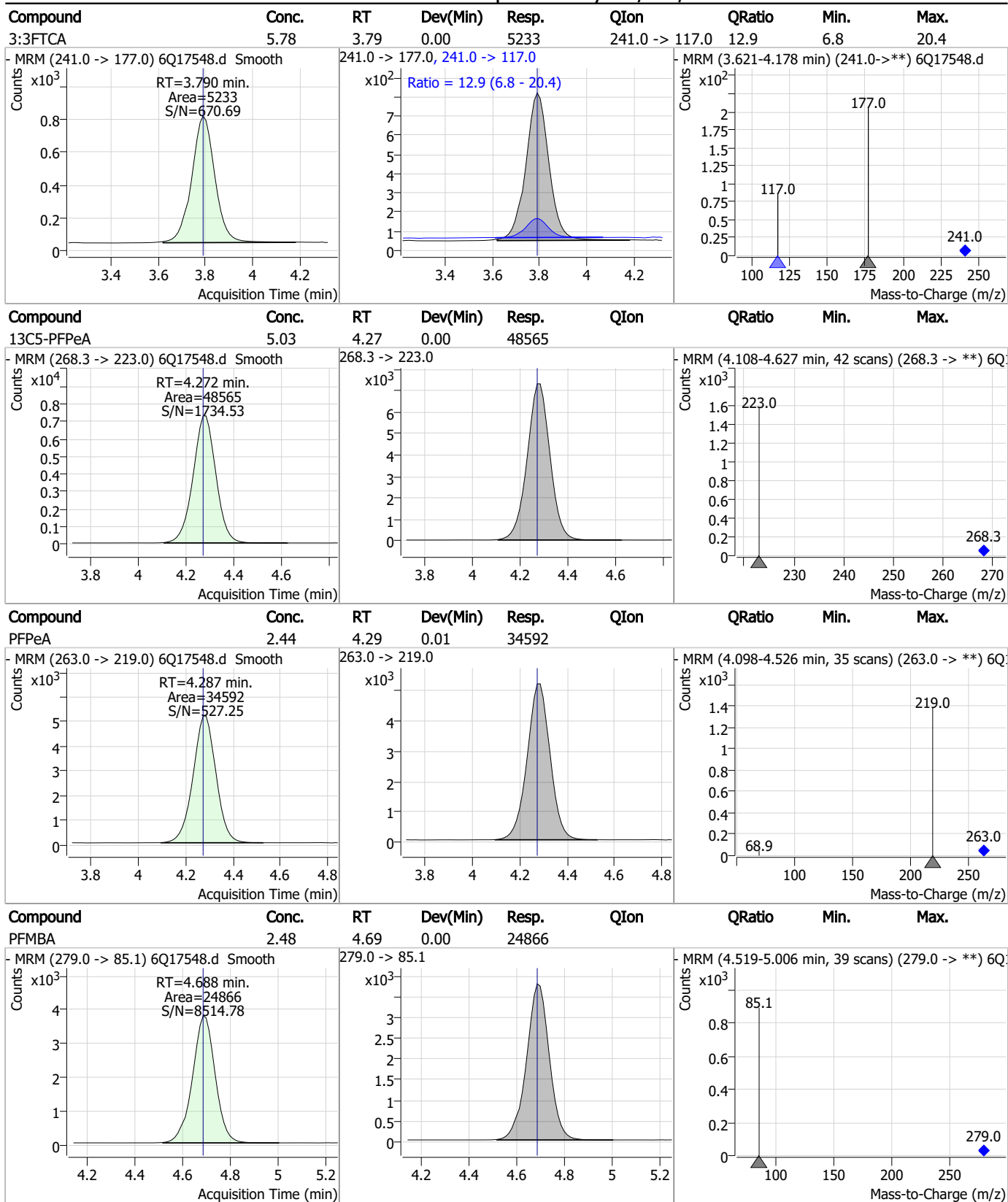
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Perfluorinated Compounds by LC/MS/MS



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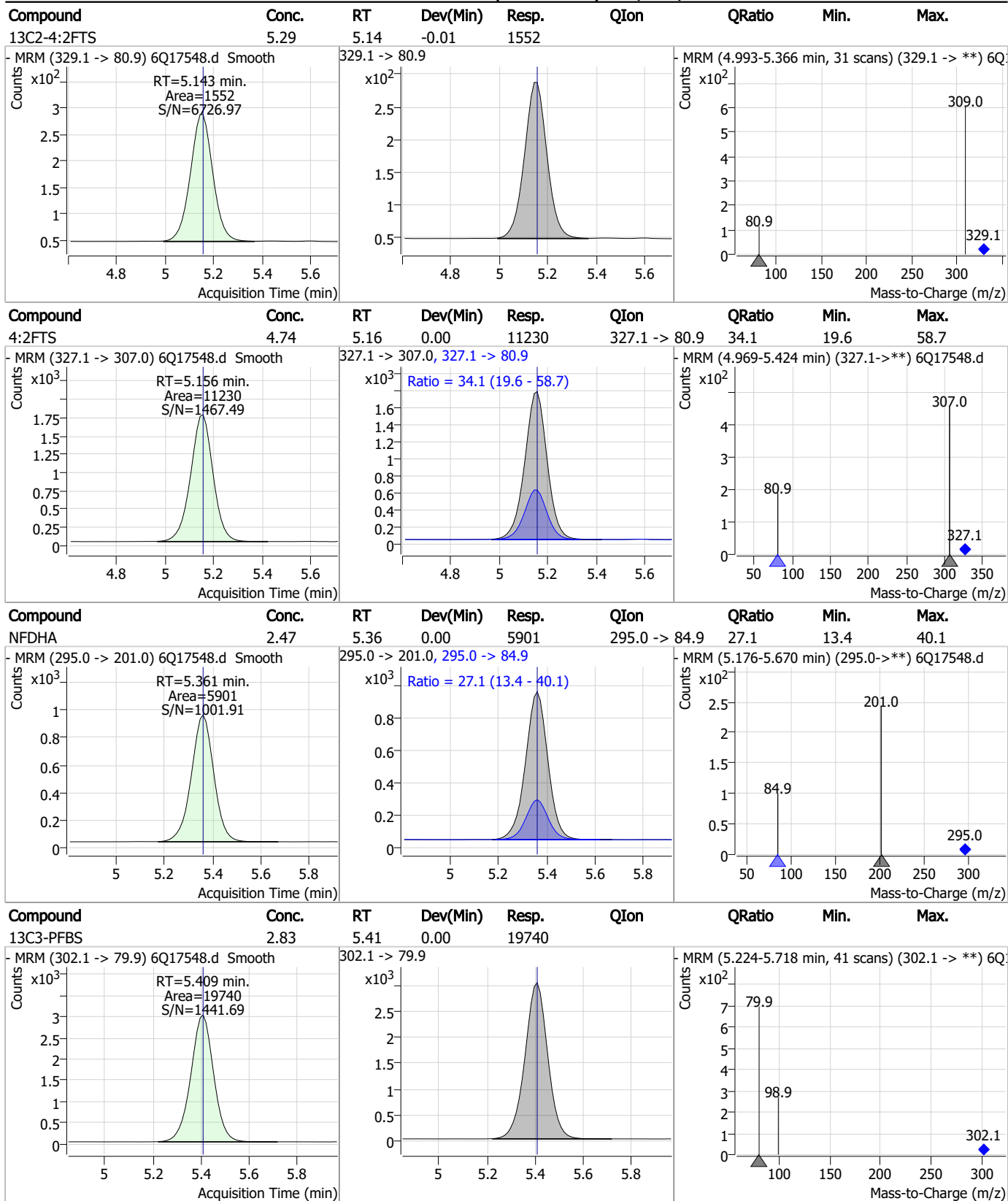
Perfluorinated Compounds by LC/MS/MS



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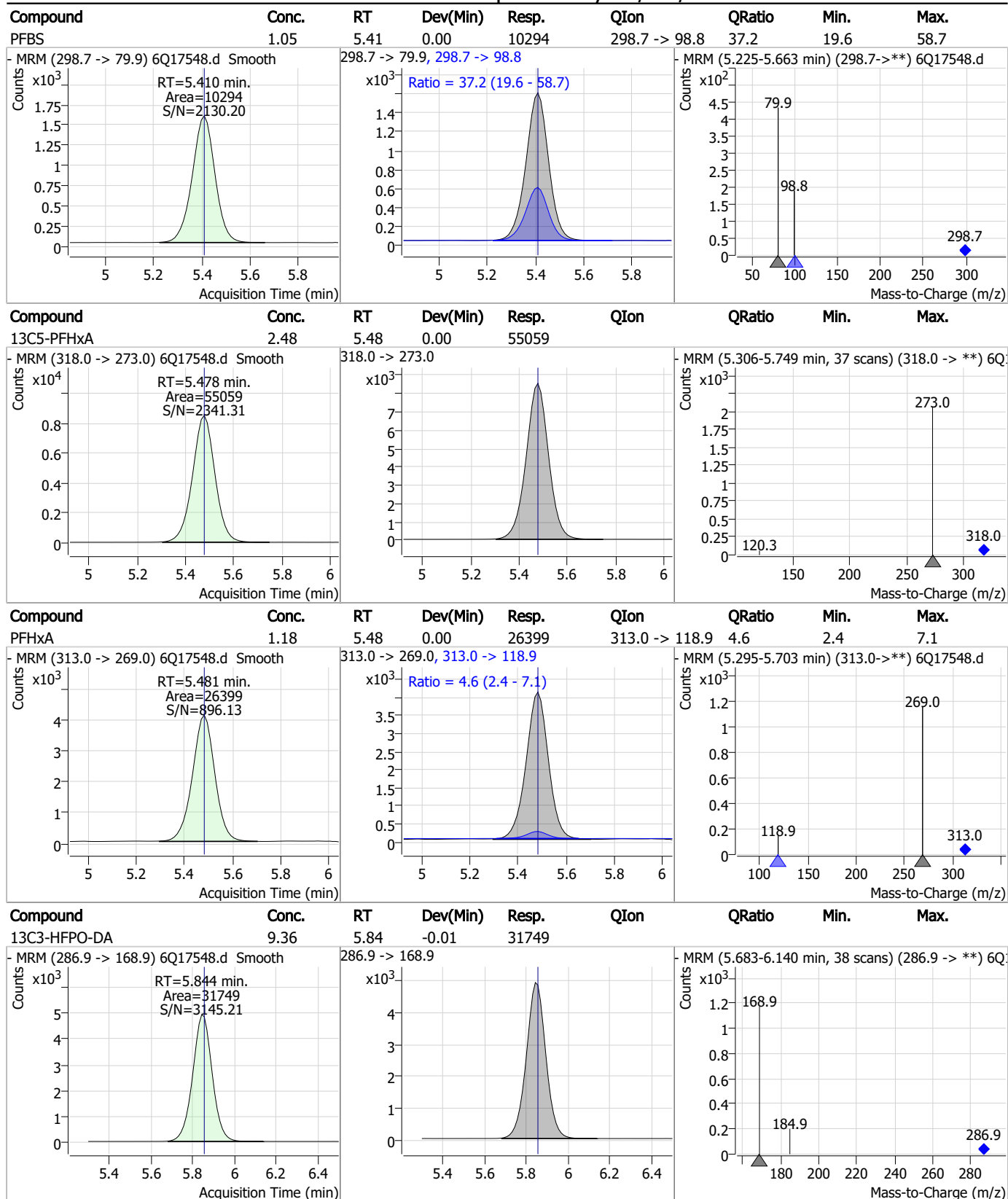
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

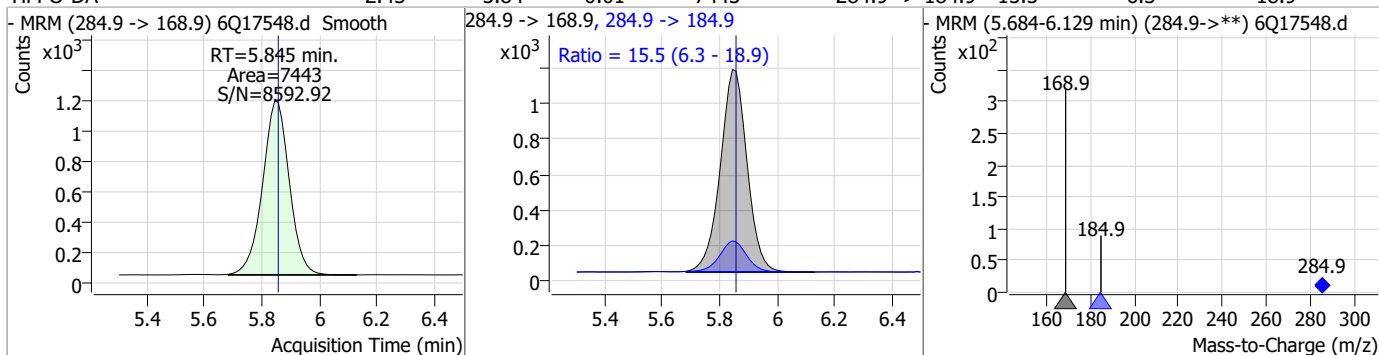


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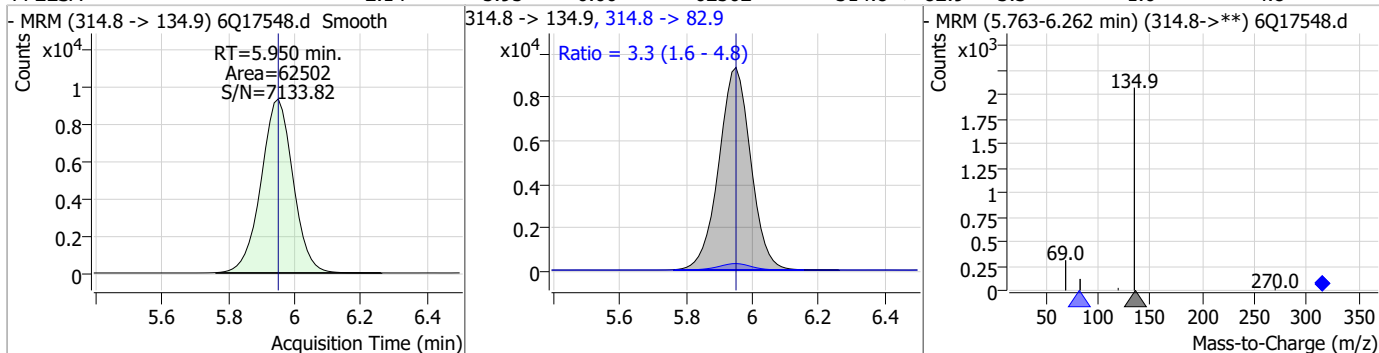
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Perfluorinated Compounds by LC/MS/MS

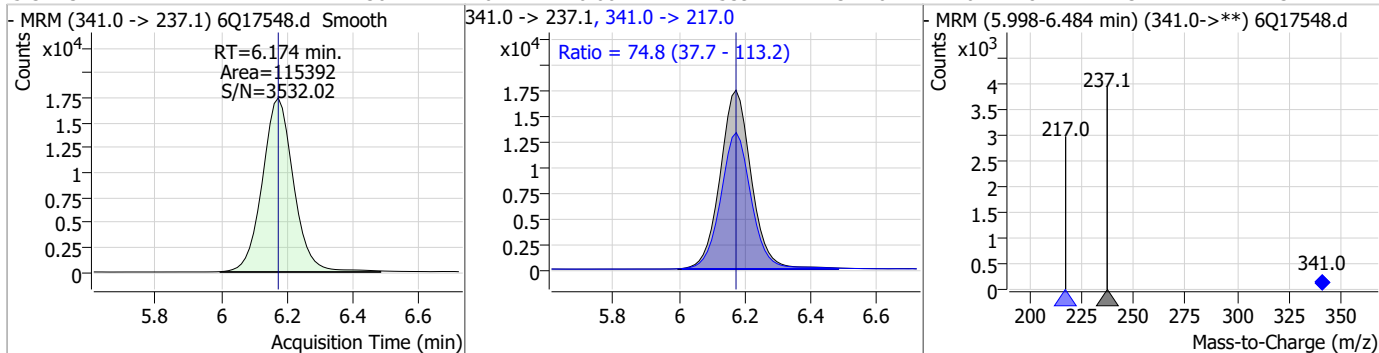
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.43	5.84	-0.01	7443	284.9 -> 184.9	15.5	6.3	18.9



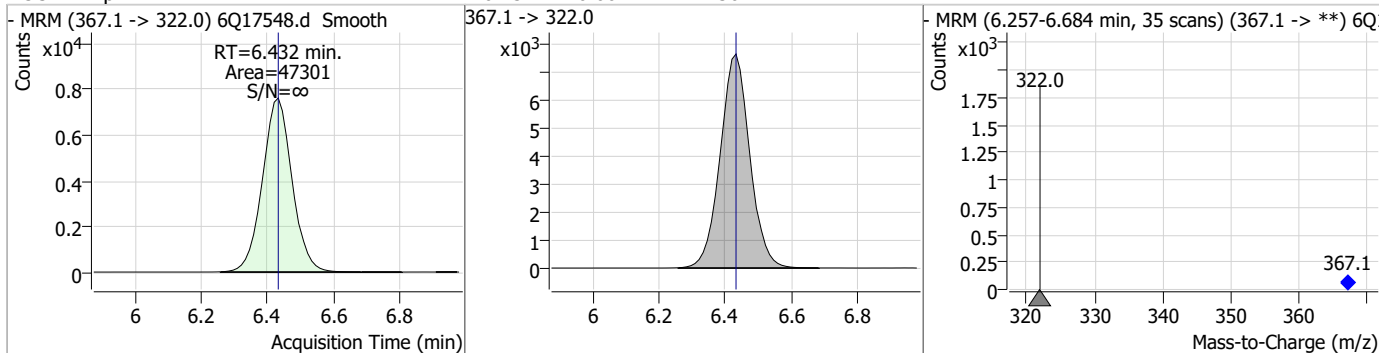
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.14	5.95	0.00	62502	314.8 -> 82.9	3.3	1.6	4.8



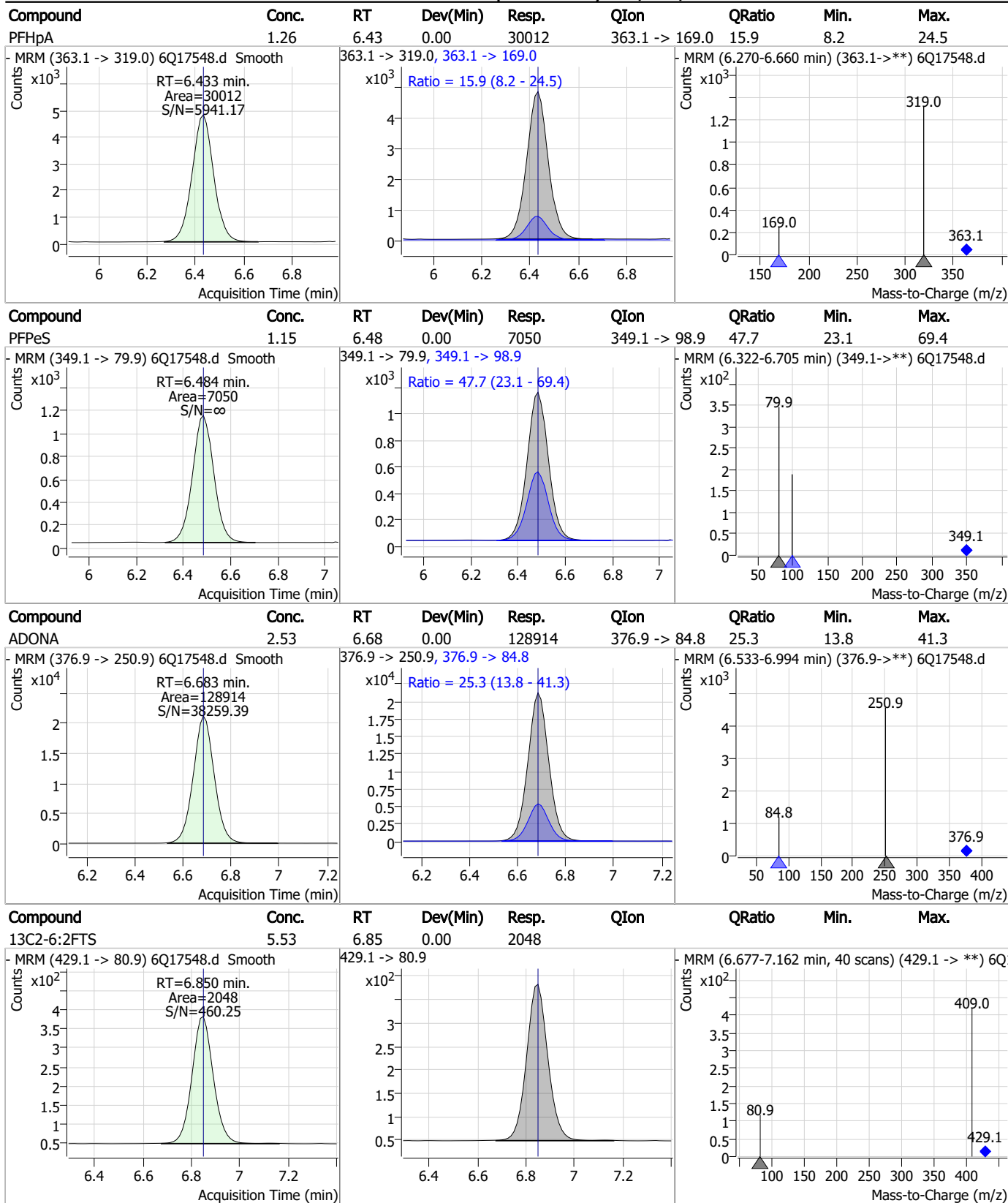
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	30.21	6.17	0.00	115392	341.0 -> 217.0	74.8	37.7	113.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.44	6.43	0.00	47301	367.1 -> 322.0			



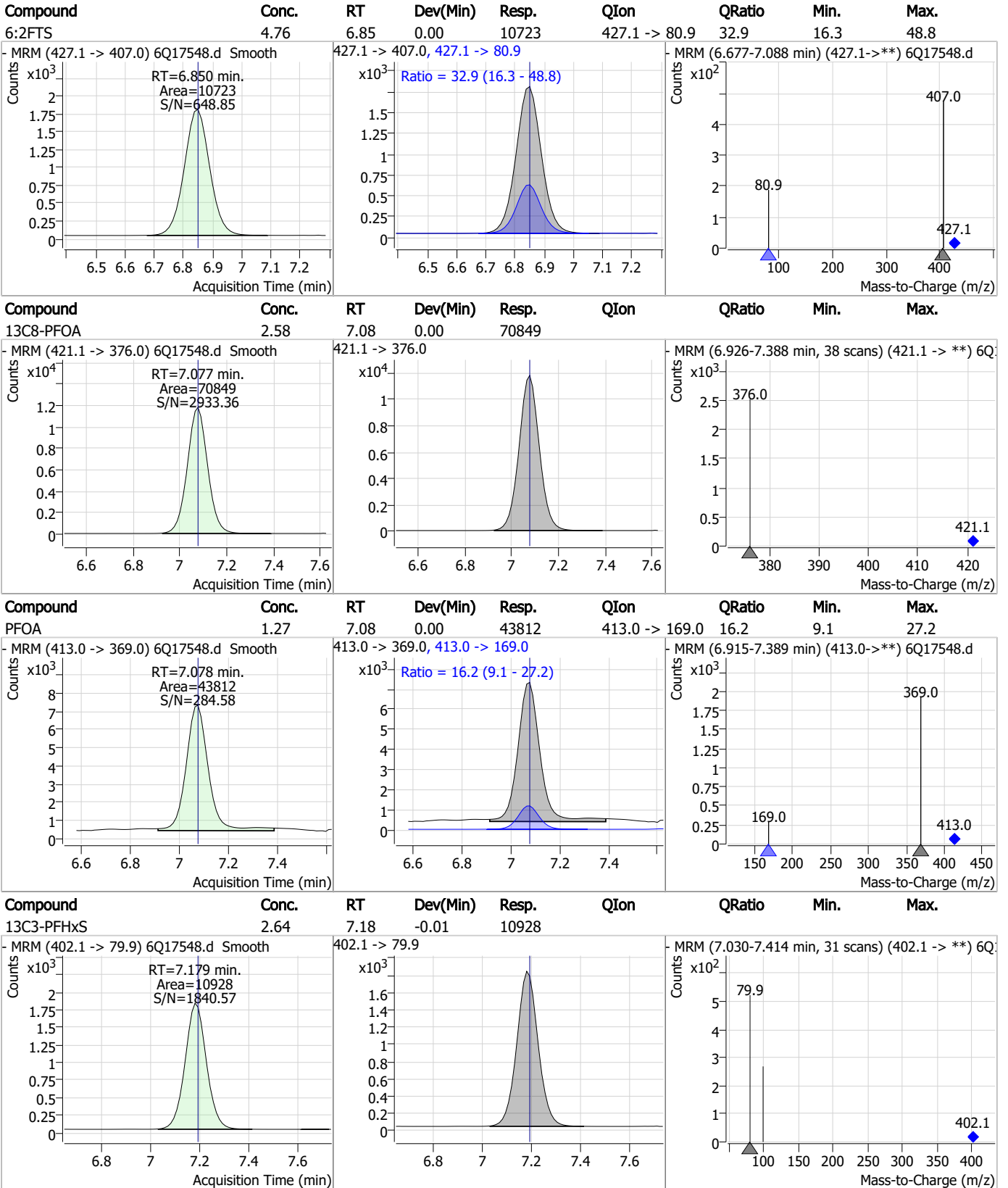
Perfluorinated Compounds by LC/MS/MS



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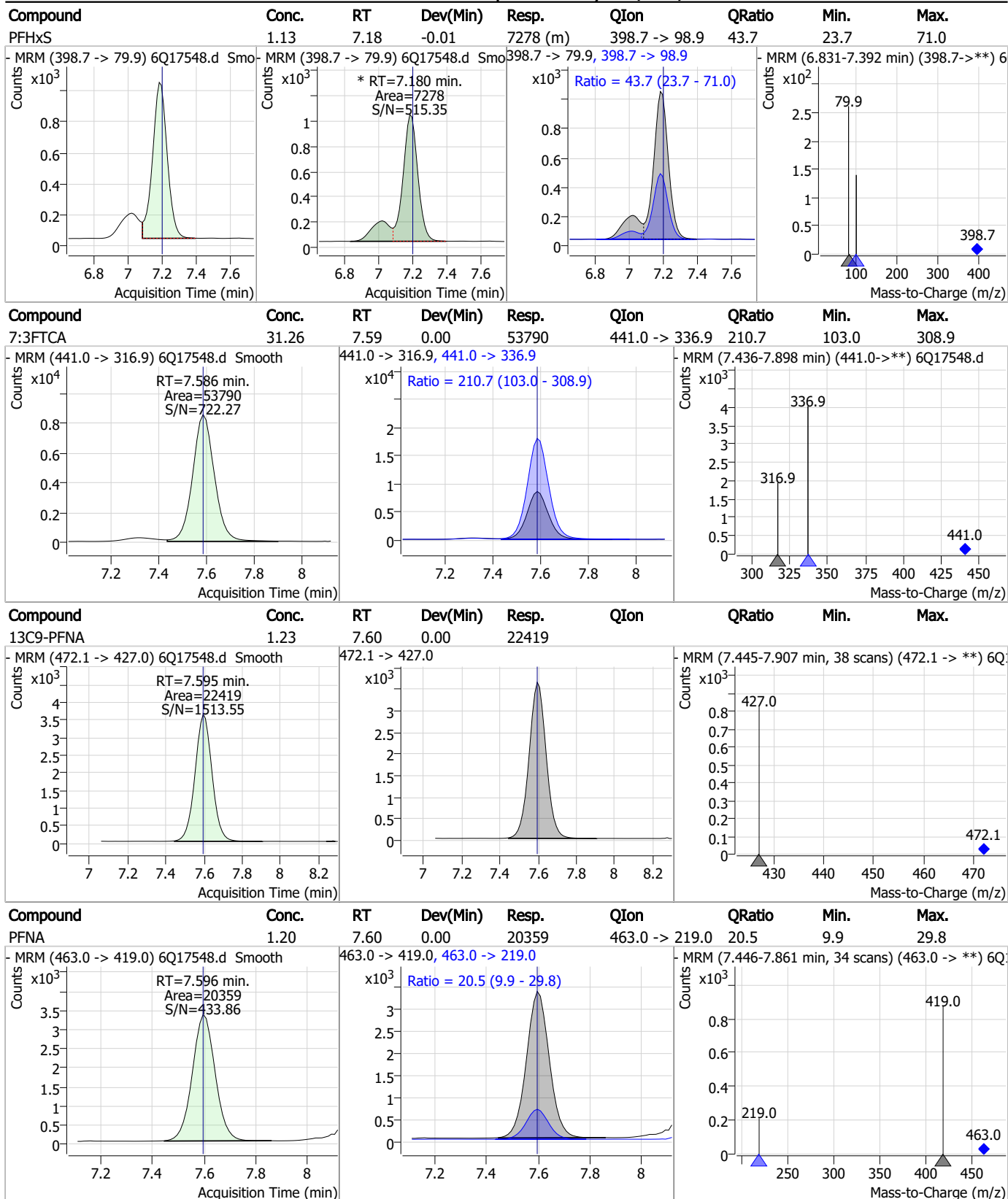
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7.7.21

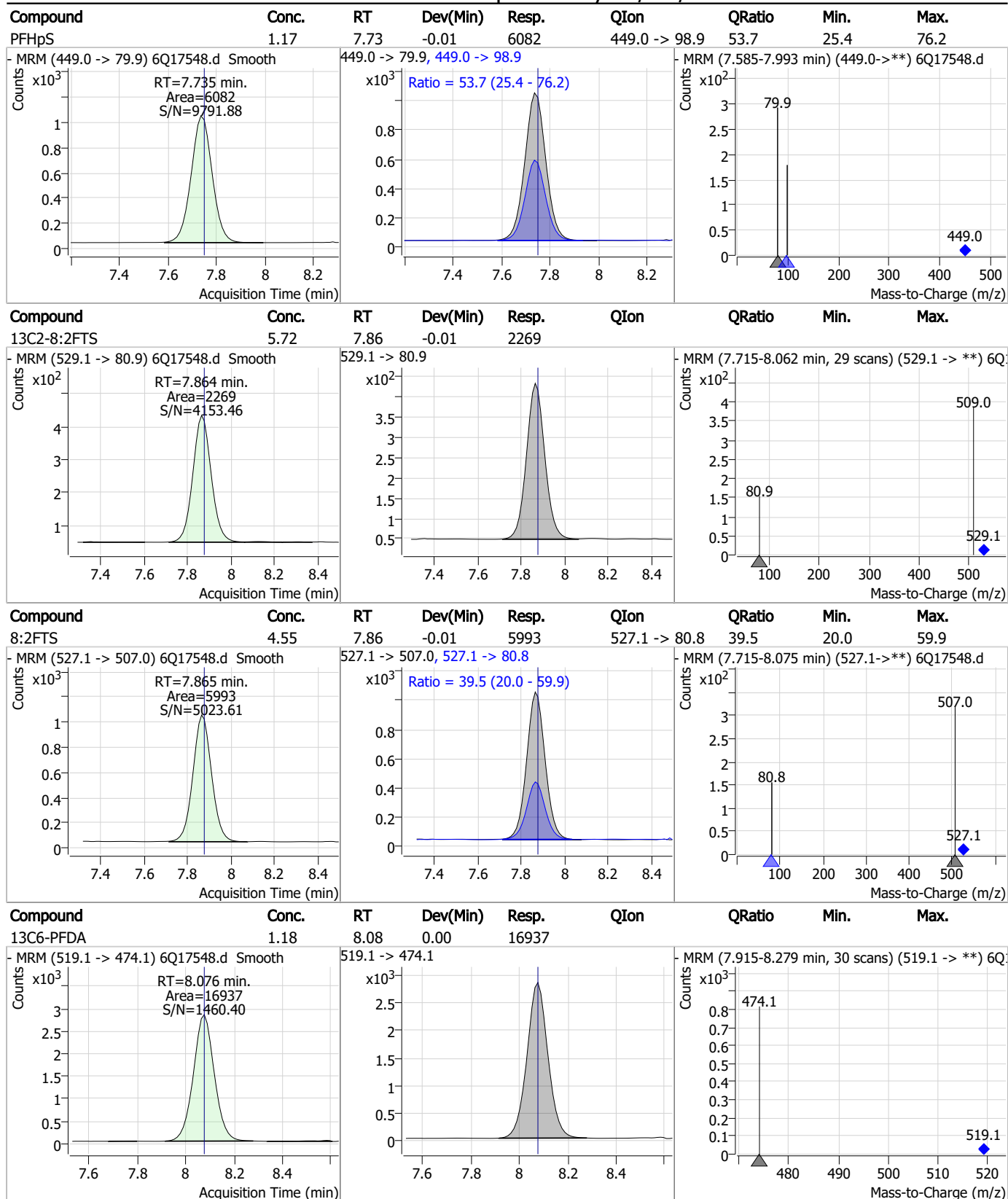
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Perfluorinated Compounds by LC/MS/MS



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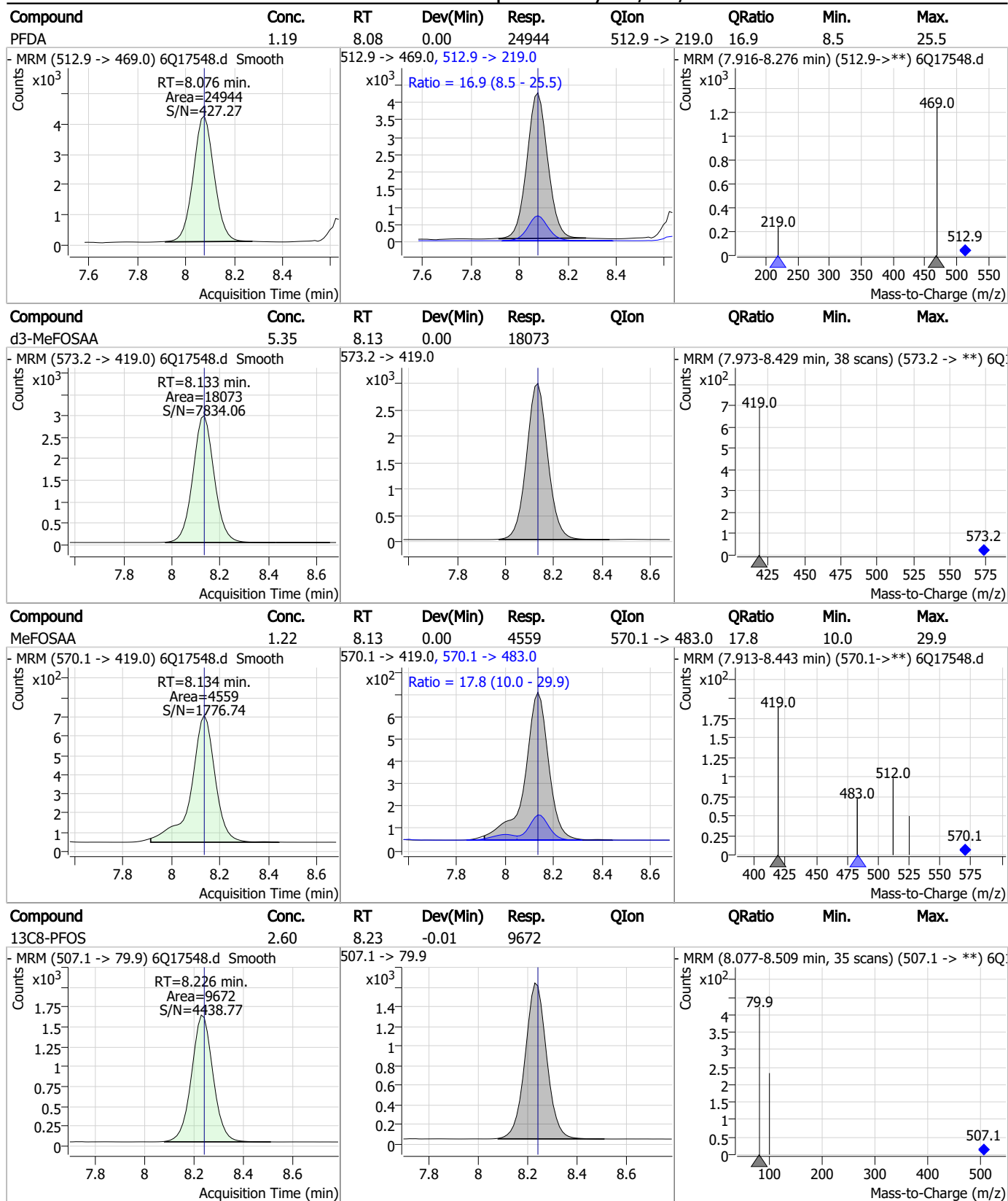
Perfluorinated Compounds by LC/MS/MS



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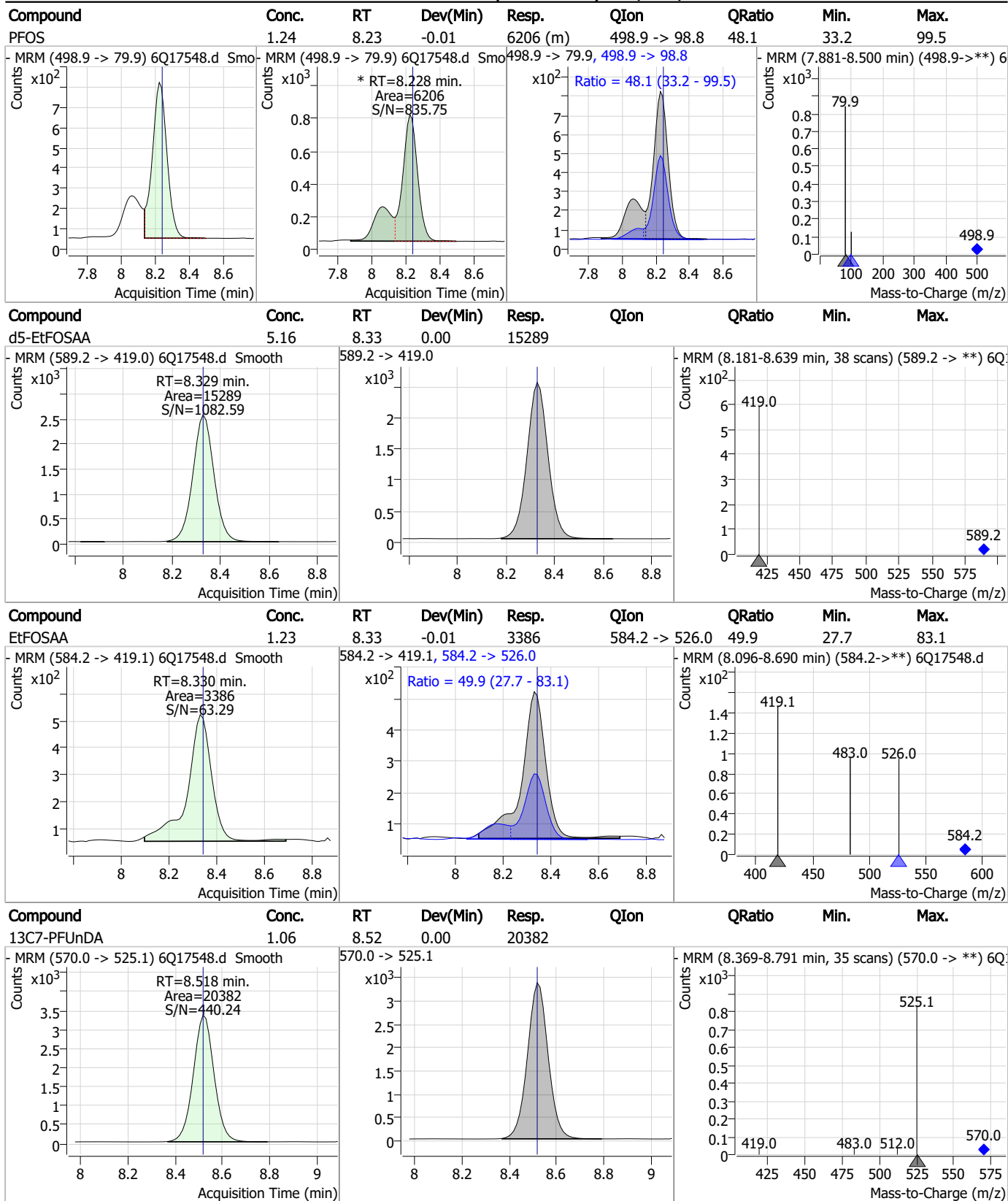
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

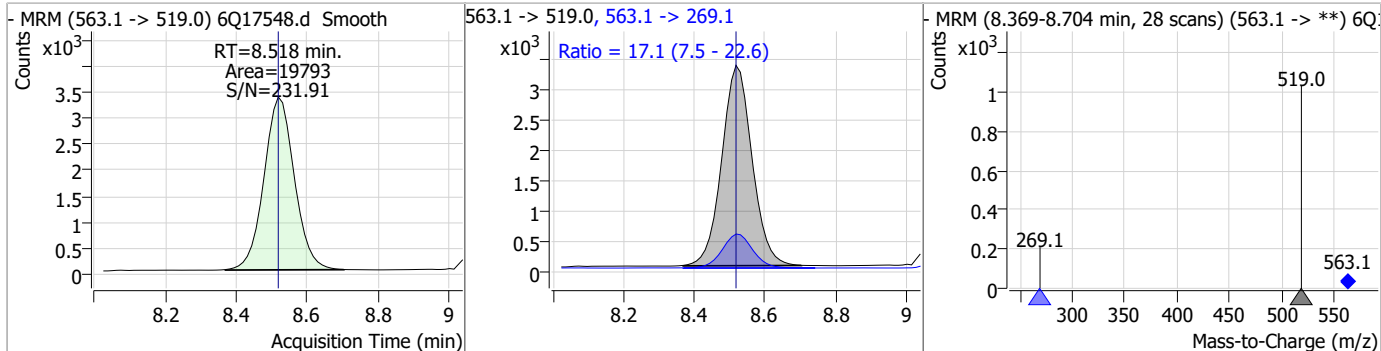


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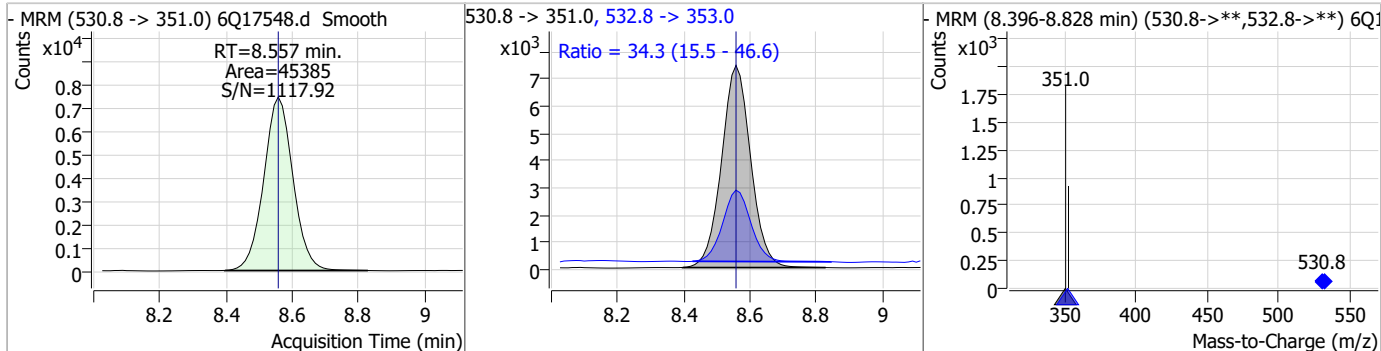
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Perfluorinated Compounds by LC/MS/MS

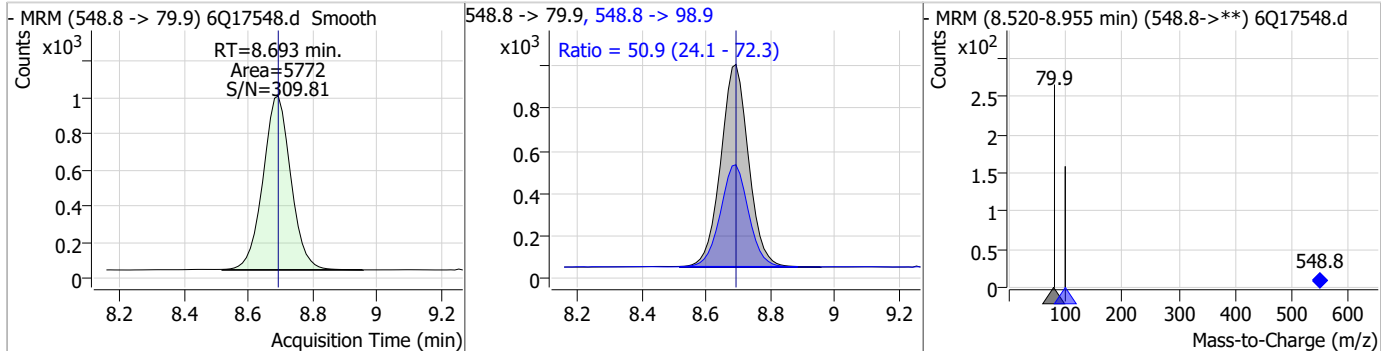
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.38	8.52	0.00	19793	563.1 -> 269.1	17.1	7.5	22.6



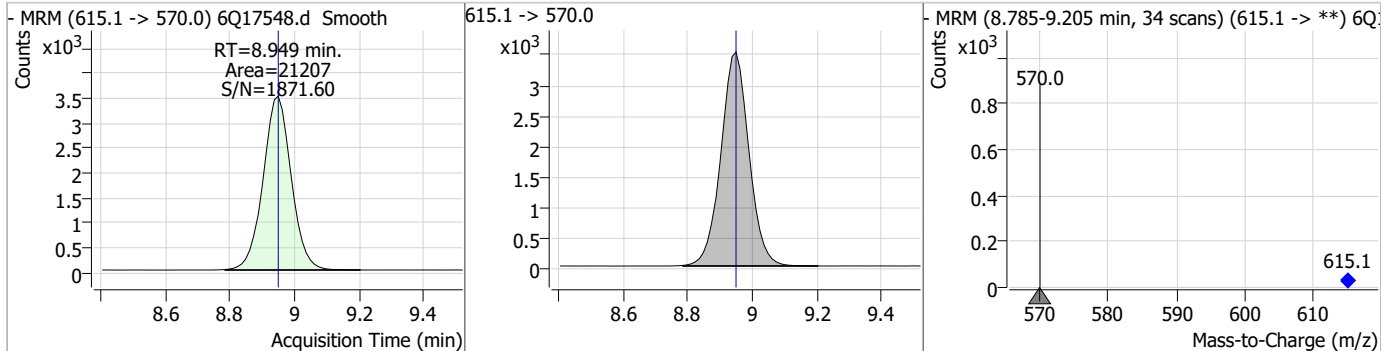
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	2.44	8.56	0.00	45385	532.8 -> 353.0	34.3	15.5	46.6



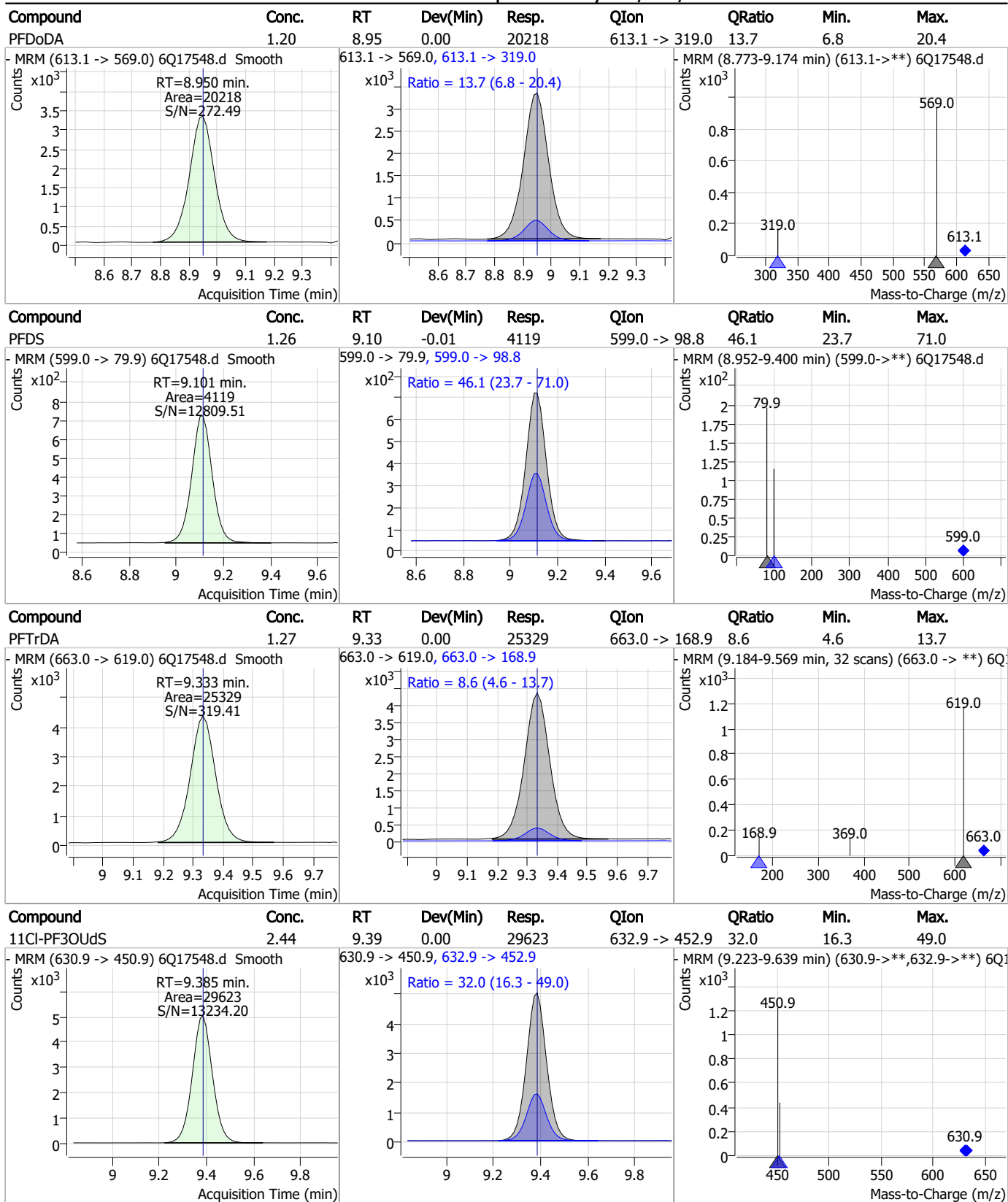
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.20	8.69	0.00	5772	548.8 -> 98.9	50.9	24.1	72.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.12	8.95	0.00	21207	615.1 -> 570.0			



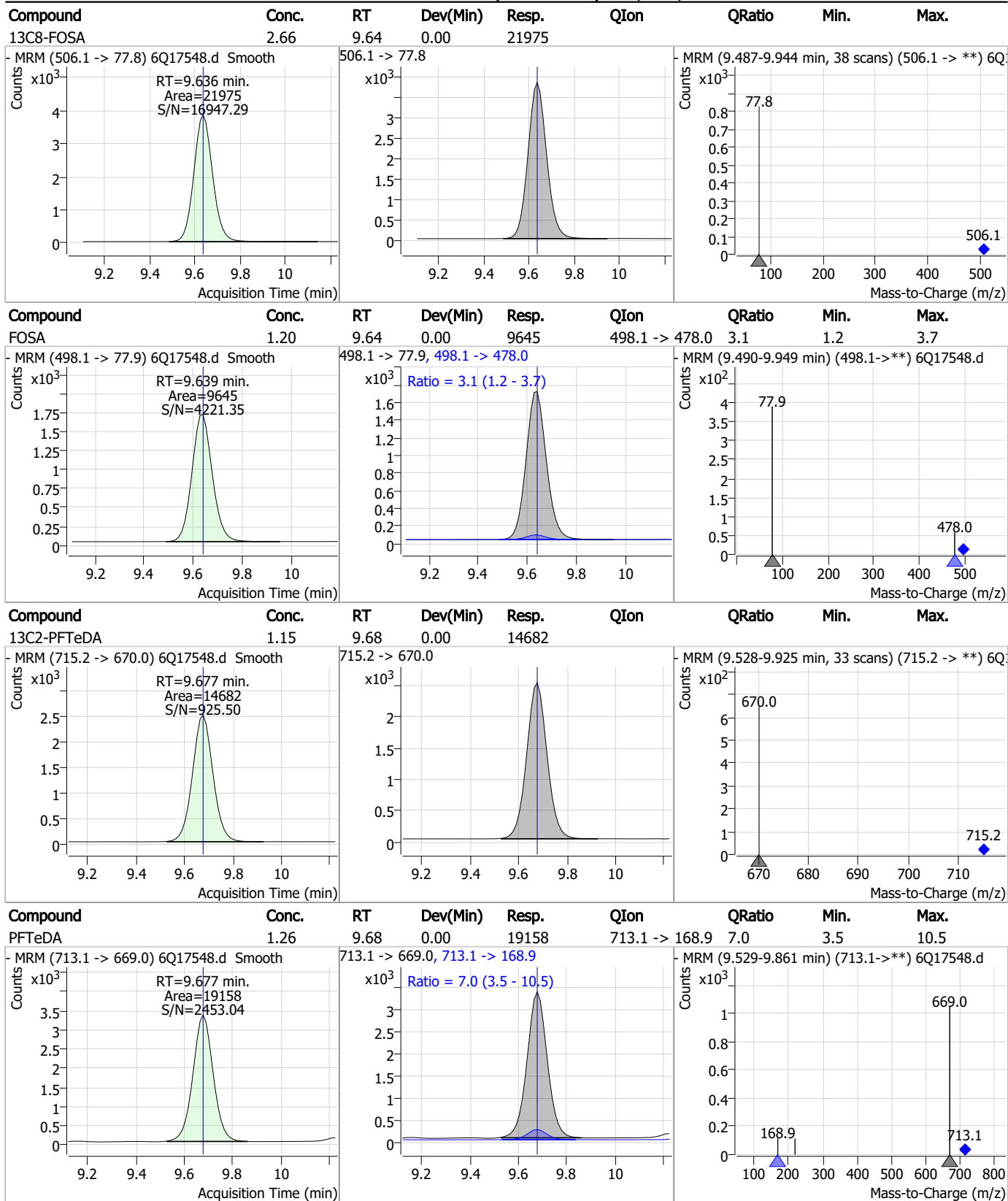
Perfluorinated Compounds by LC/MS/MS



7.7.21

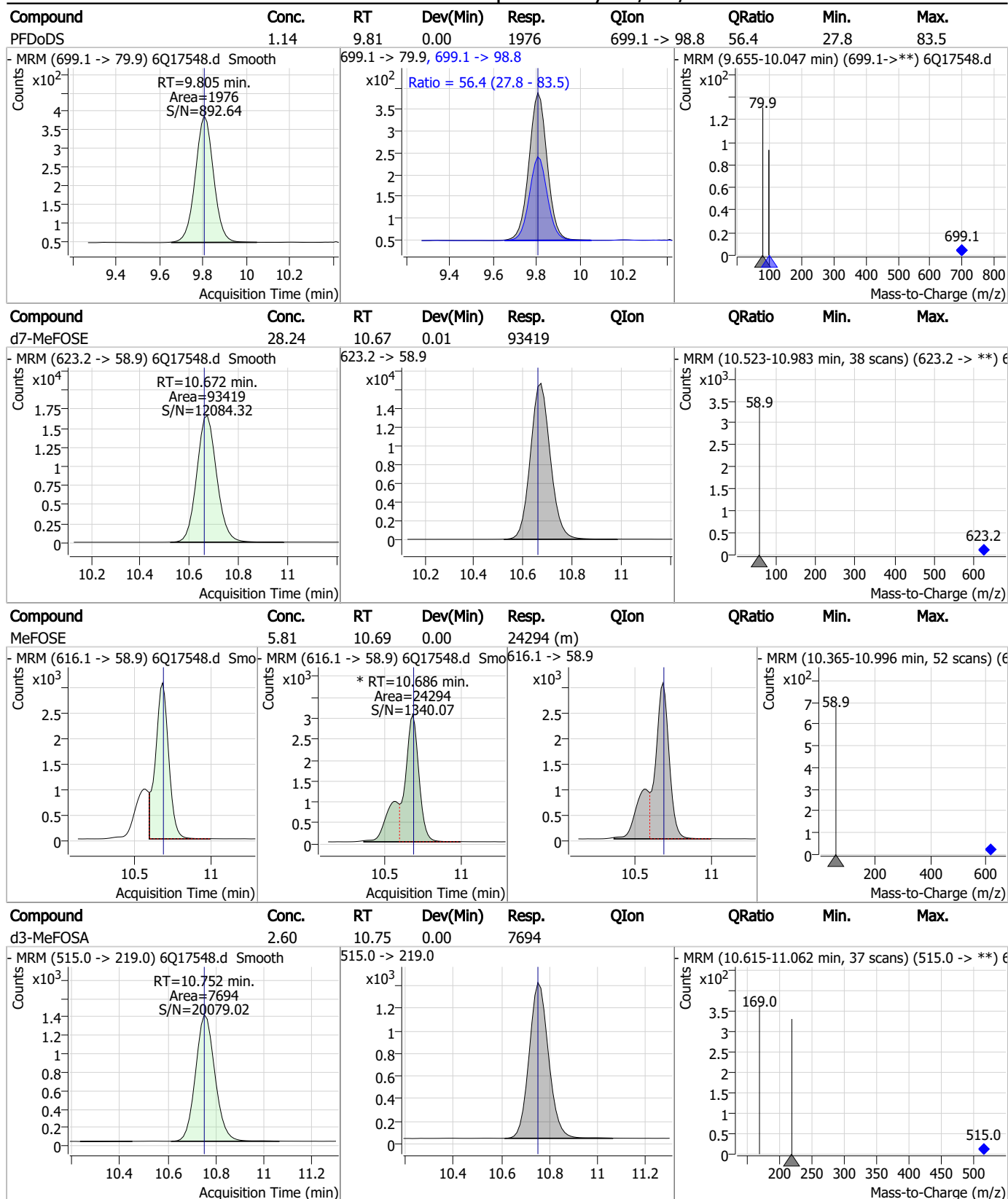
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Perfluorinated Compounds by LC/MS/MS



7.7.21 7

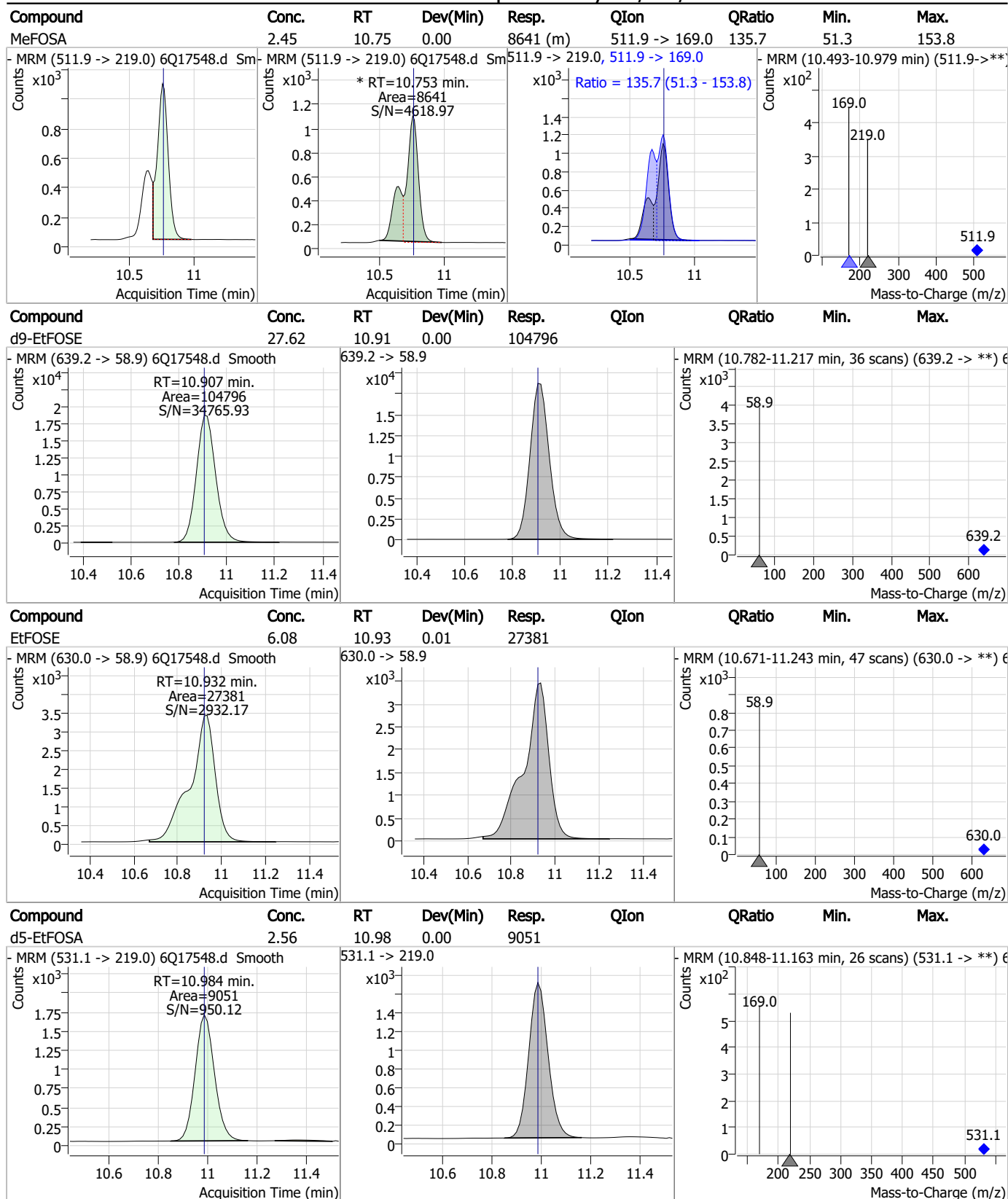
Perfluorinated Compounds by LC/MS/MS



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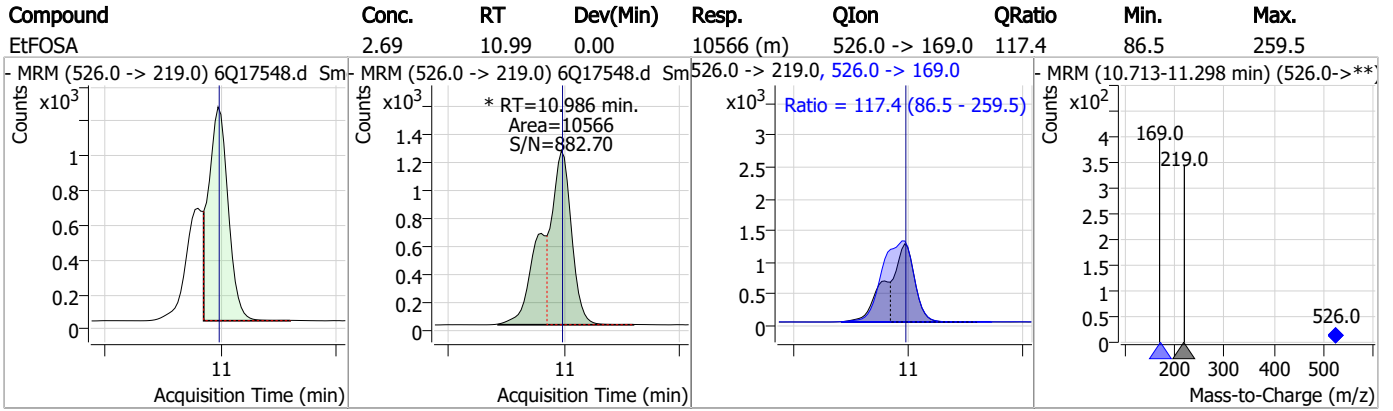
Perfluorinated Compounds by LC/MS/MS



7.7.21

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Perfluorinated Compounds by LC/MS/MS



7.7.21

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Manual Integration Approval Summary

Sample Number: S6Q265-IC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17548.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 16:35 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSE	24448-09-7		10.69	Split peak
MeFOSA	31506-32-8		10.75	Split peak
EtFOSA	4151-50-2		10.99	Split peak

7.7.21.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17549.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 4:49:34 PM
 Sample Name : icc265-4
 Vial : P1-A5
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	153493	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49457	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	57761	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	50876	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	69620	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	21398	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	15802	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	22432	1.25 µg/L	0.012
M2-PFDoDA	8.949	615.1 -> 570.0	22237	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14093	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	22225	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	17809	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11223	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	9921	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1640	5.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	2136	5.00 µg/L	0.000
M2-8:2FTS	7.876	529.1 -> 80.9	2075	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	17290	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	33790	10.00 µg/L	-0.012
M5-EtFOSAA	8.341	589.2 -> 419.0	16460	5.00 µg/L	0.012
M7-MeFOSE	10.660	623.2 -> 58.9	89594	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	100268	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9049	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7487	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13164	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	64332	5.00 µg/L	0.000
18O2-PFHxS	7.191	403.0 -> 83.9	8787	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	72772	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	19818	1.25 µg/L	0.000
13C5-PFNA	7.608	468.0 -> 423.0	24372	1.25 µg/L	0.012
13C2-PFHxA	5.479	315.1 -> 270.0	46818	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1640	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-6:2FTS	6.850	429.1 -> 80.9	2136	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-8:2FTS	7.876	529.1 -> 80.9	2075	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22237	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14093	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFBS	5.409	302.1 -> 79.9	17809	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	11223	2.45 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 = 98.1%	
13C4-PFBA	2.913	216.8 -> 171.9	153493	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.432	367.1 -> 322.0	50876	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	5.478	318.0 -> 273.0	57761	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFPeA	4.272	268.3 -> 223.0	49457	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C6-PFDA	8.076	519.1 -> 474.1	15802	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C7-PFUnDA	8.530	570.0 -> 525.1	22432	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C8-FOSA	9.636	506.1 -> 77.8	22225	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOA	7.077	421.1 -> 376.0	69620	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOS	8.239	507.1 -> 79.9	9921	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C9-PFNA	7.595	472.1 -> 427.0	21398	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%	
d3-MeFOSAA	8.133	573.2 -> 419.0	17290	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	33790	9.72 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSA	10.752	515.0 -> 219.0	7487	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	
d5-EtFOSAA	8.341	589.2 -> 419.0	16460	5.09 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
d7-MeFOSE	10.660	623.2 -> 58.9	89594	24.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d9-EtFOSE	10.907	639.2 -> 58.9	100268	24.19 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d5-EtFOSA	10.984	531.1 -> 219.0	9049	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
Target Compounds					QValue
4:2FTS	5.156	327.1 -> 307.0	21970	8.77 µg/L	99
		327.1 -> 80.9	8464		
6:2FTS	6.850	427.1 -> 407.0	19733	8.41 µg/L	100
		427.1 -> 80.9	6418		
8:2FTS	7.877	527.1 -> 507.0	12204	10.12 µg/L	97
		527.1 -> 80.8	4638		
EtFOSAA	8.342	584.2 -> 419.1	6308	2.13 µg/L	93
		584.2 -> 526.0	3156		
FOSA	9.639	498.1 -> 77.9	18484	2.27 µg/L	98
		498.1 -> 478.0	617		
MeFOSAA	8.147	570.1 -> 419.0	8420	2.36 µg/L	96
		570.1 -> 483.0	1815		
PFBA	2.907	212.8 -> 168.9	52972	9.64 µg/L	100
PFBS	5.410	298.7 -> 79.9	19906	2.26 µg/L	98
		298.7 -> 98.8	7492		
PFDA	8.076	512.9 -> 469.0	49842	2.55 µg/L	95
		512.9 -> 219.0	9456		
PFDODA	8.962	613.1 -> 569.0	41509	2.34 µg/L	100
		613.1 -> 319.0	5642		
PFDS	9.113	599.0 -> 79.9	7646	2.29 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.433	599.0 -> 98.8	3724	2.30	µg/L	99
		363.1 -> 319.0	58993			
PFHpS	7.749	363.1 -> 169.0	9758	2.13	µg/L	95
		449.0 -> 79.9	11392			
PFHxA	5.481	449.0 -> 98.9	6213	2.38	µg/L	99
		313.0 -> 269.0	55895			
PFHxS	7.180	313.0 -> 118.9	2507	2.13	µg/L	m
		398.7 -> 79.9	14101			
PFNA	7.596	398.7 -> 98.9	7003	2.50	µg/L	100
		463.0 -> 419.0	40252			
PFNS	8.693	463.0 -> 219.0	7887	2.30	µg/L	96
		548.8 -> 79.9	11309			
PFOA	7.078	548.8 -> 98.9	5732	2.34	µg/L	100
		413.0 -> 369.0	79569			
PFOS	8.240	413.0 -> 169.0	14265	2.12	µg/L	m
		498.9 -> 79.9	10945			
PFPeA	4.274	498.9 -> 98.8	5999	4.77	µg/L	100
		263.0 -> 219.0	68888			
PFPeS	6.484	349.1 -> 79.9	14313	2.27	µg/L	96
		349.1 -> 98.9	6283			
PFTeDA	9.677	713.1 -> 669.0	37711	2.59	µg/L	99
		713.1 -> 168.9	2715			
PFTrDA	9.346	663.0 -> 619.0	51846	2.47	µg/L	98
		663.0 -> 168.9	4341			
PFUnDA	8.531	563.1 -> 519.0	38828	2.46	µg/L	99
		563.1 -> 269.1	5988			
11CI-PF3OUdS	9.385	630.9 -> 450.9	58292	4.51	µg/L	98
		632.9 -> 452.9	18304			
9CI-PF3ONS	8.570	530.8 -> 351.0	88705	4.47	µg/L	93
		532.8 -> 353.0	31046			
ADONA	6.683	376.9 -> 250.9	242621	4.48	µg/L	98
		376.9 -> 84.8	64764			
HFPO-DA	5.845	284.9 -> 168.9	15569	4.77	µg/L	97
		284.9 -> 184.9	2146			
3:3FTCA	3.790	241.0 -> 177.0	10777	11.68	µg/L	97
		241.0 -> 117.0	1354			
5:3FTCA	6.174	341.0 -> 237.1	228666	57.06	µg/L	97
		341.0 -> 217.0	166015			
7:3FTCA	7.586	441.0 -> 316.9	107726	59.68	µg/L	98
		441.0 -> 336.9	219193			
EtFOSA	10.986	526.0 -> 219.0	19299	4.92	µg/L	68
		526.0 -> 169.0	24821			
EtFOSE	10.920	630.0 -> 58.9	49409	11.46	µg/L	100
		511.9 -> 219.0	17593			
MeFOSA	10.753	511.9 -> 169.0	22345	5.13	µg/L	m
		616.1 -> 58.9	47048			
MeFOSE	10.686	699.1 -> 79.9	4046	11.73	µg/L	m
		699.1 -> 98.8	2279			
PFDoDS	9.805	295.0 -> 201.0	11615	2.27	µg/L	99
		295.0 -> 84.9	3045			
NFDHA	5.361	279.0 -> 85.1	49338	4.63	µg/L	99
		229.0 -> 84.9	35019			
PFMBA	4.688	314.8 -> 134.9	127344	4.83	µg/L	100
		314.8 -> 82.9	4564			
PFMPA	3.442			4.78	µg/L	100
PFEESA	5.950			4.15	µg/L	99

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

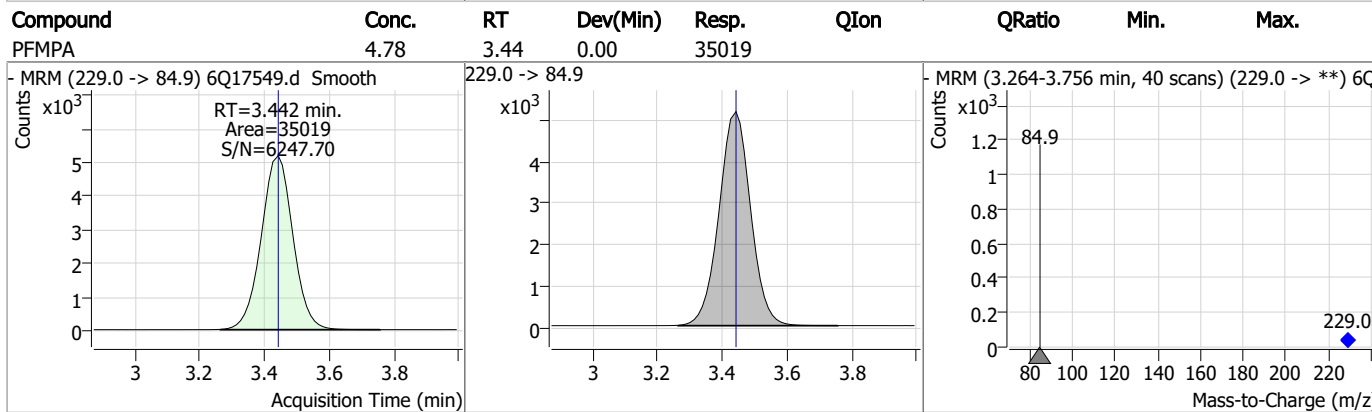
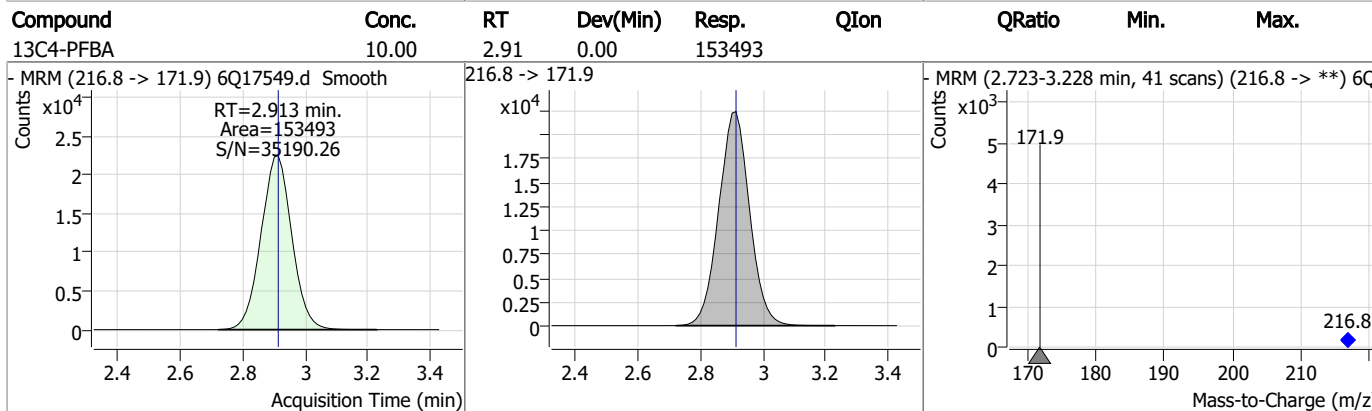
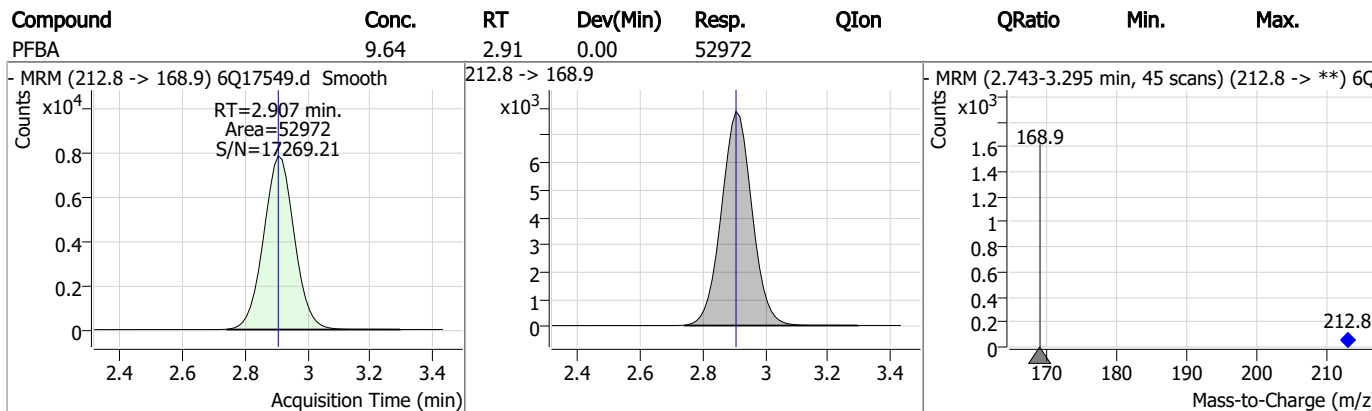
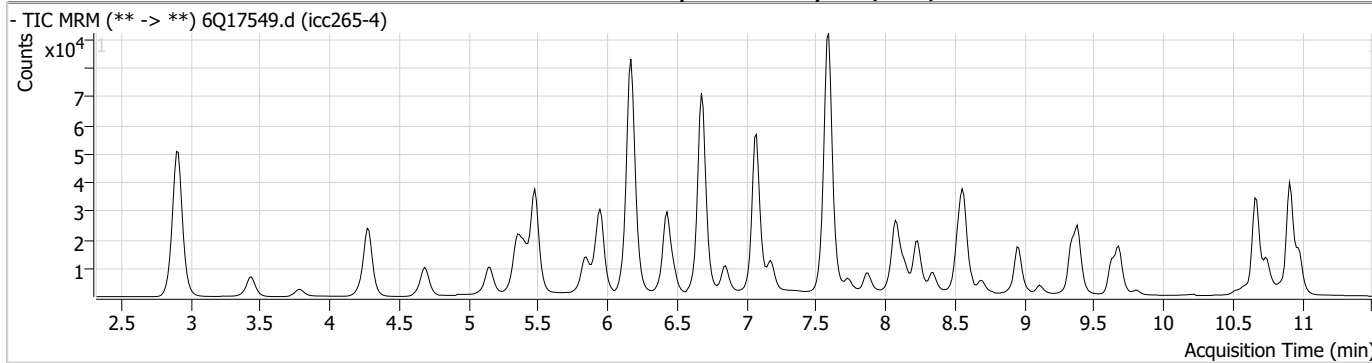
Perfluorinated Compounds by LC/MS/MS

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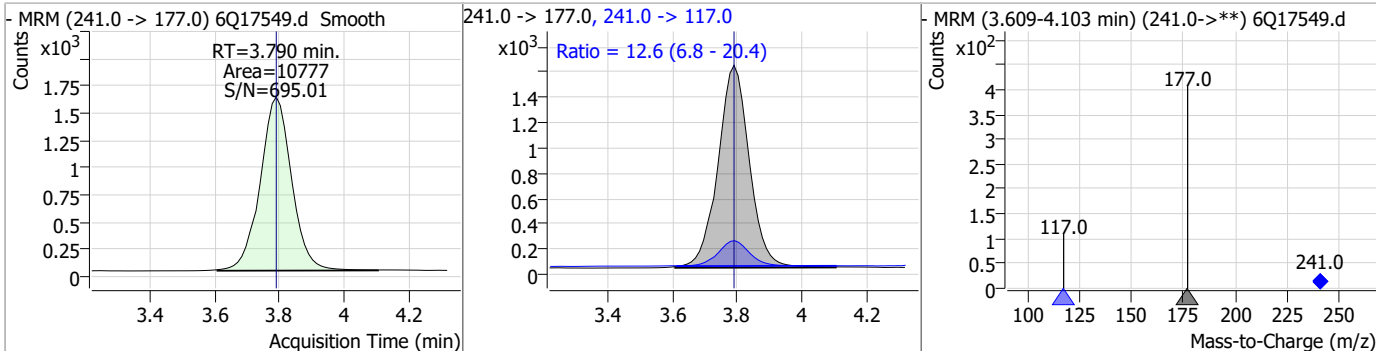
Perfluorinated Compounds by LC/MS/MS



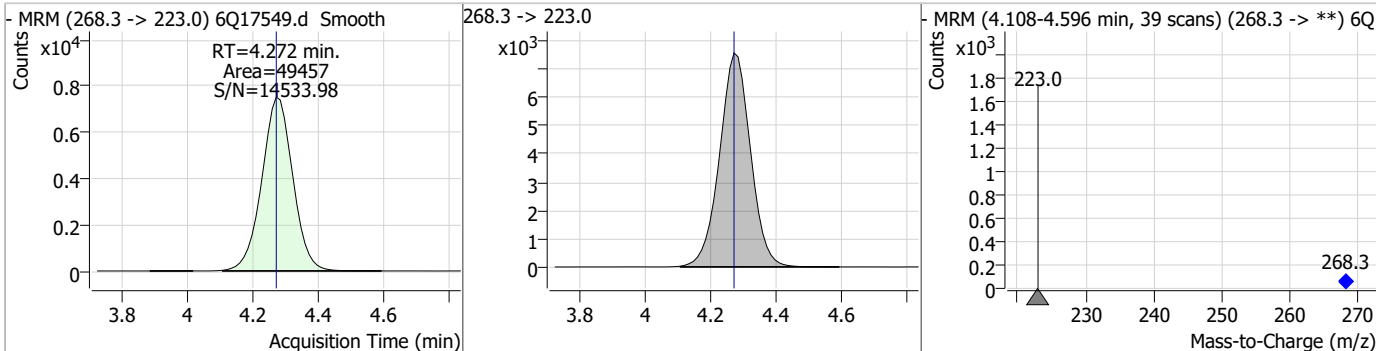
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Perfluorinated Compounds by LC/MS/MS

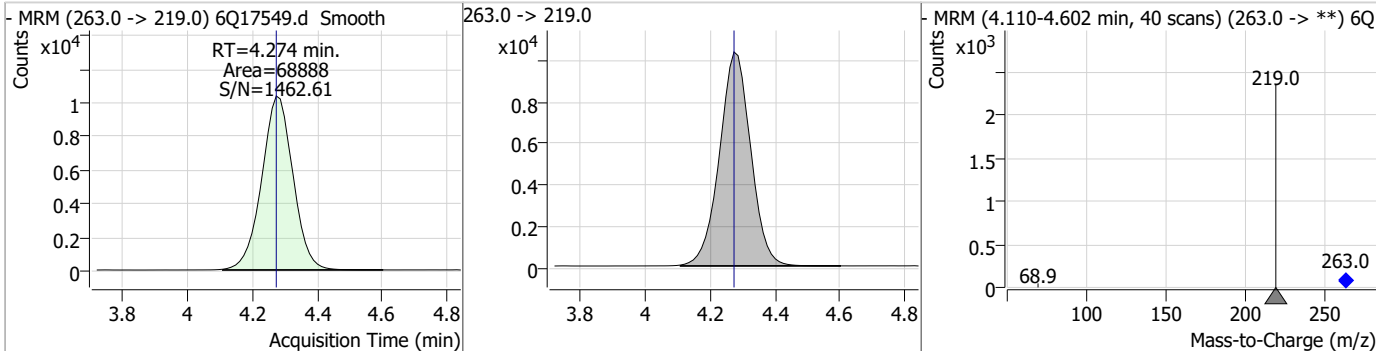
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.68	3.79	0.00	10777	241.0 -> 117.0	12.6	6.8	20.4



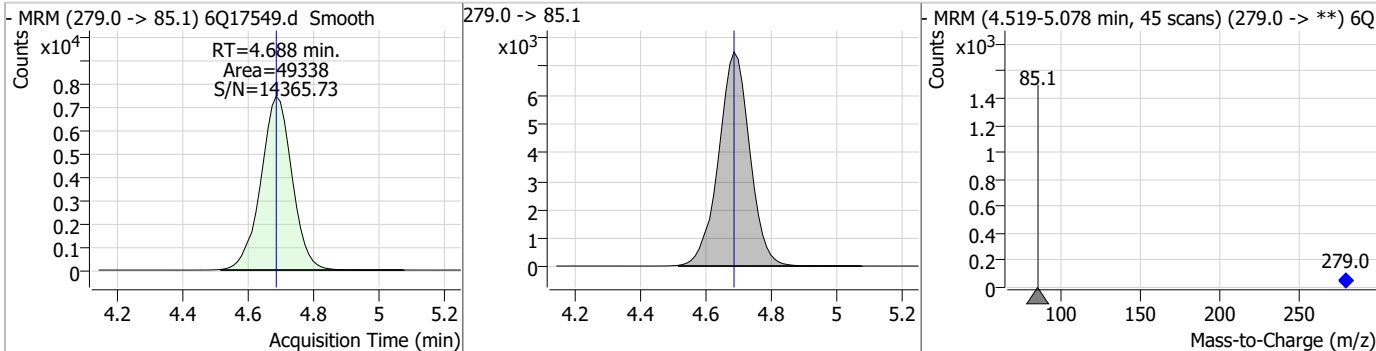
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.00	4.27	0.00	49457				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.77	4.27	0.00	68888				

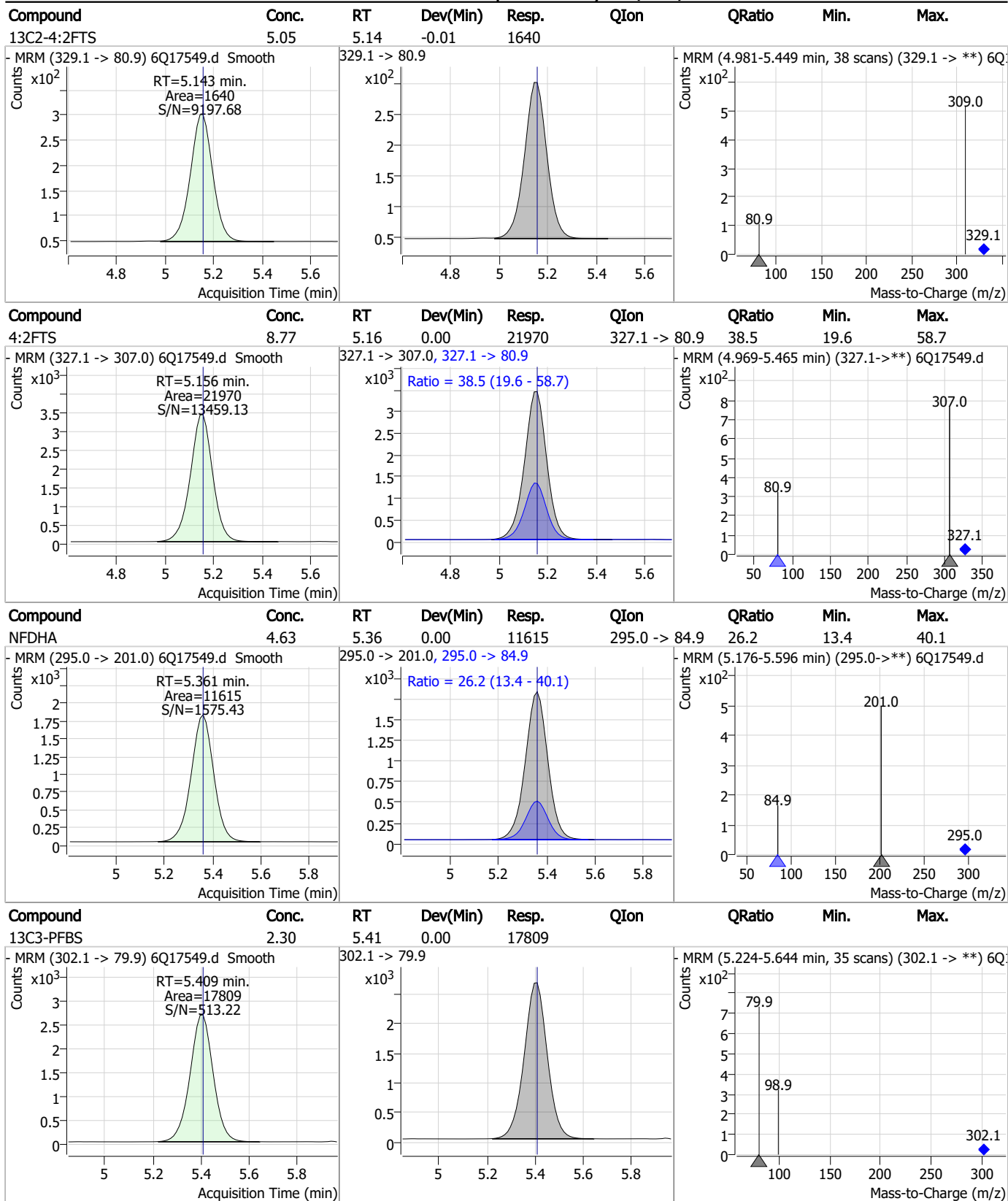


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.83	4.69	0.00	49338				



7.7.22

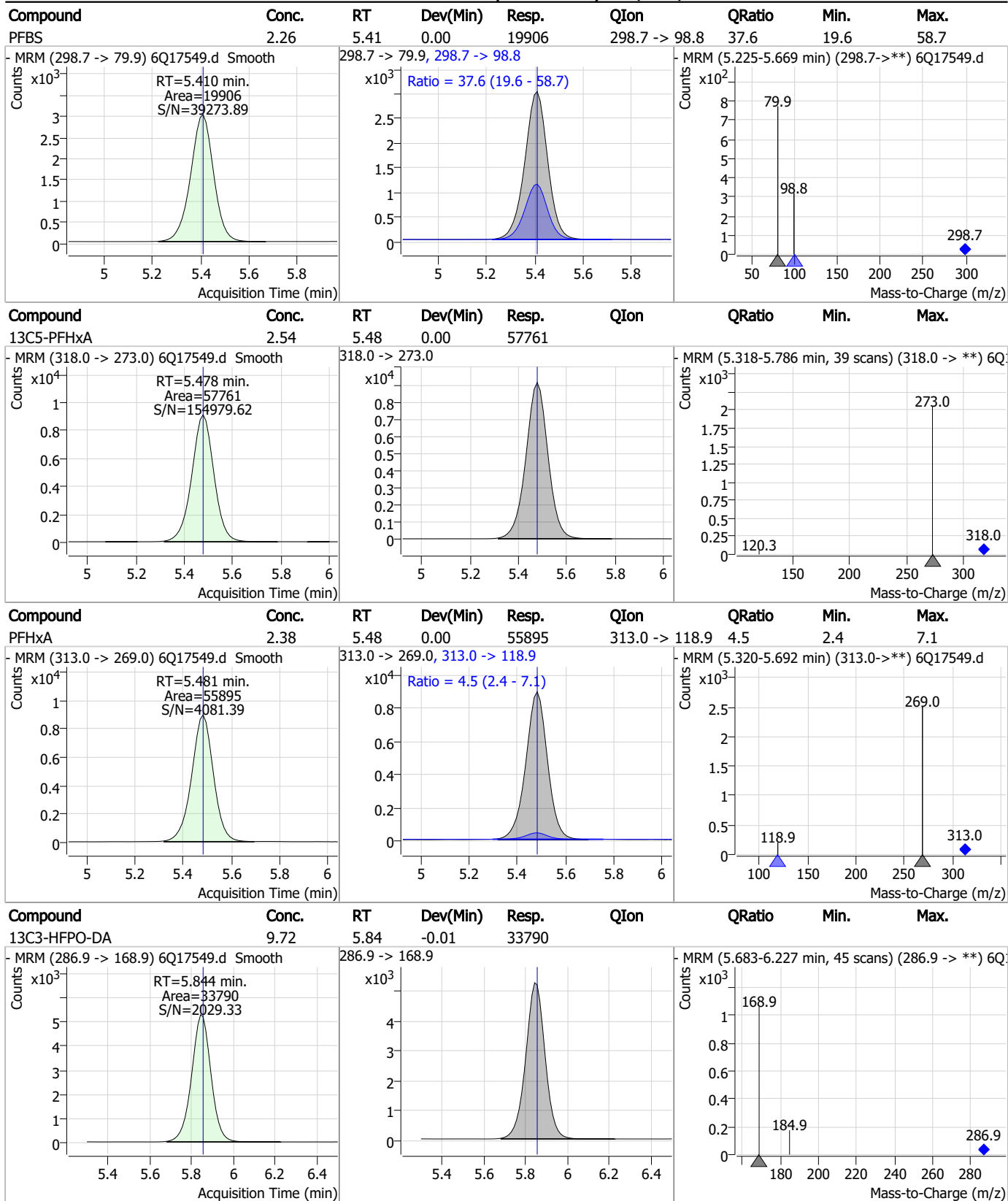
Perfluorinated Compounds by LC/MS/MS



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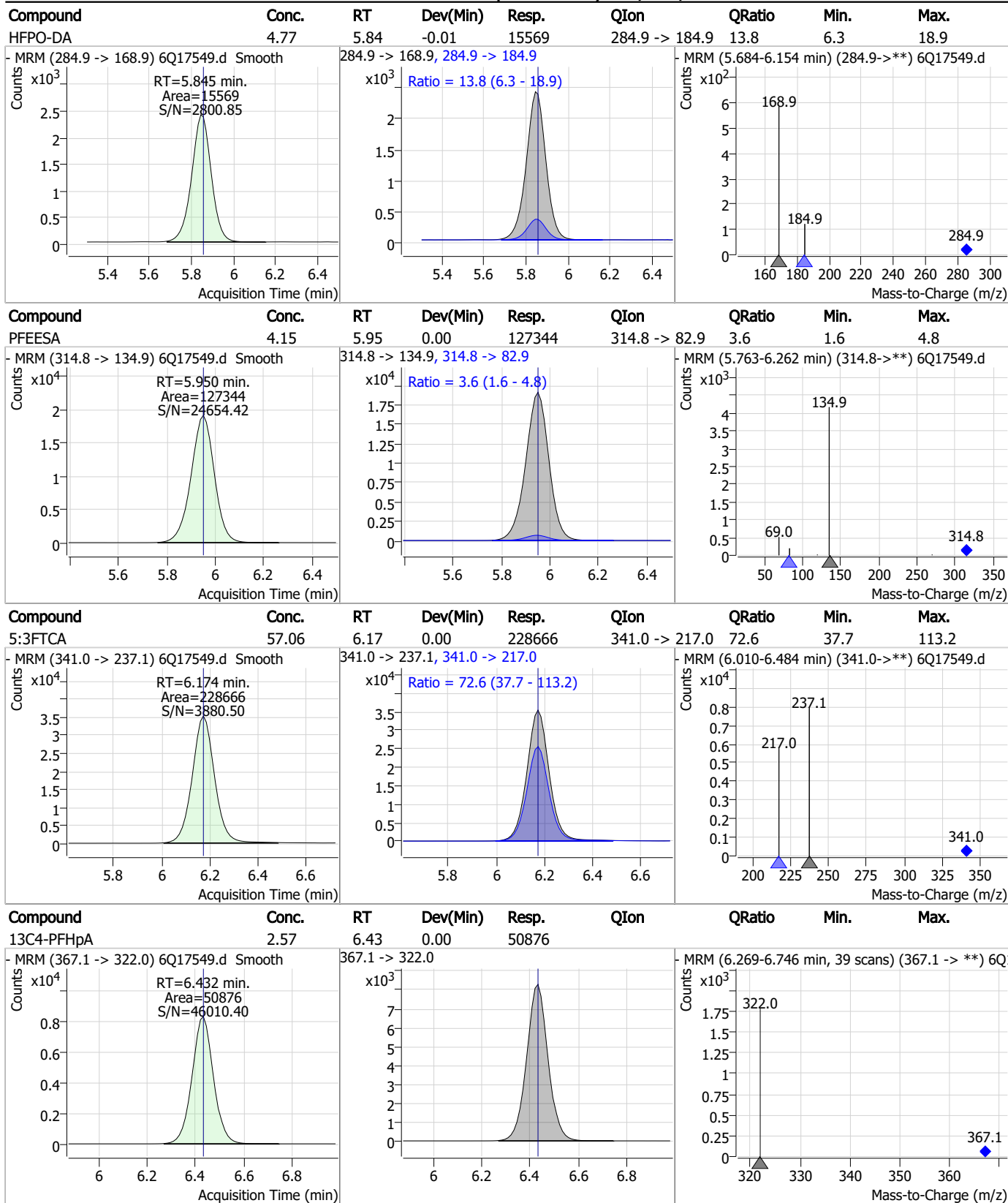
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

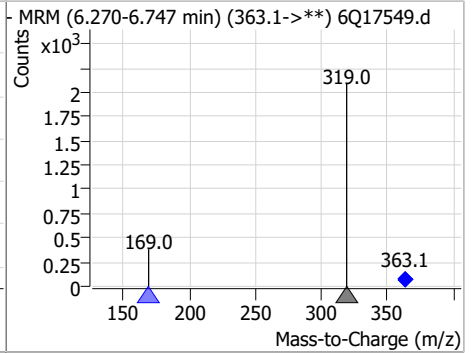
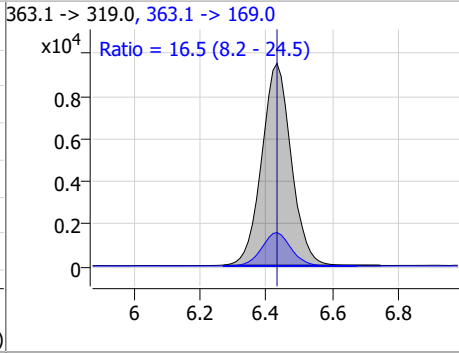
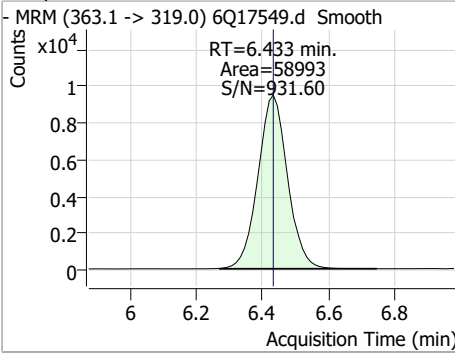


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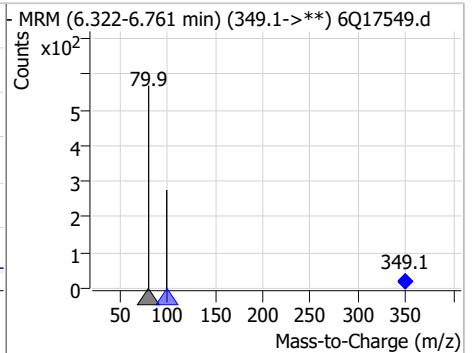
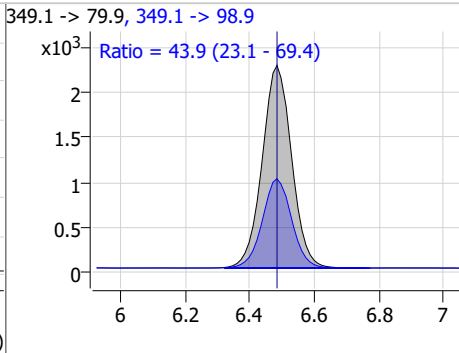
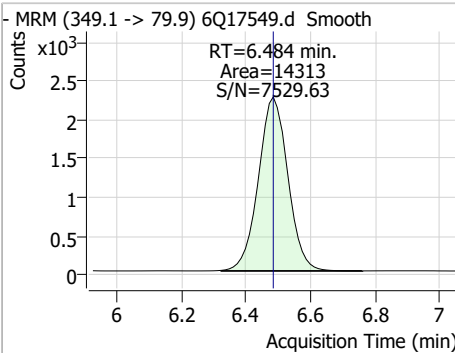
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Perfluorinated Compounds by LC/MS/MS

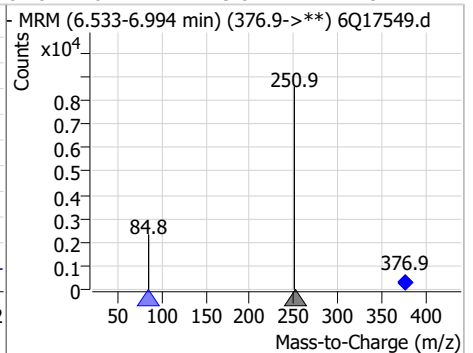
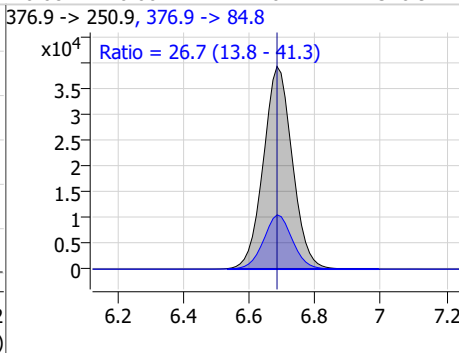
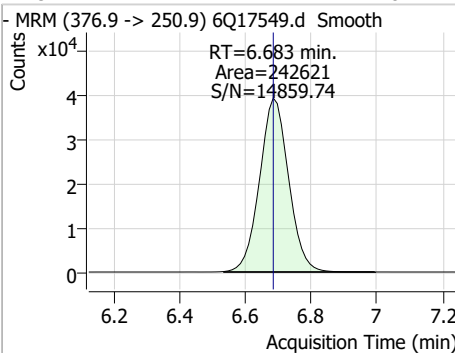
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.30	6.43	0.00	58993	363.1 -> 169.0	16.5	8.2	24.5



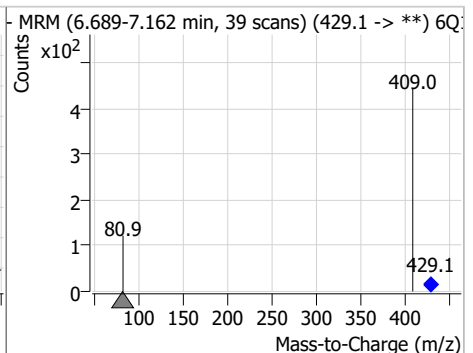
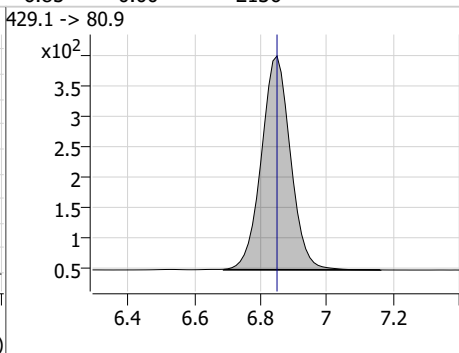
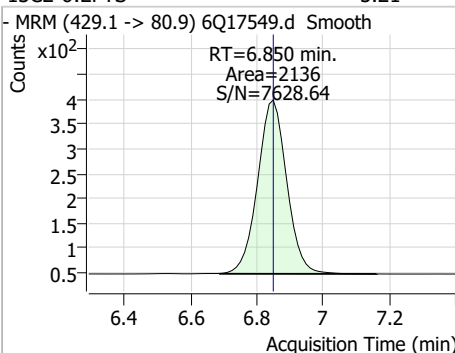
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.27	6.48	0.00	14313	349.1 -> 98.9	43.9	23.1	69.4



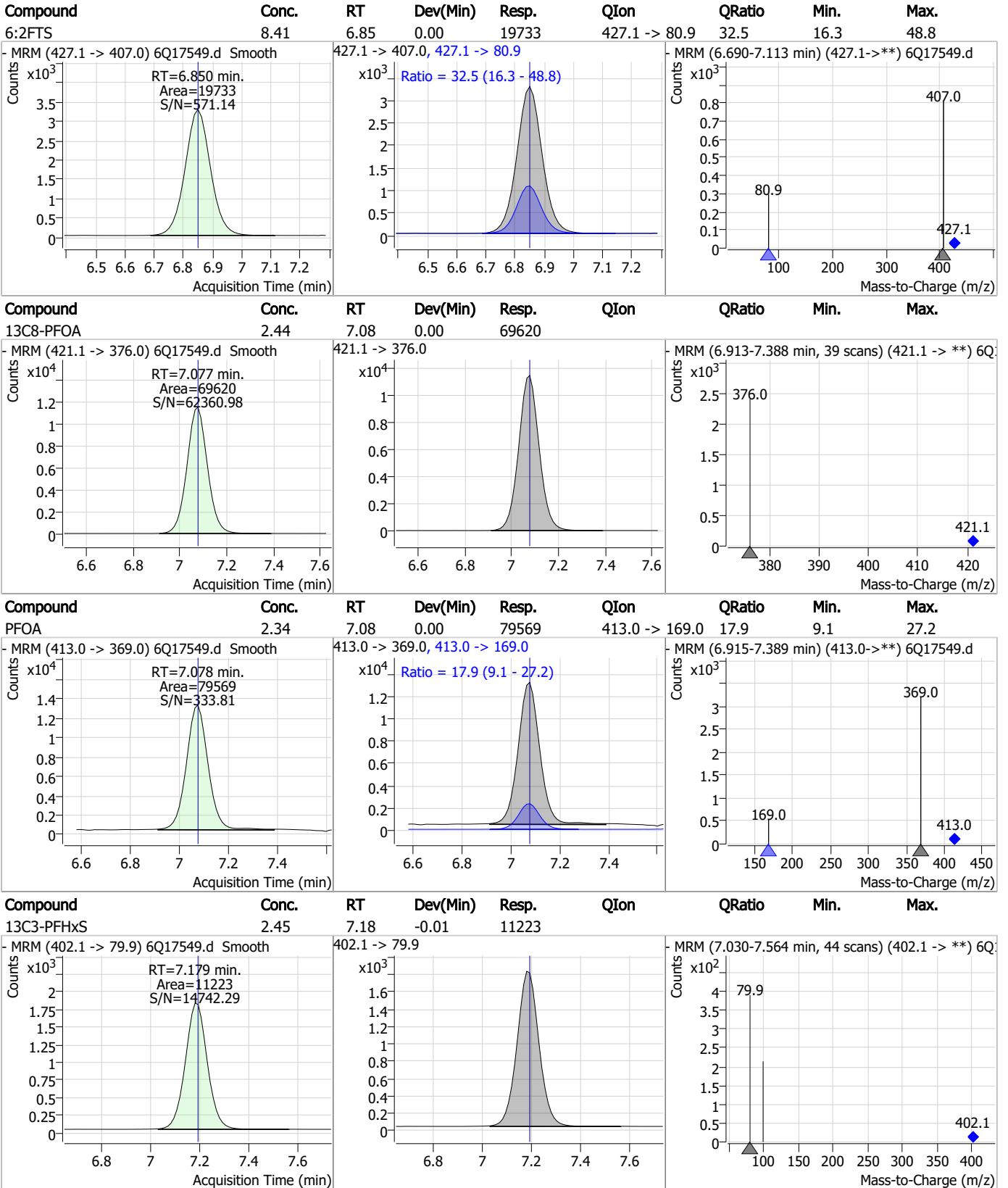
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.48	6.68	0.00	242621	376.9 -> 84.8	26.7	13.8	41.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.21	6.85	0.00	2136	429.1 -> 80.9			



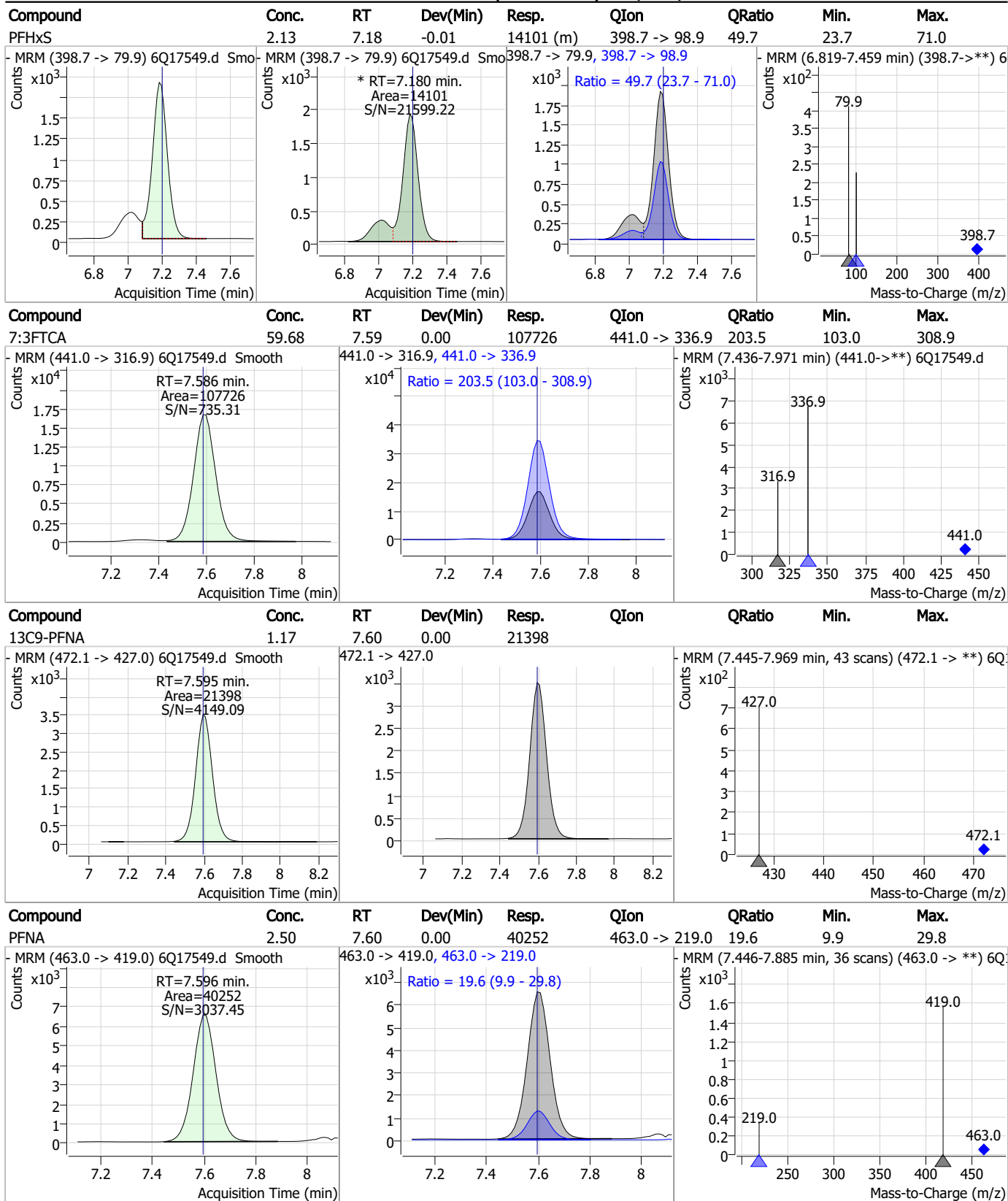
Perfluorinated Compounds by LC/MS/MS



7.7.22

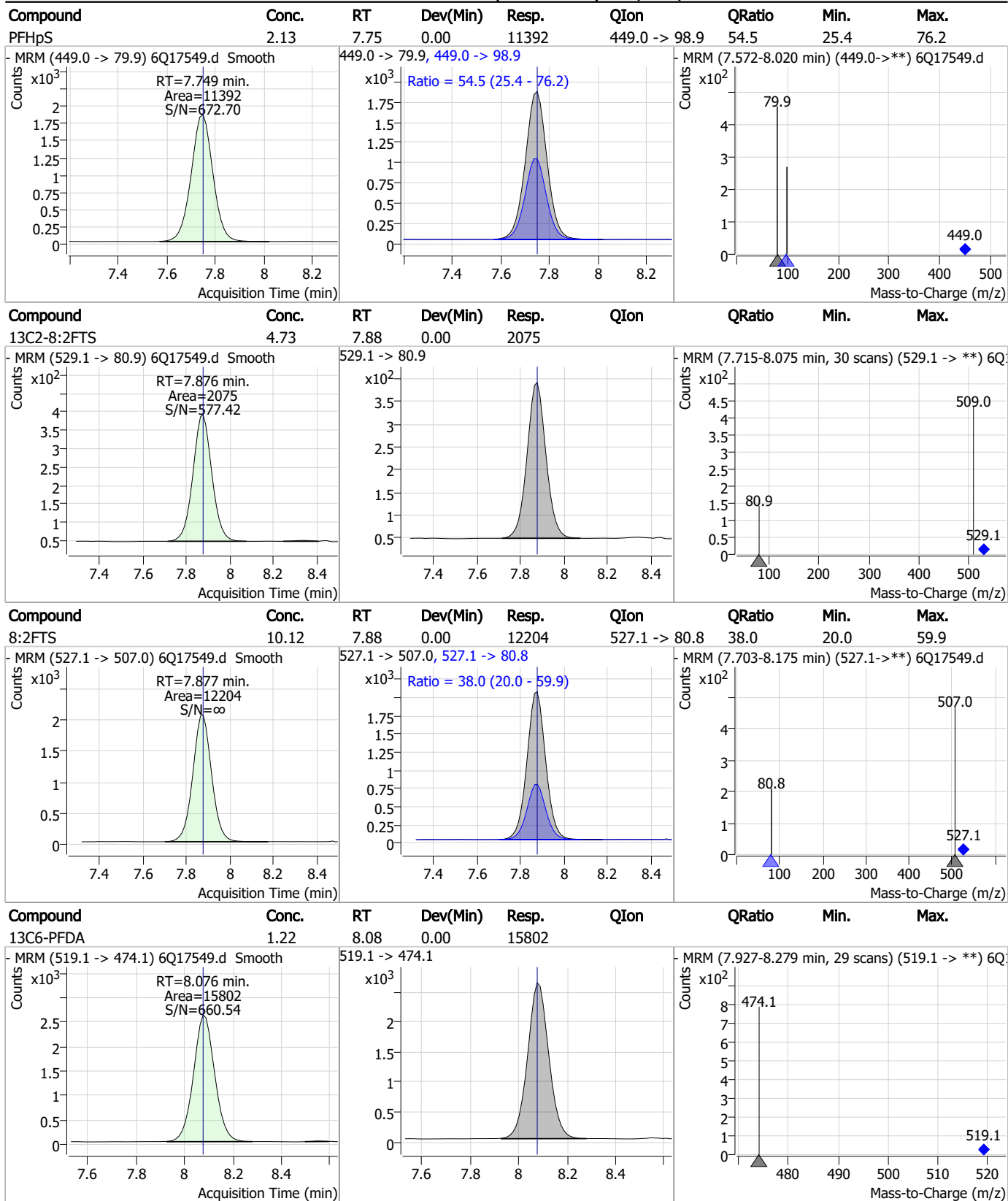
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Perfluorinated Compounds by LC/MS/MS



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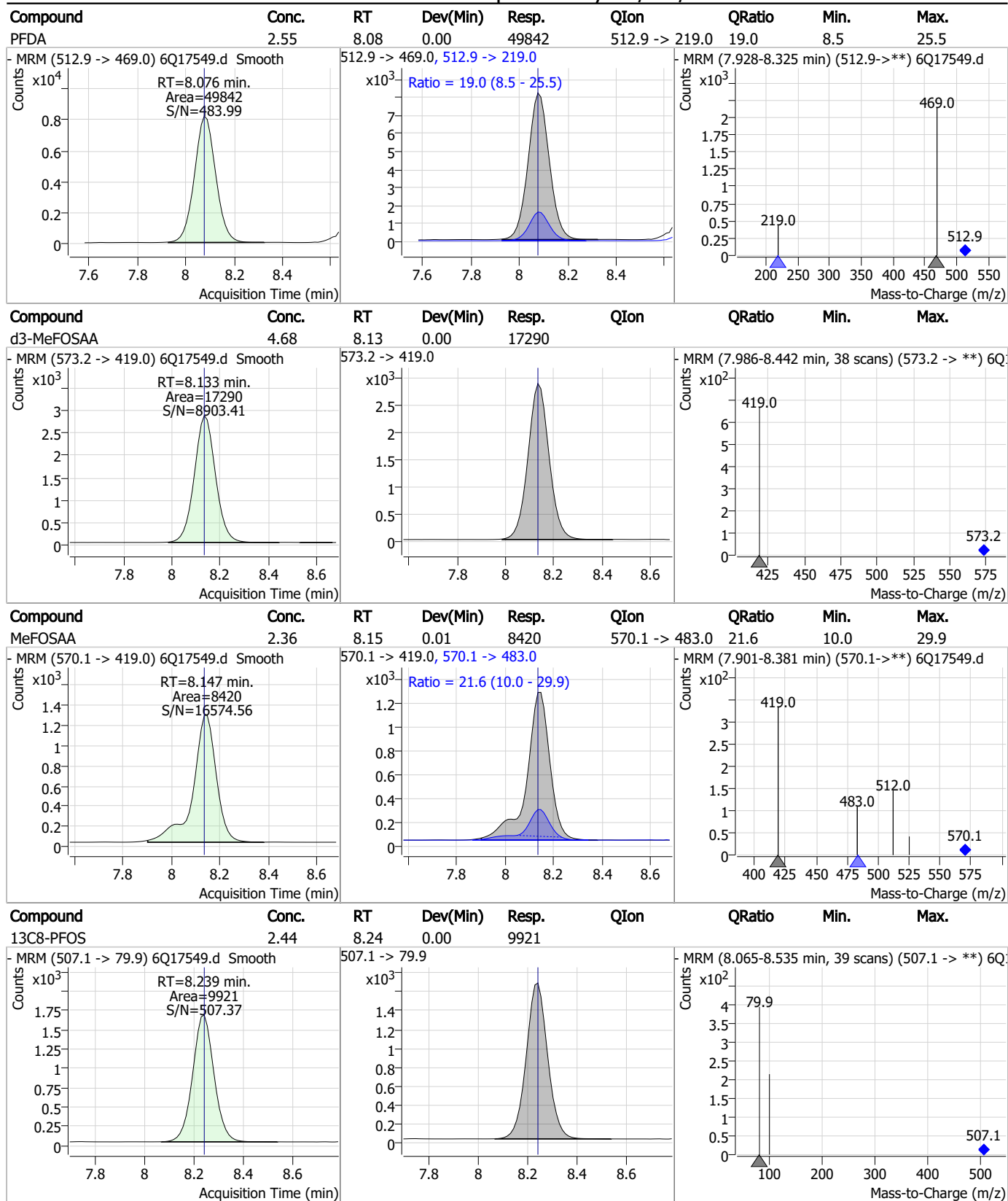
Perfluorinated Compounds by LC/MS/MS



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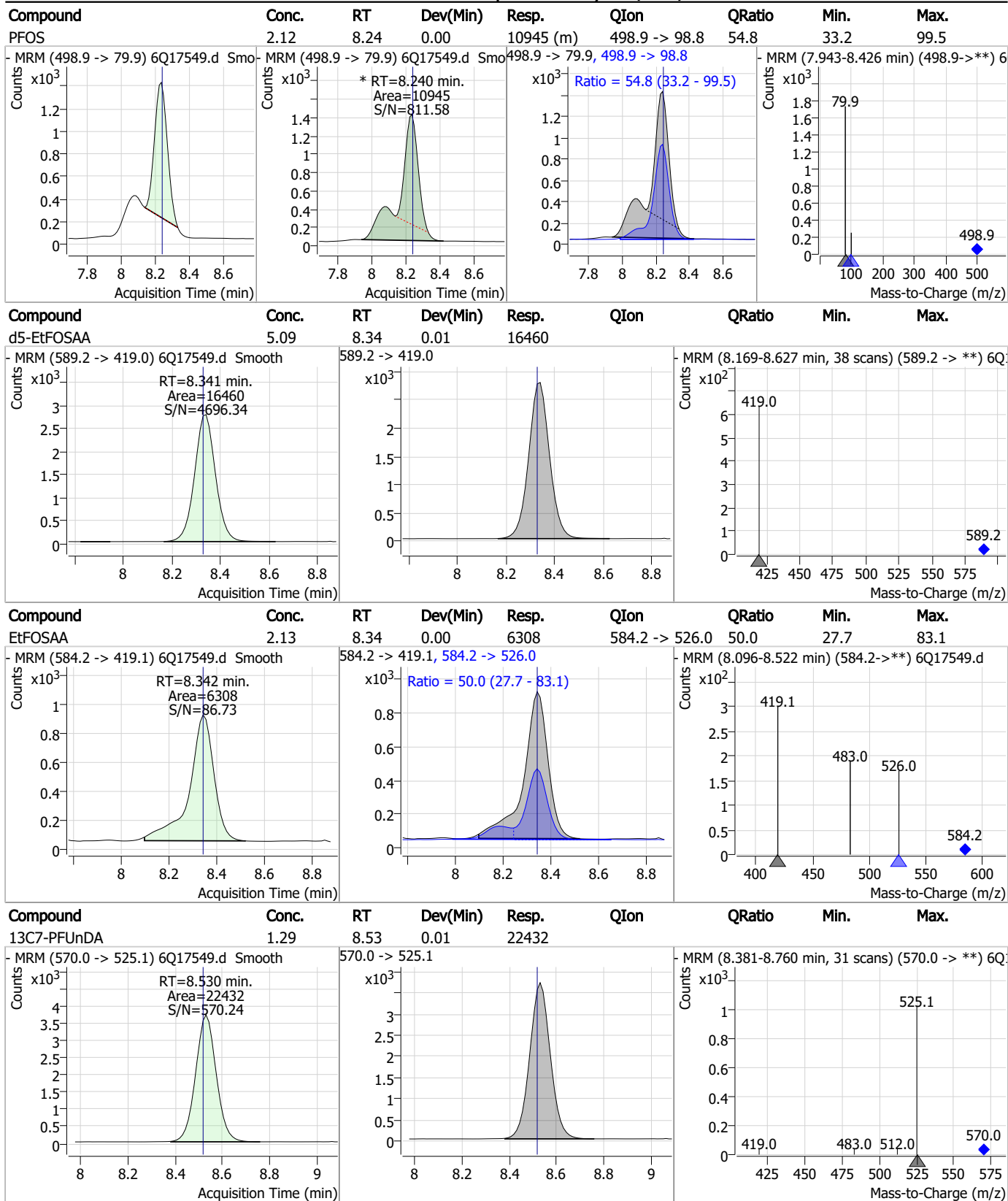
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

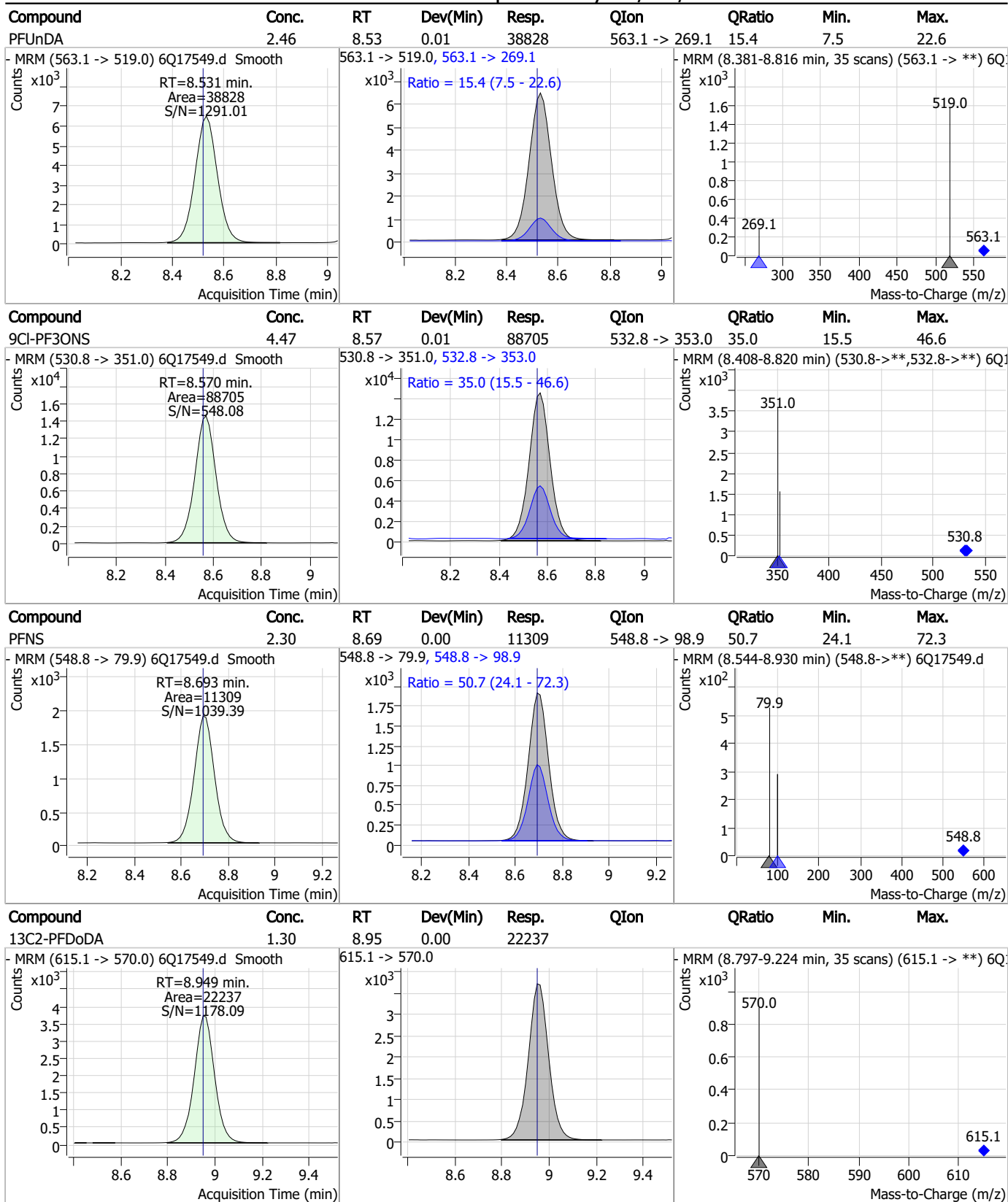


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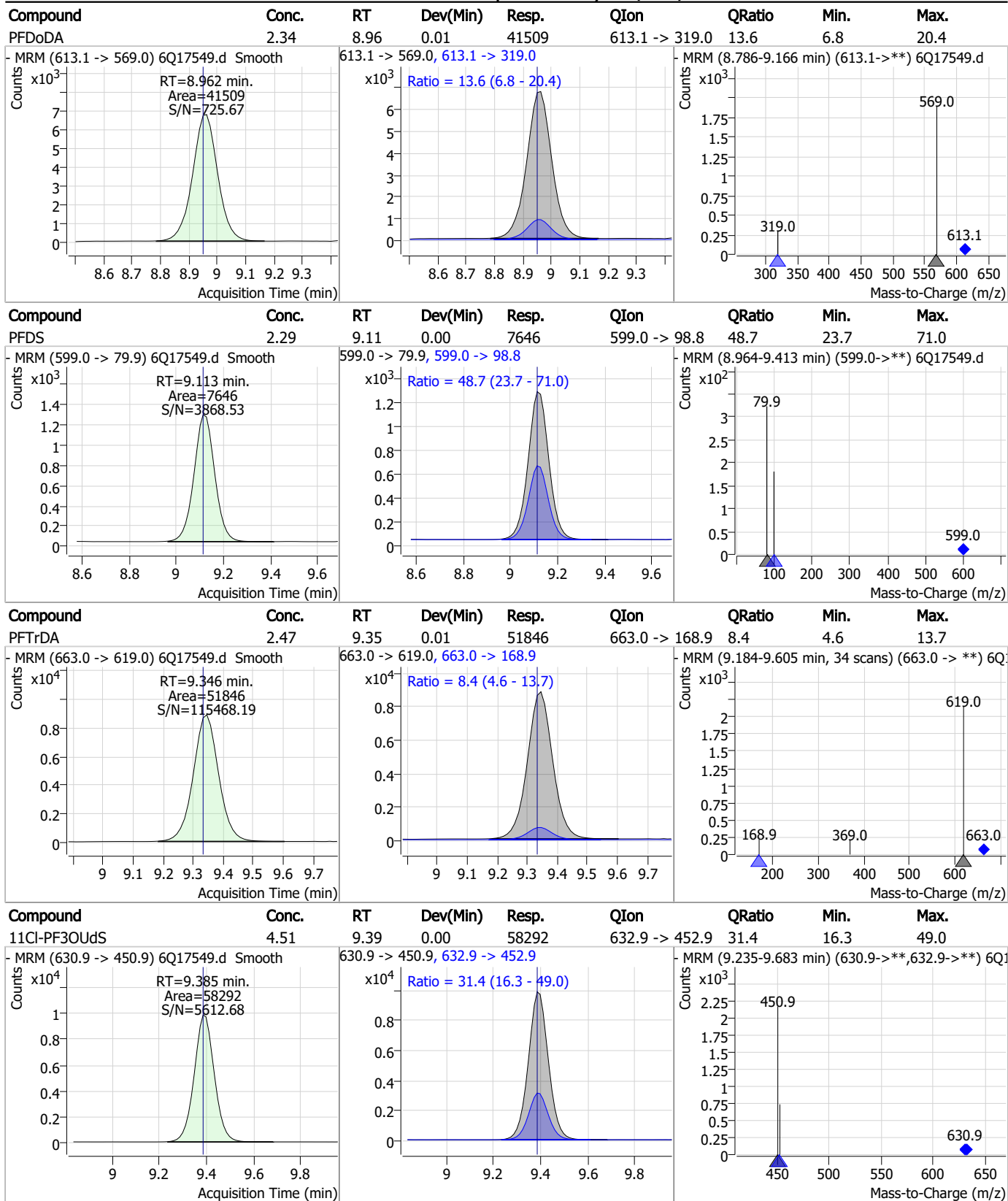
Perfluorinated Compounds by LC/MS/MS



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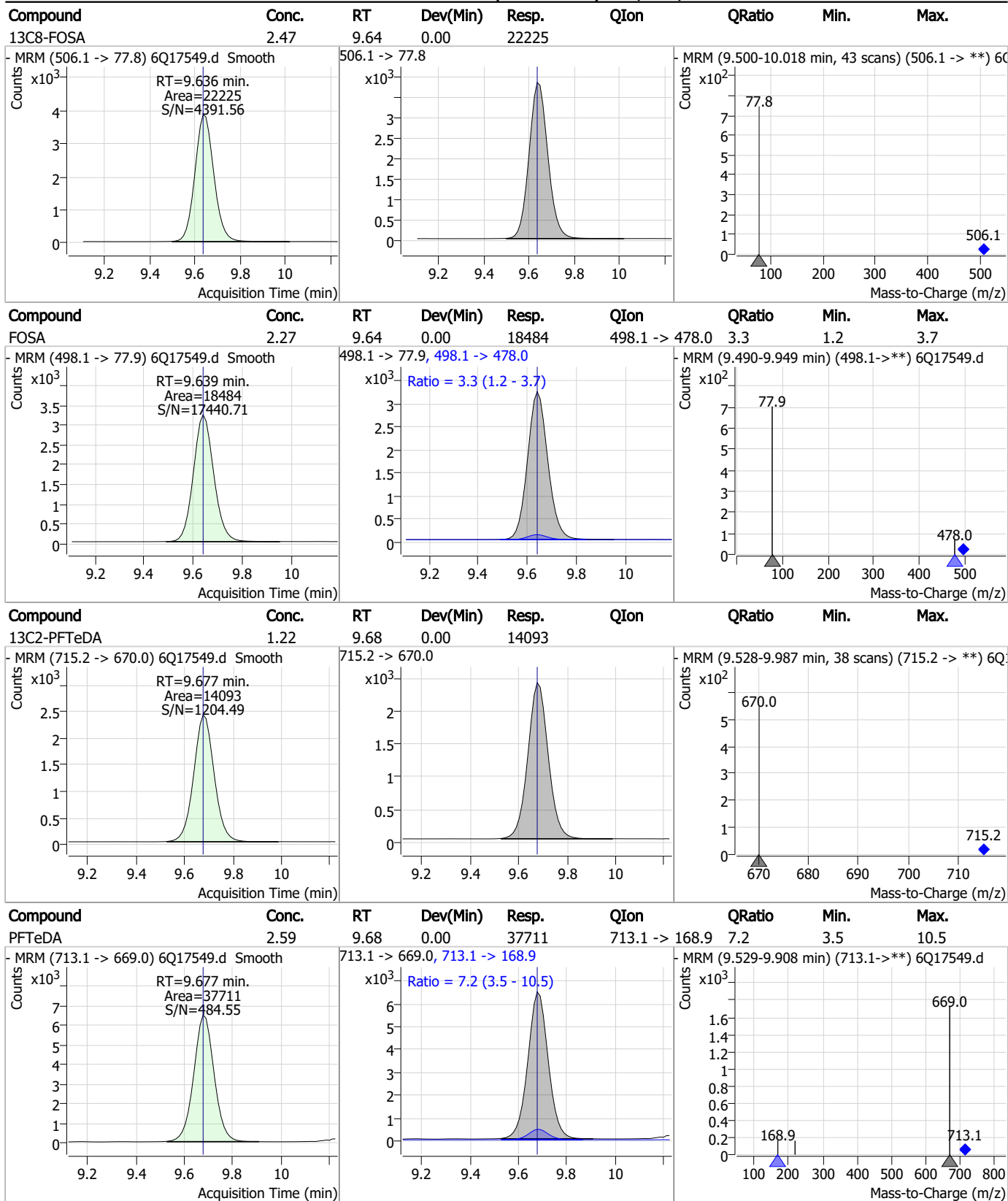
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

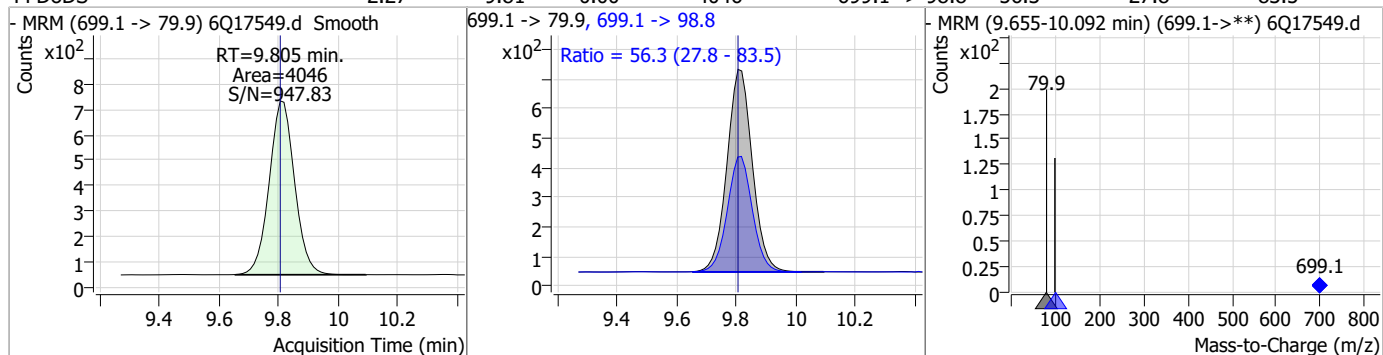


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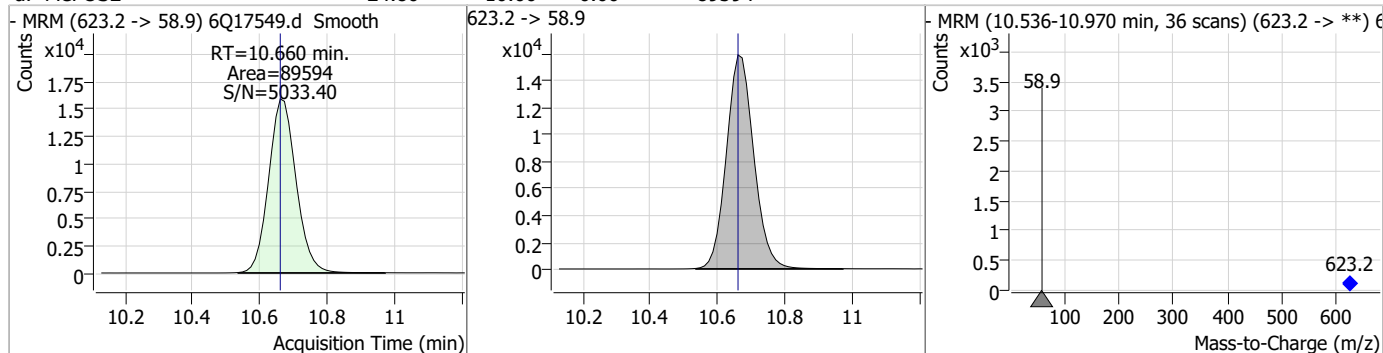
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Perfluorinated Compounds by LC/MS/MS

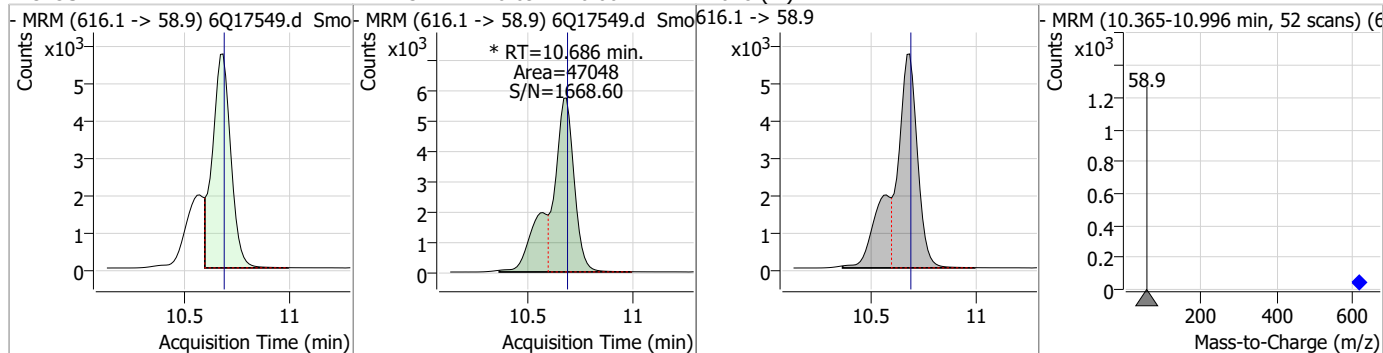
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.27	9.81	0.00	4046	699.1 -> 98.8	56.3	27.8	83.5



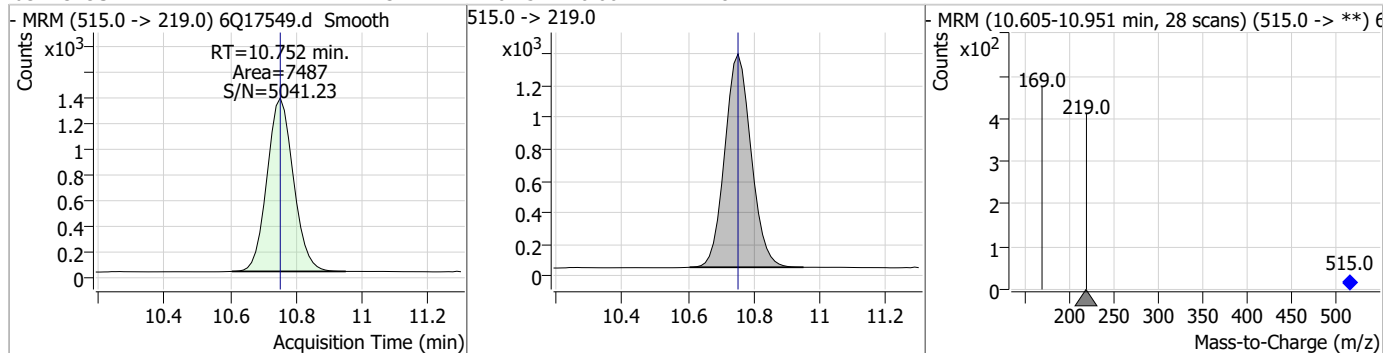
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.80	10.66	0.00	89594				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.73	10.69	0.00	47048				

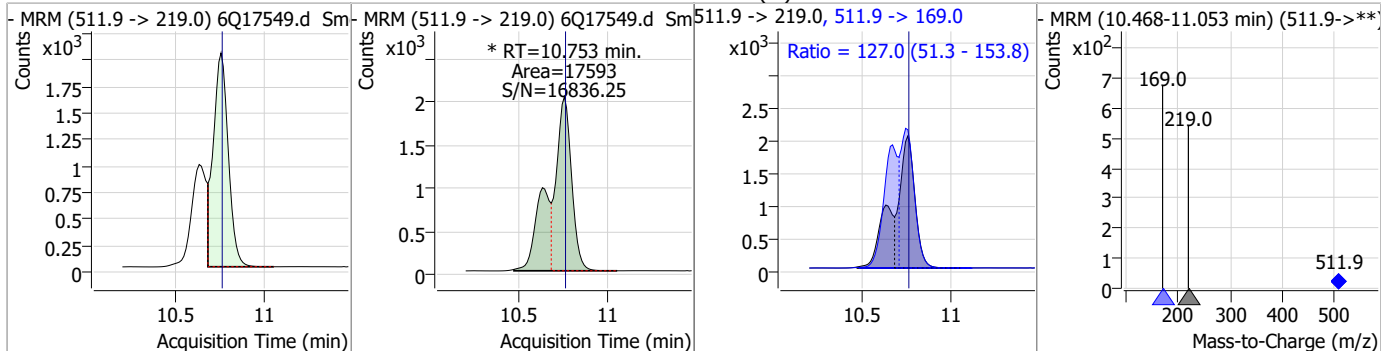


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.32	10.75	0.00	7487				

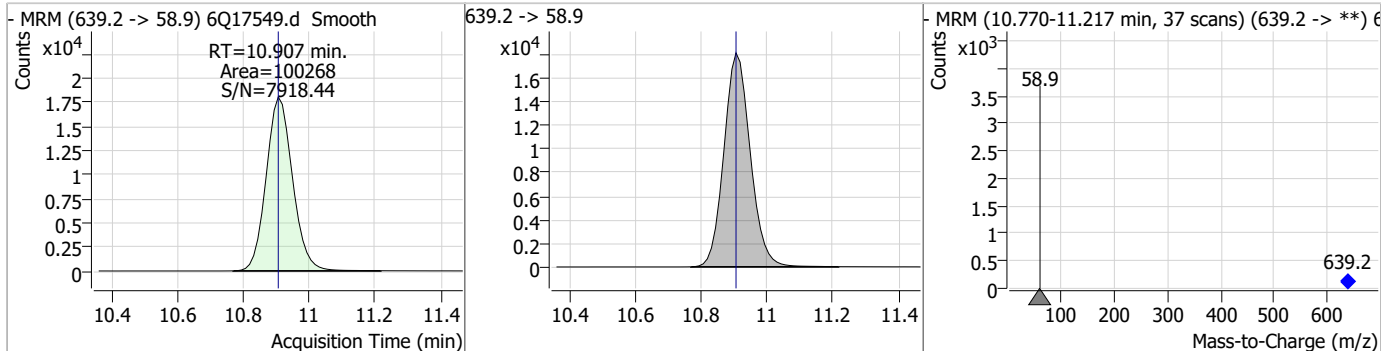


Perfluorinated Compounds by LC/MS/MS

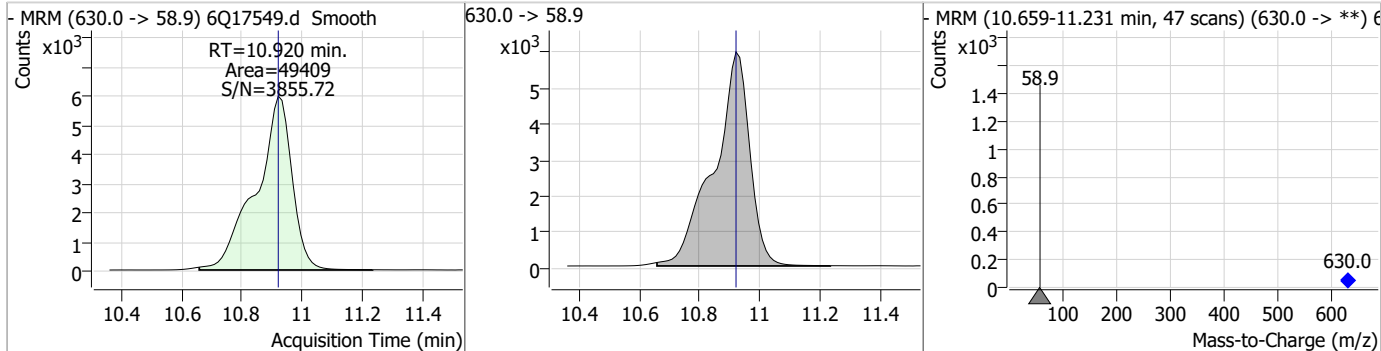
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.13	10.75	0.00	17593 (m)	511.9 -> 169.0	127.0	51.3	153.8



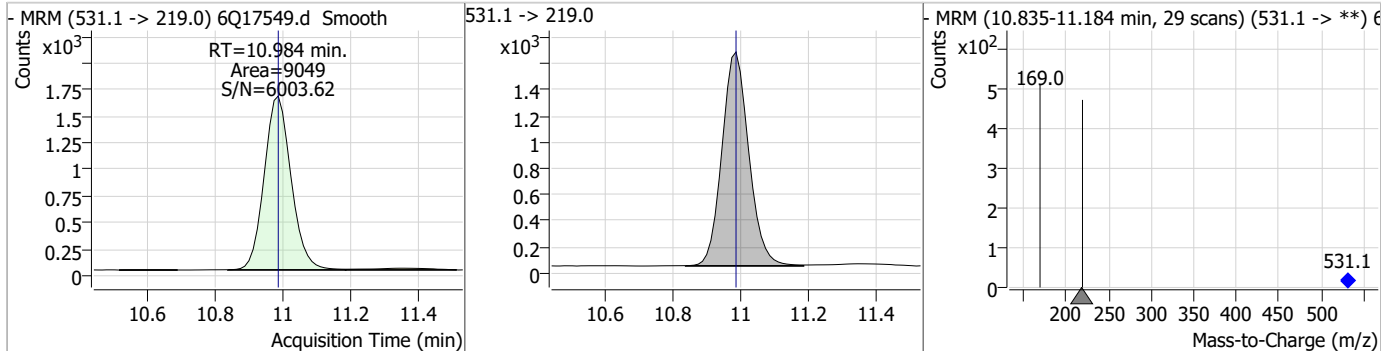
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.19	10.91	0.00	100268				



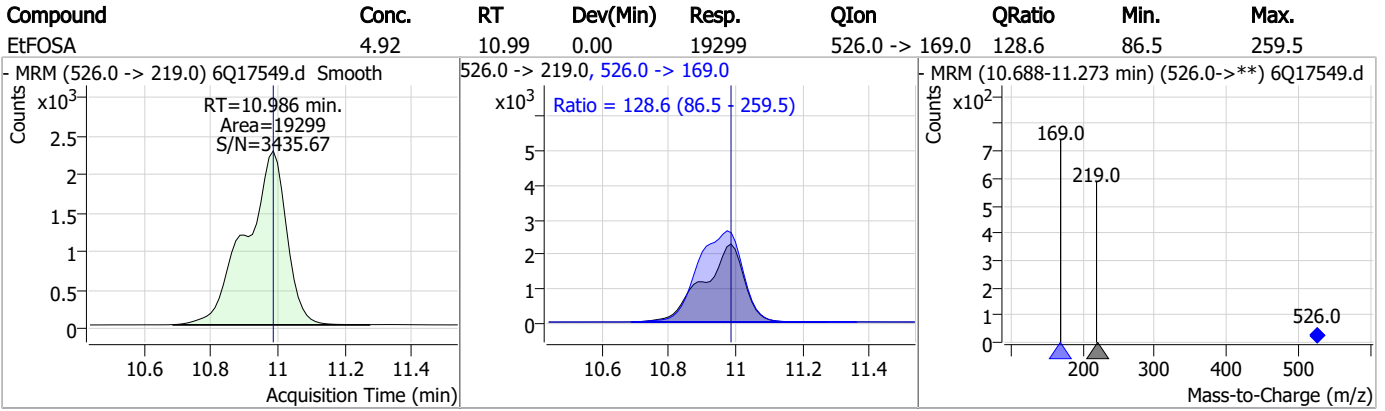
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.46	10.92	0.00	49409				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.35	10.98	0.00	9049				



Perfluorinated Compounds by LC/MS/MS



7.7.22
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Manual Integration Approval Summary

Sample Number: S6Q265-ICC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17549.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 16:49 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSE	24448-09-7		10.69	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17550.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 5:04:03 PM
 Sample Name : ic265-5
 Vial : P1-A6
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	151665	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	47430	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	51860	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	48411	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	68978	2.50 µg/L	0.000
M9-PFNA	7.608	472.1 -> 427.0	23024	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	16438	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	22157	1.25 µg/L	0.012
M2-PFDoDA	8.962	615.1 -> 570.0	21492	1.25 µg/L	0.012
M2-PFTeDA	9.677	715.2 -> 670.0	14903	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	22481	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	18711	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11726	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	9777	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1575	5.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	1781	5.00 µg/L	0.000
M2-8:2FTS	7.876	529.1 -> 80.9	1891	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	17127	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	34599	10.00 µg/L	-0.012
M5-EtFOSAA	8.341	589.2 -> 419.0	16087	5.00 µg/L	0.012
M7-MeFOSE	10.660	623.2 -> 58.9	85778	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	100653	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9316	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7843	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	12676	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	63135	5.00 µg/L	0.000
18O2-PFHxS	7.191	403.0 -> 83.9	8311	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	71564	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	17888	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	25062	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	45383	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1575	5.13 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1781	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-8:2FTS	7.876	529.1 -> 80.9	1891	4.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.1%		
13C2-PFDoDA	8.962	615.1 -> 570.0	21492	1.39 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14903	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C3-PFBS	5.409	302.1 -> 79.9	18711	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C3-PFHxS	7.179	402.1 -> 79.9	11726	2.71 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 = 108.3%	
13C4-PFBA	2.913	216.8 -> 171.9	151665	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.432	367.1 -> 322.0	48411	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFHxA	5.478	318.0 -> 273.0	51860	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C5-PFPeA	4.272	268.3 -> 223.0	47430	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.076	519.1 -> 474.1	16438	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	22157	1.41 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C8-FOSA	9.636	506.1 -> 77.8	22481	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C8-PFOA	7.077	421.1 -> 376.0	68978	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOS	8.239	507.1 -> 79.9	9777	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C9-PFNA	7.608	472.1 -> 427.0	23024	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.9%	
d3-MeFOSAA	8.133	573.2 -> 419.0	17127	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	34599	10.26 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSA	10.752	515.0 -> 219.0	7843	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
d5-EtFOSAA	8.341	589.2 -> 419.0	16087	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d7-MeFOSE	10.660	623.2 -> 58.9	85778	24.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d9-EtFOSE	10.907	639.2 -> 58.9	100653	25.22 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d5-EtFOSA	10.984	531.1 -> 219.0	9316	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	46809	19.46 µg/L	100
		327.1 -> 80.9	18434		
6:2FTS	6.850	427.1 -> 407.0	43439	22.19 µg/L	99
		427.1 -> 80.9	14318		
8:2FTS	7.877	527.1 -> 507.0	26610	24.22 µg/L	98
		527.1 -> 80.8	10905		
EtFOSAA	8.342	584.2 -> 419.1	13874	4.80 µg/L	94
		584.2 -> 526.0	8252		
FOSA	9.639	498.1 -> 77.9	39665	4.81 µg/L	99
		498.1 -> 478.0	1123		
MeFOSAA	8.147	570.1 -> 419.0	19507	5.51 µg/L	95
		570.1 -> 483.0	3438		
PFBA	2.907	212.8 -> 168.9	115358	21.24 µg/L	100
PFBS	5.410	298.7 -> 79.9	43833	4.73 µg/L	97
		298.7 -> 98.8	16288		
PFDA	8.076	512.9 -> 469.0	113207	5.56 µg/L	96
		512.9 -> 219.0	17472		
PFDoDA	8.962	613.1 -> 569.0	88567	5.17 µg/L	99
		613.1 -> 319.0	12546		
PFDS	9.113	599.0 -> 79.9	16463	5.00 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	8331			
PFHpA	6.433	363.1 -> 319.0	133895	5.48	µg/L	98
		363.1 -> 169.0	20629			
PFHpS	7.749	449.0 -> 79.9	27157	5.16	µg/L	94
		449.0 -> 98.9	12629			
PFHxA	5.481	313.0 -> 269.0	117054	5.55	µg/L	100
		313.0 -> 118.9	5534			
PFHxS	7.180	398.7 -> 79.9	29419	4.25	µg/L	m 97
		398.7 -> 98.9	14631			
PFNA	7.596	463.0 -> 419.0	86602	5.00	µg/L	100
		463.0 -> 219.0	17300			
PFNS	8.693	548.8 -> 79.9	22602	4.67	µg/L	84
		548.8 -> 98.9	13401			
PFOA	7.078	413.0 -> 369.0	182123	5.41	µg/L	97
		413.0 -> 169.0	30354			
PFOS	8.240	498.9 -> 79.9	24403	4.81	µg/L	m 78
		498.9 -> 98.8	11892			
PFPeA	4.274	263.0 -> 219.0	150827	10.88	µg/L	100
PFPeS	6.484	349.1 -> 79.9	28948	4.39	µg/L	98
		349.1 -> 98.9	13713			
PFTeDA	9.677	713.1 -> 669.0	81910	5.31	µg/L	99
		713.1 -> 168.9	5458			
PFTrDA	9.346	663.0 -> 619.0	104767	5.17	µg/L	99
		663.0 -> 168.9	9314			
PFUnDA	8.531	563.1 -> 519.0	81297	5.22	µg/L	99
		563.1 -> 269.1	12767			
11CI-PF3OUdS	9.385	630.9 -> 450.9	128211	9.68	µg/L	98
		632.9 -> 452.9	40231			
9CI-PF3ONS	8.570	530.8 -> 351.0	194996	9.60	µg/L	97
		532.8 -> 353.0	63737			
ADONA	6.683	376.9 -> 250.9	558334	10.07	µg/L	94
		376.9 -> 84.8	135550			
HFPO-DA	5.845	284.9 -> 168.9	34033	10.19	µg/L	99
		284.9 -> 184.9	4376			
3:3FTCA	3.790	241.0 -> 177.0	23242	26.27	µg/L	98
		241.0 -> 117.0	2965			
5:3FTCA	6.174	341.0 -> 237.1	494895	137.54	µg/L	94
		341.0 -> 217.0	349880			
7:3FTCA	7.586	441.0 -> 316.9	216478	133.58	µg/L	99
		441.0 -> 336.9	441268			
EtFOSA	10.986	526.0 -> 219.0	43488	10.77	µg/L	63
		526.0 -> 169.0	52884			
EtFOSE	10.920	630.0 -> 58.9	110366	25.50	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	37362	10.39	µg/L	m 62
		511.9 -> 169.0	52807			
MeFOSE	10.686	616.1 -> 58.9	101646	26.47	µg/L	m 100
PFDoDS	9.805	699.1 -> 79.9	8948	5.10	µg/L	97
		699.1 -> 98.8	4802			
NFDHA	5.361	295.0 -> 201.0	26234	11.65	µg/L	97
		295.0 -> 84.9	6643			
PFMBA	4.688	279.0 -> 85.1	105297	10.76	µg/L	100
PFMPA	3.442	229.0 -> 84.9	75813	10.79	µg/L	100
PFEESA	5.950	314.8 -> 134.9	271884	9.88	µg/L	98
		314.8 -> 82.9	10388			

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

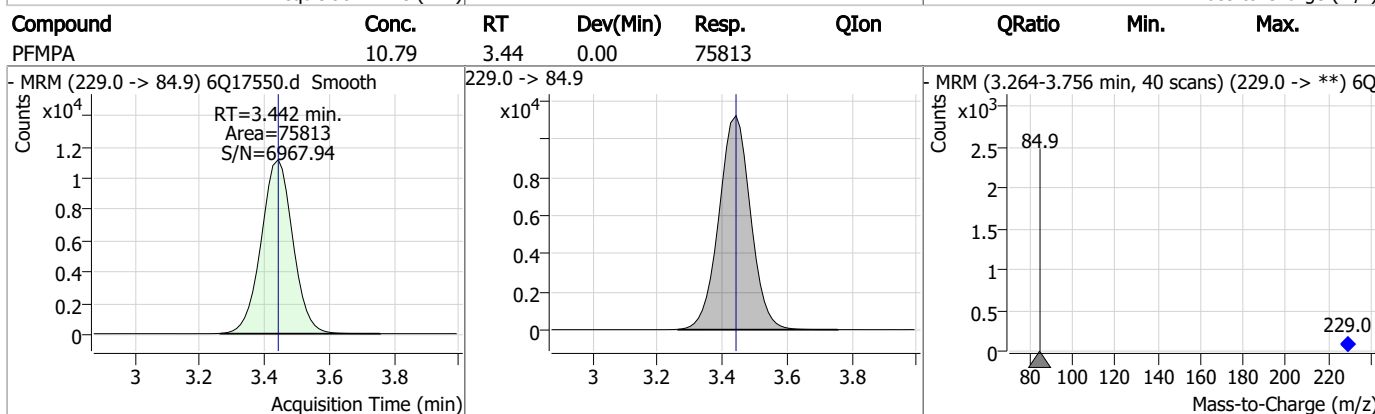
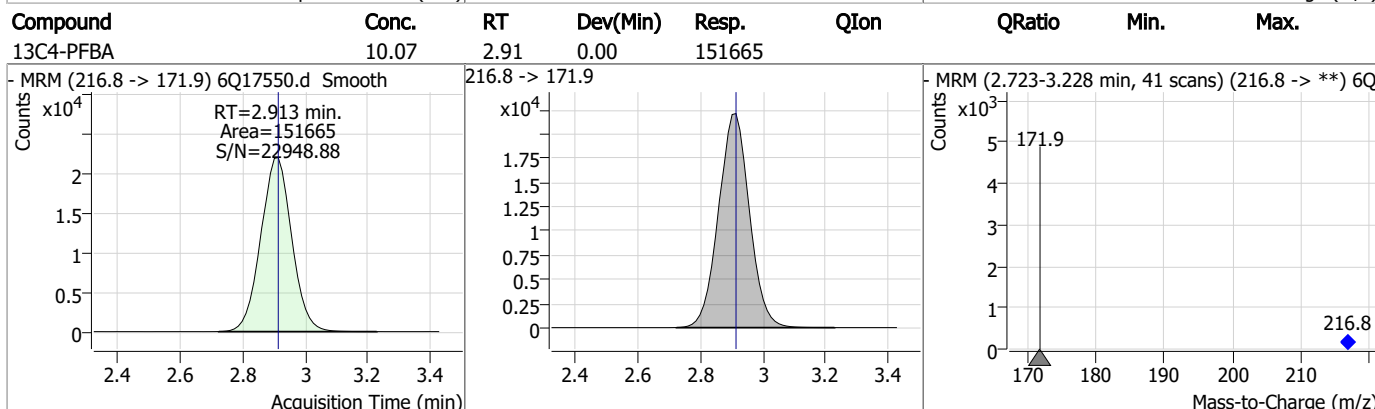
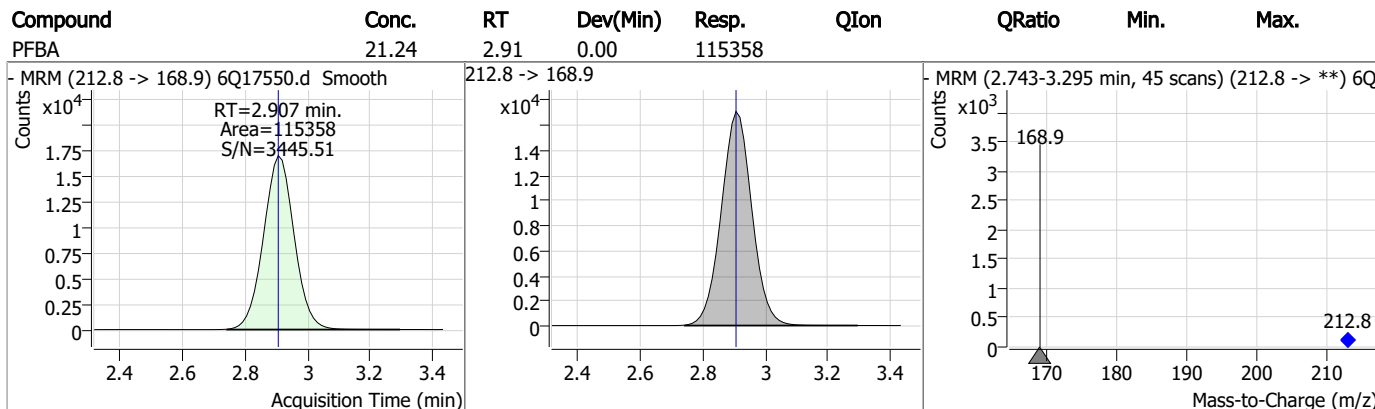
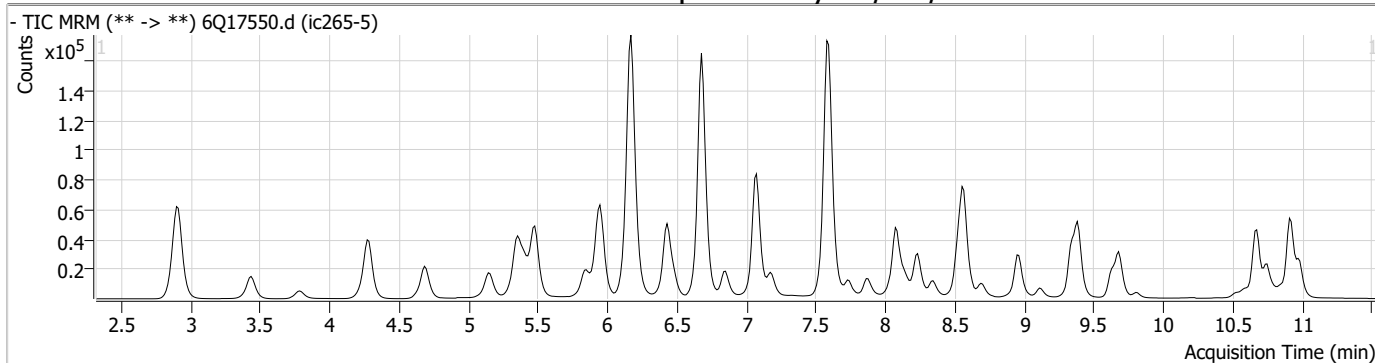
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.23

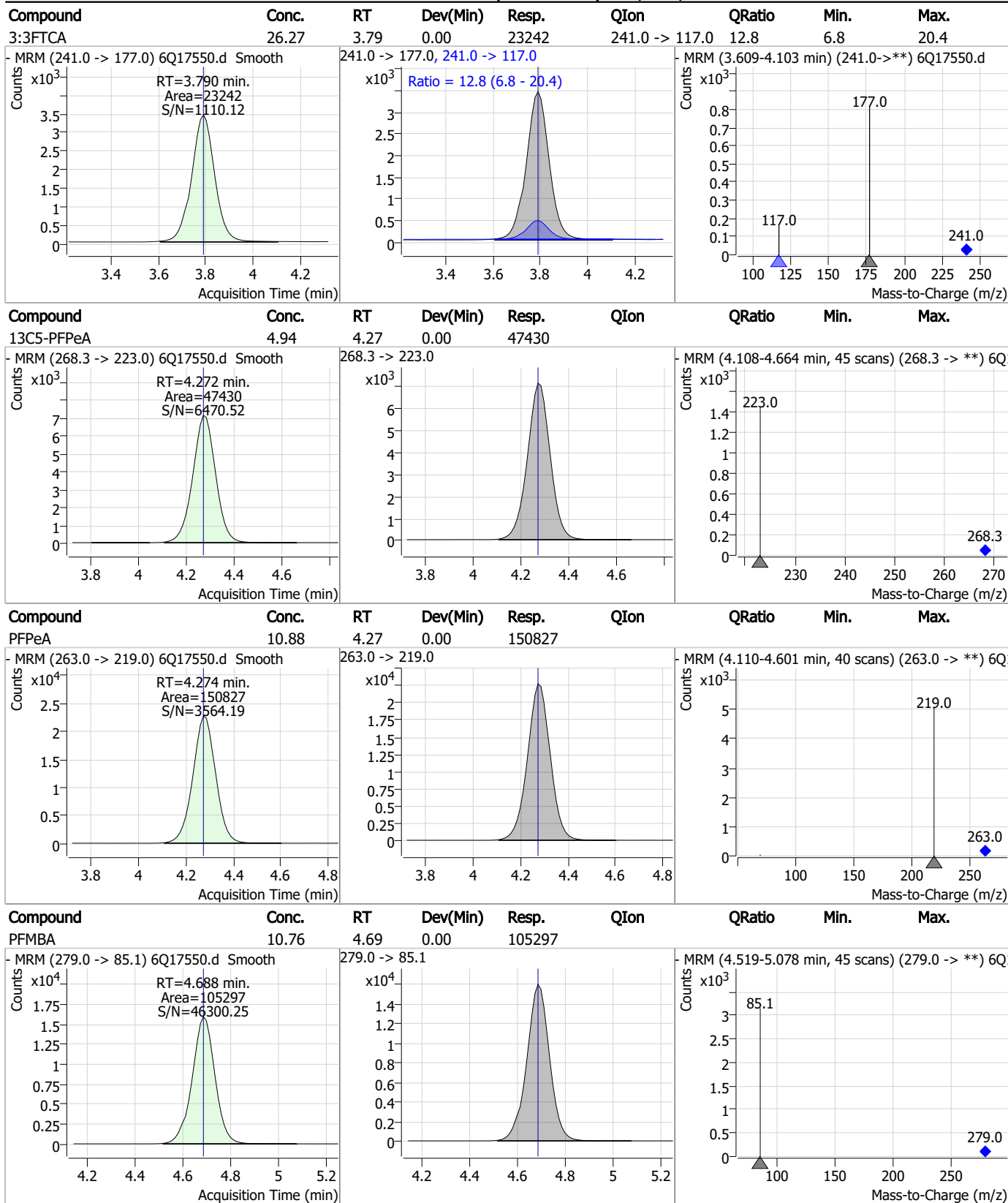
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Perfluorinated Compounds by LC/MS/MS



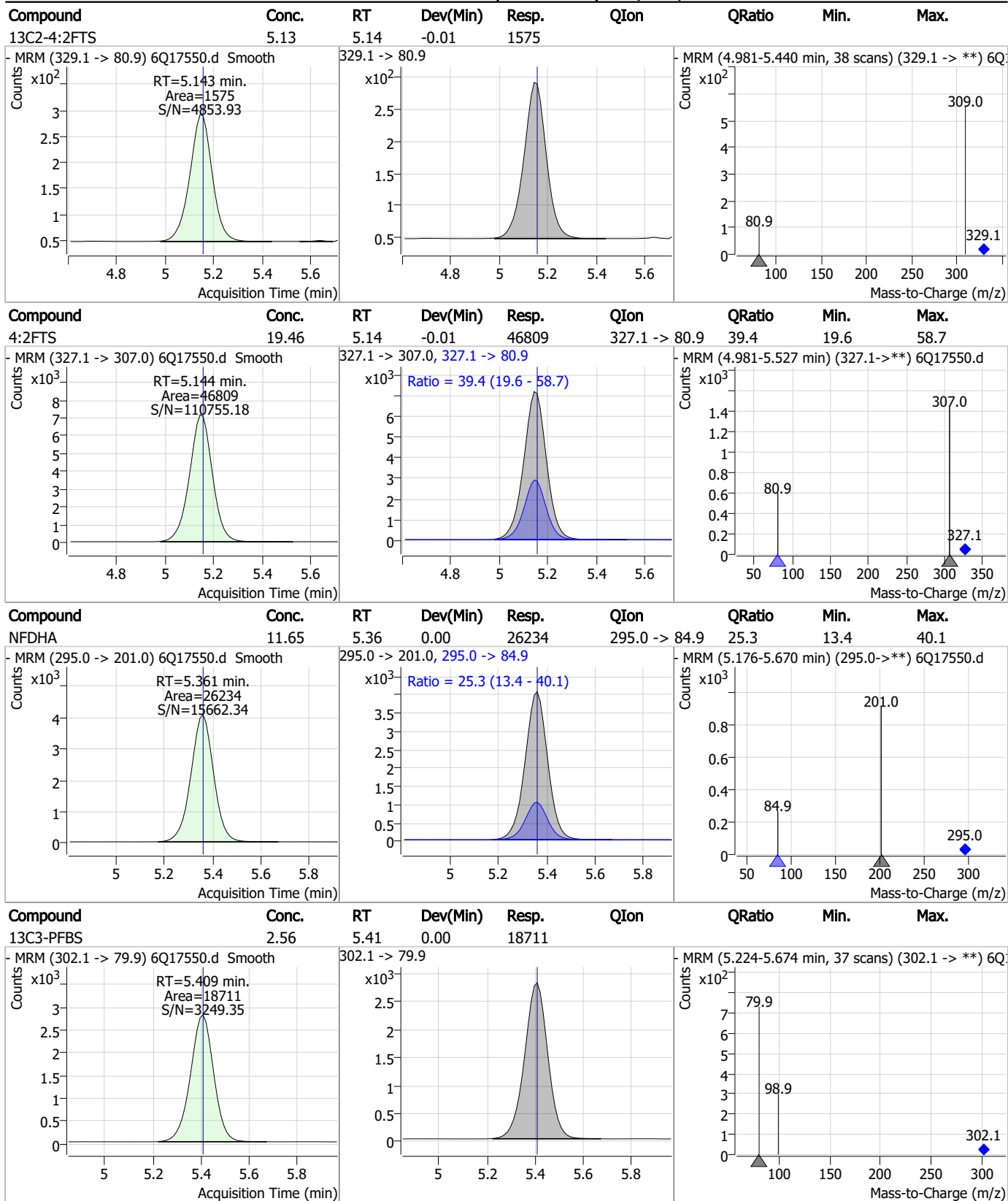
7.7.23
7

Perfluorinated Compounds by LC/MS/MS



7.7.23 7

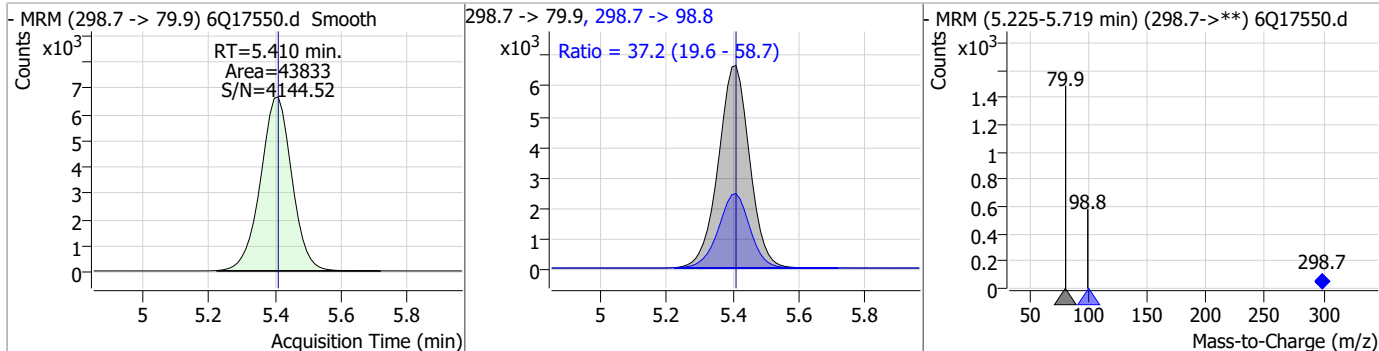
Perfluorinated Compounds by LC/MS/MS



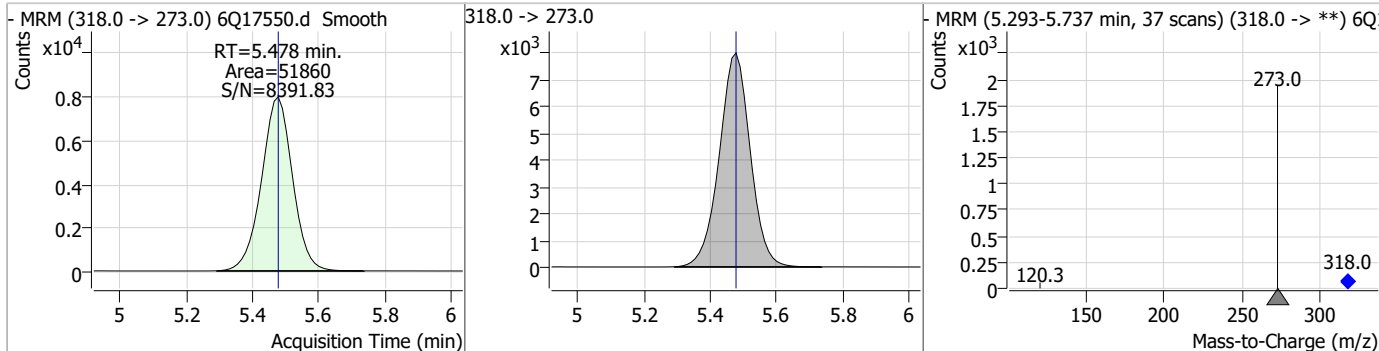
7.7.23
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Perfluorinated Compounds by LC/MS/MS

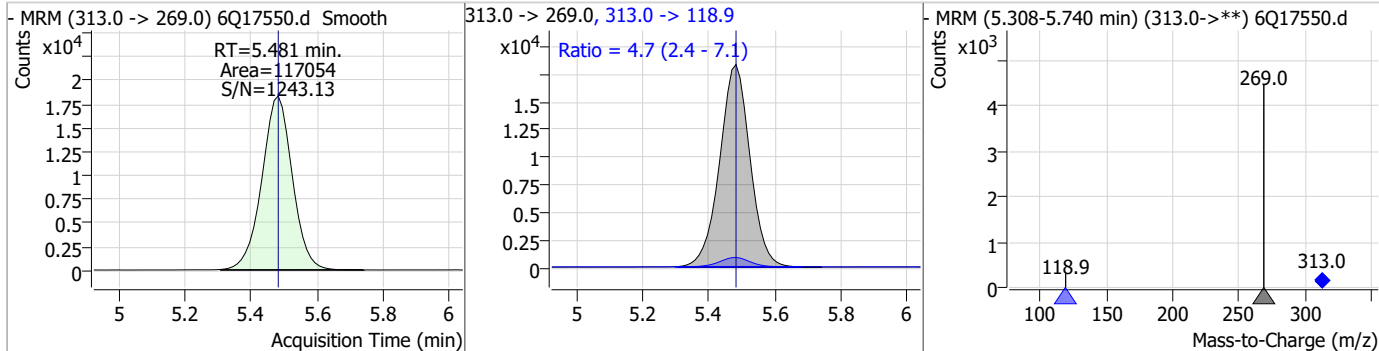
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.73	5.41	0.00	43833	298.7 -> 98.8	37.2	19.6	58.7



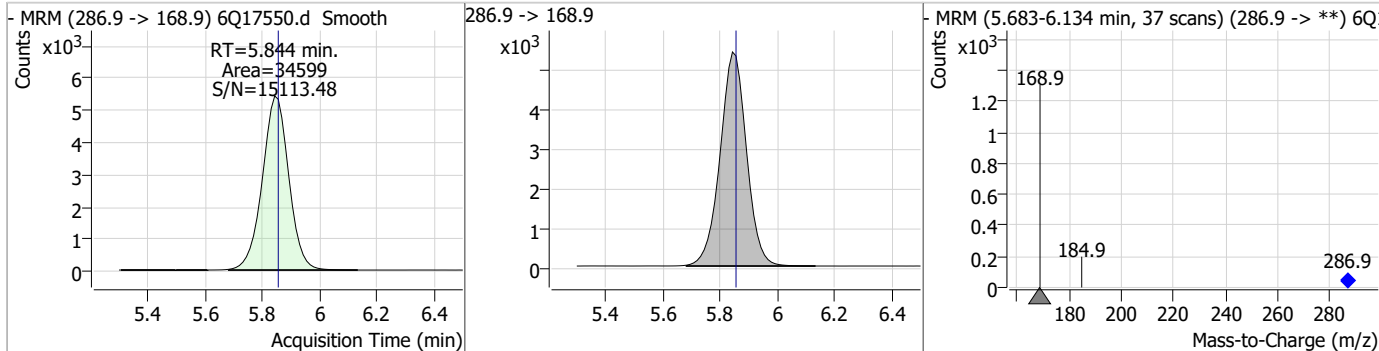
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.35	5.48	0.00	51860				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	5.55	5.48	0.00	117054	313.0 -> 118.9	4.7	2.4	7.1

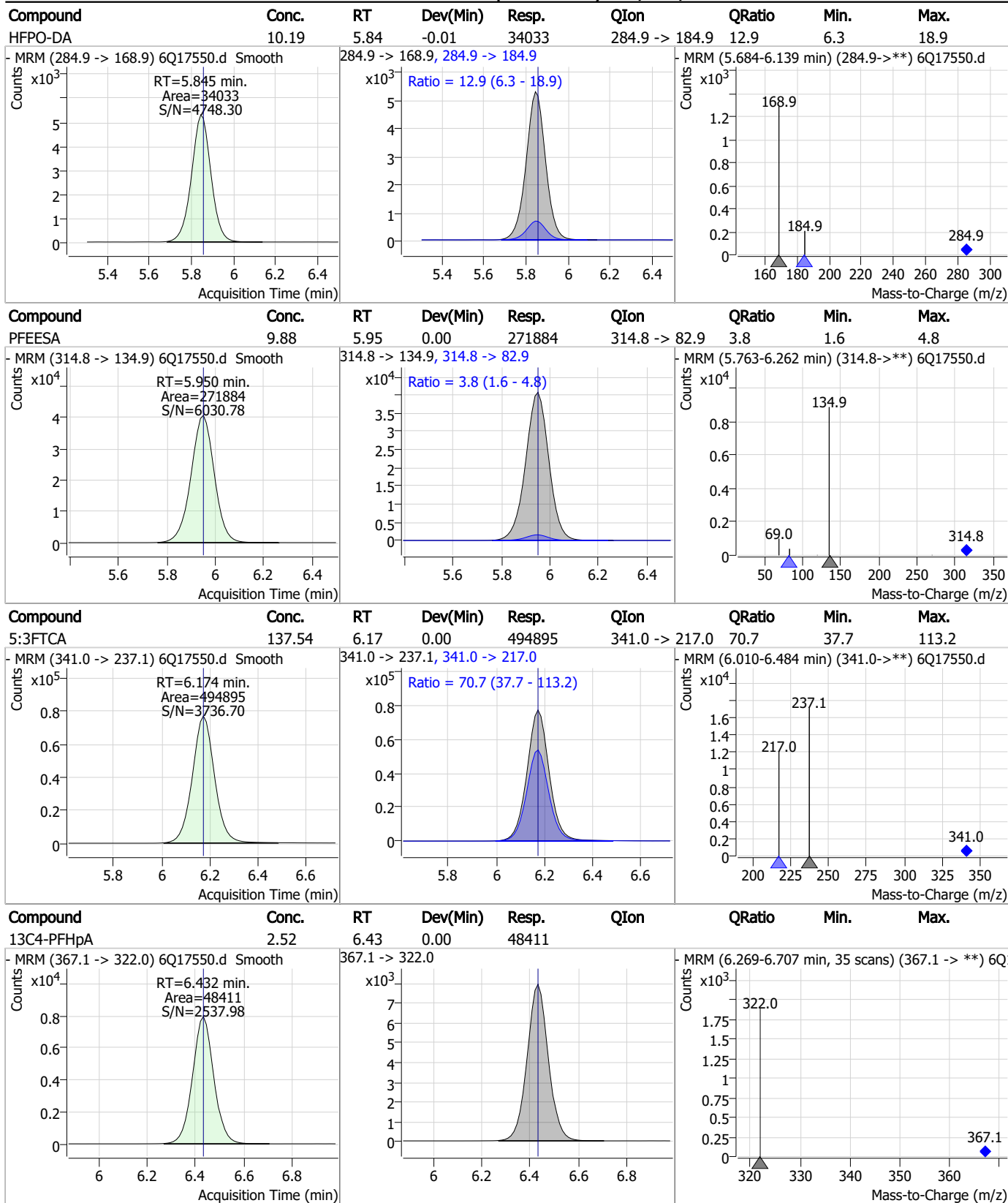


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.26	5.84	-0.01	34599				



7.7.23
7

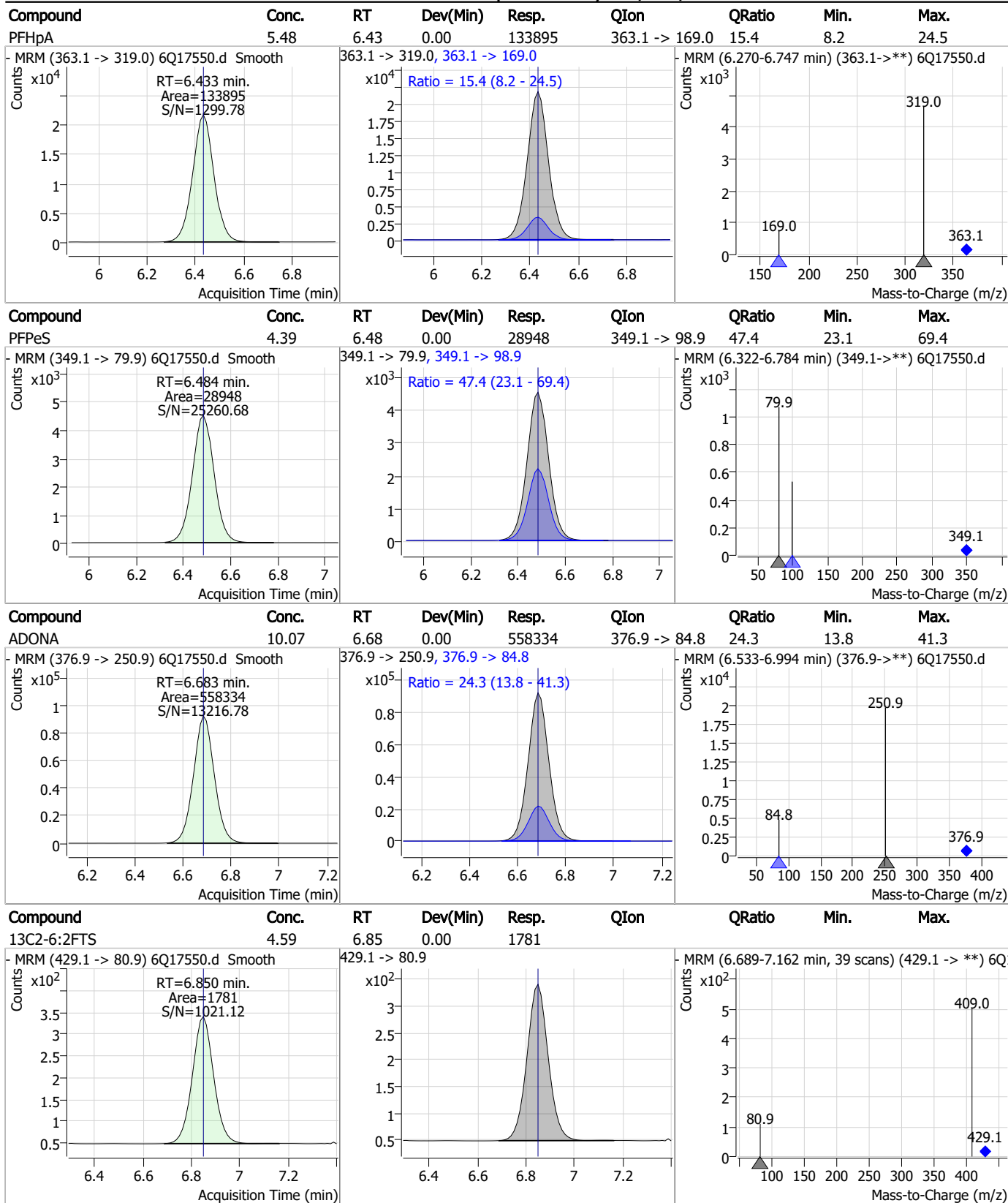
Perfluorinated Compounds by LC/MS/MS



7.7.23

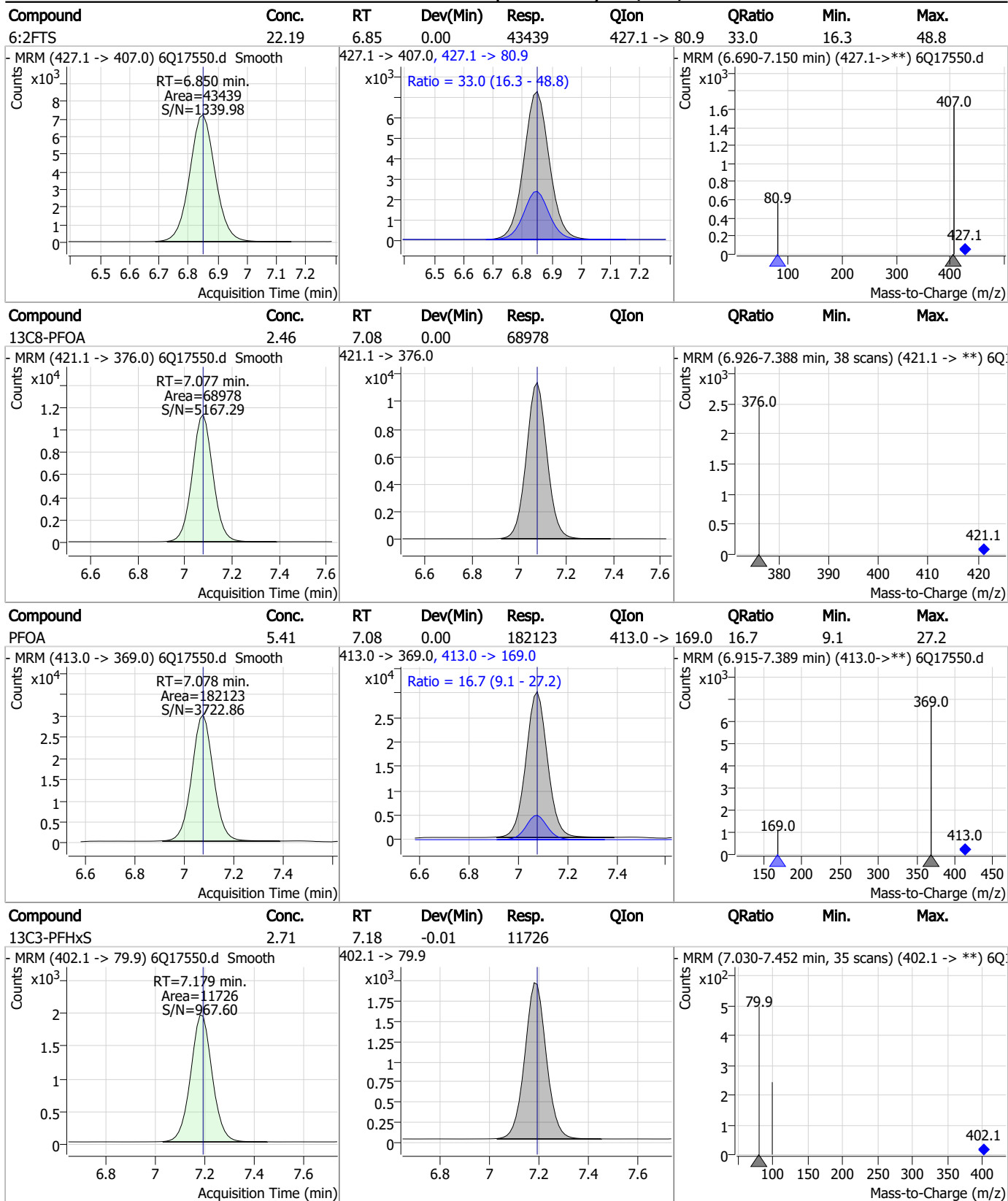
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Perfluorinated Compounds by LC/MS/MS



7.7.23
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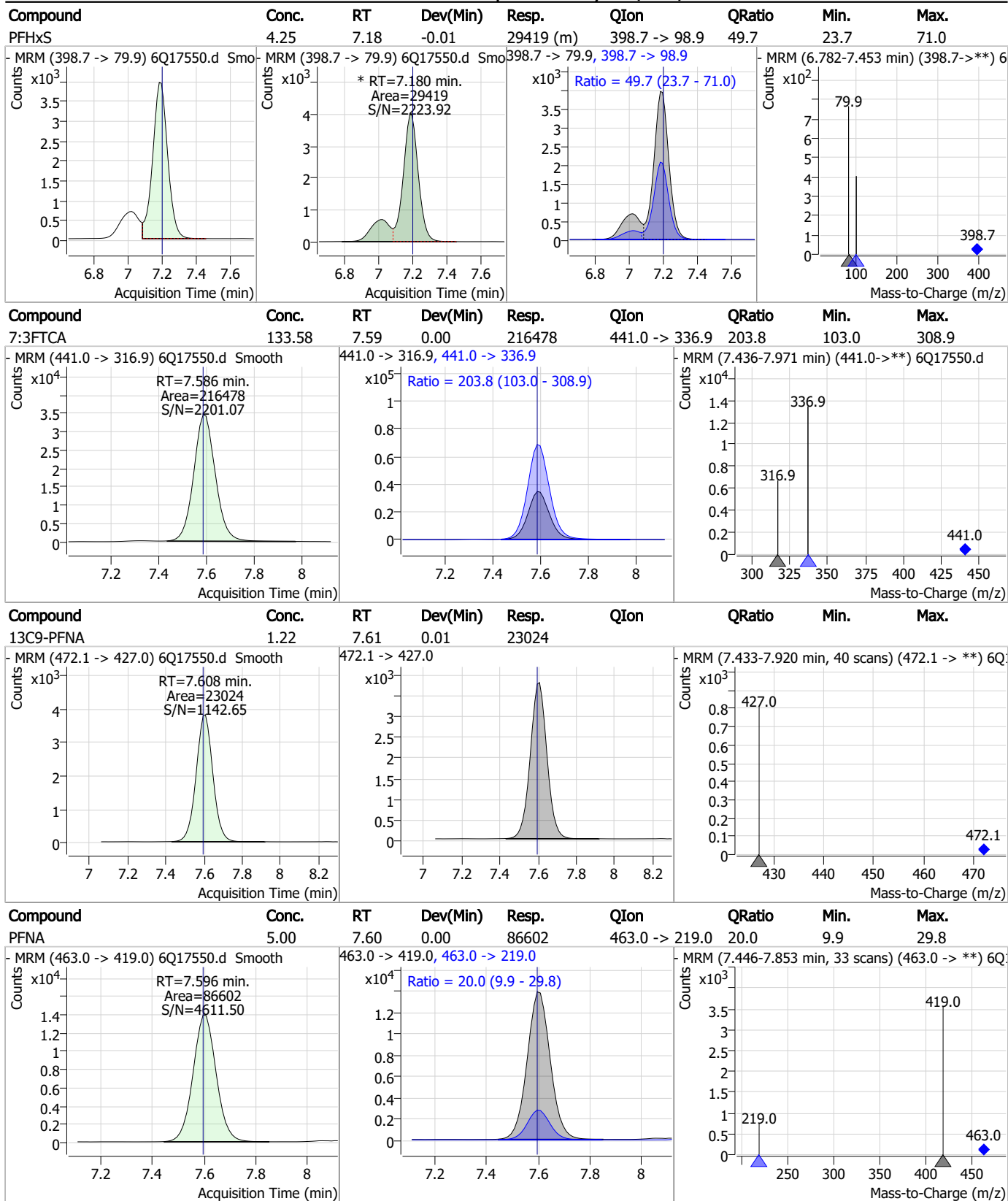
Perfluorinated Compounds by LC/MS/MS



7.7.23

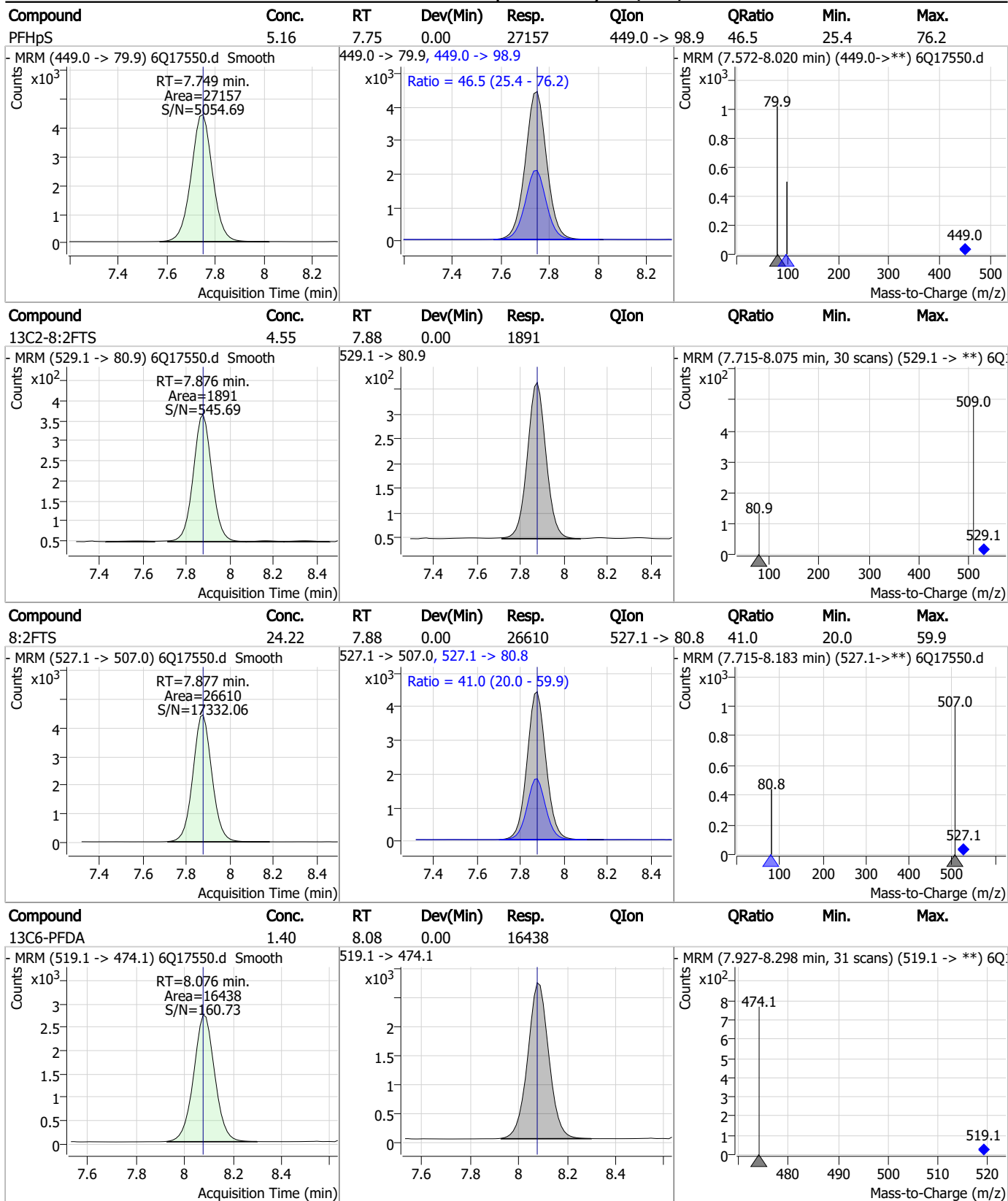
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Perfluorinated Compounds by LC/MS/MS



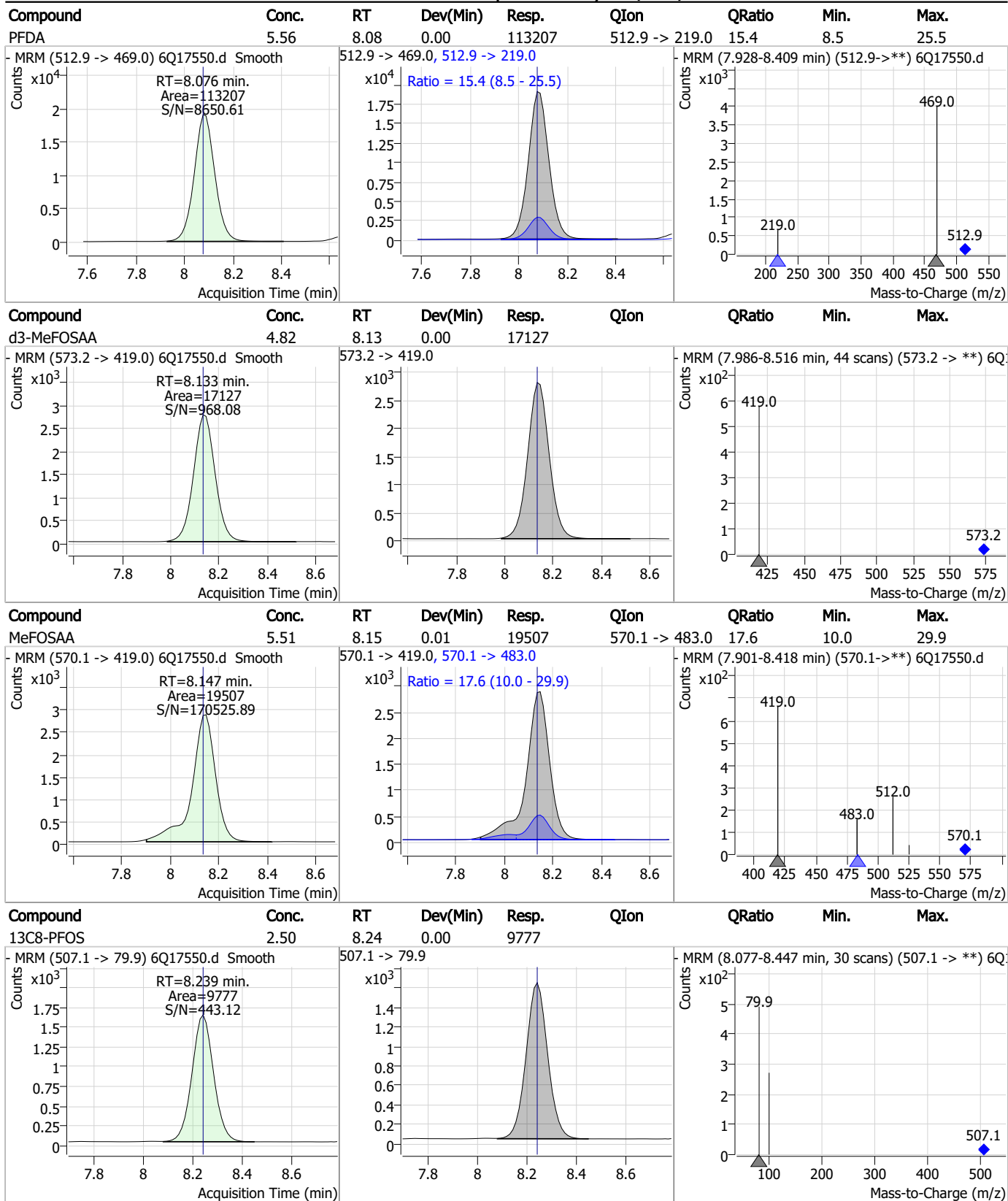
7.7.23 7

Perfluorinated Compounds by LC/MS/MS



7.7.23 7

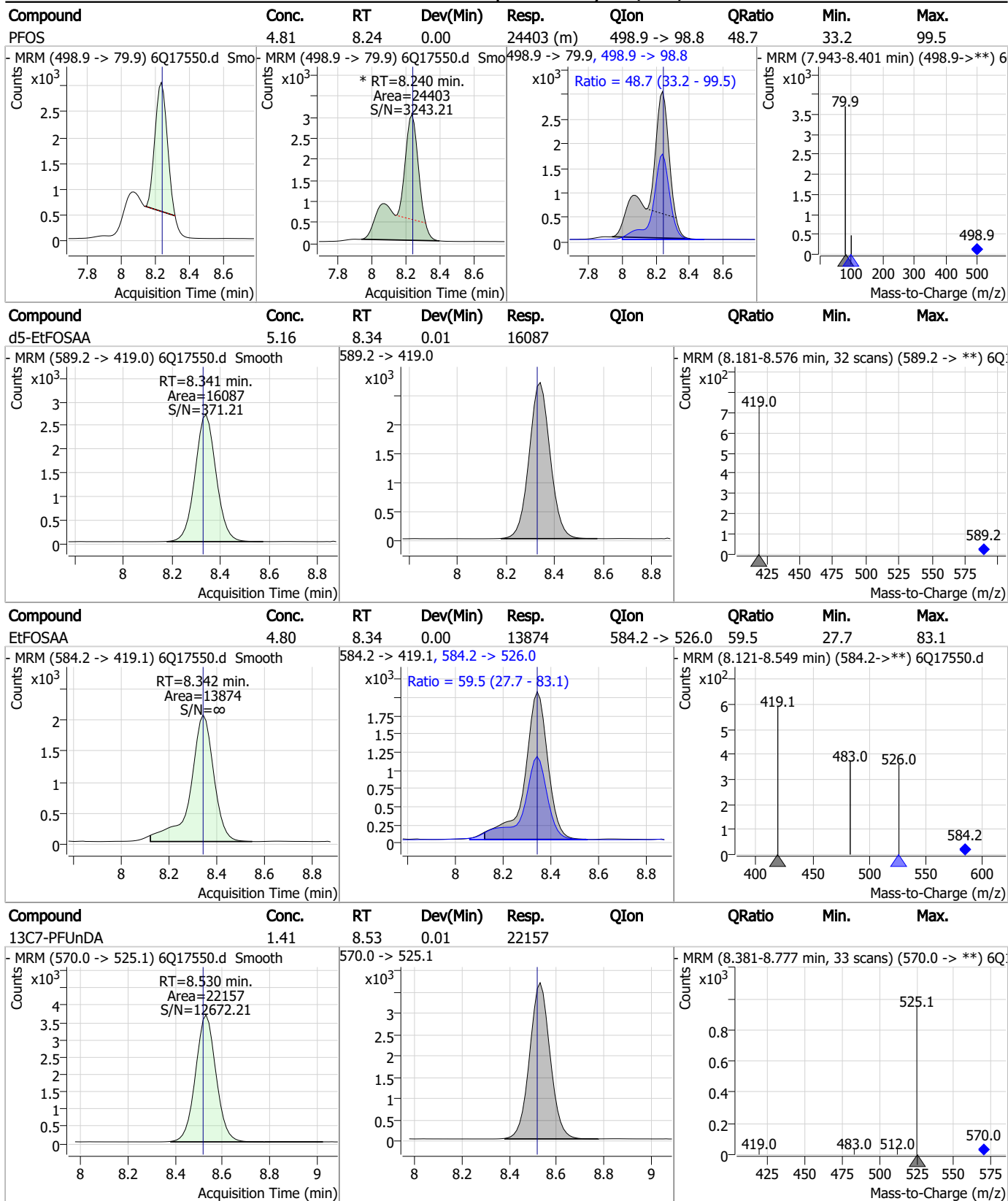
Perfluorinated Compounds by LC/MS/MS



7.7.23

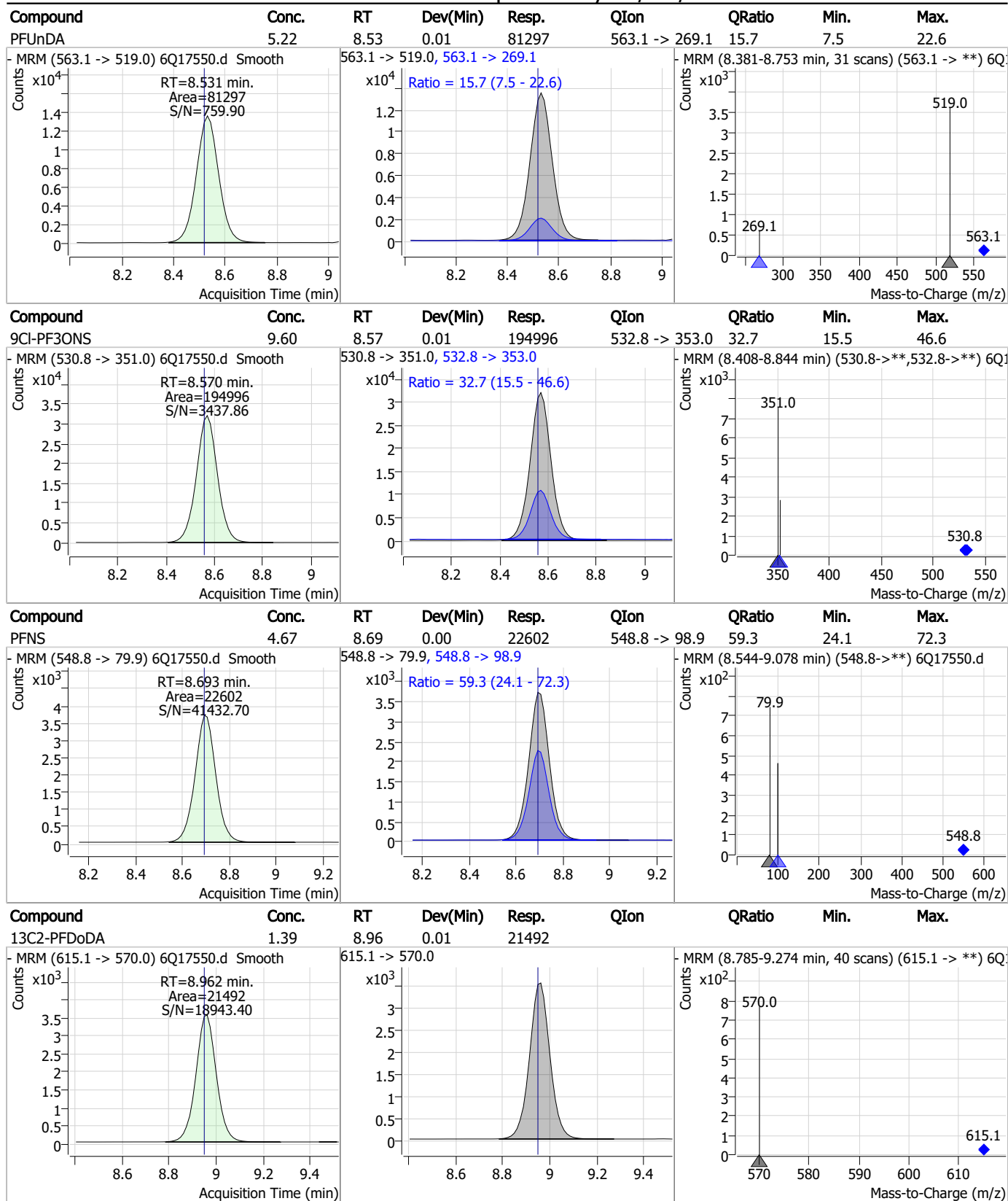
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Perfluorinated Compounds by LC/MS/MS



7.7.23
7

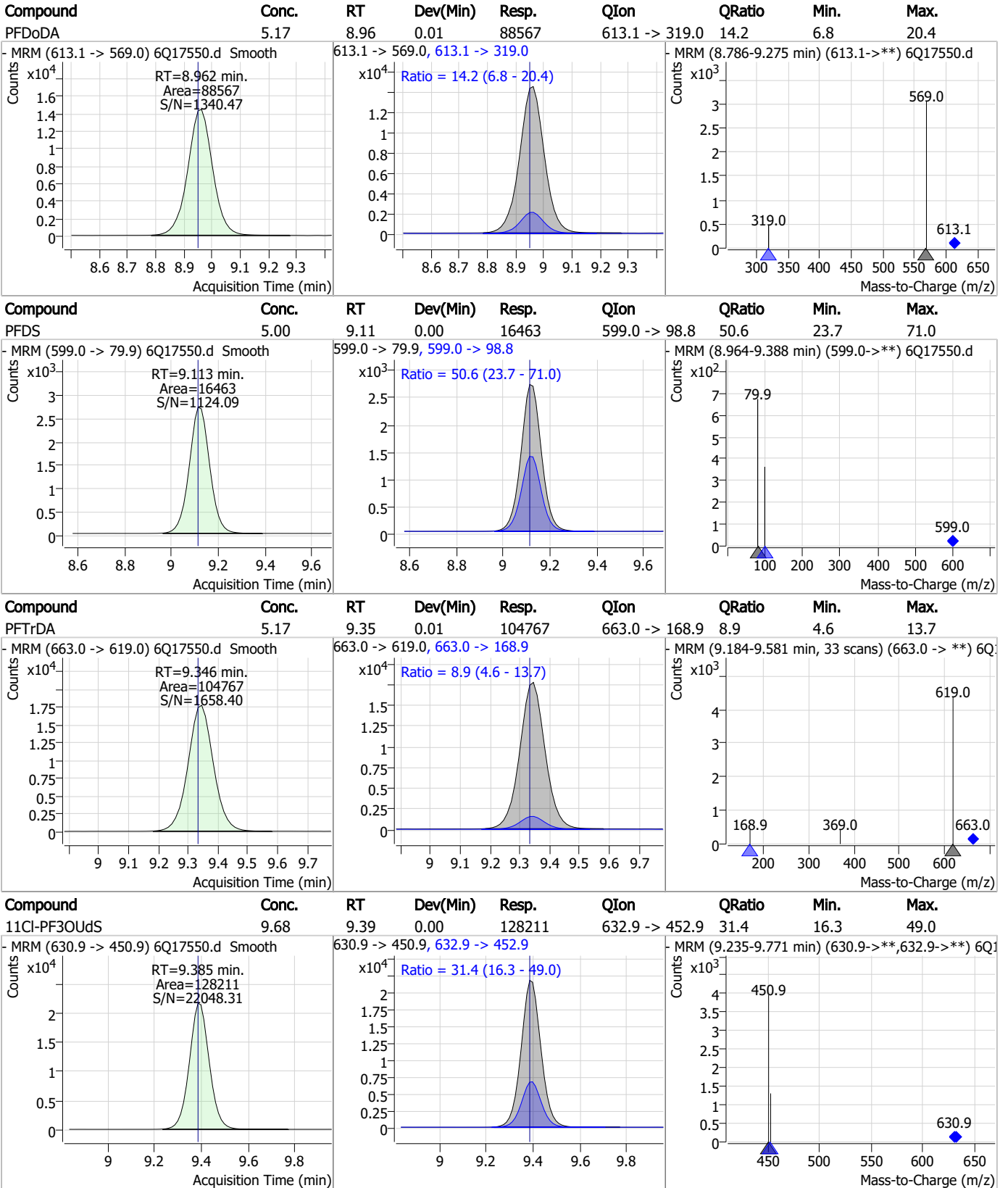
Perfluorinated Compounds by LC/MS/MS



7.7.23

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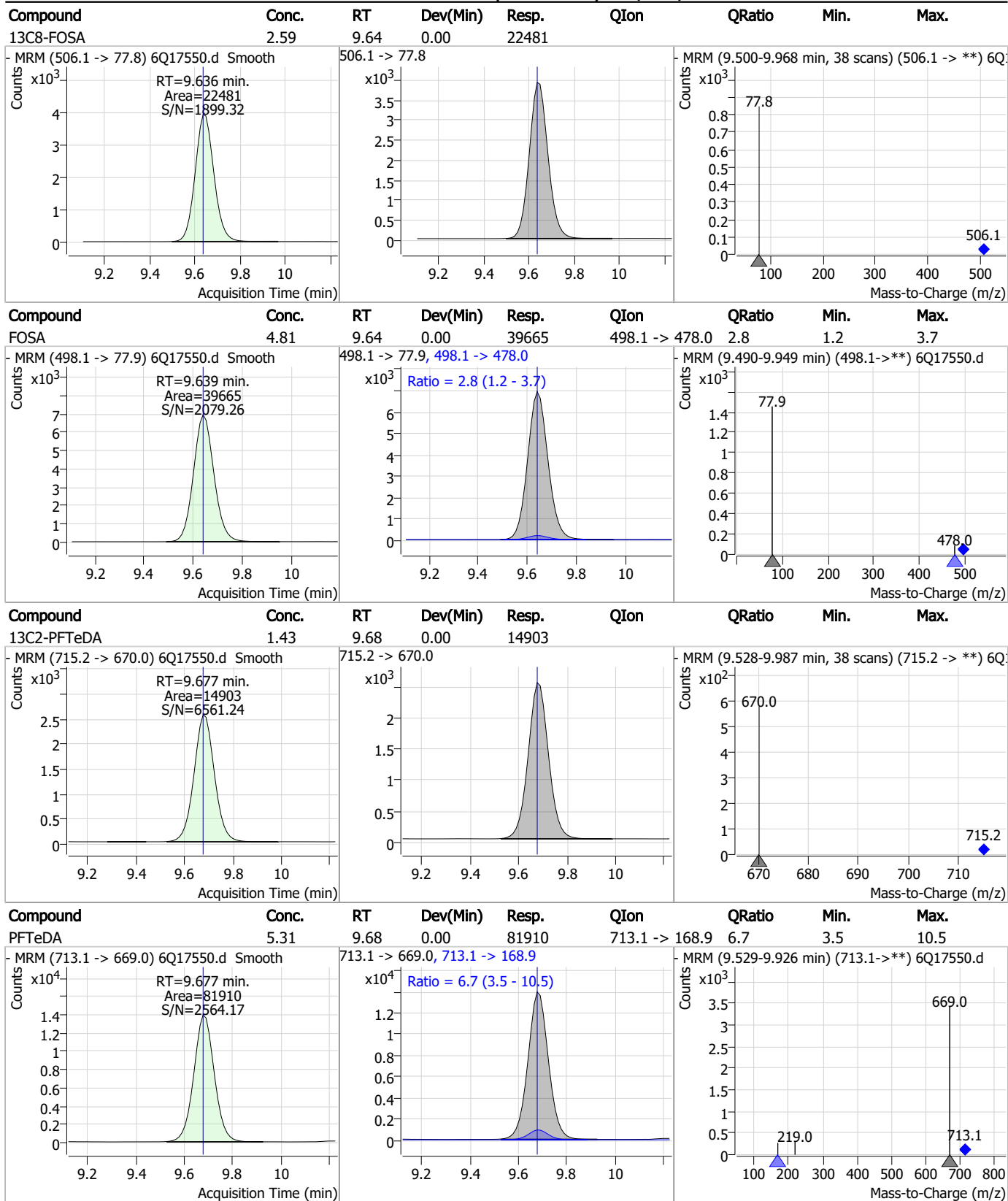
Perfluorinated Compounds by LC/MS/MS



7.7.23 7

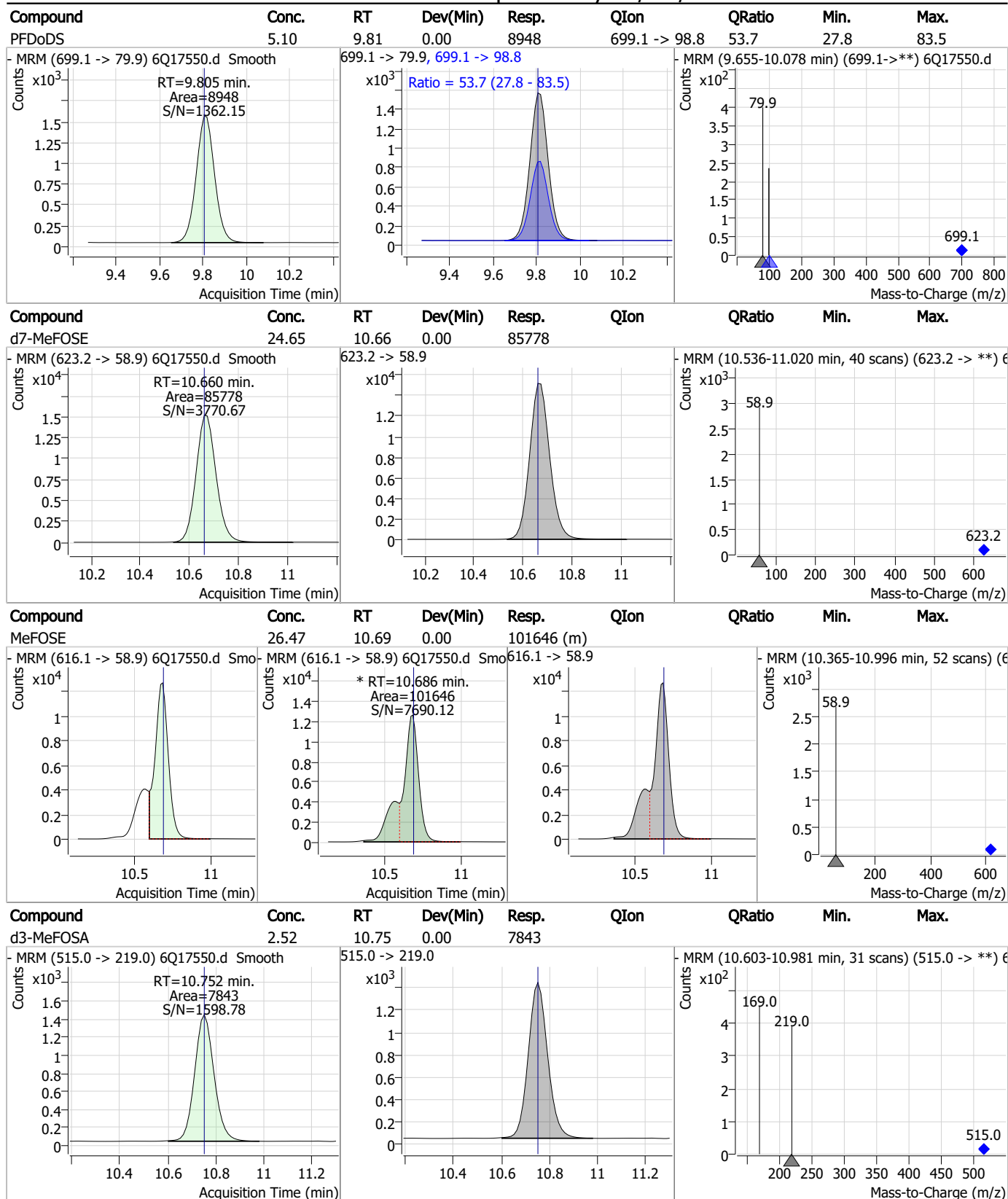


Perfluorinated Compounds by LC/MS/MS



7.7.23
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Perfluorinated Compounds by LC/MS/MS



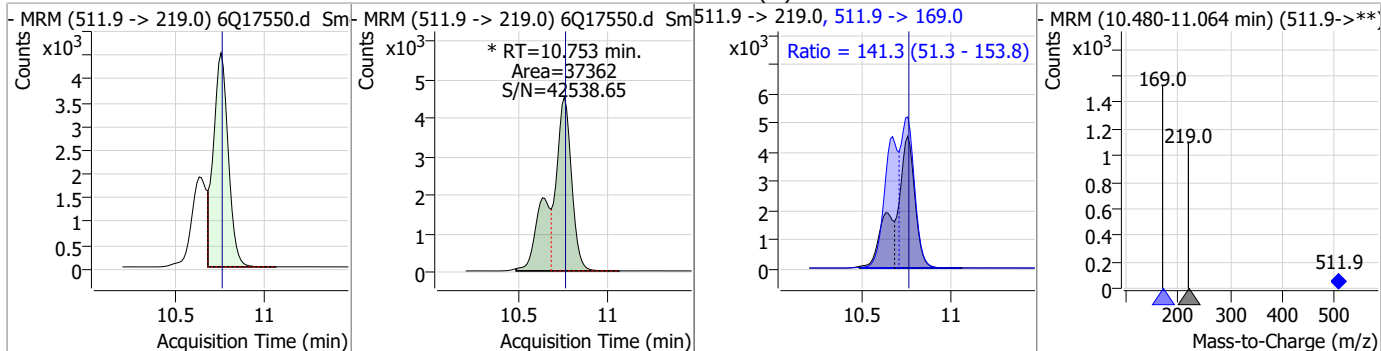
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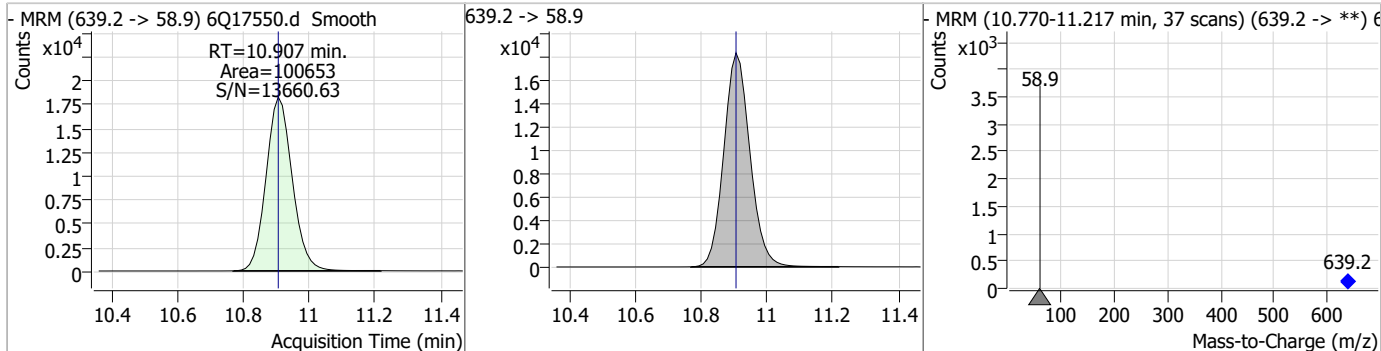


Perfluorinated Compounds by LC/MS/MS

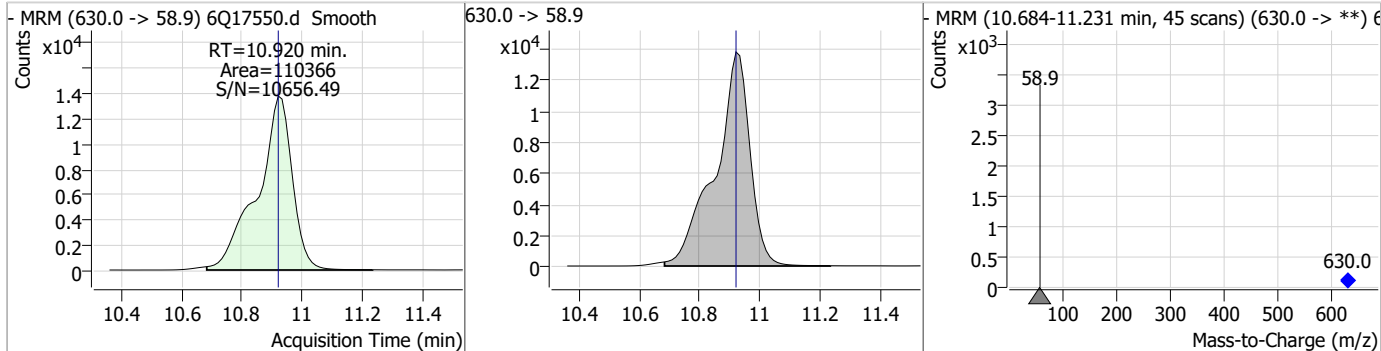
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	10.39	10.75	0.00	37362 (m)	511.9 -> 169.0	141.3	51.3	153.8



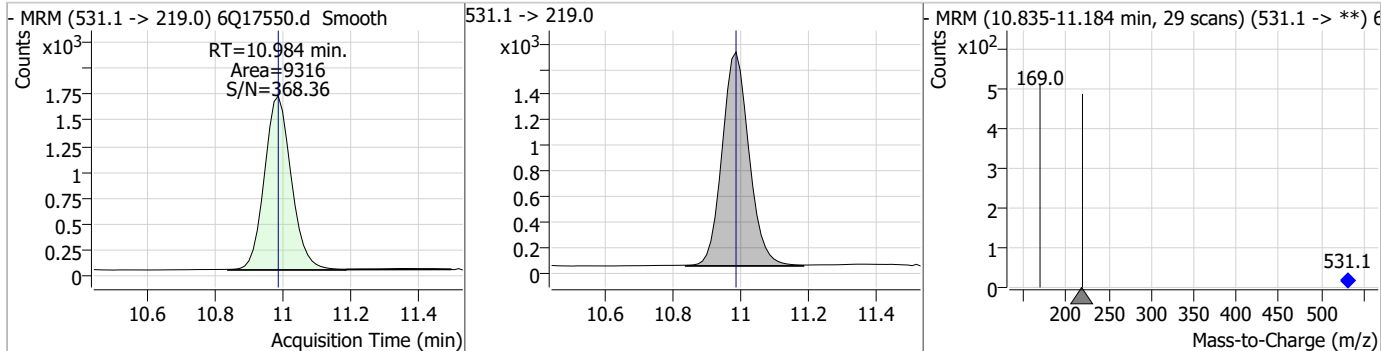
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.22	10.91	0.00	100653				



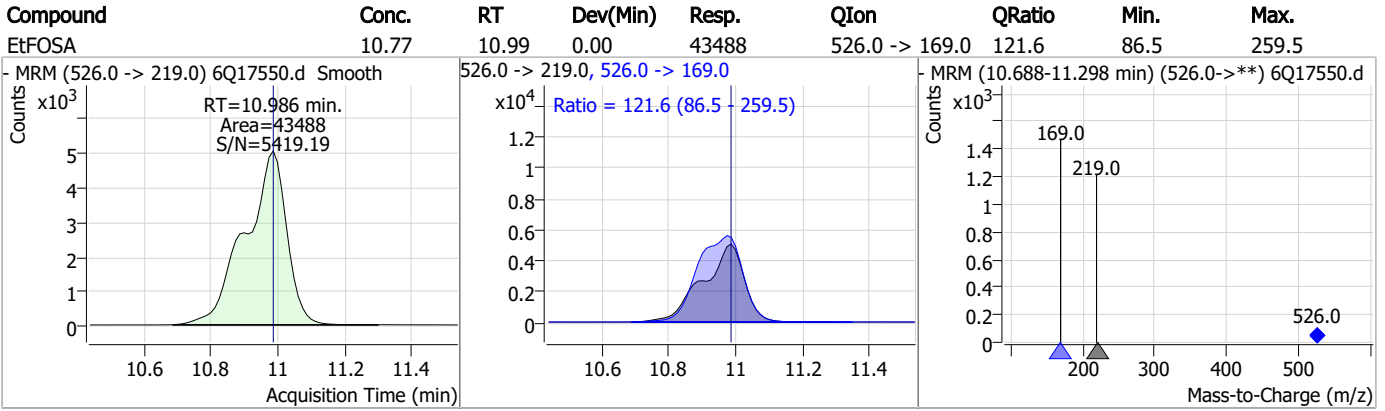
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	25.50	10.92	0.00	110366				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.51	10.98	0.00	9316				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q265-IC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17550.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 17:04 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSE	24448-09-7		10.69	Split peak
MeFOA	31506-32-8		10.75	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17551.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 5:18:33 PM
 Sample Name : ic265-6
 Vial : P1-A7
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	139427	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	45196	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	51650	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	44849	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	64340	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	20625	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16562	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	21166	1.25 µg/L	0.012
M2-PFDoDA	8.962	615.1 -> 570.0	20817	1.25 µg/L	0.012
M2-PFTeDA	9.677	715.2 -> 670.0	13833	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	19827	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	19127	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10653	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	9265	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1490	5.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	1753	5.00 µg/L	0.000
M2-8:2FTS	7.876	529.1 -> 80.9	2108	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	15873	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	31819	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	15236	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	80846	25.00 µg/L	0.012
M9-EtFOSE	10.907	639.2 -> 58.9	94941	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8520	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	6987	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	12116	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	58718	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7908	2.50 µg/L	-0.012
13C4-PFOA	7.077	417.1 -> 372.0	66491	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	18842	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	22707	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	42102	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1490	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1753	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C2-8:2FTS	7.876	529.1 -> 80.9	2108	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C2-PFDoDA	8.962	615.1 -> 570.0	20817	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	13833	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFBS	5.409	302.1 -> 79.9	19127	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	10653	2.59 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 = 103.4%	
13C4-PFBA	2.913	216.8 -> 171.9	139427	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFHpA	6.432	367.1 -> 322.0	44849	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFHxA	5.478	318.0 -> 273.0	51650	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.272	268.3 -> 223.0	45196	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C6-PFDA	8.076	519.1 -> 474.1	16562	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C7-PFUnDA	8.530	570.0 -> 525.1	21166	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-FOSA	9.636	506.1 -> 77.8	19827	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C8-PFOA	7.077	421.1 -> 376.0	64340	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOS	8.239	507.1 -> 79.9	9265	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C9-PFNA	7.595	472.1 -> 427.0	20625	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
d3-MeFOSAA	8.133	573.2 -> 419.0	15873	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	31819	10.18 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
d3-MeFOSA	10.752	515.0 -> 219.0	6987	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15236	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d7-MeFOSE	10.672	623.2 -> 58.9	80846	24.31 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d9-EtFOSE	10.907	639.2 -> 58.9	94941	24.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d5-EtFOSA	10.984	531.1 -> 219.0	8520	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	104922	46.13 µg/L	99
		327.1 -> 80.9	41672		
6:2FTS	6.850	427.1 -> 407.0	100060	51.93 µg/L	96
		427.1 -> 80.9	34641		
8:2FTS	7.865	527.1 -> 507.0	53378	43.59 µg/L	92
		527.1 -> 80.8	24068		
EtFOSAA	8.342	584.2 -> 419.1	33553	12.25 µg/L	m 94
		584.2 -> 526.0	17126		
FOSA	9.639	498.1 -> 77.9	98694	13.57 µg/L	99
		498.1 -> 478.0	2794		
MeFOSAA	8.134	570.1 -> 419.0	47946	14.62 µg/L	m 95
		570.1 -> 483.0	8545		
PFBA	2.907	212.8 -> 168.9	260529	52.18 µg/L	100
PFBS	5.410	298.7 -> 79.9	97732	10.33 µg/L	96
		298.7 -> 98.8	36099		
PFDA	8.076	512.9 -> 469.0	239805	11.70 µg/L	99
		512.9 -> 219.0	39309		
PFDoDA	8.962	613.1 -> 569.0	203040	12.23 µg/L	99
		613.1 -> 319.0	28770		
PFDS	9.113	599.0 -> 79.9	38270	12.25 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	19110			
PFHpA	6.433	363.1 -> 319.0	284228	12.55	µg/L	100
		363.1 -> 169.0	46891			
PFHpS	7.735	449.0 -> 79.9	59770	11.99	µg/L	93
		449.0 -> 98.9	33458			
PFHxA	5.481	313.0 -> 269.0	276613	13.16	µg/L	100
		313.0 -> 118.9	12583			
PFHxS	7.180	398.7 -> 79.9	73756	11.73	µg/L	m 95
		398.7 -> 98.9	32649			
PFNA	7.596	463.0 -> 419.0	202680	13.18	µg/L	99
		463.0 -> 219.0	39341			
PFNS	8.693	548.8 -> 79.9	55195	12.03	µg/L	95
		548.8 -> 98.9	28628			
PFOA	7.078	413.0 -> 369.0	406538	12.95	µg/L	100
		413.0 -> 169.0	74136			
PFOS	8.240	498.9 -> 79.9	55875	11.61	µg/L	m 84
		498.9 -> 98.8	29925			
PFPeA	4.274	263.0 -> 219.0	346812	26.26	µg/L	100
PFPeS	6.484	349.1 -> 79.9	70428	11.75	µg/L	98
		349.1 -> 98.9	31509			
PFTeDA	9.677	713.1 -> 669.0	176611	12.34	µg/L	97
		713.1 -> 168.9	14405			
PFTrDA	9.346	663.0 -> 619.0	252355	12.86	µg/L	98
		663.0 -> 168.9	21451			
PFUnDA	8.531	563.1 -> 519.0	204737	13.76	µg/L	99
		563.1 -> 269.1	32107			
11CI-PF3OUdS	9.385	630.9 -> 450.9	295180	24.24	µg/L	98
		632.9 -> 452.9	92654			
9CI-PF3ONS	8.570	530.8 -> 351.0	431795	23.12	µg/L	97
		532.8 -> 353.0	142272			
ADONA	6.683	376.9 -> 250.9	1277665	25.05	µg/L	92
		376.9 -> 84.8	297509			
HFPO-DA	5.845	284.9 -> 168.9	79786	25.99	µg/L	98
		284.9 -> 184.9	10781			
3:3FTCA	3.790	241.0 -> 177.0	53873	63.90	µg/L	98
		241.0 -> 117.0	6849			
5:3FTCA	6.174	341.0 -> 237.1	1183540	330.27	µg/L	89
		341.0 -> 217.0	786874			
7:3FTCA	7.586	441.0 -> 316.9	535104	331.53	µg/L	92
		441.0 -> 336.9	1167254			
EtFOSA	10.986	526.0 -> 219.0	99027	26.81	µg/L	m 65
		526.0 -> 169.0	123393			
EtFOSE	10.920	630.0 -> 58.9	262800	64.38	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	89109	27.82	µg/L	m 63
		511.9 -> 169.0	124573			
MeFOSE	10.686	616.1 -> 58.9	241331	66.67	µg/L	m 100
PFDoS	9.805	699.1 -> 79.9	21536	12.95	µg/L	94
		699.1 -> 98.8	11050			
NFDHA	5.361	295.0 -> 201.0	59613	26.59	µg/L	95
		295.0 -> 84.9	14338			
PFMBA	4.688	279.0 -> 85.1	241796	25.92	µg/L	100
PFMPA	3.442	229.0 -> 84.9	174982	26.14	µg/L	100
PFEESA	5.938	314.8 -> 134.9	632760	23.08	µg/L	99
		314.8 -> 82.9	22478			

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

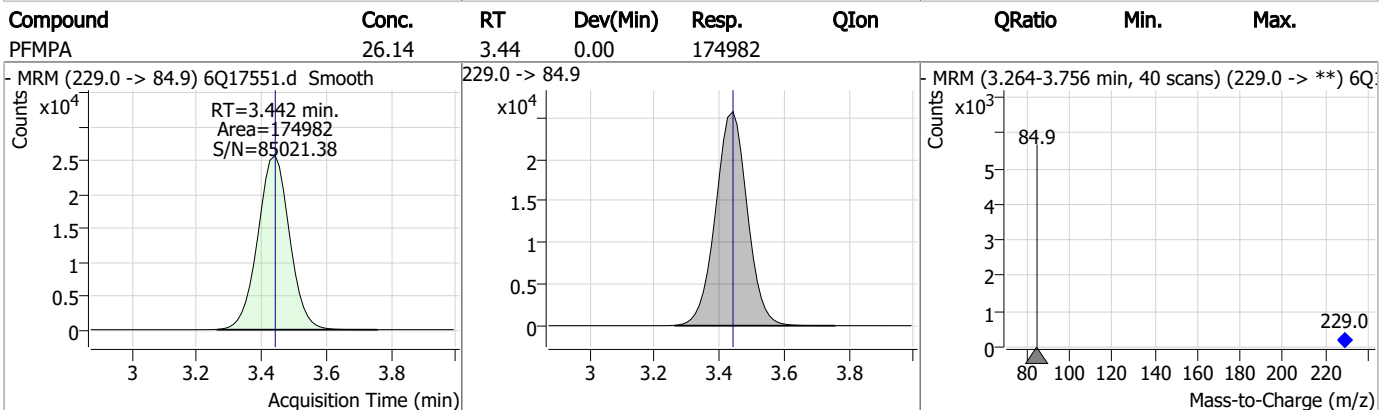
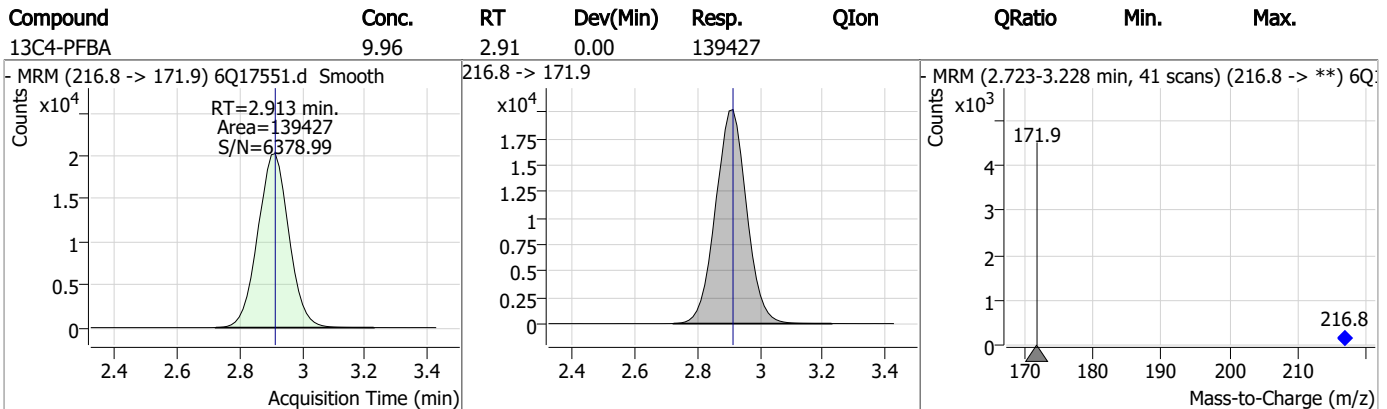
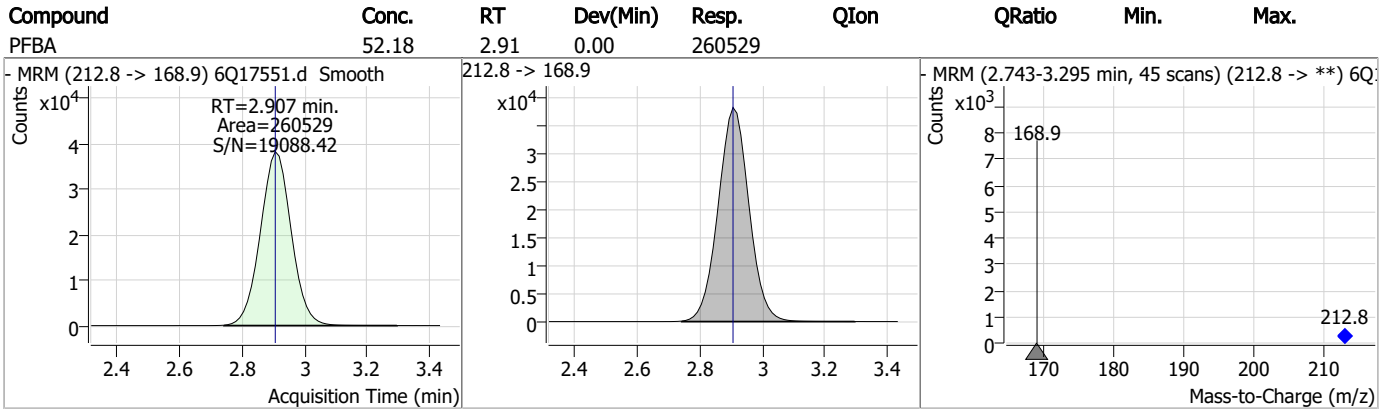
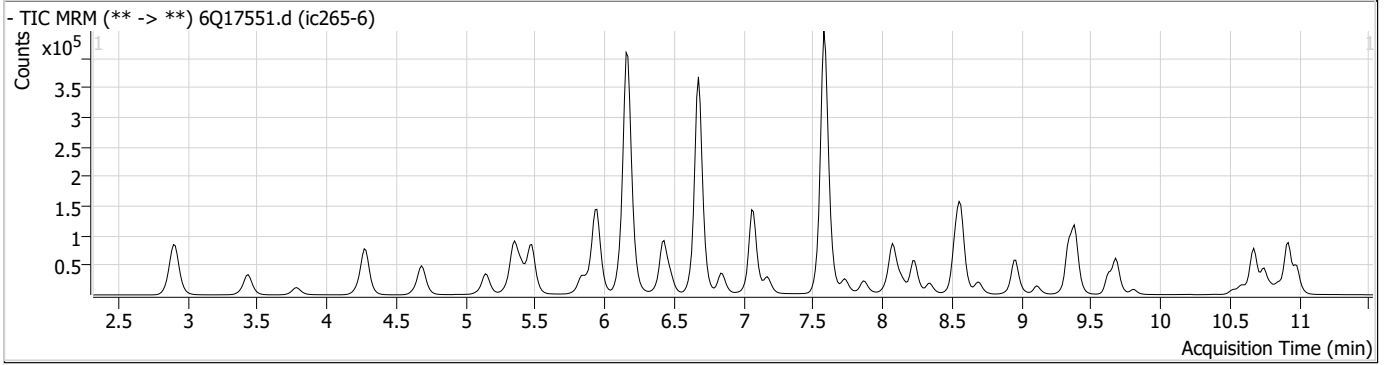
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.24

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Perfluorinated Compounds by LC/MS/MS

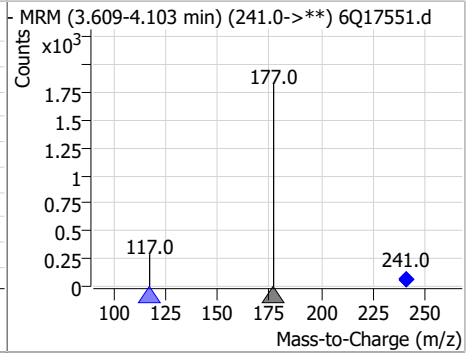
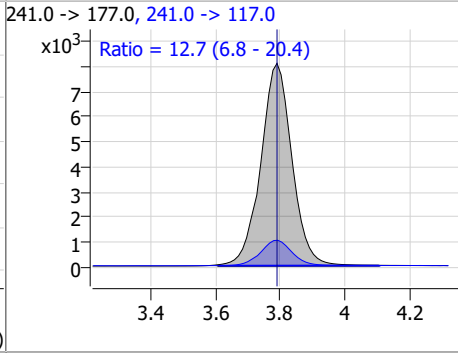
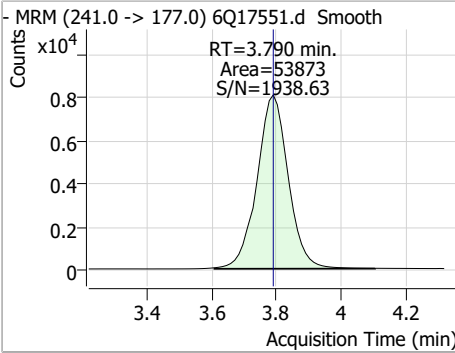


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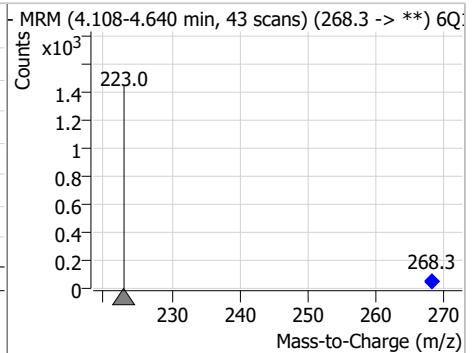
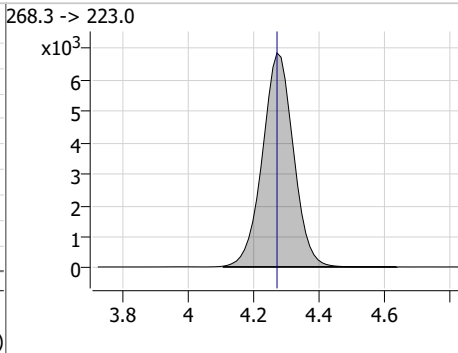
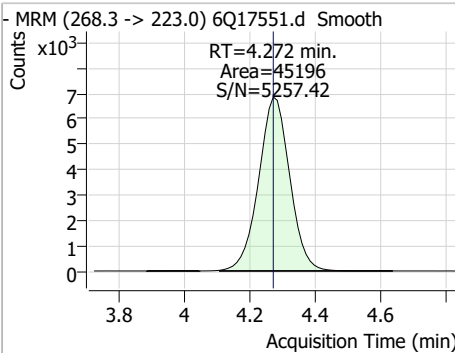
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Perfluorinated Compounds by LC/MS/MS

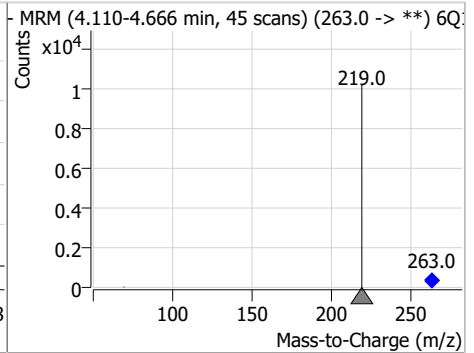
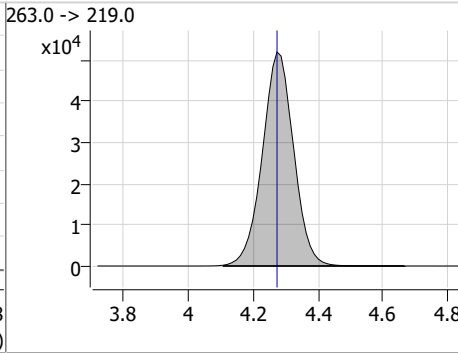
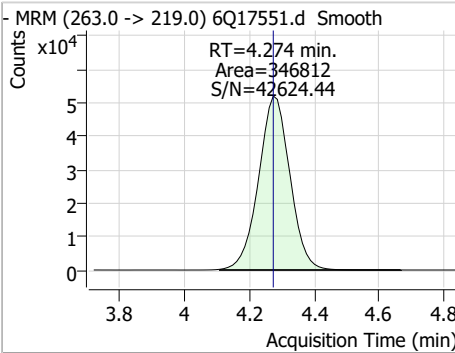
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	63.90	3.79	0.00	53873	241.0 -> 117.0	12.7	6.8	20.4



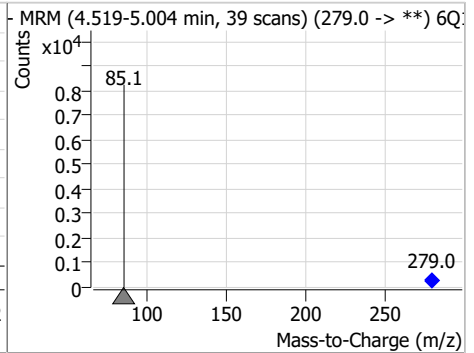
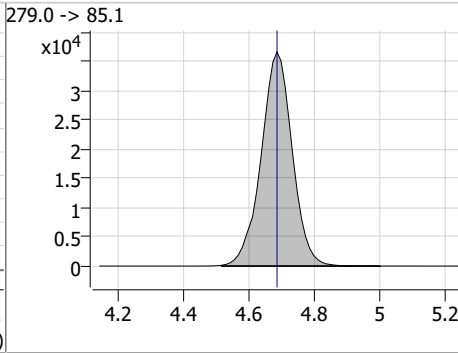
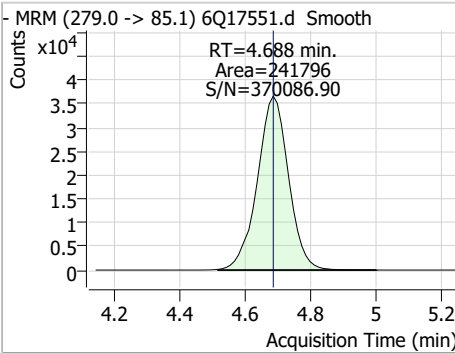
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.08	4.27	0.00	45196				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	26.26	4.27	0.00	346812				

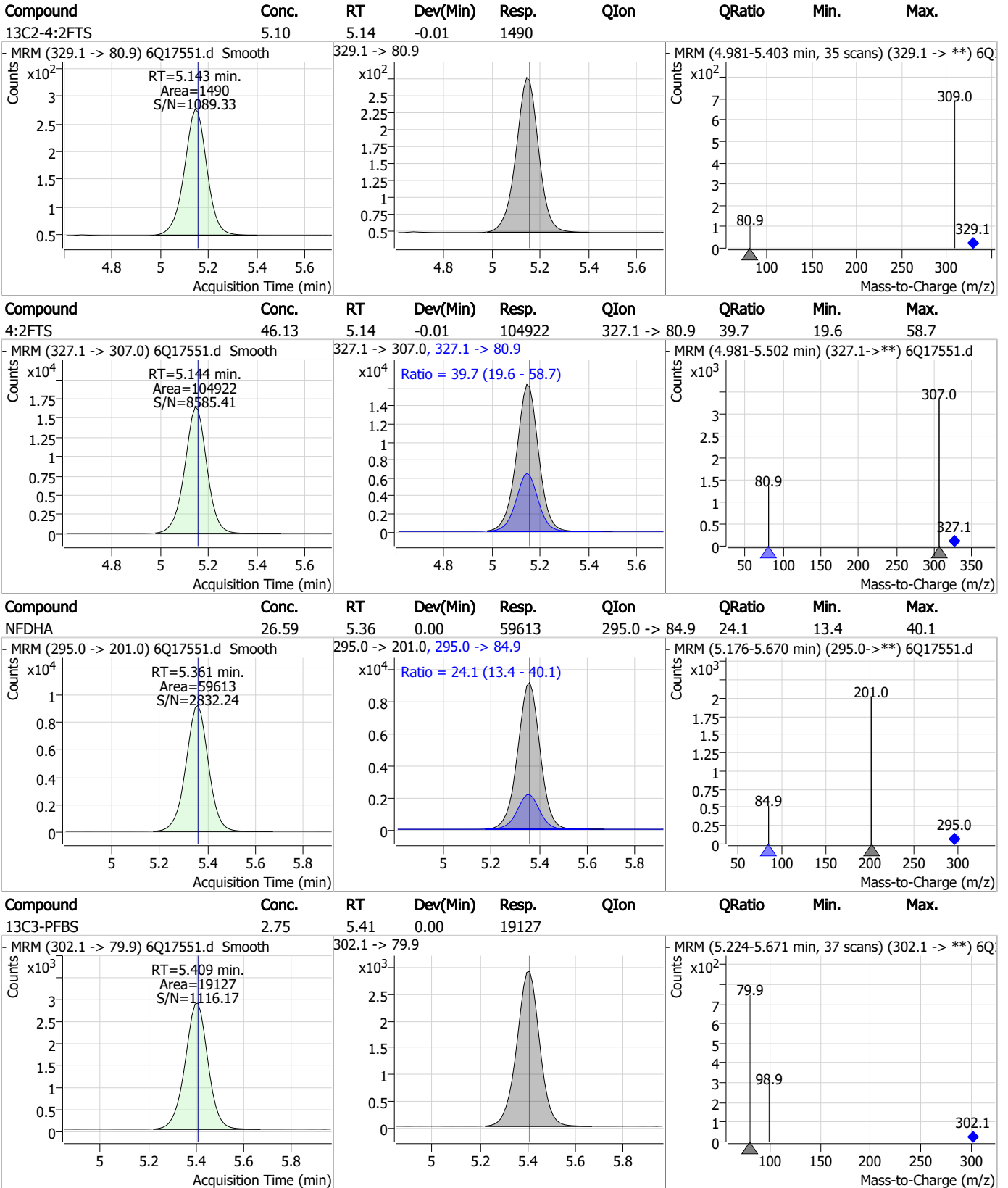


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	25.92	4.69	0.00	241796				



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Perfluorinated Compounds by LC/MS/MS

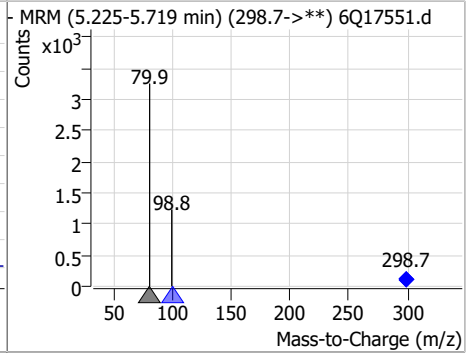
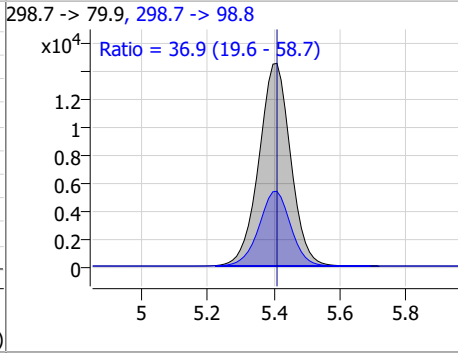
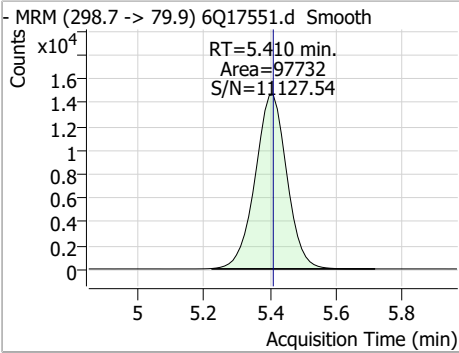


7.7.24 7

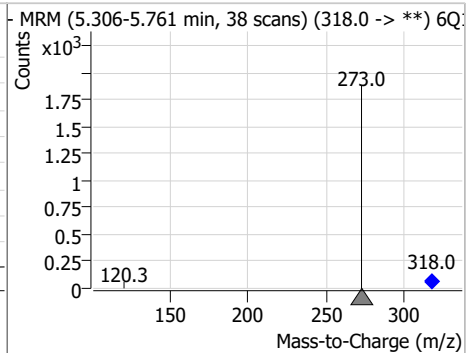
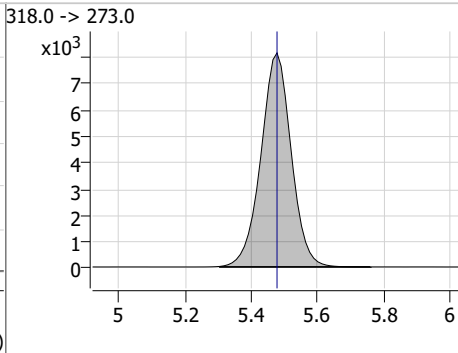
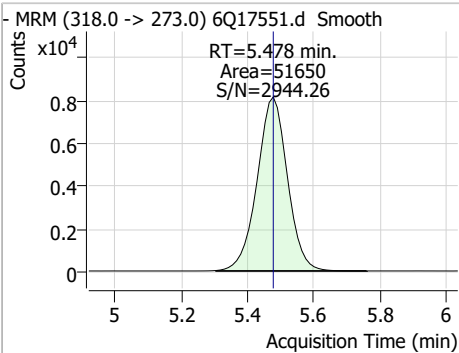


Perfluorinated Compounds by LC/MS/MS

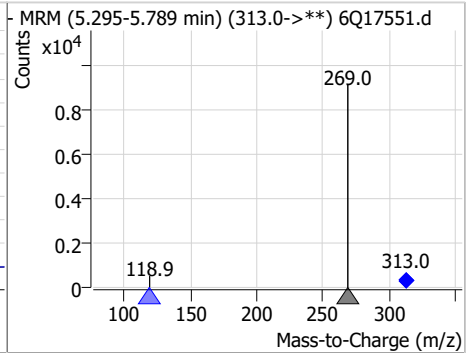
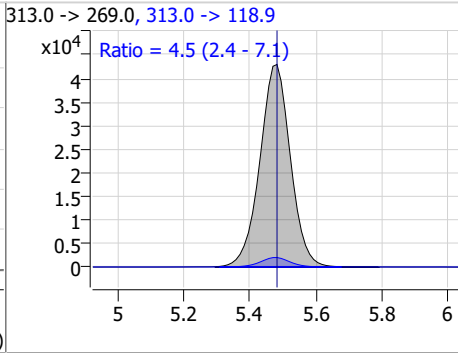
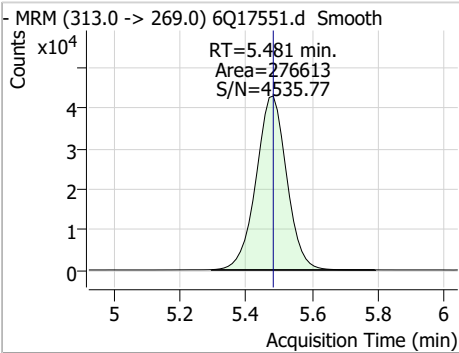
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	10.33	5.41	0.00	97732	298.7 -> 98.8	36.9	19.6	58.7



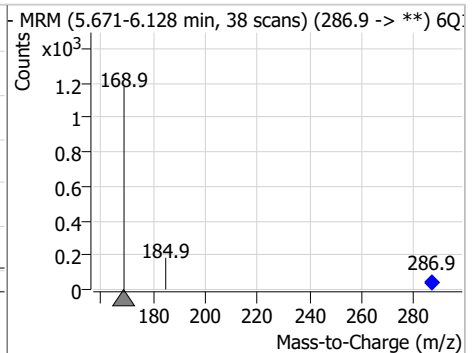
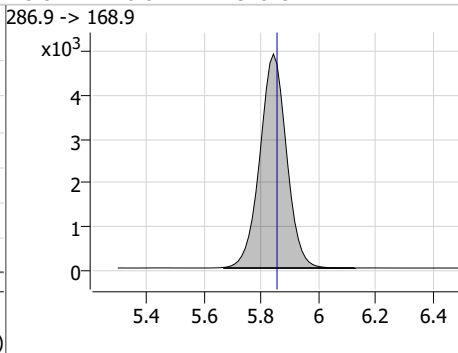
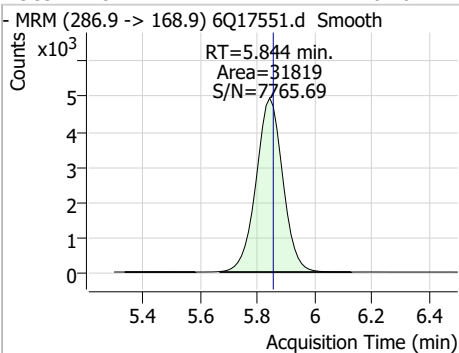
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.48	0.00	51650				



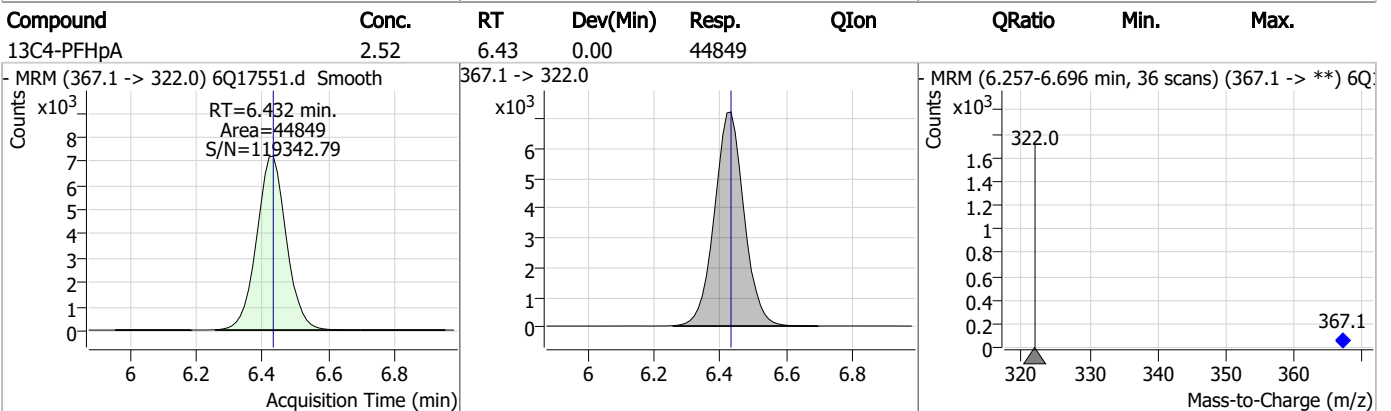
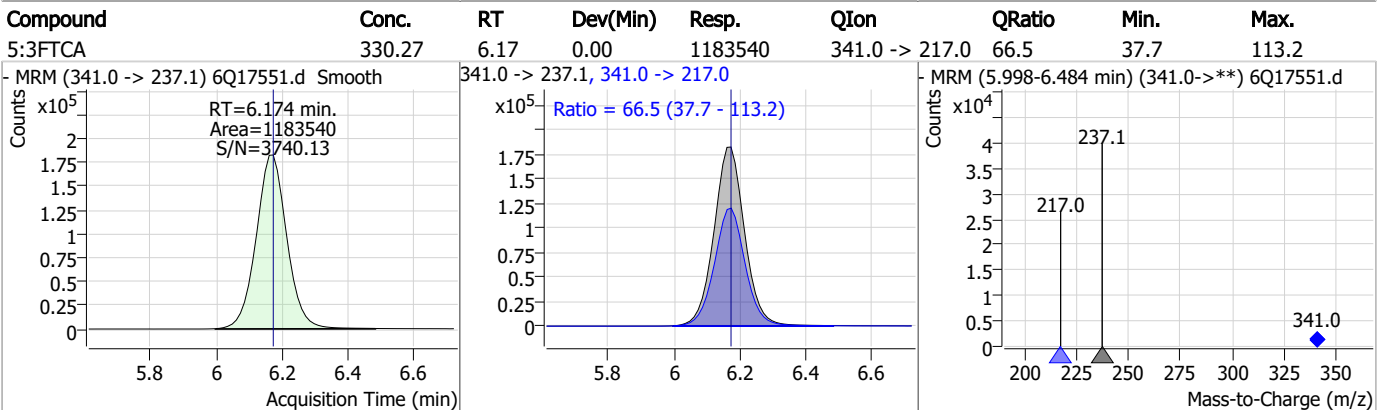
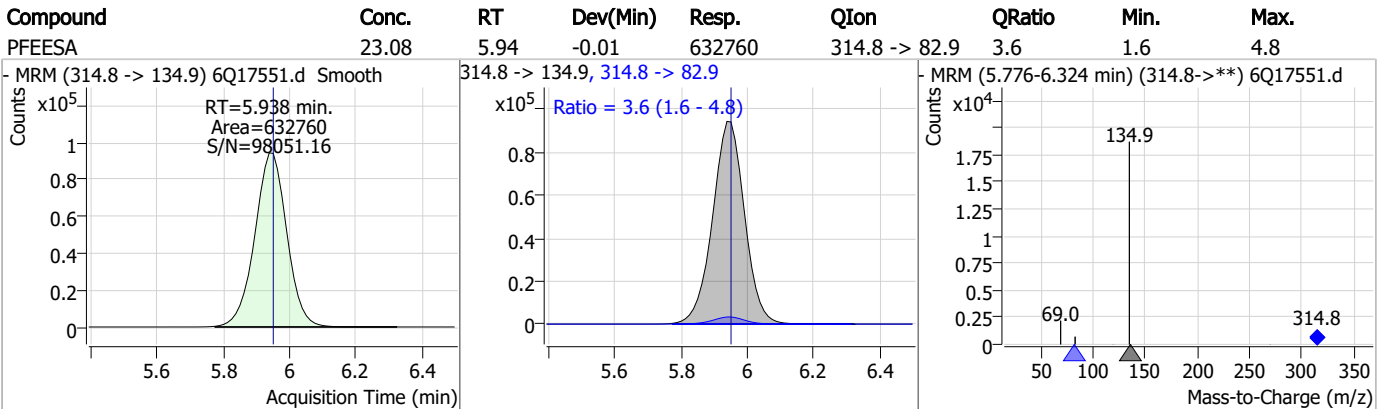
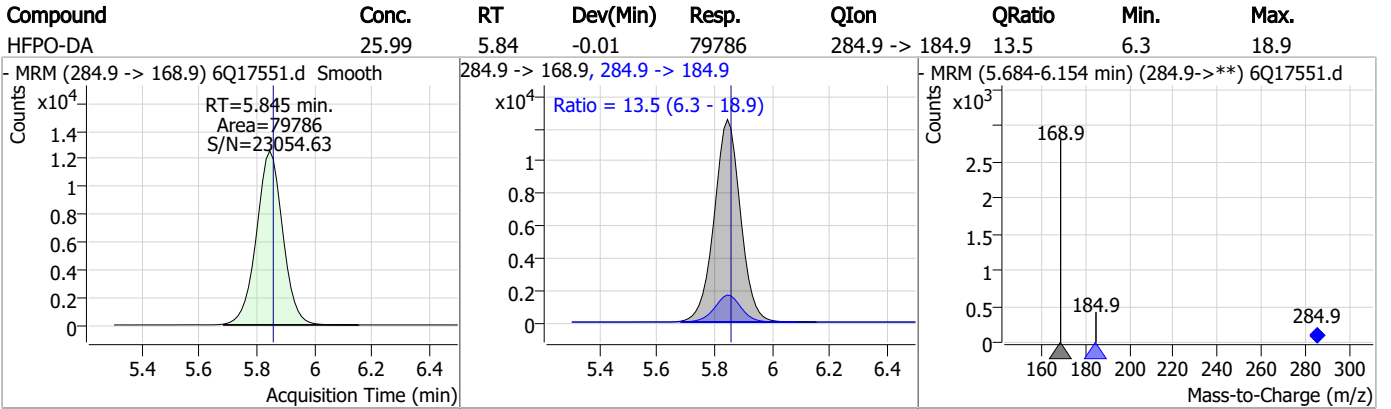
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.16	5.48	0.00	276613	313.0 -> 118.9	4.5	2.4	7.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.18	5.84	-0.01	31819				

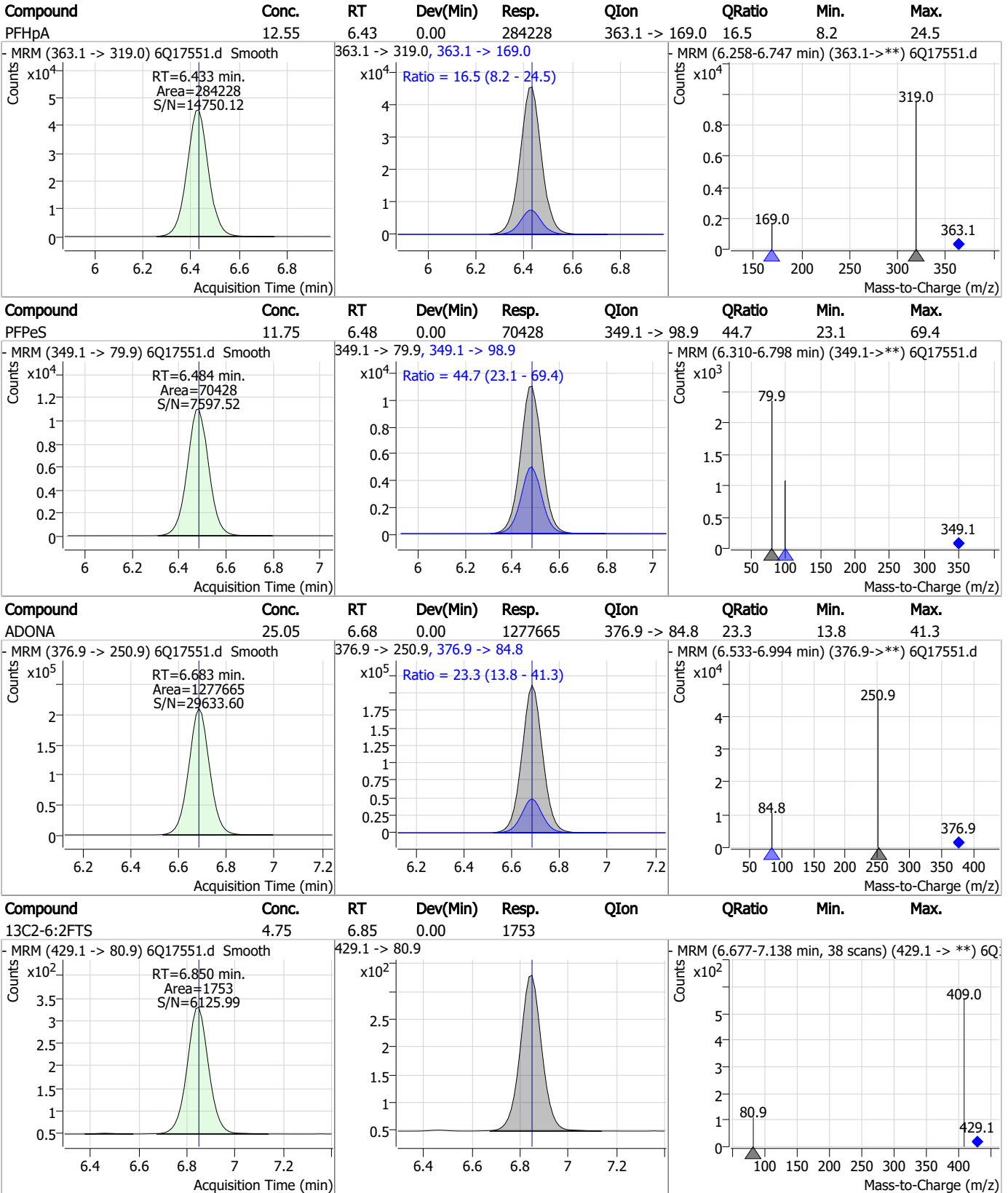


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

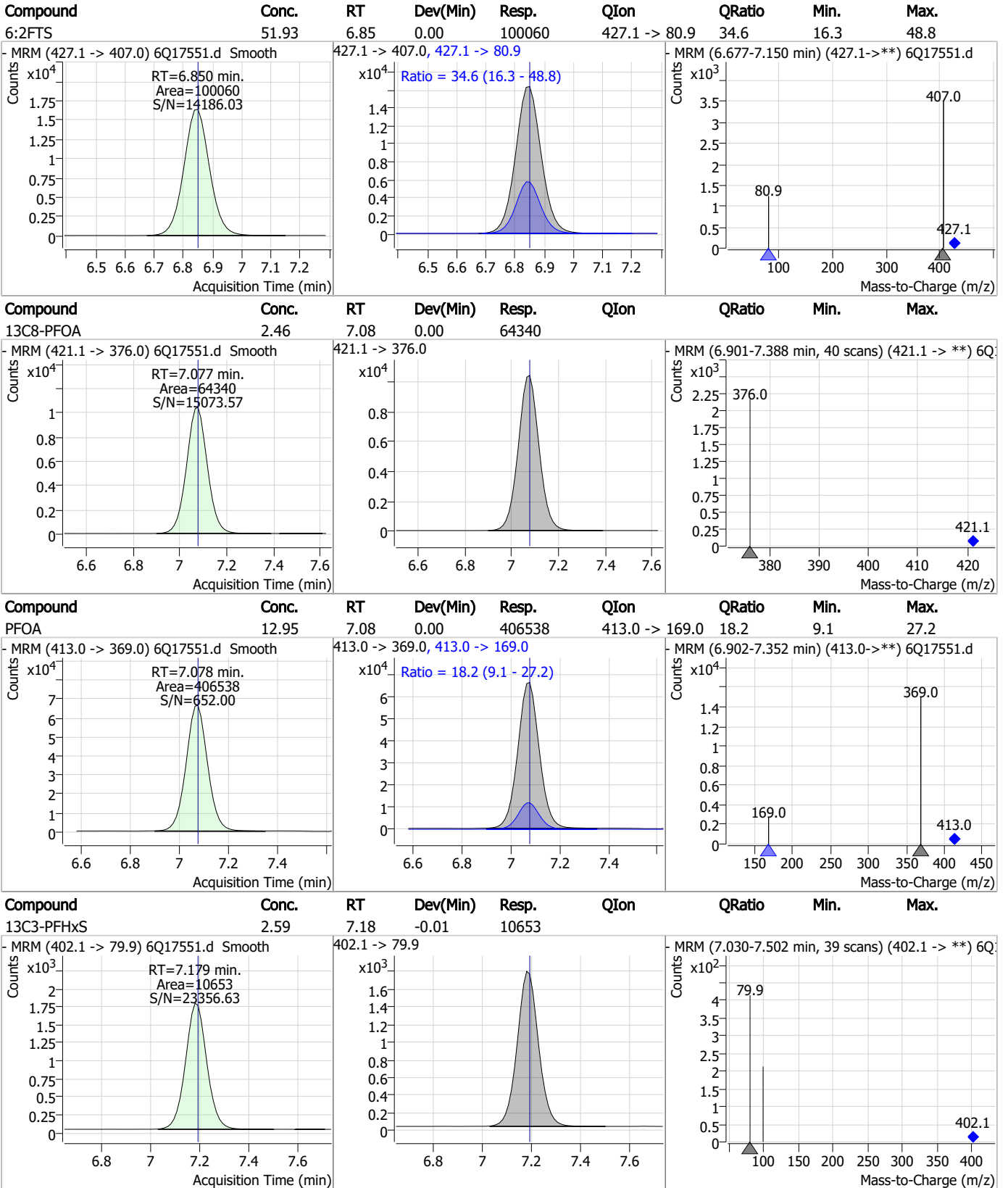


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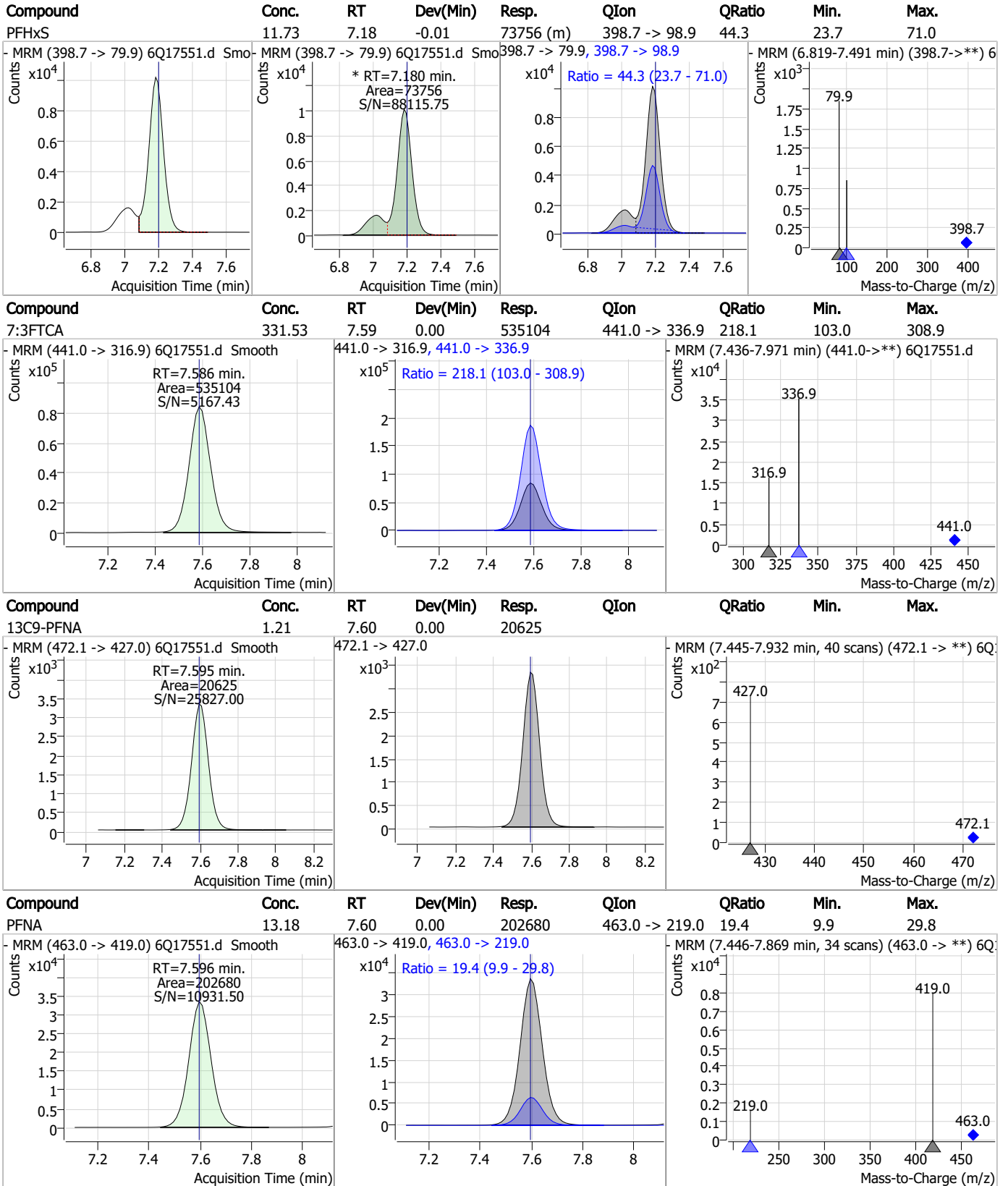
Perfluorinated Compounds by LC/MS/MS



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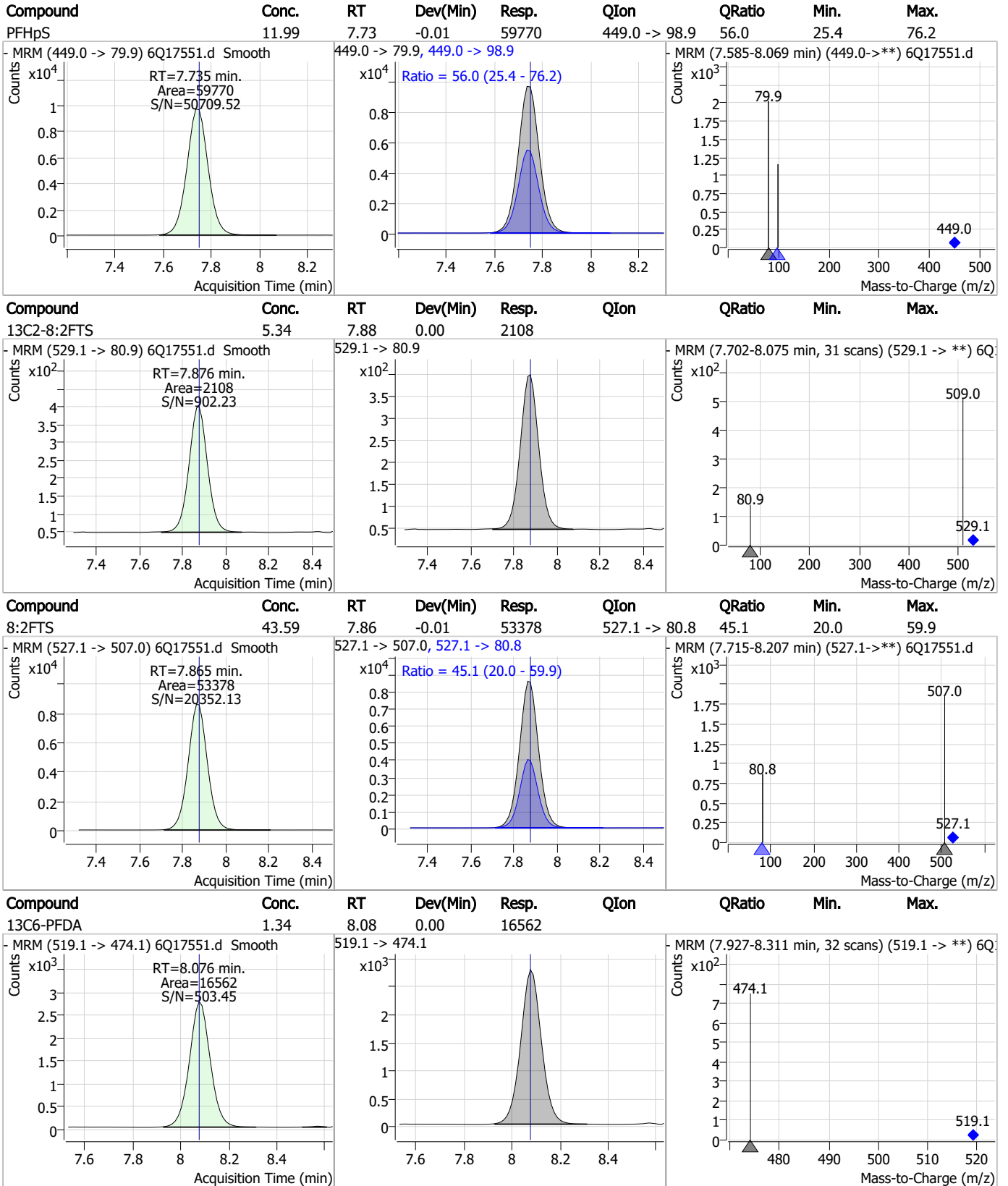
Perfluorinated Compounds by LC/MS/MS



7.7.24 7

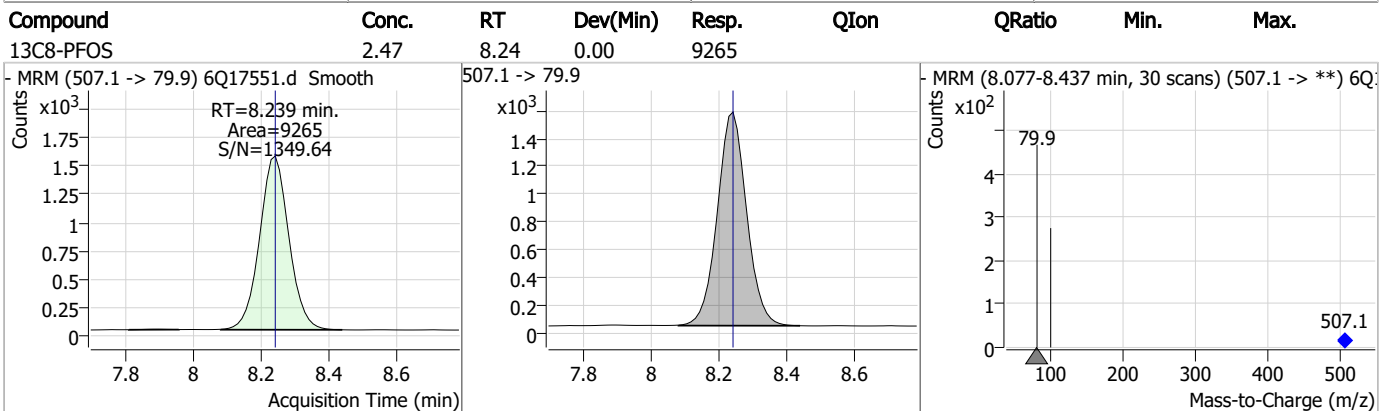
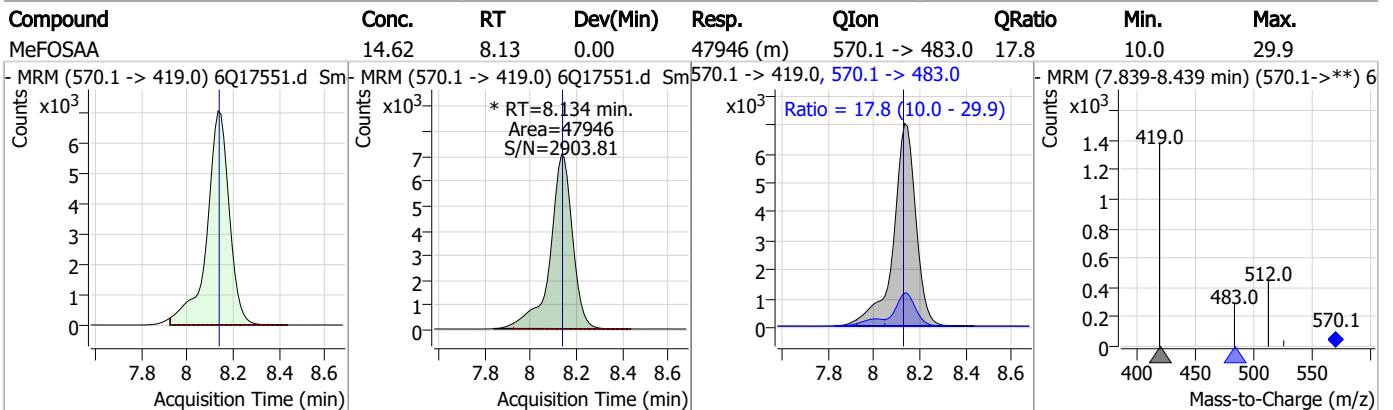
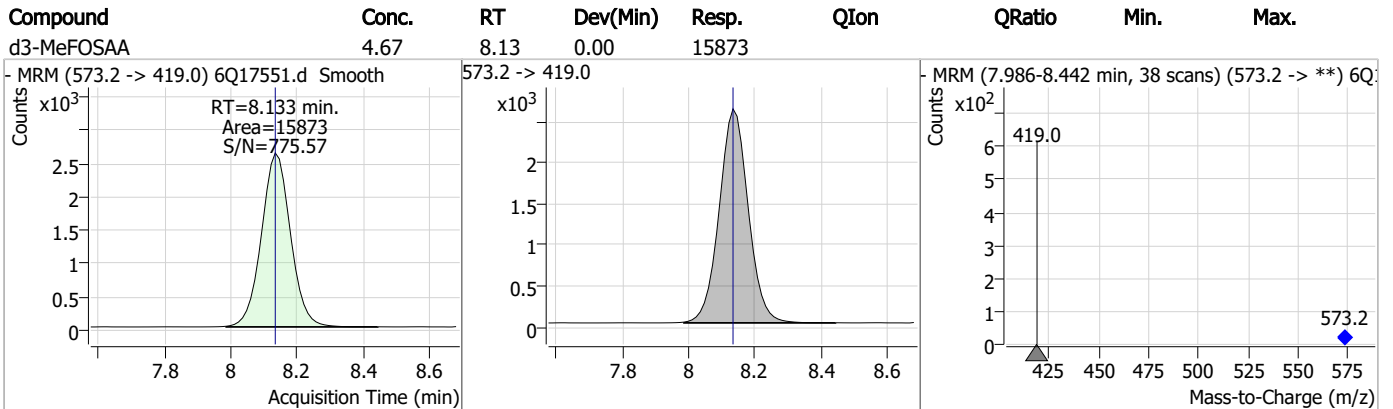
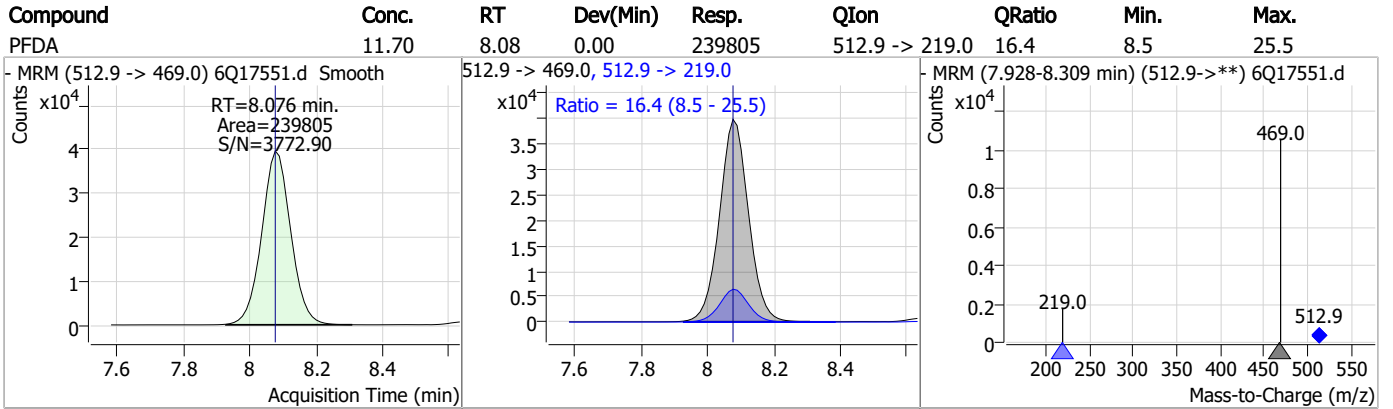


Perfluorinated Compounds by LC/MS/MS



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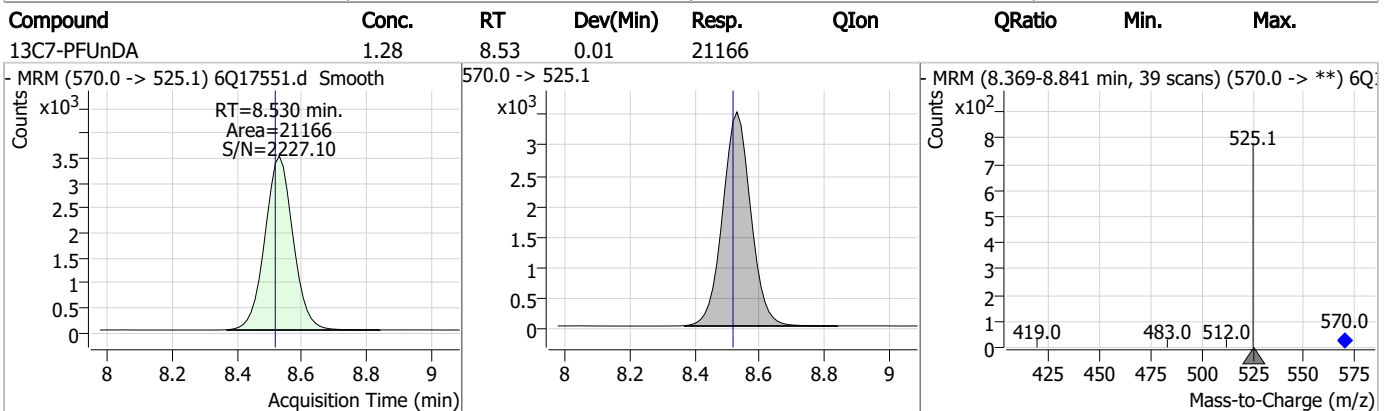
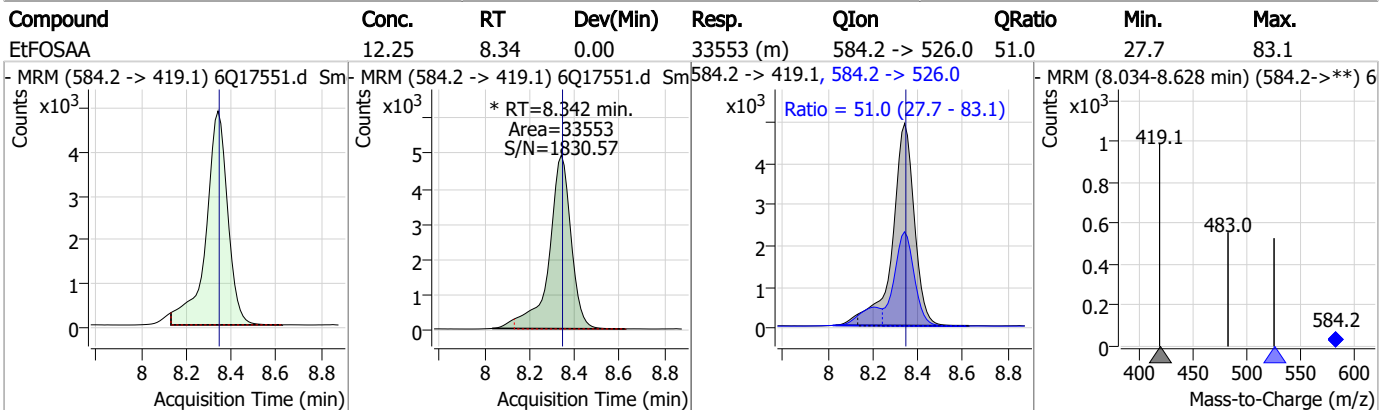
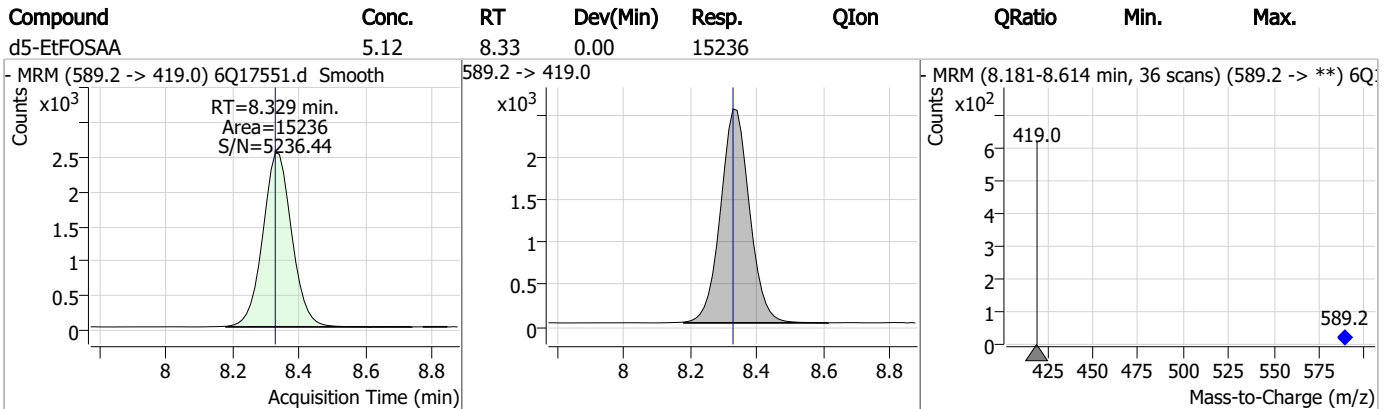
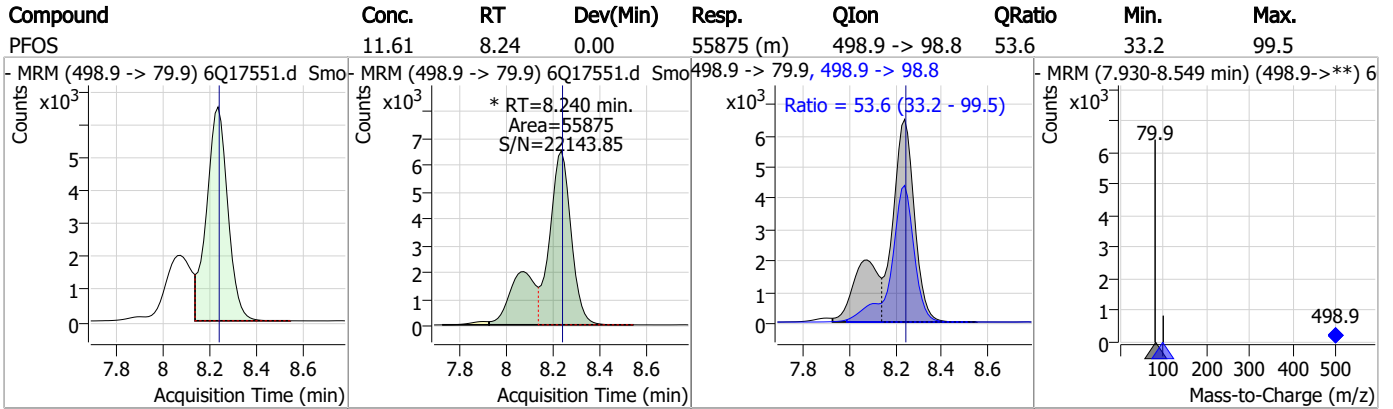
Perfluorinated Compounds by LC/MS/MS



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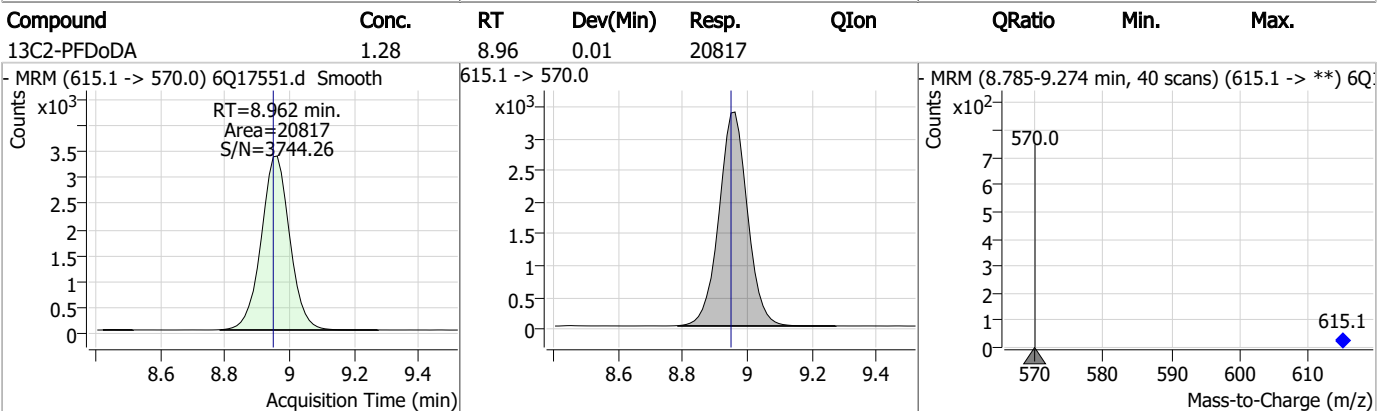
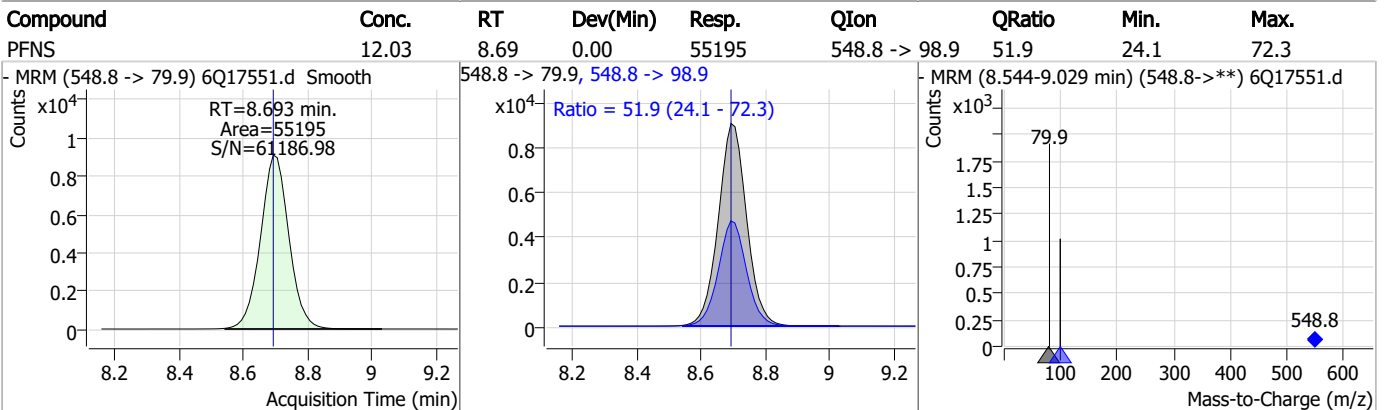
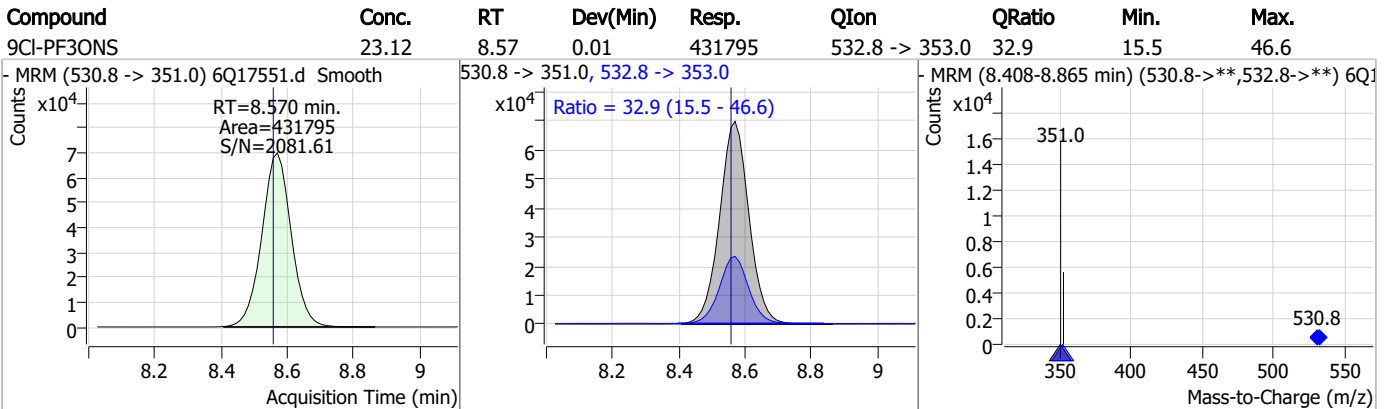
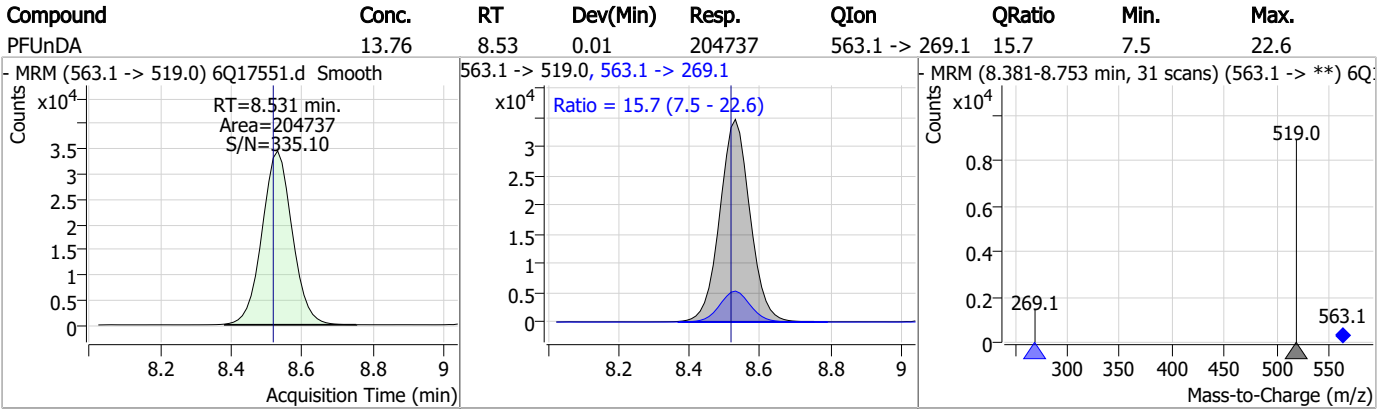
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

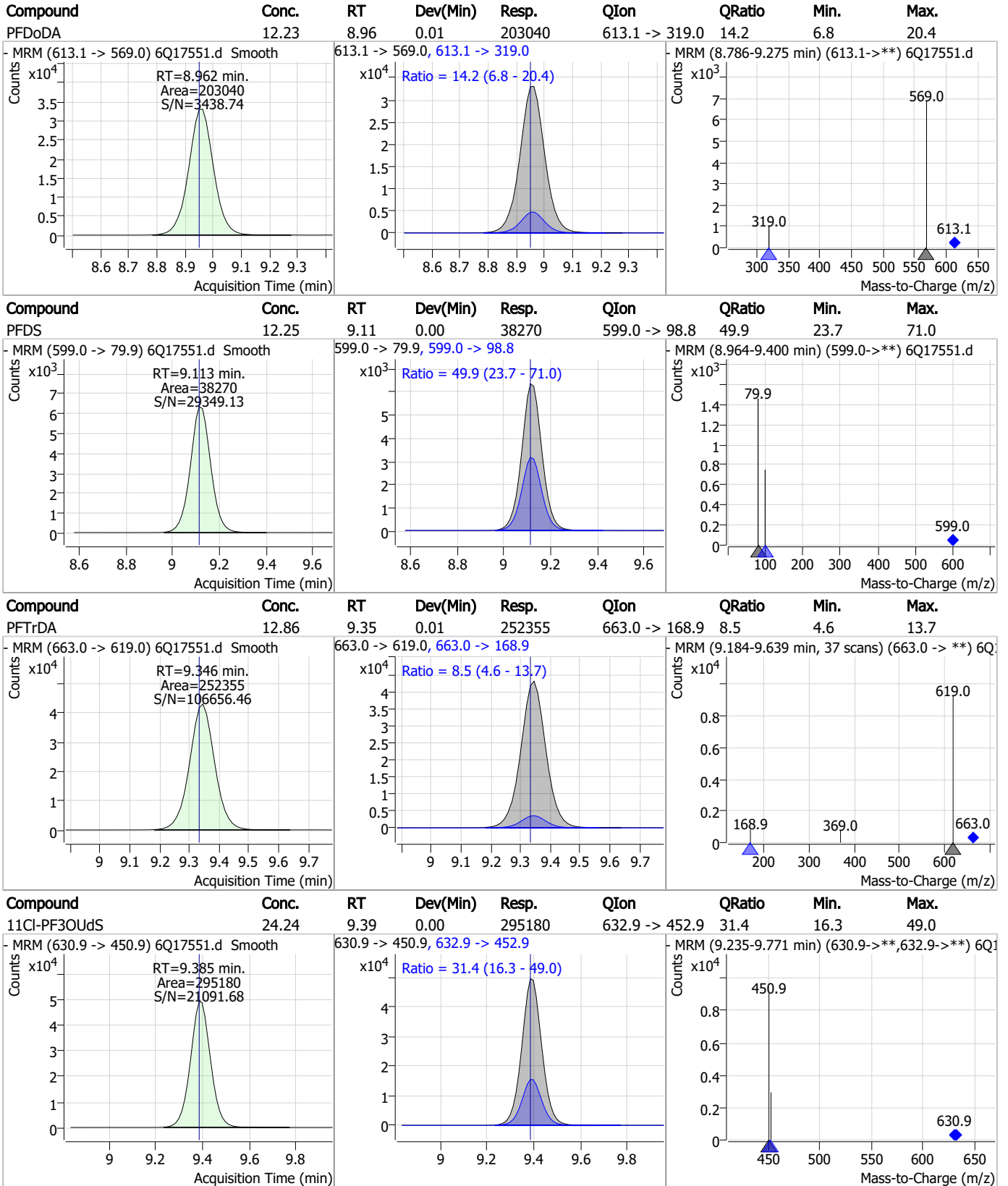


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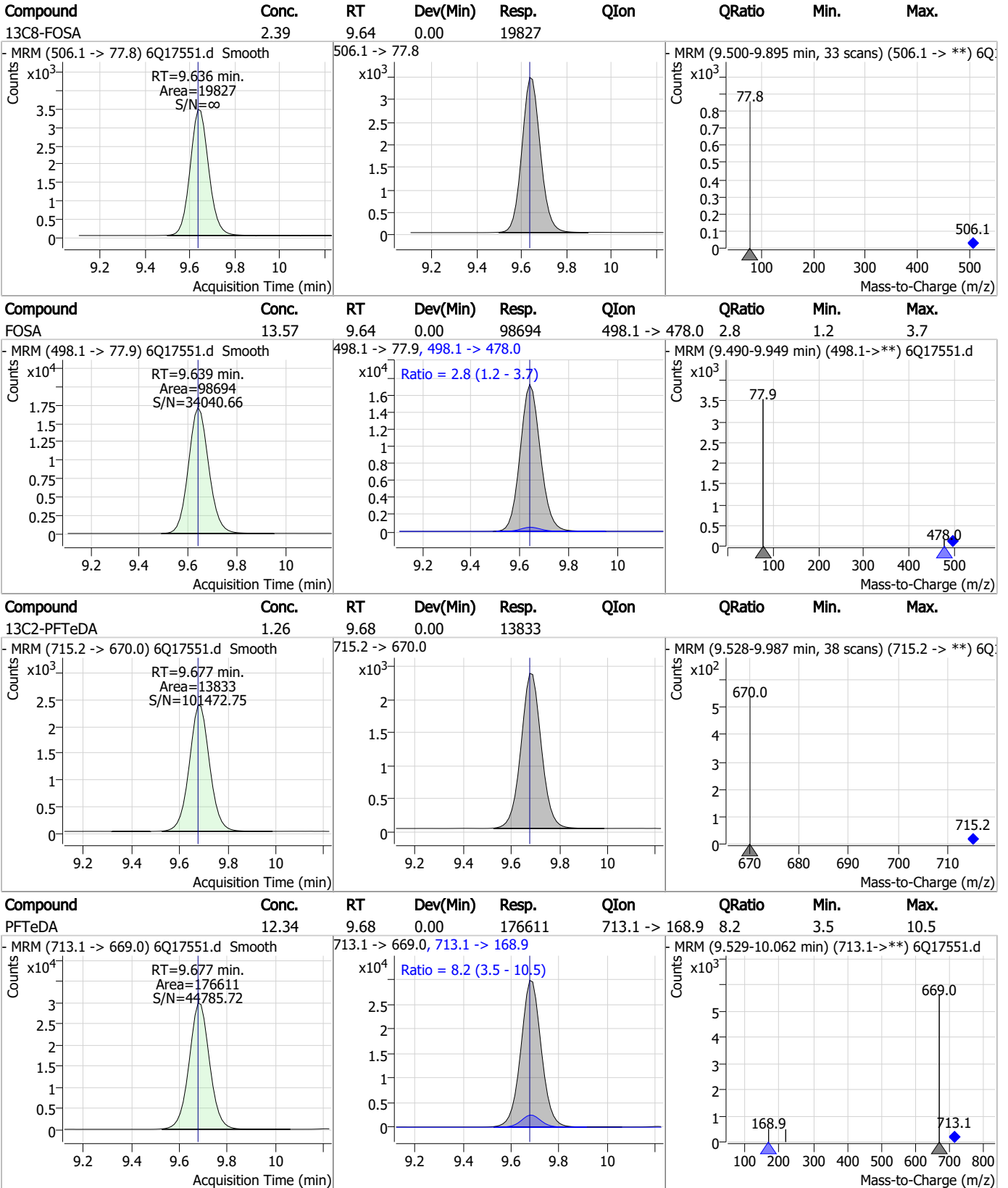
Perfluorinated Compounds by LC/MS/MS



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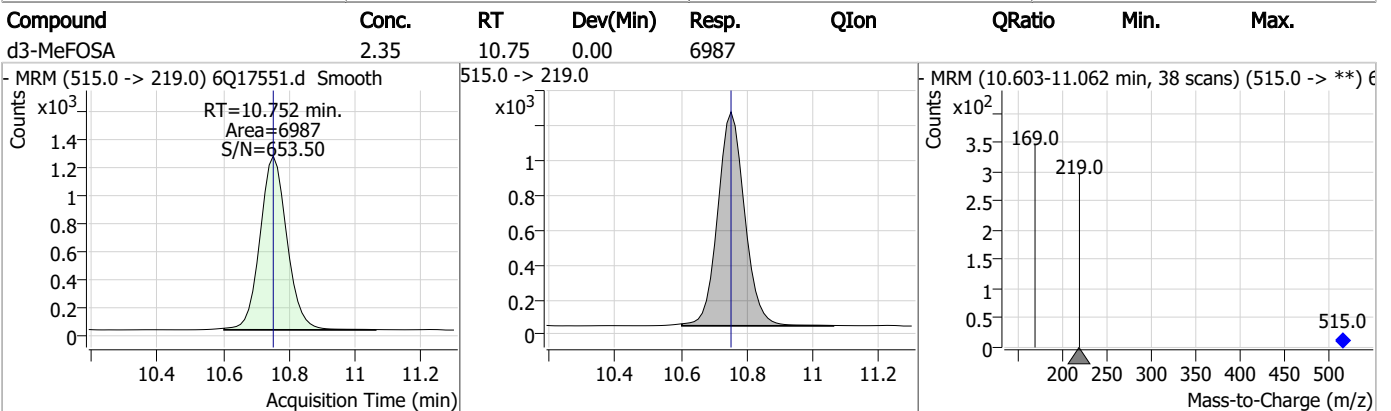
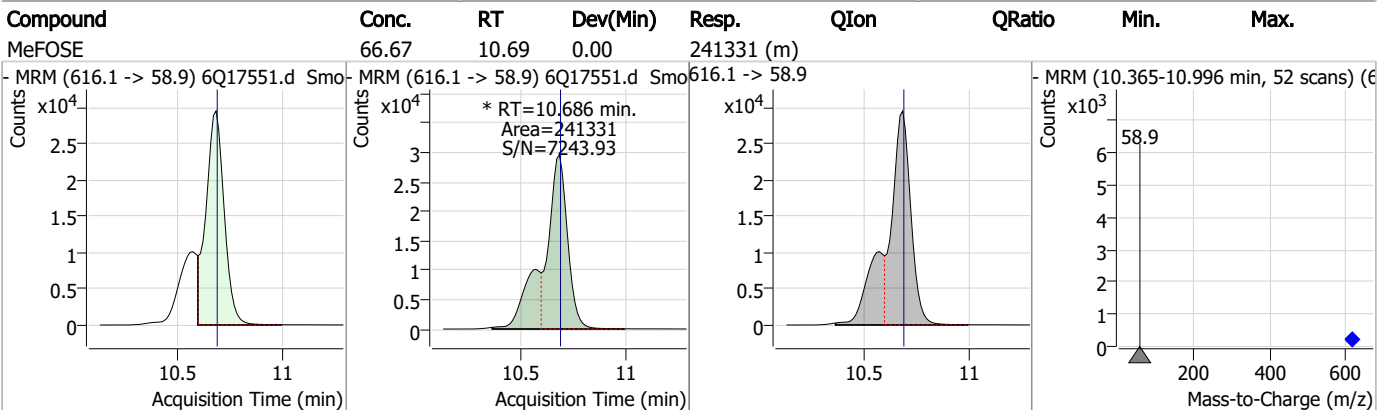
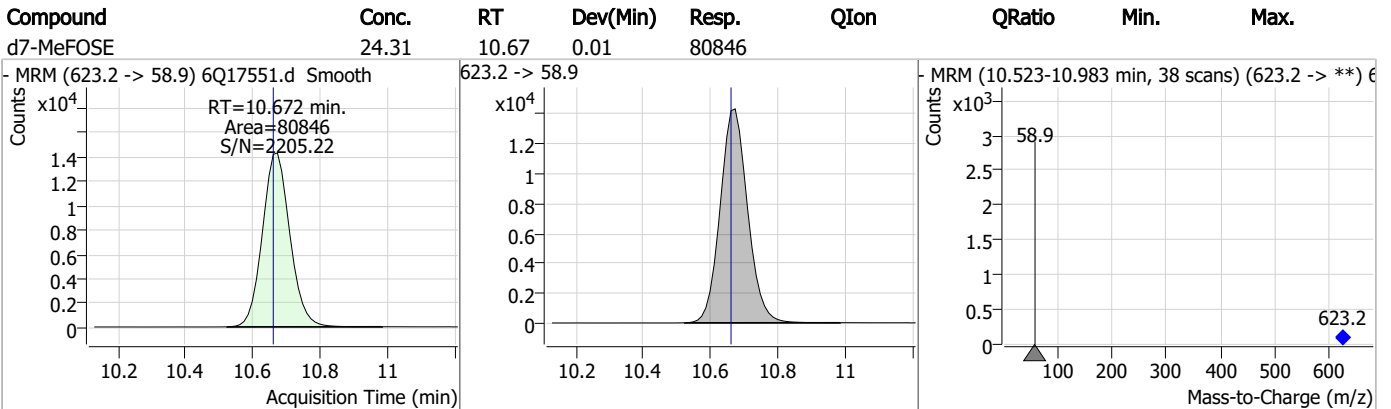
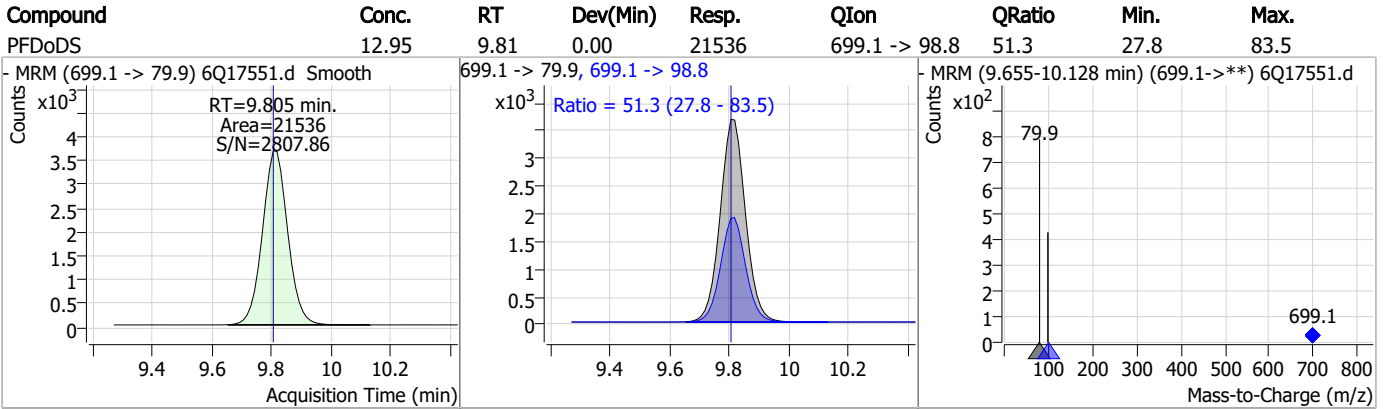
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

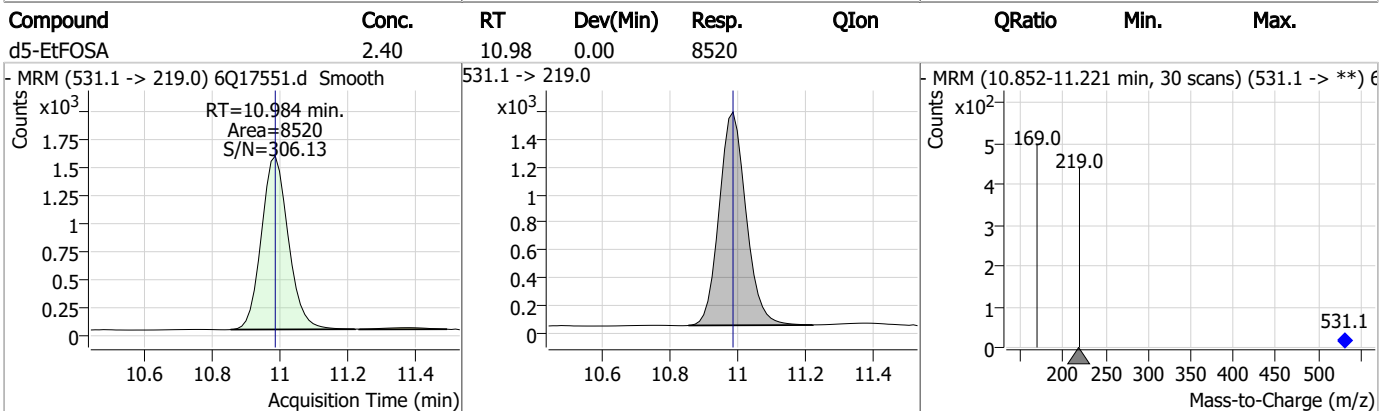
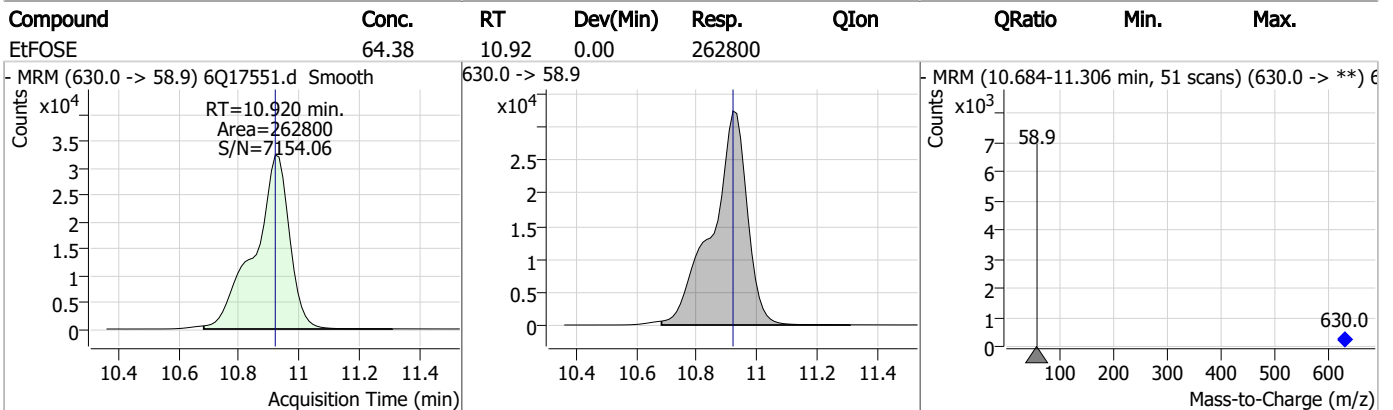
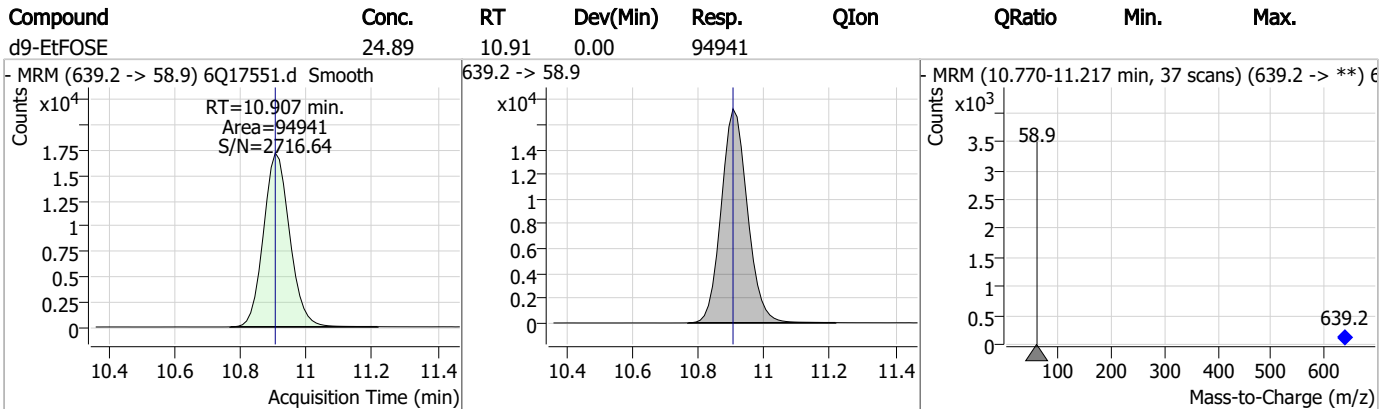
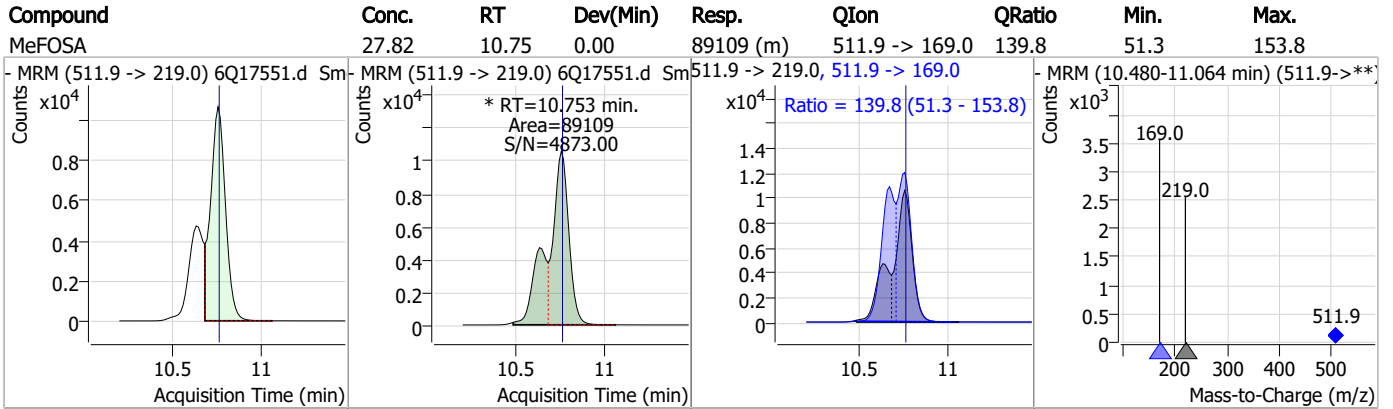


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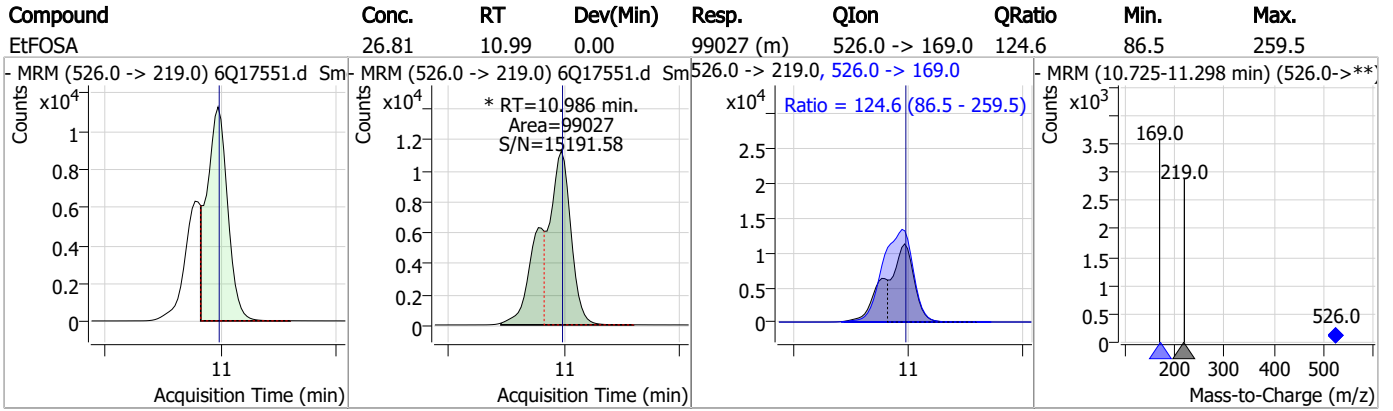
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q265-IC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17551.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 17:18 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
MeFOSAA	2355-31-9		8.13	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
EtFOSAA	2991-50-6		8.34	Split peak
MeFOSE	24448-09-7		10.69	Split peak
MeFOSA	31506-32-8		10.75	Split peak
EtFOSA	4151-50-2		10.99	Split peak

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Mike Eger
 05/11/23 20:17

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17552.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 5:33:01 PM
 Sample Name : ic265-7
 Vial : P1-A8
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	132212	10.00 µg/L	-0.012
M5-PFPeA	4.272	268.3 -> 223.0	44574	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	50039	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	45036	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	64814	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	21483	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16044	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	20332	1.25 µg/L	0.012
M2-PFDoDA	8.949	615.1 -> 570.0	20397	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14514	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	19417	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	17441	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	9750	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	9362	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1375	5.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	1793	5.00 µg/L	0.000
M2-8:2FTS	7.876	529.1 -> 80.9	1897	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	17061	5.00 µg/L	0.000
M3-HFPO-DA	5.856	286.9 -> 168.9	32008	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	15217	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	80453	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	90246	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	9288	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7657	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	12075	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	56177	5.00 µg/L	0.000
18O2-PFHxS	7.191	403.0 -> 83.9	8175	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	62807	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	19317	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	23971	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	43538	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1375	4.55 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.1%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1793	4.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C2-8:2FTS	7.876	529.1 -> 80.9	1897	4.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20397	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14514	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFBS	5.409	302.1 -> 79.9	17441	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	9750	2.29 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 = 91.6%		
13C4-PFBA	2.901	216.8 -> 171.9	132212	9.87 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C4-PFHpA	6.432	367.1 -> 322.0	45036	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C5-PFHxA	5.478	318.0 -> 273.0	50039	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C5-PFPeA	4.272	268.3 -> 223.0	44574	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C6-PFDA	8.076	519.1 -> 474.1	16044	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C7-PFUnDA	8.530	570.0 -> 525.1	20332	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C8-FOSA	9.636	506.1 -> 77.8	19417	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C8-PFOA	7.077	421.1 -> 376.0	64814	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C8-PFOS	8.239	507.1 -> 79.9	9362	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C9-PFNA	7.595	472.1 -> 427.0	21483	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
d3-MeFOSAA	8.133	573.2 -> 419.0	17061	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-HFPO-DA	5.856	286.9 -> 168.9	32008	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
d3-MeFOSA	10.752	515.0 -> 219.0	7657	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.3%		
d5-EtFOSAA	8.329	589.2 -> 419.0	15217	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
d7-MeFOSE	10.660	623.2 -> 58.9	80453	24.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
d9-EtFOSE	10.907	639.2 -> 58.9	90246	23.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
d5-EtFOSA	10.985	531.1 -> 219.0	9288	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
Target Compounds					QValue
4:2FTS	5.156	327.1 -> 307.0	216935	103.33 µg/L	93
		327.1 -> 80.9	76081		
6:2FTS	6.850	427.1 -> 407.0	185836	94.34 µg/L	97
		427.1 -> 80.9	63912		
8:2FTS	7.865	527.1 -> 507.0	106629	96.78 µg/L	96
		527.1 -> 80.8	45183		
EtFOSAA	8.342	584.2 -> 419.1	72036	26.32 µg/L	87
		584.2 -> 526.0	33042		
FOSA	9.639	498.1 -> 77.9	196885	27.65 µg/L	100
		498.1 -> 478.0	5065		
MeFOSAA	8.134	570.1 -> 419.0	88405	25.07 µg/L	98
		570.1 -> 483.0	16811		
PFBA	2.907	212.8 -> 168.9	492819	104.09 µg/L	100
PFBS	5.410	298.7 -> 79.9	191365	22.17 µg/L	100
		298.7 -> 98.8	74583		
PFDA	8.076	512.9 -> 469.0	535372	26.96 µg/L	94
		512.9 -> 219.0	76311		
PFDoDA	8.950	613.1 -> 569.0	420056	25.83 µg/L	99
		613.1 -> 319.0	58144		
PFDS	9.113	599.0 -> 79.9	78506	24.88 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	34736			
PFHpA	6.433	363.1 -> 319.0	588965	25.90	µg/L	99
		363.1 -> 169.0	92326			
PFHpS	7.735	449.0 -> 79.9	115889	23.00	µg/L	95
		449.0 -> 98.9	62755			
PFHxA	5.481	313.0 -> 269.0	525172	25.80	µg/L	100
		313.0 -> 118.9	24062			
PFHxS	7.180	398.7 -> 79.9	138745	24.11	µg/L	m 100
		398.7 -> 98.9	65801			
PFNA	7.596	463.0 -> 419.0	388476	24.54	µg/L	98
		463.0 -> 219.0	80433			
PFNS	8.693	548.8 -> 79.9	114465	24.68	µg/L	97
		548.8 -> 98.9	57798			
PFOA	7.078	413.0 -> 369.0	816253	25.81	µg/L	98
		413.0 -> 169.0	138896			
PFOS	8.228	498.9 -> 79.9	109731	22.57	µg/L	m 81
		498.9 -> 98.8	56272			
PFPeA	4.274	263.0 -> 219.0	672195	51.60	µg/L	100
PFPeS	6.484	349.1 -> 79.9	132404	24.13	µg/L	97
		349.1 -> 98.9	63913			
PFTeDA	9.677	713.1 -> 669.0	375380	25.00	µg/L	99
		713.1 -> 168.9	27709			
PFTrDA	9.333	663.0 -> 619.0	490275	25.50	µg/L	99
		663.0 -> 168.9	42806			
PFUnDA	8.531	563.1 -> 519.0	394604	27.62	µg/L	98
		563.1 -> 269.1	57034			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	569711	46.51	µg/L	98
		632.9 -> 452.9	178045			
9Cl-PF3ONS	8.570	530.8 -> 351.0	858376	45.68	µg/L	96
		532.8 -> 353.0	285255			
ADONA	6.683	376.9 -> 250.9	2287262	44.58	µg/L	99
		376.9 -> 84.8	619845			
HFPO-DA	5.857	284.9 -> 168.9	159727	51.71	µg/L	99
		284.9 -> 184.9	20806			
3:3FTCA	3.790	241.0 -> 177.0	106858	128.52	µg/L	97
		241.0 -> 117.0	13217			
5:3FTCA	6.174	341.0 -> 237.1	2270462	653.98	µg/L	91
		341.0 -> 217.0	1533609			
7:3FTCA	7.586	441.0 -> 316.9	1053186	673.53	µg/L	98
		441.0 -> 336.9	2138340			
EtFOSA	10.986	526.0 -> 219.0	184591	45.84	µg/L	m 72
		526.0 -> 169.0	247451			
EtFOSE	10.920	630.0 -> 58.9	529012	136.33	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	173666	49.47	µg/L	m 65
		511.9 -> 169.0	240200			
MeFOSE	10.673	616.1 -> 58.9	464702	129.01	µg/L	m 100
PFDoS	9.805	699.1 -> 79.9	41833	24.89	µg/L	99
		699.1 -> 98.8	23090			
NFDHA	5.361	295.0 -> 201.0	106951	49.24	µg/L	98
		295.0 -> 84.9	29511			
PFMBA	4.688	279.0 -> 85.1	469022	50.99	µg/L	100
PFMPA	3.442	229.0 -> 84.9	338673	51.29	µg/L	100
PFEESA	5.950	314.8 -> 134.9	1250103	47.06	µg/L	100
		314.8 -> 82.9	41220			

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

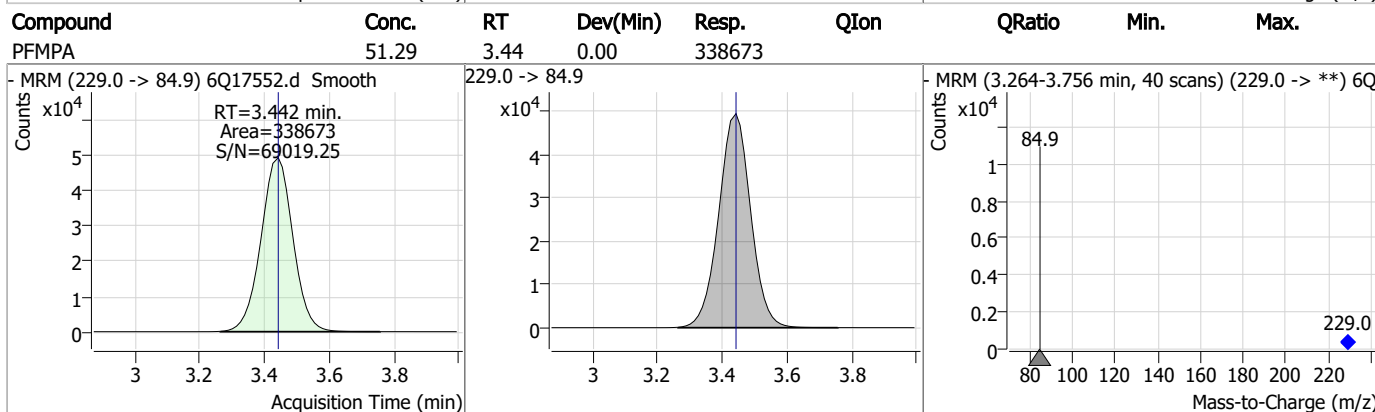
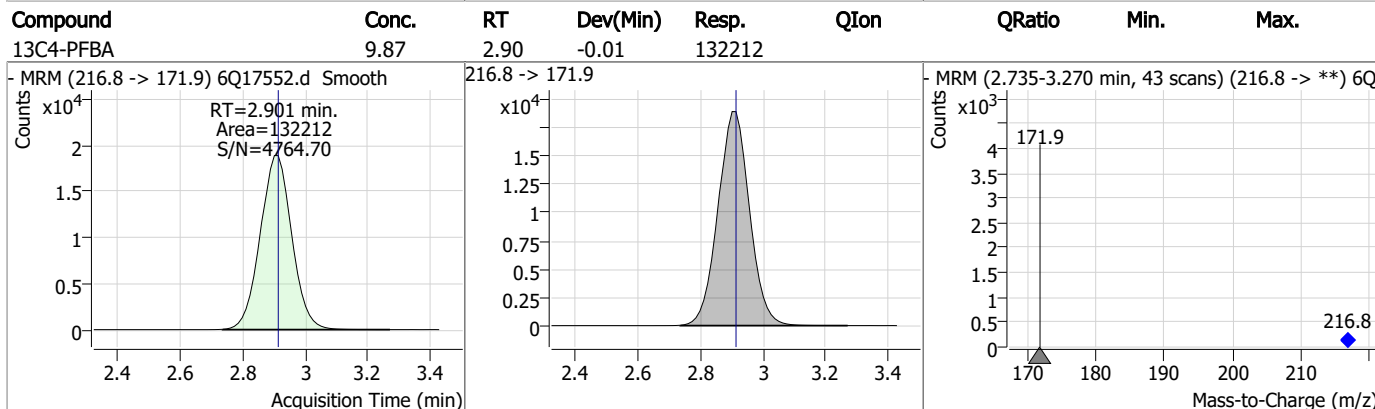
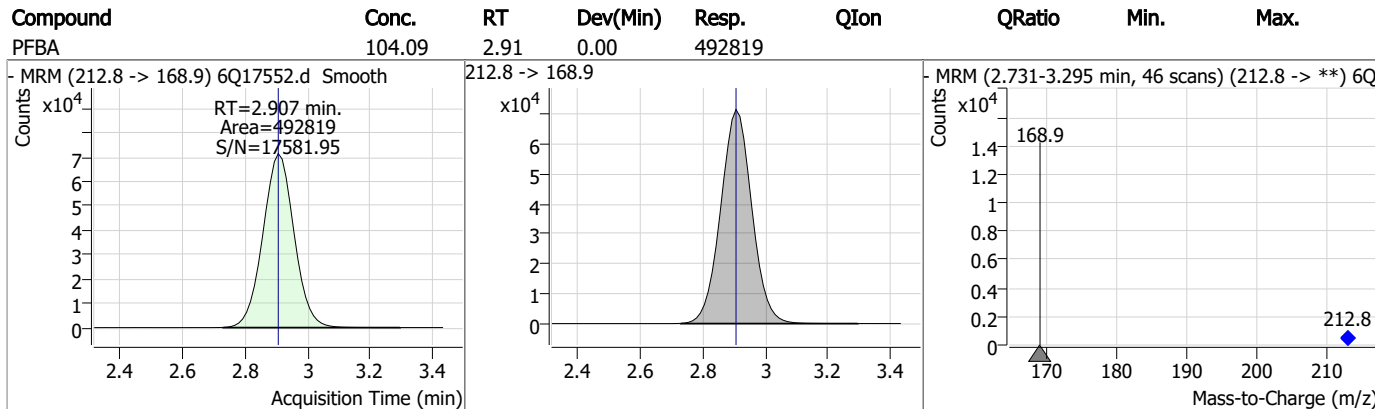
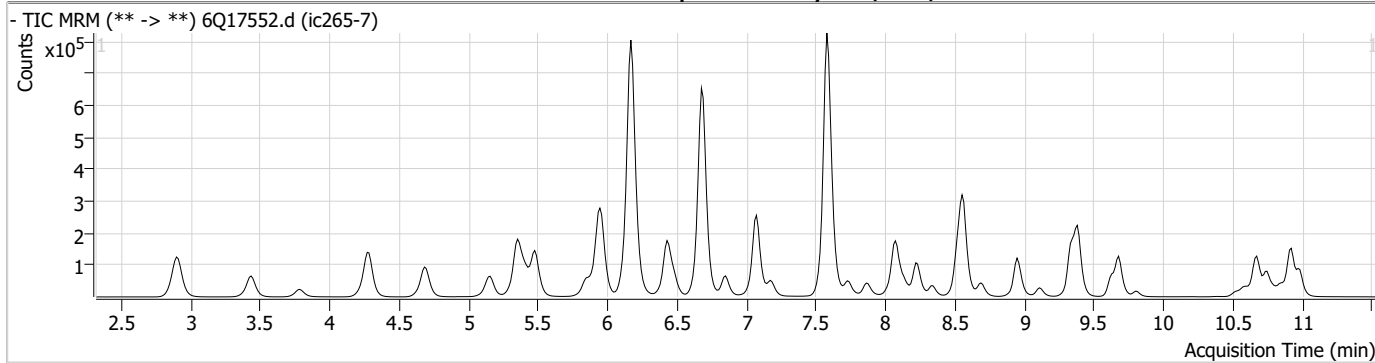
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.25
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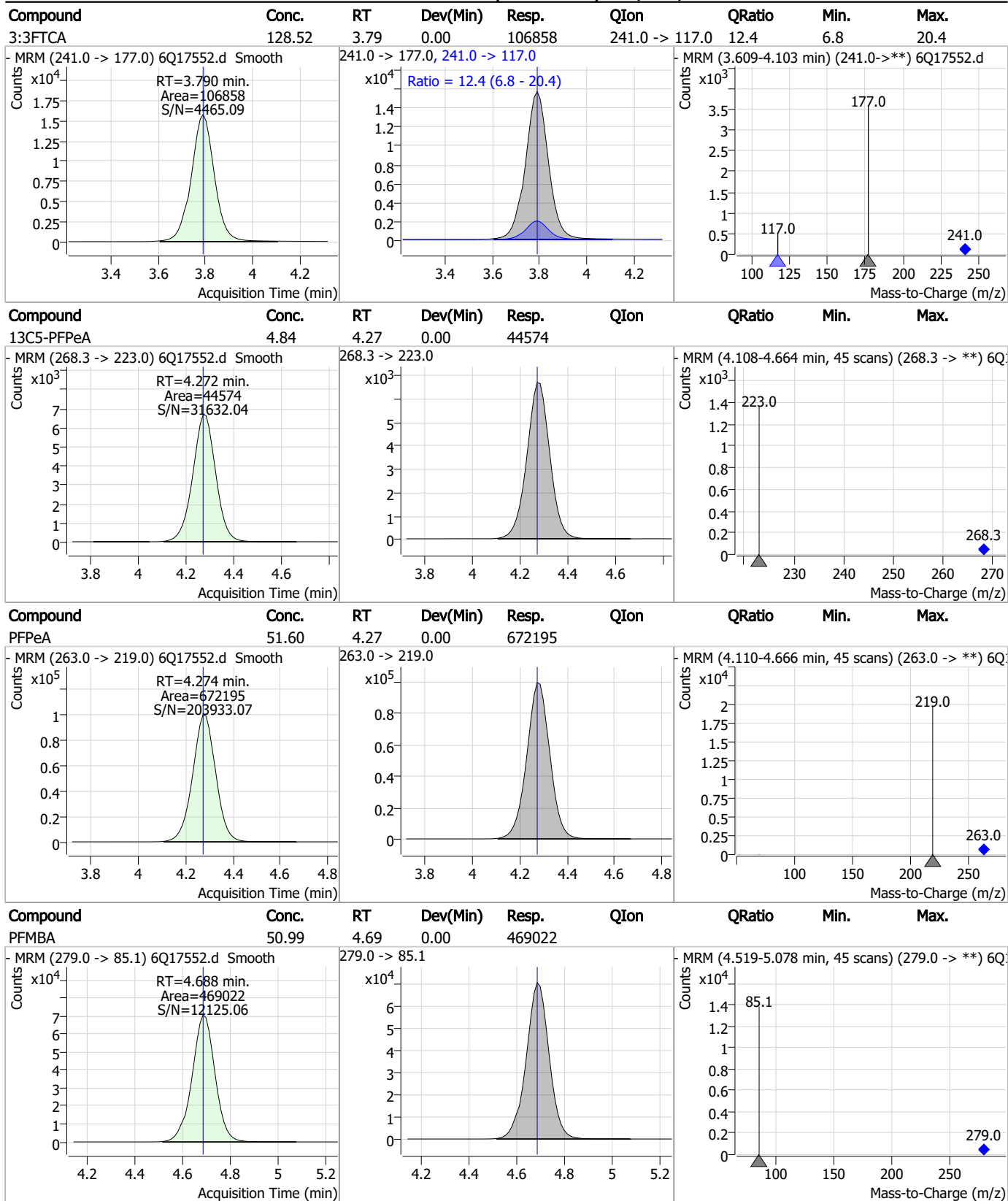


Perfluorinated Compounds by LC/MS/MS



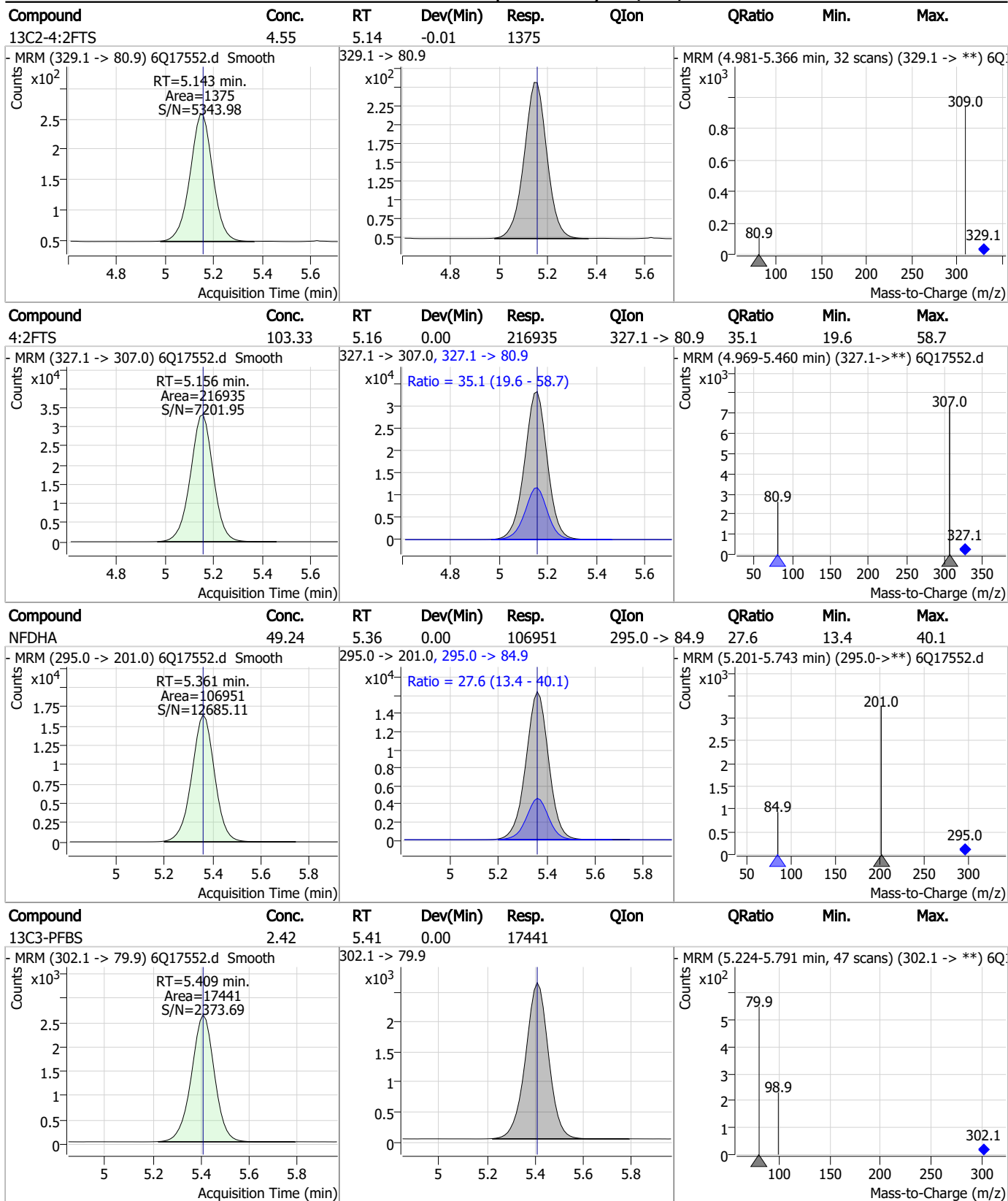
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Perfluorinated Compounds by LC/MS/MS



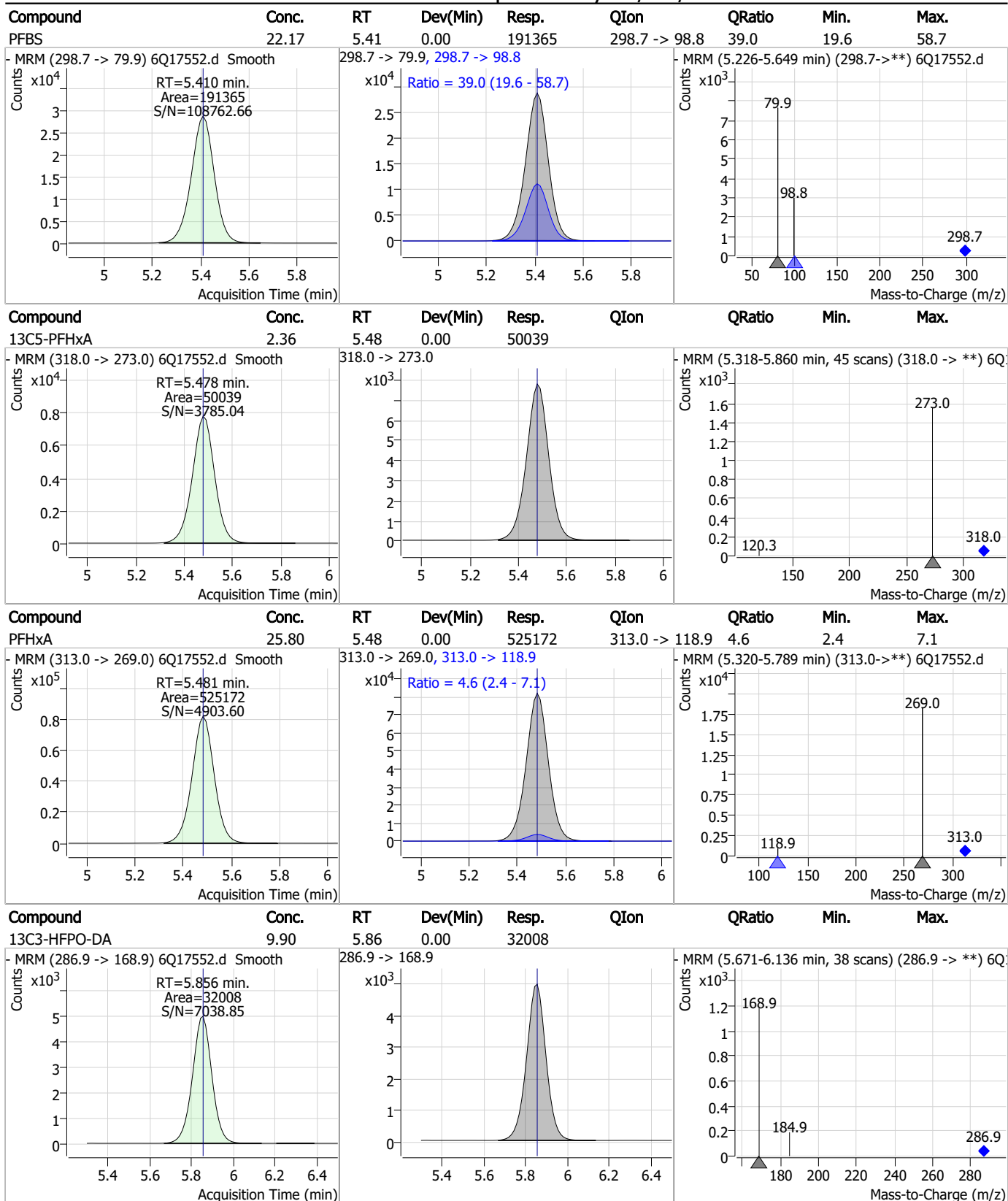
7.7.25 7

Perfluorinated Compounds by LC/MS/MS



7.7.25 7

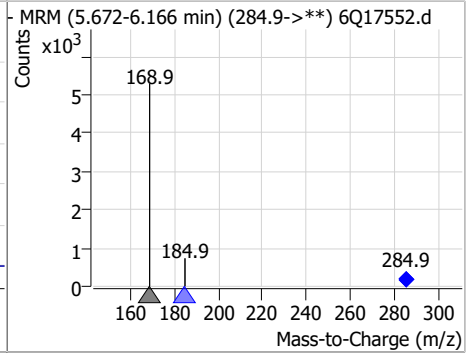
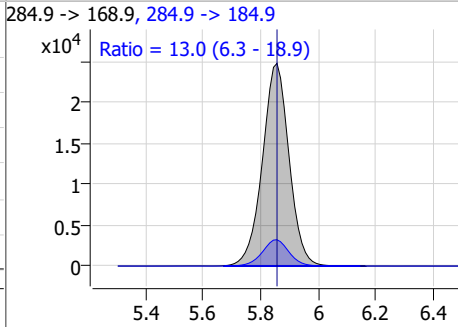
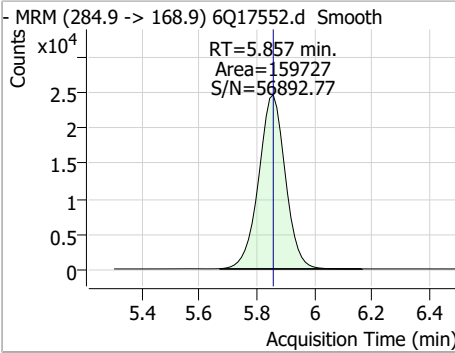
Perfluorinated Compounds by LC/MS/MS



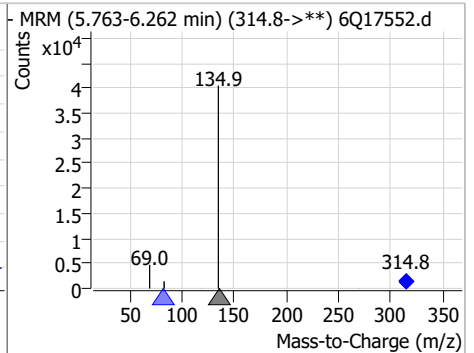
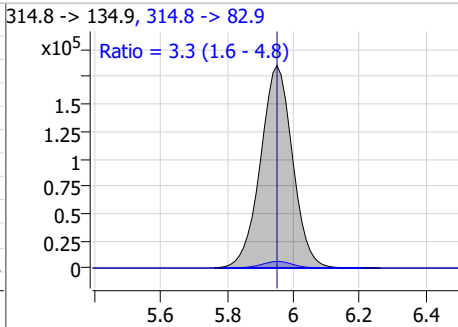
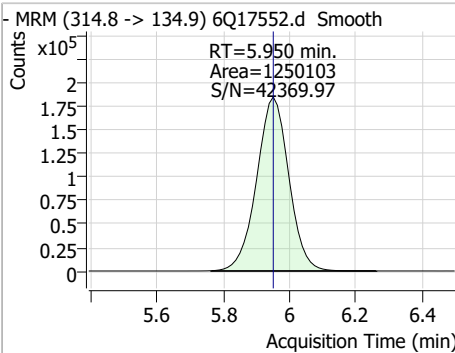
7.7.25 7

Perfluorinated Compounds by LC/MS/MS

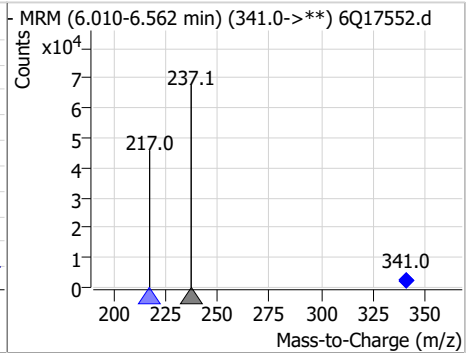
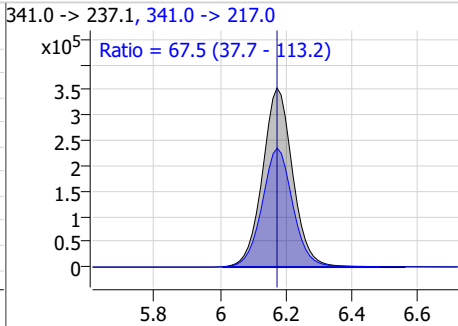
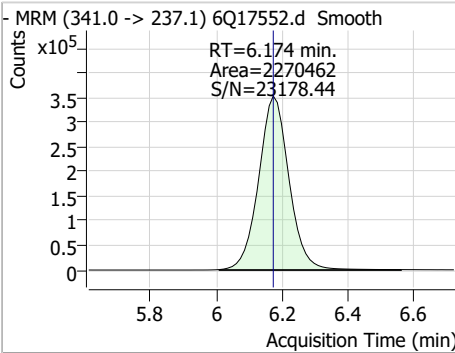
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	51.71	5.86	0.00	159727	284.9 -> 184.9	13.0	6.3	18.9



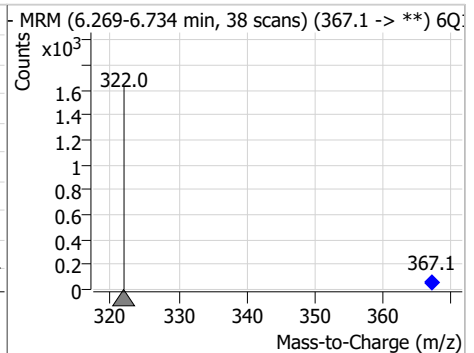
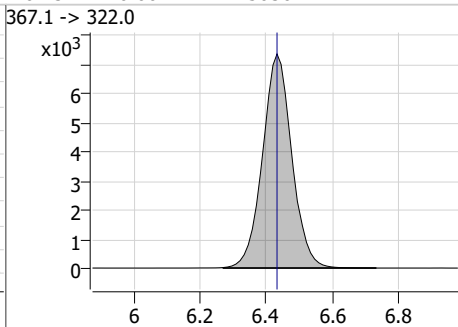
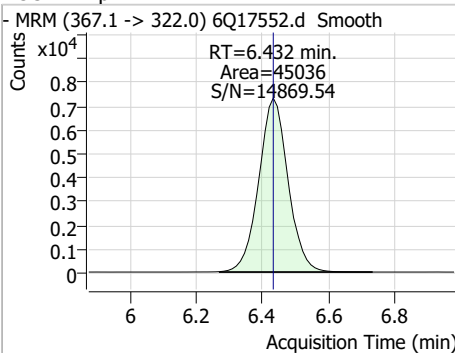
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	47.06	5.95	0.00	1250103	314.8 -> 82.9	3.3	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	653.98	6.17	0.00	2270462	341.0 -> 217.0	67.5	37.7	113.2

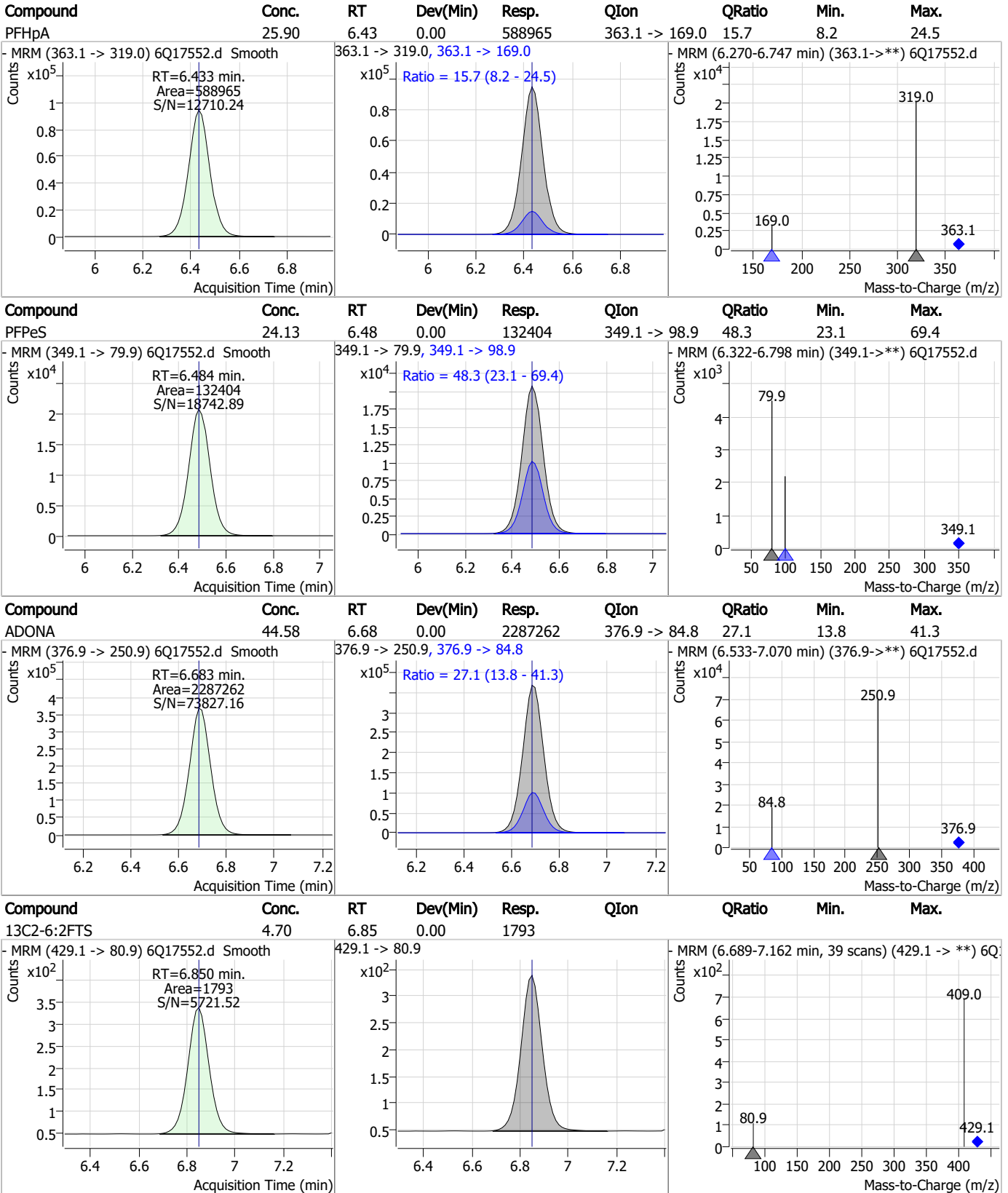


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.44	6.43	0.00	45036	367.1 -> 322.0			



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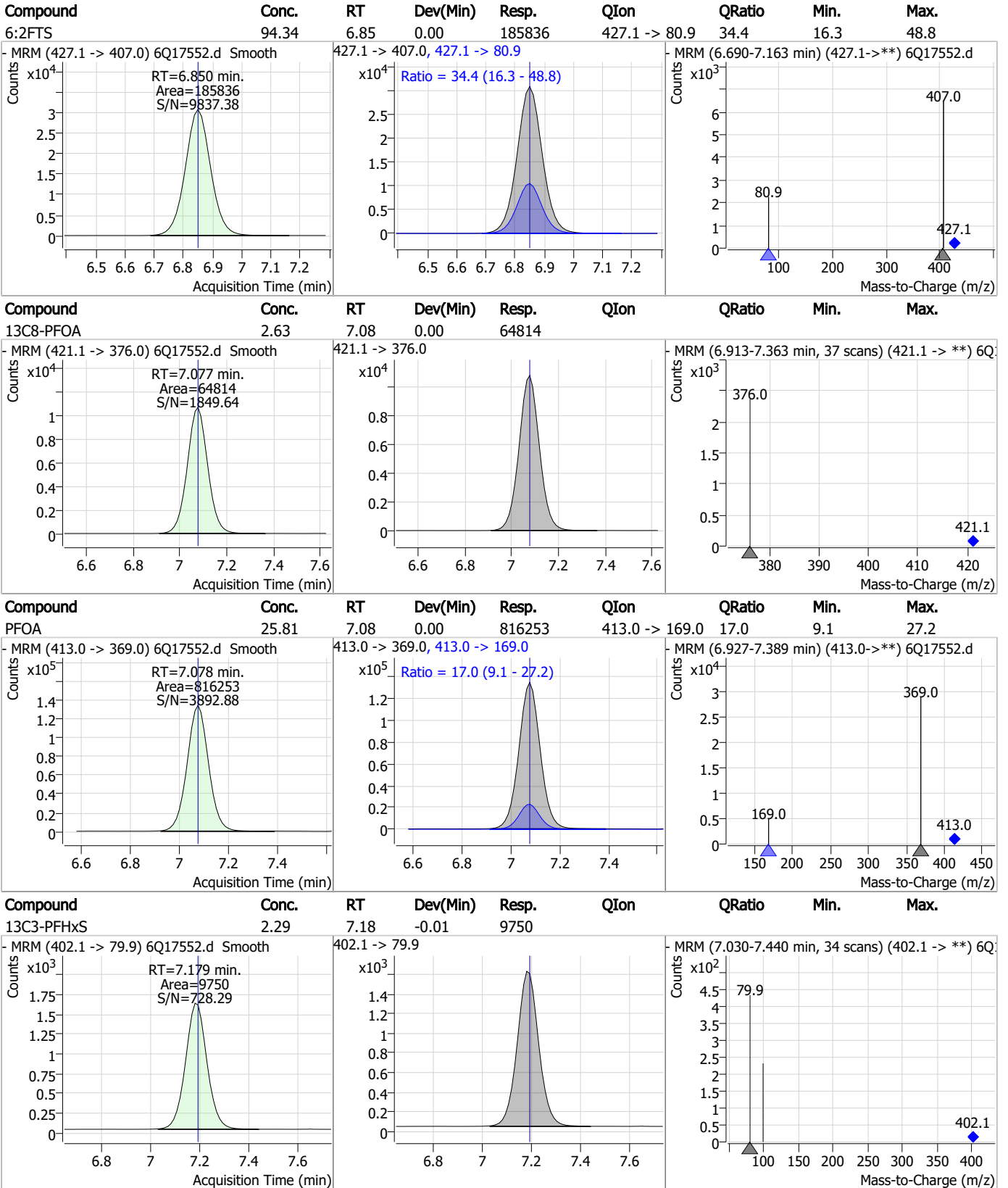
Perfluorinated Compounds by LC/MS/MS



7.7.25
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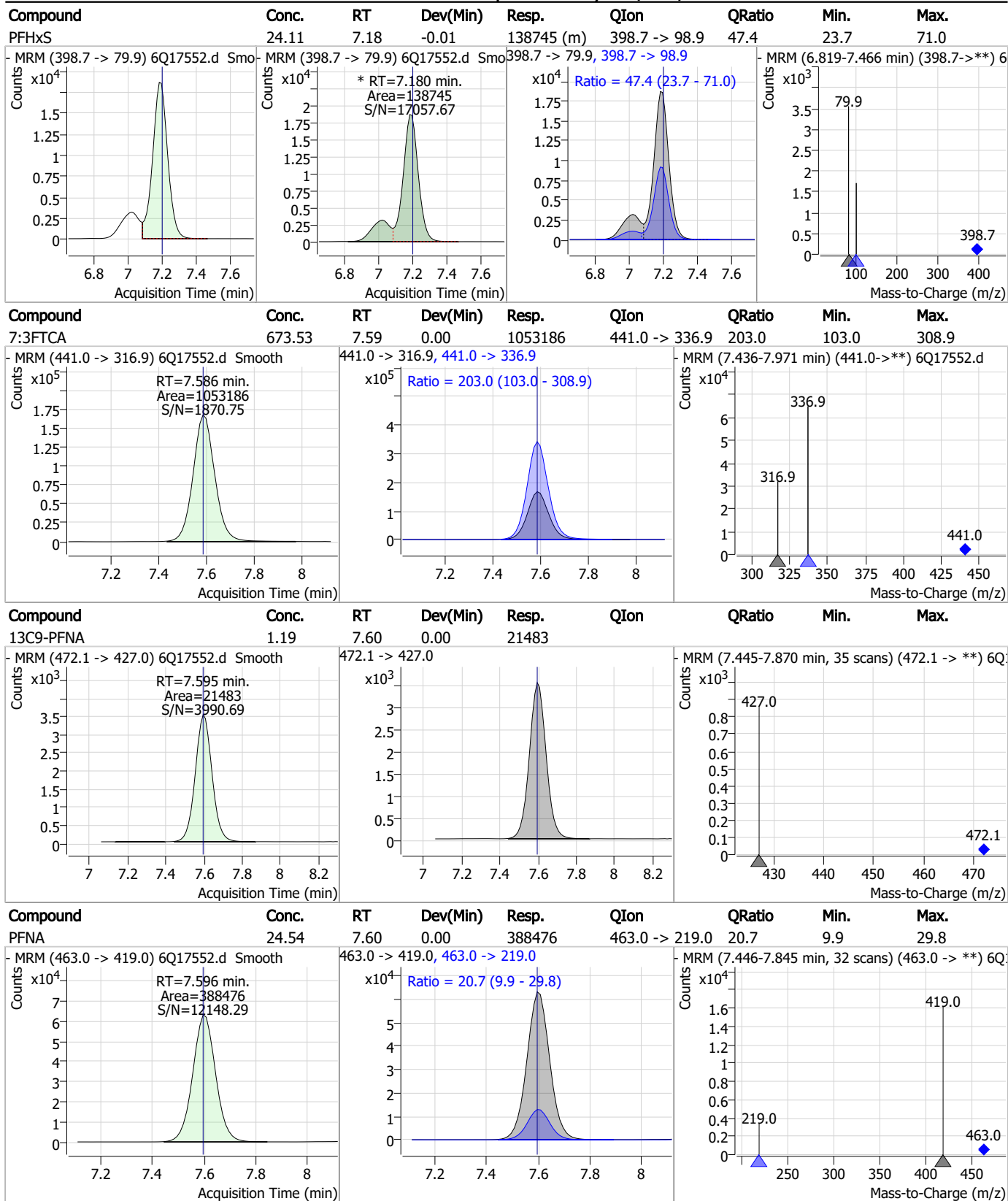


Perfluorinated Compounds by LC/MS/MS



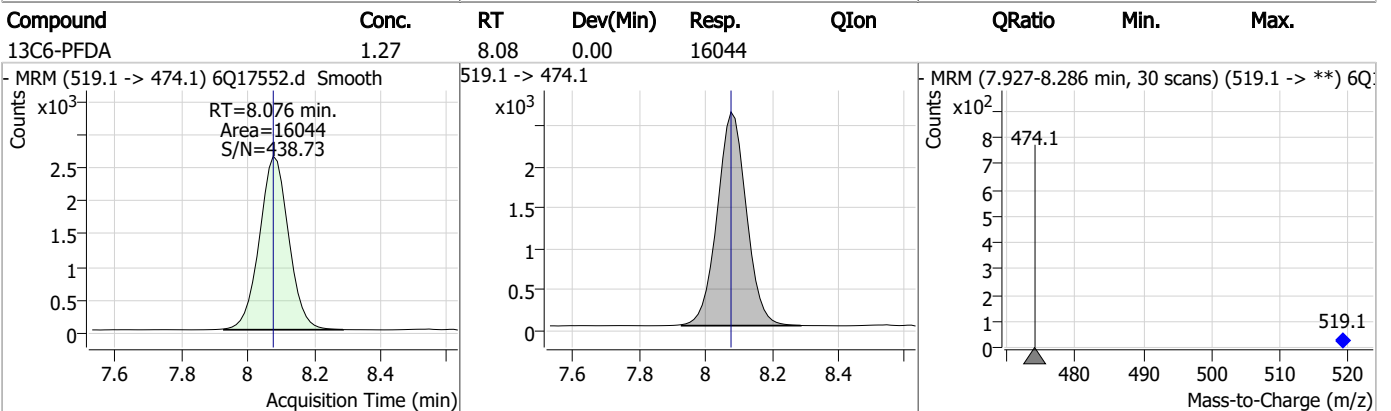
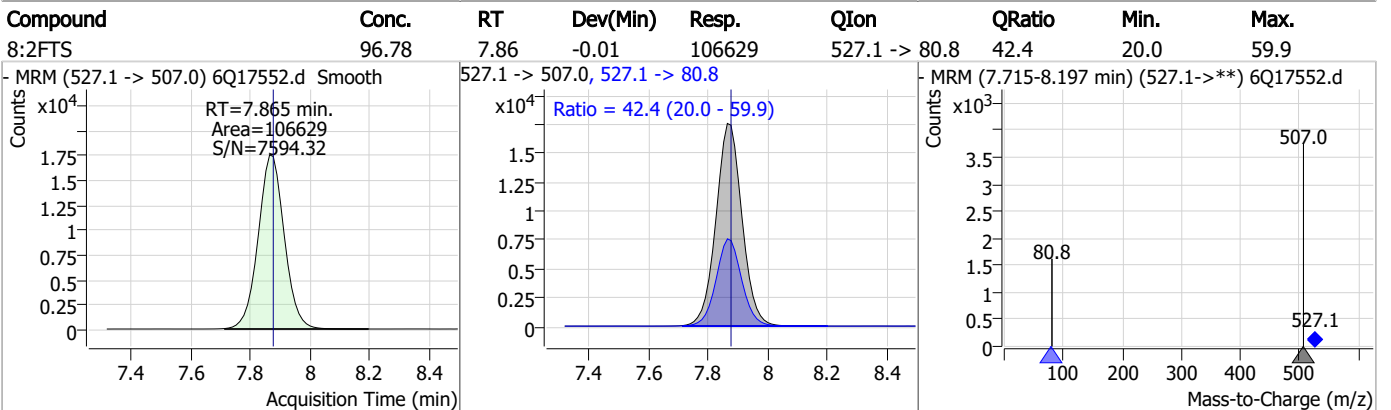
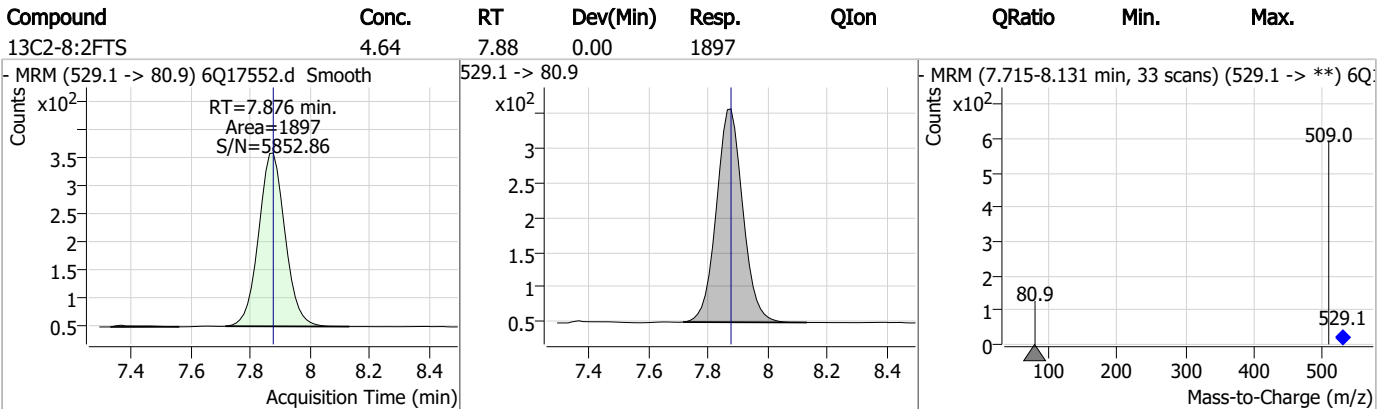
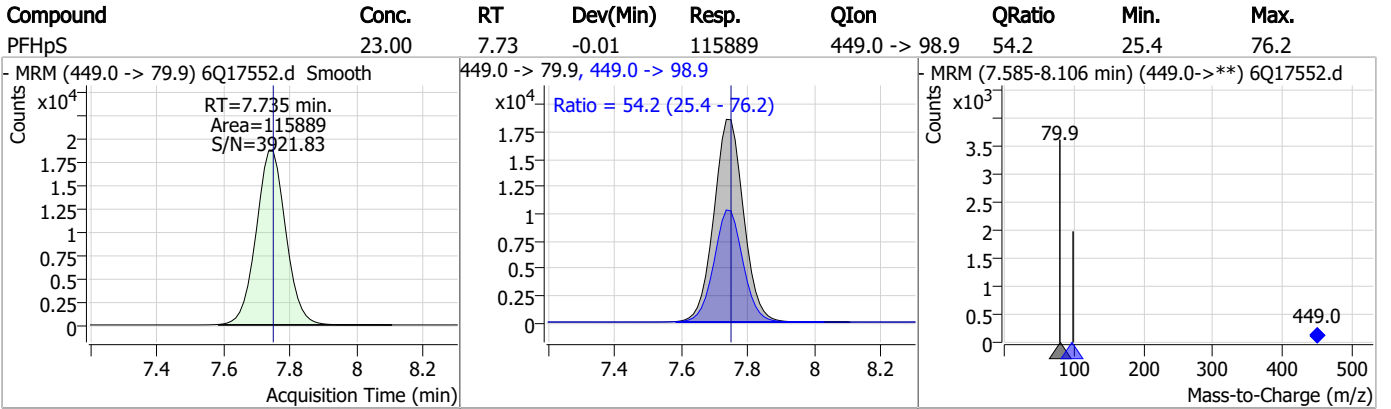
7.7.25 7

Perfluorinated Compounds by LC/MS/MS



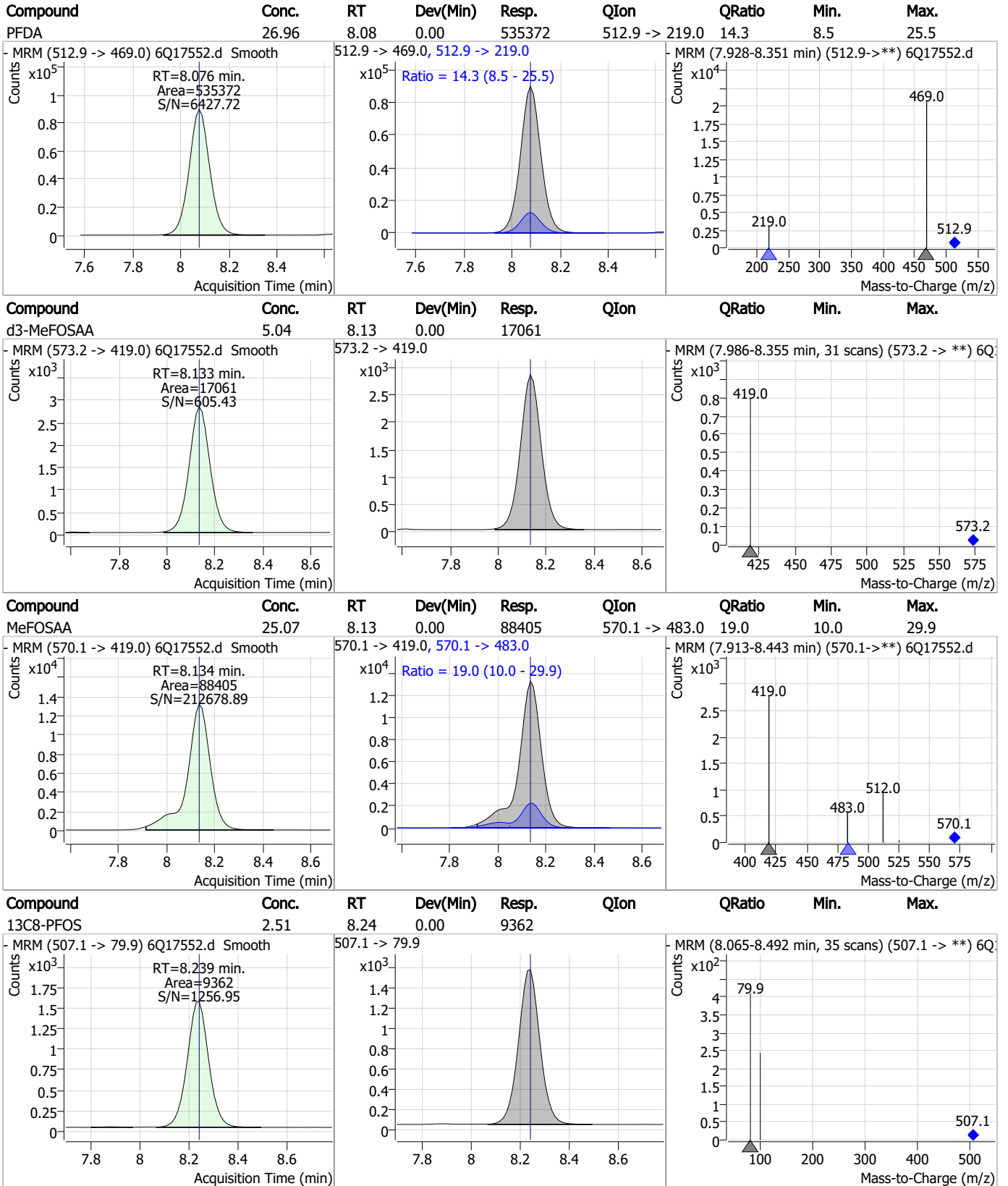
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Perfluorinated Compounds by LC/MS/MS



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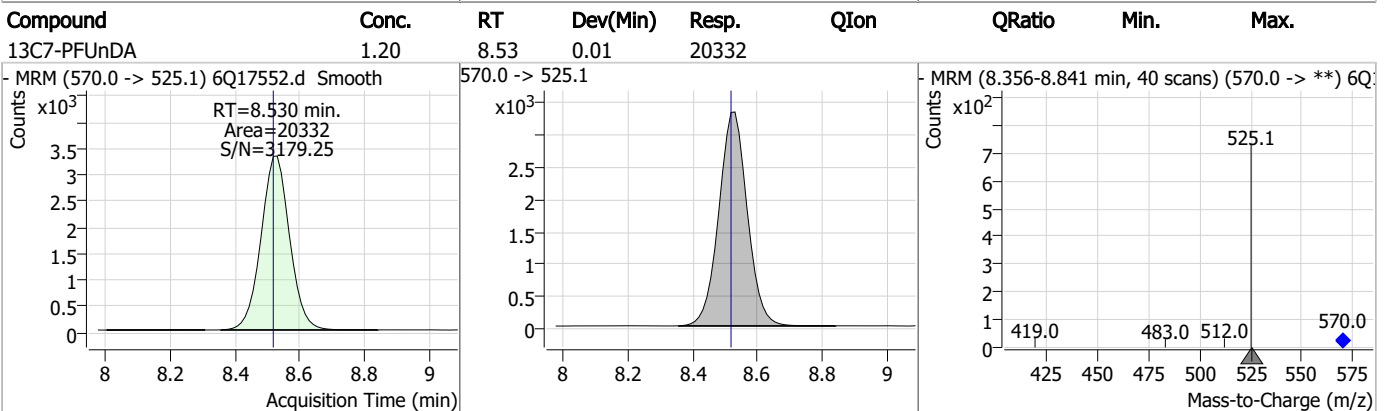
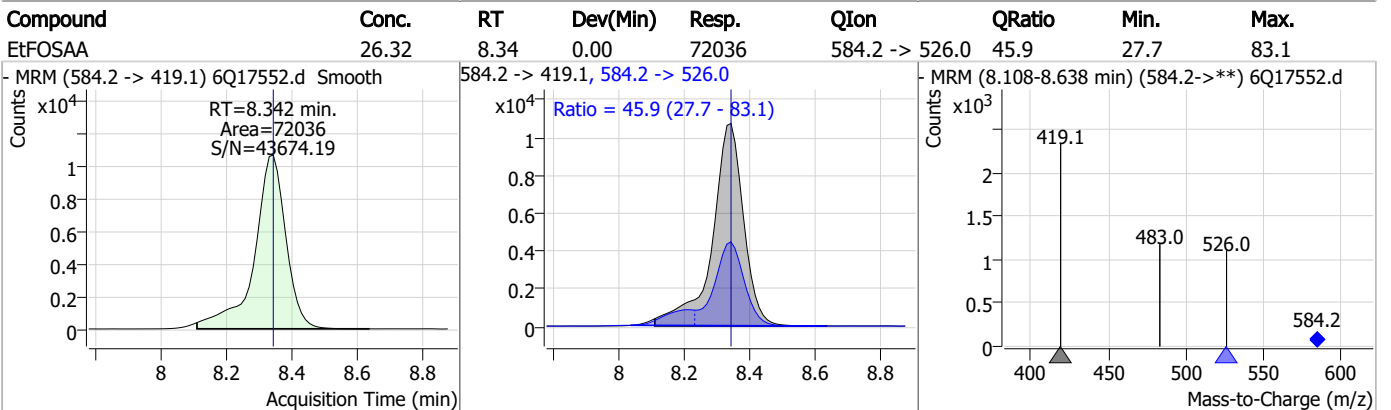
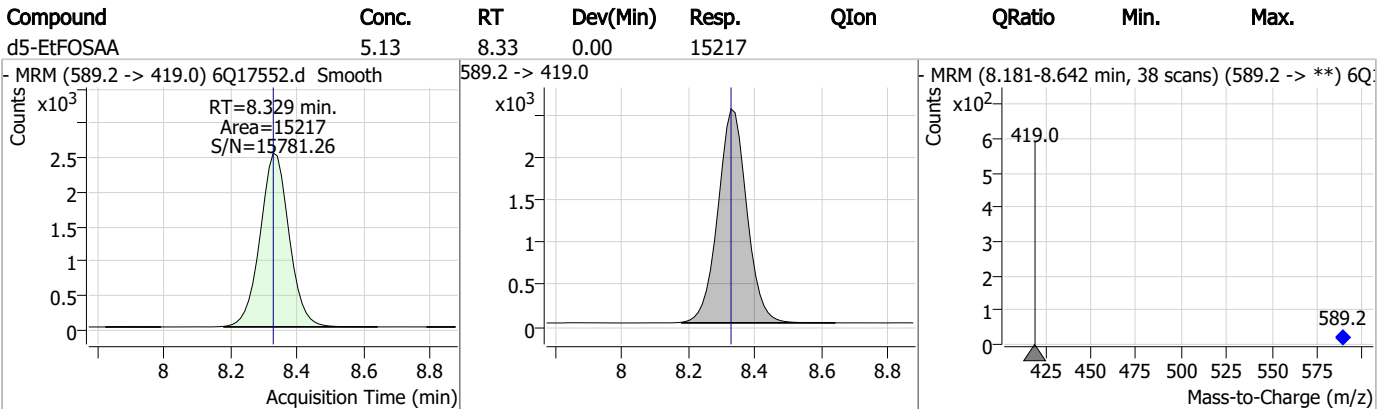
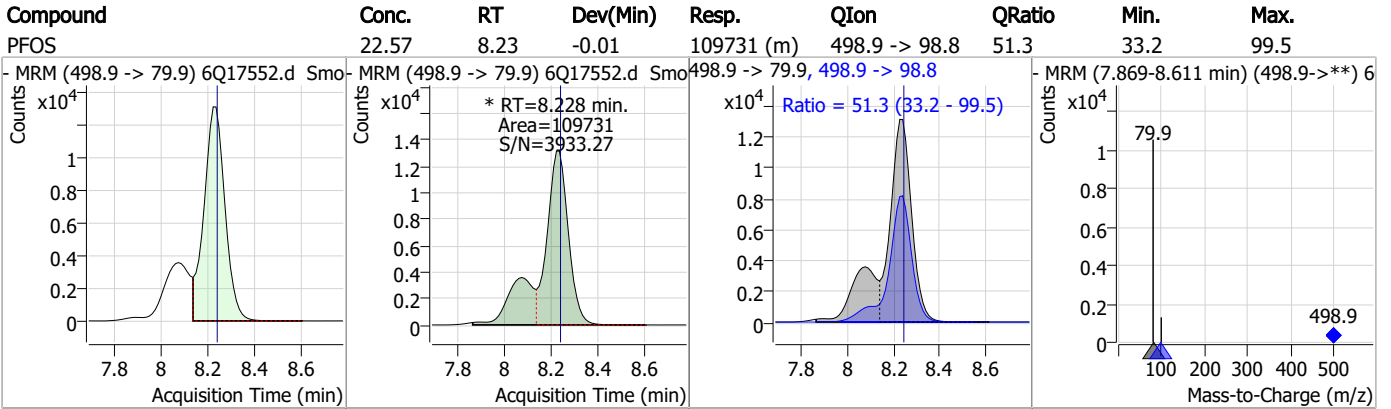
Perfluorinated Compounds by LC/MS/MS



7.7.25
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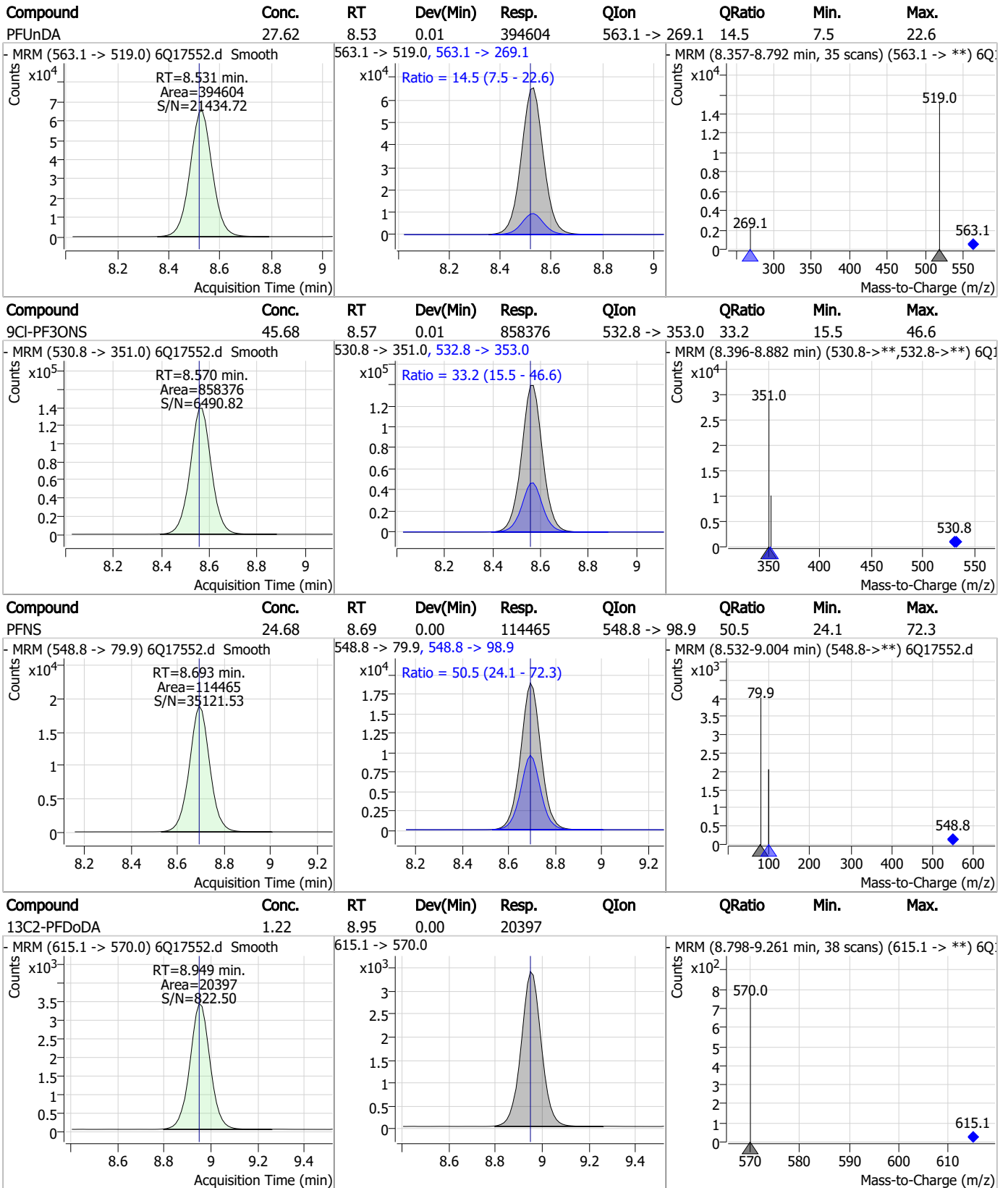


Perfluorinated Compounds by LC/MS/MS



7.7.25 7

Perfluorinated Compounds by LC/MS/MS



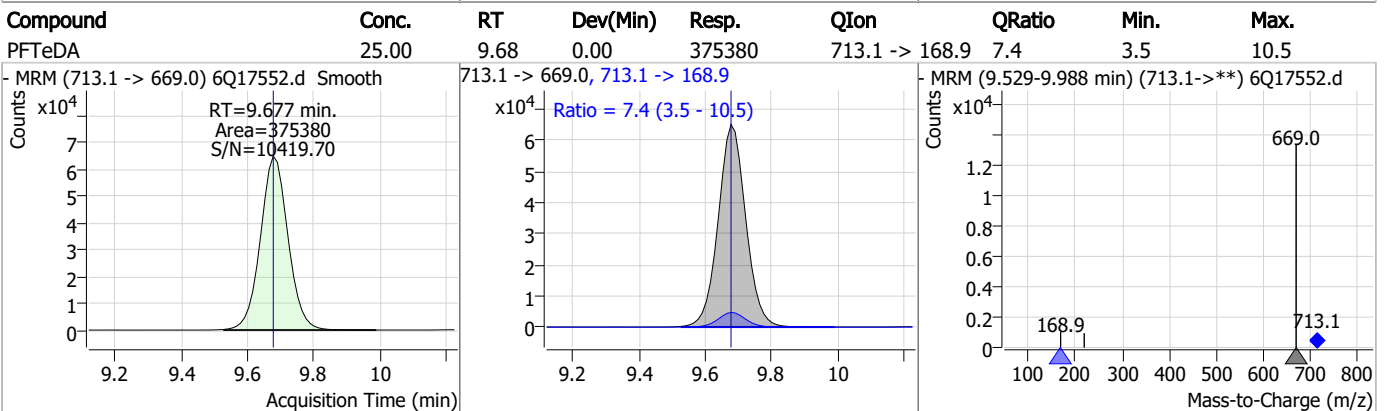
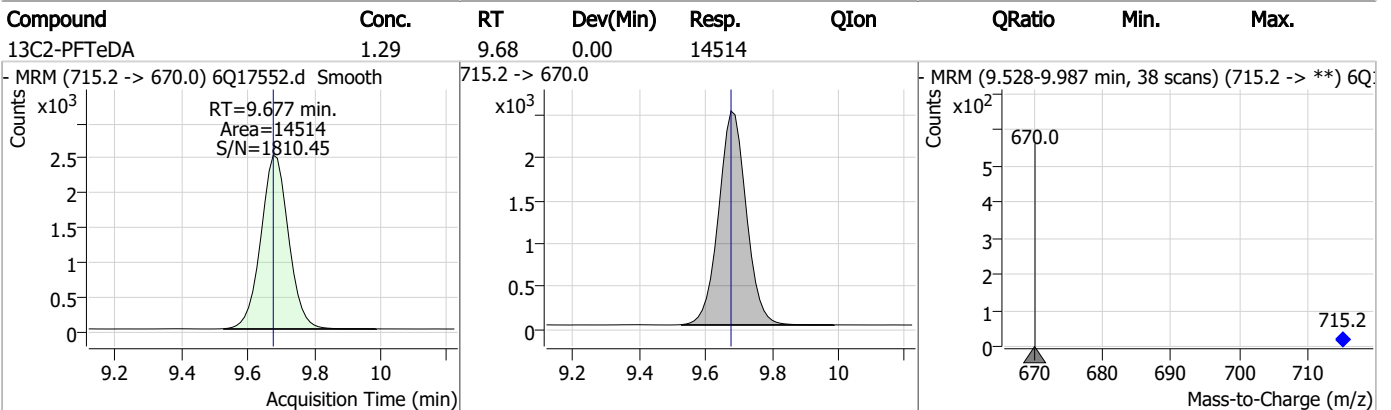
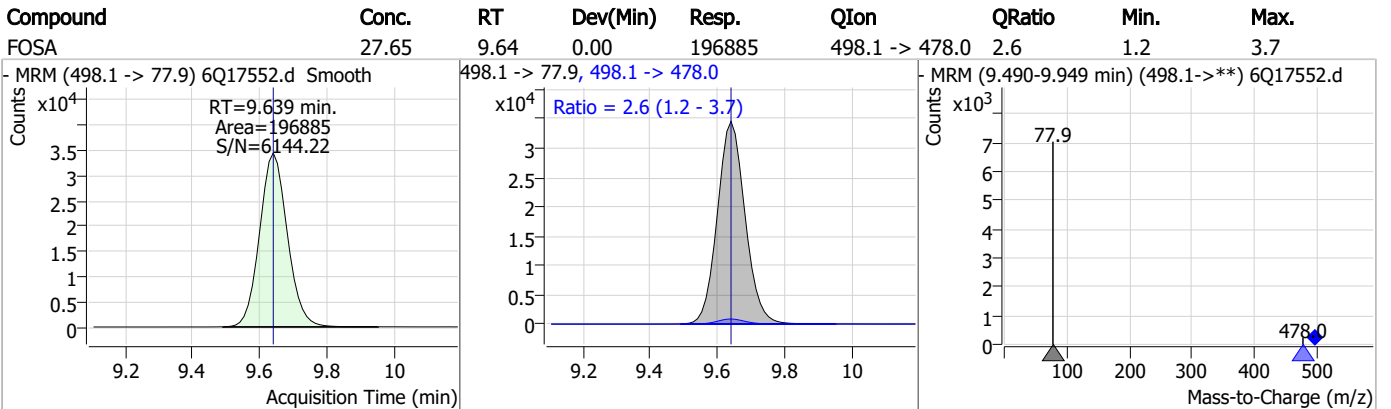
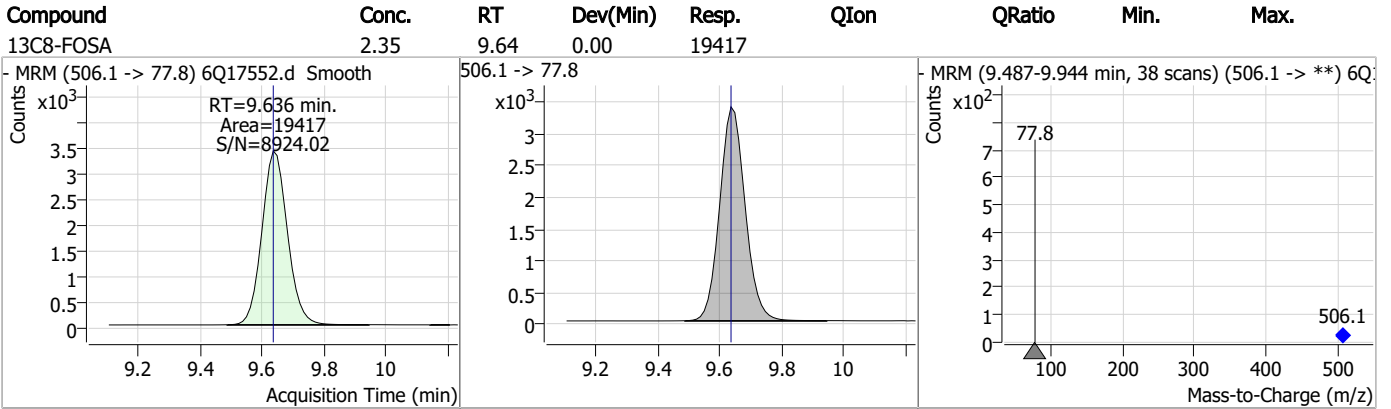
7.7.25 7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	25.83	8.95	0.00	420056	613.1 -> 319.0	13.8	6.8	20.4
PFD5	24.88	9.11	0.00	78506	599.0 -> 98.8	44.2	23.7	71.0
PFTrDA	25.50	9.33	0.00	490275	663.0 -> 168.9	8.7	4.6	13.7
11Cl-PF3OUds	46.51	9.39	0.00	569711	632.9 -> 452.9	31.3	16.3	49.0

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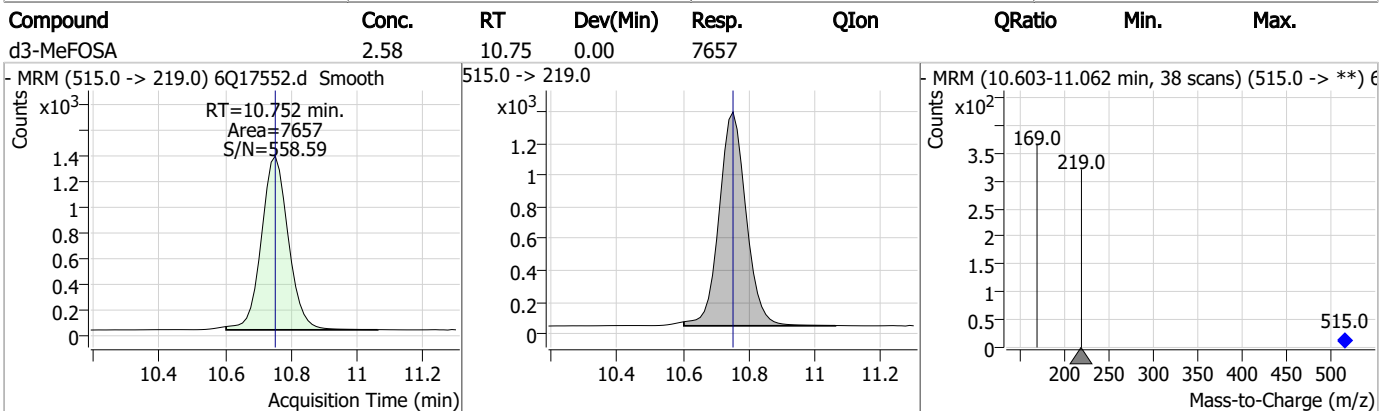
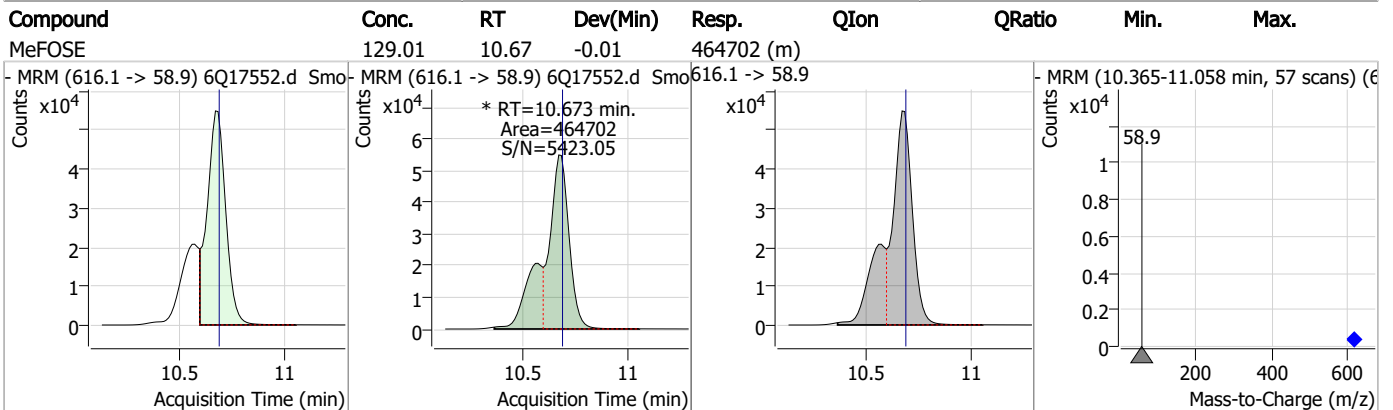
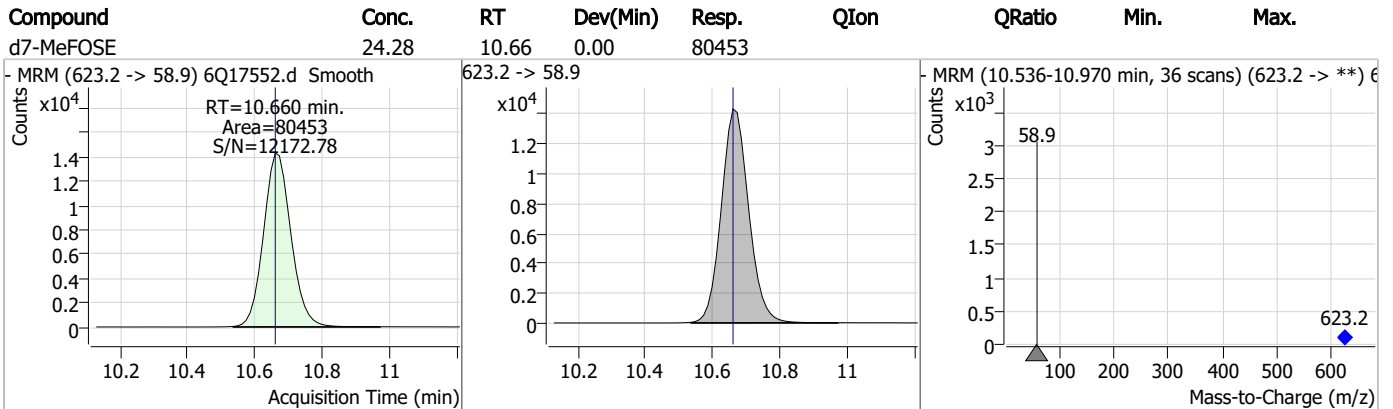
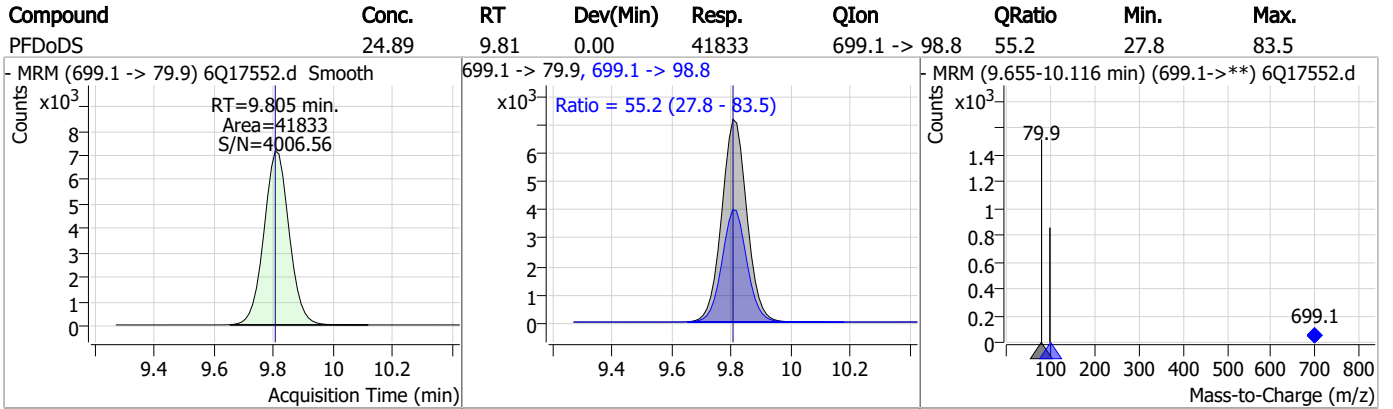
Perfluorinated Compounds by LC/MS/MS



7.7.25
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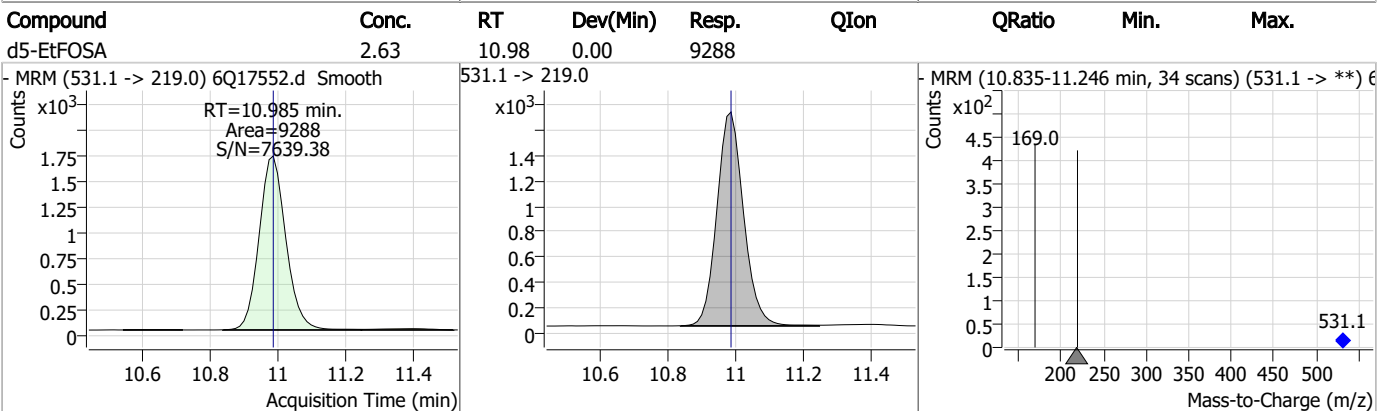
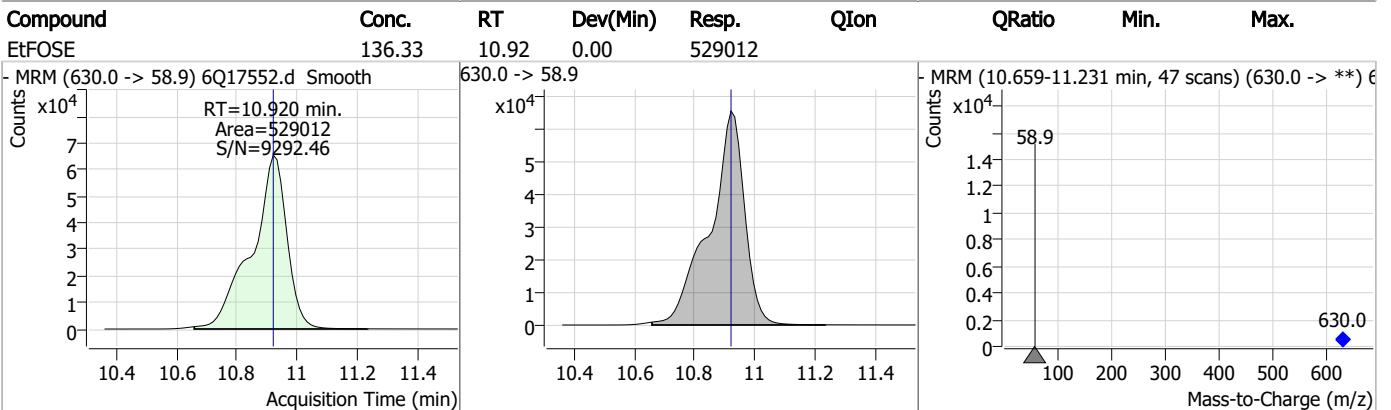
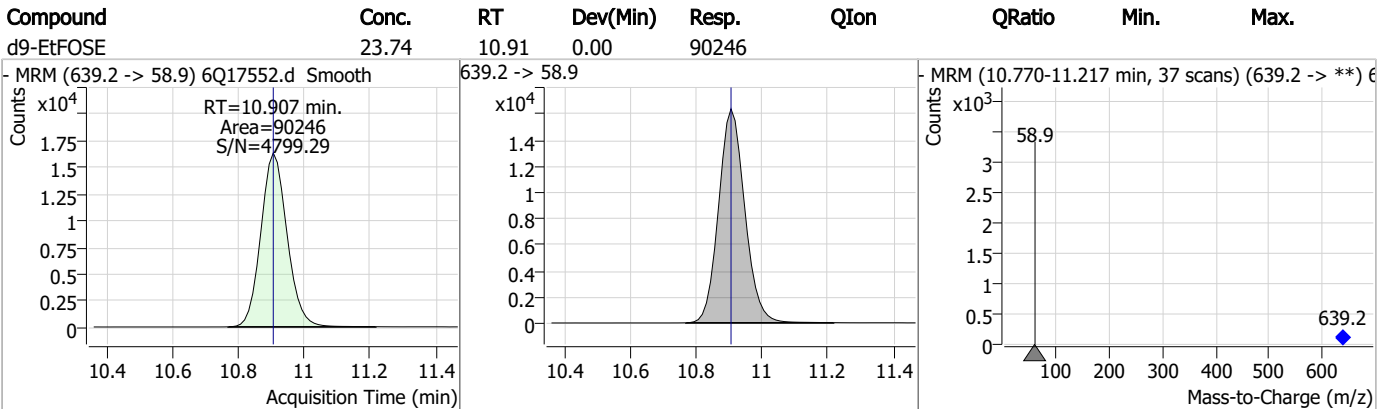
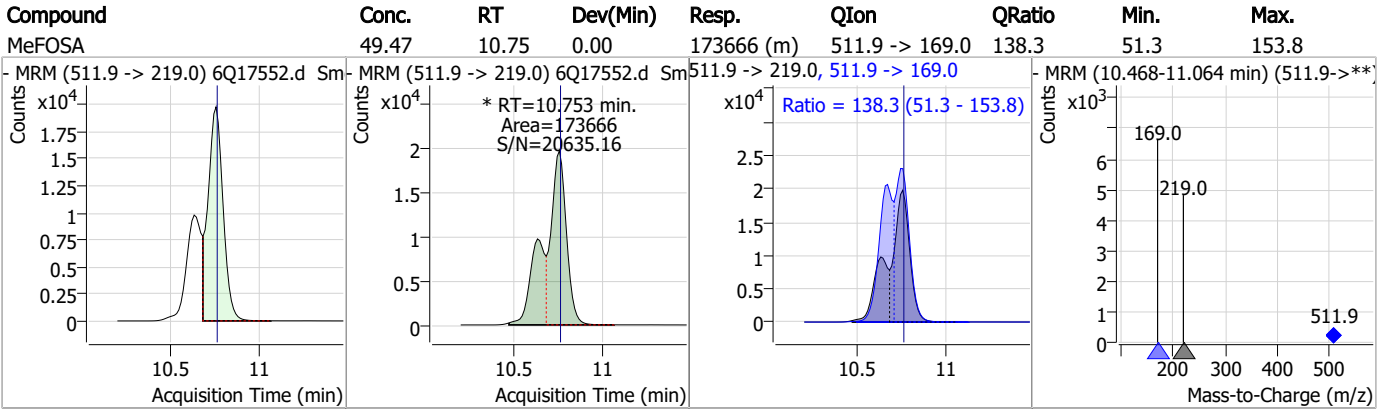


Perfluorinated Compounds by LC/MS/MS



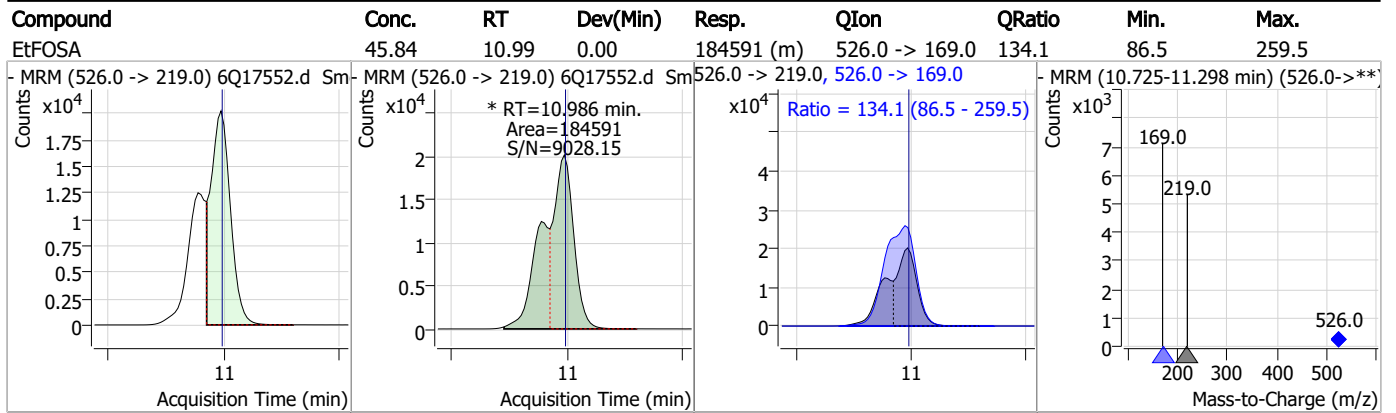
7.7.25 7

Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.25

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Manual Integration Approval Summary

Sample Number: S6Q265-IC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17552.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 17:33 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSE	24448-09-7		10.67	Split peak
MeFOSA	31506-32-8		10.75	Split peak
EtFOSA	4151-50-2		10.99	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17553.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 5:47:31 PM
 Sample Name : ic265-8
 Vial : P1-A9
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	118511	10.00 µg/L	-0.012
M5-PFPeA	4.272	268.3 -> 223.0	42369	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	51791	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	43802	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	57849	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	19475	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	14854	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	20314	1.25 µg/L	0.012
M2-PFDoDA	8.962	615.1 -> 570.0	21615	1.25 µg/L	0.012
M2-PFTeDA	9.677	715.2 -> 670.0	14280	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	20673	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	16162	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10180	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	8647	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1496	5.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	1967	5.00 µg/L	0.000
M2-8:2FTS	7.876	529.1 -> 80.9	2030	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	16274	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	30949	10.00 µg/L	-0.012
M5-EtFOSAA	8.341	589.2 -> 419.0	13737	5.00 µg/L	0.012
M7-MeFOSE	10.660	623.2 -> 58.9	72172	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	86030	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	8575	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7931	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	11875	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	50233	5.00 µg/L	0.000
18O2-PFHxS	7.191	403.0 -> 83.9	7599	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	68906	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20209	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	22770	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	41028	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1496	5.33 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1967	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C2-8:2FTS	7.876	529.1 -> 80.9	2030	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C2-PFDoDA	8.962	615.1 -> 570.0	21615	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14280	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C3-PFBS	5.409	302.1 -> 79.9	16162	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFHxS	7.179	402.1 -> 79.9	10180	2.57 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 = 102.9%	
13C4-PFBA	2.901	216.8 -> 171.9	118511	9.89 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFHpA	6.432	367.1 -> 322.0	43802	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFHxA	5.478	318.0 -> 273.0	51791	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C5-PFPeA	4.272	268.3 -> 223.0	42369	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C6-PFDA	8.076	519.1 -> 474.1	14854	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	20314	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C8-FOSA	9.636	506.1 -> 77.8	20673	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOA	7.077	421.1 -> 376.0	57849	2.14 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.5%	
13C8-PFOS	8.239	507.1 -> 79.9	8647	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C9-PFNA	7.595	472.1 -> 427.0	19475	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
d3-MeFOSAA	8.133	573.2 -> 419.0	16274	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	30949	10.16 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d3-MeFOSA	10.752	515.0 -> 219.0	7931	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
d5-EtFOSAA	8.341	589.2 -> 419.0	13737	4.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
d7-MeFOSE	10.660	623.2 -> 58.9	72172	22.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
d9-EtFOSE	10.907	639.2 -> 58.9	86030	23.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.0%	
d5-EtFOSA	10.985	531.1 -> 219.0	8575	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	474265	207.57 µg/L	94
		327.1 -> 80.9	168105		
6:2FTS	6.850	427.1 -> 407.0	408645	189.04 µg/L	97
		427.1 -> 80.9	140694		
8:2FTS	7.865	527.1 -> 507.0	249515	211.62 µg/L	100
		527.1 -> 80.8	99607		
EtFOSAA	8.342	584.2 -> 419.1	152477	61.72 µg/L	98
		584.2 -> 526.0	87031		
FOSA	9.639	498.1 -> 77.9	483688	63.80 µg/L	99
		498.1 -> 478.0	13361		
MeFOSAA	8.134	570.1 -> 419.0	207367	61.65 µg/L	96
		570.1 -> 483.0	37788		
PFBA	2.894	212.8 -> 168.9	1055891	248.80 µg/L	100
PFBS	5.410	298.7 -> 79.9	446727	55.86 µg/L	99
		298.7 -> 98.8	178243		
PFDA	8.076	512.9 -> 469.0	1189470	64.69 µg/L	95
		512.9 -> 219.0	174813		
PFDoDA	8.962	613.1 -> 569.0	1033522	59.98 µg/L	97
		613.1 -> 319.0	129975		
PFDS	9.113	599.0 -> 79.9	181620	62.32 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	87611			
PFHpA	6.433	363.1 -> 319.0	1344009	60.76	µg/L	99
		363.1 -> 169.0	224526			
PFHpS	7.749	449.0 -> 79.9	276475	59.42	µg/L	96
		449.0 -> 98.9	132225			
PFHxA	5.481	313.0 -> 269.0	1252707	59.45	µg/L	100
		313.0 -> 118.9	59234			
PFHxS	7.180	398.7 -> 79.9	343291	57.14	µg/L	m 97
		398.7 -> 98.9	155651			
PFNA	7.596	463.0 -> 419.0	862463	62.55	µg/L	100
		463.0 -> 219.0	168857			
PFNS	8.693	548.8 -> 79.9	284981	66.54	µg/L	99
		548.8 -> 98.9	136383			
PFOA	7.078	413.0 -> 369.0	1882333	66.69	µg/L	99
		413.0 -> 169.0	329964			
PFOS	8.240	498.9 -> 79.9	270655	60.27	µg/L	m 80
		498.9 -> 98.8	135868			
PFPeA	4.274	263.0 -> 219.0	1524089	123.08	µg/L	100
PFPeS	6.484	349.1 -> 79.9	327131	57.11	µg/L	99
		349.1 -> 98.9	148685			
PFTeDA	9.677	713.1 -> 669.0	895389	60.62	µg/L	100
		713.1 -> 168.9	62191			
PFTrDA	9.346	663.0 -> 619.0	1123140	55.13	µg/L	99
		663.0 -> 168.9	97112			
PFUnDA	8.531	563.1 -> 519.0	893630	62.59	µg/L	99
		563.1 -> 269.1	131929			
11CI-PF3OUdS	9.385	630.9 -> 450.9	1452293	122.62	µg/L	94
		632.9 -> 452.9	423792			
9CI-PF3ONS	8.570	530.8 -> 351.0	2062136	113.51	µg/L	97
		532.8 -> 353.0	680275			
ADONA	6.683	376.9 -> 250.9	5574489	112.38	µg/L	96
		376.9 -> 84.8	1429012			
HFPO-DA	5.845	284.9 -> 168.9	370976	124.22	µg/L	98
		284.9 -> 184.9	50393			
3:3FTCA	3.777	241.0 -> 177.0	256453	324.49	µg/L	97
		241.0 -> 117.0	32268			
5:3FTCA	6.174	341.0 -> 237.1	5147218	1432.45	µg/L	95
		341.0 -> 217.0	3687942			
7:3FTCA	7.586	441.0 -> 316.9	2161391	1335.49	µg/L	83
		441.0 -> 336.9	5023075			
EtFOSA	10.986	526.0 -> 219.0	465092	125.11	µg/L	66
		526.0 -> 169.0	588578			
EtFOSE	10.920	630.0 -> 58.9	1170084	316.32	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	402170	110.60	µg/L	m 66
		511.9 -> 169.0	550741			
MeFOSE	10.686	616.1 -> 58.9	1099368	340.24	µg/L	m 100
PFDoDS	9.805	699.1 -> 79.9	101132	65.14	µg/L	100
		699.1 -> 98.8	55937			
NFDHA	5.361	295.0 -> 201.0	260882	116.05	µg/L	96
		295.0 -> 84.9	64816			
PFMBA	4.688	279.0 -> 85.1	1088065	124.44	µg/L	100
PFMPA	3.426	229.0 -> 84.9	785835	125.21	µg/L	100
PFEESA	5.950	314.8 -> 134.9	2982041	108.46	µg/L	99
		314.8 -> 82.9	101154			

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

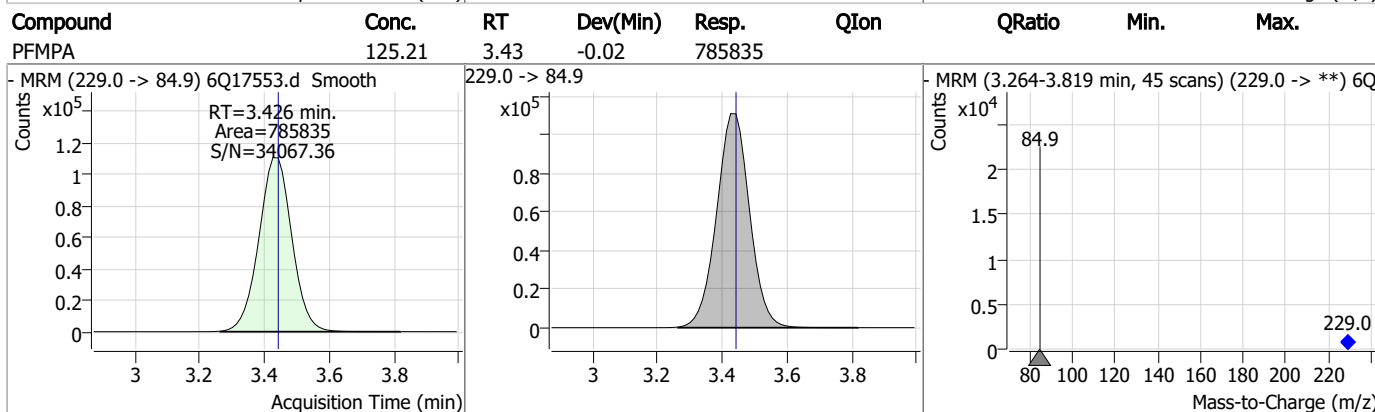
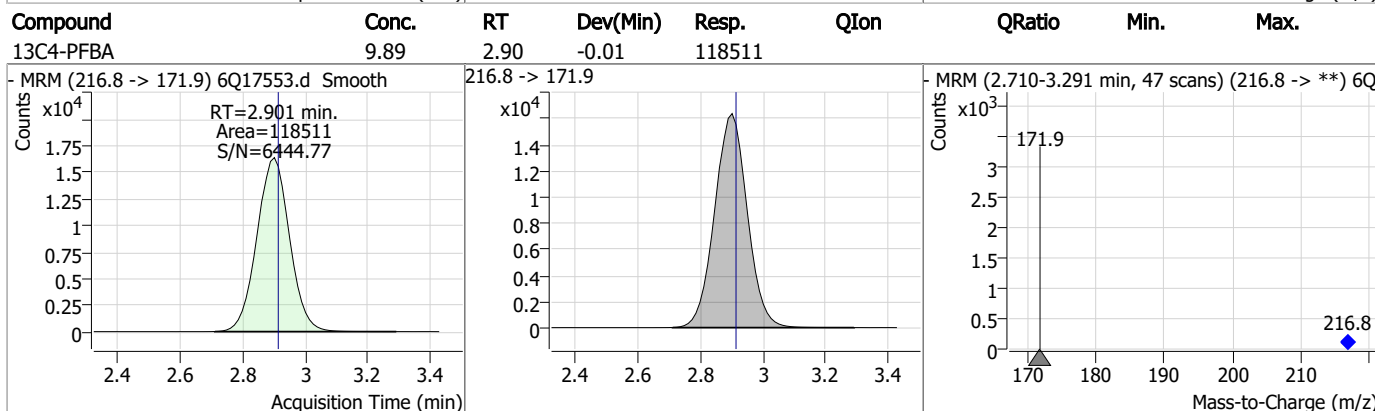
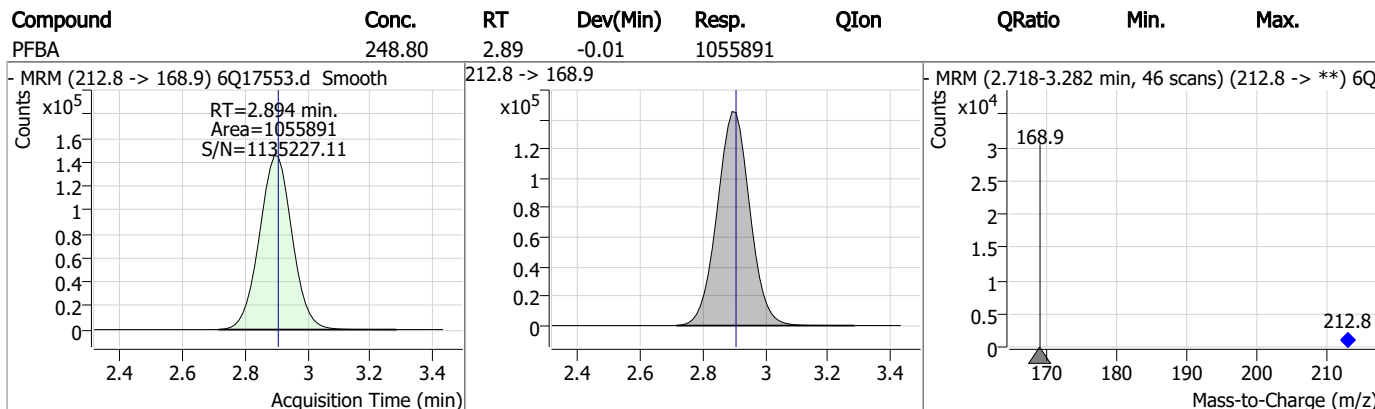
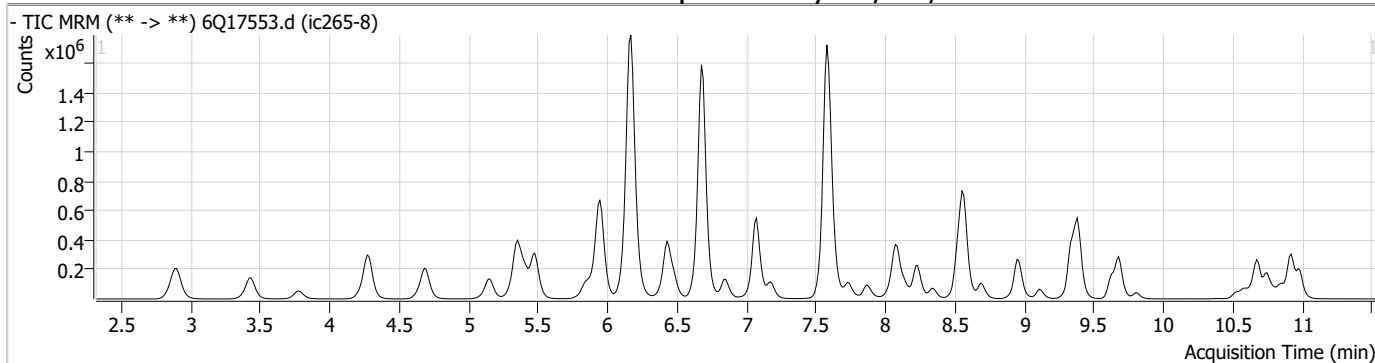
Perfluorinated Compounds by LC/MS/MS

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



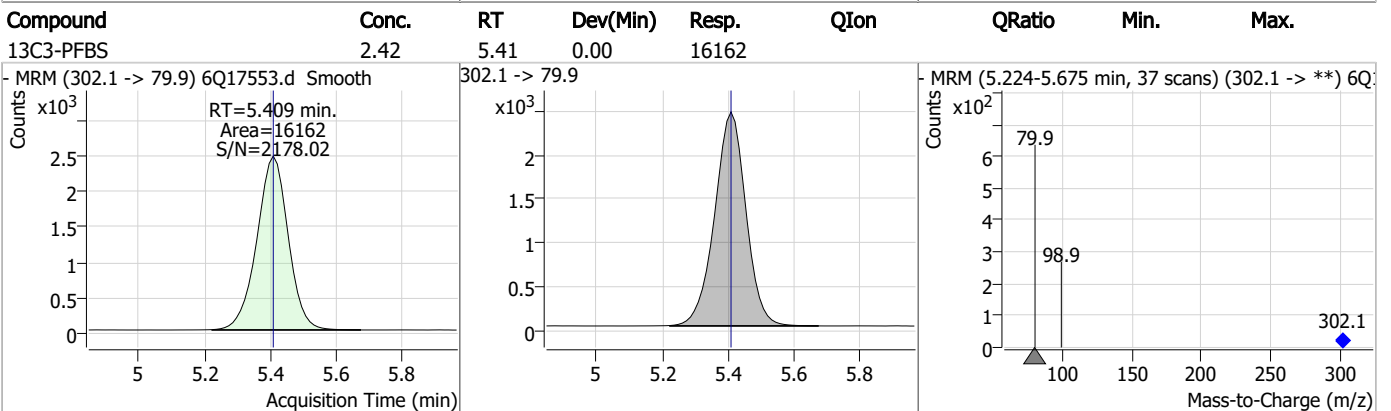
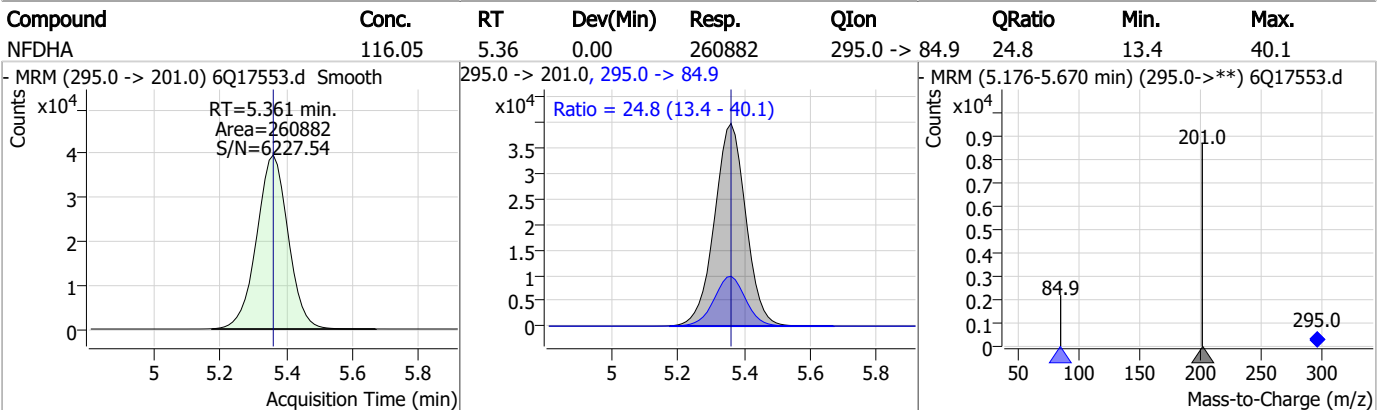
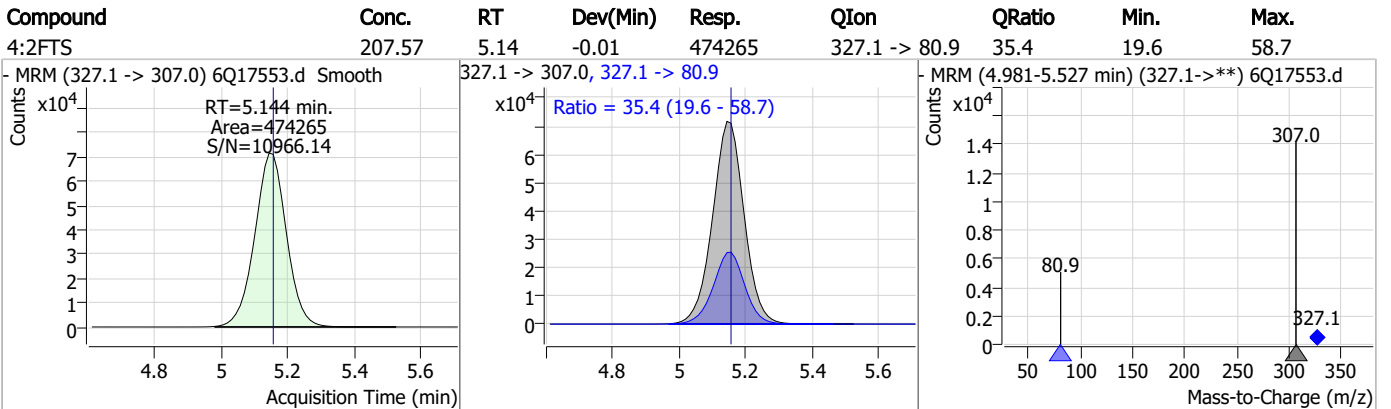
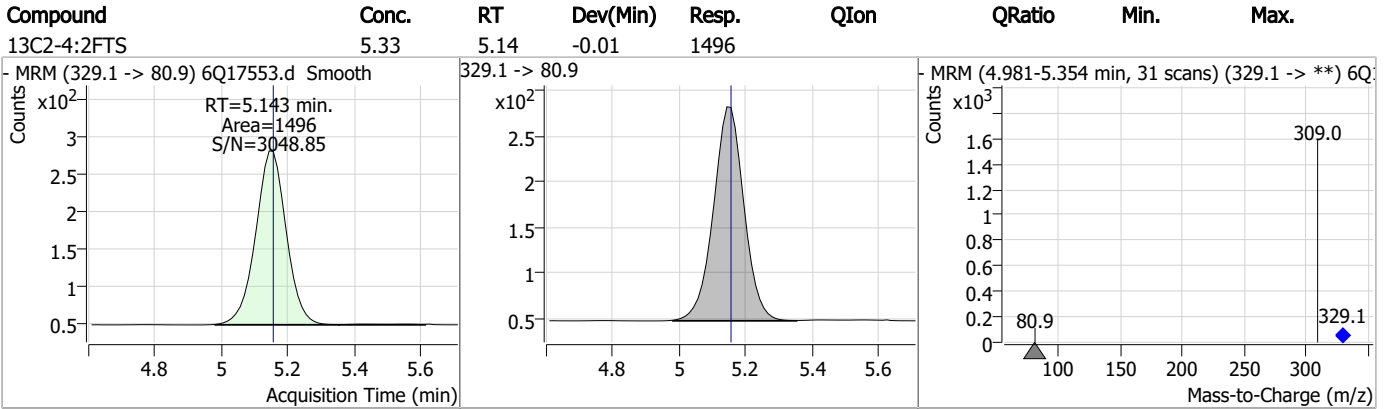
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	324.49	3.78	-0.01	256453	241.0 -> 117.0	12.6	6.8	20.4
13C5-PFPeA	4.88	4.27	0.00	42369				
PFPeA	123.08	4.27	0.00	1524089				
PFMBA	124.44	4.69	0.00	1088065				

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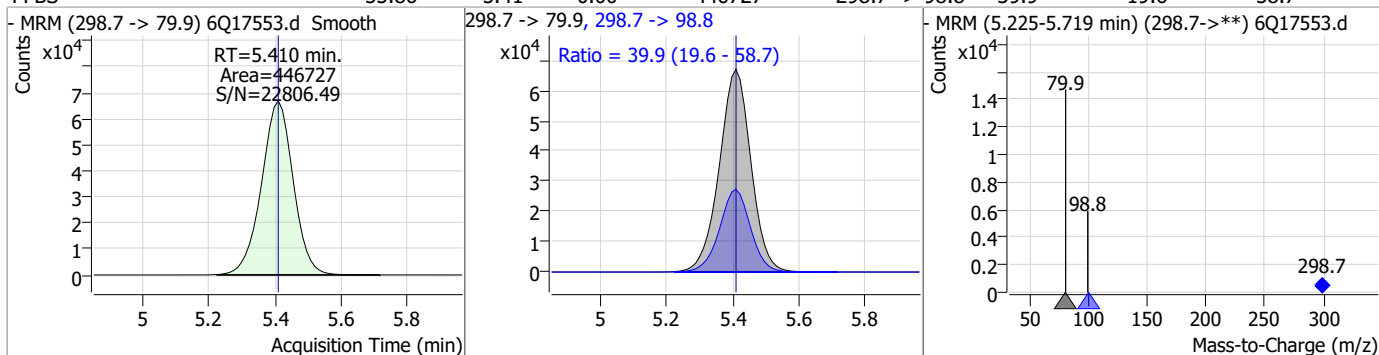


Perfluorinated Compounds by LC/MS/MS

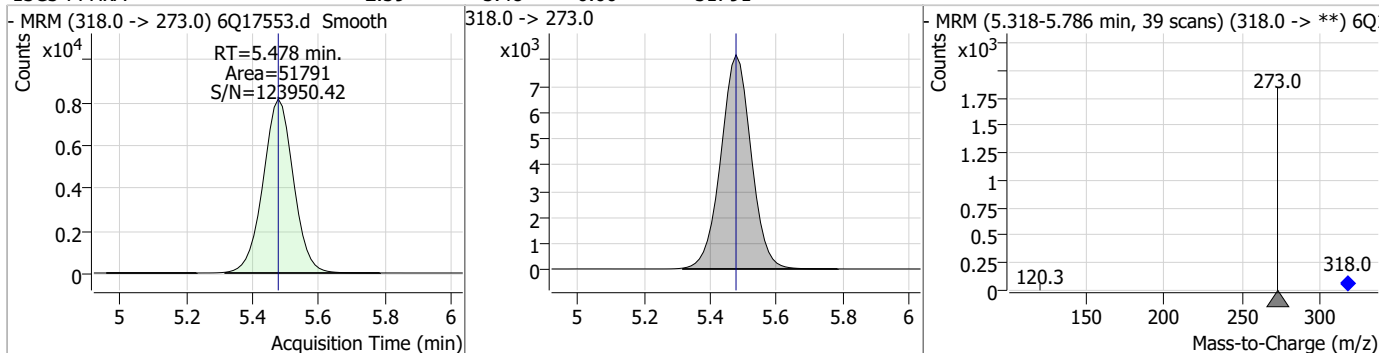


Perfluorinated Compounds by LC/MS/MS

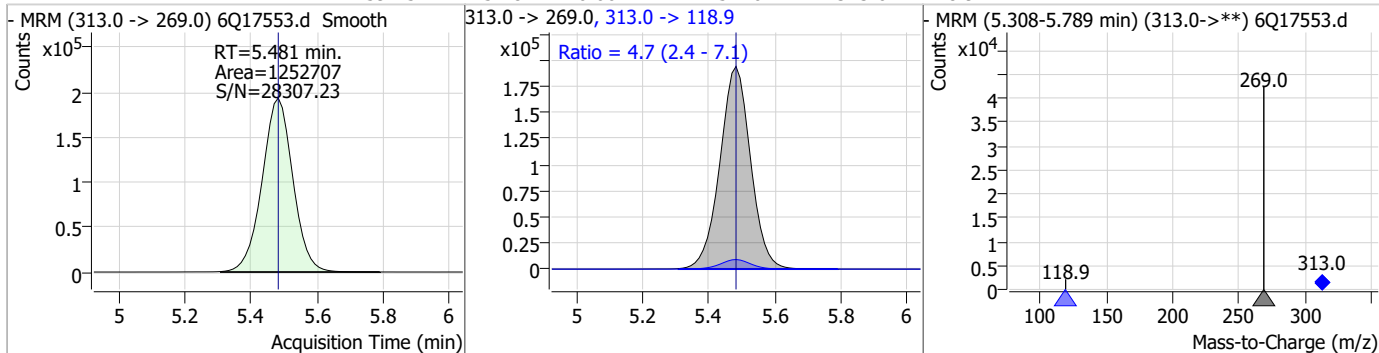
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	55.86	5.41	0.00	446727	298.7 -> 98.8	39.9	19.6	58.7



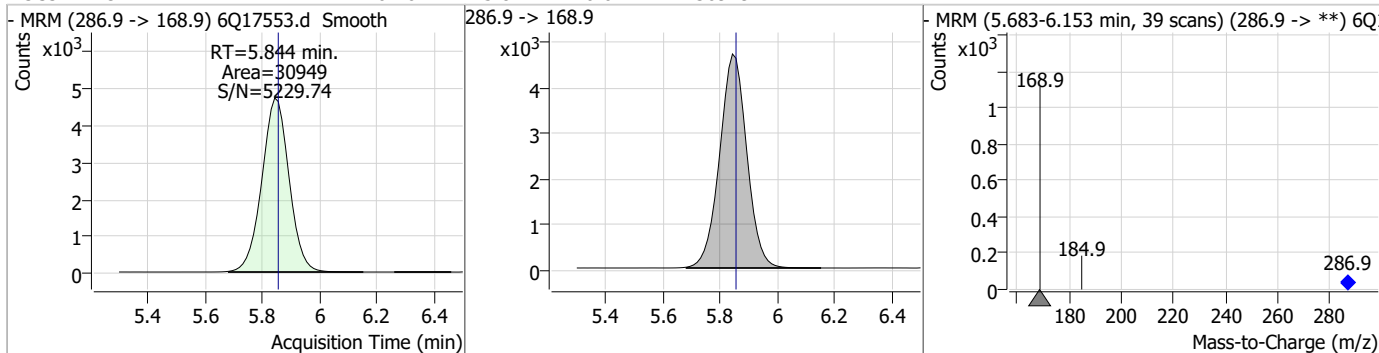
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.48	0.00	51791				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	59.45	5.48	0.00	1252707	313.0 -> 118.9	4.7	2.4	7.1

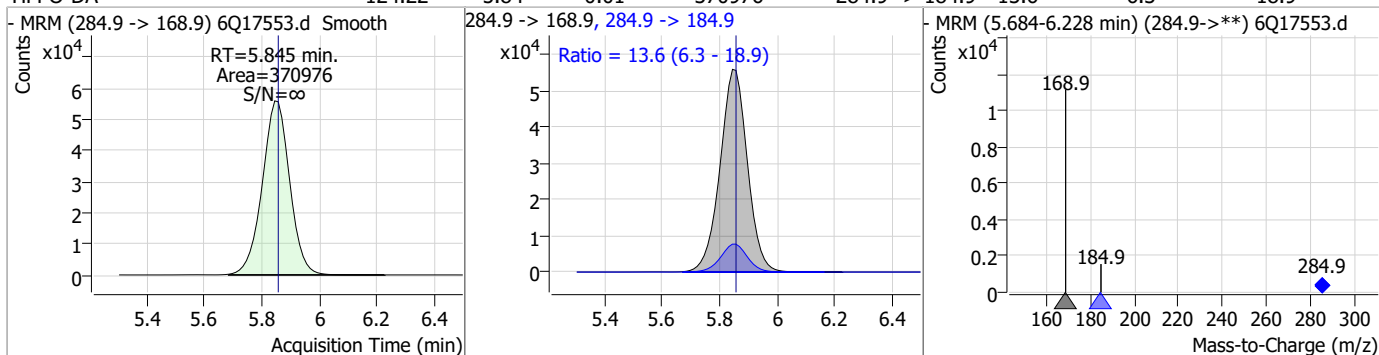


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.16	5.84	-0.01	30949				

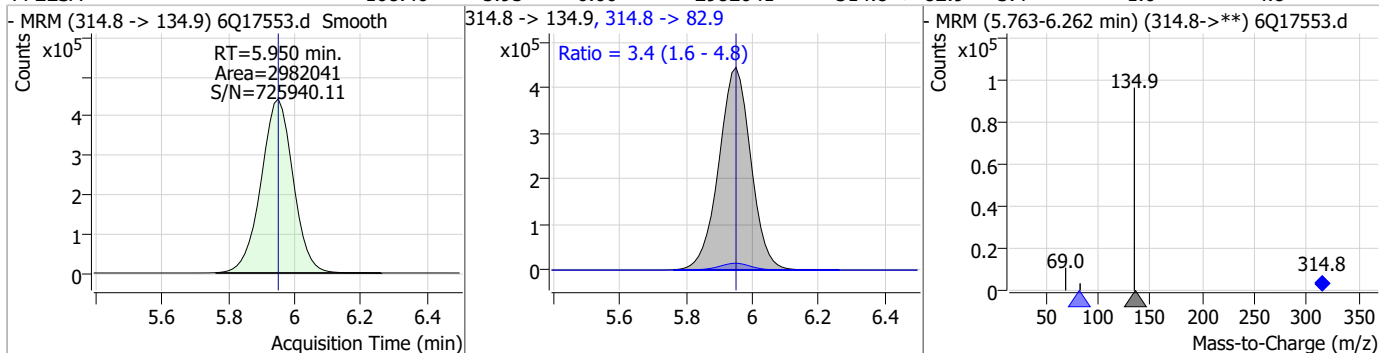


Perfluorinated Compounds by LC/MS/MS

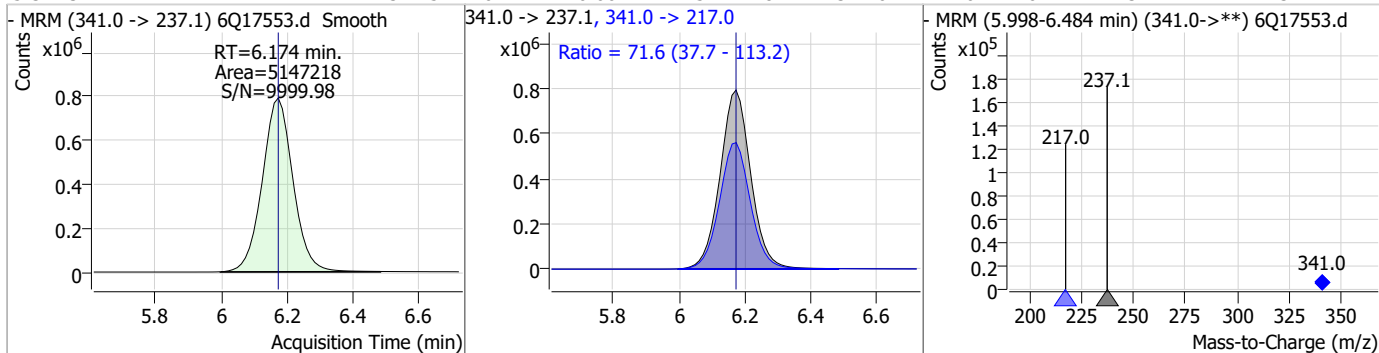
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	124.22	5.84	-0.01	370976	284.9 -> 184.9	13.6	6.3	18.9



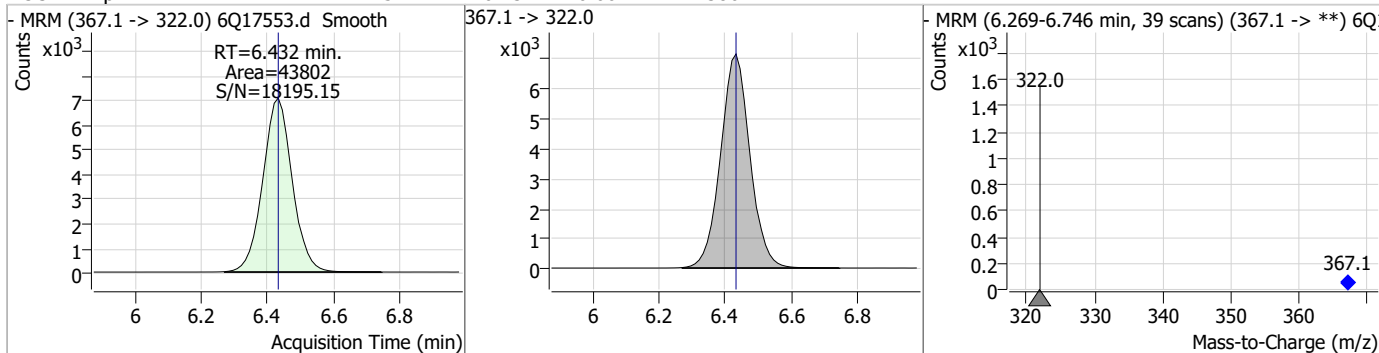
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	108.46	5.95	0.00	2982041	314.8 -> 82.9	3.4	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1432.45	6.17	0.00	5147218	341.0 -> 217.0	71.6	37.7	113.2

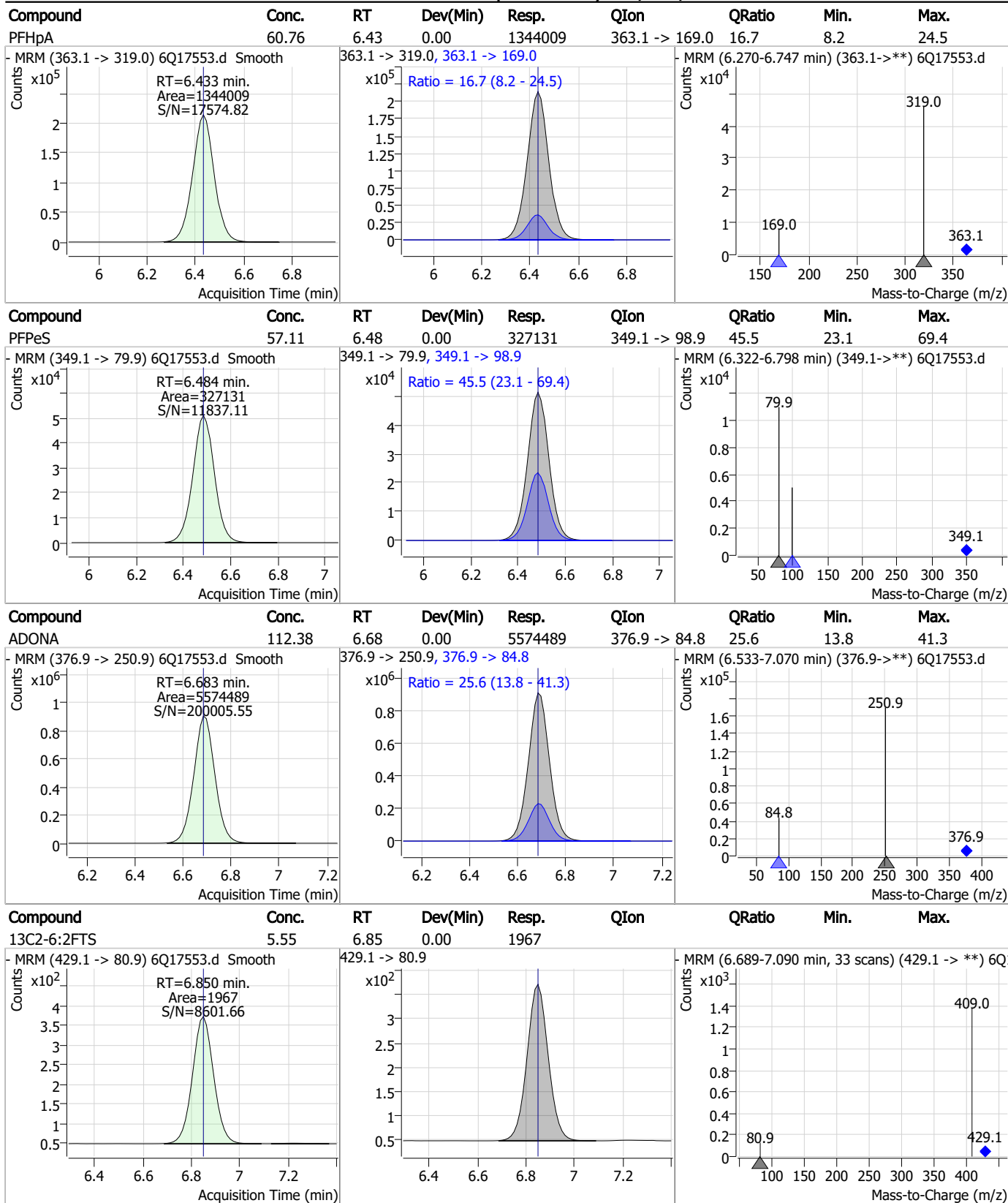


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.52	6.43	0.00	43802	367.1 -> 322.0			



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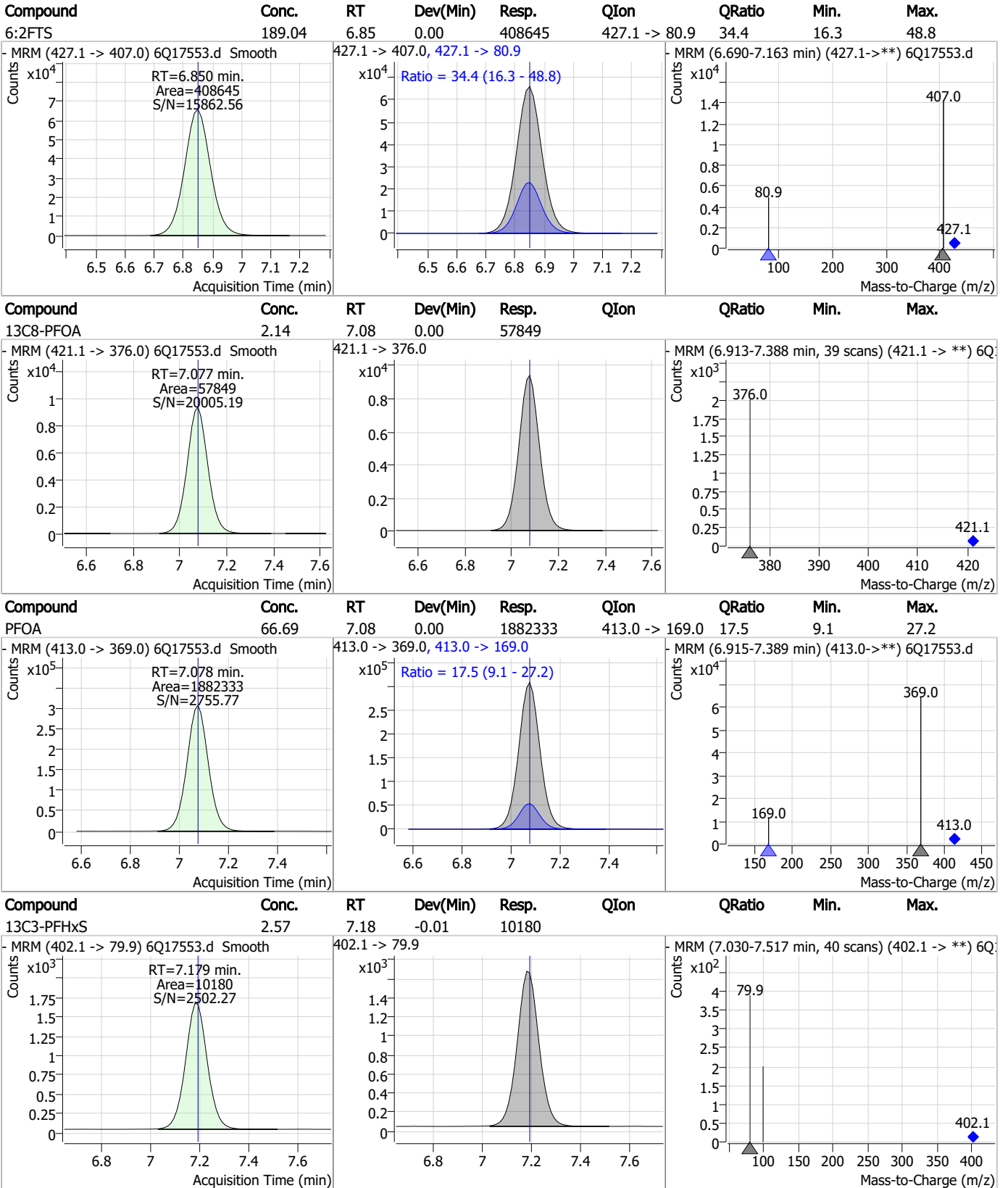
Perfluorinated Compounds by LC/MS/MS



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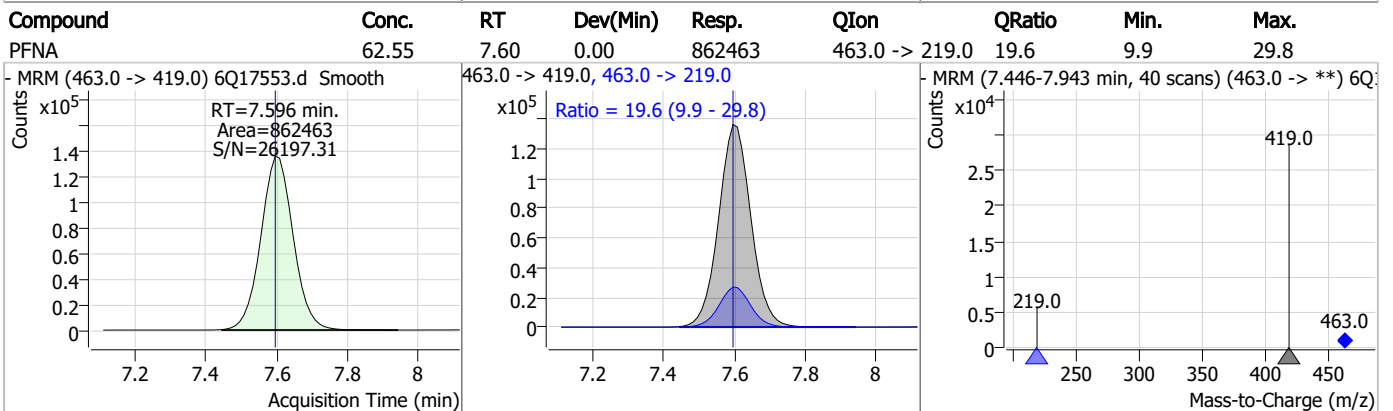
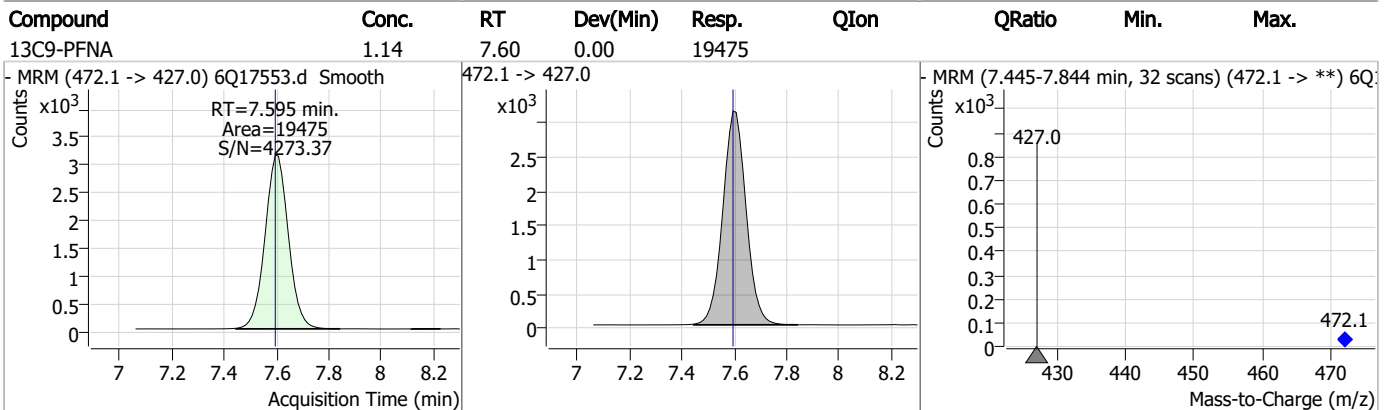
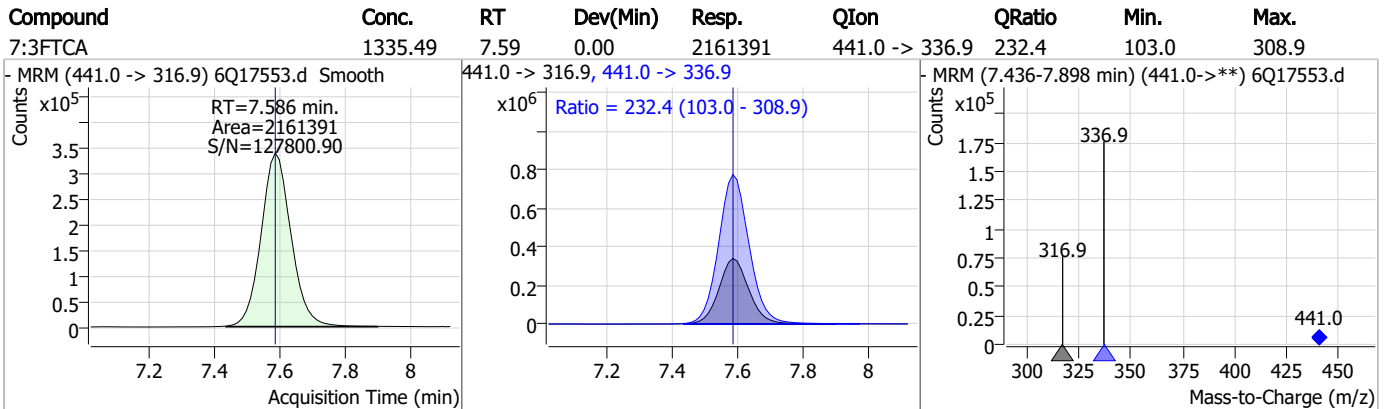
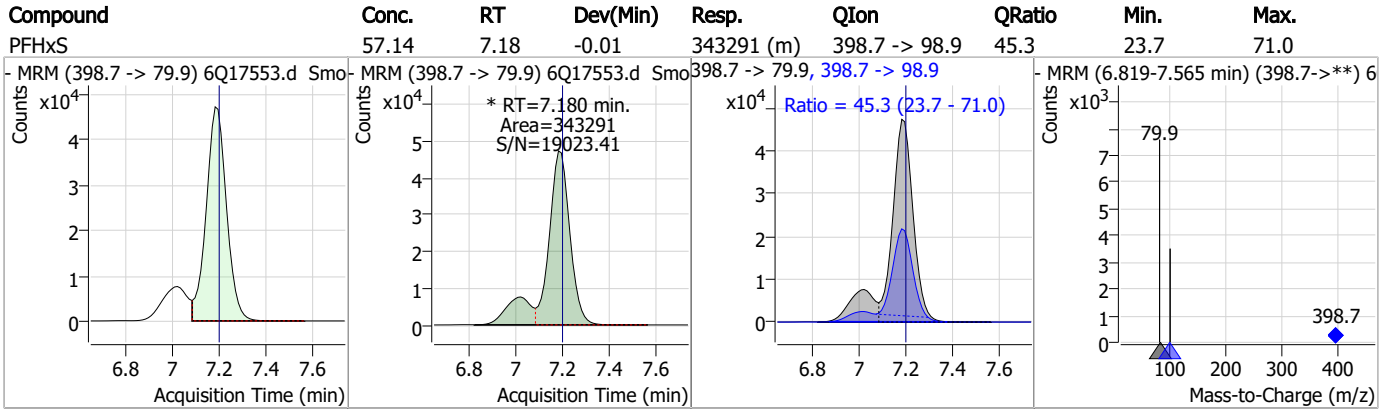
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



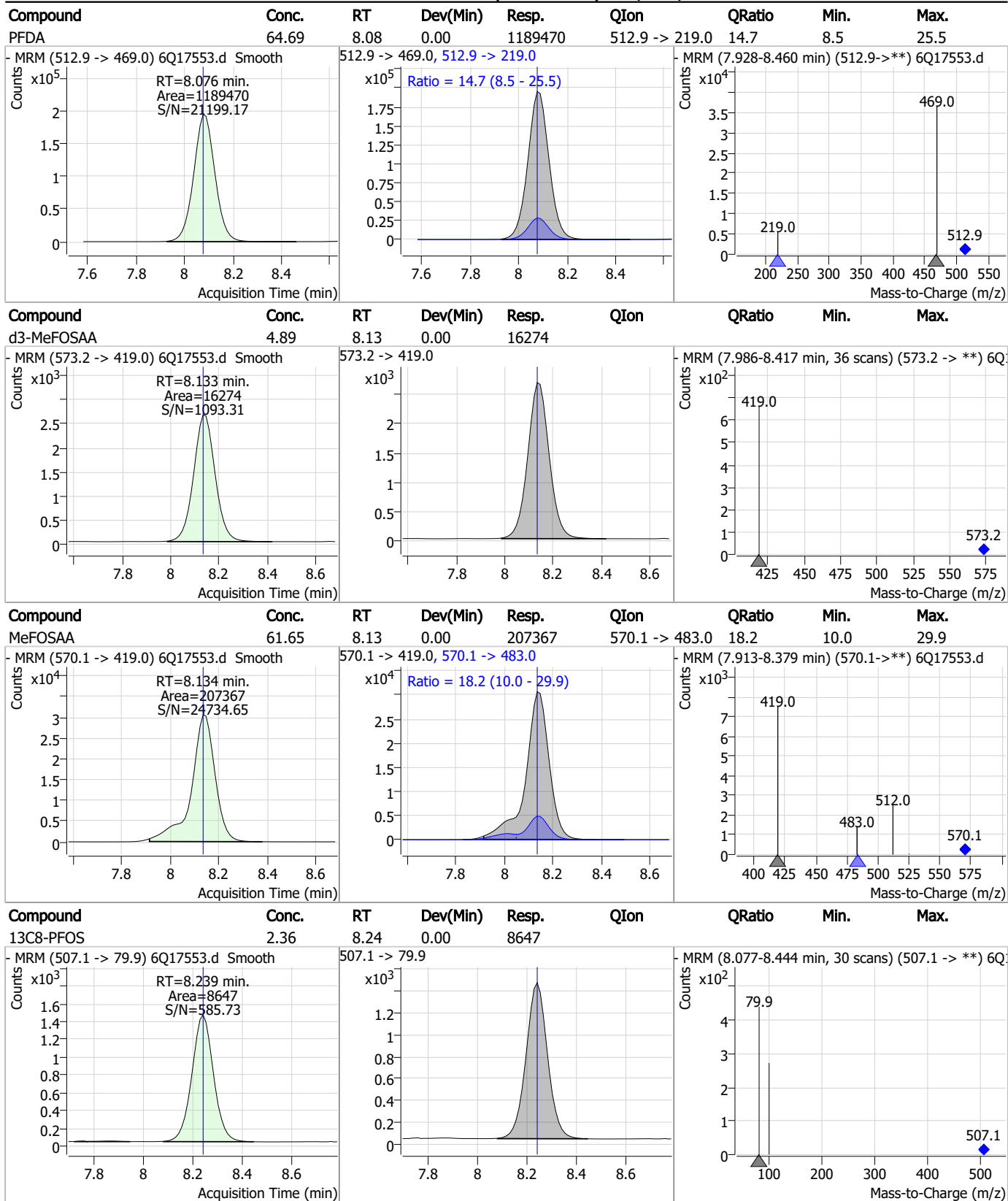
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	59.42	7.75	0.00	276475	449.0 -> 98.9	47.8	25.4	76.2
13C2-8:2FTS	5.35	7.88	0.00	2030	529.1 -> 80.9			
8:2FTS	211.62	7.86	-0.01	249515	527.1 -> 80.8	39.9	20.0	59.9
13C6-PFDA	1.12	8.08	0.00	14854	519.1 -> 474.1			

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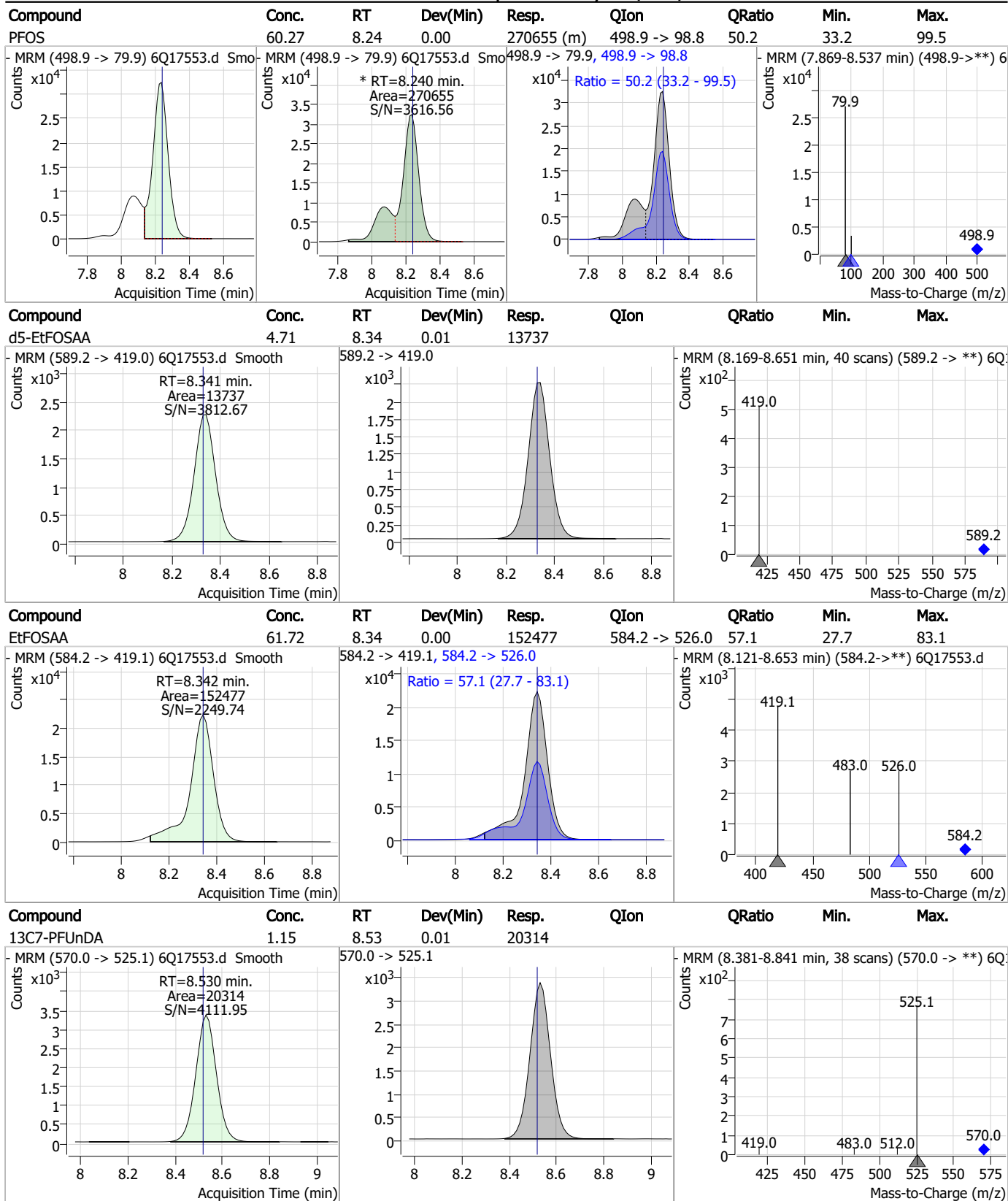
Perfluorinated Compounds by LC/MS/MS



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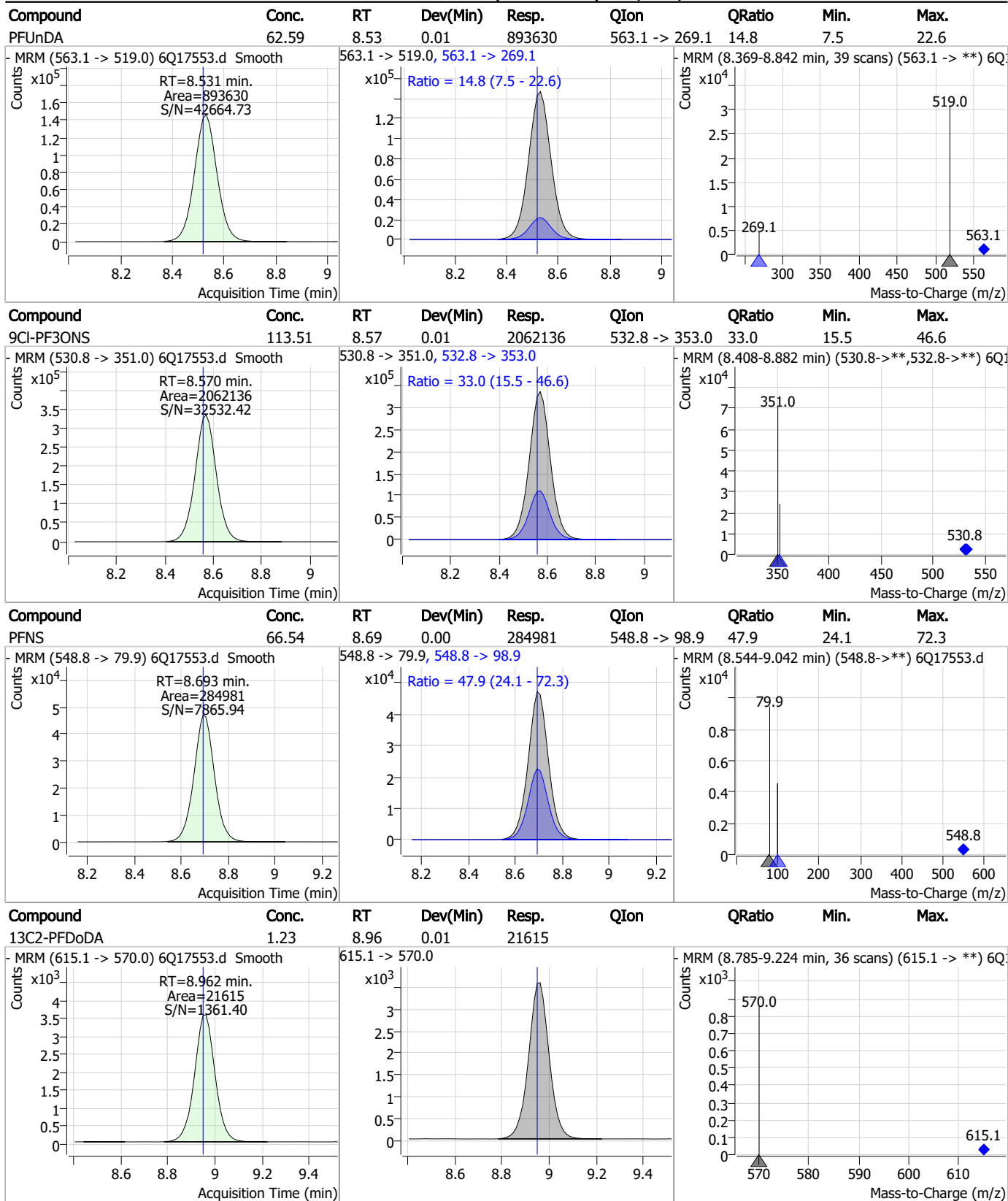
Perfluorinated Compounds by LC/MS/MS



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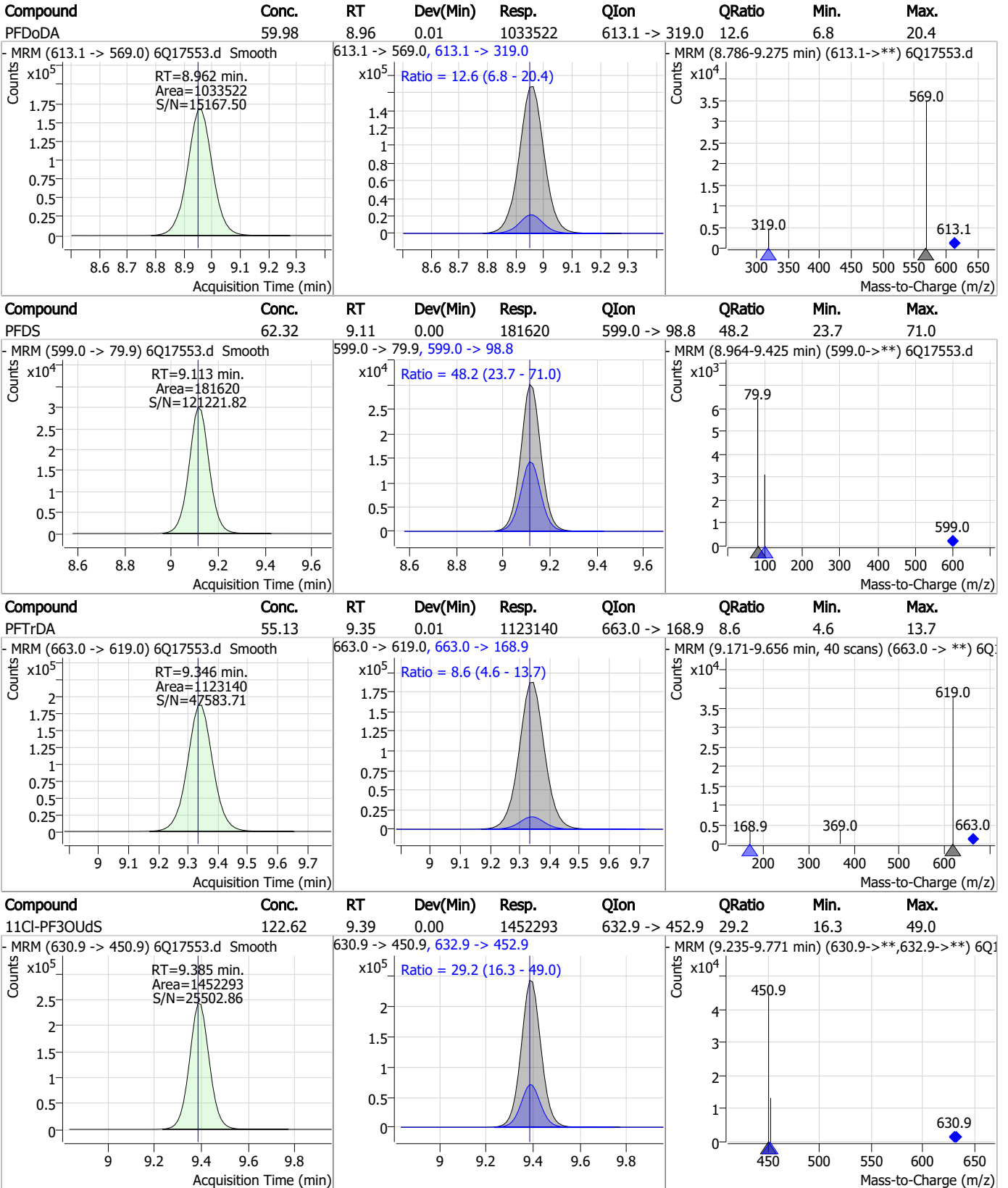
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Perfluorinated Compounds by LC/MS/MS



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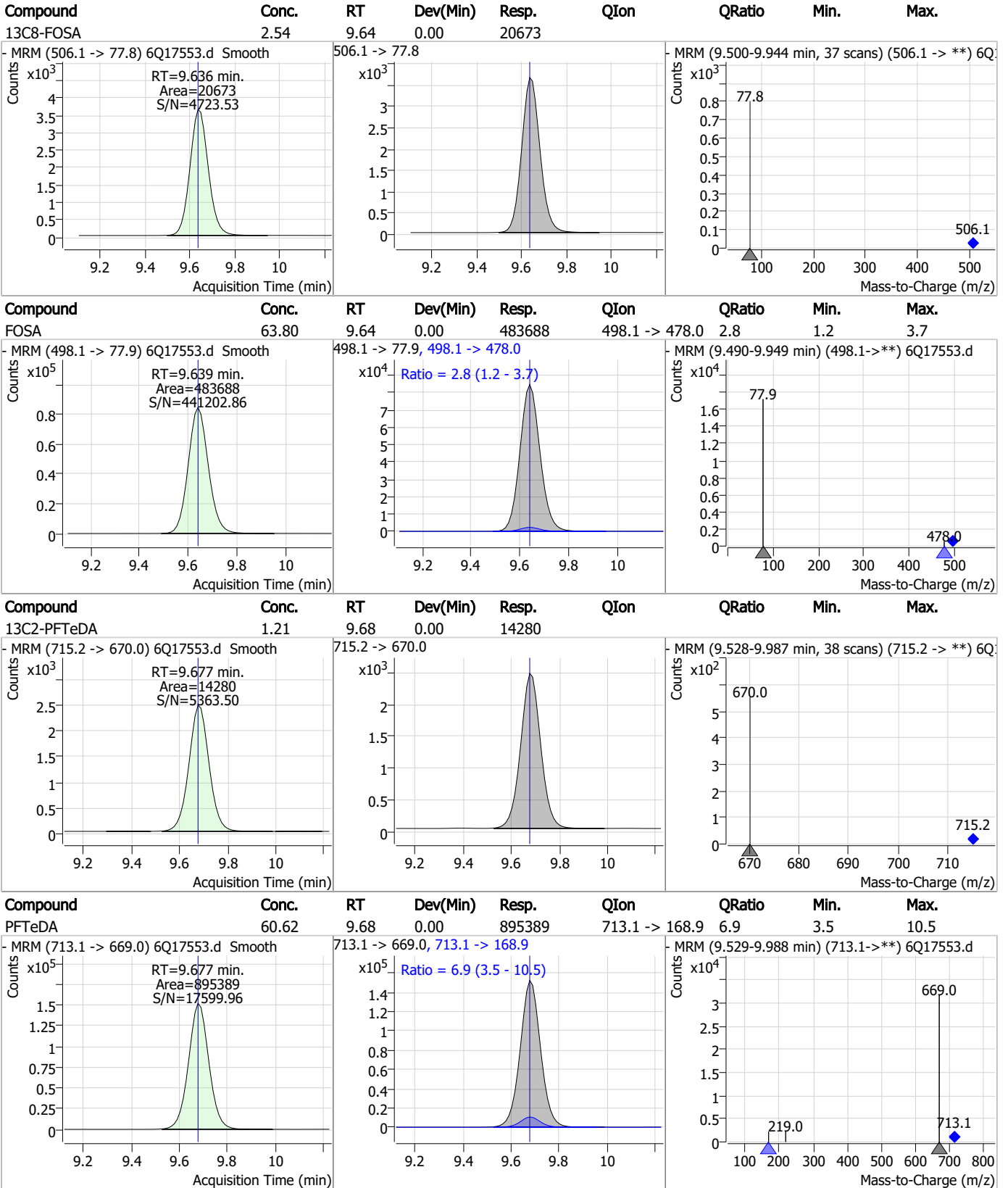
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

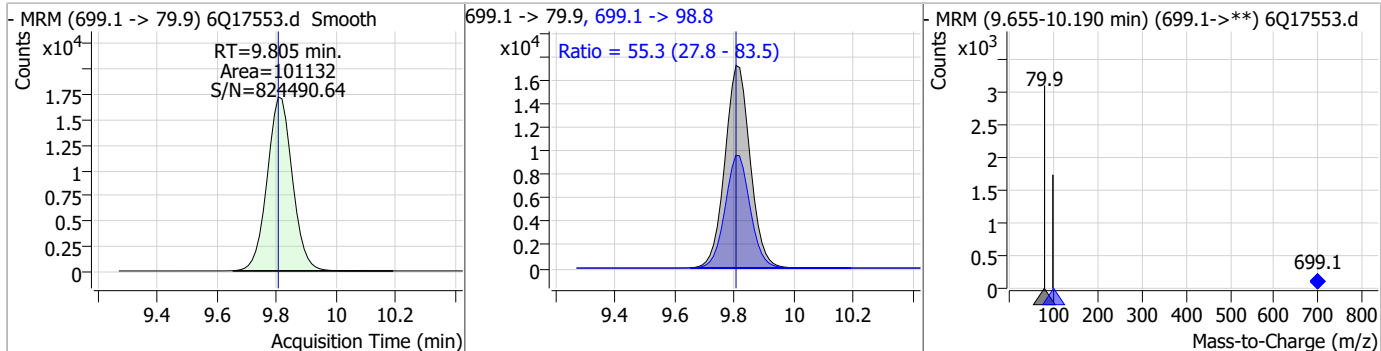


7.7.26 7

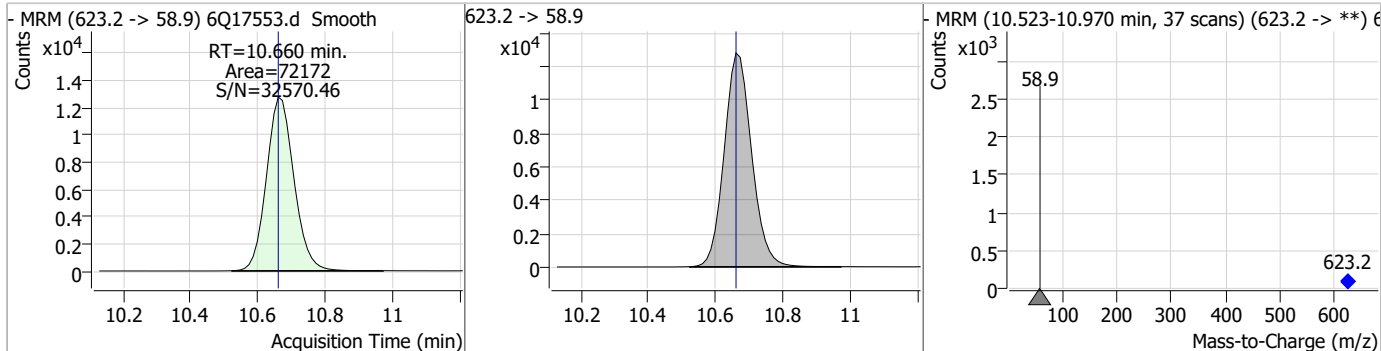


Perfluorinated Compounds by LC/MS/MS

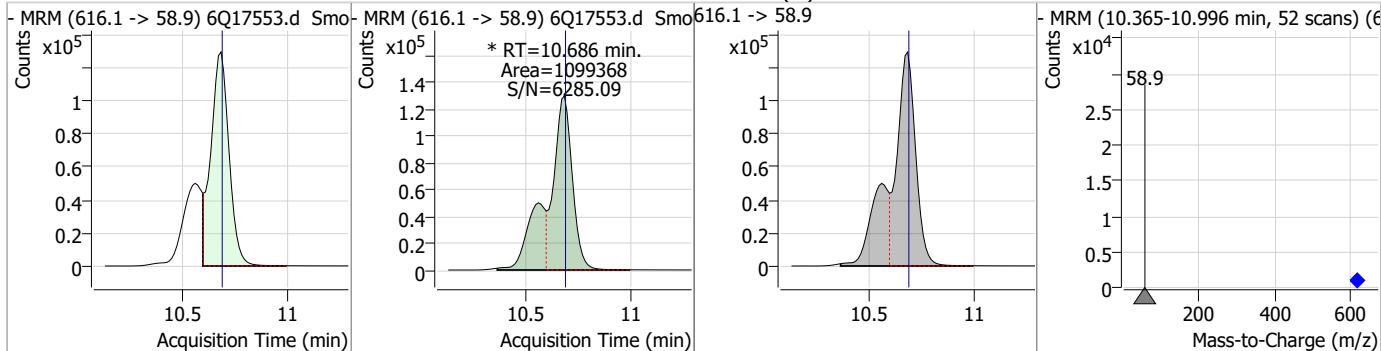
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	65.14	9.81	0.00	101132	699.1 -> 98.8	55.3	27.8	83.5



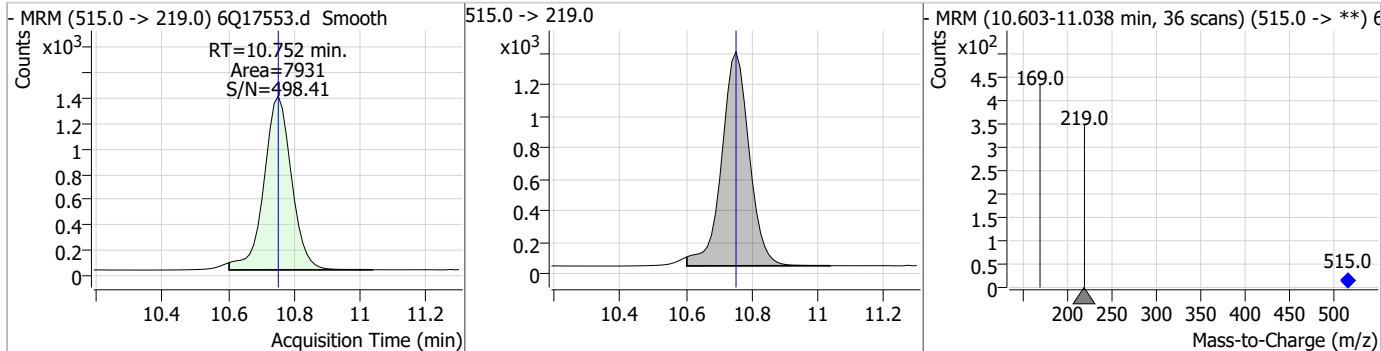
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.14	10.66	0.00	72172				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	340.24	10.69	0.00	1099368 (m)				

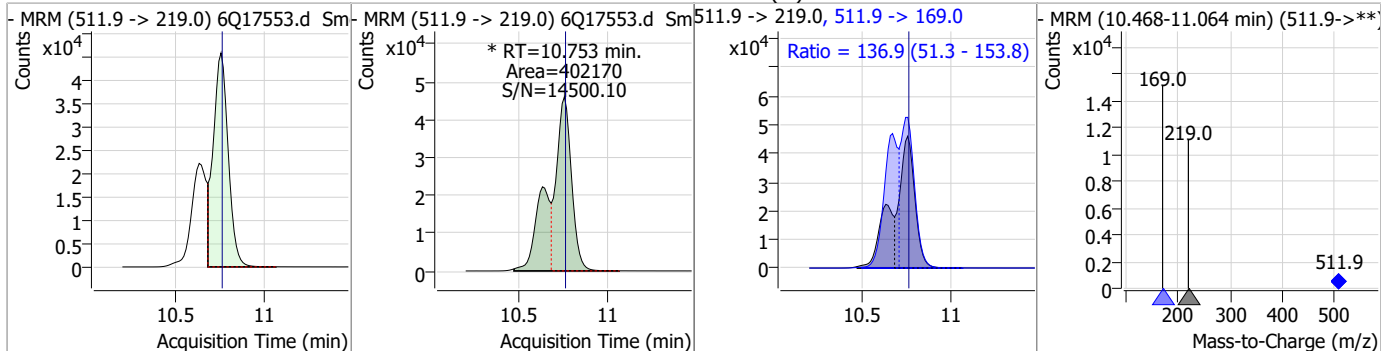


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.72	10.75	0.00	7931				

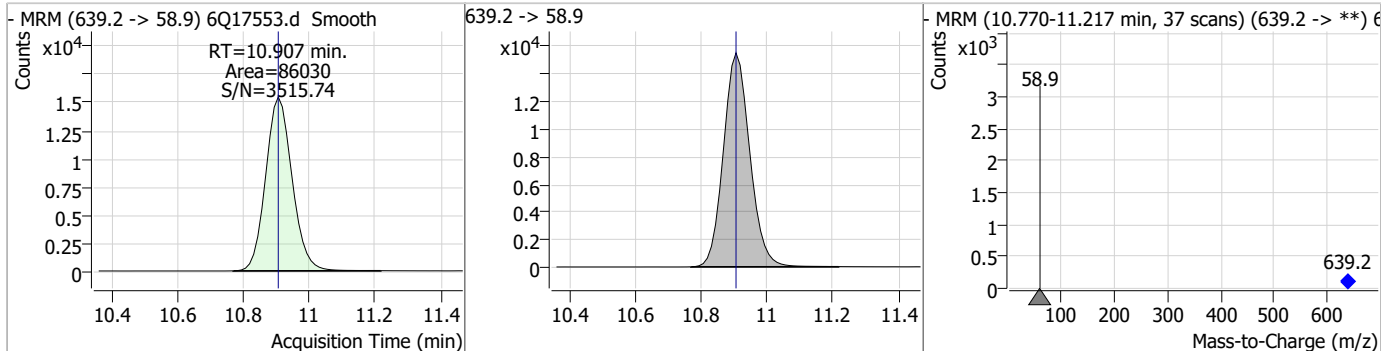


Perfluorinated Compounds by LC/MS/MS

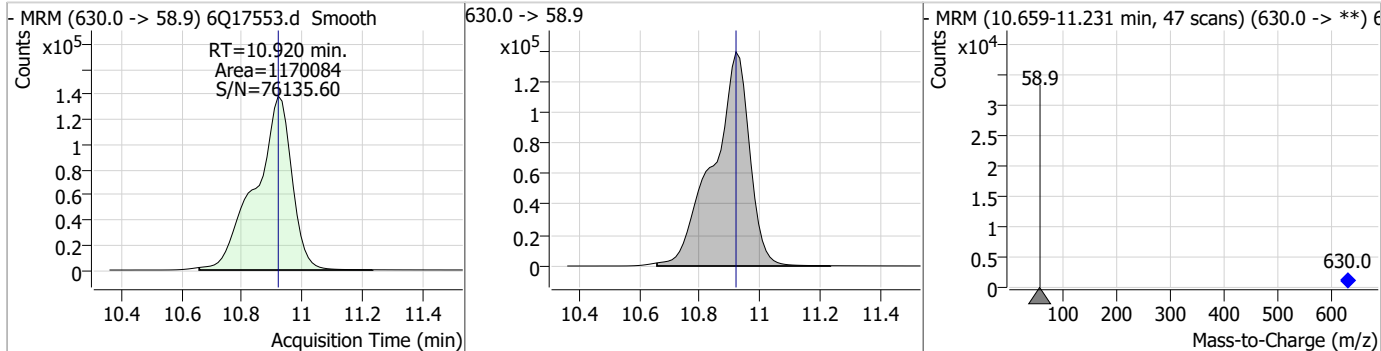
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	110.60	10.75	0.00	402170 (m)	511.9 -> 169.0	136.9	51.3	153.8



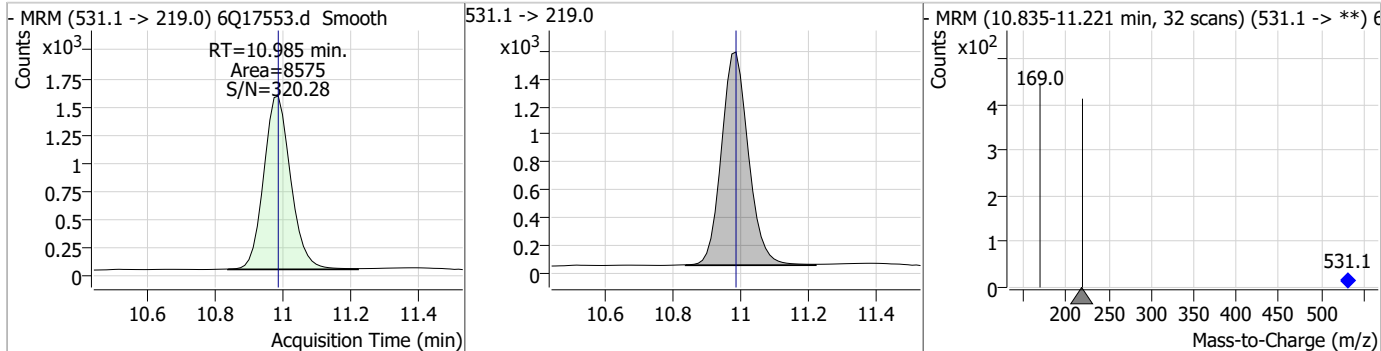
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.01	10.91	0.00	86030				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	316.32	10.92	0.00	1170084				

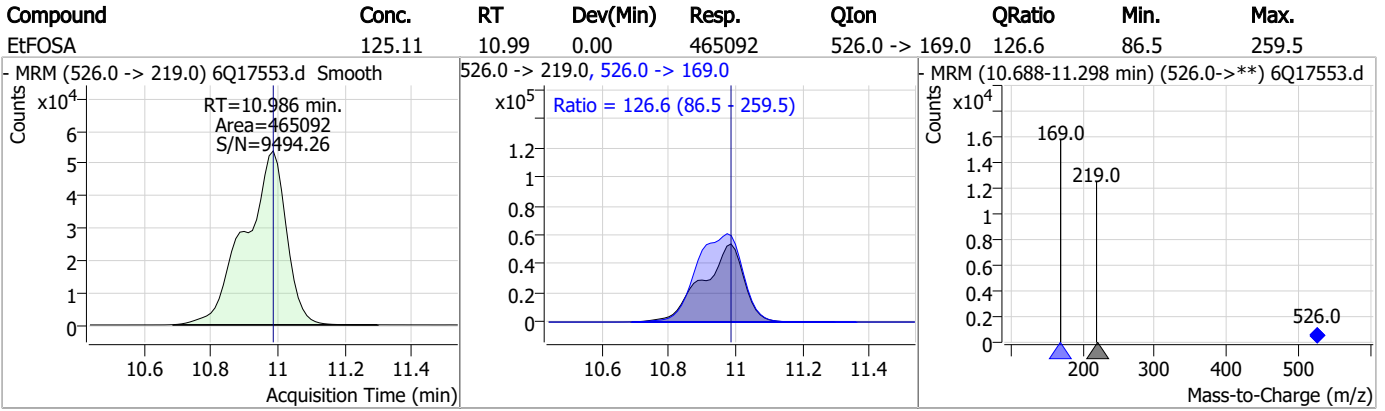


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.47	10.98	0.00	8575				



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q265-IC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17553.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 17:47 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSE	24448-09-7		10.69	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17555.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 6:16:32 PM
 Sample Name : icv265-4
 Vial : P1-B1
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	151957	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	48609	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	56236	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	46813	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	69106	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	21979	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16646	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	22680	1.25 µg/L	0.012
M2-PFDoDA	8.962	615.1 -> 570.0	22519	1.25 µg/L	0.012
M2-PFTeDA	9.677	715.2 -> 670.0	15007	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	21233	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	17486	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10749	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	9766	2.50 µg/L	0.000
M2-4:2FTS	5.156	329.1 -> 80.9	1616	5.00 µg/L	0.000
M2-6:2FTS	6.850	429.1 -> 80.9	1983	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2374	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	19130	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	33329	10.00 µg/L	-0.012
M5-EtFOSAA	8.341	589.2 -> 419.0	14855	5.00 µg/L	0.012
M7-MeFOSE	10.660	623.2 -> 58.9	85052	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	94451	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9054	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7767	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13035	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	63732	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7991	2.50 µg/L	-0.012
13C4-PFOA	7.077	417.1 -> 372.0	68094	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20301	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	25987	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	44896	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.156	329.1 -> 80.9	1616	5.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1983	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2374	5.95 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.9%		
13C2-PFDoDA	8.962	615.1 -> 570.0	22519	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFTeDA	9.677	715.2 -> 670.0	15007	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-PFBS	5.409	302.1 -> 79.9	17486	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	10749	2.58 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 = 103.3%	
13C4-PFBA	2.913	216.8 -> 171.9	151957	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.432	367.1 -> 322.0	46813	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFHxA	5.478	318.0 -> 273.0	56236	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFPeA	4.272	268.3 -> 223.0	48609	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C6-PFDA	8.076	519.1 -> 474.1	16646	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	22680	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.636	506.1 -> 77.8	21233	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C8-PFOA	7.077	421.1 -> 376.0	69106	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C8-PFOS	8.239	507.1 -> 79.9	9766	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C9-PFNA	7.595	472.1 -> 427.0	21979	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.1%	
d3-MeFOSAA	8.133	573.2 -> 419.0	19130	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	33329	10.00 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSA	10.752	515.0 -> 219.0	7767	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
d5-EtFOSAA	8.341	589.2 -> 419.0	14855	4.64 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
d7-MeFOSE	10.660	623.2 -> 58.9	85052	23.77 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d9-EtFOSE	10.907	639.2 -> 58.9	94451	23.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.1%	
d5-EtFOSA	10.984	531.1 -> 219.0	9054	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	21846	8.86 µg/L	98
		327.1 -> 80.9	8325		
6:2FTS	6.850	427.1 -> 407.0	21066	9.67 µg/L	91
		427.1 -> 80.9	7950		
8:2FTS	7.865	527.1 -> 507.0	12404	9.00 µg/L	100
		527.1 -> 80.8	4946		
EtFOSAA	8.342	584.2 -> 419.1	6759	2.53 µg/L	m 98
		584.2 -> 526.0	3656		
FOSA	9.639	498.1 -> 77.9	19120	2.46 µg/L	99
		498.1 -> 478.0	564		
MeFOSAA	8.134	570.1 -> 419.0	8981	2.27 µg/L	95
		570.1 -> 483.0	1599		
PFBA	2.907	212.8 -> 168.9	52574	9.66 µg/L	100
PFBS	5.410	298.7 -> 79.9	19311	2.23 µg/L	100
		298.7 -> 98.8	7496		
PFDA	8.076	512.9 -> 469.0	50080	2.43 µg/L	96
		512.9 -> 219.0	7733		
PFDODA	8.962	613.1 -> 569.0	42355	2.36 µg/L	99
		613.1 -> 319.0	5652		
PFDS	9.113	599.0 -> 79.9	7416	2.25 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3741			
PFHpA	6.433	363.1 -> 319.0	60505	2.56	µg/L	97
		363.1 -> 169.0	8994			
PFHpS	7.735	449.0 -> 79.9	12785	2.43	µg/L	94
		449.0 -> 98.9	5989			
PFHxA	5.481	313.0 -> 269.0	52966	2.32	µg/L	99
		313.0 -> 118.9	2589			
PFHxS	7.180	398.7 -> 79.9	14324	2.26	µg/L	m 99
		398.7 -> 98.9	6741			
PFNA	7.596	463.0 -> 419.0	40339	2.44	µg/L	96
		463.0 -> 219.0	7277			
PFNS	8.693	548.8 -> 79.9	11485	2.37	µg/L	93
		548.8 -> 98.9	6059			
PFOA	7.078	413.0 -> 369.0	80583	2.39	µg/L	98
		413.0 -> 169.0	14034			
PFOS	8.240	498.9 -> 79.9	11795	2.33	µg/L	m 80
		498.9 -> 98.8	5935			
PFPeA	4.274	263.0 -> 219.0	69546	4.90	µg/L	100
PFPeS	6.484	349.1 -> 79.9	14713	2.43	µg/L	96
		349.1 -> 98.9	6469			
PFTeDA	9.677	713.1 -> 669.0	37347	2.41	µg/L	100
		713.1 -> 168.9	2672			
PFTrDA	9.346	663.0 -> 619.0	48086	2.27	µg/L	100
		663.0 -> 168.9	4331			
PFUnDA	8.531	563.1 -> 519.0	44216	2.77	µg/L	98
		563.1 -> 269.1	6262			
11CI-PF3OUdS	9.385	630.9 -> 450.9	62465	4.90	µg/L	93
		632.9 -> 452.9	17980			
9CI-PF3ONS	8.570	530.8 -> 351.0	92962	4.75	µg/L	98
		532.8 -> 353.0	30164			
ADONA	6.683	376.9 -> 250.9	265307	4.97	µg/L	93
		376.9 -> 84.8	63921			
HFPO-DA	5.845	284.9 -> 168.9	15203	4.73	µg/L	97
		284.9 -> 184.9	2118			
3:3FTCA	3.790	241.0 -> 177.0	10649	11.74	µg/L	97
		241.0 -> 117.0	1318			
5:3FTCA	6.174	341.0 -> 237.1	234522	60.11	µg/L	97
		341.0 -> 217.0	170734			
7:3FTCA	7.586	441.0 -> 316.9	101217	57.60	µg/L	95
		441.0 -> 336.9	216081			
EtFOSA	10.986	526.0 -> 219.0	20138	5.13	µg/L	m 62
		526.0 -> 169.0	24354			
EtFOSE	10.920	630.0 -> 58.9	50881	12.53	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	17467	4.90	µg/L	m 65
		511.9 -> 169.0	24043			
MeFOSE	10.686	616.1 -> 58.9	42778	11.23	µg/L	m 100
PFDoDS	9.805	699.1 -> 79.9	4138	2.36	µg/L	98
		699.1 -> 98.8	2238			
NFDHA	5.361	295.0 -> 201.0	12274	5.03	µg/L	98
		295.0 -> 84.9	3138			
PFMBA	4.688	279.0 -> 85.1	48899	4.87	µg/L	100
PFMPA	3.442	229.0 -> 84.9	34664	4.81	µg/L	100
PFEESA	5.938	314.8 -> 134.9	125988	4.22	µg/L	99
		314.8 -> 82.9	4567			

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

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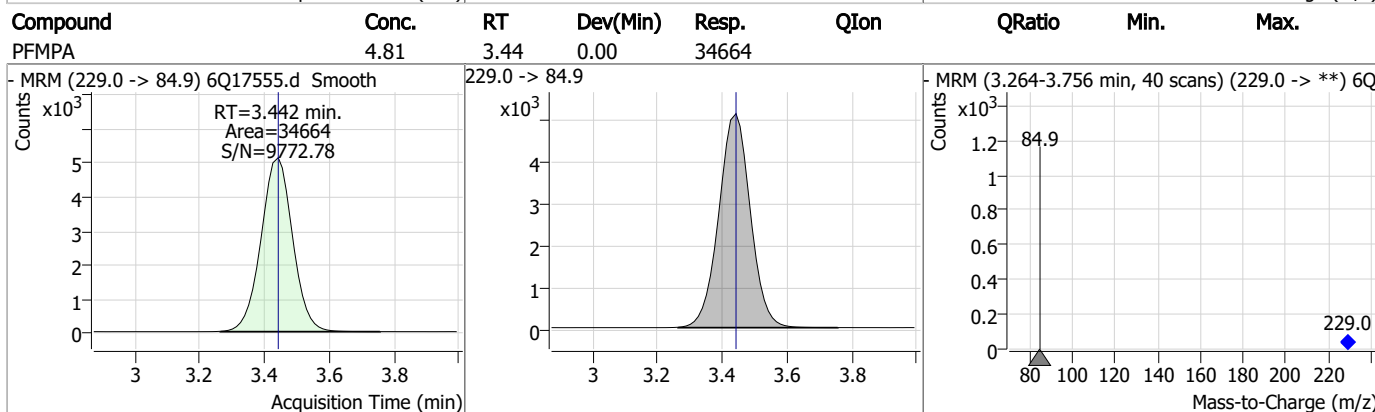
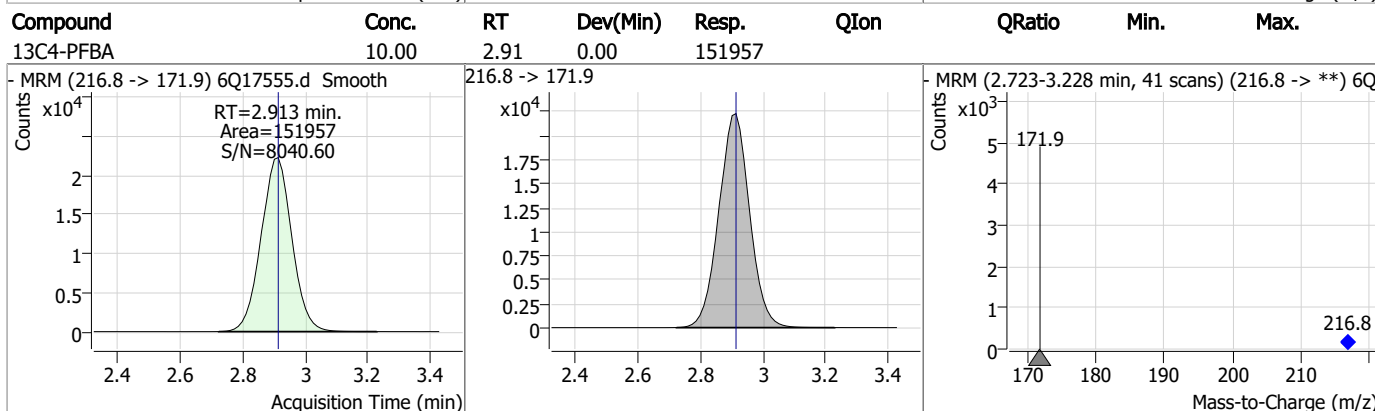
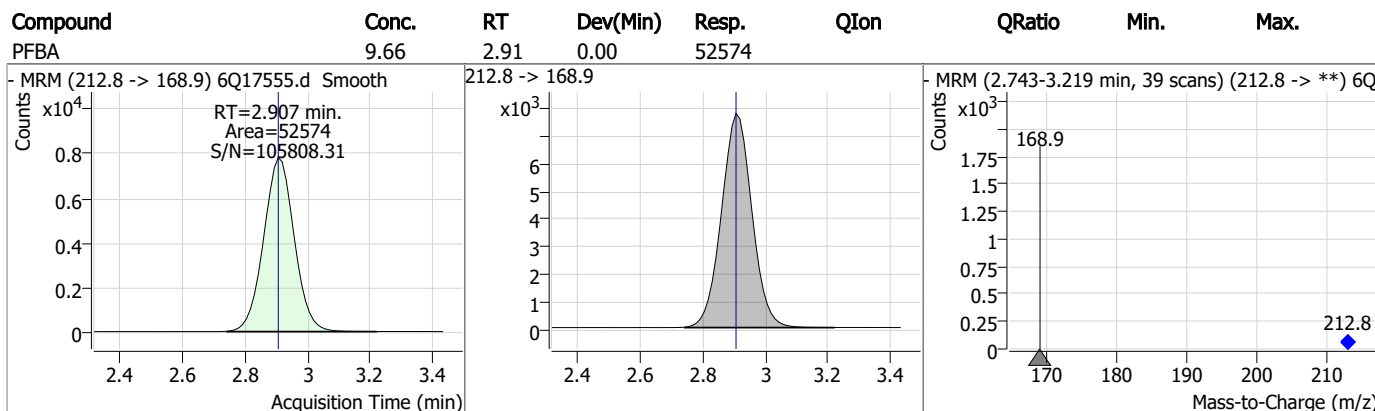
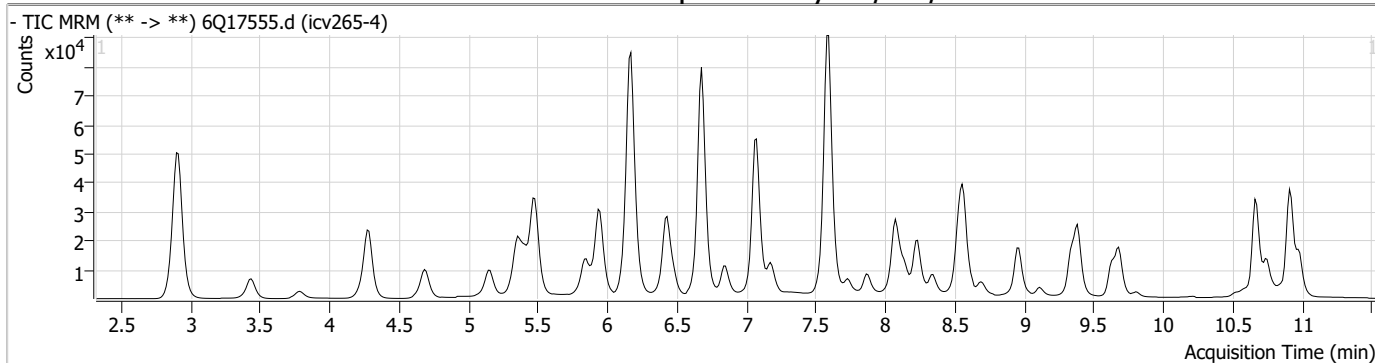
Perfluorinated Compounds by LC/MS/MS

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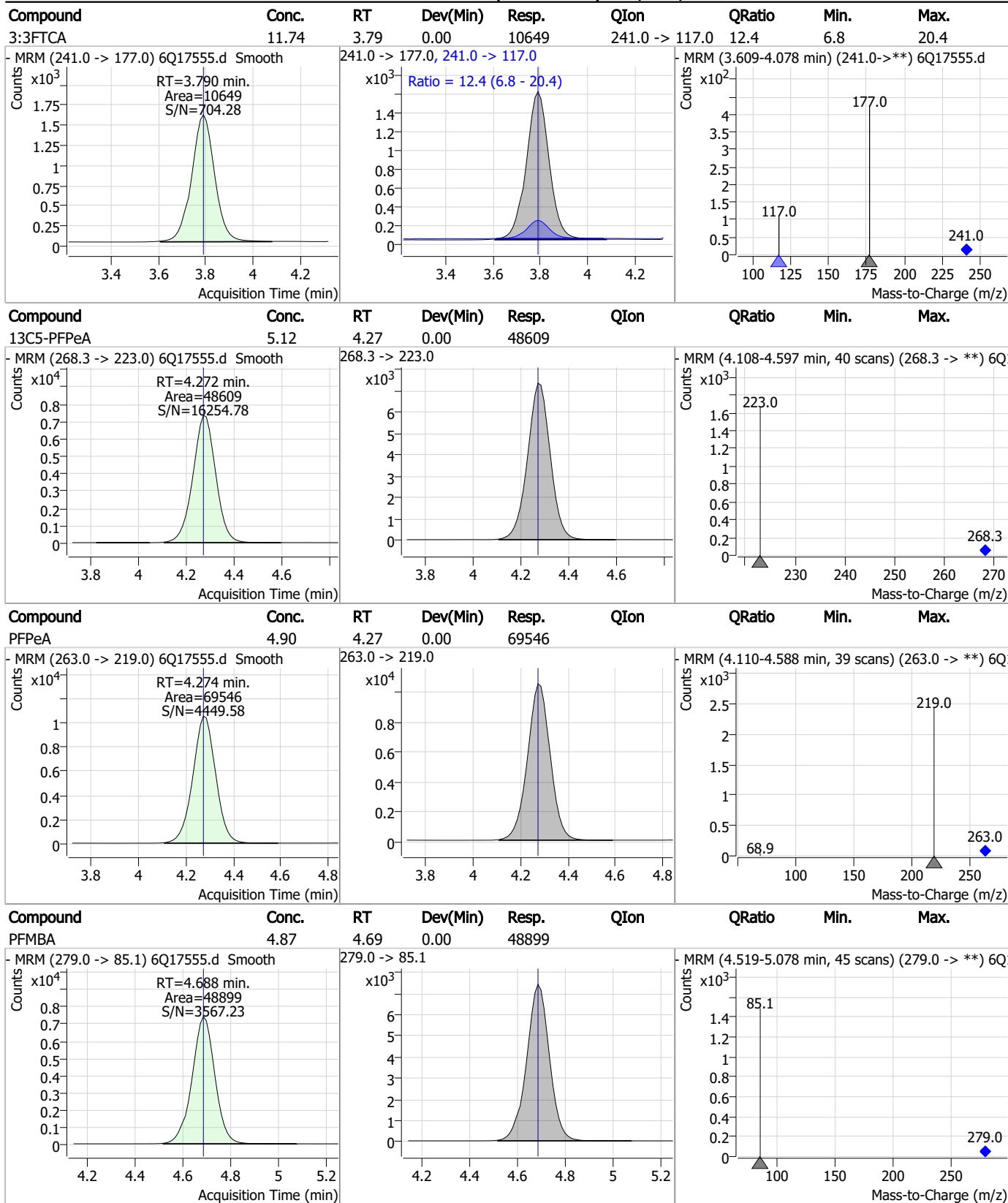
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Perfluorinated Compounds by LC/MS/MS

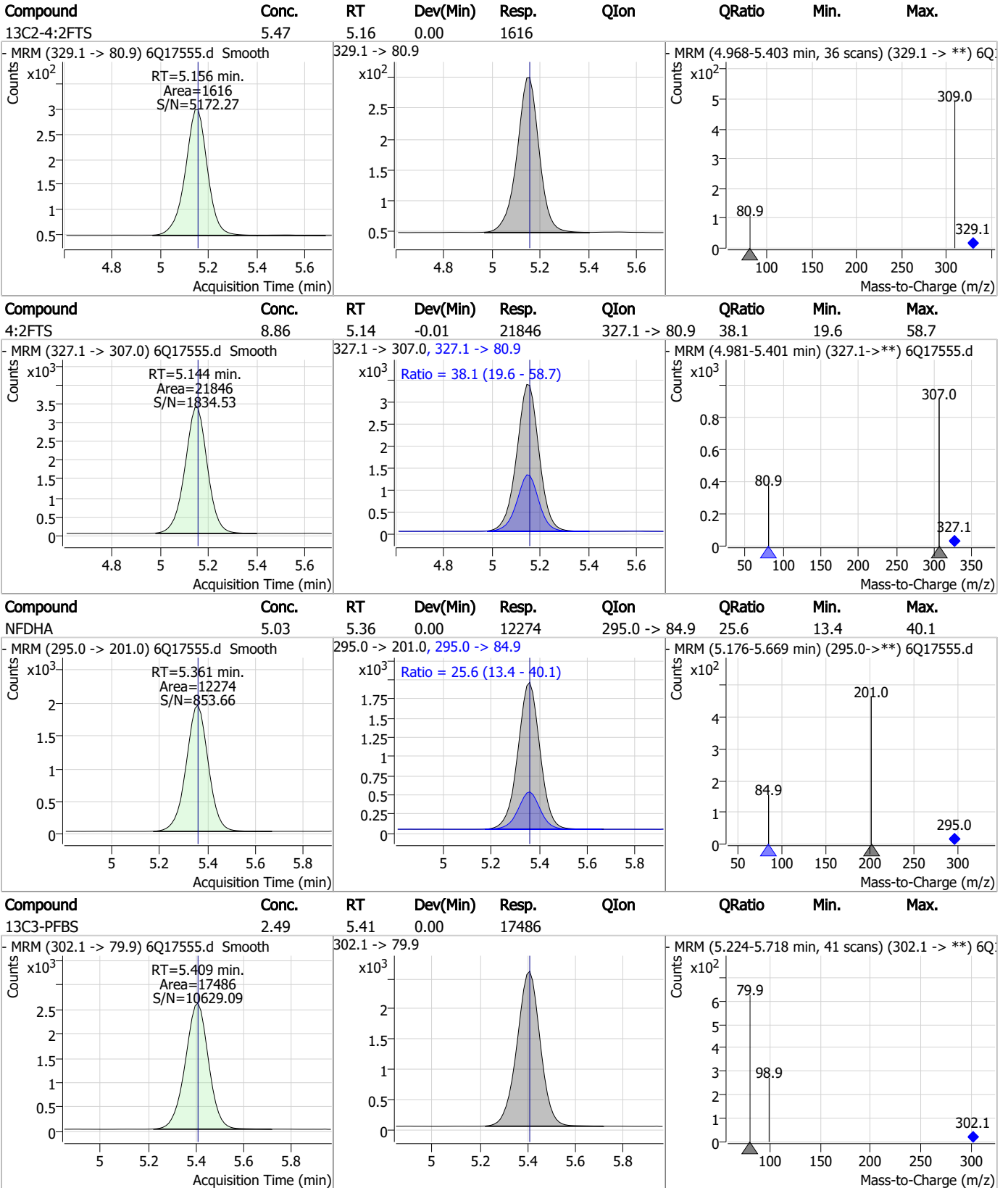


Perfluorinated Compounds by LC/MS/MS



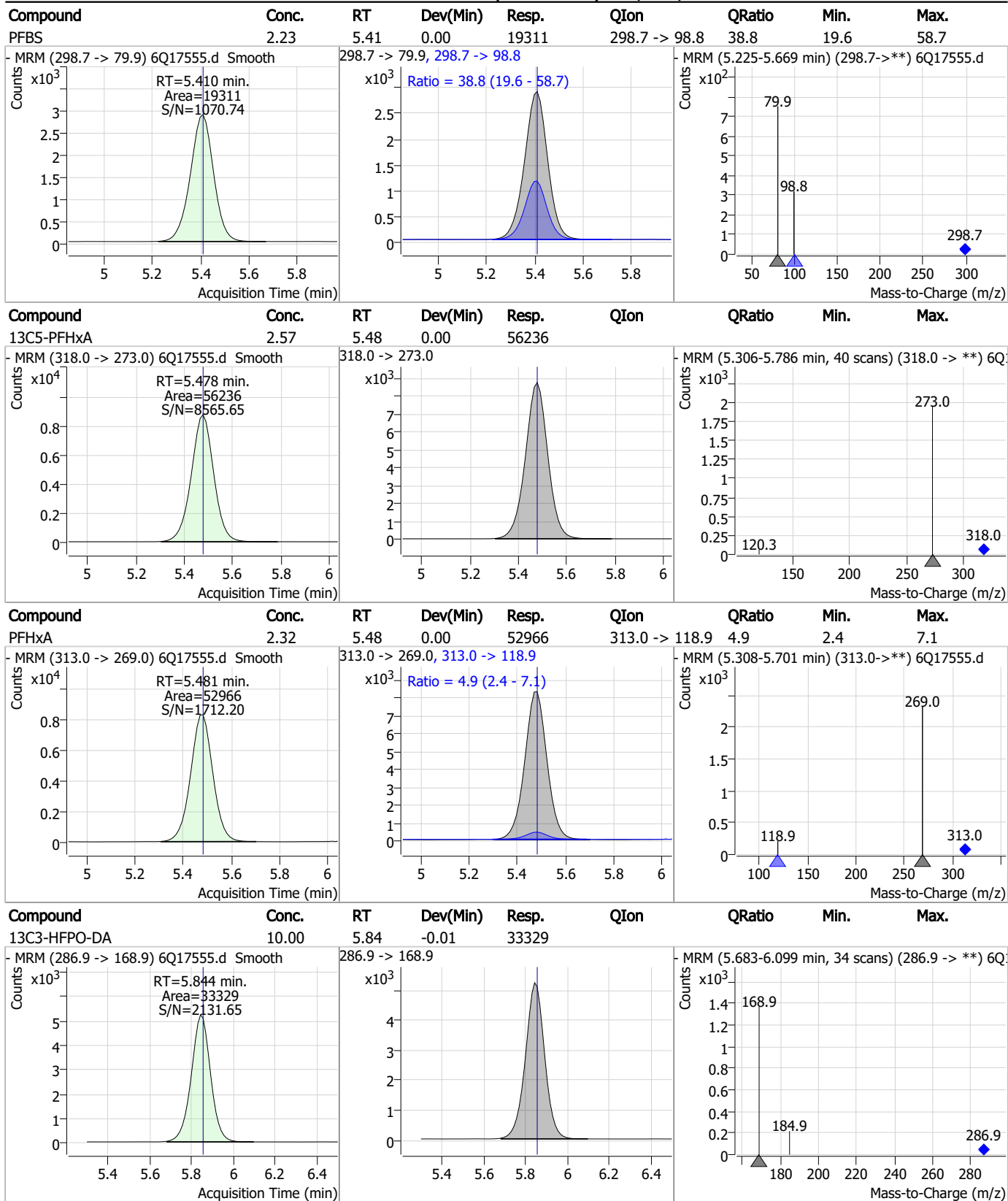
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Perfluorinated Compounds by LC/MS/MS



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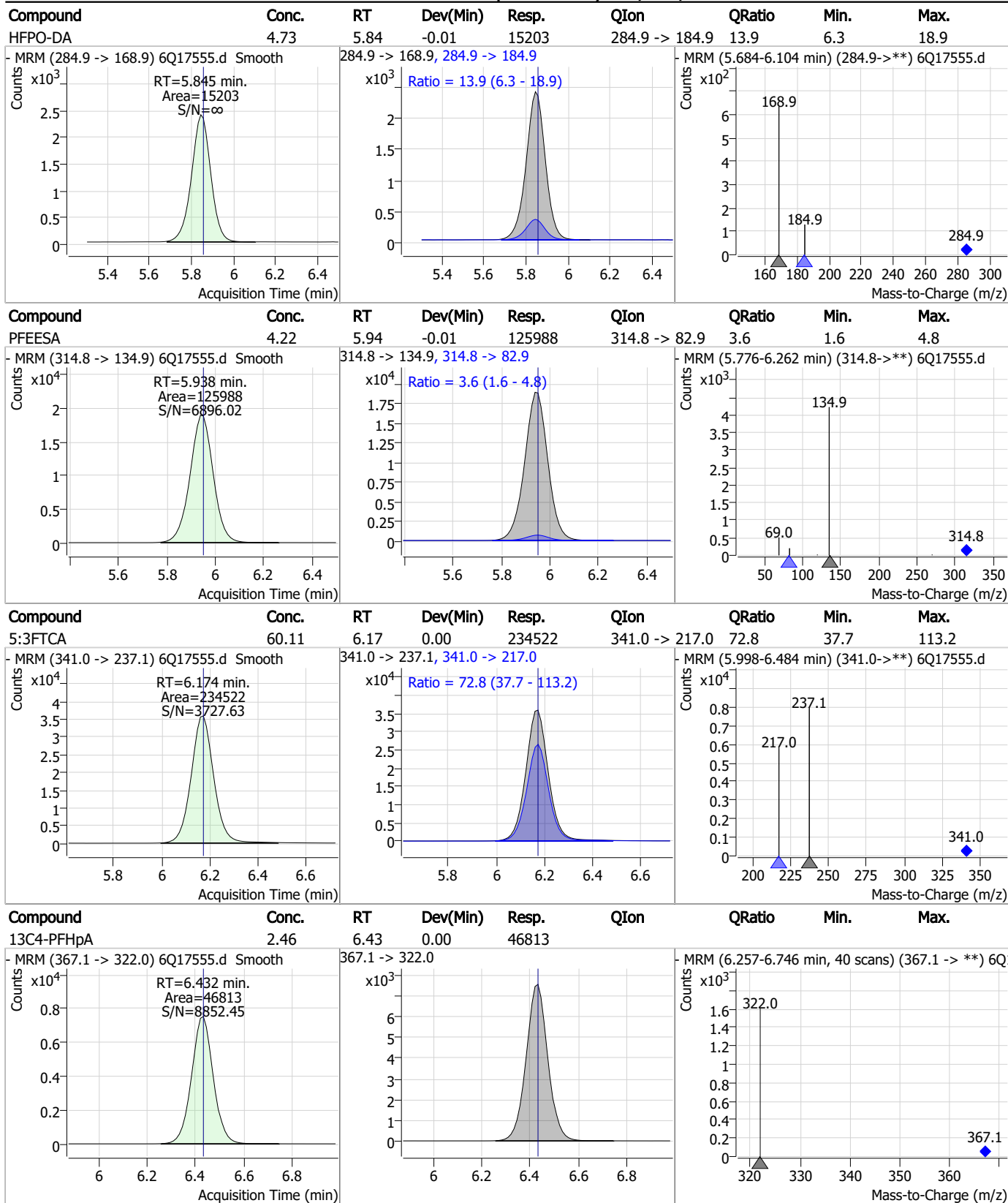
Perfluorinated Compounds by LC/MS/MS



7.7.27



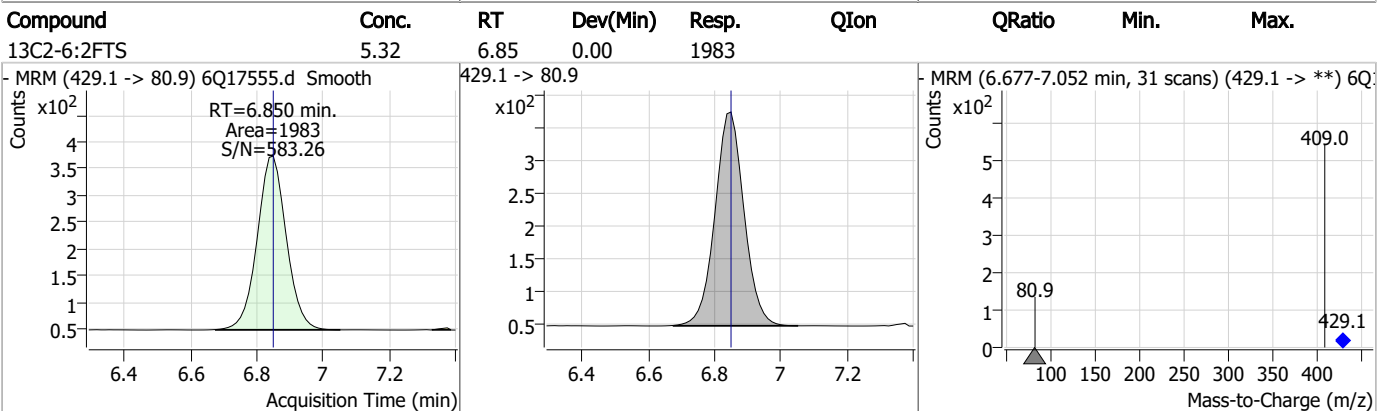
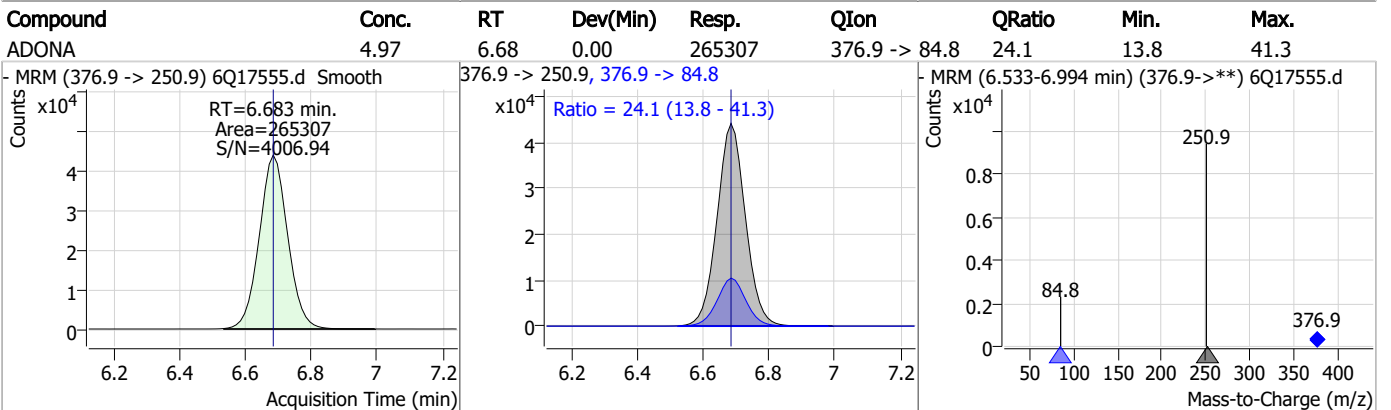
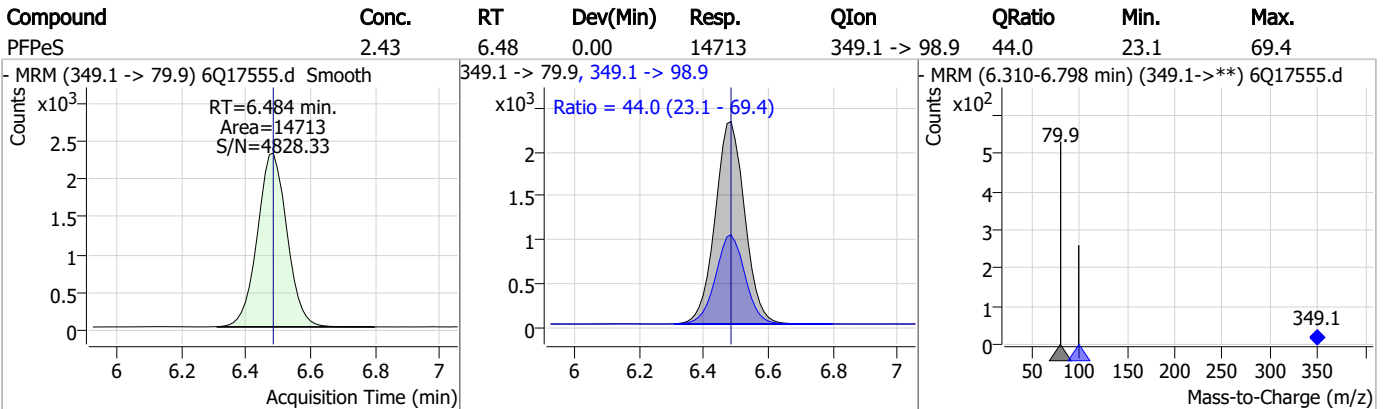
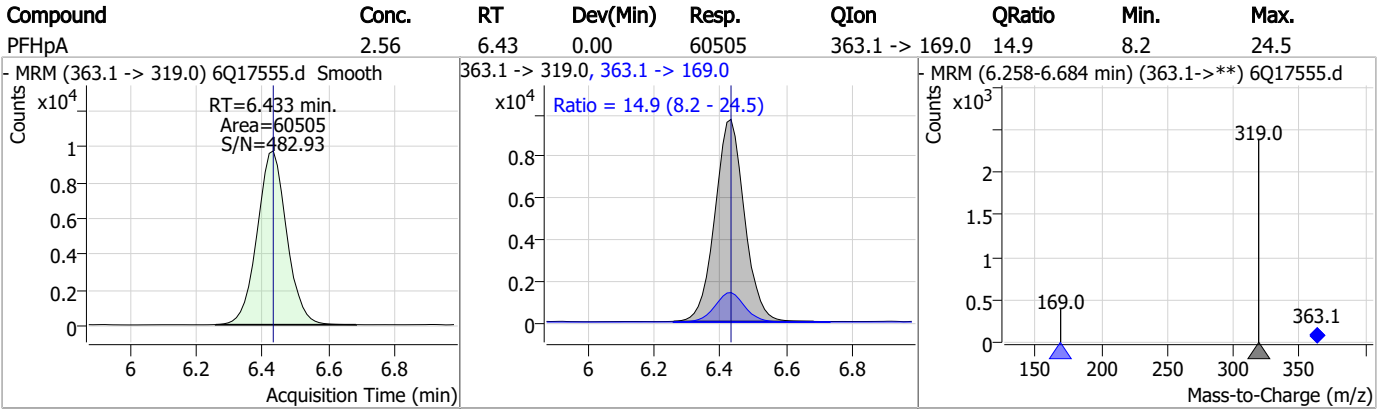
Perfluorinated Compounds by LC/MS/MS



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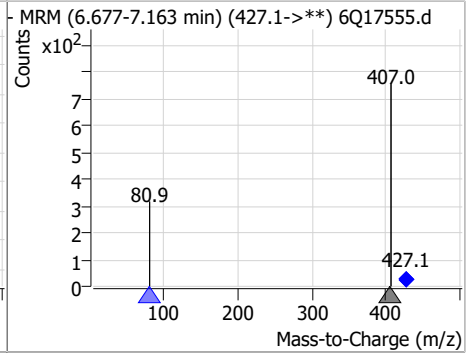
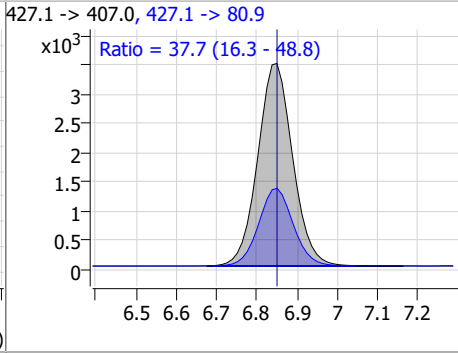
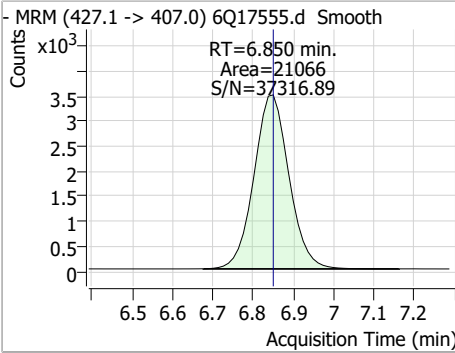
Perfluorinated Compounds by LC/MS/MS



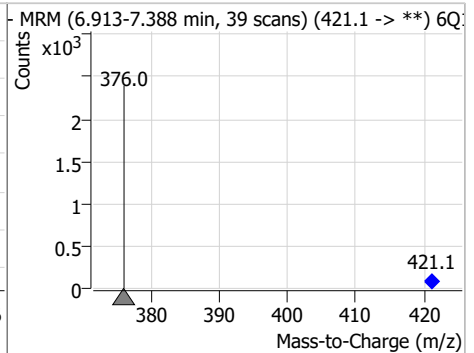
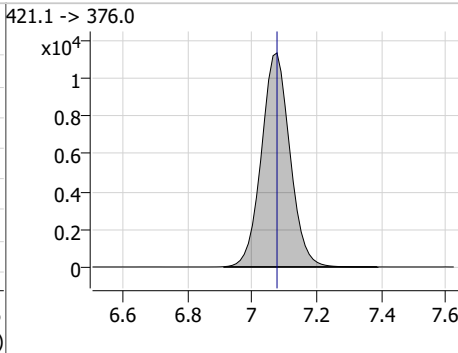
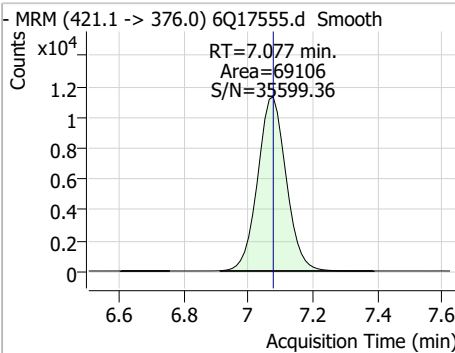
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Perfluorinated Compounds by LC/MS/MS

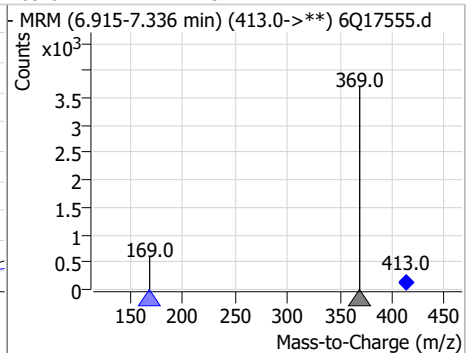
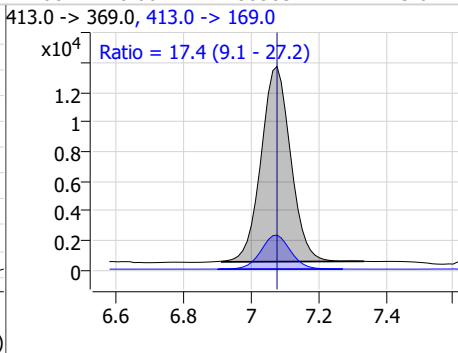
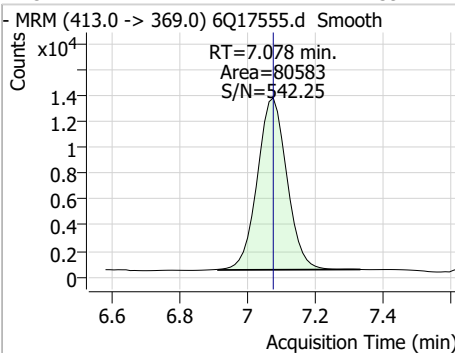
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.67	6.85	0.00	21066	427.1 -> 80.9	37.7	16.3	48.8



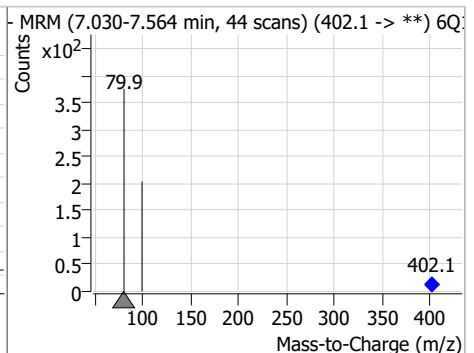
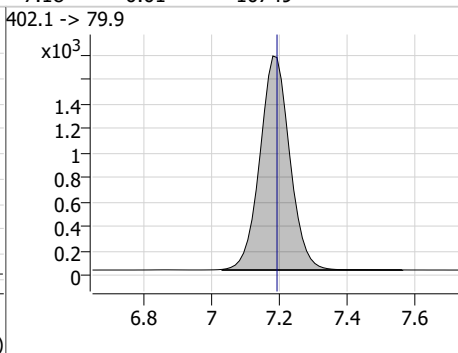
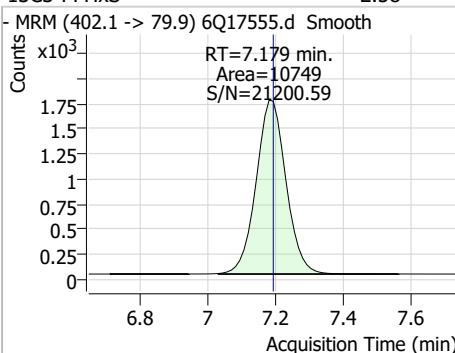
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.59	7.08	0.00	69106	421.1 -> 376.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.39	7.08	0.00	80583	413.0 -> 169.0	17.4	9.1	27.2

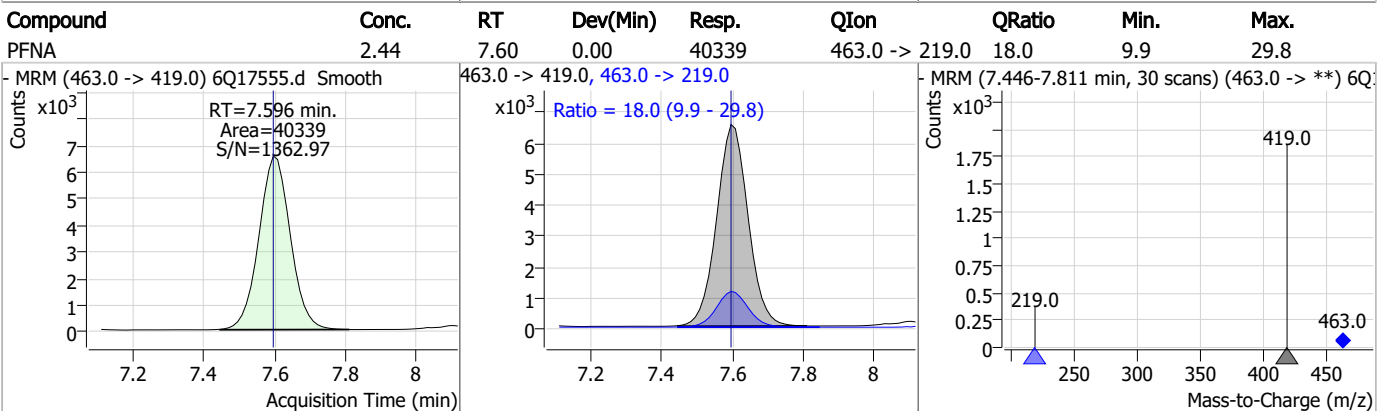
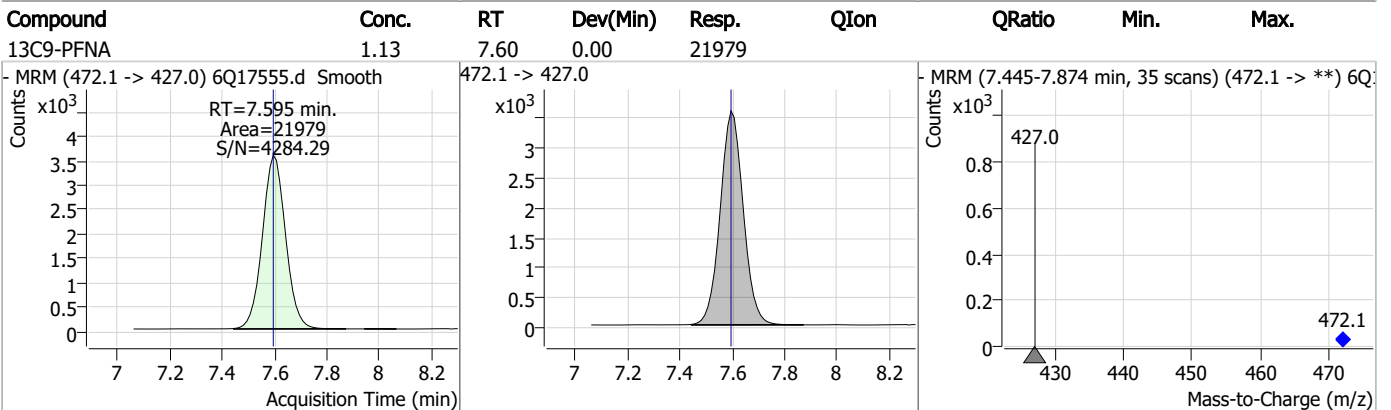
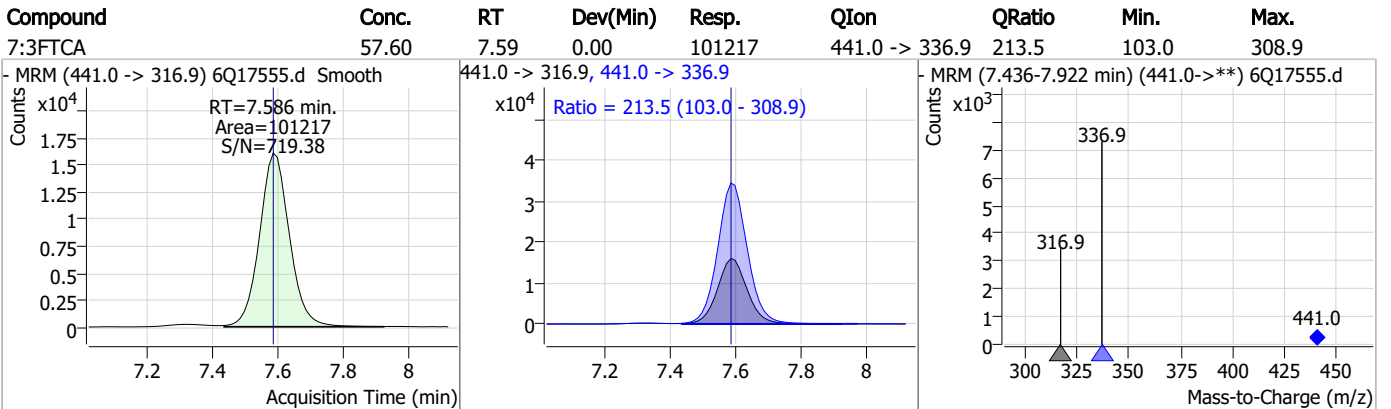
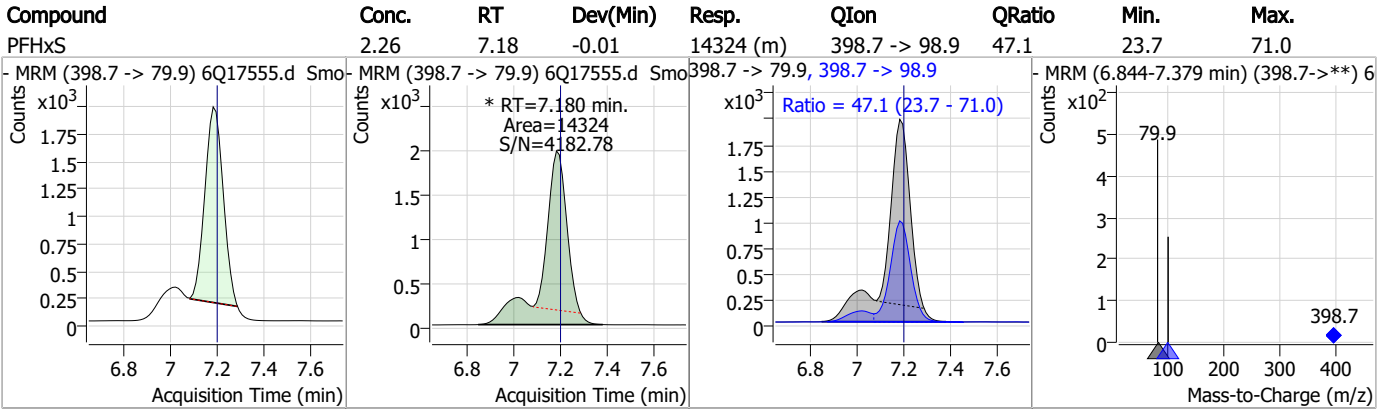


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.58	7.18	-0.01	10749	402.1 -> 79.9			



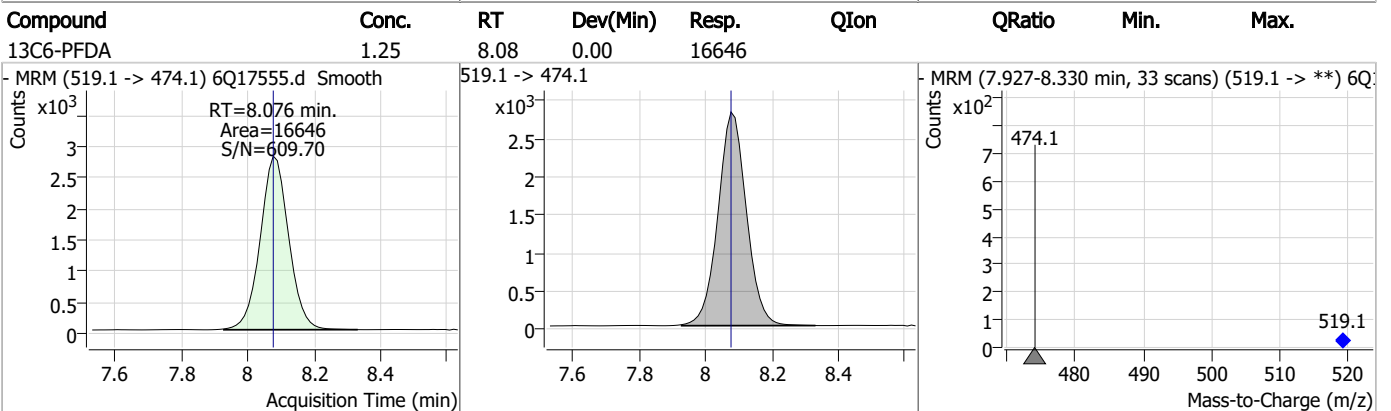
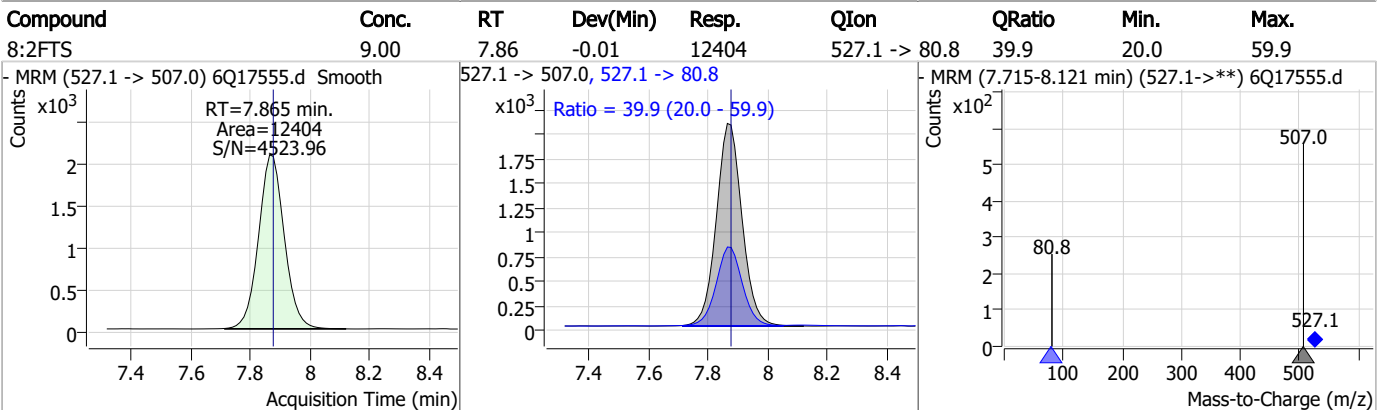
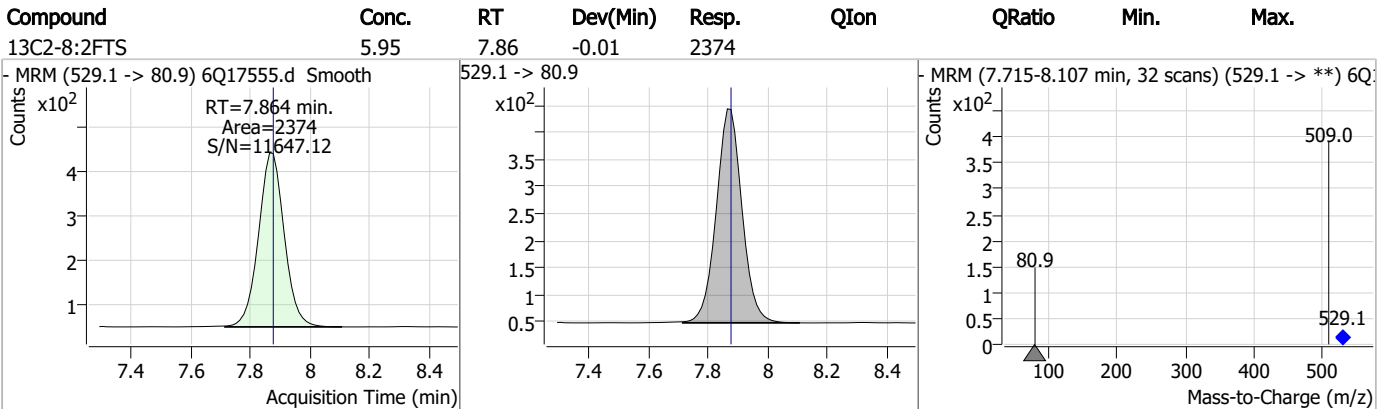
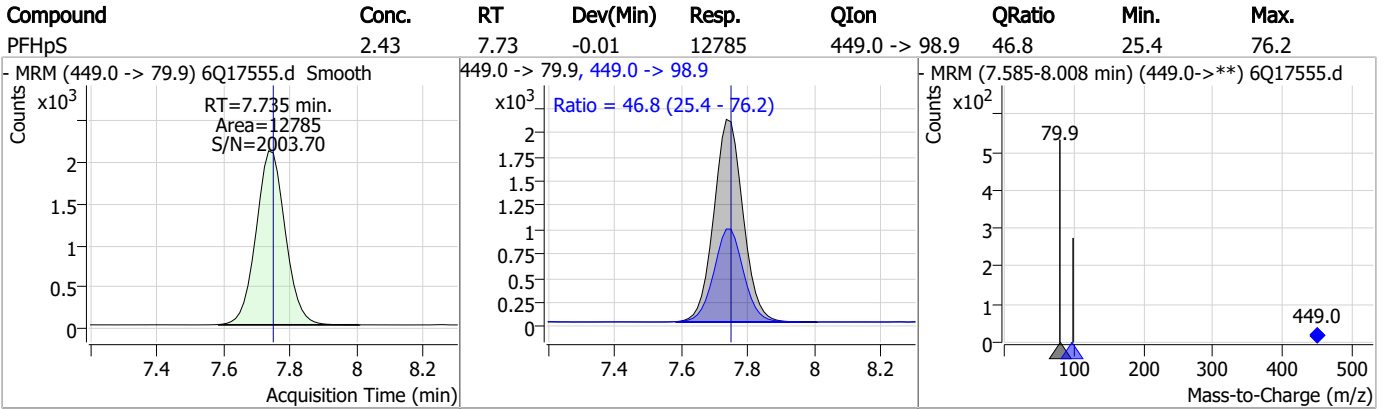
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Perfluorinated Compounds by LC/MS/MS

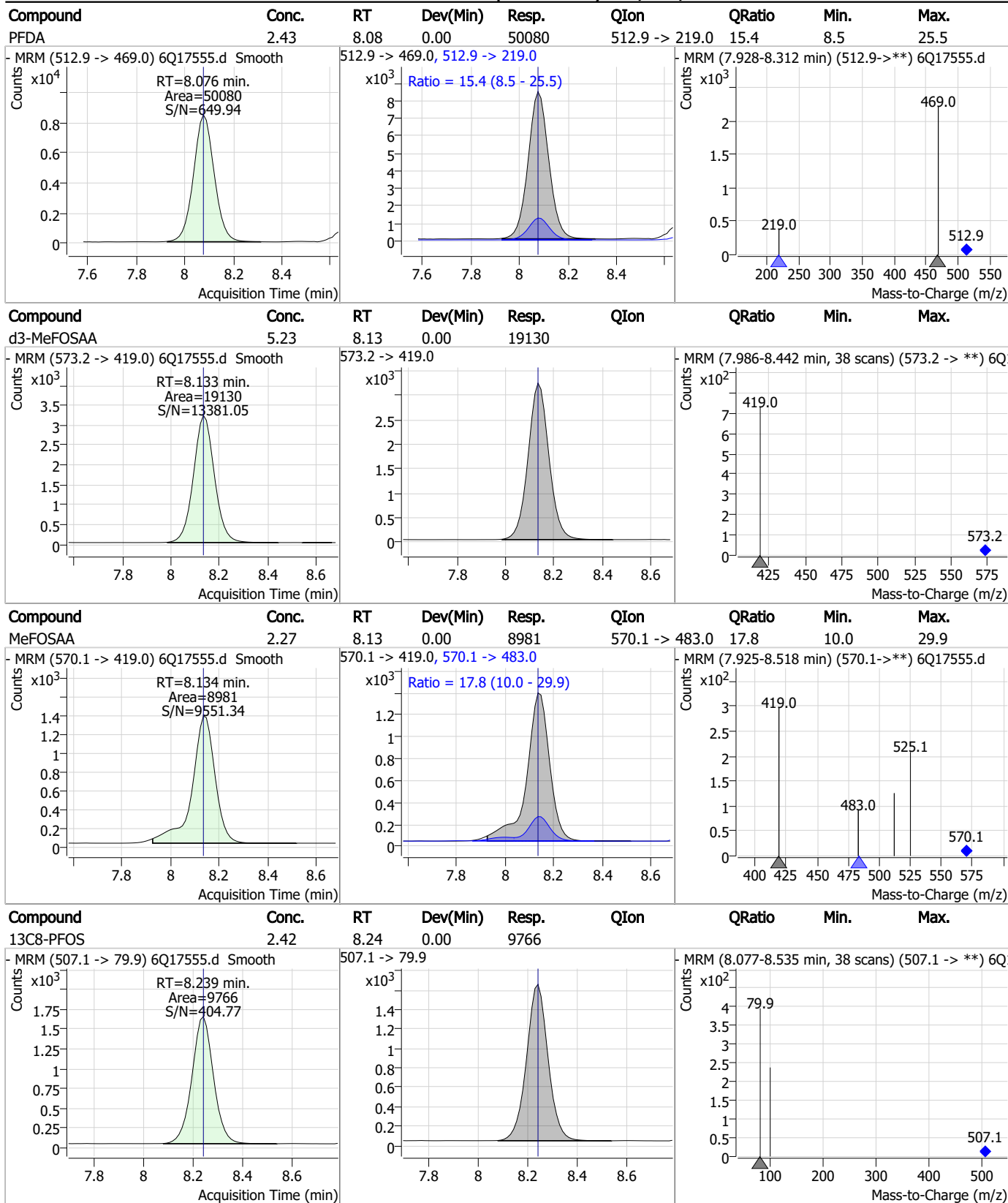


7.7.27 7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

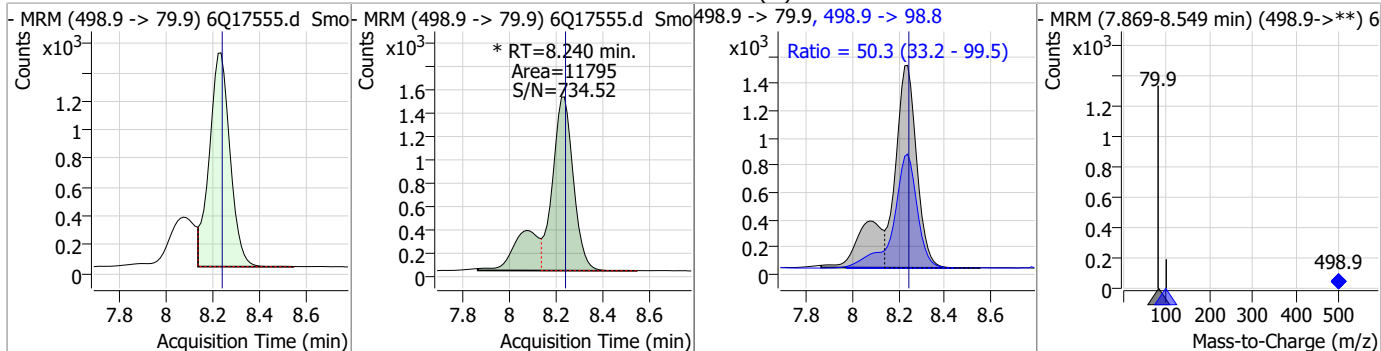


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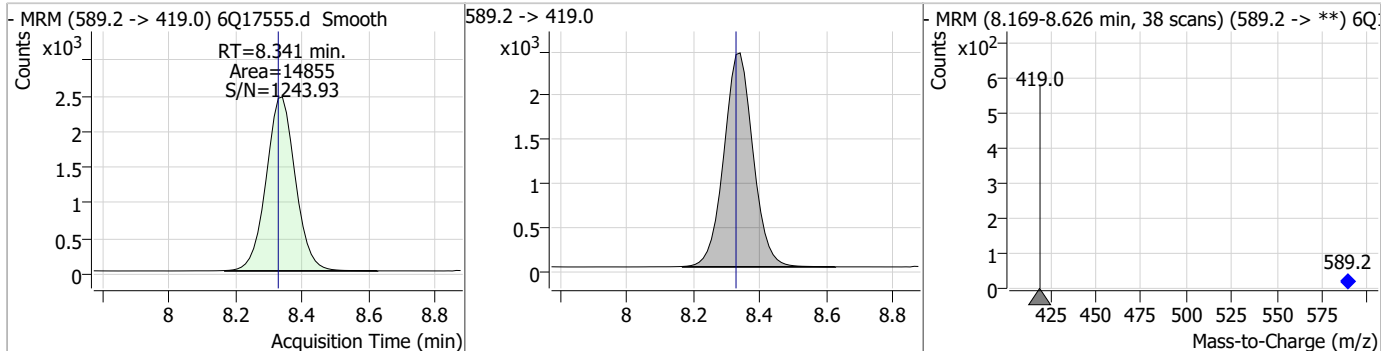


Perfluorinated Compounds by LC/MS/MS

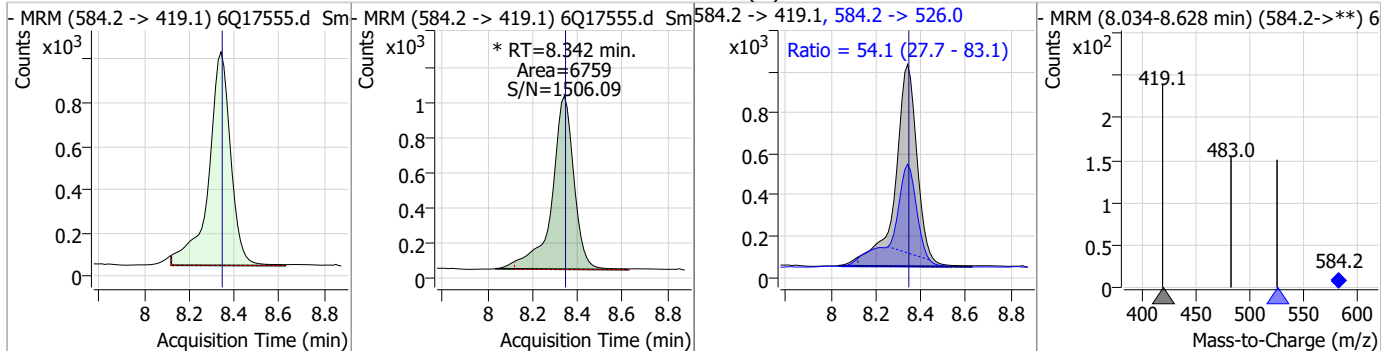
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.33	8.24	0.00	11795 (m)	498.9 -> 98.8	50.3	33.2	99.5



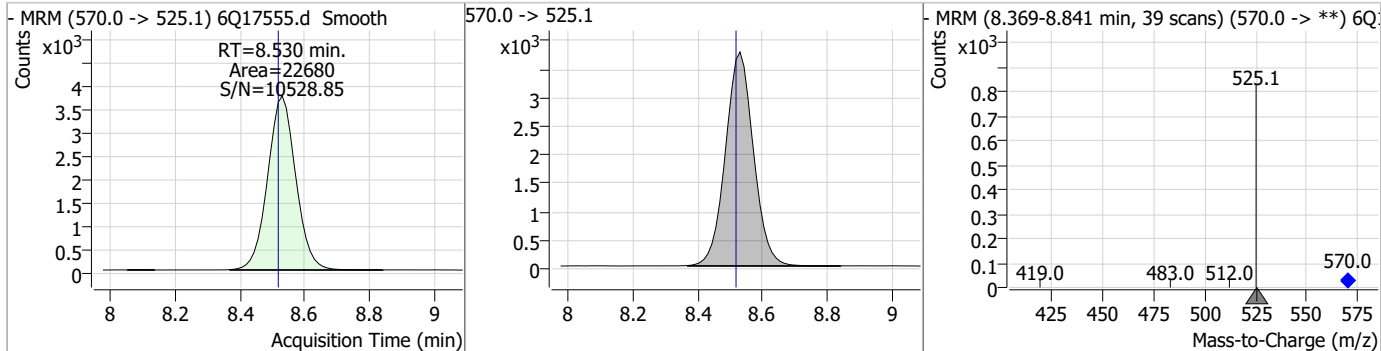
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.64	8.34	0.01	14855				



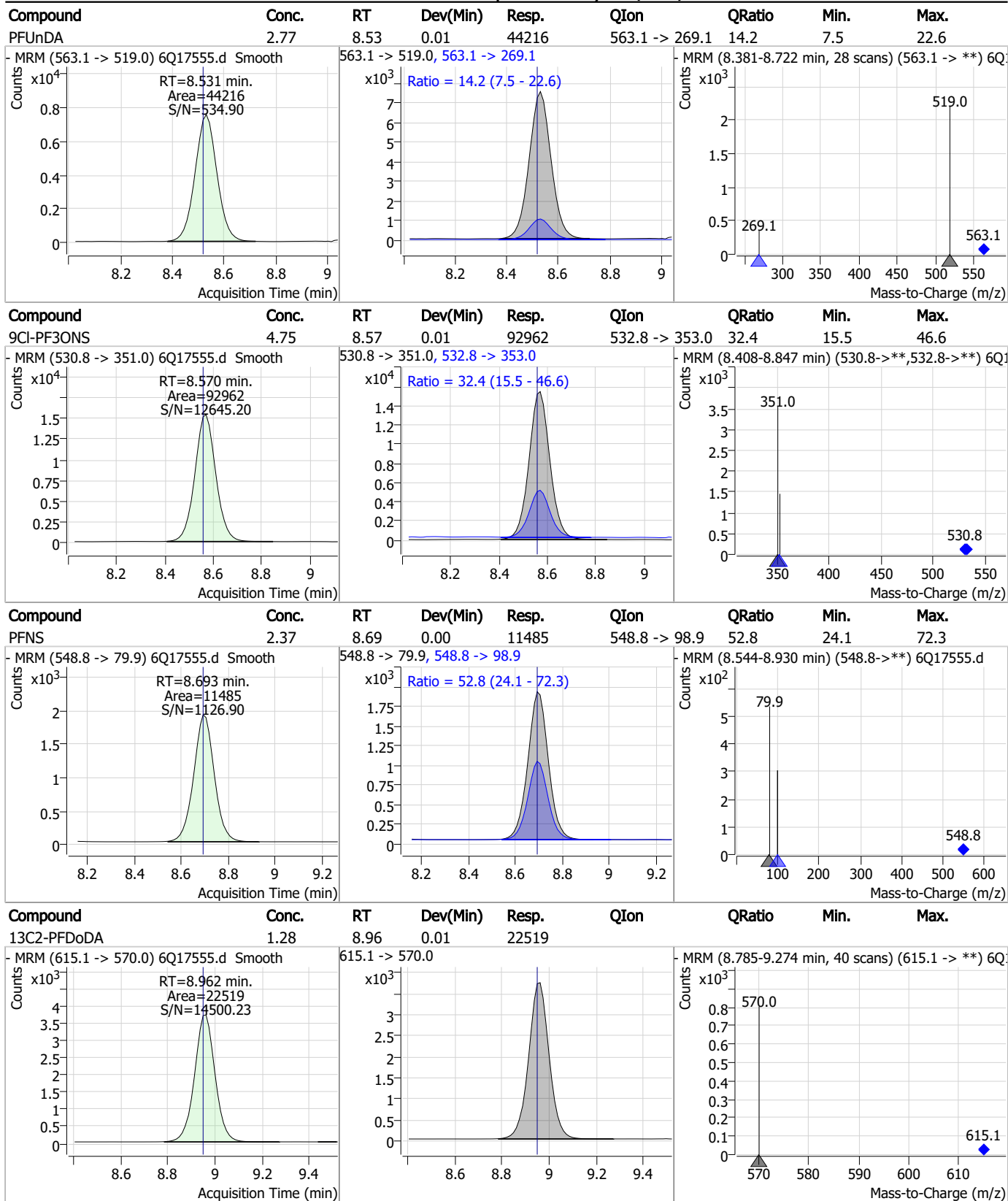
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.53	8.34	0.00	6759 (m)	584.2 -> 526.0	54.1	27.7	83.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.53	0.01	22680				



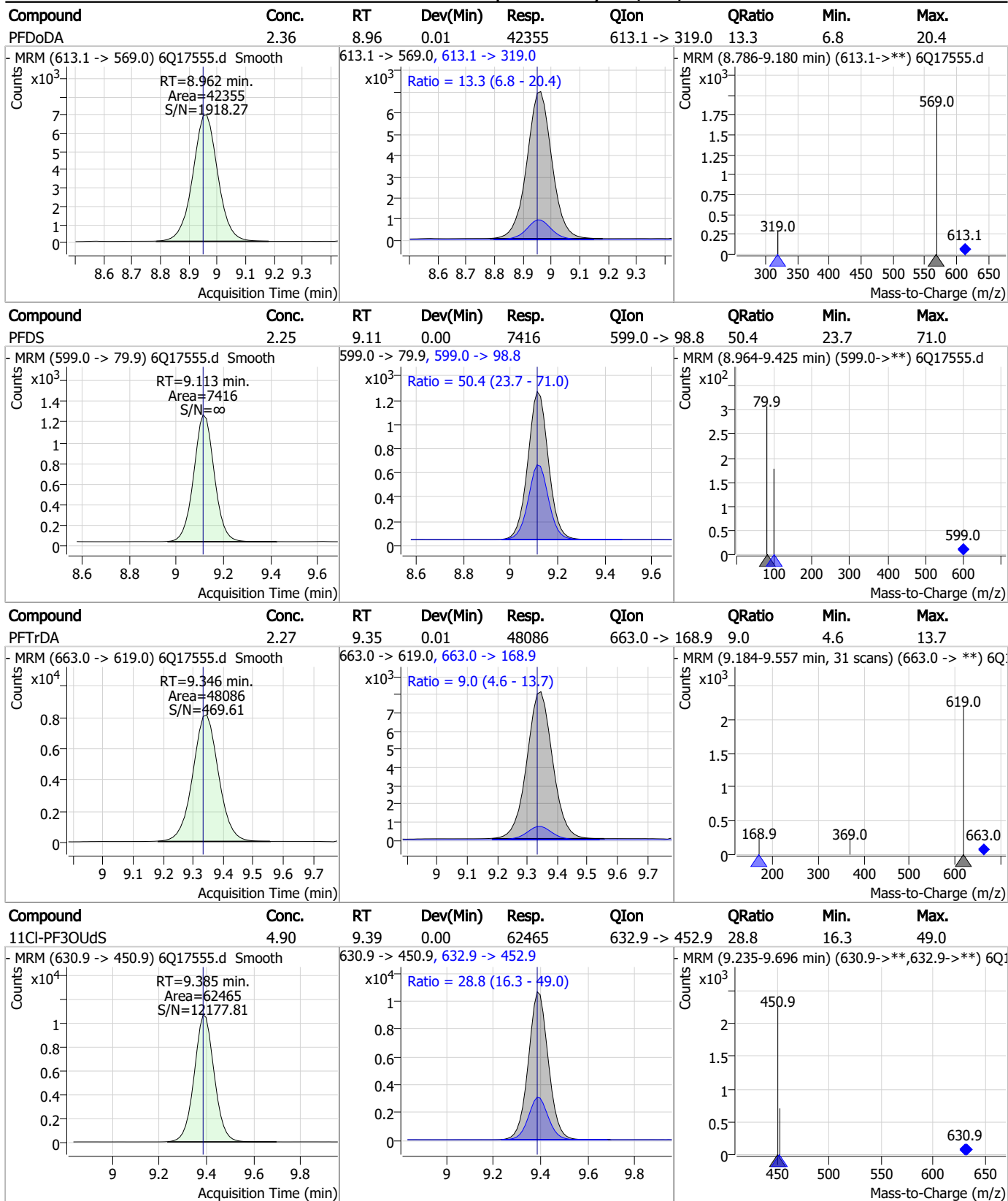
Perfluorinated Compounds by LC/MS/MS



7.7.27

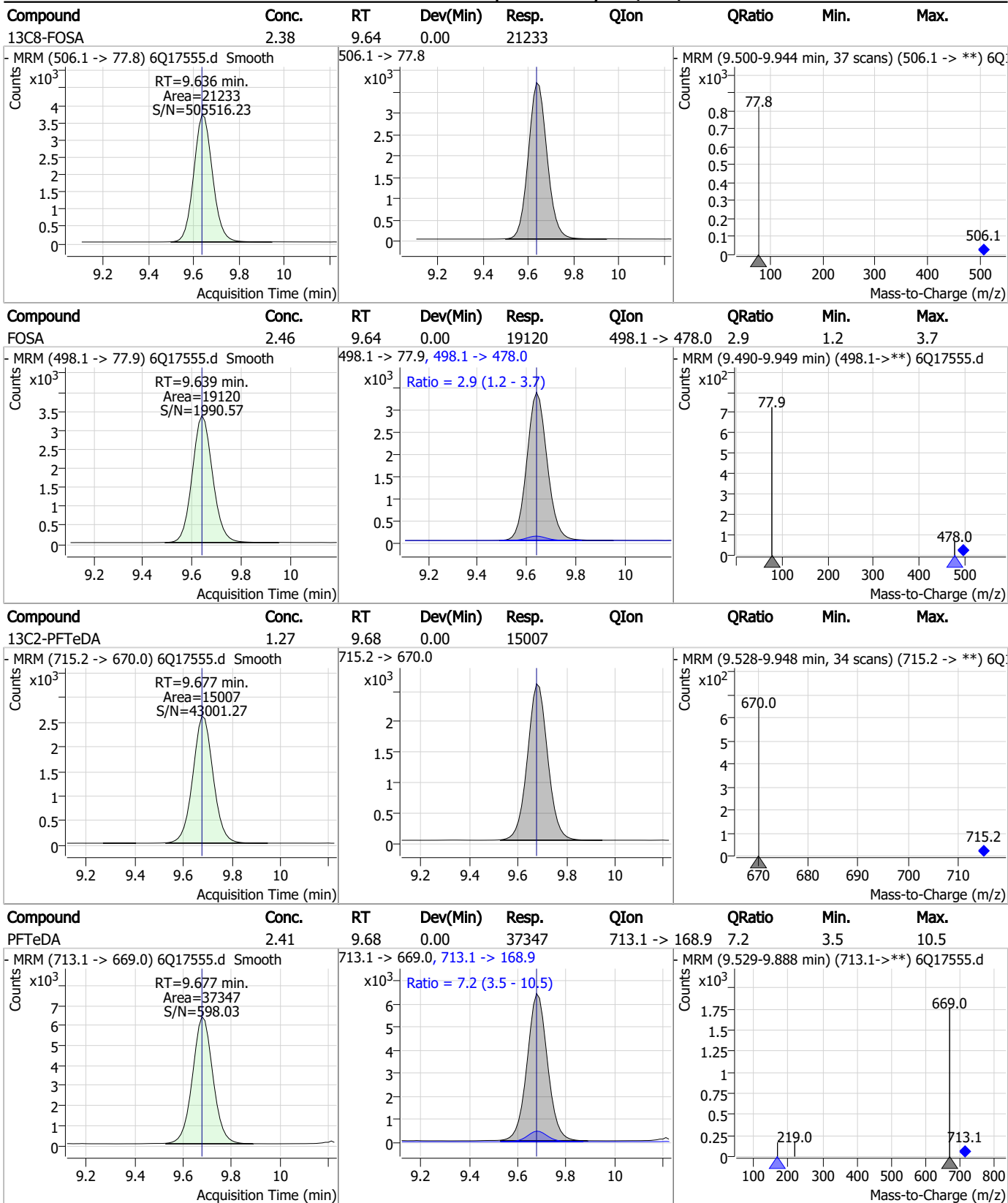


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

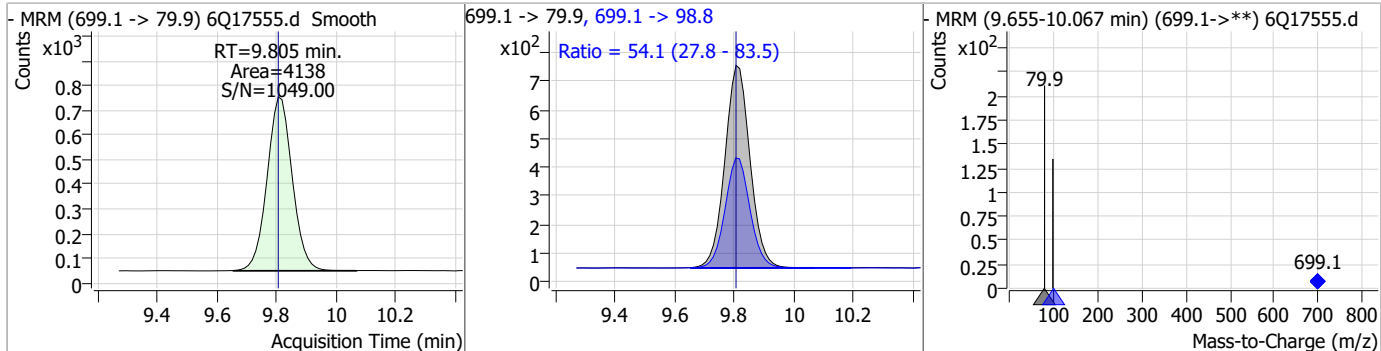


7.7.27
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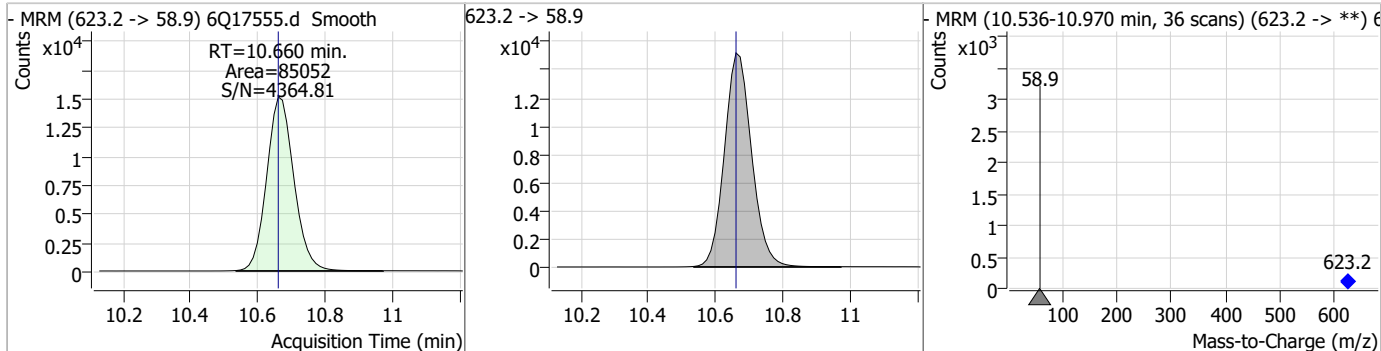


Perfluorinated Compounds by LC/MS/MS

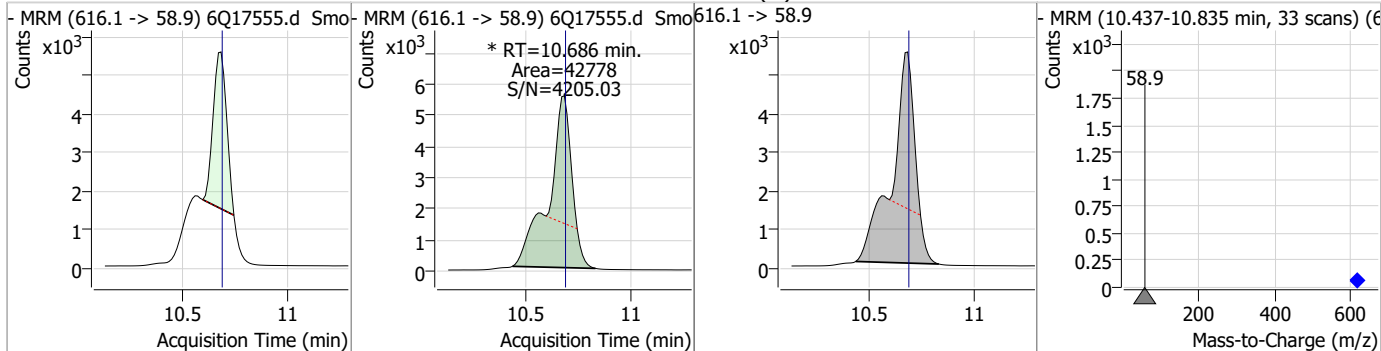
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.36	9.81	0.00	4138	699.1 -> 98.8	54.1	27.8	83.5



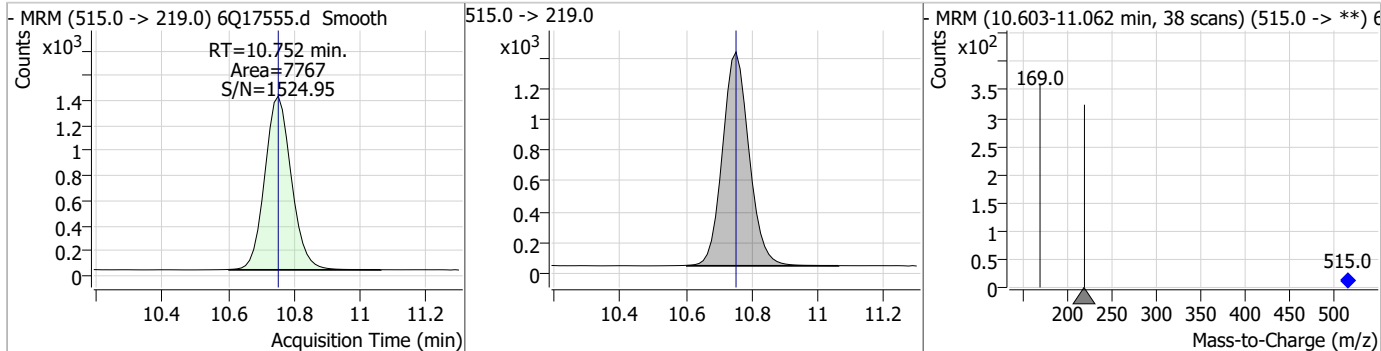
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.77	10.66	0.00	85052				



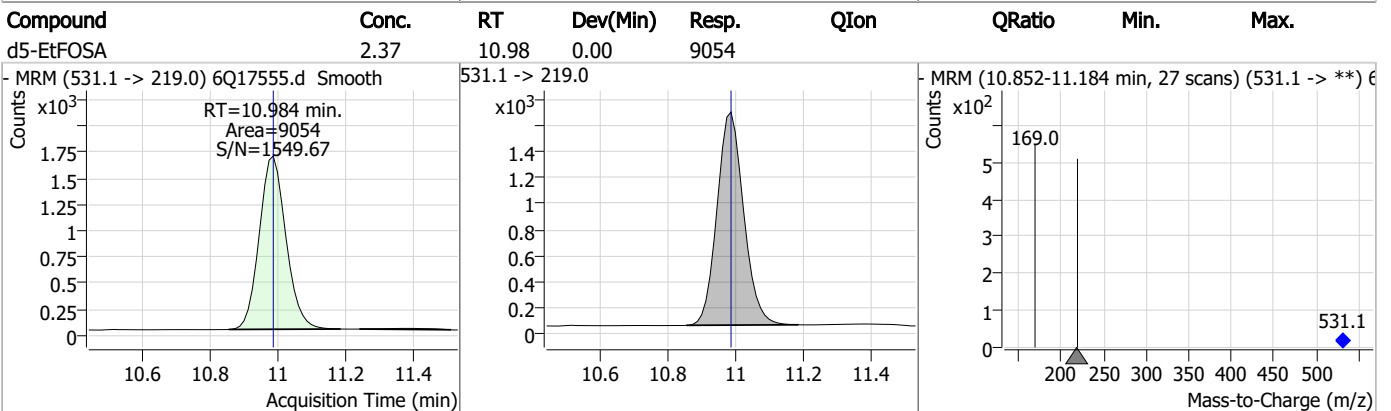
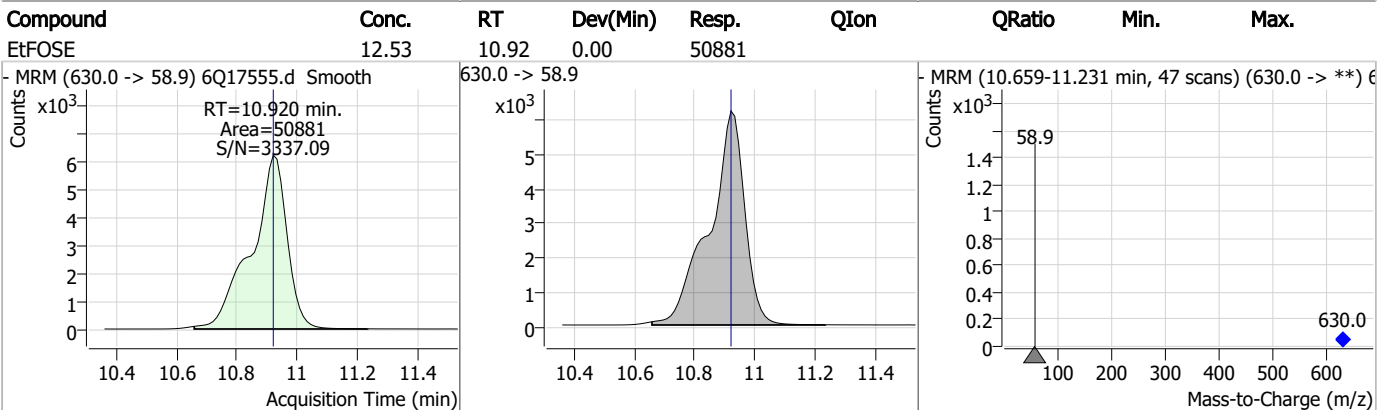
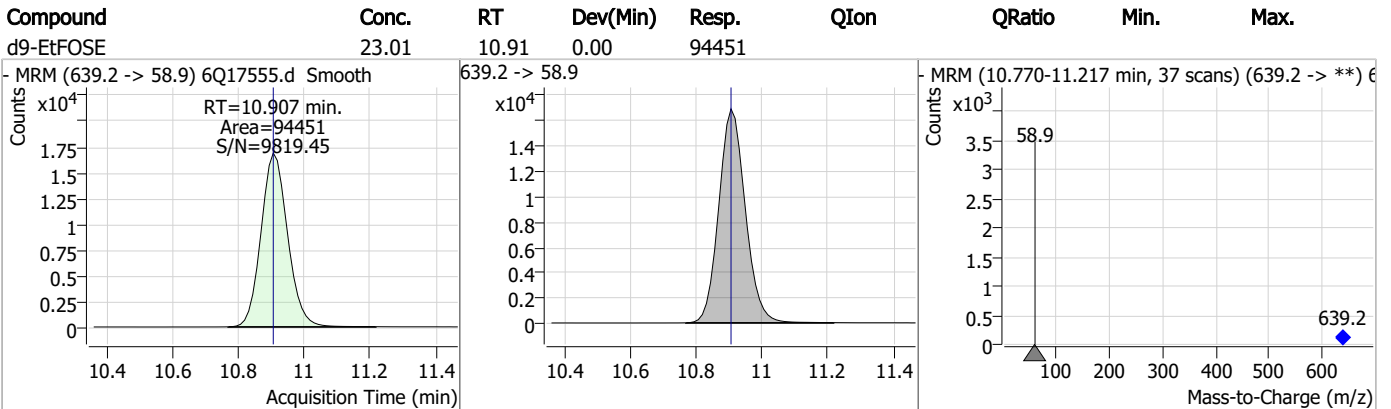
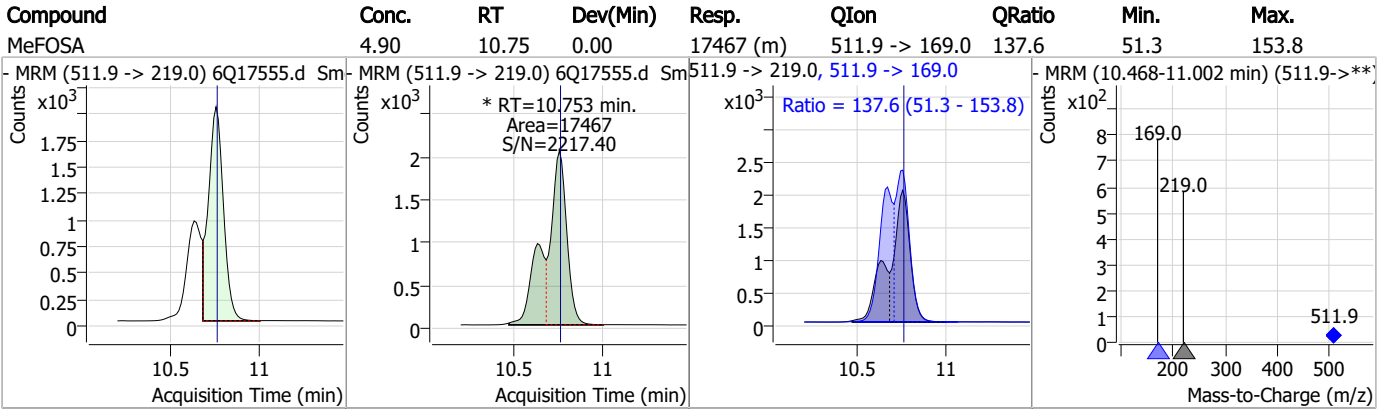
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.23	10.69	0.00	42778 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.75	0.00	7767				



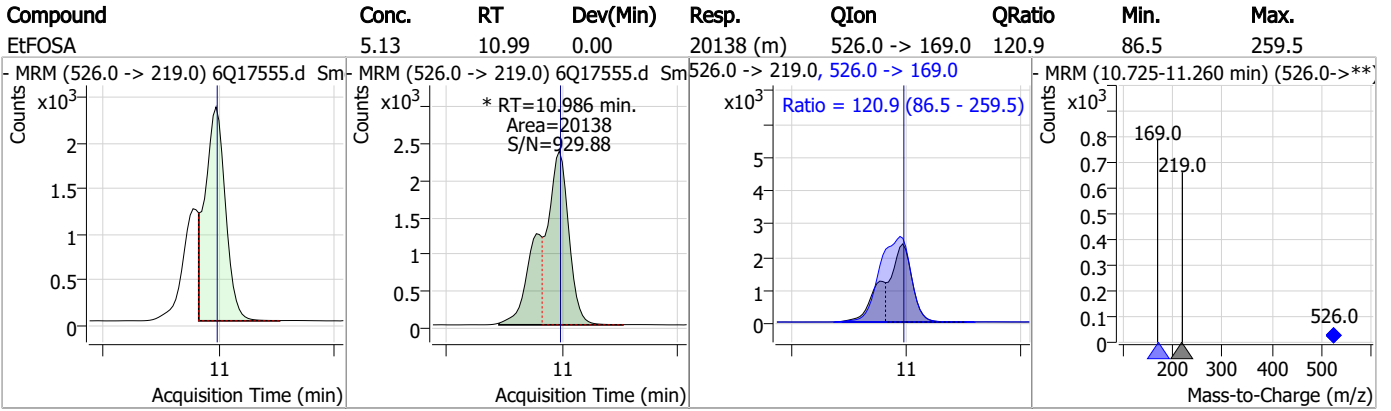
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q265-ICV265 Method: EPA DRAFT 1633
Lab FileID: 6Q17555.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 18:16 Supervisor approved: 05/11/23 20:17 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
EtFOSAA	2991-50-6		8.34	Split peak
MeFOSE	24448-09-7		10.69	Split peak
MeFOSA	31506-32-8		10.75	Split peak
EtFOSA	4151-50-2		10.99	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17556.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/8/2023 6:31:00 PM
 Sample Name : icv265-20
 Vial : P1-B2
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q265.batch.bin
 Sample Information : OP96663,S6Q265,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	140971	10.00 µg/L	0.000
M5-PFPeA	4.284	268.3 -> 223.0	43380	5.00 µg/L	0.012
M5-PFHxA	5.478	318.0 -> 273.0	47939	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	41909	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	63559	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	19101	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16742	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	20301	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	19609	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	13203	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	18182	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	17049	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10209	2.50 µg/L	-0.012
M8-PFOS	8.226	507.1 -> 79.9	9235	2.50 µg/L	-0.012
M2-4:2FTS	5.156	329.1 -> 80.9	1584	5.00 µg/L	0.000
M2-6:2FTS	6.850	429.1 -> 80.9	1844	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2034	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	16211	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	31266	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	13773	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	77354	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	86769	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8090	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7330	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12531	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	58543	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7675	2.50 µg/L	-0.012
13C4-PFOA	7.065	417.1 -> 372.0	66464	2.50 µg/L	-0.012
13C2-PFDA	8.076	515.1 -> 470.1	19902	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	23416	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	41636	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.156	329.1 -> 80.9	1584	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1844	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2034	5.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFDoDA	8.949	615.1 -> 570.0	19609	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	13203	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C3-PFBS	5.409	302.1 -> 79.9	17049	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	10209	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 = 102.2%	
13C4-PFBA	2.913	216.8 -> 171.9	140971	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.432	367.1 -> 322.0	41909	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C5-PFHxA	5.478	318.0 -> 273.0	47939	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C5-PFPeA	4.284	268.3 -> 223.0	43380	4.93 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C6-PFDA	8.076	519.1 -> 474.1	16742	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C7-PFUnDA	8.518	570.0 -> 525.1	20301	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C8-FOSA	9.636	506.1 -> 77.8	18182	2.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.8%	
13C8-PFOA	7.077	421.1 -> 376.0	63559	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C8-PFOS	8.226	507.1 -> 79.9	9235	2.38 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C9-PFNA	7.595	472.1 -> 427.0	19101	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 86.9%	
d3-MeFOSAA	8.133	573.2 -> 419.0	16211	4.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	31266	10.11 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d3-MeFOSA	10.752	515.0 -> 219.0	7330	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSAA	8.329	589.2 -> 419.0	13773	4.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.5%	
d7-MeFOSE	10.660	623.2 -> 58.9	77354	22.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	86769	21.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
d5-EtFOSA	10.984	531.1 -> 219.0	8090	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.2%	
Target Compounds					QValue
4:2FTS	5.156	327.1 -> 307.0	46995	19.43 µg/L	97
		327.1 -> 80.9	17498		
6:2FTS	6.850	427.1 -> 407.0	39585	19.53 µg/L	97
		427.1 -> 80.9	13559		
8:2FTS	7.865	527.1 -> 507.0	25034	21.19 µg/L	99
		527.1 -> 80.8	9895		
EtFOSAA	8.330	584.2 -> 419.1	53332	21.53 µg/L	m 93
		584.2 -> 526.0	27003		
FOSA	9.639	498.1 -> 77.9	157933	23.69 µg/L	99
		498.1 -> 478.0	4317		
MeFOSAA	8.134	570.1 -> 419.0	71053	21.21 µg/L	100
		570.1 -> 483.0	14012		
PFBA	2.907	212.8 -> 168.9	102950	20.39 µg/L	100
PFBS	5.410	298.7 -> 79.9	179395	21.26 µg/L	99
		298.7 -> 98.8	68945		
PFDA	8.076	512.9 -> 469.0	413467	19.95 µg/L	98
		512.9 -> 219.0	66238		
PFDoDA	8.950	613.1 -> 569.0	298666	19.11 µg/L	99
		613.1 -> 319.0	41360		
PFDS	9.113	599.0 -> 79.9	60670	19.49 µg/L	96

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	30201			
PFHpA	6.433	363.1 -> 319.0	463197	21.89	µg/L	99
		363.1 -> 169.0	73576			
PFHpS	7.735	449.0 -> 79.9	99807	20.08	µg/L	99
		449.0 -> 98.9	50075			
PFHxA	5.481	313.0 -> 269.0	406839	20.86	µg/L	100
		313.0 -> 118.9	19594			
PFHxS	7.180	398.7 -> 79.9	124757	20.71	µg/L	m 99
		398.7 -> 98.9	57891			
PFNA	7.596	463.0 -> 419.0	367386	26.14	µg/L	98
		463.0 -> 219.0	69502			
PFNS	8.693	548.8 -> 79.9	100937	22.07	µg/L	97
		548.8 -> 98.9	50871			
PFOA	7.078	413.0 -> 369.0	633043	20.41	µg/L	98
		413.0 -> 169.0	109586			
PFOS	8.228	498.9 -> 79.9	83596	17.43	µg/L	m 77
		498.9 -> 98.8	40155			
PFPeA	4.274	263.0 -> 219.0	291265	22.97	µg/L	100
PFPeS	6.484	349.1 -> 79.9	124511	21.67	µg/L	96
		349.1 -> 98.9	54387			
PFTeDA	9.677	713.1 -> 669.0	294866	21.59	µg/L	98
		713.1 -> 168.9	23166			
PFTrDA	9.333	663.0 -> 619.0	323501	17.50	µg/L	99
		663.0 -> 168.9	30992			
PFUnDA	8.518	563.1 -> 519.0	299207	20.97	µg/L	100
		563.1 -> 269.1	45610			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	259940	21.72	µg/L	96
		632.9 -> 452.9	78314			
9Cl-PF3ONS	8.557	530.8 -> 351.0	384200	20.93	µg/L	97
		532.8 -> 353.0	114144			
ADONA	6.683	376.9 -> 250.9	976697	19.49	µg/L	99
		376.9 -> 84.8	274622			
HFPO-DA	5.845	284.9 -> 168.9	62165	20.60	µg/L	99
		284.9 -> 184.9	7976			
3:3FTCA	3.790	241.0 -> 177.0	16961	20.96	µg/L	98
		241.0 -> 117.0	2156			
5:3FTCA	6.174	341.0 -> 237.1	78995	23.75	µg/L	97
		341.0 -> 217.0	57731			
7:3FTCA	7.586	441.0 -> 316.9	34658	23.14	µg/L	93
		441.0 -> 336.9	74949			
EtFOSA	10.986	526.0 -> 219.0	75607	21.56	µg/L	45
		526.0 -> 169.0	73195			
EtFOSE	10.920	630.0 -> 58.9	415254	111.30	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	67529	20.09	µg/L	95
		511.9 -> 169.0	72397			
MeFOSE	10.686	616.1 -> 58.9	363583	104.99	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	32273	19.46	µg/L	97
		699.1 -> 98.8	17152			
NFDHA	5.361	295.0 -> 201.0	46173	22.19	µg/L	98
		295.0 -> 84.9	11787			
PFMBA	4.688	279.0 -> 85.1	199153	22.25	µg/L	100
PFMPA	3.442	229.0 -> 84.9	139136	21.65	µg/L	100
PFEESA	5.950	314.8 -> 134.9	504344	19.82	µg/L	99
		314.8 -> 82.9	18032			

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

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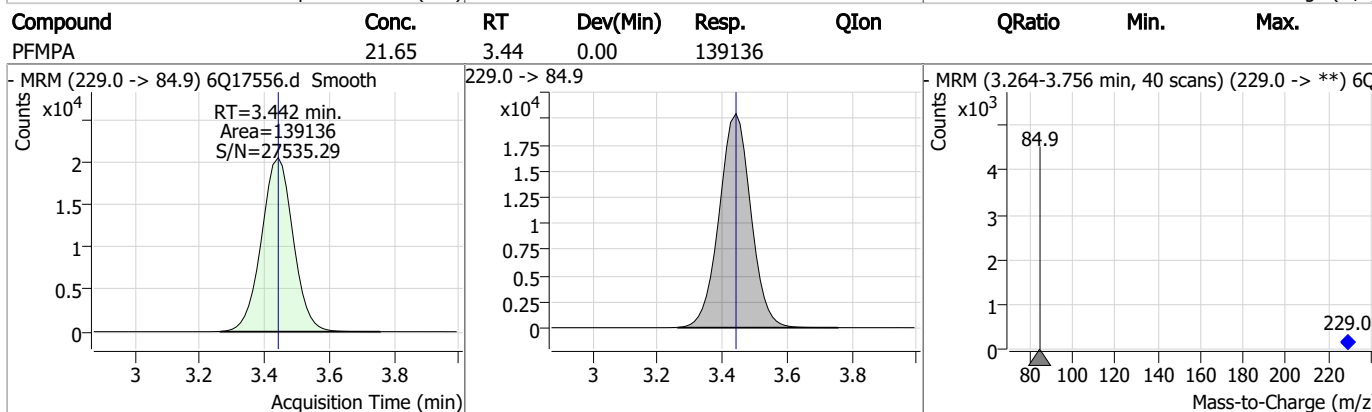
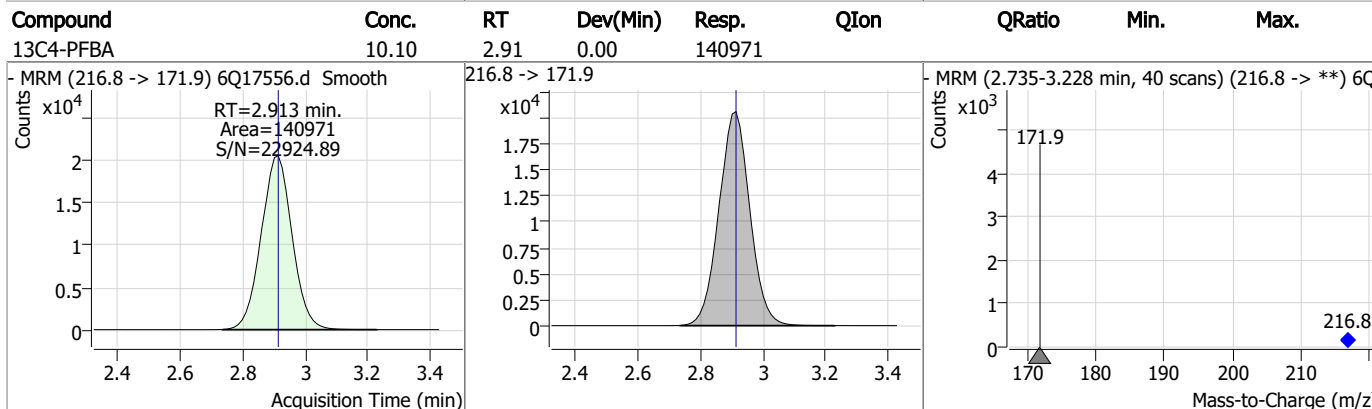
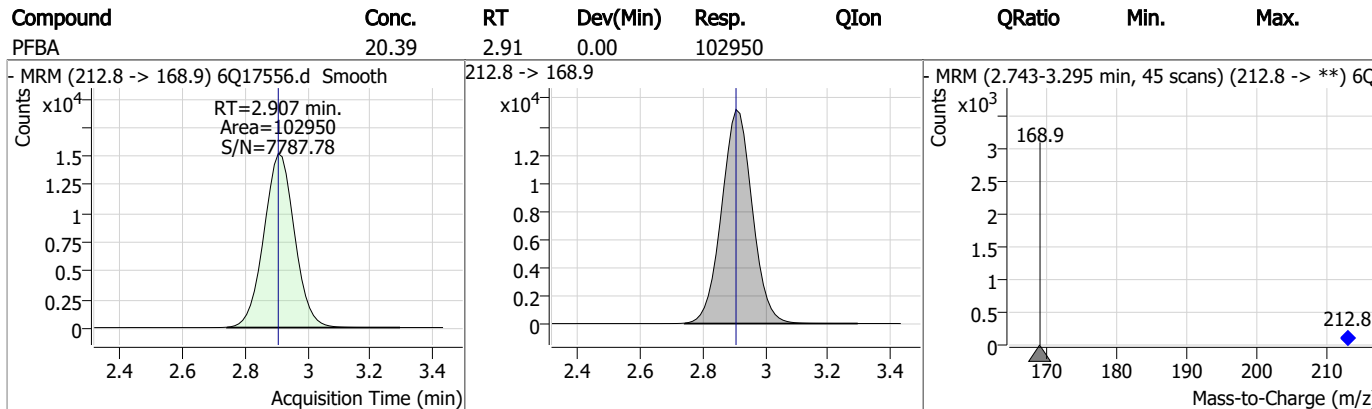
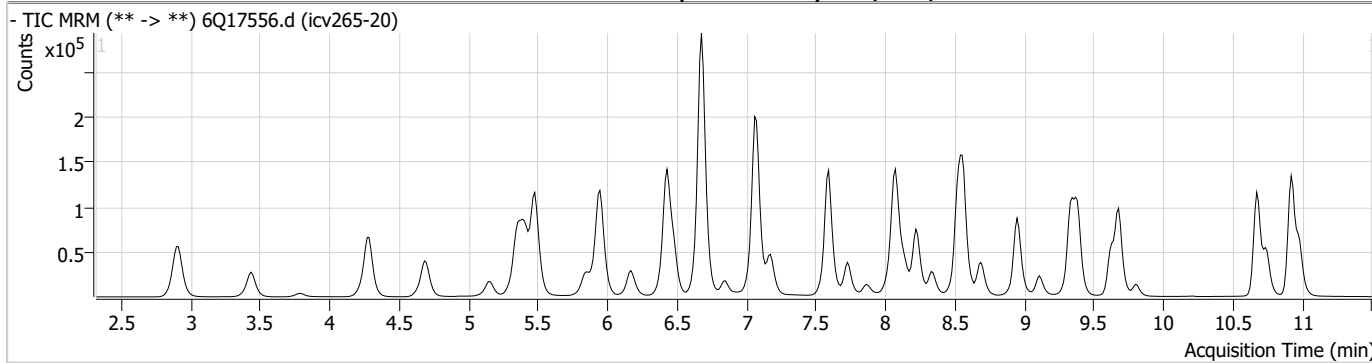
Perfluorinated Compounds by LC/MS/MS

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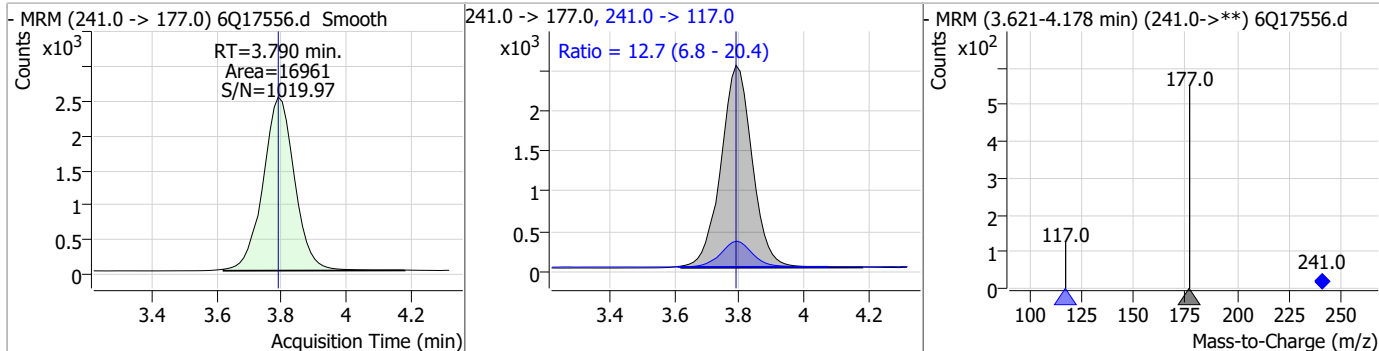
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Perfluorinated Compounds by LC/MS/MS

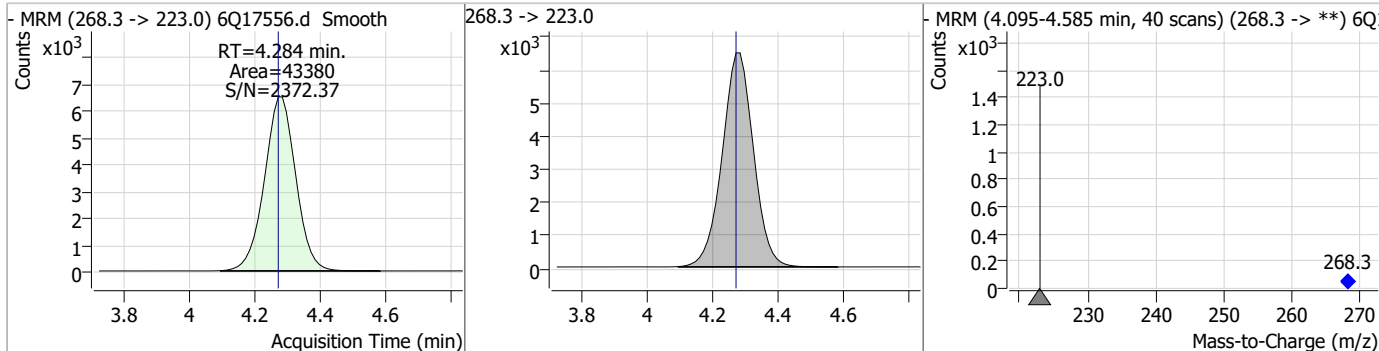


Perfluorinated Compounds by LC/MS/MS

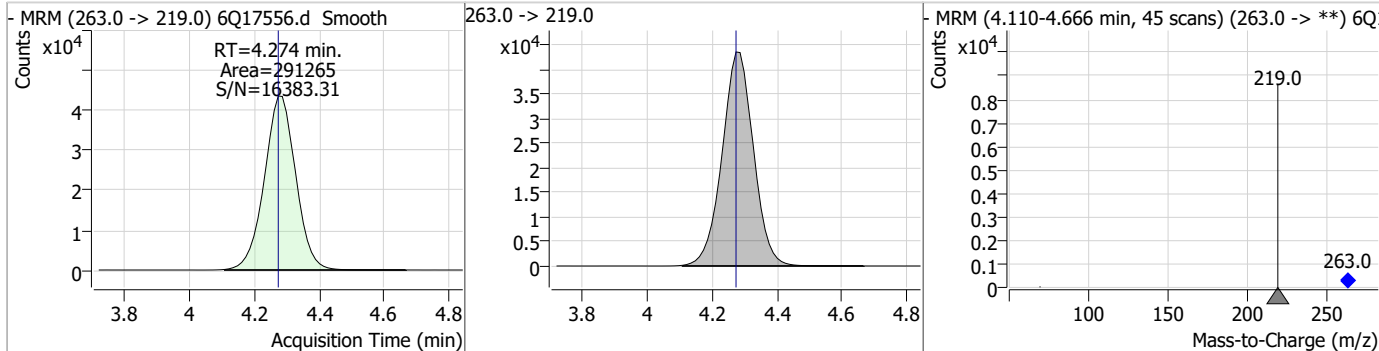
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	20.96	3.79	0.00	16961	241.0 -> 117.0	12.7	6.8	20.4



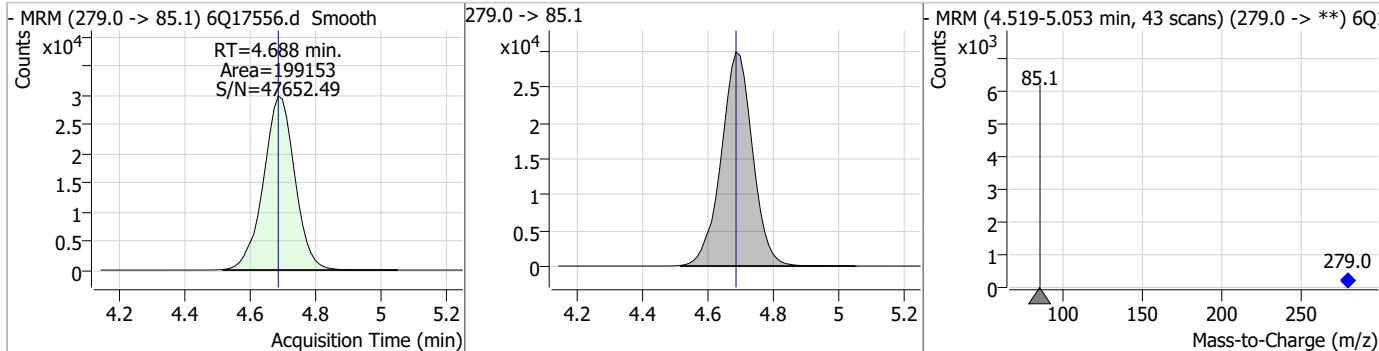
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.93	4.28	0.01	43380				



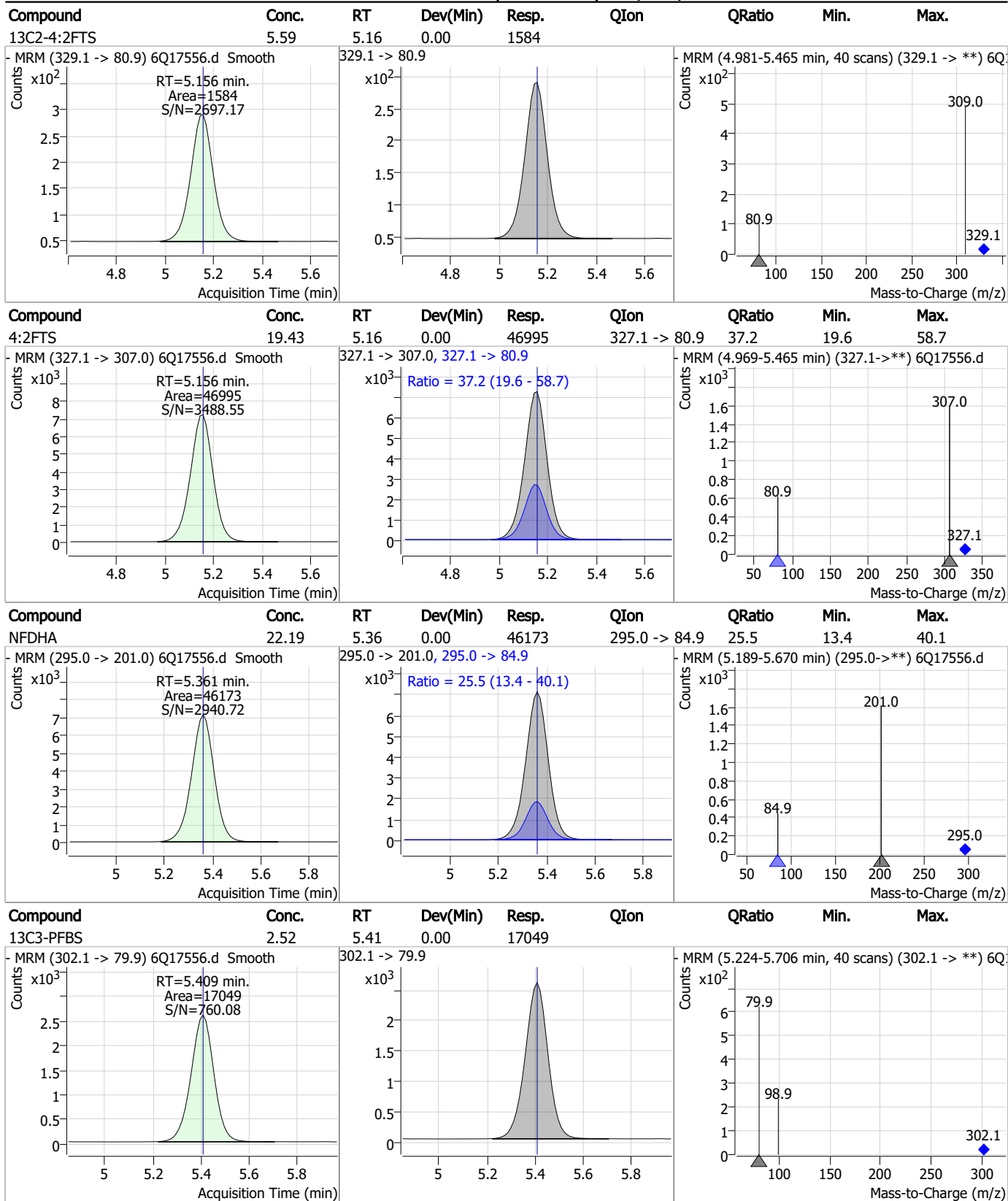
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	22.97	4.27	0.00	291265				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	22.25	4.69	0.00	199153				

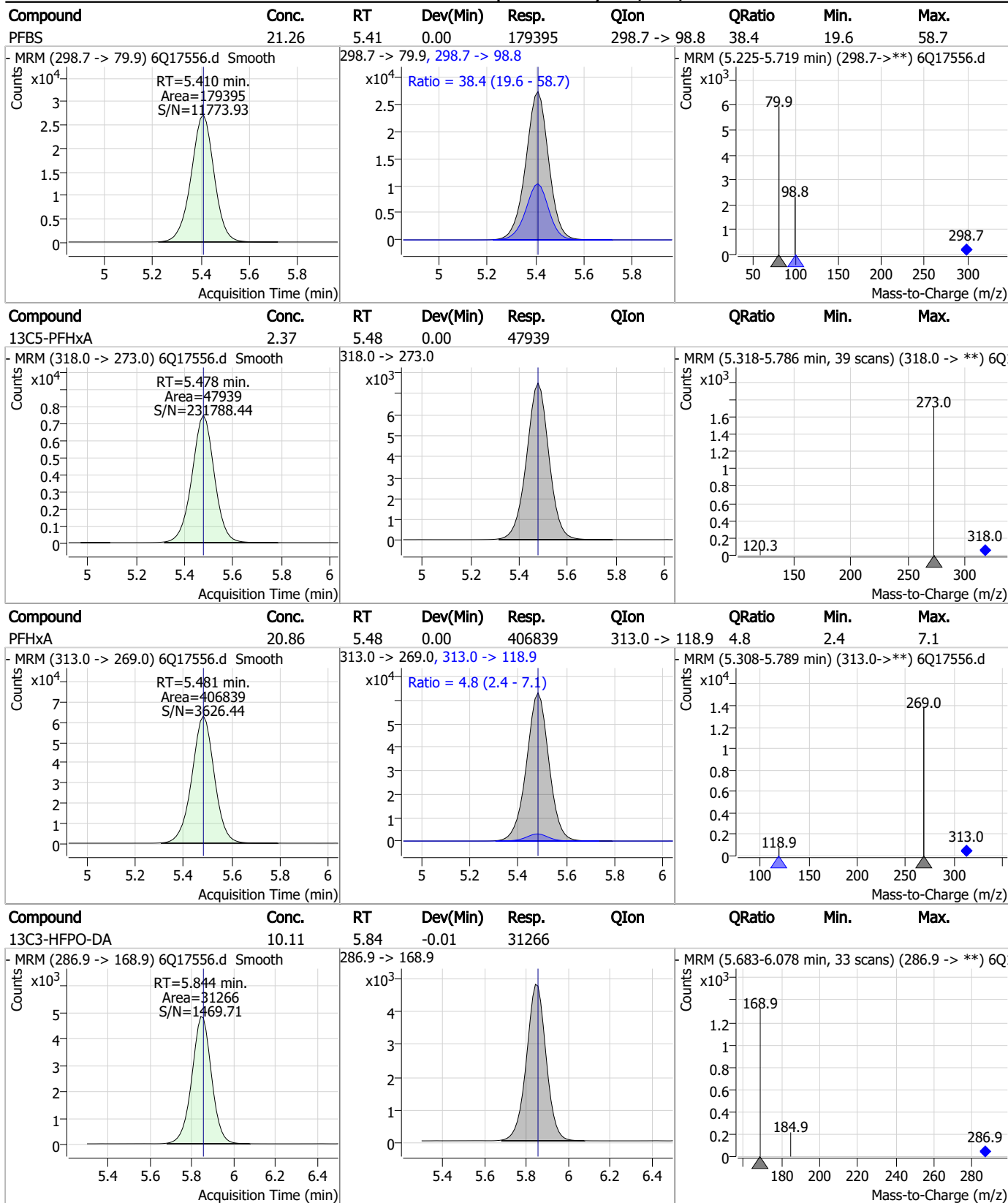


Perfluorinated Compounds by LC/MS/MS



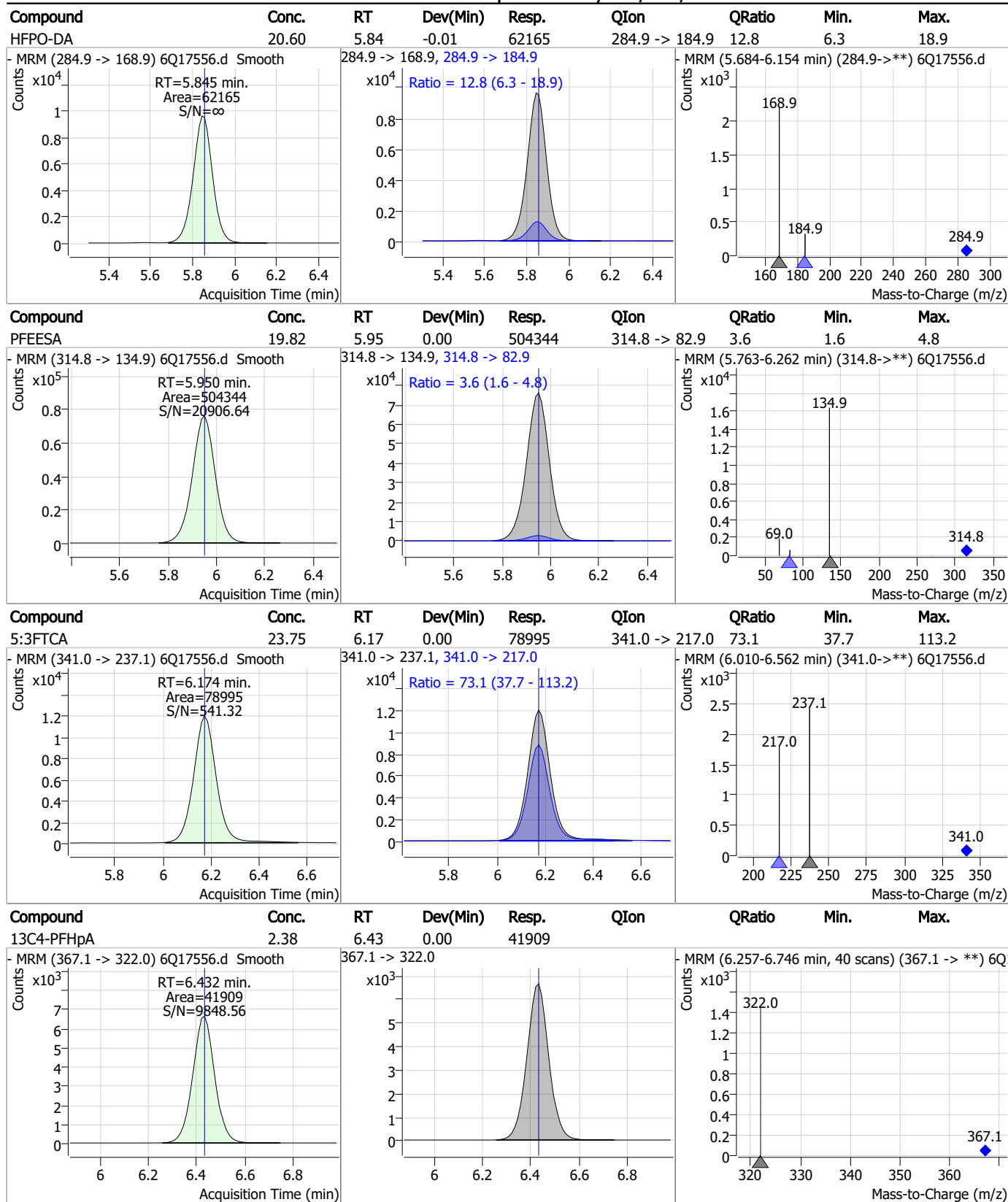
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Perfluorinated Compounds by LC/MS/MS



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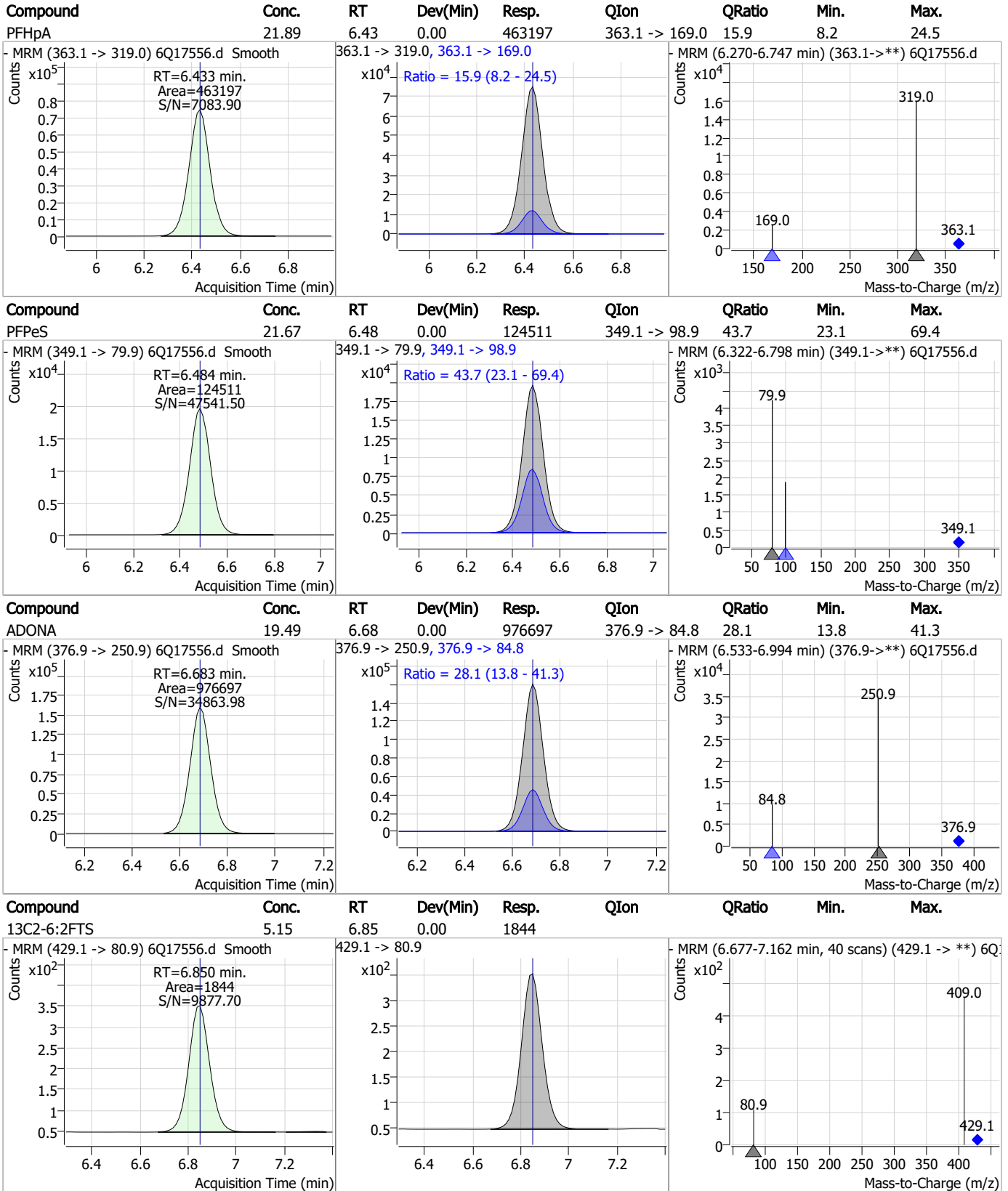
Perfluorinated Compounds by LC/MS/MS



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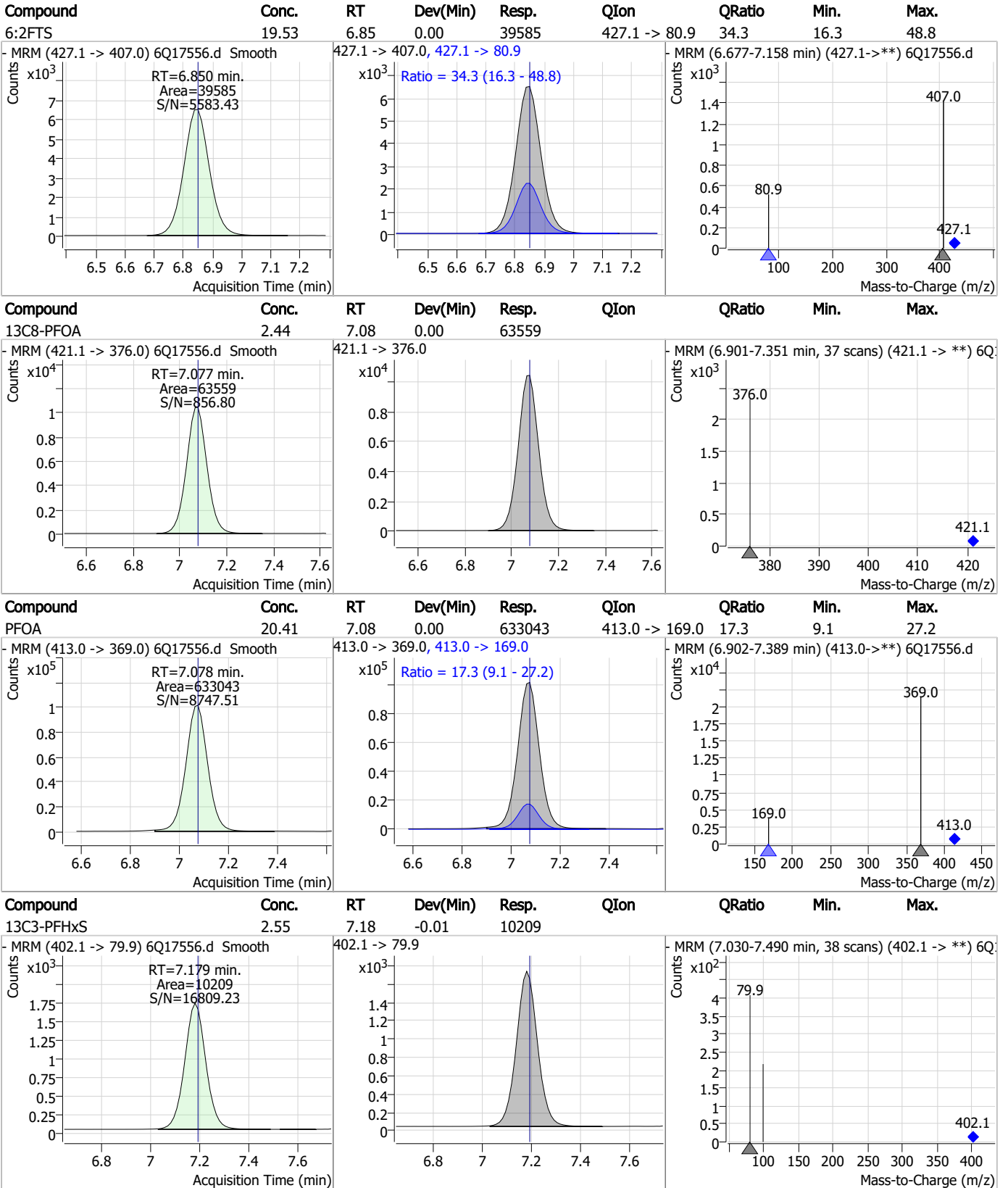
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Perfluorinated Compounds by LC/MS/MS



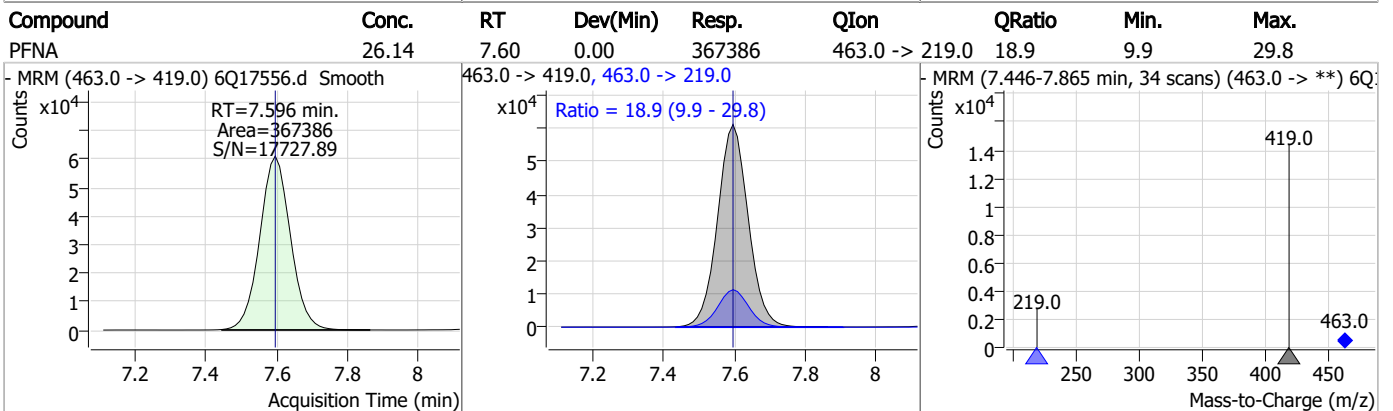
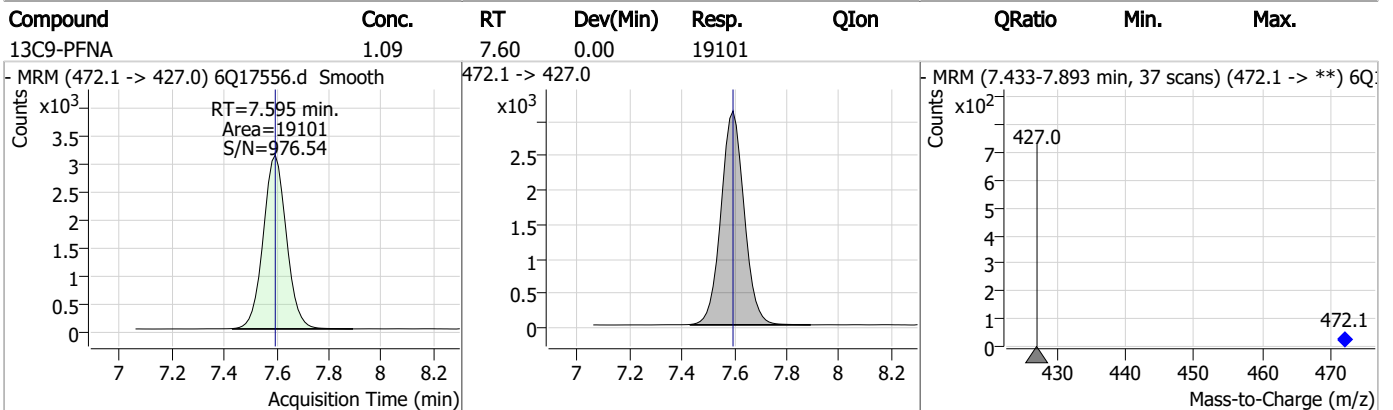
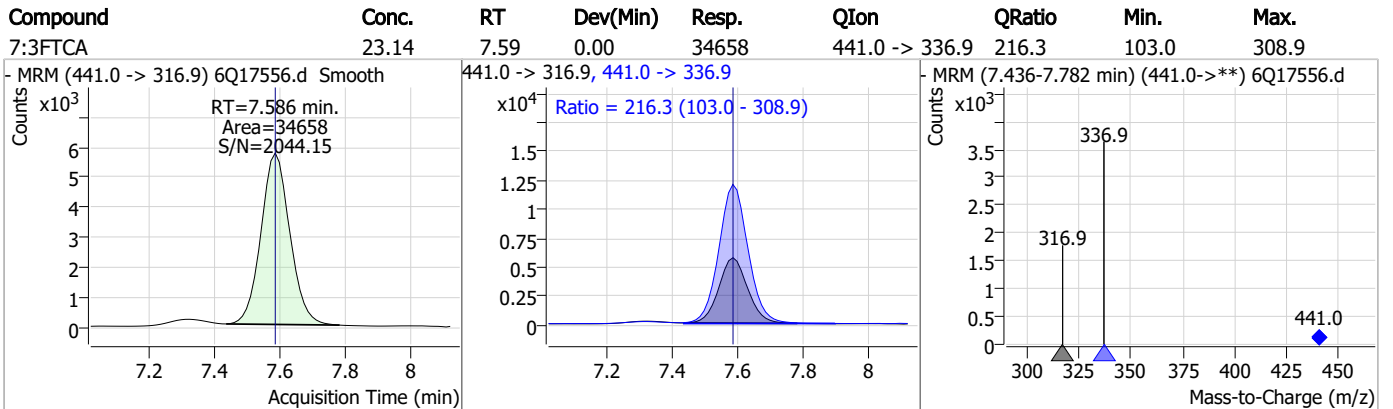
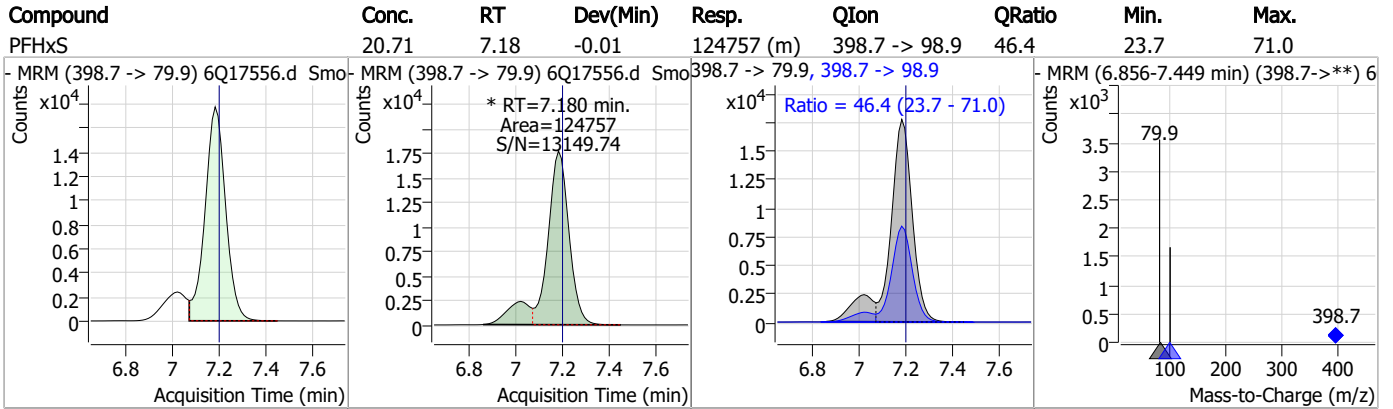
7.7.28
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Perfluorinated Compounds by LC/MS/MS



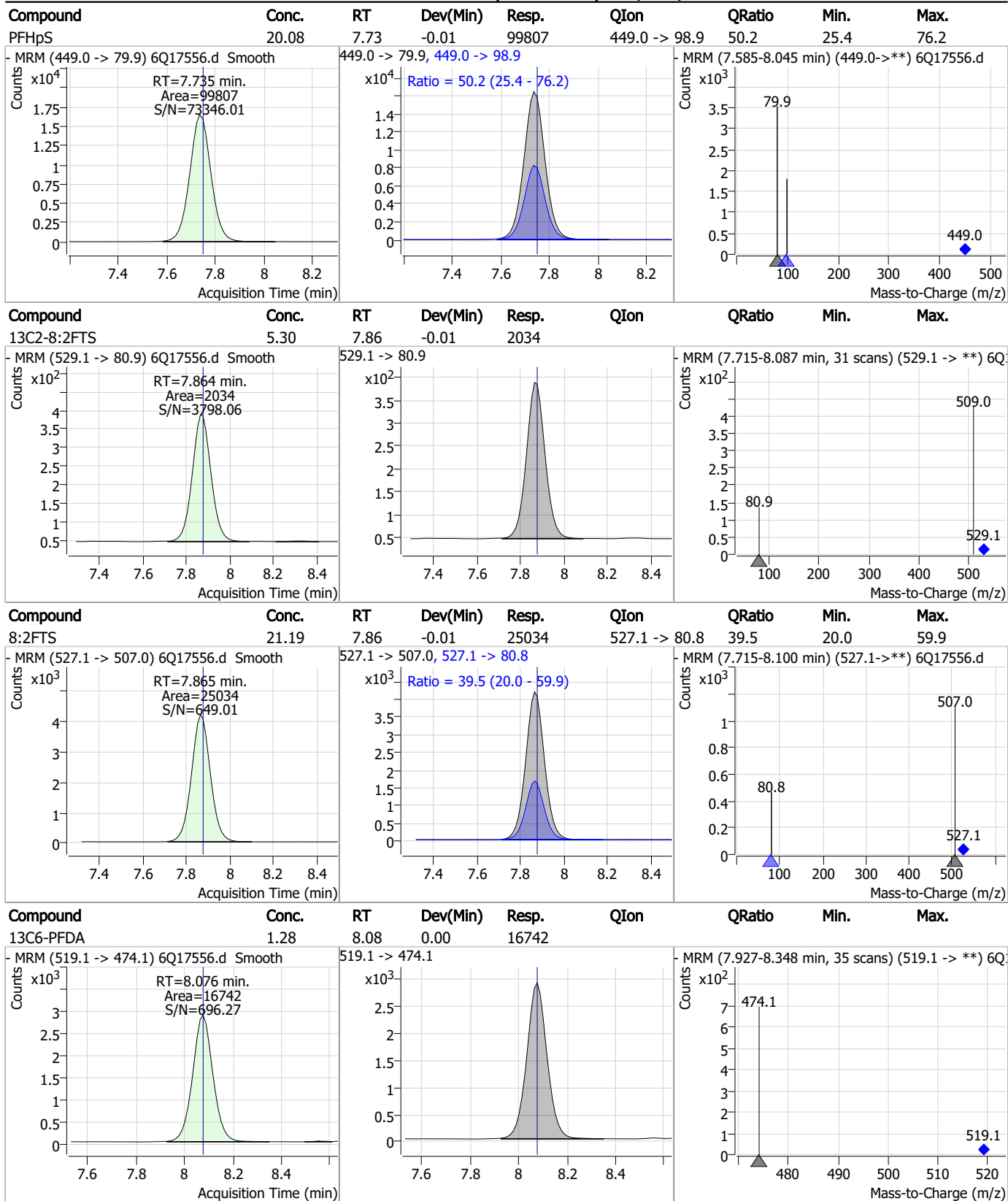
7.7.28
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

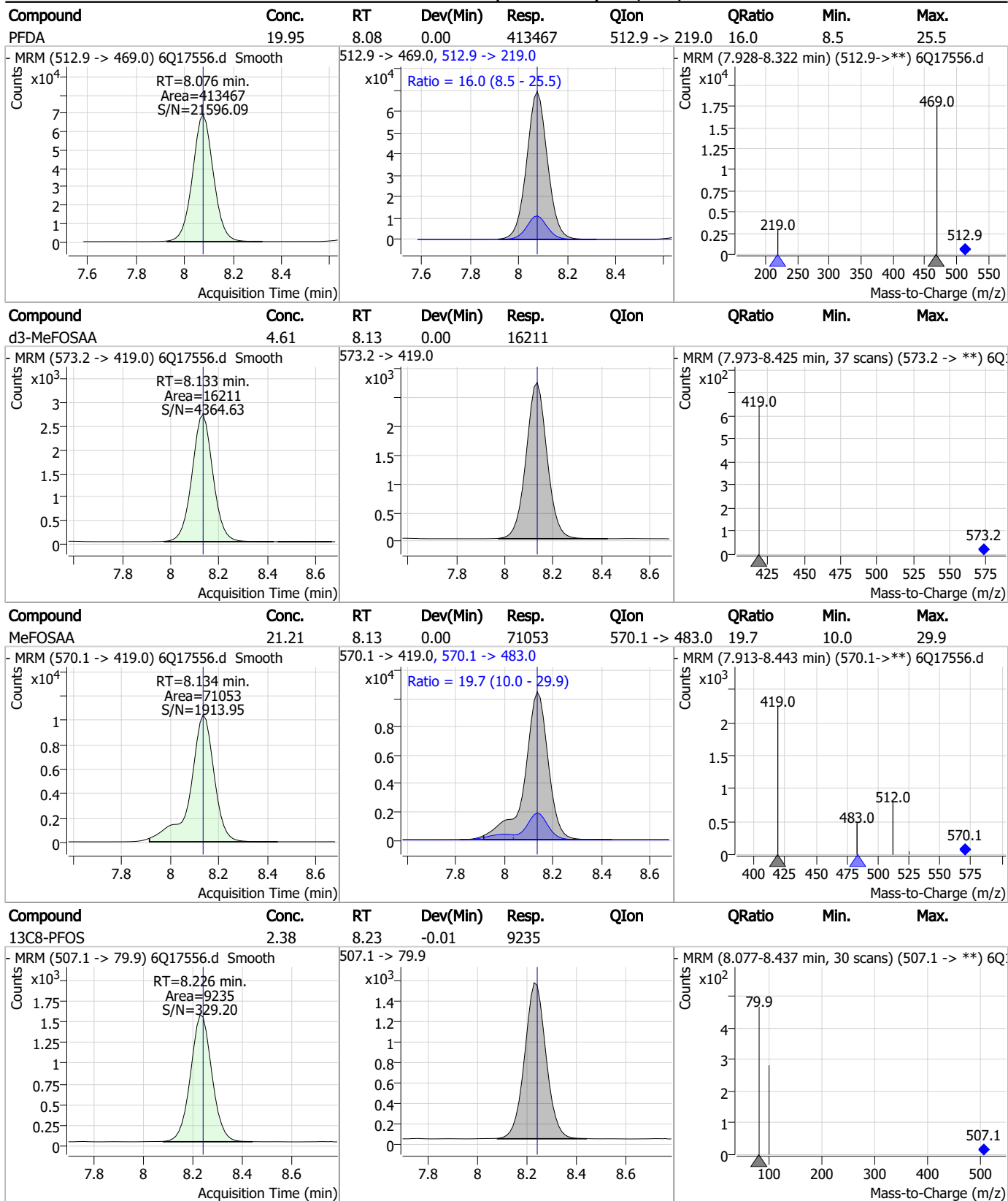


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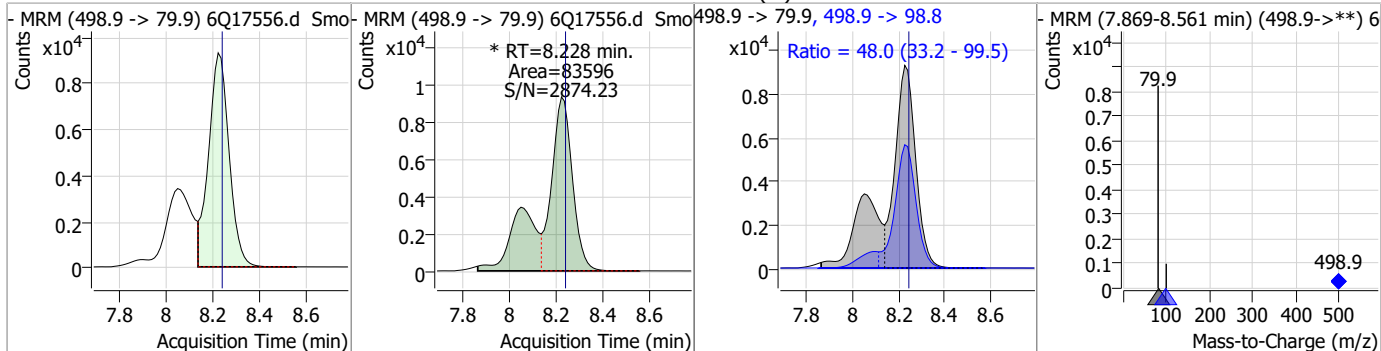
Perfluorinated Compounds by LC/MS/MS



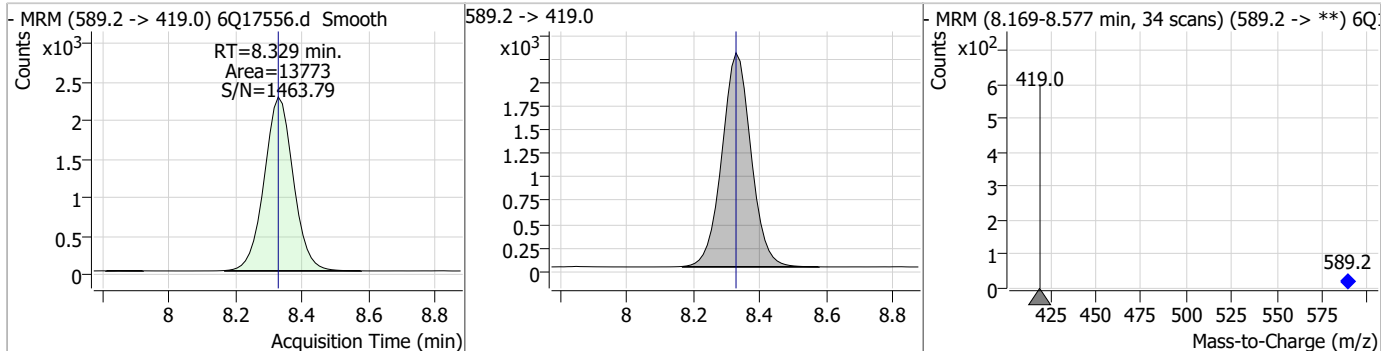
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Perfluorinated Compounds by LC/MS/MS

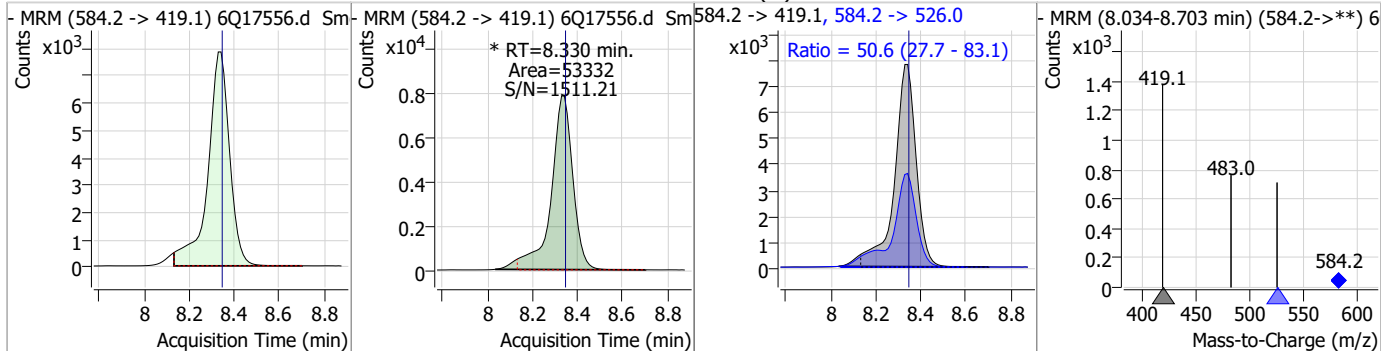
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.43	8.23	-0.01	83596 (m)	498.9 -> 98.8	48.0	33.2	99.5



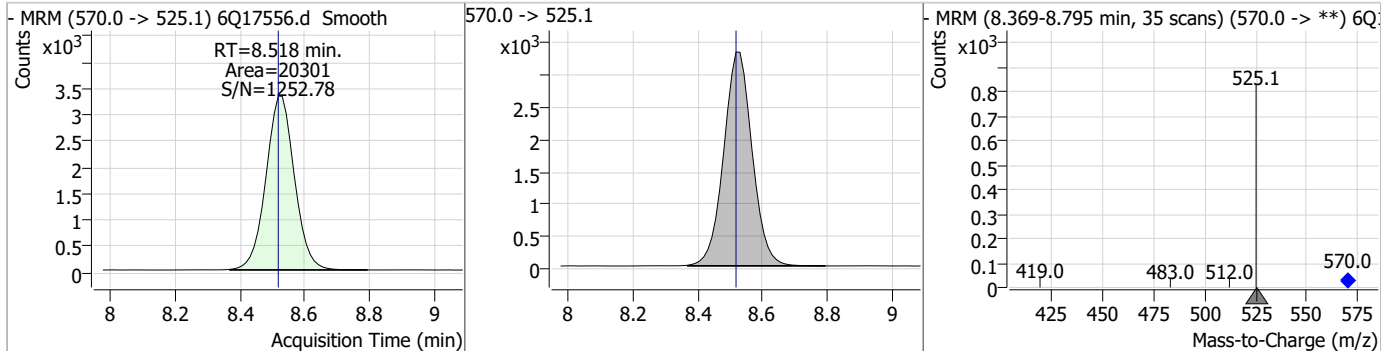
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.47	8.33	0.00	13773				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	21.53	8.33	-0.01	53332 (m)	584.2 -> 526.0	50.6	27.7	83.1



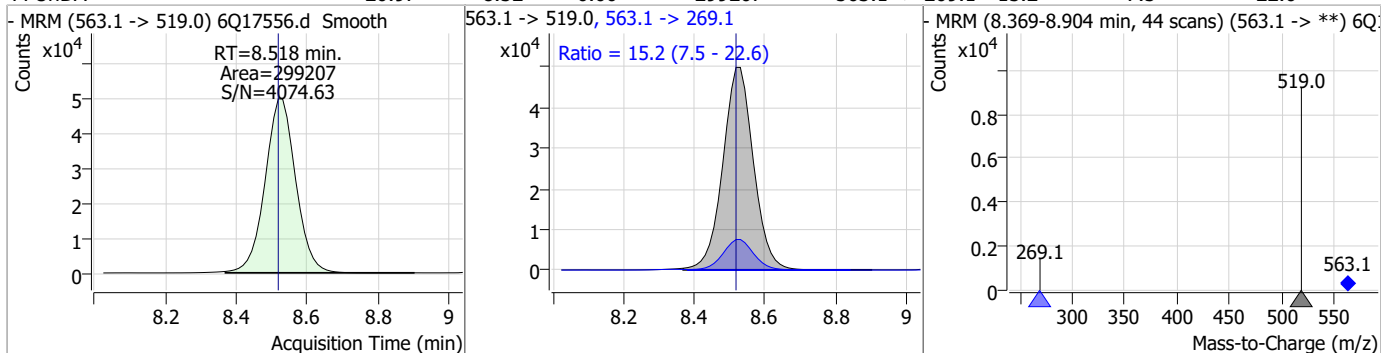
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.16	8.52	0.00	20301				



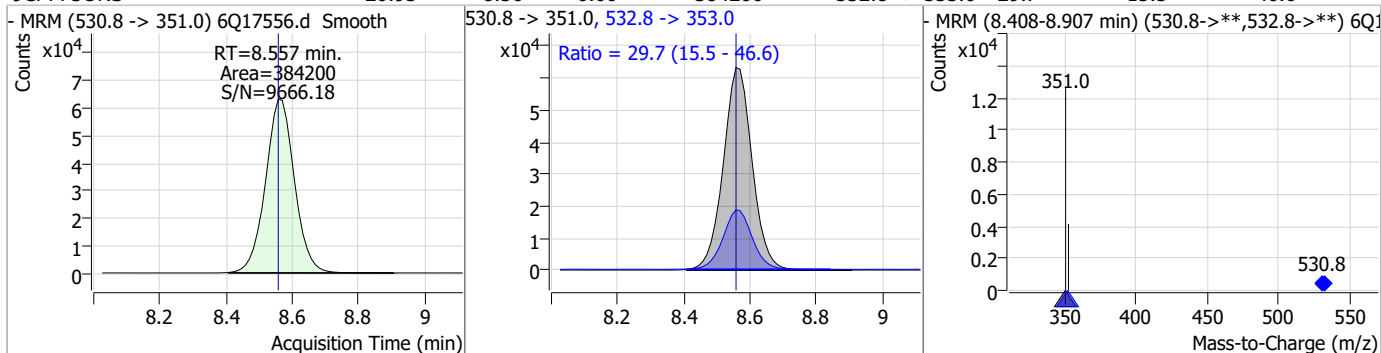
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Perfluorinated Compounds by LC/MS/MS

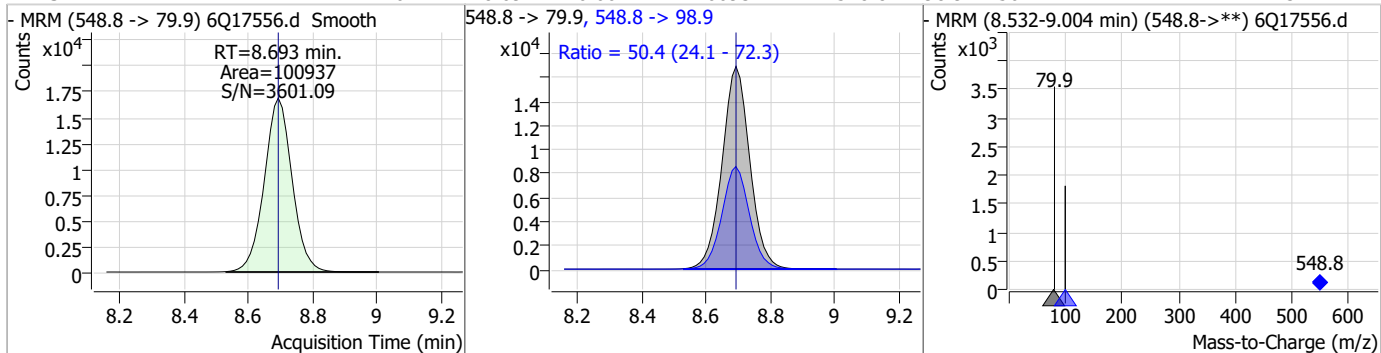
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.97	8.52	0.00	299207	563.1 -> 269.1	15.2	7.5	22.6



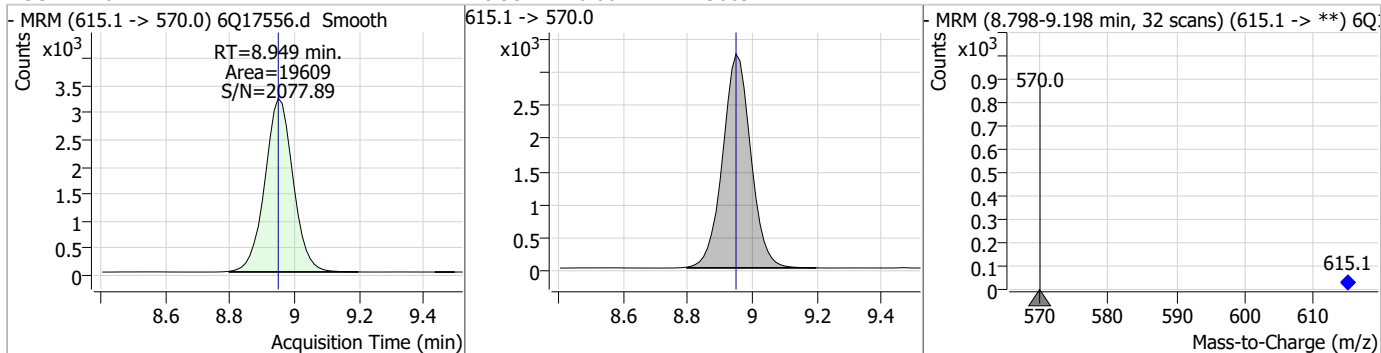
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	20.93	8.56	0.00	384200	532.8 -> 353.0	29.7	15.5	46.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	22.07	8.69	0.00	100937	548.8 -> 98.9	50.4	24.1	72.3

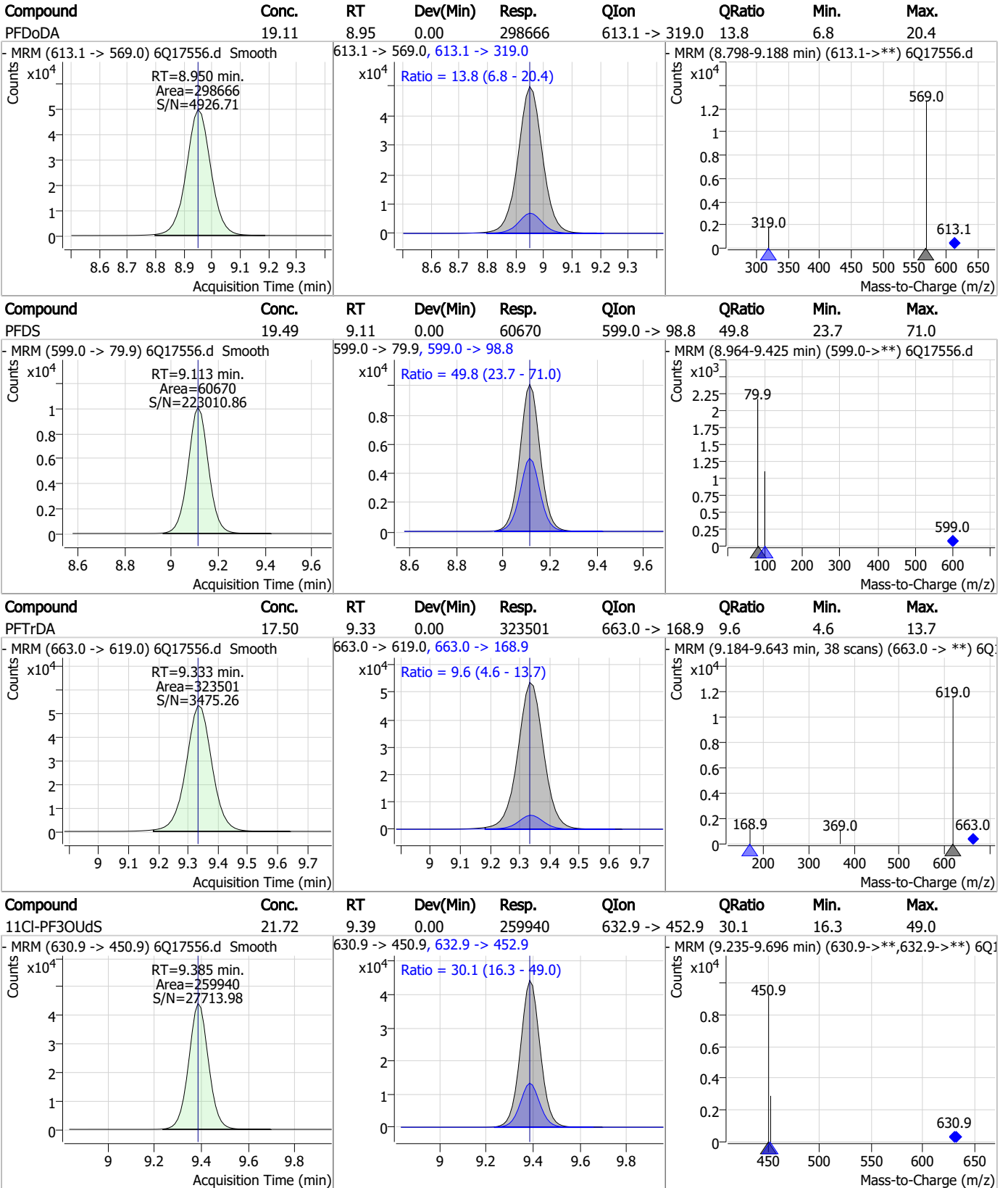


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.14	8.95	0.00	19609	615.1 -> 570.0			



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Perfluorinated Compounds by LC/MS/MS

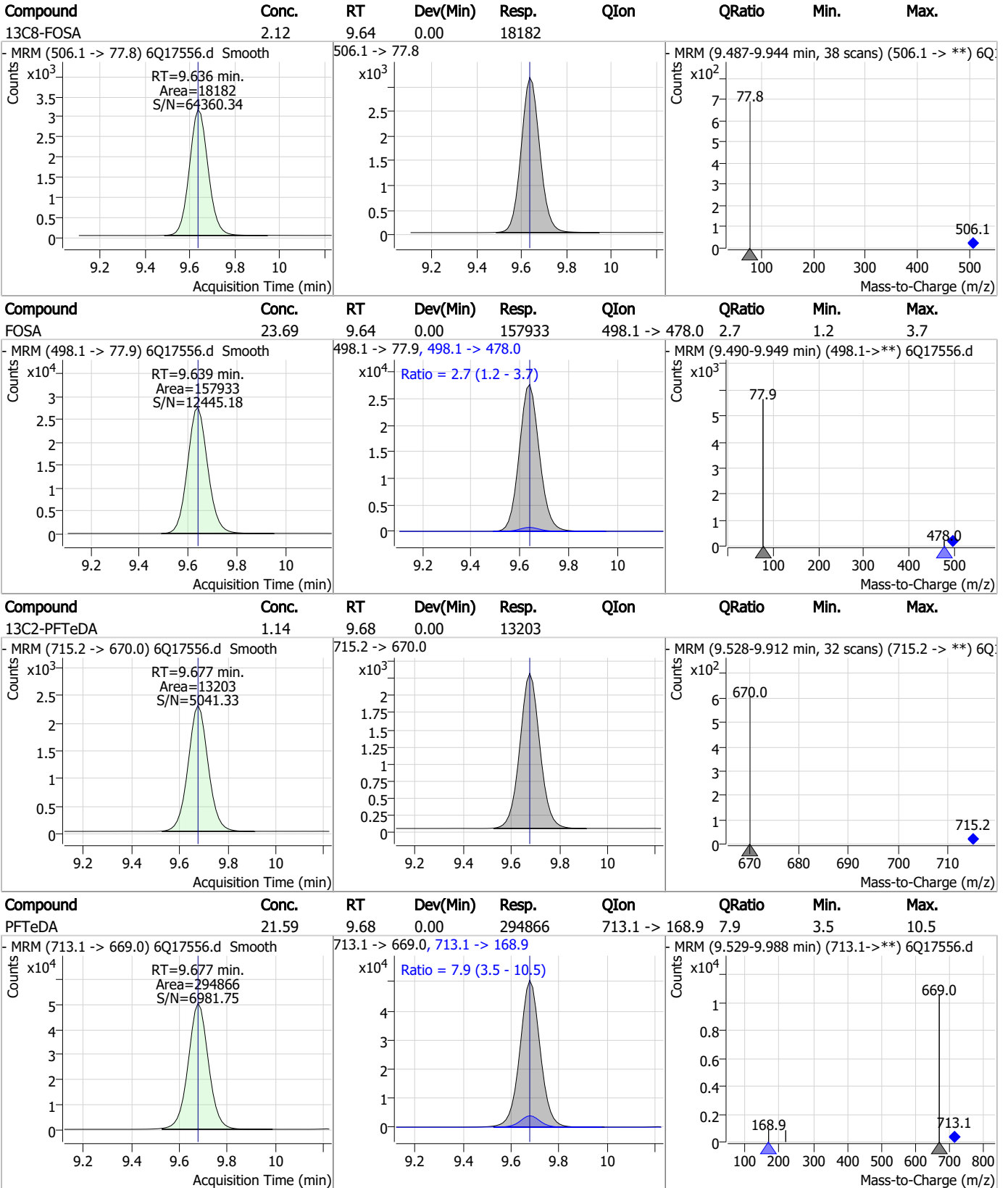


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Perfluorinated Compounds by LC/MS/MS

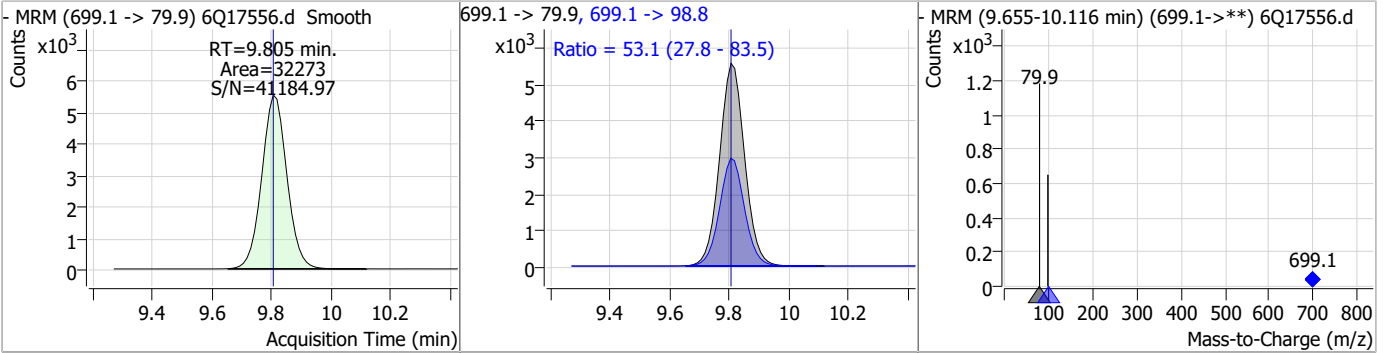


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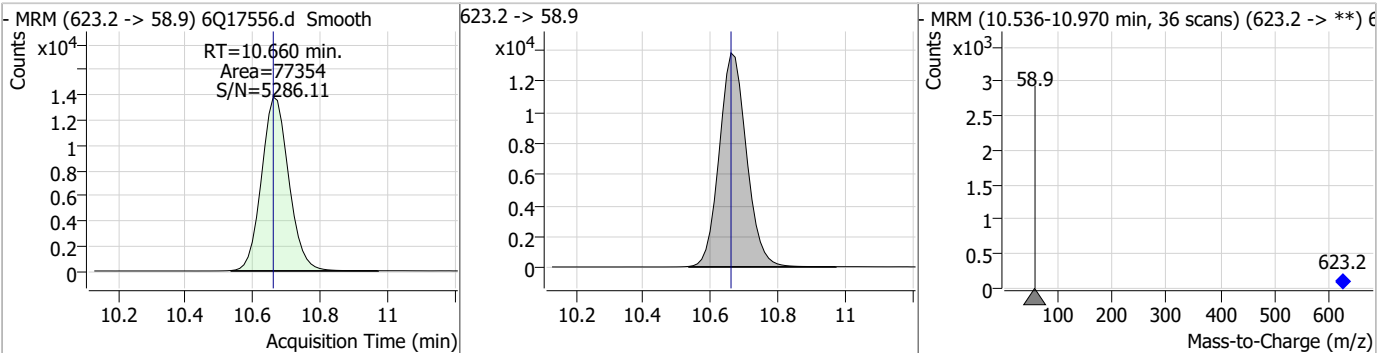


Perfluorinated Compounds by LC/MS/MS

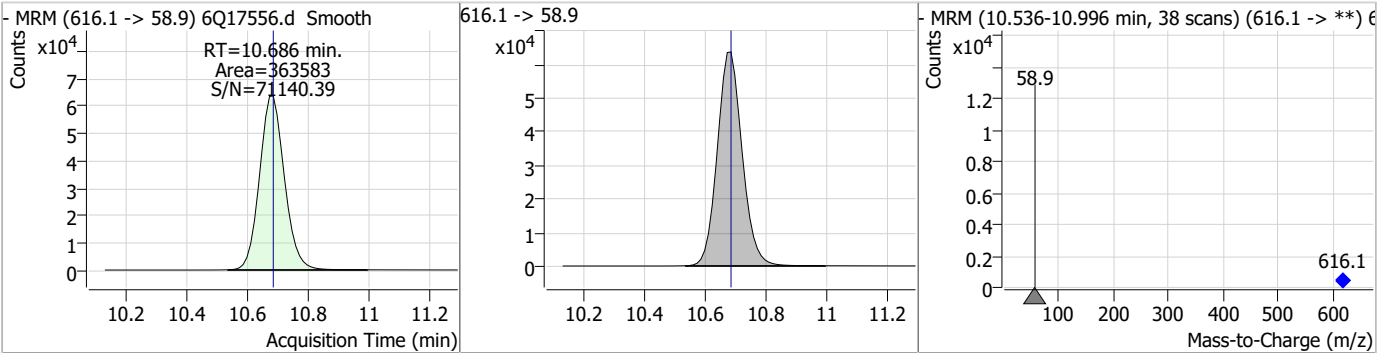
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	19.46	9.81	0.00	32273	699.1 -> 98.8	53.1	27.8	83.5



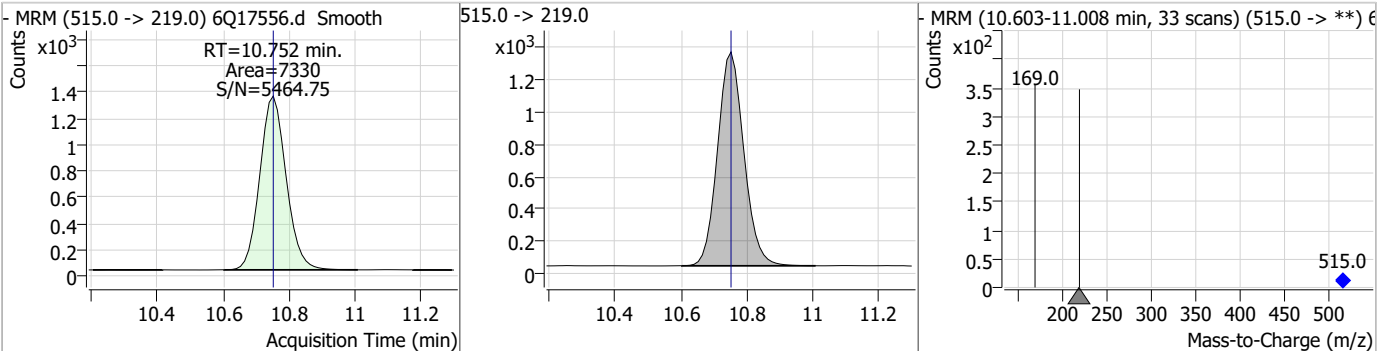
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.49	10.66	0.00	77354				



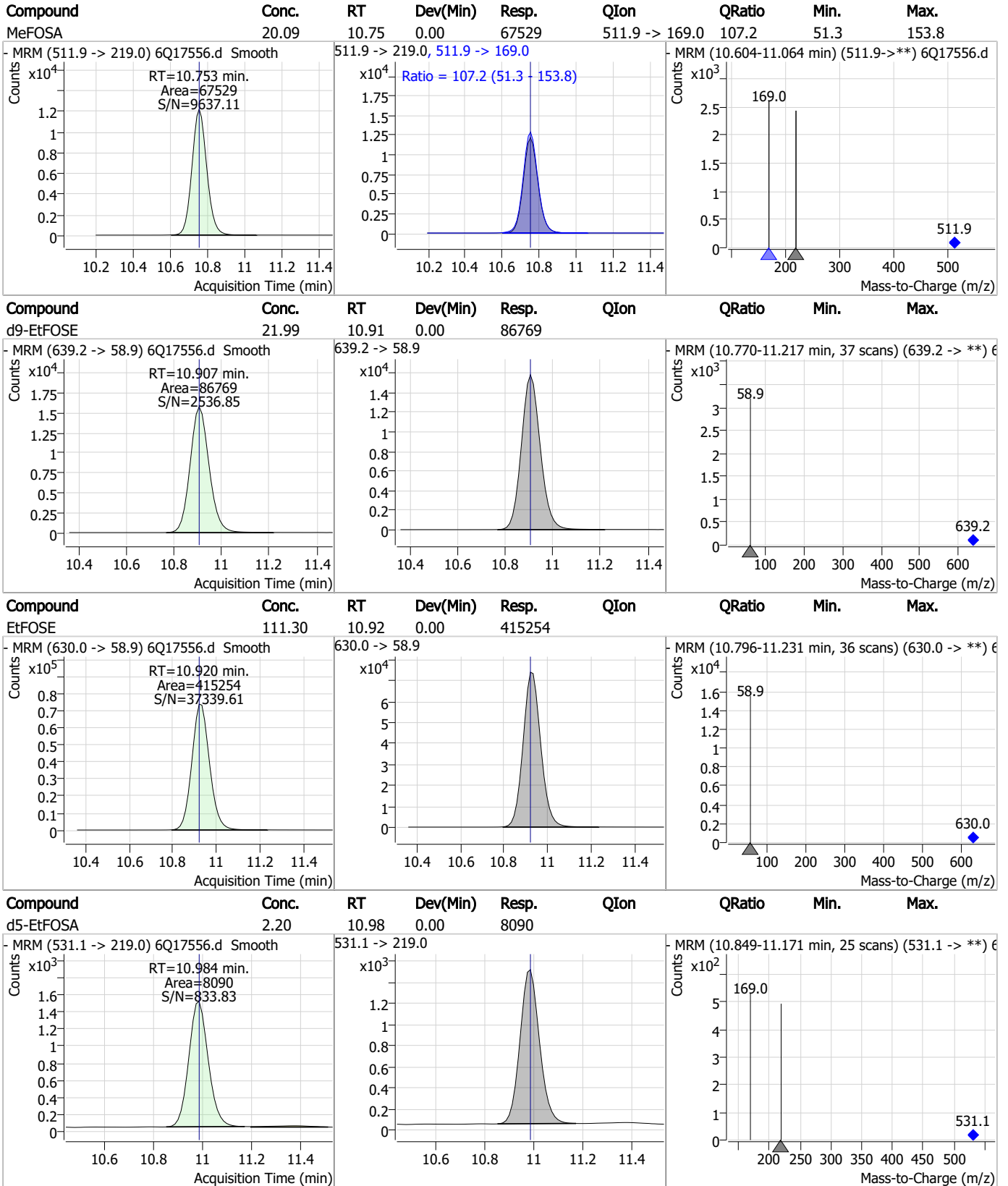
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	104.99	10.69	0.00	363583				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.38	10.75	0.00	7330				



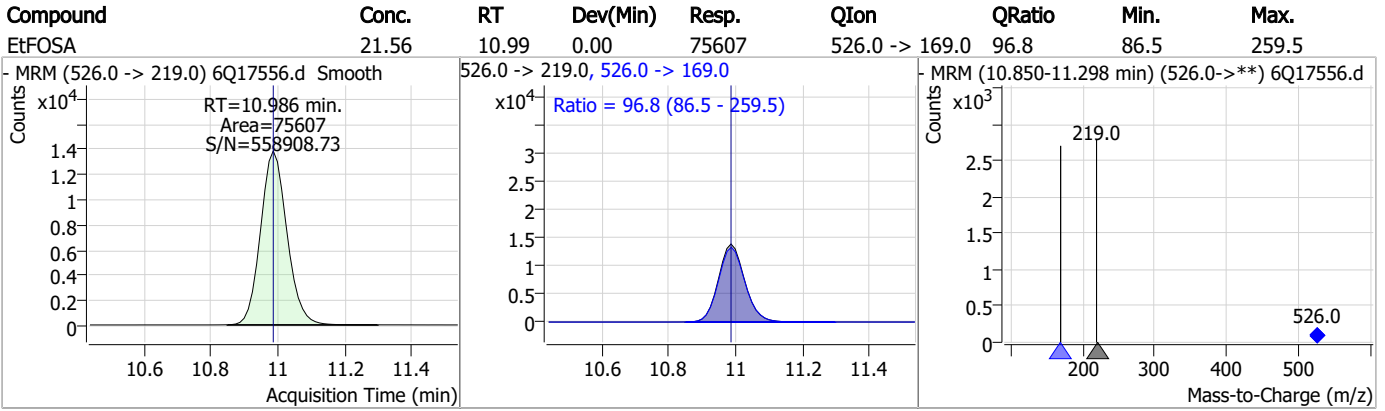
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q265-ICV265 Method: EPA DRAFT 1633
Lab FileID: 6Q17556.D Analyst approved: 05/09/23 16:43 Martha Valls
Injection Time: 05/08/23 18:31 Supervisor approved: 05/11/23 20:17 Mike Eger

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

7.7.28.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17714.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/10/2023 8:04:52 PM
 Sample Name : cc265-1.0LL
 Vial : P1-A2
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q267.batch.bin
 Sample Information : OP96663,S6Q267,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	150779	10.00 µg/L	0.000
M5-PFPeA	4.284	268.3 -> 223.0	47251	5.00 µg/L	0.012
M5-PFHxA	5.478	318.0 -> 273.0	53054	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	47348	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	72461	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22108	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	17374	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	22180	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22490	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	14358	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	21762	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	17841	2.50 µg/L	0.000
M3-PFHxS	7.192	402.1 -> 79.9	11164	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	9403	2.50 µg/L	-0.012
M2-4:2FTS	5.156	329.1 -> 80.9	1625	5.00 µg/L	0.000
M2-6:2FTS	6.850	429.1 -> 80.9	2161	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2233	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	19263	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	34267	10.00 µg/L	-0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	15612	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	80651	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	97431	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	7982	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7715	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12457	2.50 µg/L	-0.012
13C3-PFBA	2.916	216.0 -> 172.0	63351	5.00 µg/L	0.012
18O2-PFHxS	7.191	403.0 -> 83.9	8014	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	72070	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	19236	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	23890	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	43436	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.156	329.1 -> 80.9	1625	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-6:2FTS	6.850	429.1 -> 80.9	2161	5.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2233	5.58 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.5%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22490	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-PFTeDA	9.664	715.2 -> 670.0	14358	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFBS	5.409	302.1 -> 79.9	17841	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-PFHxS	7.192	402.1 -> 79.9	11164	2.67 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 = 107.0%	
13C4-PFBA	2.913	216.8 -> 171.9	150779	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.432	367.1 -> 322.0	47348	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFHxA	5.478	318.0 -> 273.0	53054	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.284	268.3 -> 223.0	47251	5.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C6-PFDA	8.076	519.1 -> 474.1	17374	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C7-PFUnDA	8.518	570.0 -> 525.1	22180	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-FOSA	9.636	506.1 -> 77.8	21762	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOA	7.077	421.1 -> 376.0	72461	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-PFOS	8.226	507.1 -> 79.9	9403	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C9-PFNA	7.595	472.1 -> 427.0	22108	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
d3-MeFOSAA	8.133	573.2 -> 419.0	19263	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	34267	10.62 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
d3-MeFOSA	10.752	515.0 -> 219.0	7715	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15612	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d7-MeFOSE	10.660	623.2 -> 58.9	80651	23.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.4%	
d9-EtFOSE	10.907	639.2 -> 58.9	97431	24.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d5-EtFOSA	10.984	531.1 -> 219.0	7982	2.19 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.5%	
Target Compounds					QValue
4:2FTS	5.156	327.1 -> 307.0	1722	0.69 µg/L	97
		327.1 -> 80.9	639		
6:2FTS	6.850	427.1 -> 407.0	1551	0.65 µg/L	91
		427.1 -> 80.9	583		
8:2FTS	7.877	527.1 -> 507.0	1026	0.79 µg/L	99
		527.1 -> 80.8	402		
EtFOSAA	8.342	584.2 -> 419.1	497	0.18 µg/L	m 68
		584.2 -> 526.0	389		
FOSA	9.639	498.1 -> 77.9	1545	0.19 µg/L	98
		498.1 -> 478.0	48		
MeFOSAA	8.147	570.1 -> 419.0	689	0.17 µg/L	92
		570.1 -> 483.0	163		
PFBA	2.907	212.8 -> 168.9	4044	0.75 µg/L	100
PFBS	5.410	298.7 -> 79.9	1361	0.15 µg/L	88
		298.7 -> 98.8	634		
PFDA	8.076	512.9 -> 469.0	4066	0.19 µg/L	98
		512.9 -> 219.0	726		
PFDODA	8.950	613.1 -> 569.0	3597	0.20 µg/L	94
		613.1 -> 319.0	395		
PFDS	9.113	599.0 -> 79.9	630	0.20 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	273			
PFHpA	6.433	363.1 -> 319.0	4562	0.19	µg/L	99
		363.1 -> 169.0	770			
PFHpS	7.749	449.0 -> 79.9	780	0.15	µg/L	75
		449.0 -> 98.9	529			
PFHxA	5.481	313.0 -> 269.0	3989	0.18	µg/L	97
		313.0 -> 118.9	222			
PFHxS	7.180	398.7 -> 79.9	1145	0.17	µg/L	m 95
		398.7 -> 98.9	578			
PFNA	7.596	463.0 -> 419.0	3434	0.21	µg/L	100
		463.0 -> 219.0	681			
PFNS	8.693	548.8 -> 79.9	867	0.19	µg/L	78
		548.8 -> 98.9	549			
PFOA	7.078	413.0 -> 369.0	6315	0.18	µg/L	98
		413.0 -> 169.0	1082			
PFOS	8.228	498.9 -> 79.9	906	0.19	µg/L	m 90
		498.9 -> 98.8	531			
PFPeA	4.287	263.0 -> 219.0	5265	0.38	µg/L	100
PFPeS	6.484	349.1 -> 79.9	996	0.16	µg/L	95
		349.1 -> 98.9	491			
PFTeDA	9.665	713.1 -> 669.0	2723	0.18	µg/L	98
		713.1 -> 168.9	210			
PFTrDA	9.333	663.0 -> 619.0	3904	0.18	µg/L	94
		663.0 -> 168.9	446			
PFUnDA	8.531	563.1 -> 519.0	2967	0.19	µg/L	99
		563.1 -> 269.1	457			
11CI-PF3OUdS	9.385	630.9 -> 450.9	4654	0.35	µg/L	95
		632.9 -> 452.9	1394			
9CI-PF3ONS	8.557	530.8 -> 351.0	7461	0.37	µg/L	96
		532.8 -> 353.0	2496			
ADONA	6.683	376.9 -> 250.9	18639	0.34	µg/L	99
		376.9 -> 84.8	5241			
HFPO-DA	5.845	284.9 -> 168.9	1388	0.42	µg/L	93
		284.9 -> 184.9	214			
3:3FTCA	3.790	241.0 -> 177.0	772	0.88	µg/L	98
		241.0 -> 117.0	99			
5:3FTCA	6.174	341.0 -> 237.1	20084	5.46	µg/L	82
		341.0 -> 217.0	12056			
7:3FTCA	7.598	441.0 -> 316.9	9470	5.71	µg/L	96
		441.0 -> 336.9	18923			
EtFOSA	10.986	526.0 -> 219.0	1461	0.42	µg/L	67
		526.0 -> 169.0	1851			
EtFOSE	10.920	630.0 -> 58.9	3891	0.93	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	1306	0.37	µg/L	m 55
		511.9 -> 169.0	1940			
MeFOSE	10.673	616.1 -> 58.9	3431	0.95	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	341	0.20	µg/L	97
		699.1 -> 98.8	181			
NFDHA	5.361	295.0 -> 201.0	978	0.42	µg/L	86
		295.0 -> 84.9	191			
PFMBA	4.688	279.0 -> 85.1	3778	0.39	µg/L	100
PFMPA	3.442	229.0 -> 84.9	2765	0.40	µg/L	100
PFEESA	5.950	314.8 -> 134.9	9267	0.33	µg/L	97
		314.8 -> 82.9	381			

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

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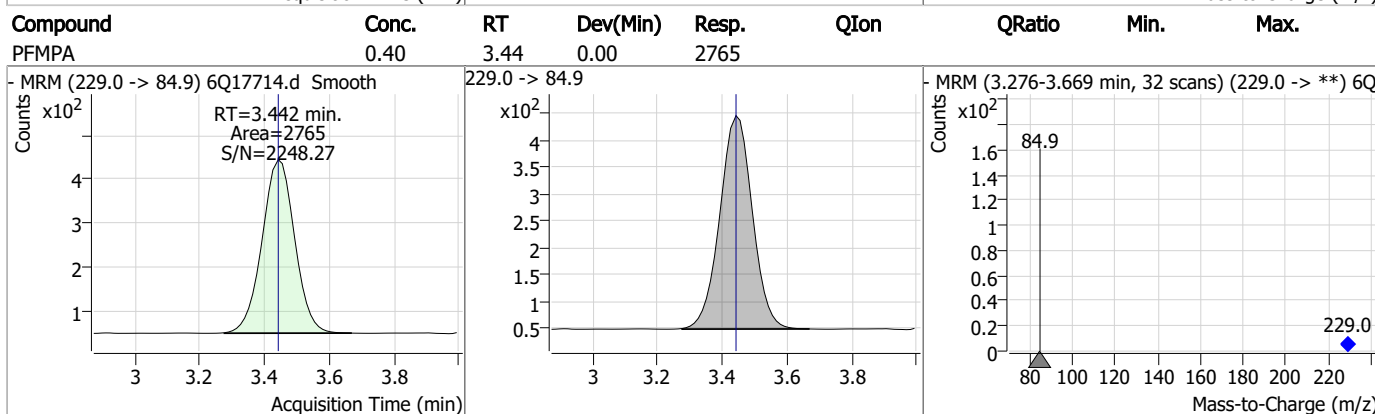
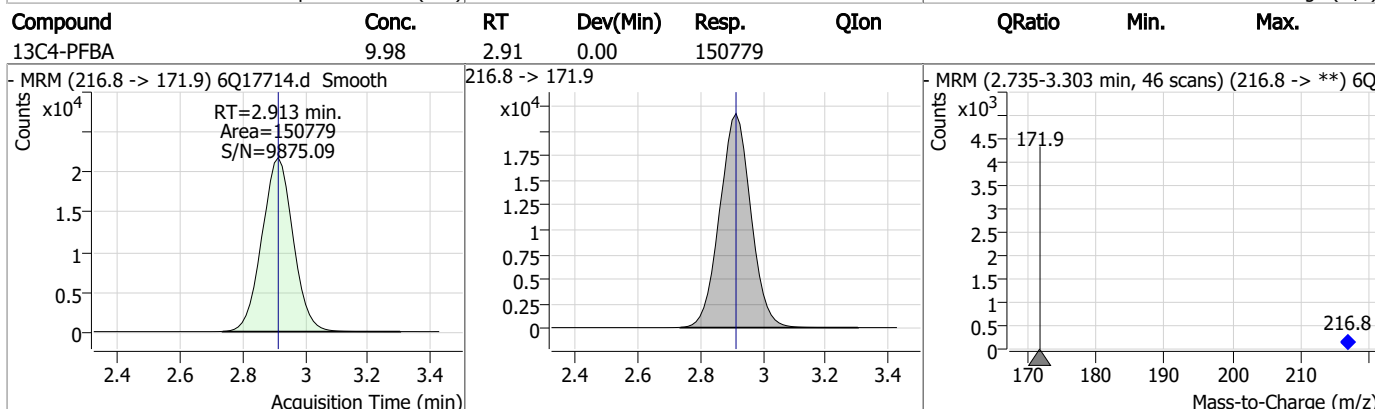
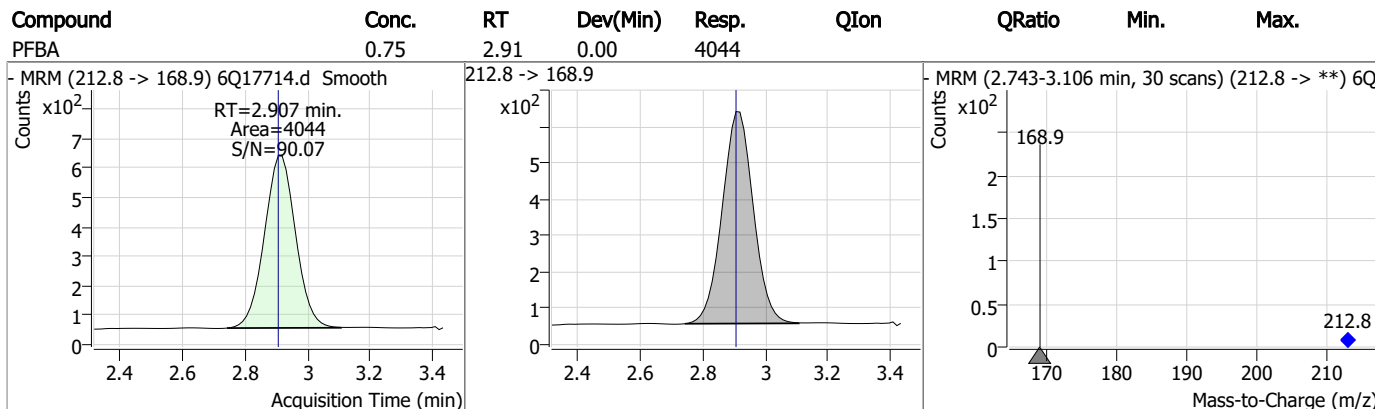
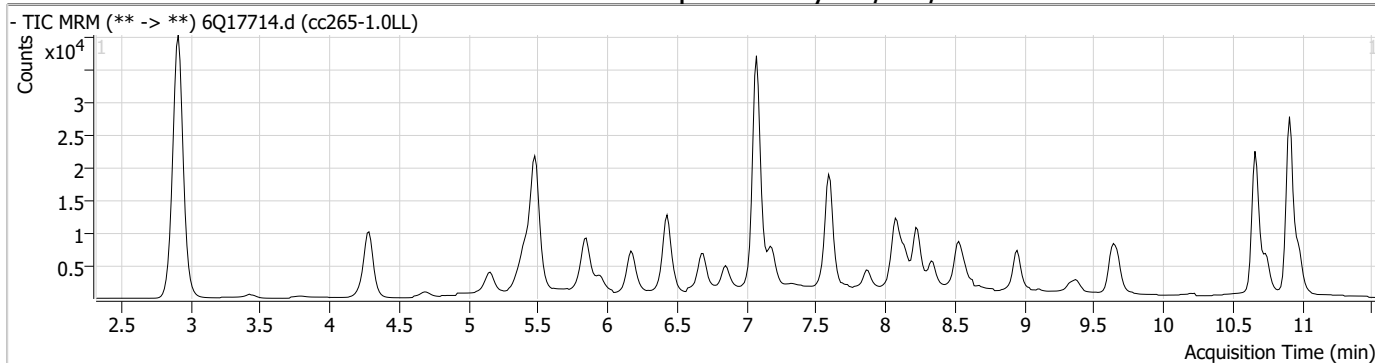
Perfluorinated Compounds by LC/MS/MS

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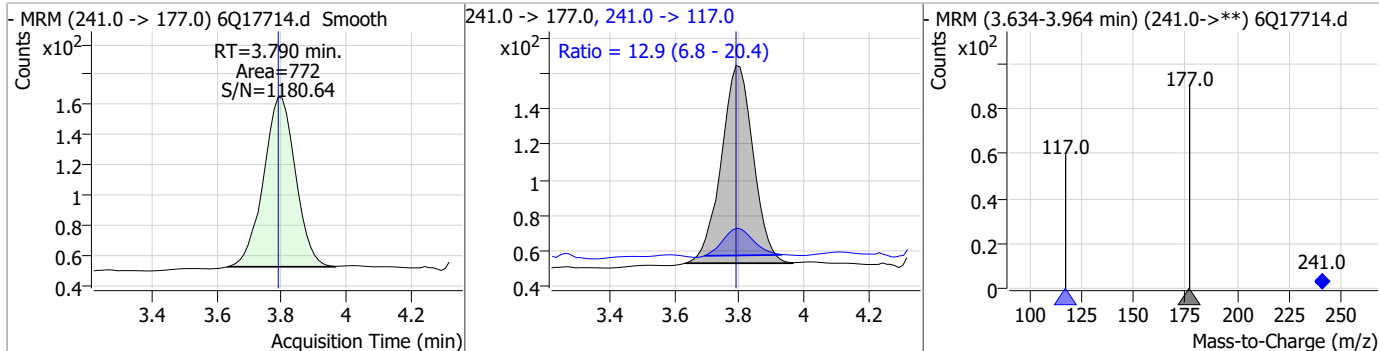
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Perfluorinated Compounds by LC/MS/MS

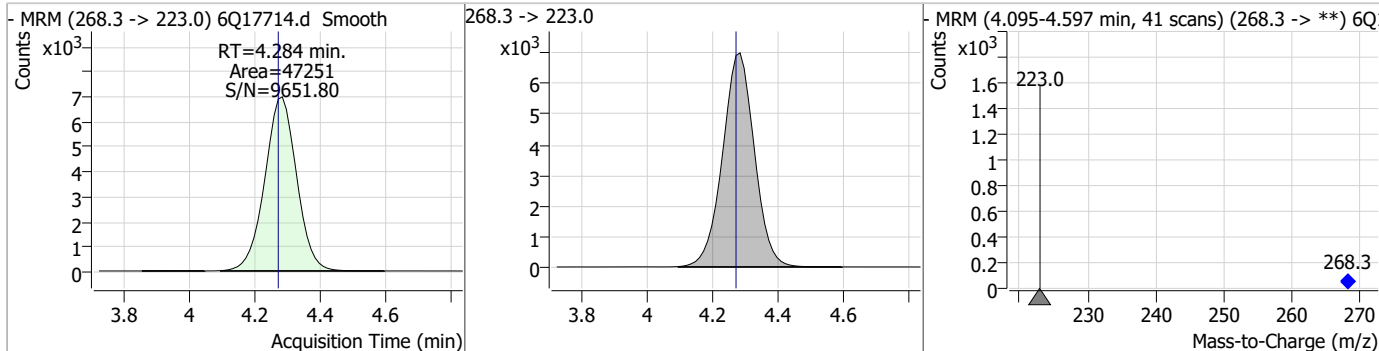


Perfluorinated Compounds by LC/MS/MS

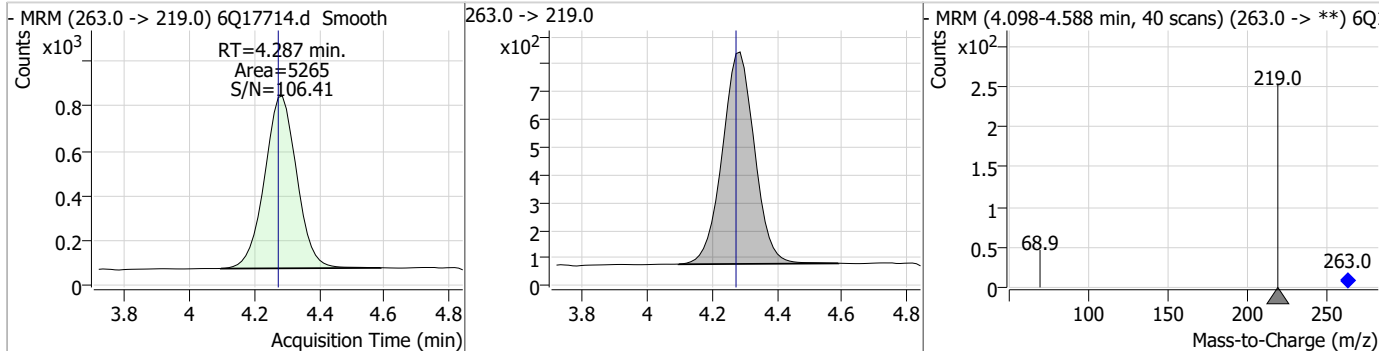
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.88	3.79	0.00	772	241.0 -> 117.0	12.9	6.8	20.4



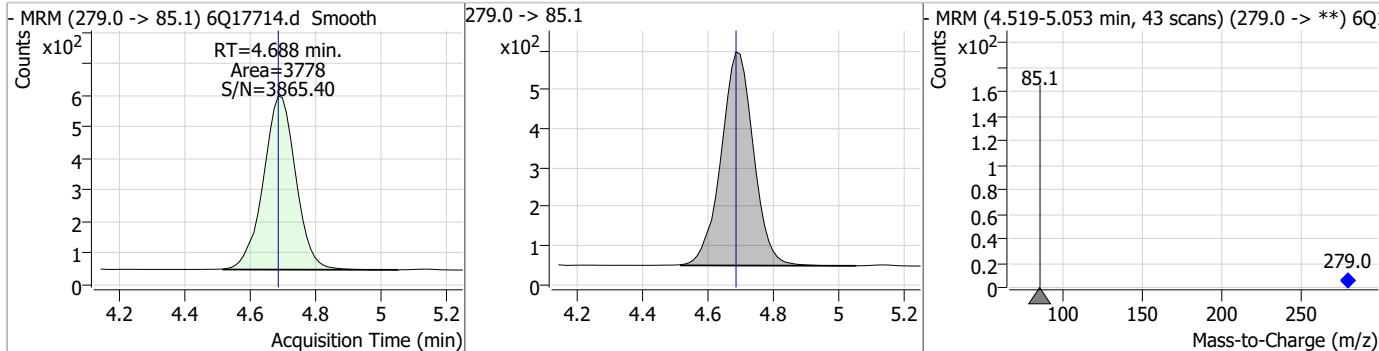
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.15	4.28	0.01	47251				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.38	4.29	0.01	5265				

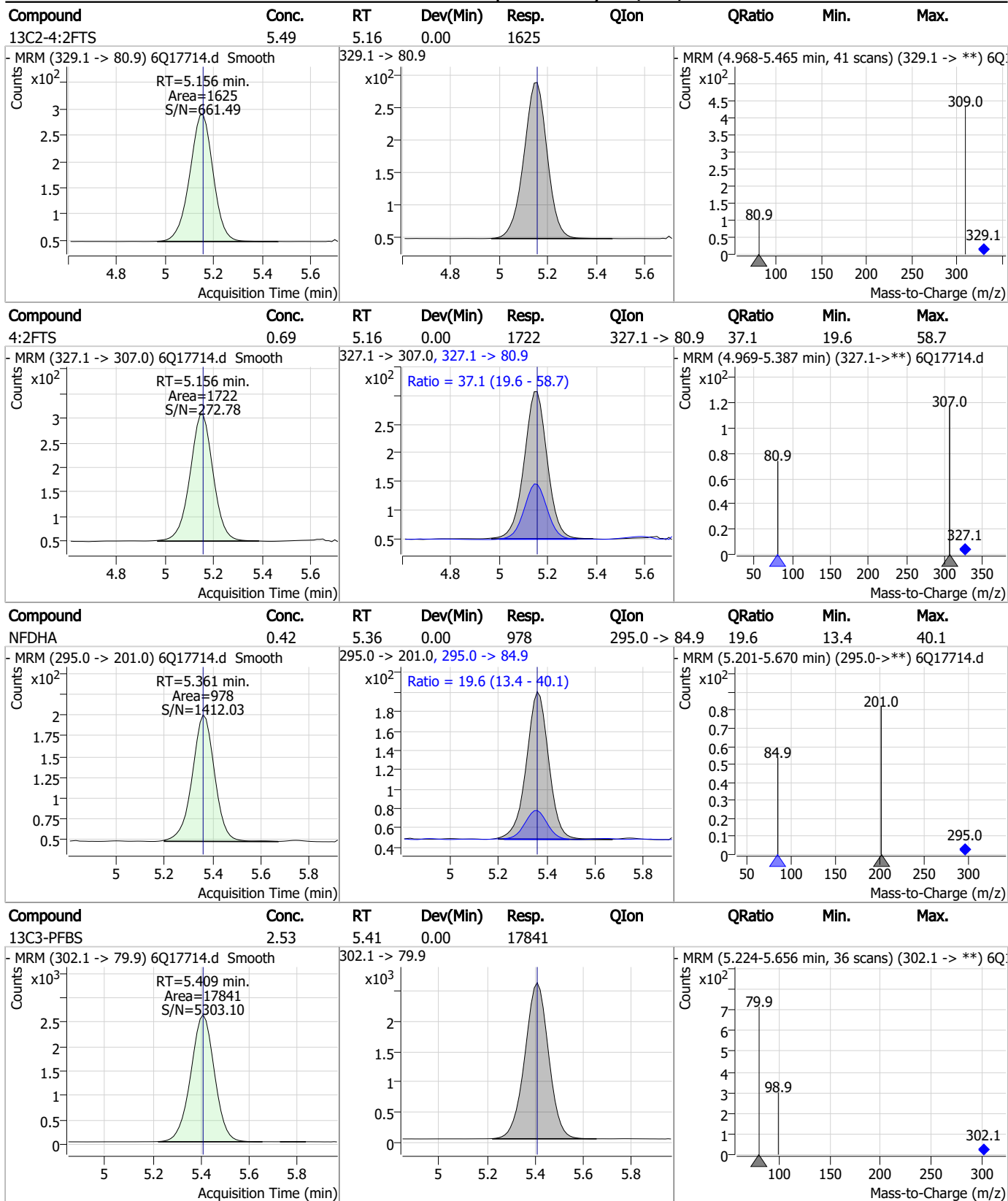


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.39	4.69	0.00	3778				



7.7.29
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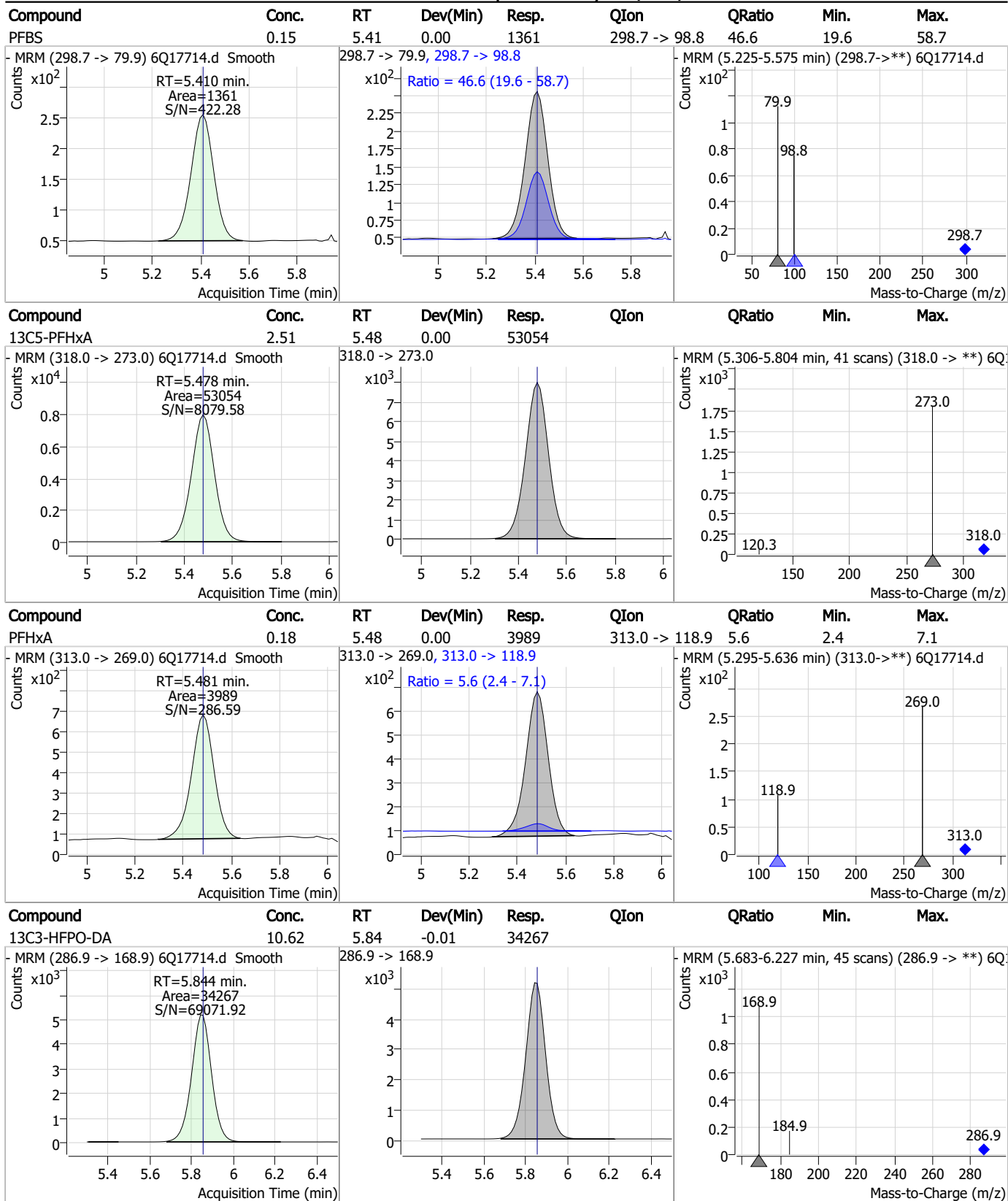
Perfluorinated Compounds by LC/MS/MS



7.7.29

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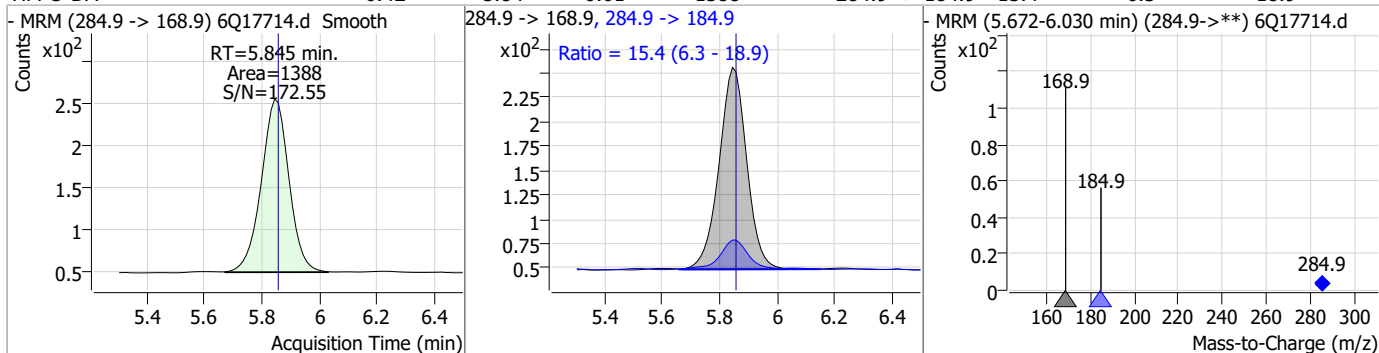
Perfluorinated Compounds by LC/MS/MS



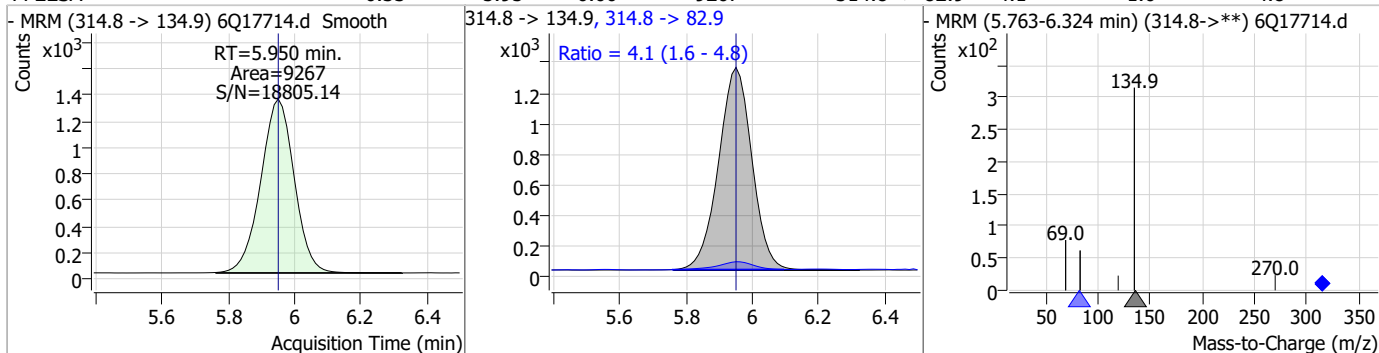
7.7.29
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Perfluorinated Compounds by LC/MS/MS

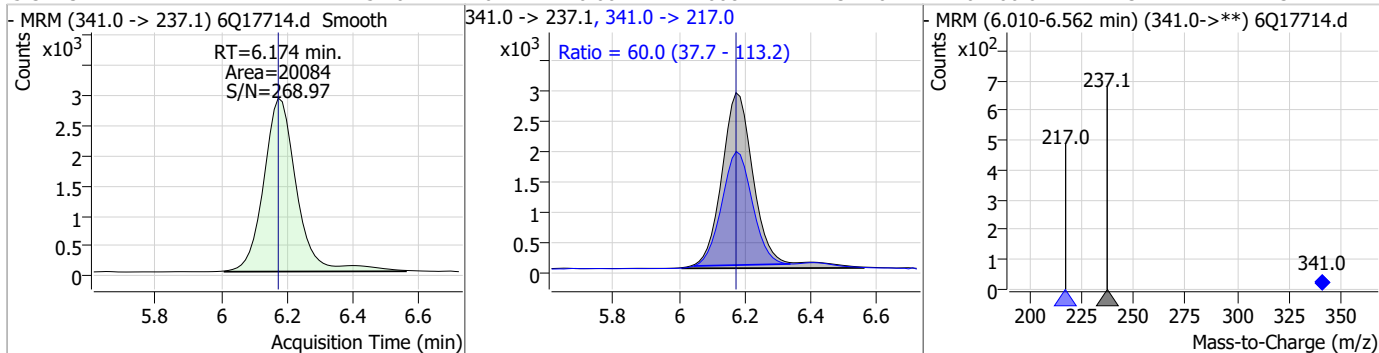
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.42	5.84	-0.01	1388	284.9 -> 184.9	15.4	6.3	18.9



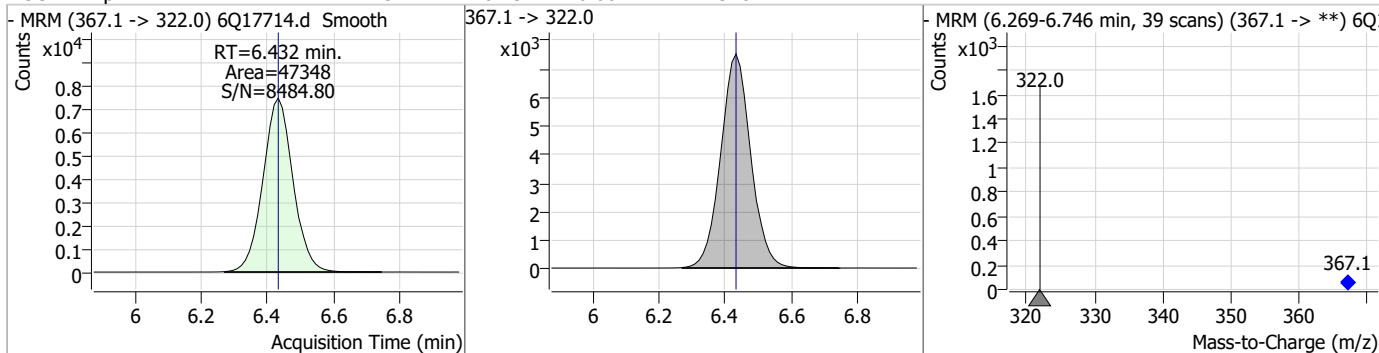
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.33	5.95	0.00	9267	314.8 -> 82.9	4.1	1.6	4.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.46	6.17	0.00	20084	341.0 -> 217.0	60.0	37.7	113.2

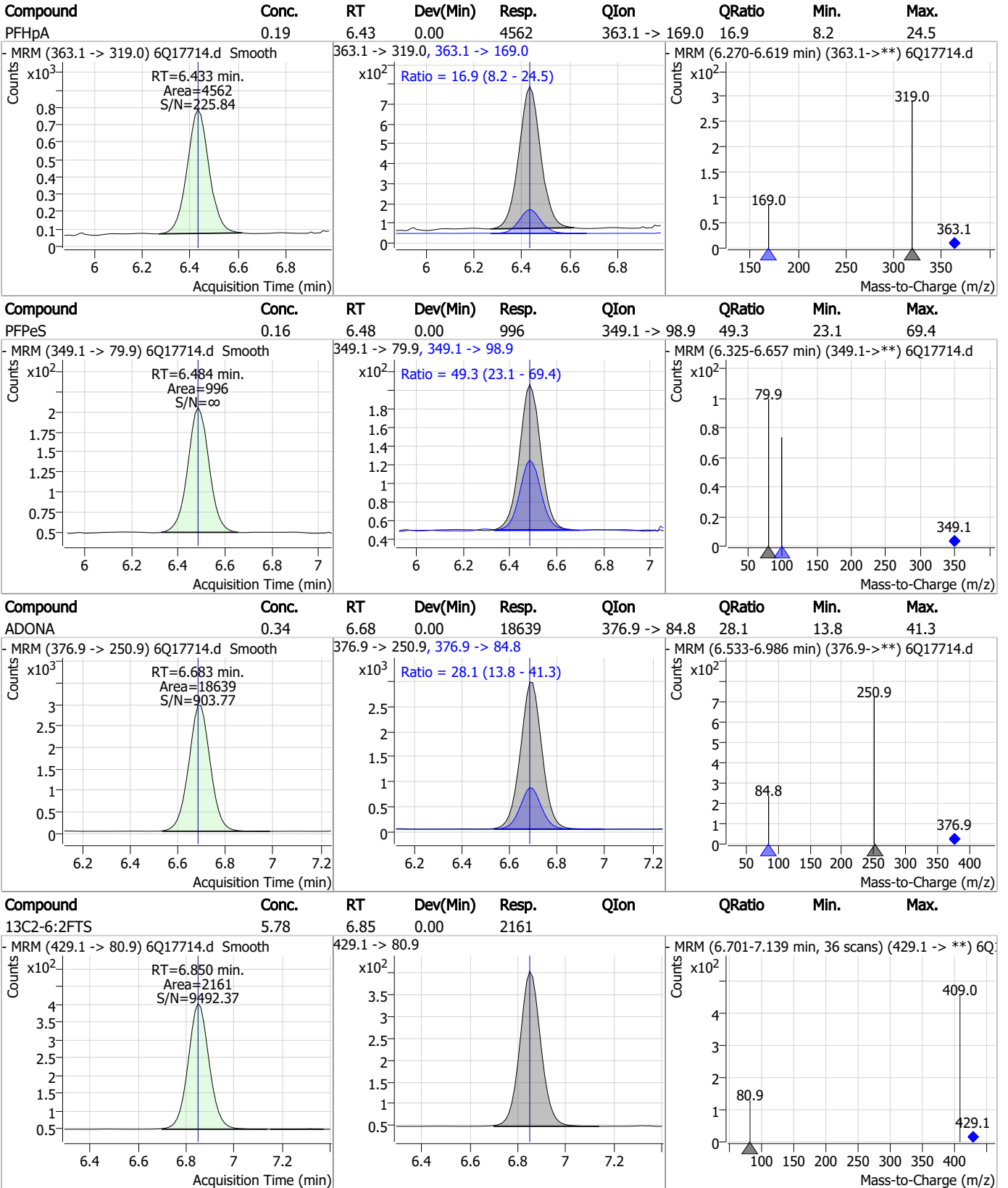


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.43	0.00	47348	367.1 -> 322.0			



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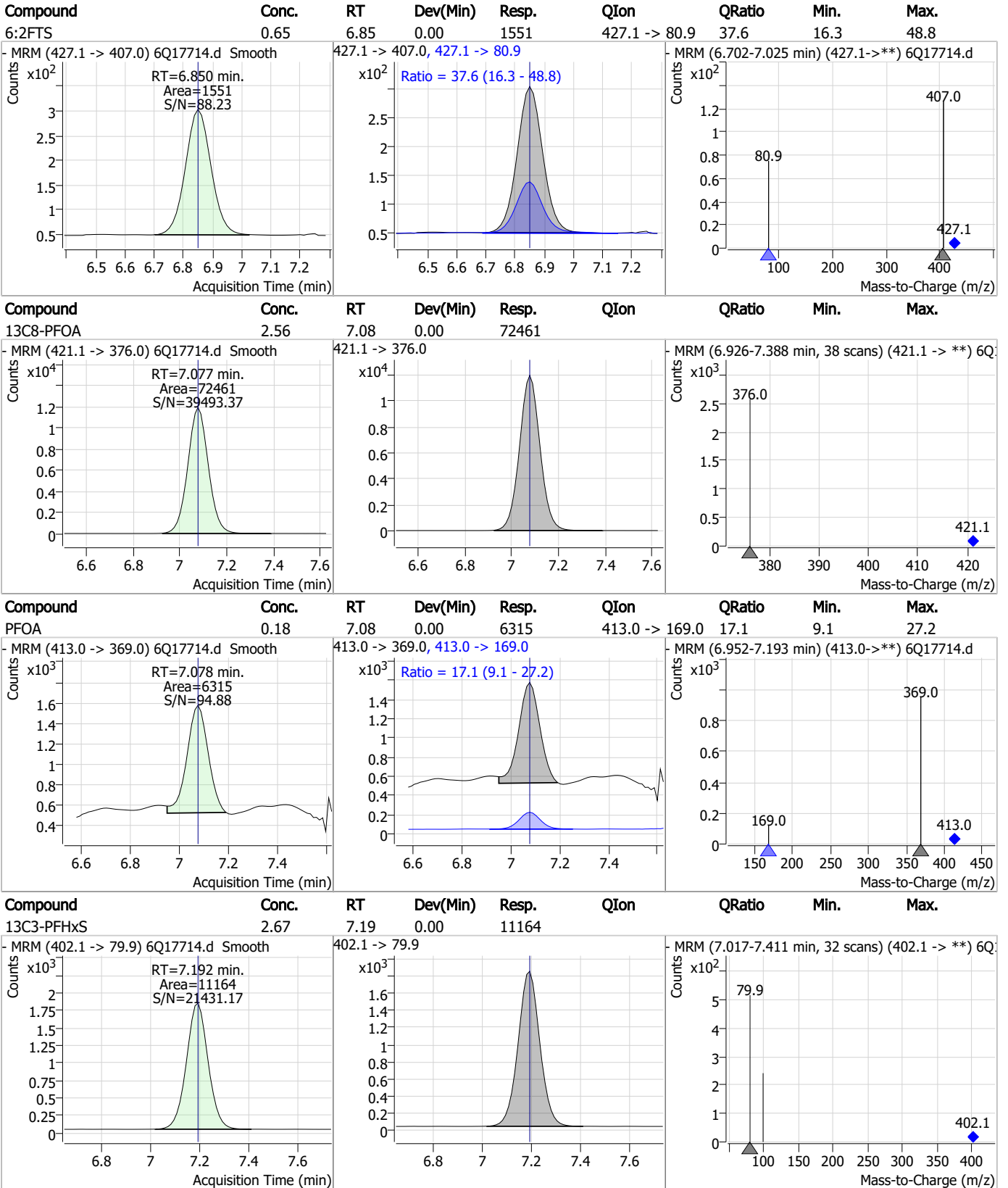
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

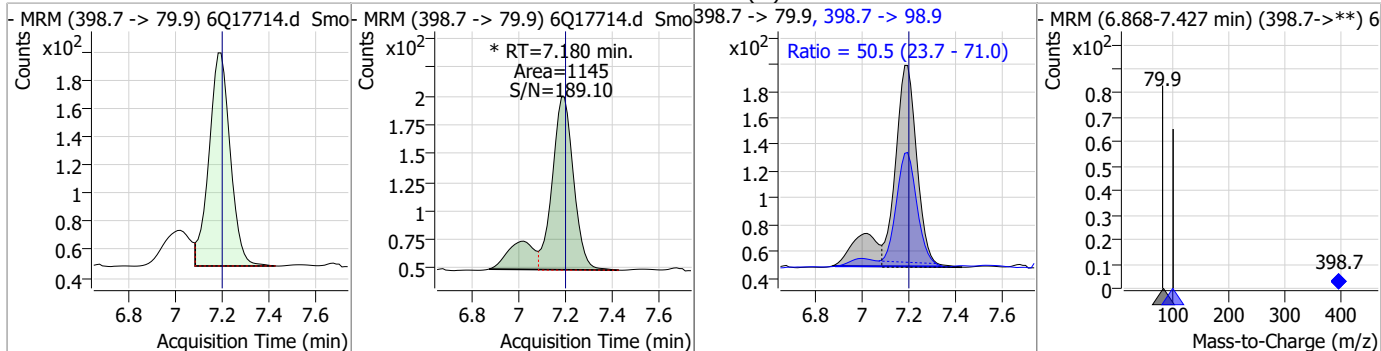


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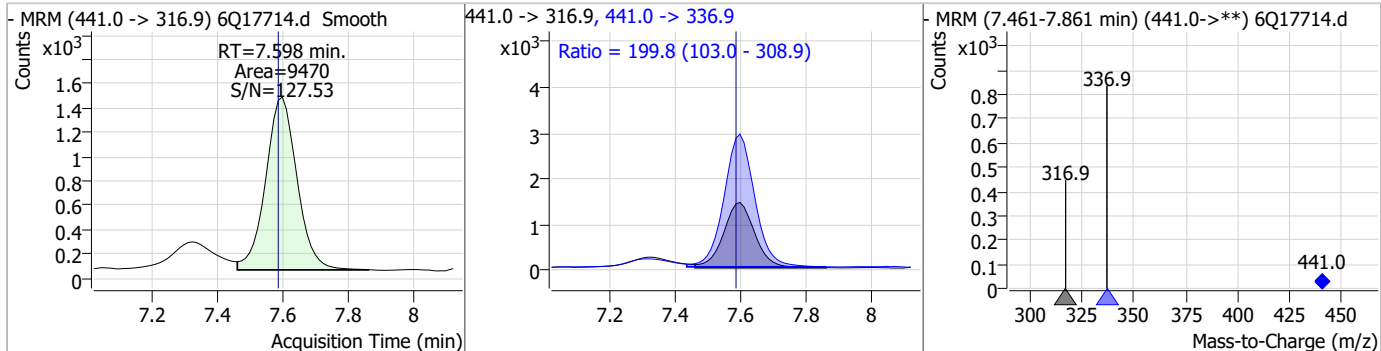


Perfluorinated Compounds by LC/MS/MS

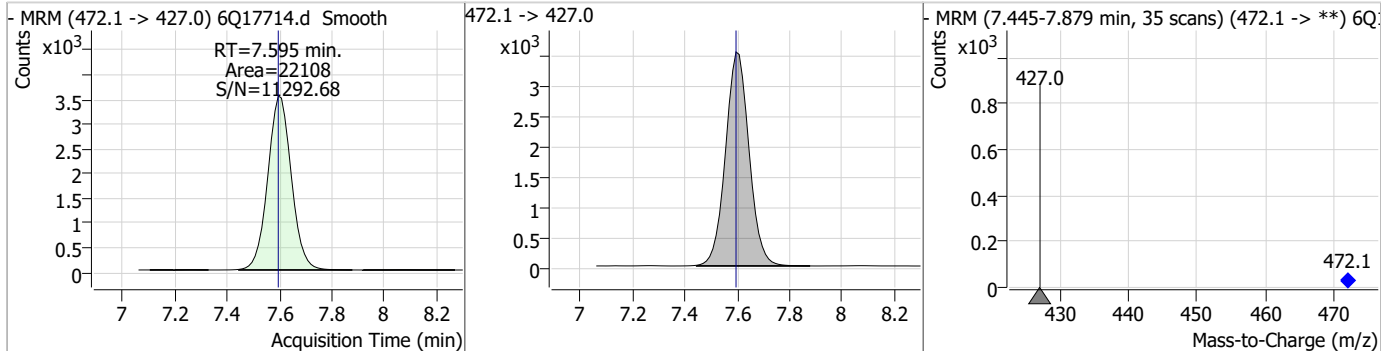
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.17	7.18	-0.01	1145 (m)	398.7 -> 98.9	50.5	23.7	71.0



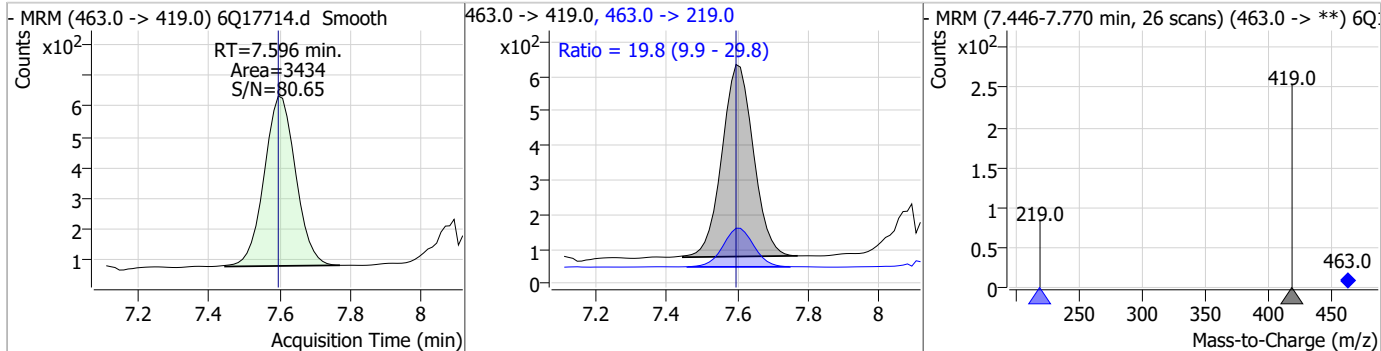
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	5.71	7.60	0.01	9470	441.0 -> 336.9	199.8	103.0	308.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.23	7.60	0.00	22108				

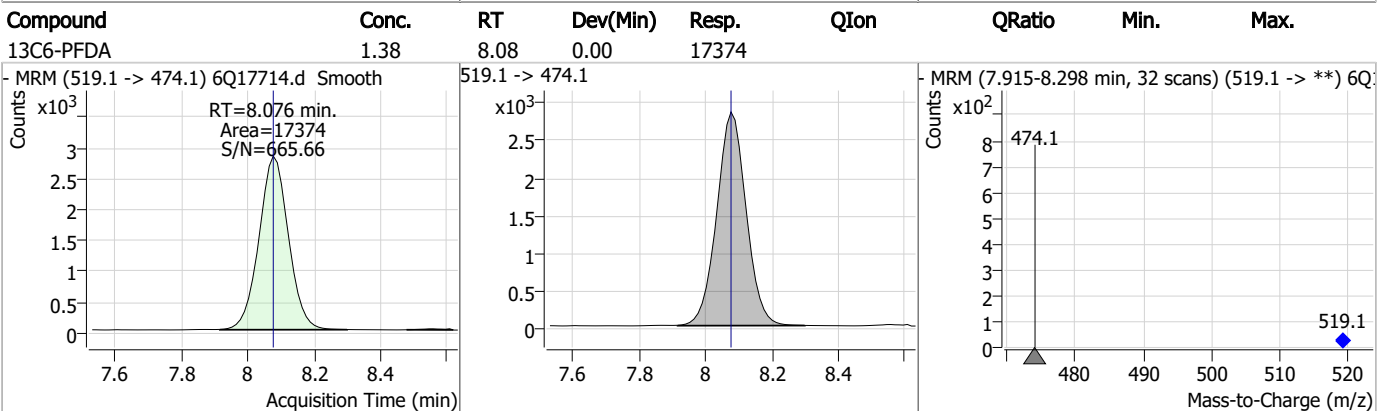
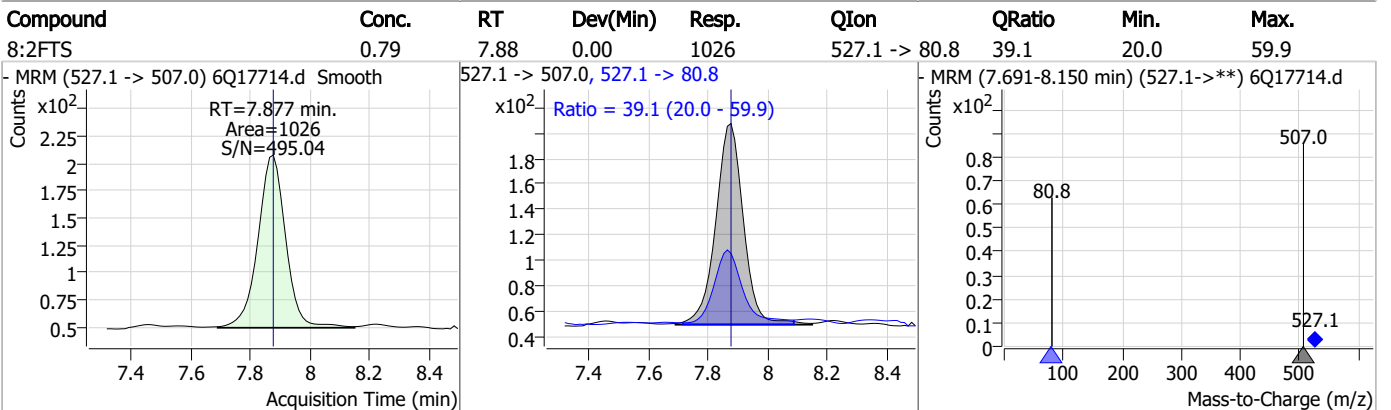
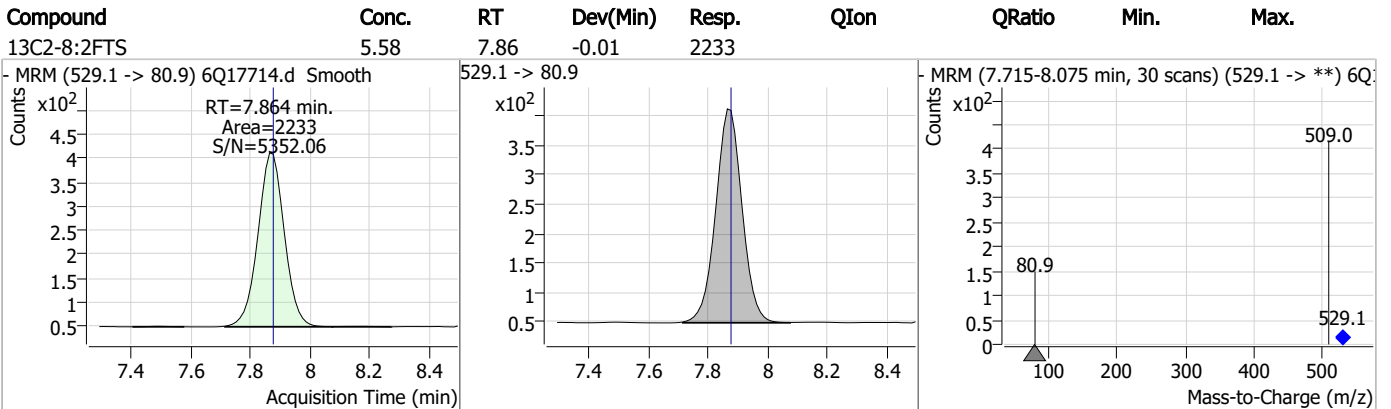
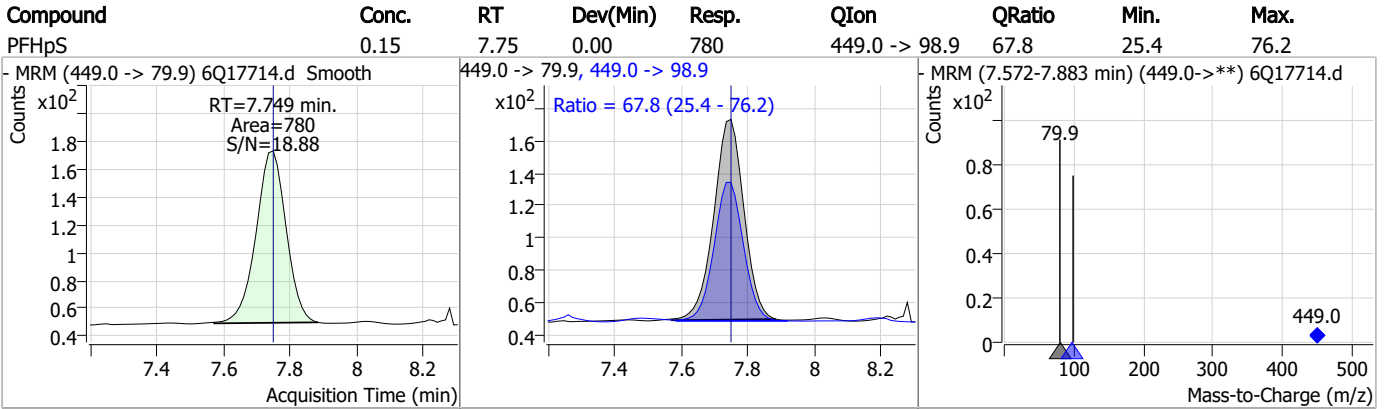


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.21	7.60	0.00	3434	463.0 -> 219.0	19.8	9.9	29.8

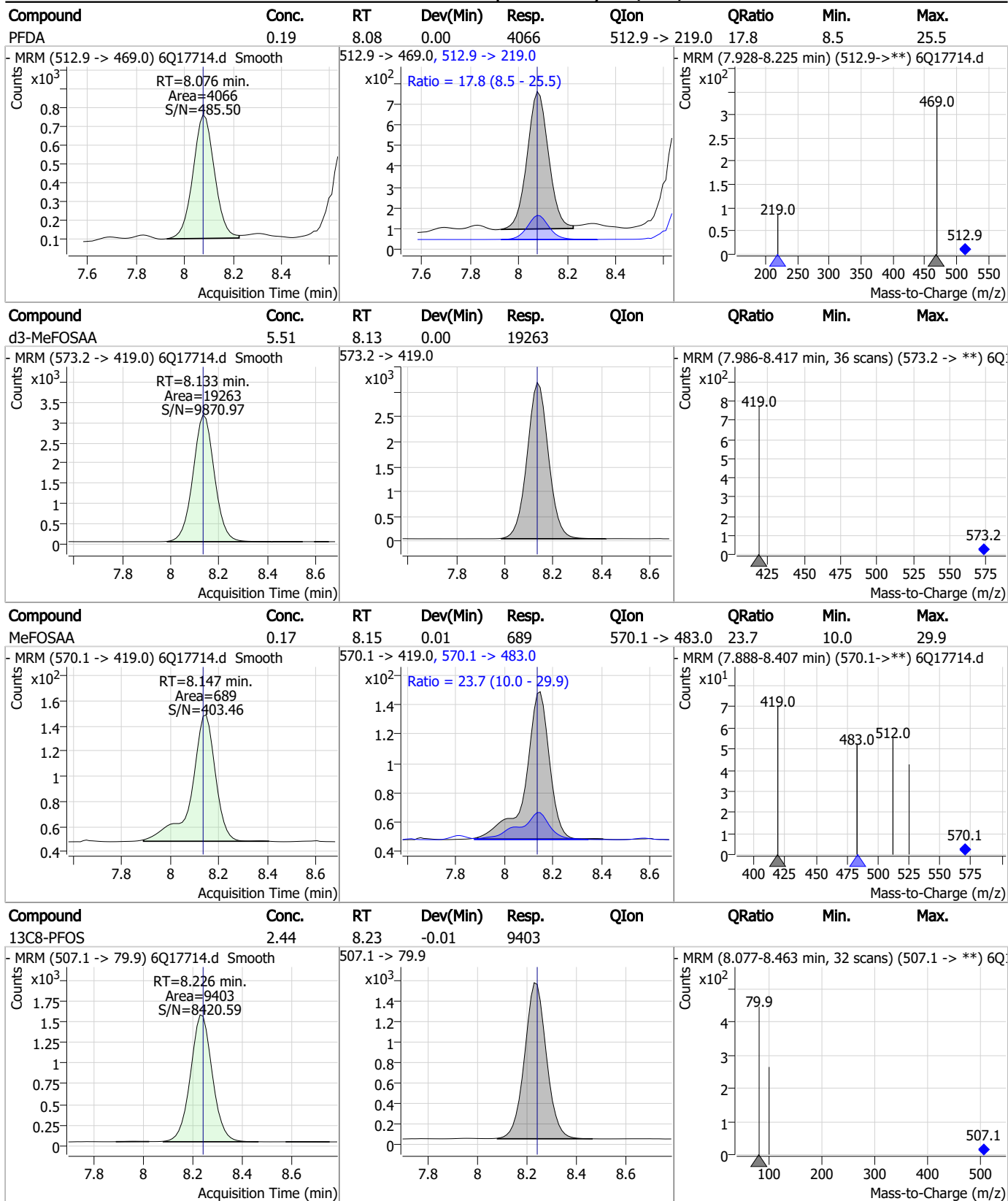


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Perfluorinated Compounds by LC/MS/MS



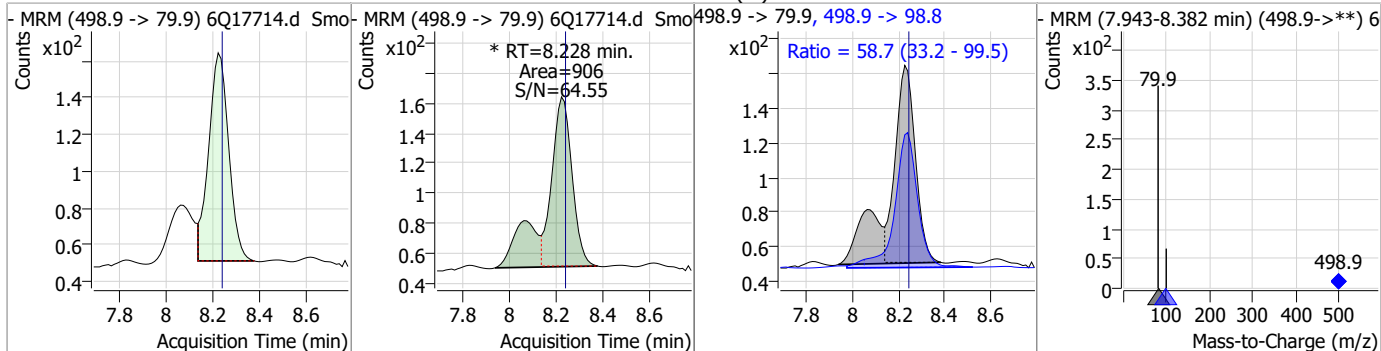
Perfluorinated Compounds by LC/MS/MS



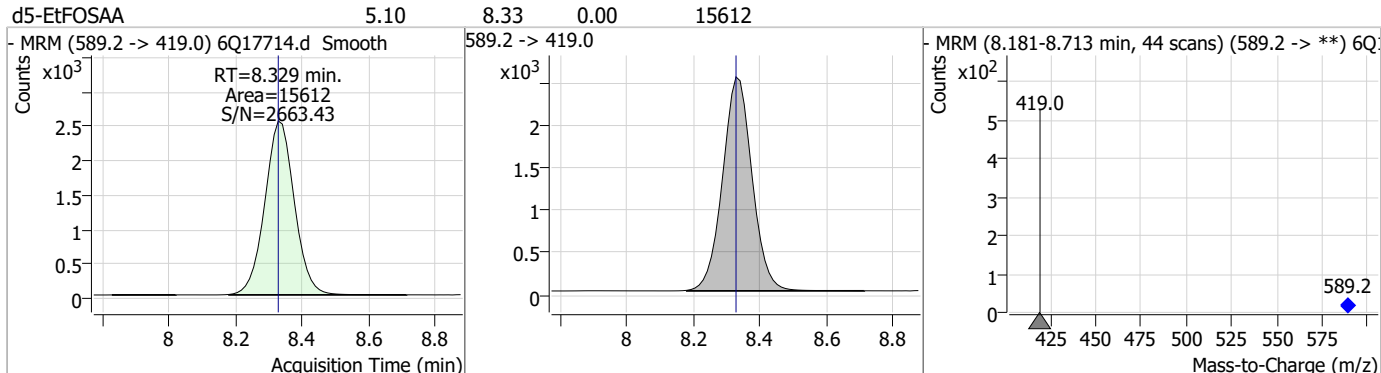
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Perfluorinated Compounds by LC/MS/MS

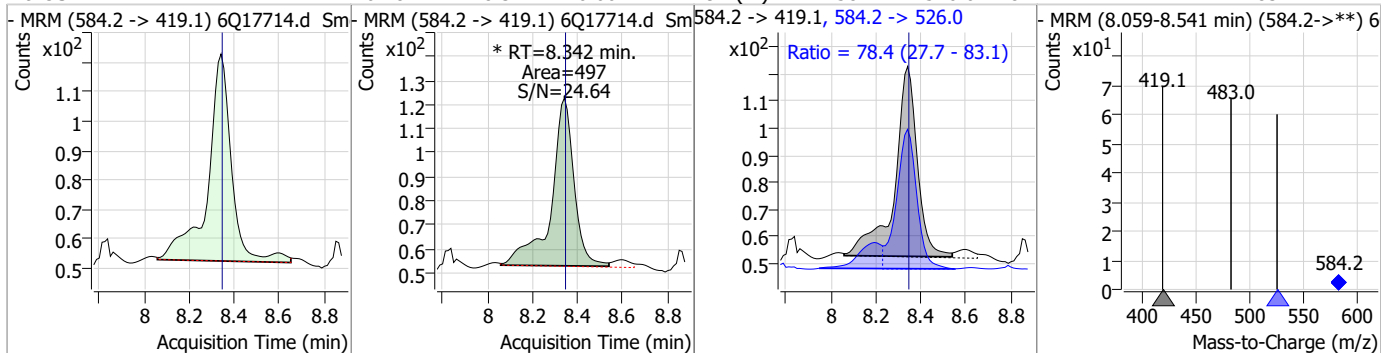
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.19	8.23	-0.01	906 (m)	498.9 -> 98.8	58.7	33.2	99.5



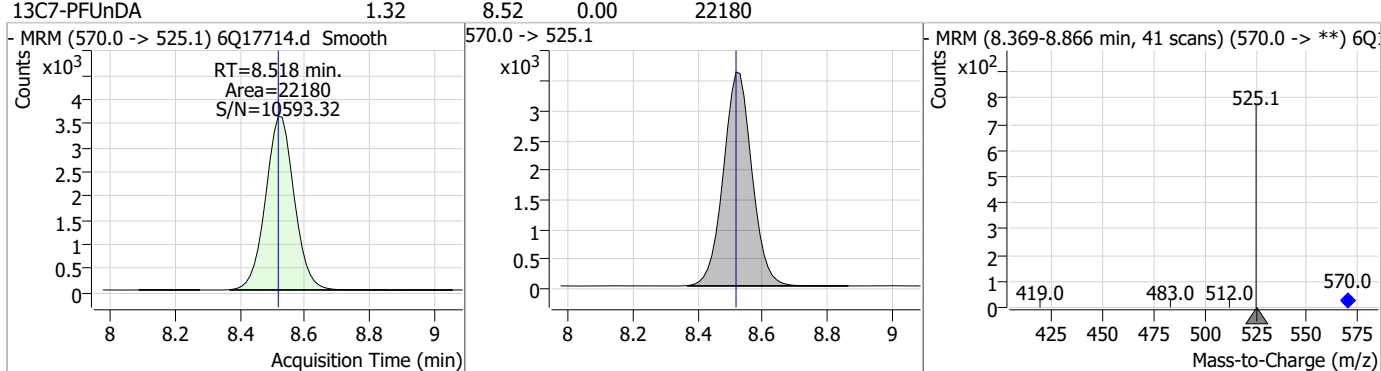
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.10	8.33	0.00	15612				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.18	8.34	0.00	497 (m)	584.2 -> 526.0	78.4	27.7	83.1

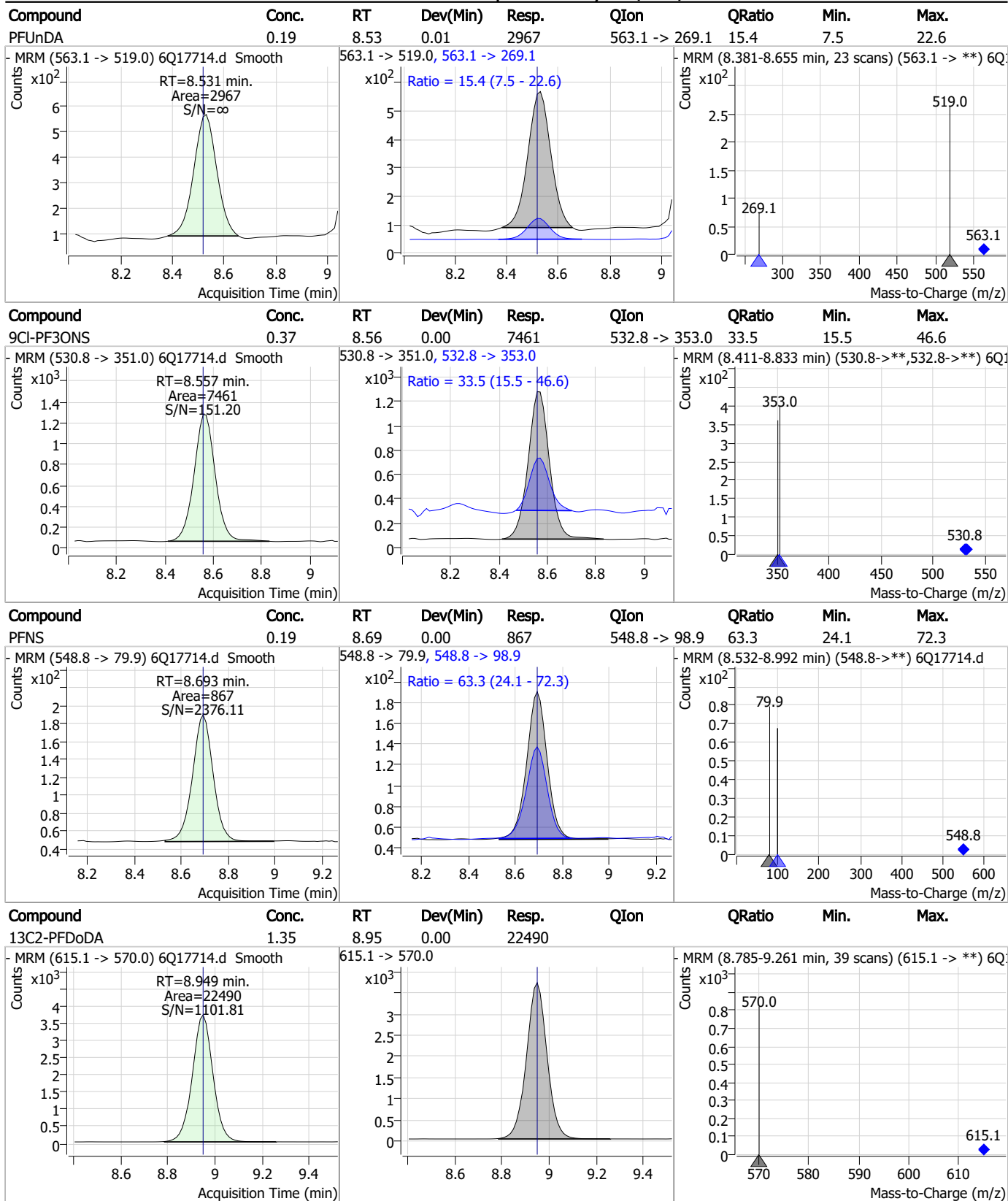


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.32	8.52	0.00	22180				



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Perfluorinated Compounds by LC/MS/MS

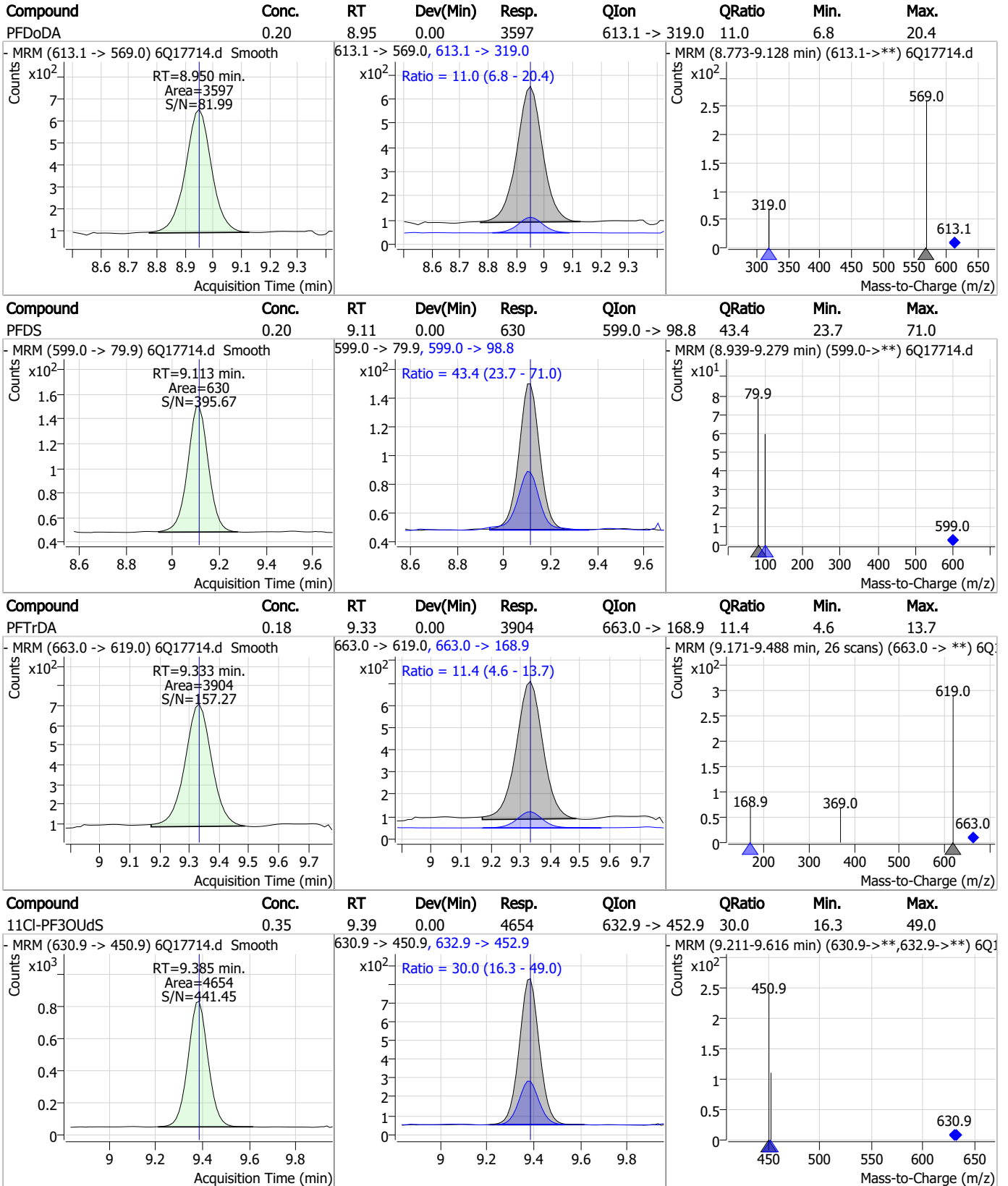


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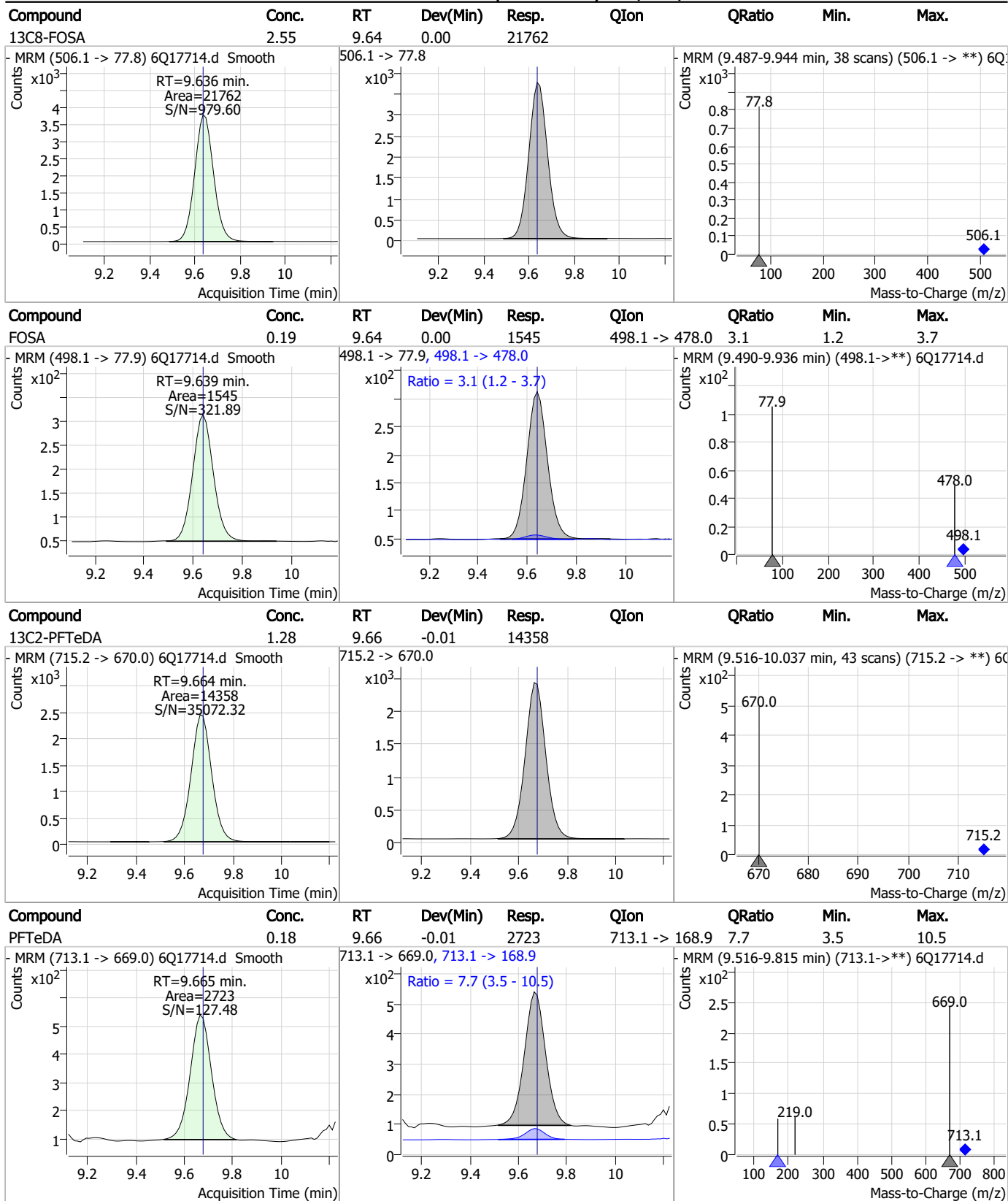
Perfluorinated Compounds by LC/MS/MS



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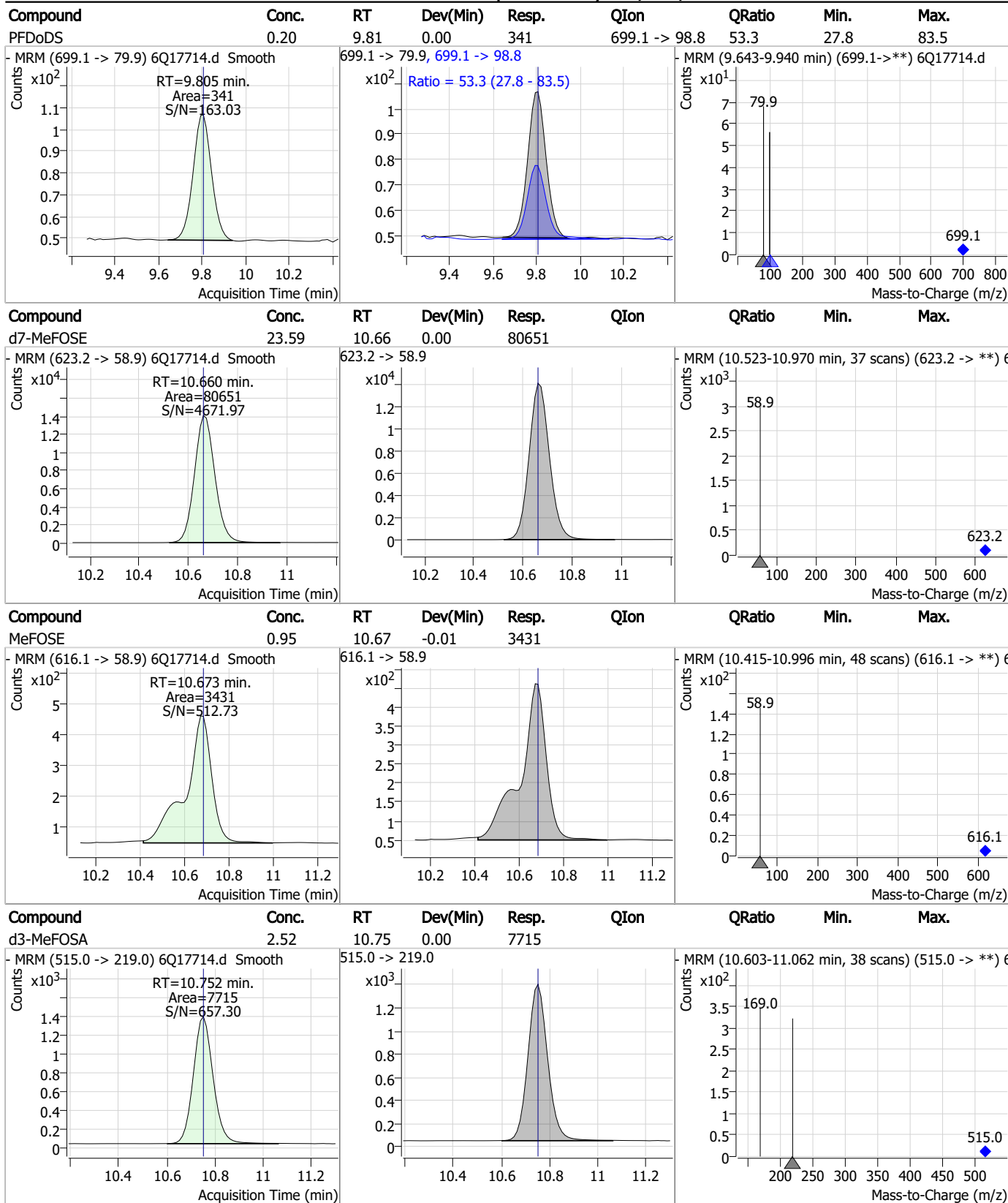
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Perfluorinated Compounds by LC/MS/MS



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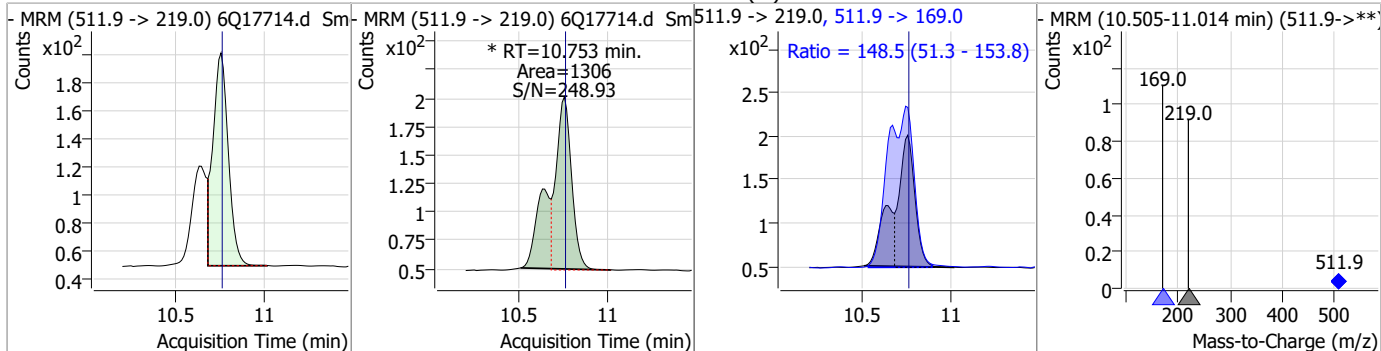
Perfluorinated Compounds by LC/MS/MS



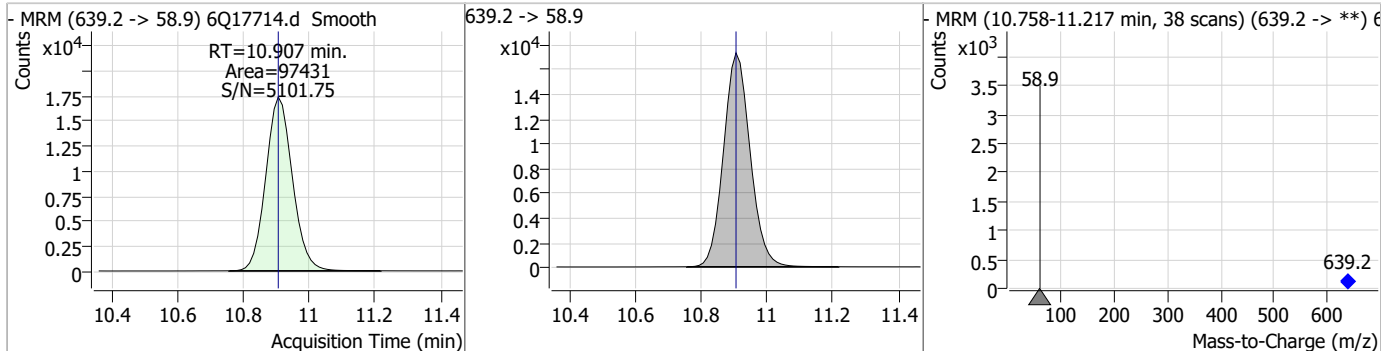
7.7.29
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Perfluorinated Compounds by LC/MS/MS

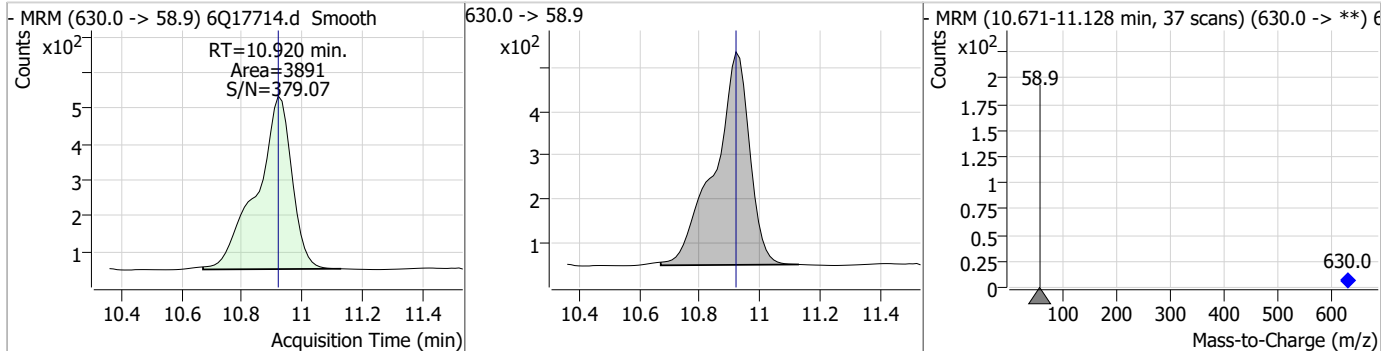
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.37	10.75	0.00	1306 (m)	511.9 -> 169.0	148.5	51.3	153.8



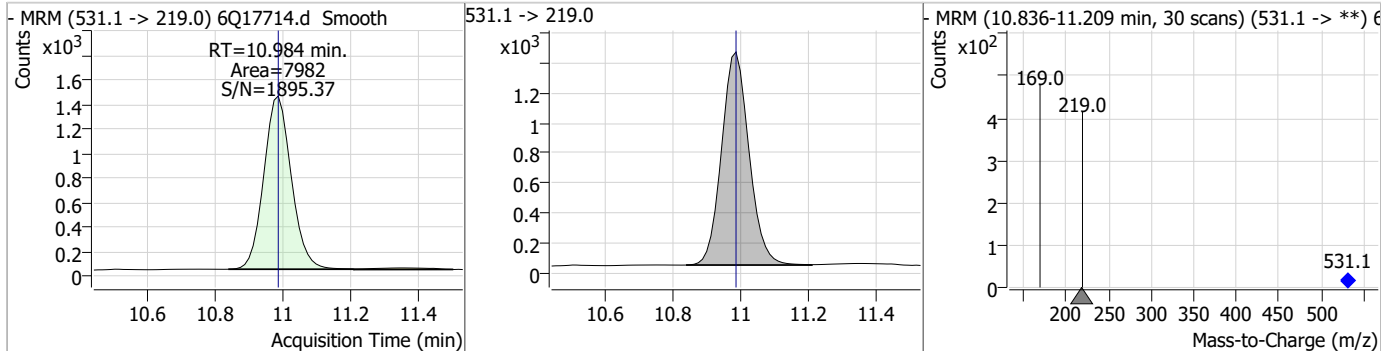
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.84	10.91	0.00	97431				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.93	10.92	0.00	3891				

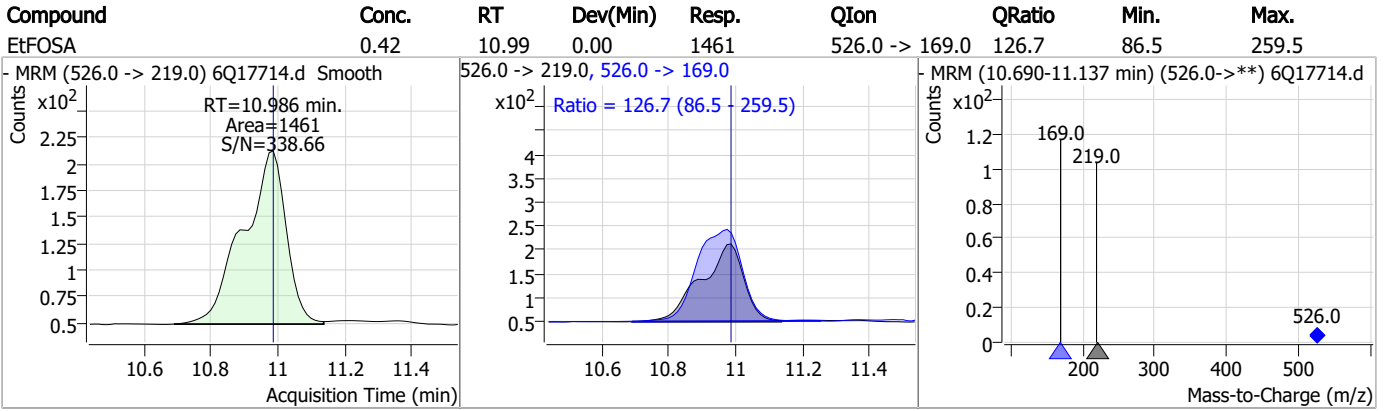


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.19	10.98	0.00	7982				



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q267-CC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17714.D Analyst approved: 05/11/23 11:20 Martha Valls
Injection Time: 05/10/23 20:04 Supervisor approved: 05/11/23 14:15 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.34	Split peak
MeFOSA	31506-32-8		10.75	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17725.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/10/2023 10:44:17 PM
 Sample Name : cc265-4
 Vial : P1-A5
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q267.batch.bin
 Sample Information : OP96663,S6Q267,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	150620	10.00 µg/L	0.000
M5-PFPeA	4.284	268.3 -> 223.0	47302	5.00 µg/L	0.012
M5-PFHxA	5.478	318.0 -> 273.0	55170	2.50 µg/L	0.000
M4-PFHpA	6.432	367.1 -> 322.0	47220	2.50 µg/L	0.000
M8-PFOA	7.077	421.1 -> 376.0	64672	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	21184	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16970	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	22403	1.25 µg/L	0.012
M2-PFDoDA	8.949	615.1 -> 570.0	20208	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	13900	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	20701	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	17973	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10466	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	10064	2.50 µg/L	0.000
M2-4:2FTS	5.156	329.1 -> 80.9	1737	5.00 µg/L	0.000
M2-6:2FTS	6.850	429.1 -> 80.9	1941	5.00 µg/L	0.000
M2-8:2FTS	7.876	529.1 -> 80.9	2029	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	18466	5.00 µg/L	0.000
M3-HFPO-DA	5.856	286.9 -> 168.9	32948	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	14917	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	82798	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	91596	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8895	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	6850	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	11840	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	63433	5.00 µg/L	0.012
18O2-PFHxS	7.191	403.0 -> 83.9	8267	2.50 µg/L	0.000
13C4-PFOA	7.077	417.1 -> 372.0	72228	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20652	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	27040	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	45598	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.156	329.1 -> 80.9	1737	5.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1941	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-8:2FTS	7.876	529.1 -> 80.9	2029	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20208	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.4%		
13C2-PFTeDA	9.664	715.2 -> 670.0	13900	1.15 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C3-PFBS	5.409	302.1 -> 79.9	17973	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFHxS	7.179	402.1 -> 79.9	10466	2.43 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 = 97.2%	
13C4-PFBA	2.913	216.8 -> 171.9	150620	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFHpA	6.432	367.1 -> 322.0	47220	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C5-PFHxA	5.478	318.0 -> 273.0	55170	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.284	268.3 -> 223.0	47302	4.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C6-PFDA	8.076	519.1 -> 474.1	16970	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C7-PFUnDA	8.530	570.0 -> 525.1	22403	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-FOSA	9.636	506.1 -> 77.8	20701	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.077	421.1 -> 376.0	64672	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C8-PFOS	8.239	507.1 -> 79.9	10064	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.0%	
13C9-PFNA	7.595	472.1 -> 427.0	21184	1.04 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.5%	
d3-MeFOSAA	8.133	573.2 -> 419.0	18466	5.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C3-HFPO-DA	5.856	286.9 -> 168.9	32948	9.73 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d3-MeFOSA	10.752	515.0 -> 219.0	6850	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
d5-EtFOSAA	8.329	589.2 -> 419.0	14917	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d7-MeFOSE	10.660	623.2 -> 58.9	82798	25.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	10.907	639.2 -> 58.9	91596	24.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	8895	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
Target Compounds					QValue
4:2FTS	5.156	327.1 -> 307.0	21472	8.09 µg/L	99
		327.1 -> 80.9	8311		
6:2FTS	6.850	427.1 -> 407.0	21722	10.18 µg/L	98
		427.1 -> 80.9	6881		
8:2FTS	7.877	527.1 -> 507.0	11632	9.87 µg/L	99
		527.1 -> 80.8	4742		
EtFOSAA	8.342	584.2 -> 419.1	6435	2.40 µg/L	98
		584.2 -> 526.0	3477		
FOSA	9.639	498.1 -> 77.9	17871	2.35 µg/L	97
		498.1 -> 478.0	617		
MeFOSAA	8.134	570.1 -> 419.0	8772	2.30 µg/L	100
		570.1 -> 483.0	1731		
PFBA	2.907	212.8 -> 168.9	51870	9.62 µg/L	100
PFBS	5.410	298.7 -> 79.9	19434	2.18 µg/L	92
		298.7 -> 98.8	6593		
PFDA	8.076	512.9 -> 469.0	48274	2.30 µg/L	97
		512.9 -> 219.0	8927		
PFDoDA	8.950	613.1 -> 569.0	44569	2.77 µg/L	96
		613.1 -> 319.0	5281		
PFDS	9.113	599.0 -> 79.9	7043	2.08 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3410			
PFHpA	6.433	363.1 -> 319.0	56212	2.36	µg/L	98
		363.1 -> 169.0	8794			
PFHpS	7.749	449.0 -> 79.9	11404	2.11	µg/L	100
		449.0 -> 98.9	5755			
PFHxA	5.481	313.0 -> 269.0	52224	2.33	µg/L	99
		313.0 -> 118.9	2274			
PFHxS	7.180	398.7 -> 79.9	12658	2.05	µg/L	m 94
		398.7 -> 98.9	6497			
PFNA	7.596	463.0 -> 419.0	39040	2.45	µg/L	98
		463.0 -> 219.0	7380			
PFNS	8.693	548.8 -> 79.9	10858	2.18	µg/L	95
		548.8 -> 98.9	5637			
PFOA	7.078	413.0 -> 369.0	78067	2.47	µg/L	99
		413.0 -> 169.0	13677			
PFOS	8.228	498.9 -> 79.9	11240	2.15	µg/L	m 83
		498.9 -> 98.8	5961			
PFPeA	4.287	263.0 -> 219.0	66297	4.80	µg/L	100
PFPeS	6.484	349.1 -> 79.9	13172	2.24	µg/L	98
		349.1 -> 98.9	5924			
PFTeDA	9.665	713.1 -> 669.0	34548	2.40	µg/L	98
		713.1 -> 168.9	2685			
PFTrDA	9.333	663.0 -> 619.0	49498	2.60	µg/L	98
		663.0 -> 168.9	4206			
PFUnDA	8.518	563.1 -> 519.0	38097	2.42	µg/L	100
		563.1 -> 269.1	5792			
11CI-PF3OUdS	9.385	630.9 -> 450.9	56523	4.48	µg/L	96
		632.9 -> 452.9	17282			
9CI-PF3ONS	8.557	530.8 -> 351.0	90615	4.69	µg/L	98
		532.8 -> 353.0	26973			
ADONA	6.683	376.9 -> 250.9	233169	4.42	µg/L	96
		376.9 -> 84.8	59123			
HFPO-DA	5.857	284.9 -> 168.9	15718	4.94	µg/L	97
		284.9 -> 184.9	2136			
3:3FTCA	3.790	241.0 -> 177.0	10089	11.43	µg/L	98
		241.0 -> 117.0	1294			
5:3FTCA	6.174	341.0 -> 237.1	204973	53.55	µg/L	97
		341.0 -> 217.0	160213			
7:3FTCA	7.598	441.0 -> 316.9	95416	55.35	µg/L	83
		441.0 -> 336.9	221397			
EtFOSA	10.986	526.0 -> 219.0	17676	4.58	µg/L	68
		526.0 -> 169.0	22717			
EtFOSE	10.920	630.0 -> 58.9	46552	11.82	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	16364	5.21	µg/L	m 65
		511.9 -> 169.0	22626			
MeFOSE	10.673	616.1 -> 58.9	43376	11.70	µg/L	m 100
PFDoDS	9.805	699.1 -> 79.9	3832	2.12	µg/L	98
		699.1 -> 98.8	2186			
NFDHA	5.361	295.0 -> 201.0	11521	4.81	µg/L	98
		295.0 -> 84.9	2958			
PFMBA	4.688	279.0 -> 85.1	46668	4.78	µg/L	100
PFMPA	3.442	229.0 -> 84.9	33842	4.83	µg/L	100
PFEESA	5.950	314.8 -> 134.9	123588	4.22	µg/L	99
		314.8 -> 82.9	4293			

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

7.7.30
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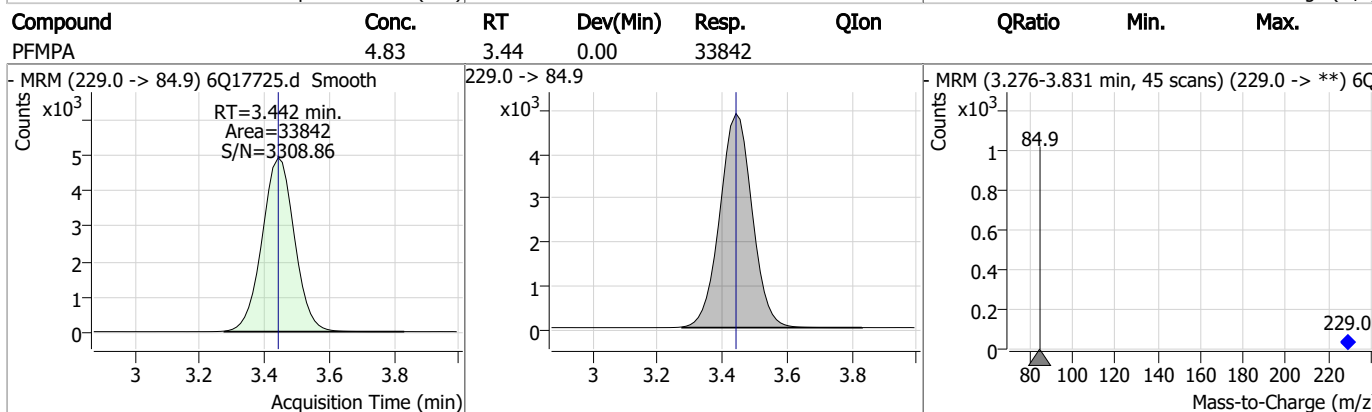
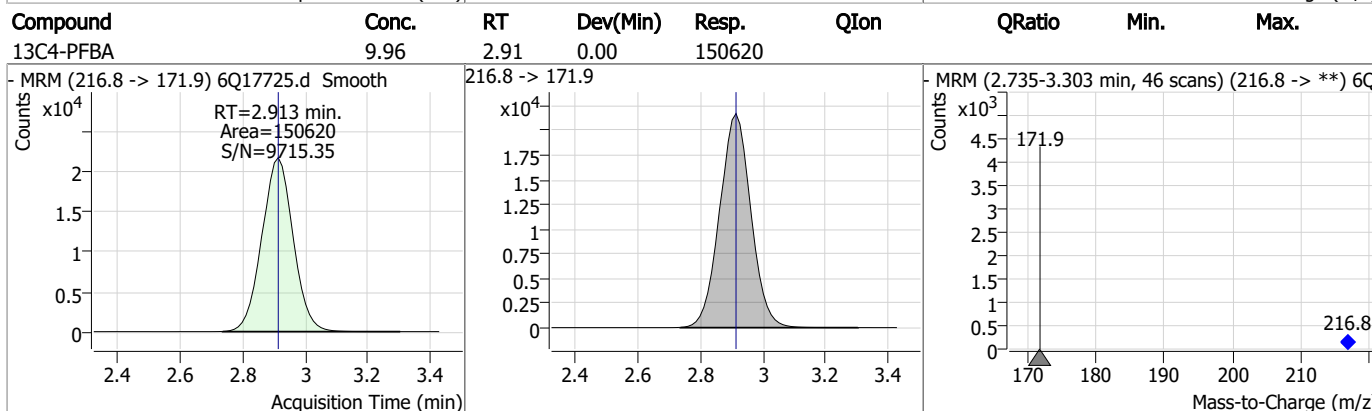
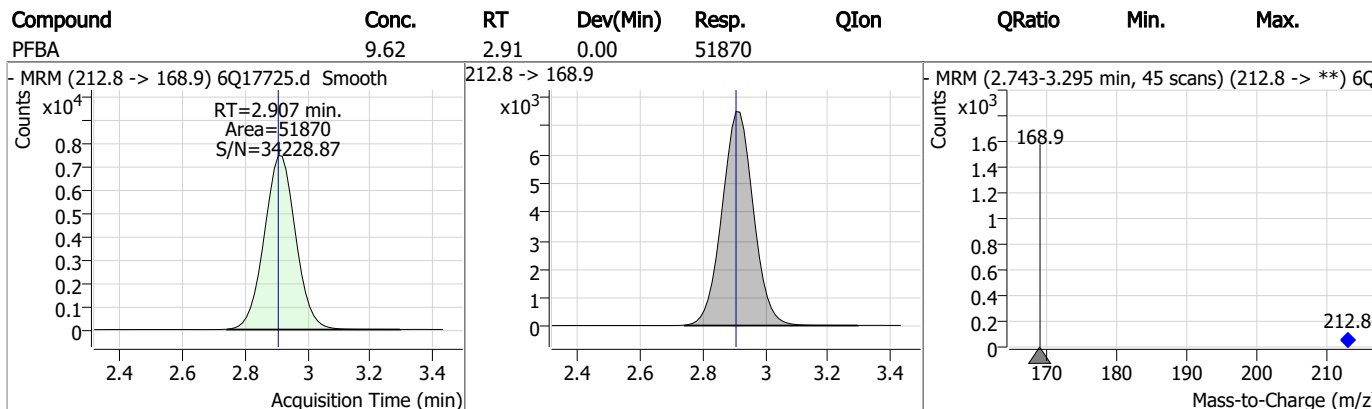
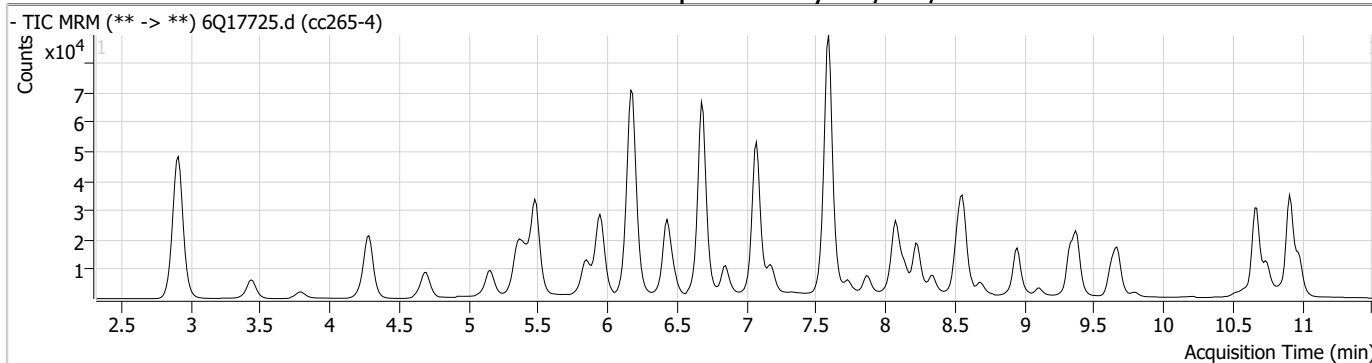
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.30

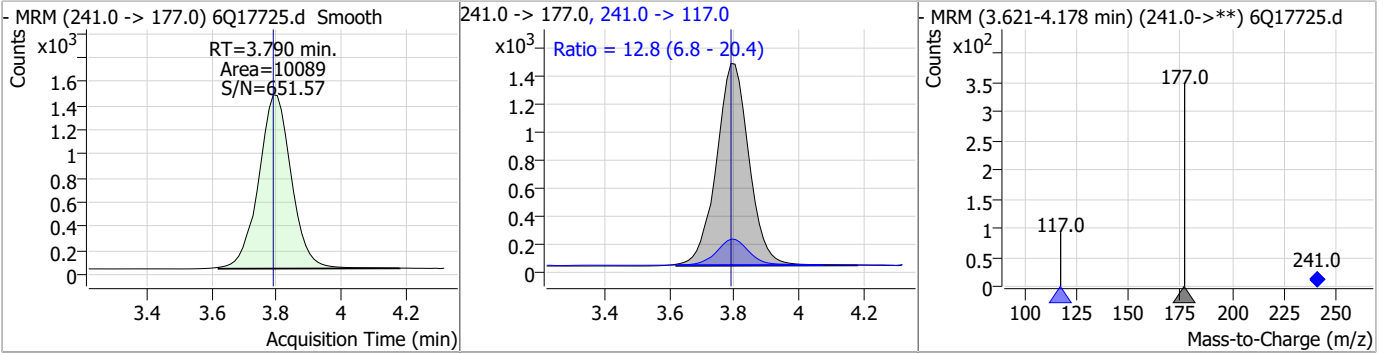
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Perfluorinated Compounds by LC/MS/MS

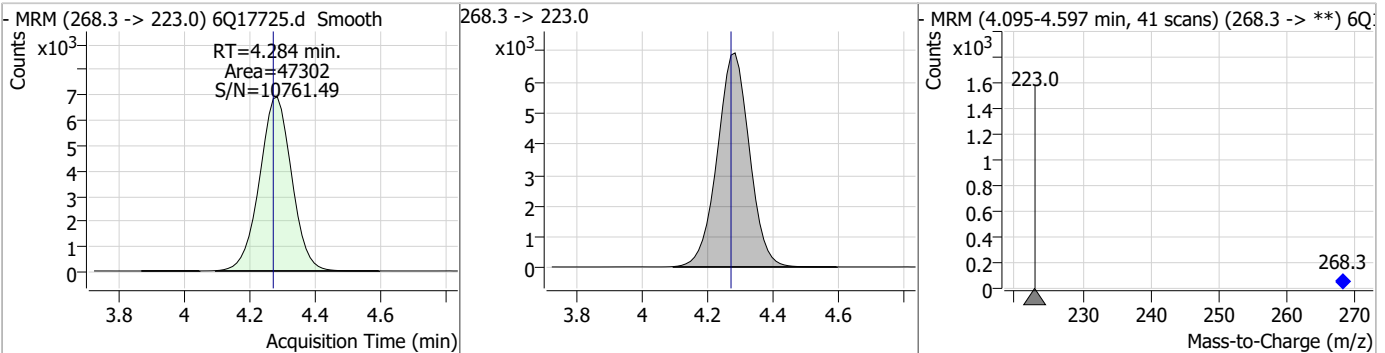


Perfluorinated Compounds by LC/MS/MS

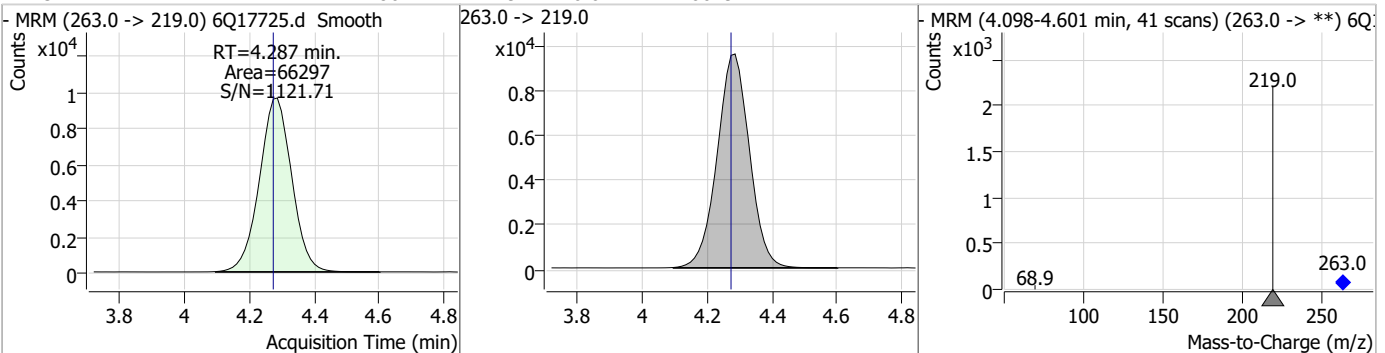
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.43	3.79	0.00	10089	241.0 -> 117.0	12.8	6.8	20.4



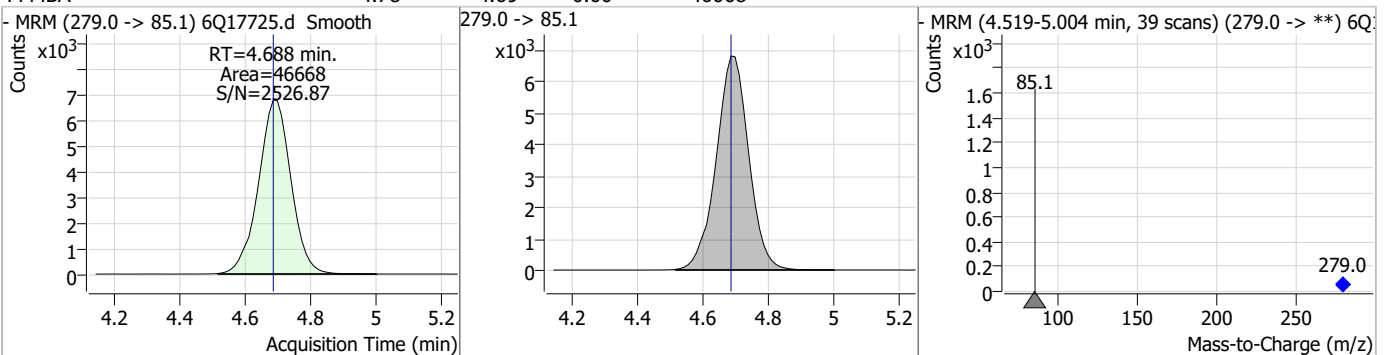
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.91	4.28	0.01	47302				



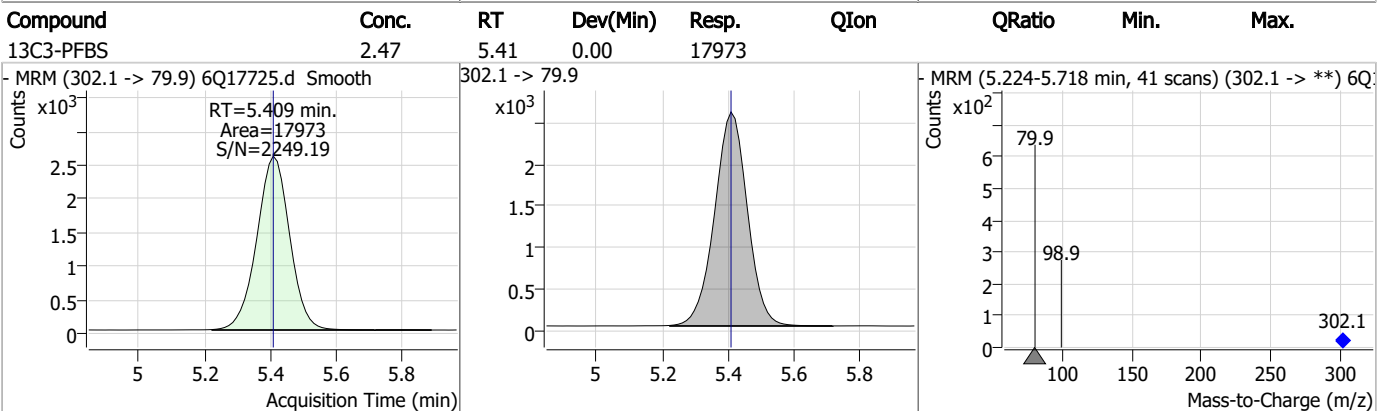
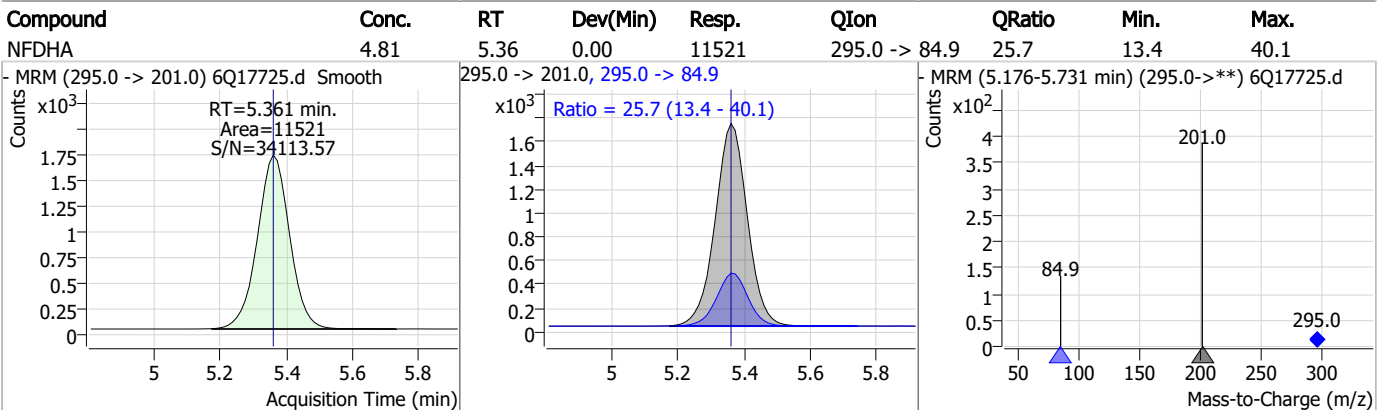
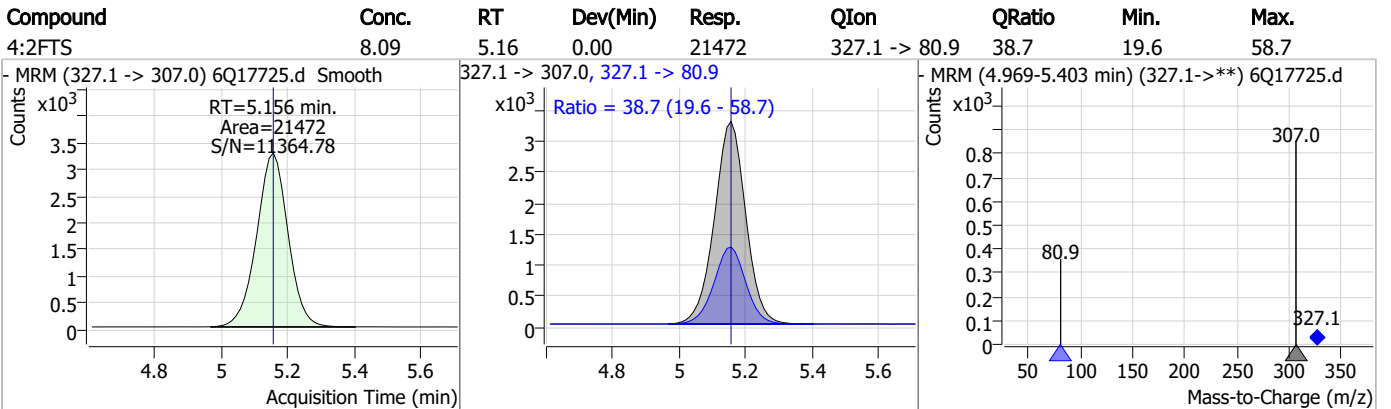
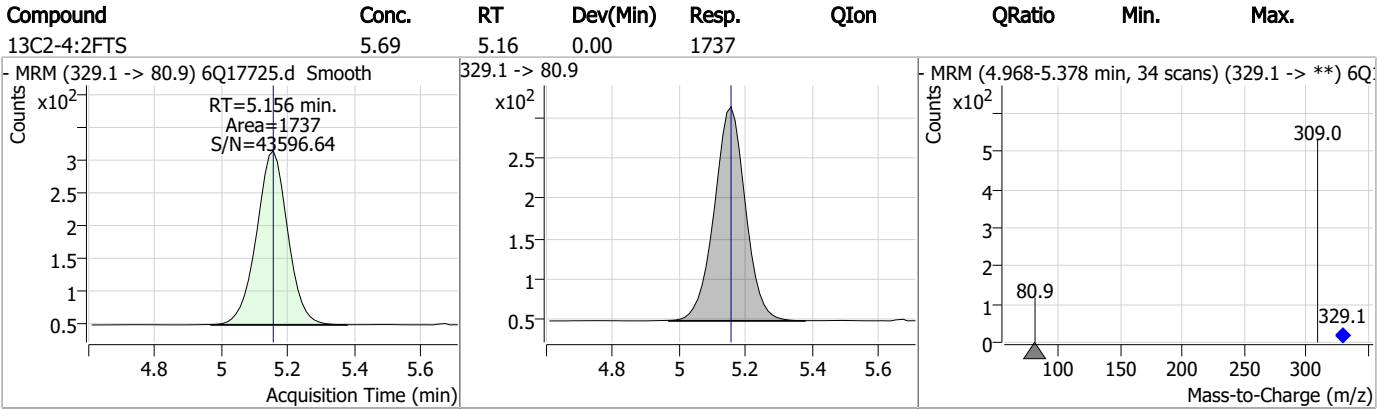
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.80	4.29	0.01	66297				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.78	4.69	0.00	46668				

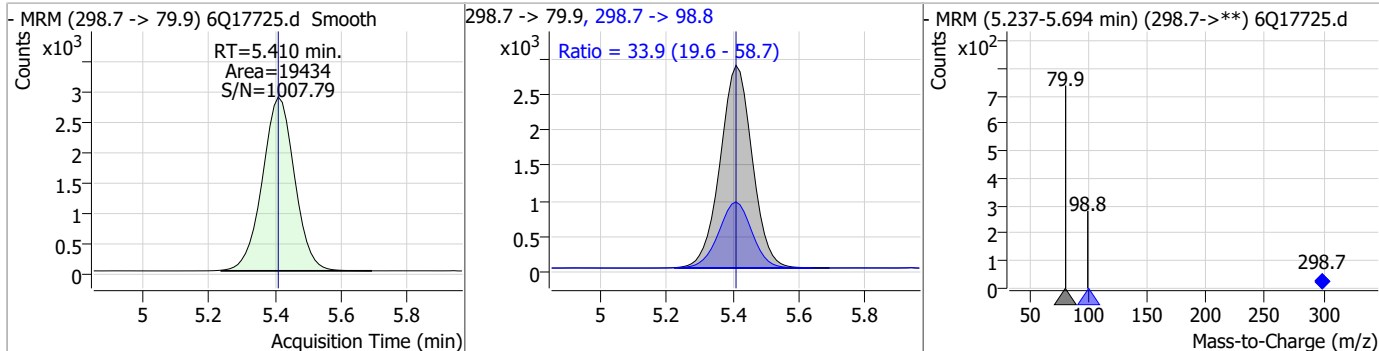


Perfluorinated Compounds by LC/MS/MS

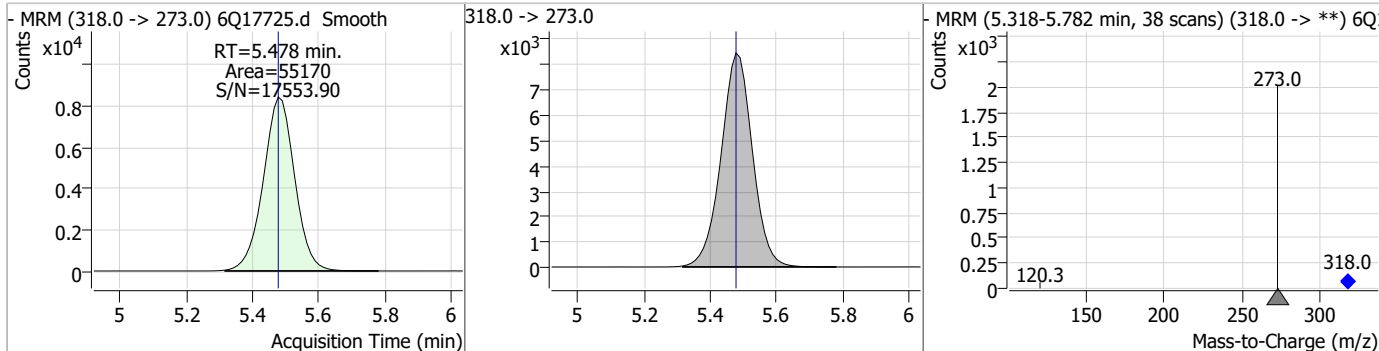


Perfluorinated Compounds by LC/MS/MS

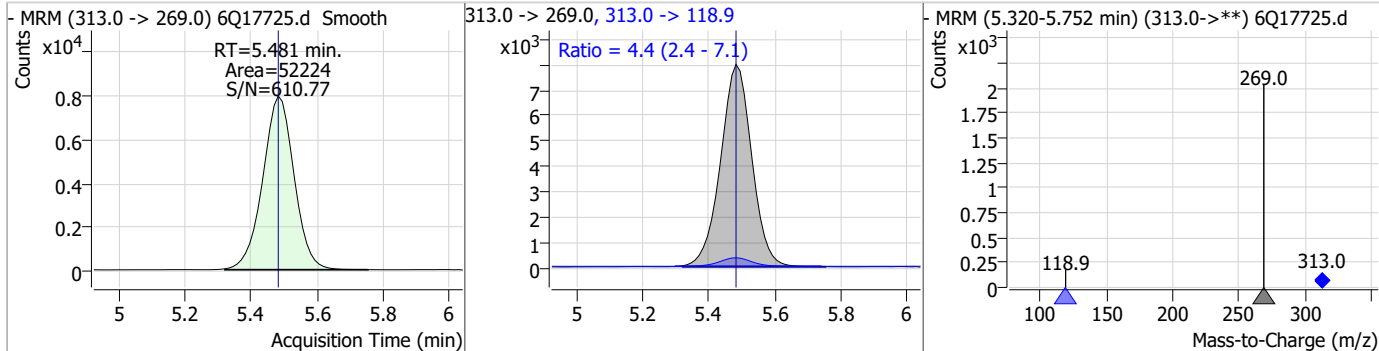
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.18	5.41	0.00	19434	298.7 -> 98.8	33.9	19.6	58.7



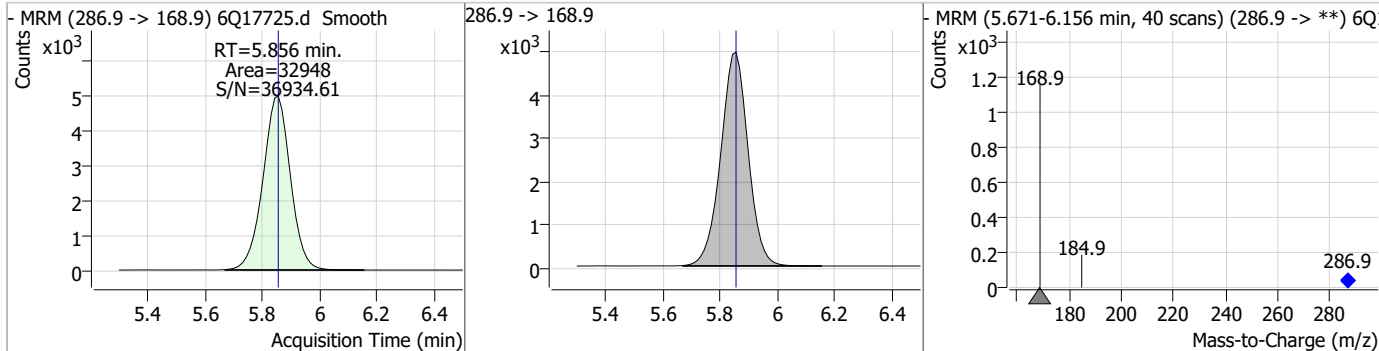
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.48	0.00	55170				



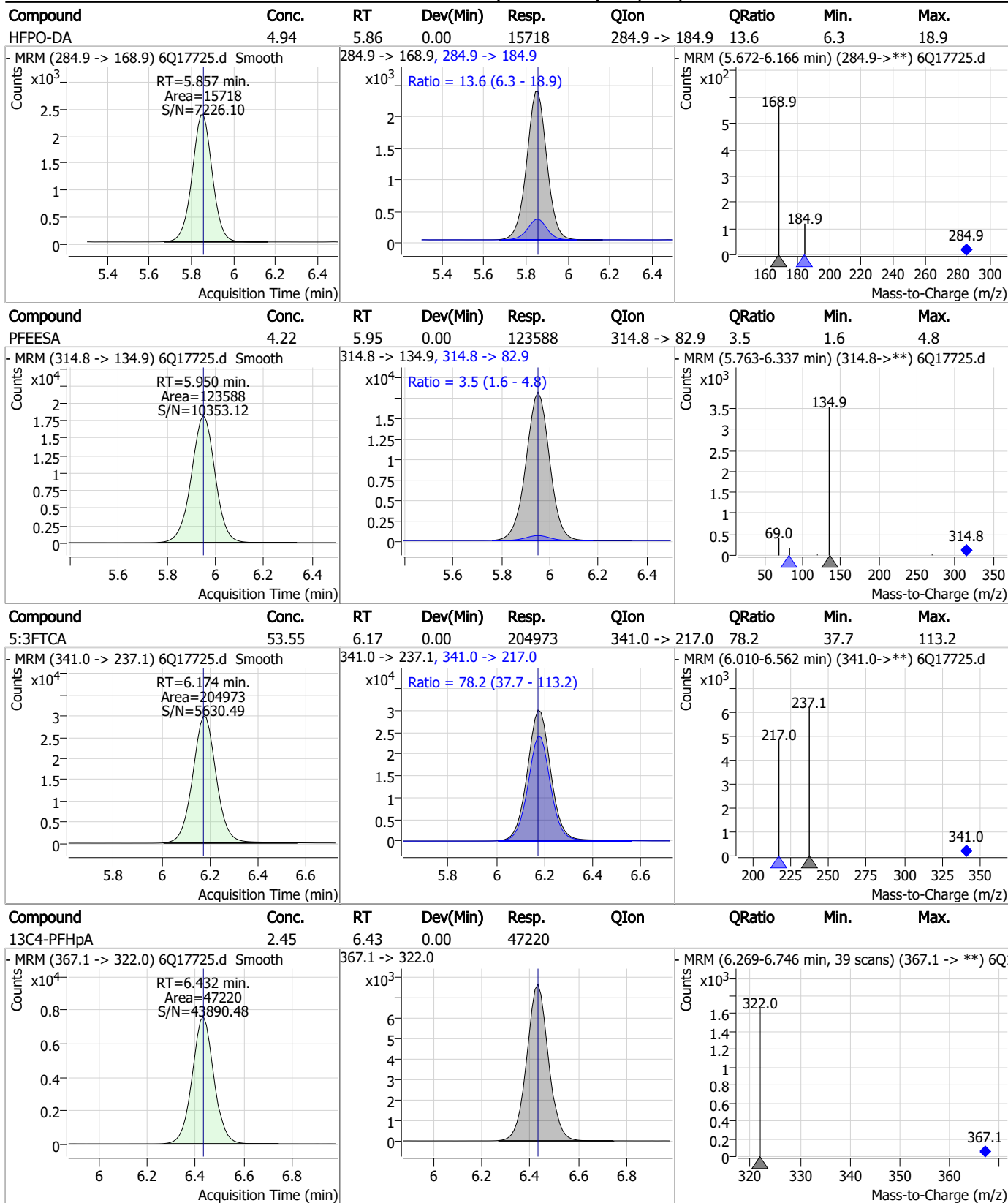
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.33	5.48	0.00	52224	313.0 -> 118.9	4.4	2.4	7.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.73	5.86	0.00	32948				



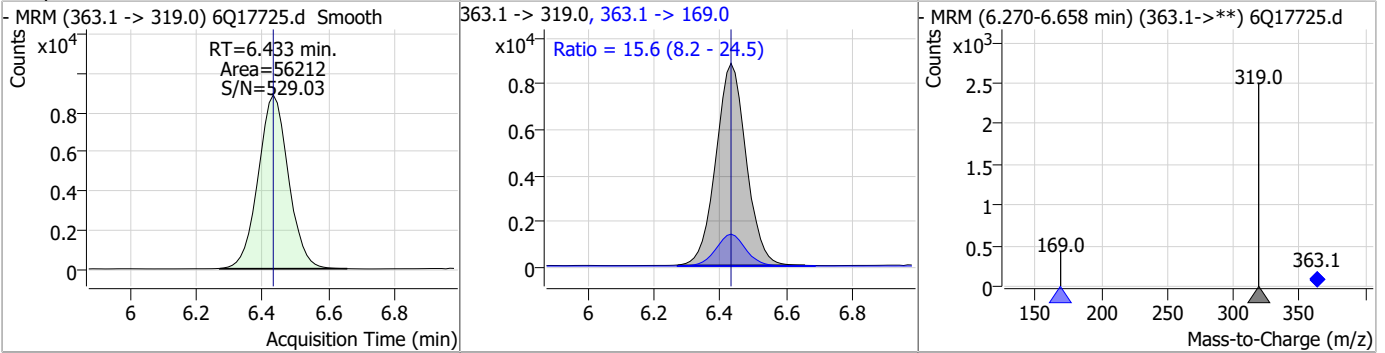
Perfluorinated Compounds by LC/MS/MS



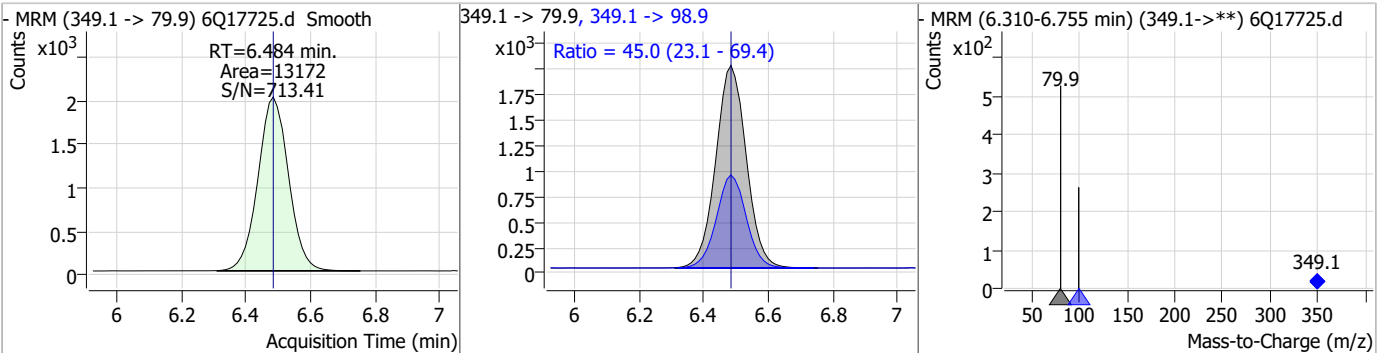
7.7.30
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Perfluorinated Compounds by LC/MS/MS

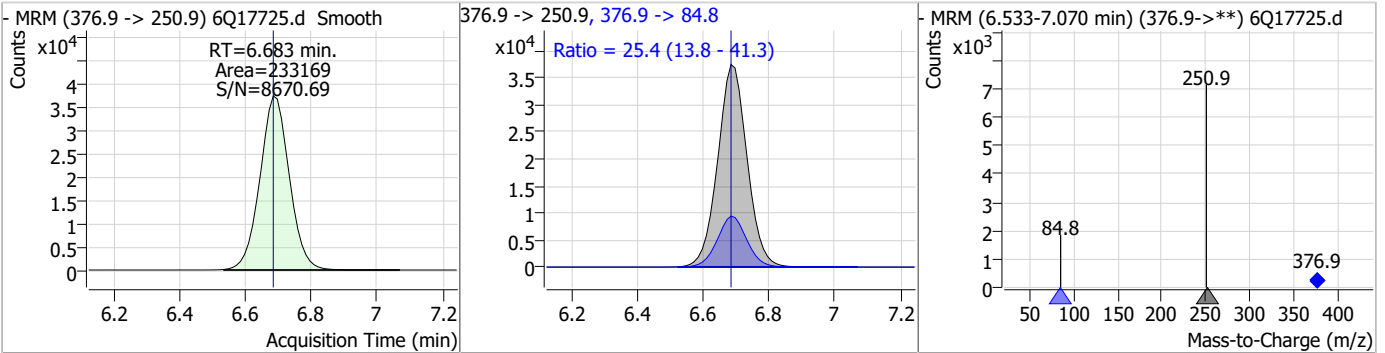
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.36	6.43	0.00	56212	363.1 -> 169.0	15.6	8.2	24.5



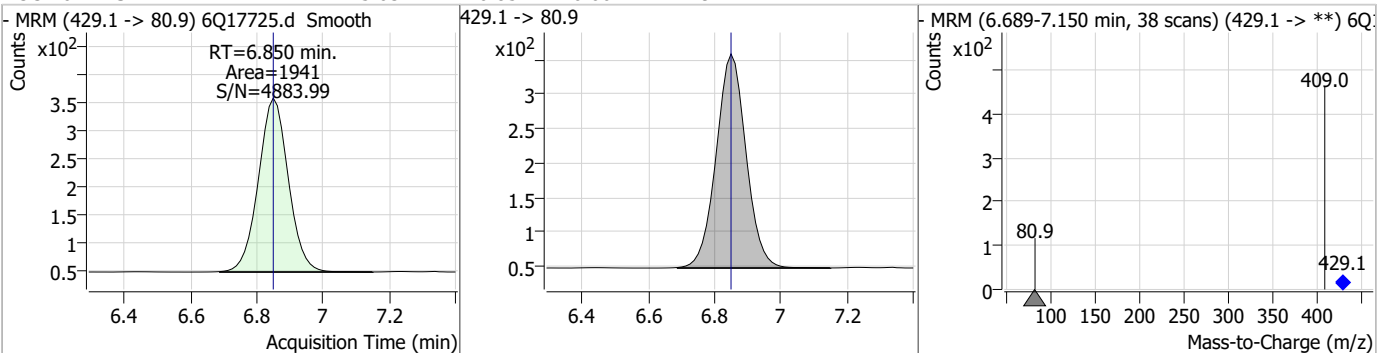
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.24	6.48	0.00	13172	349.1 -> 98.9	45.0	23.1	69.4



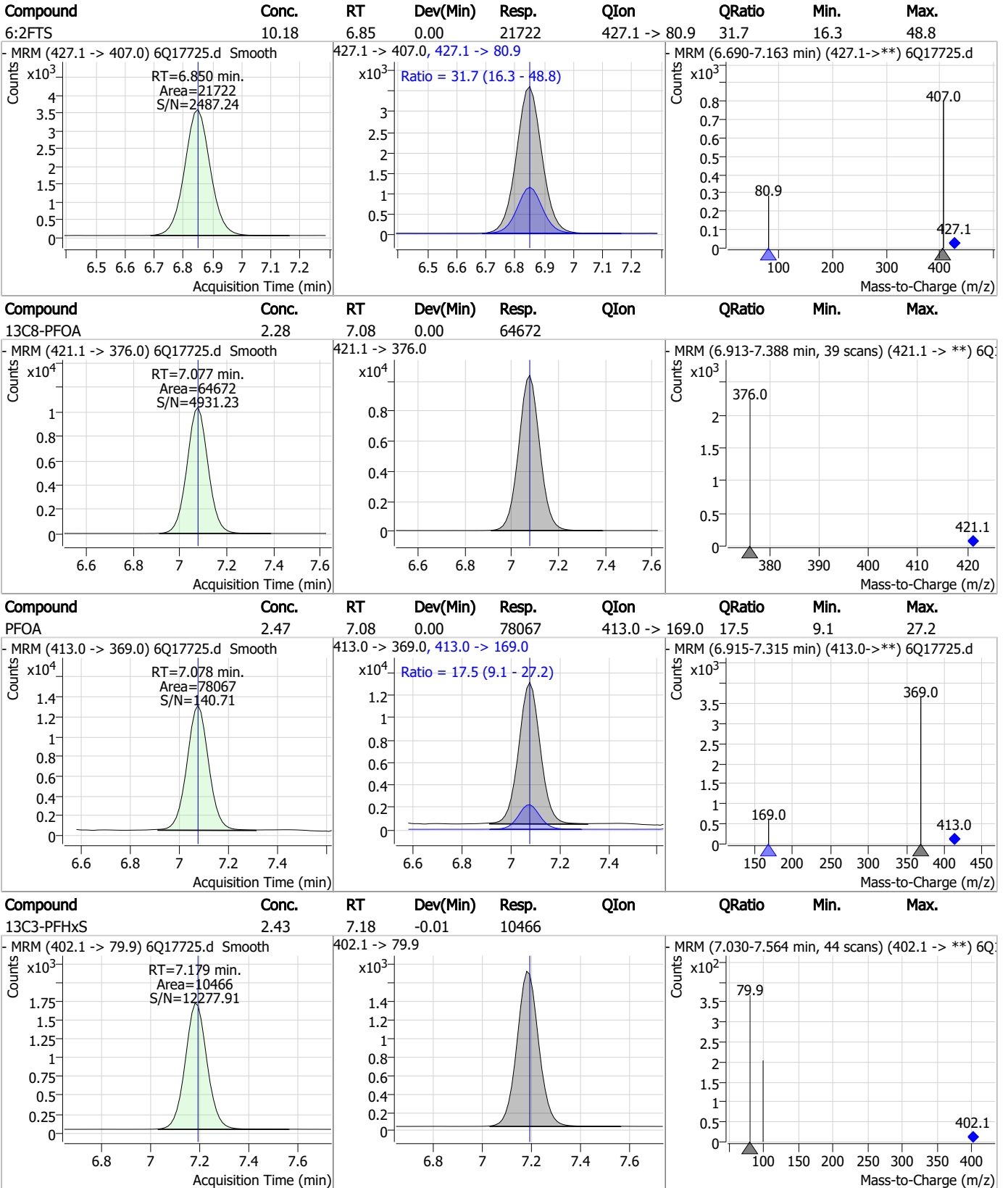
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.42	6.68	0.00	233169	376.9 -> 84.8	25.4	13.8	41.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.03	6.85	0.00	1941	429.1 -> 80.9	-	-	-



Perfluorinated Compounds by LC/MS/MS

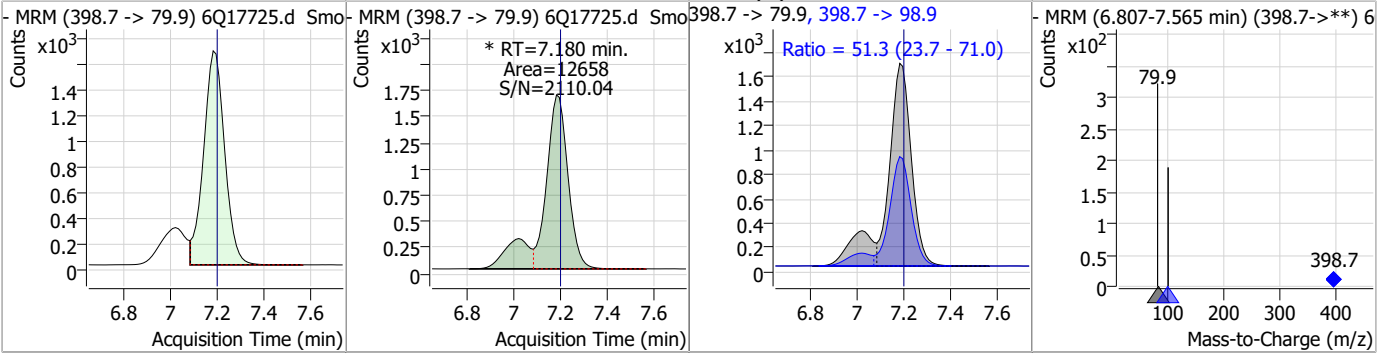


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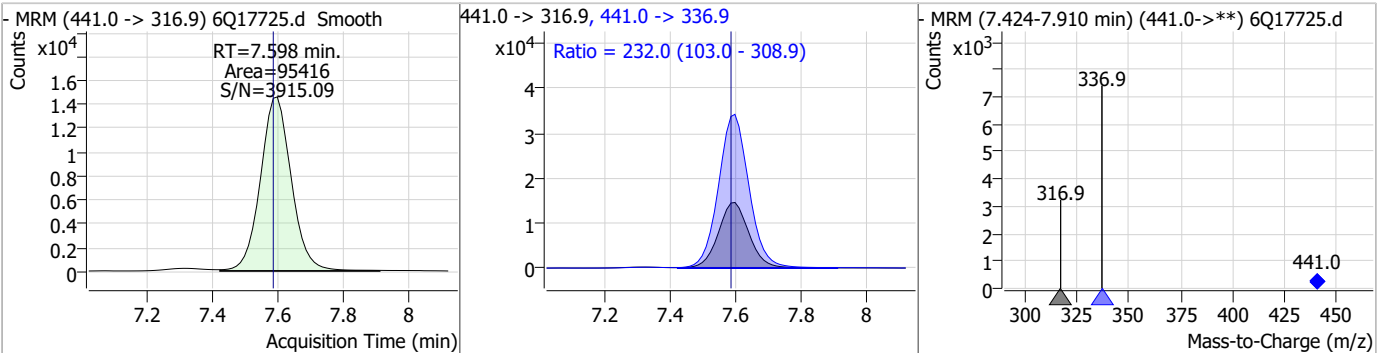


Perfluorinated Compounds by LC/MS/MS

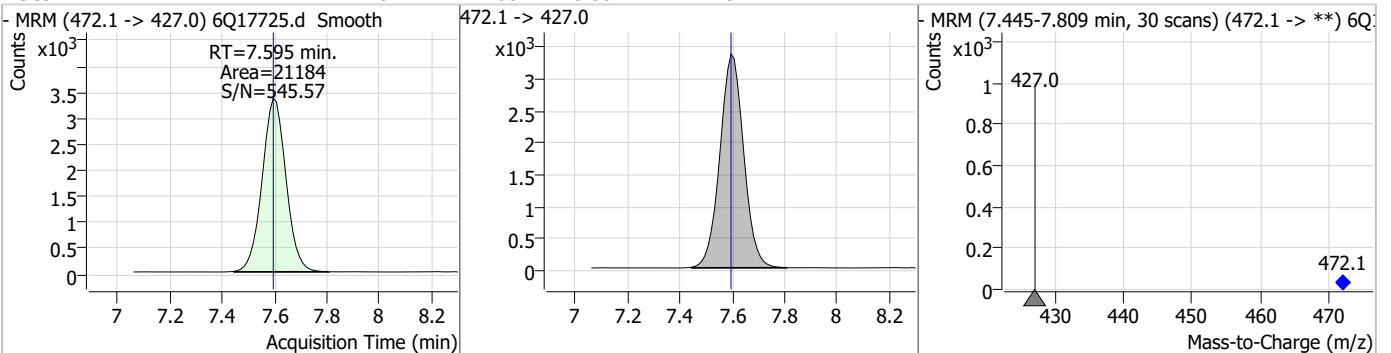
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.05	7.18	-0.01	12658 (m)	398.7 -> 98.9	51.3	23.7	71.0



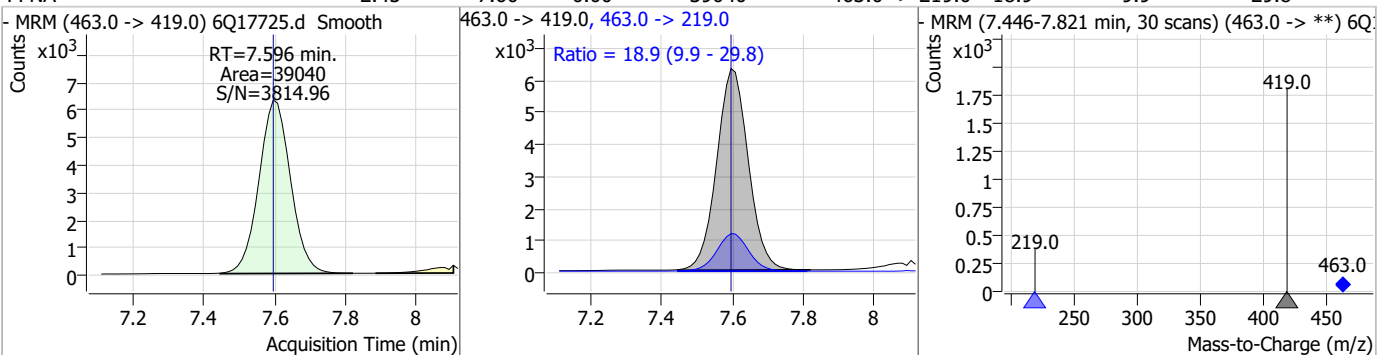
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	55.35	7.60	0.01	95416	441.0 -> 336.9	232.0	103.0	308.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.04	7.60	0.00	21184	472.1 -> 427.0			

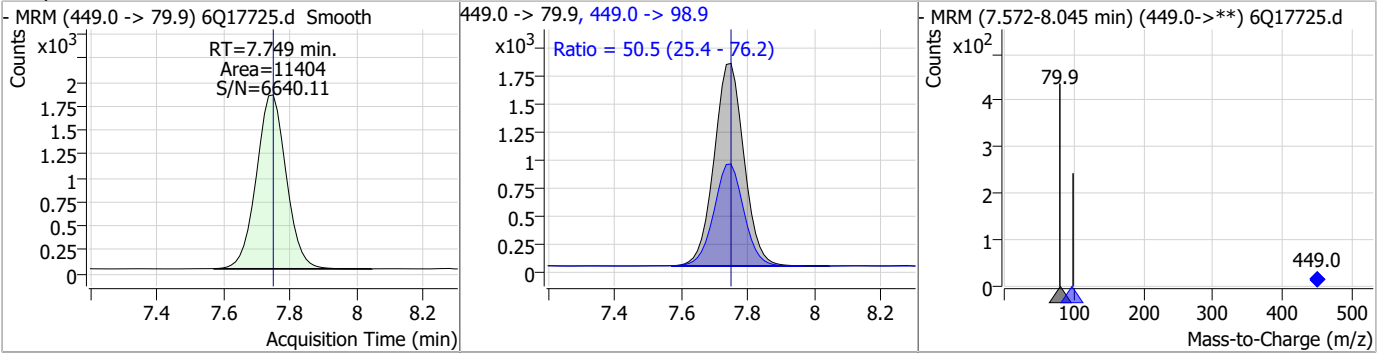


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.45	7.60	0.00	39040	463.0 -> 219.0			

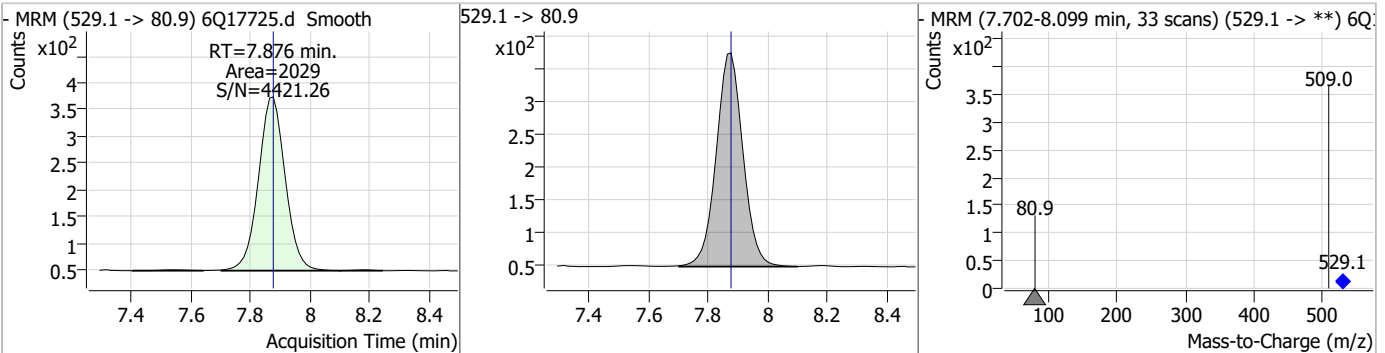


Perfluorinated Compounds by LC/MS/MS

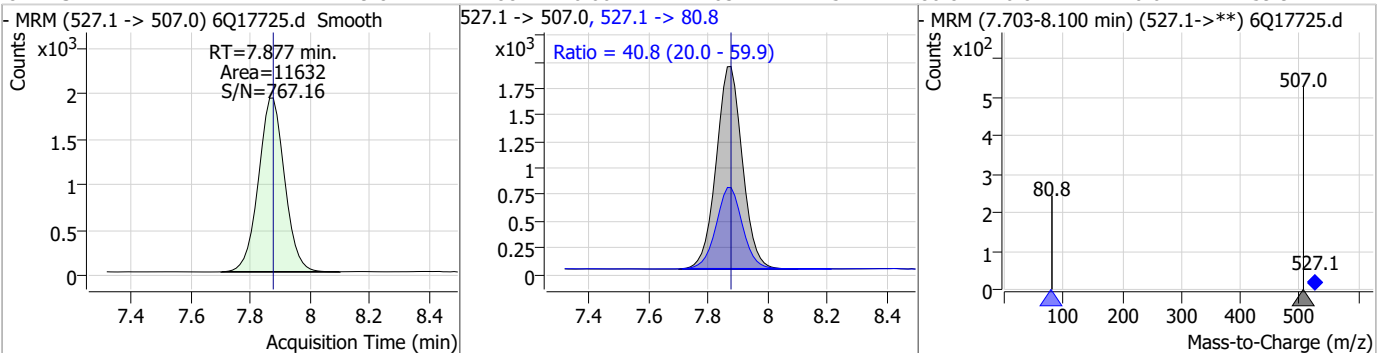
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.11	7.75	0.00	11404	449.0 -> 98.9	50.5	25.4	76.2



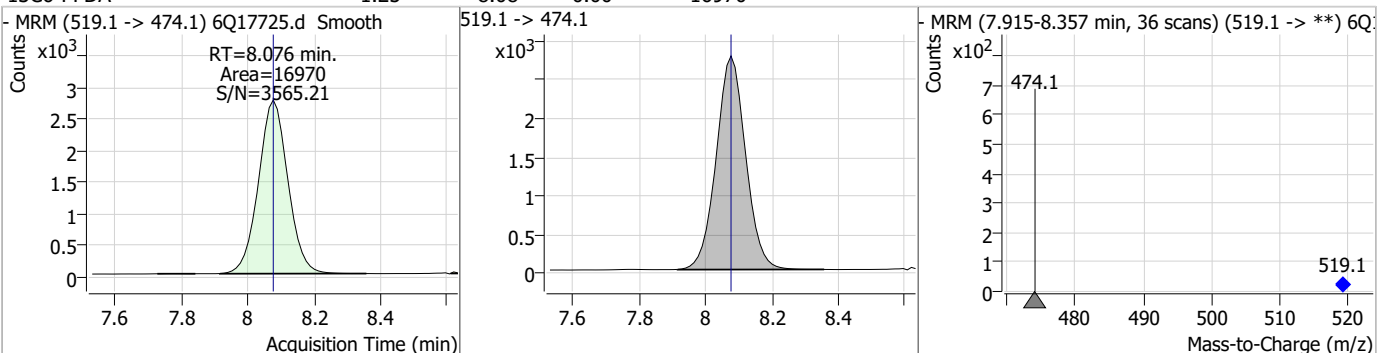
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.91	7.88	0.00	2029	529.1 -> 80.9	40.8	20.0	59.9



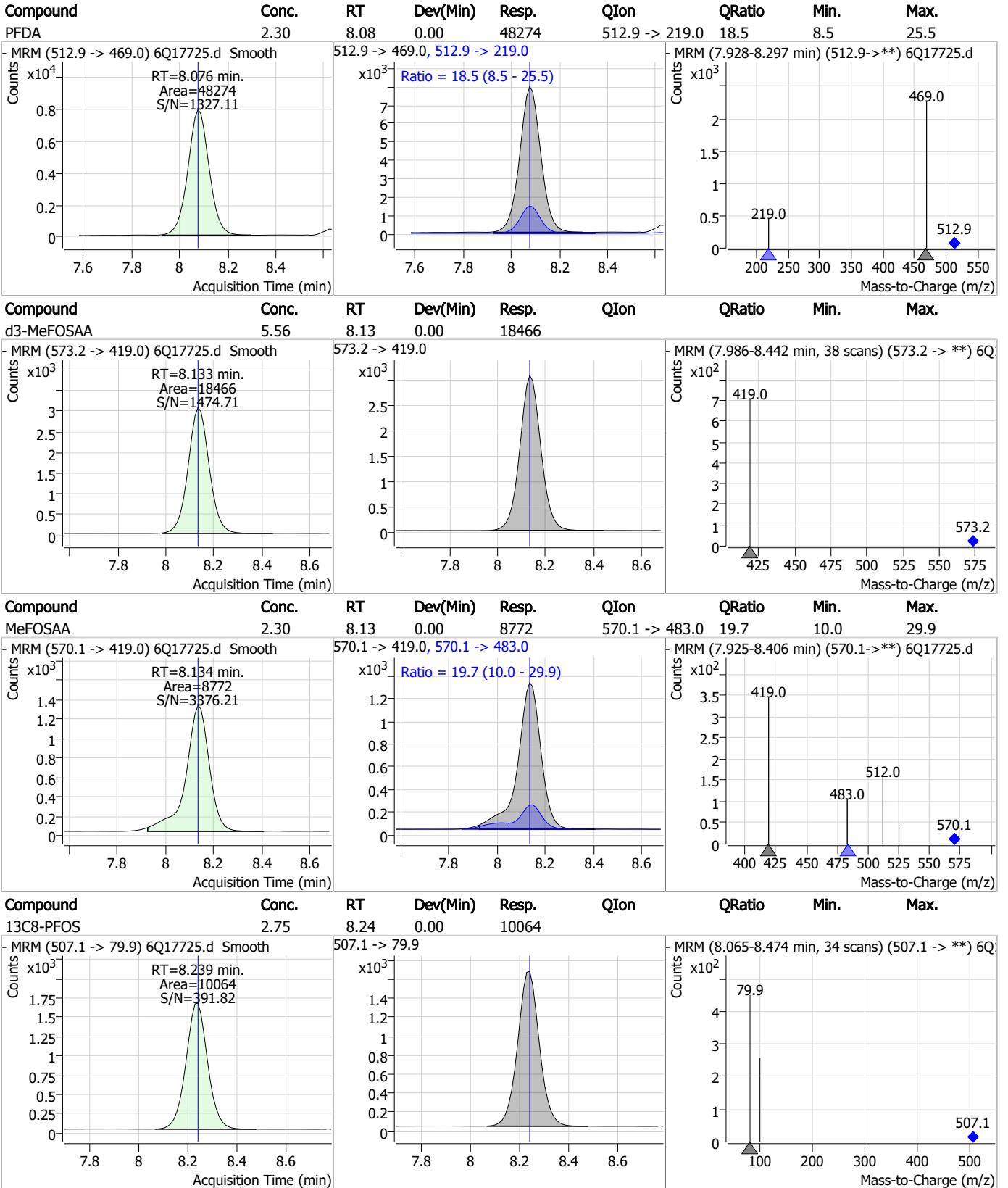
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.87	7.88	0.00	11632	527.1 -> 80.8	40.8	20.0	59.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.25	8.08	0.00	16970	519.1 -> 474.1	40.8	20.0	59.9



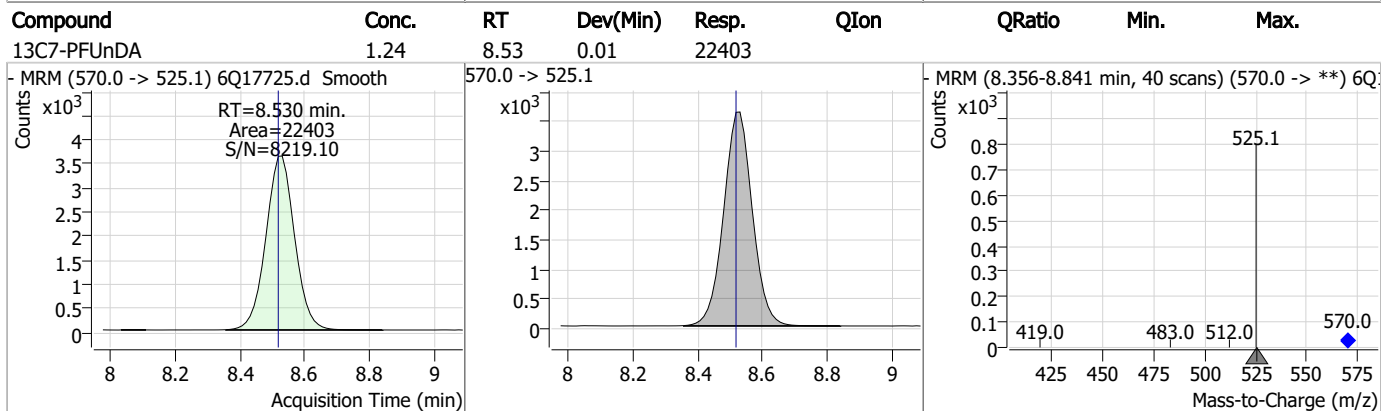
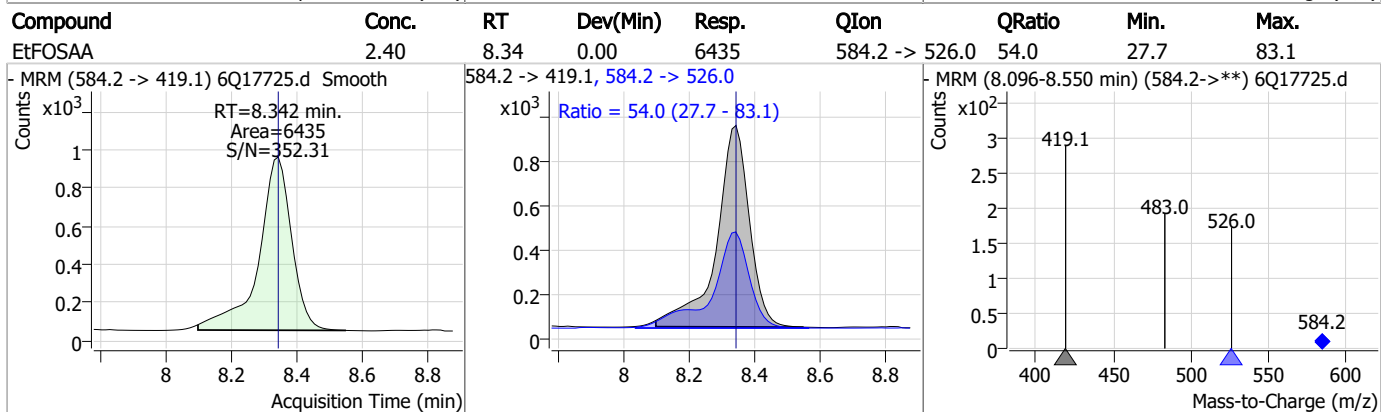
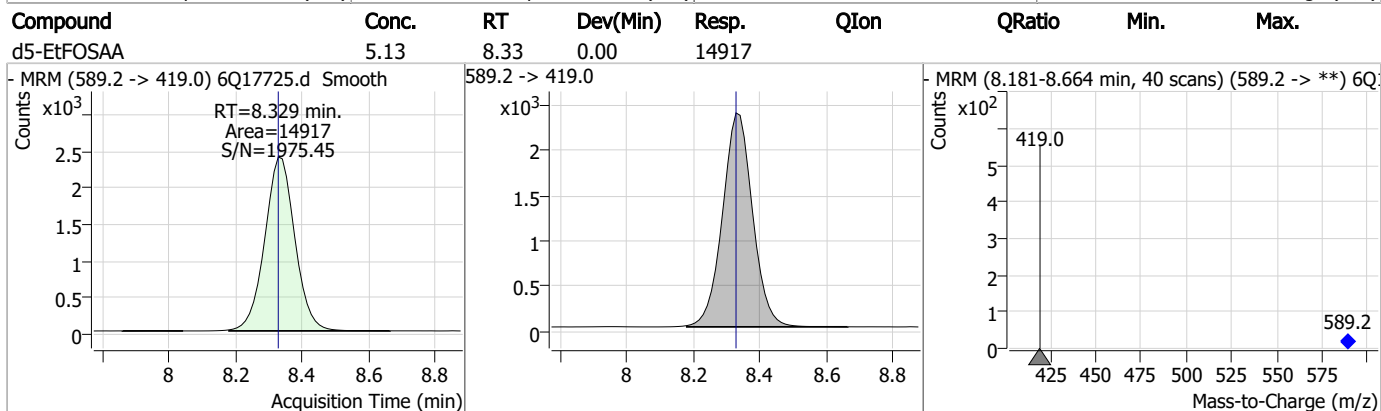
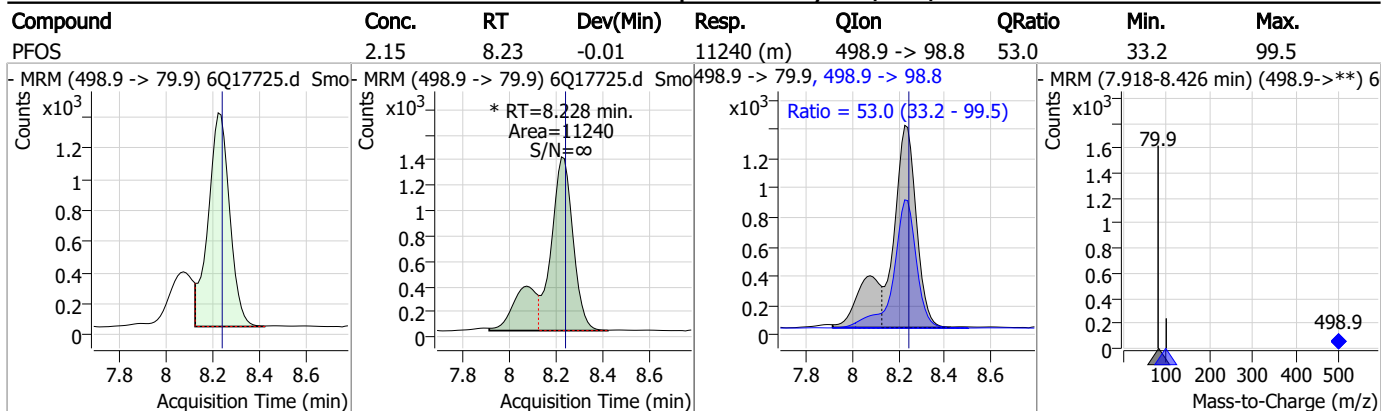
Perfluorinated Compounds by LC/MS/MS



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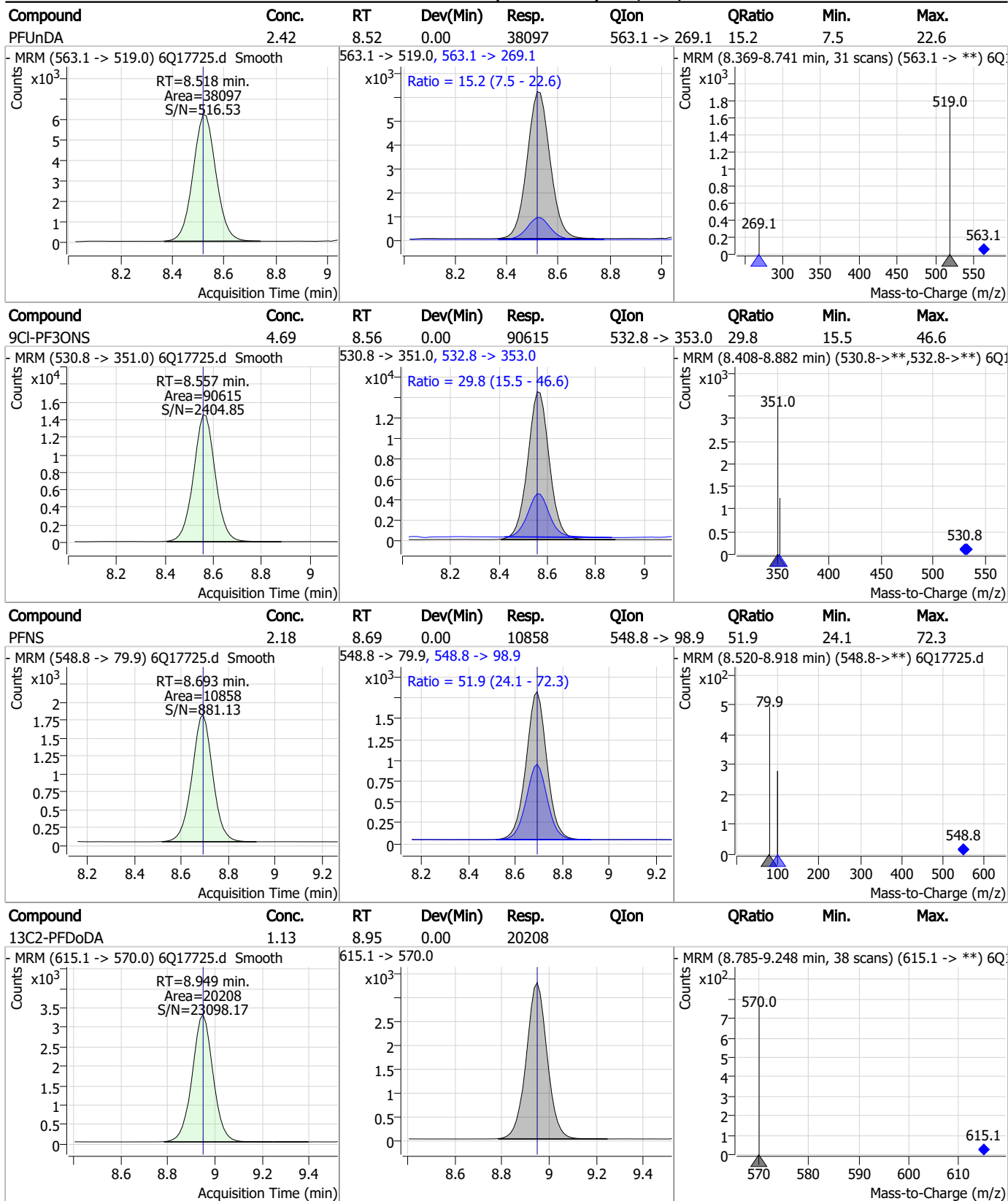


Perfluorinated Compounds by LC/MS/MS



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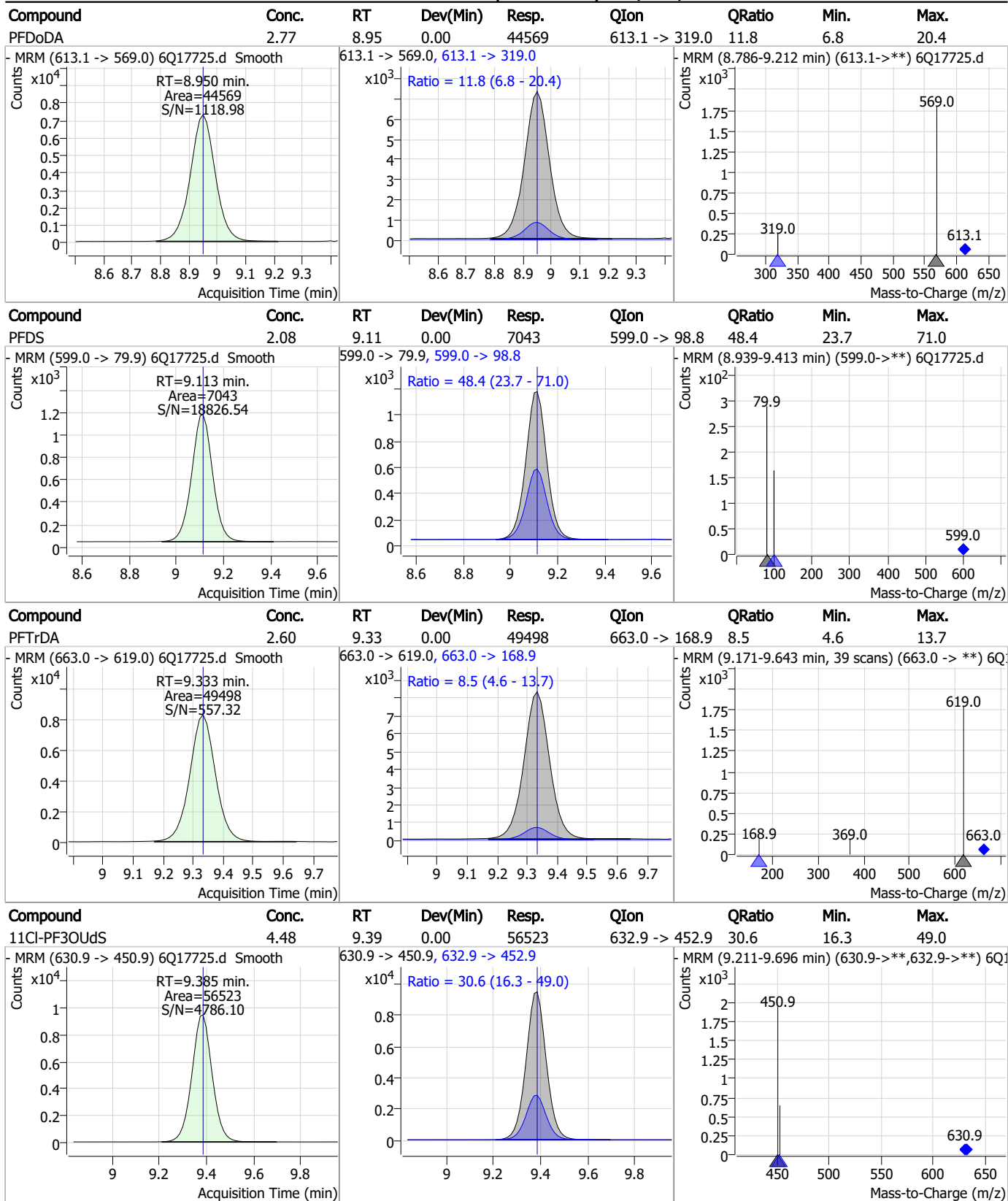
Perfluorinated Compounds by LC/MS/MS



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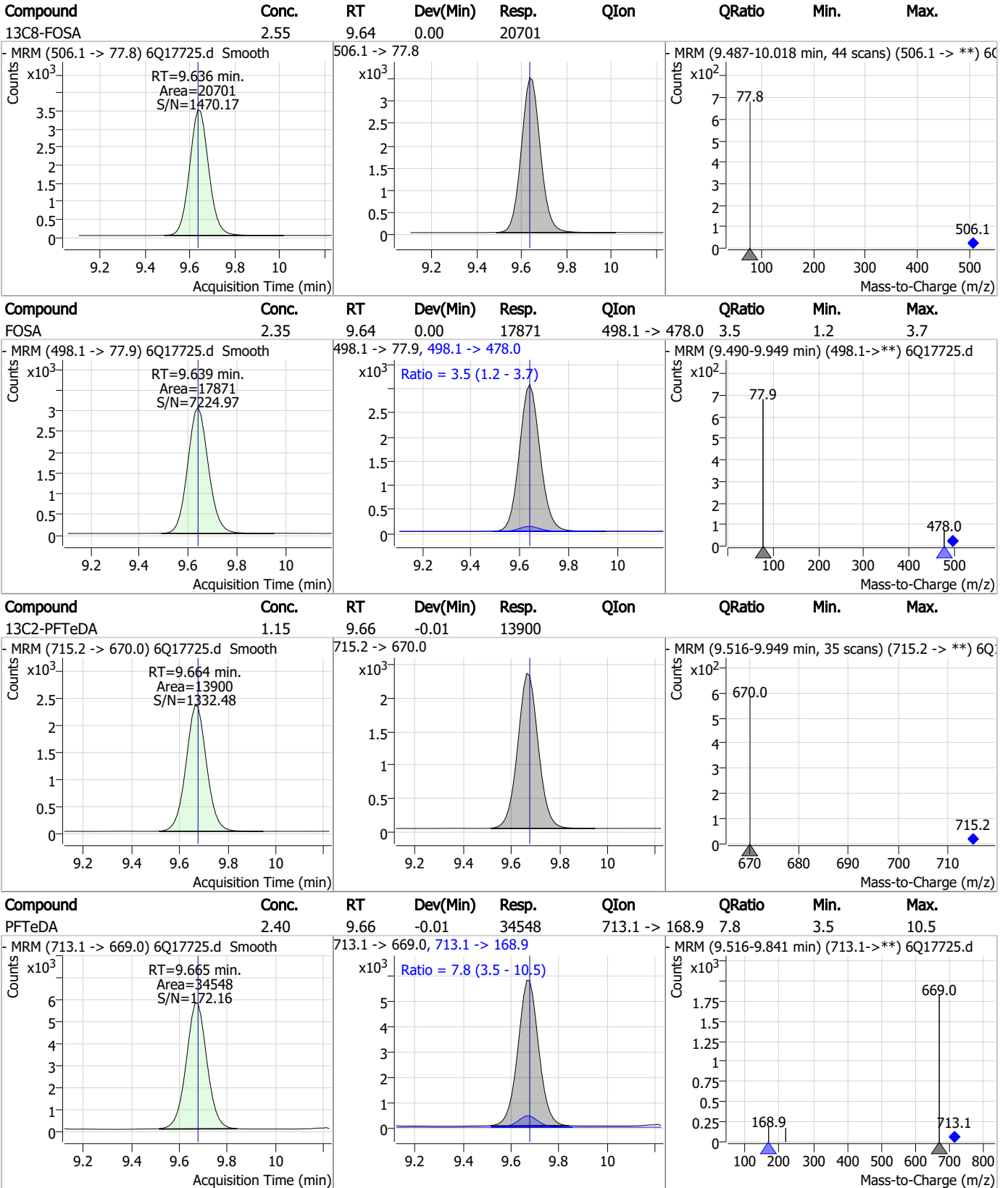


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

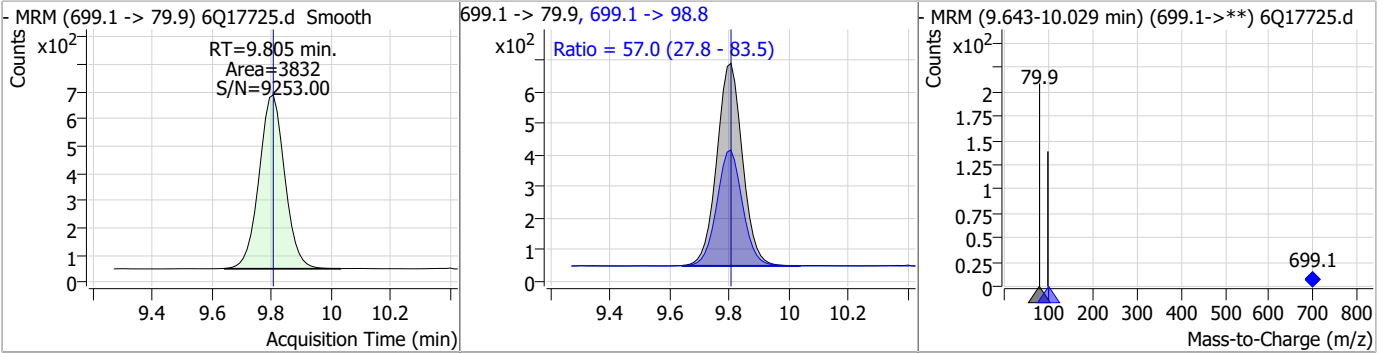


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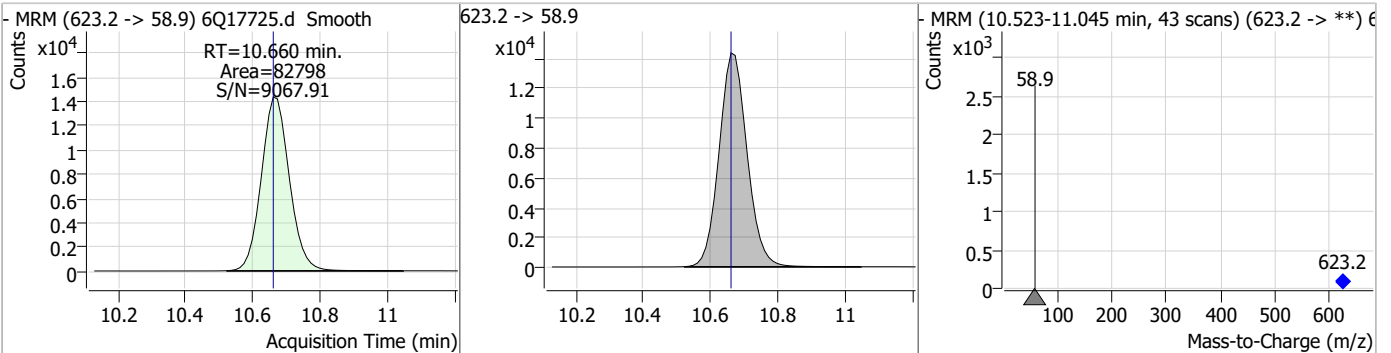


Perfluorinated Compounds by LC/MS/MS

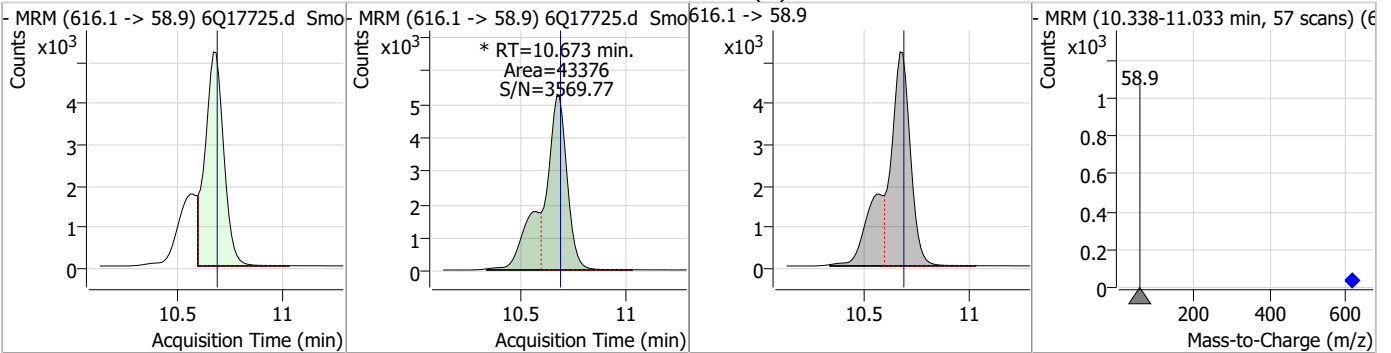
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.12	9.81	0.00	3832	699.1 -> 98.8	57.0	27.8	83.5



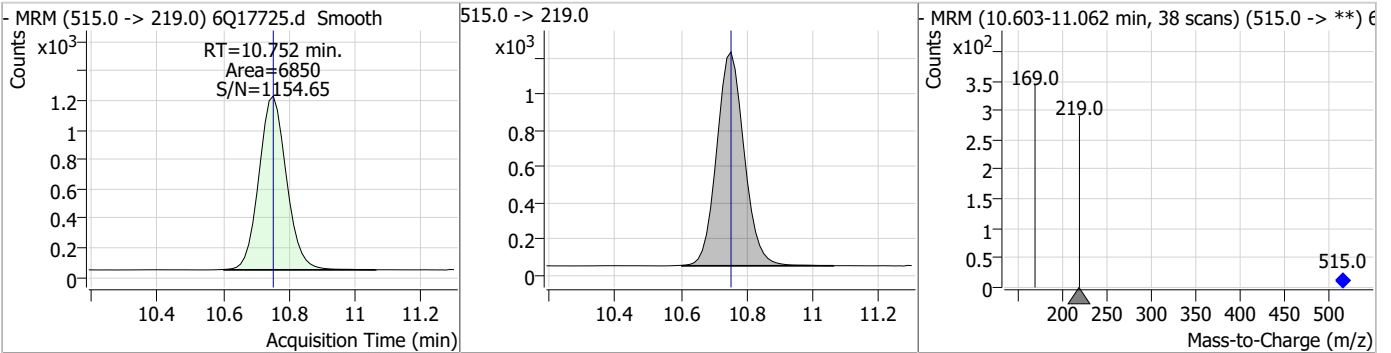
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.48	10.66	0.00	82798				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.70	10.67	-0.01	43376 (m)				

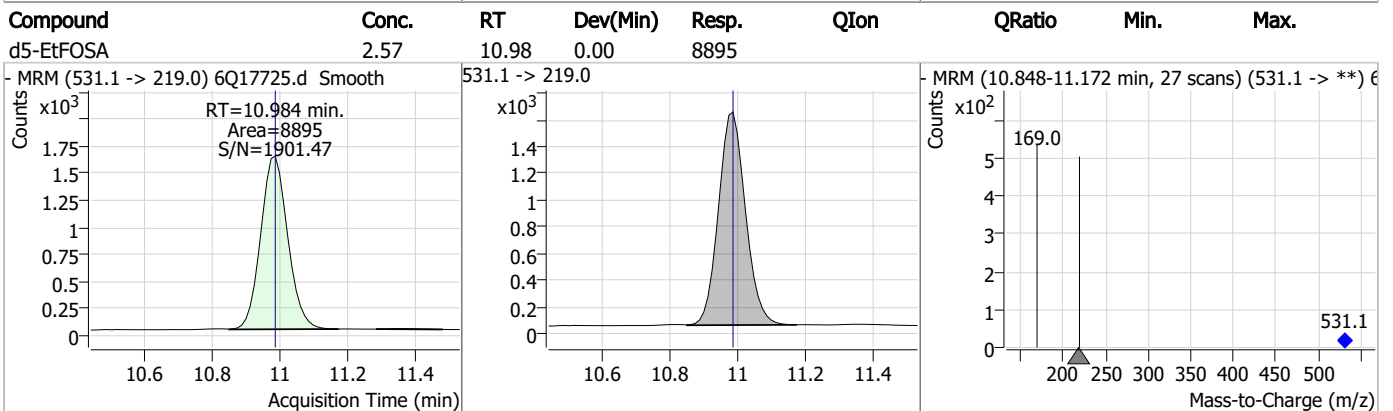
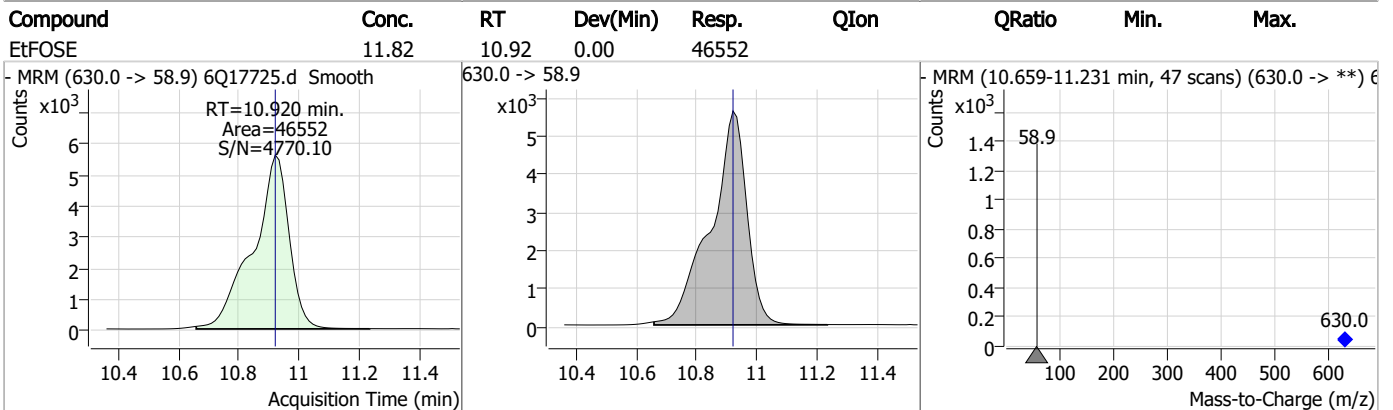
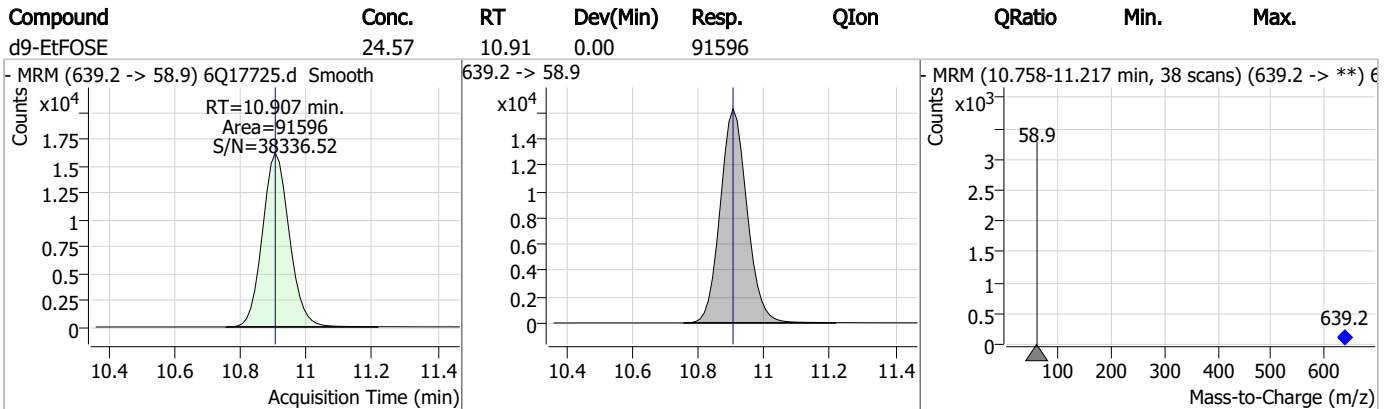
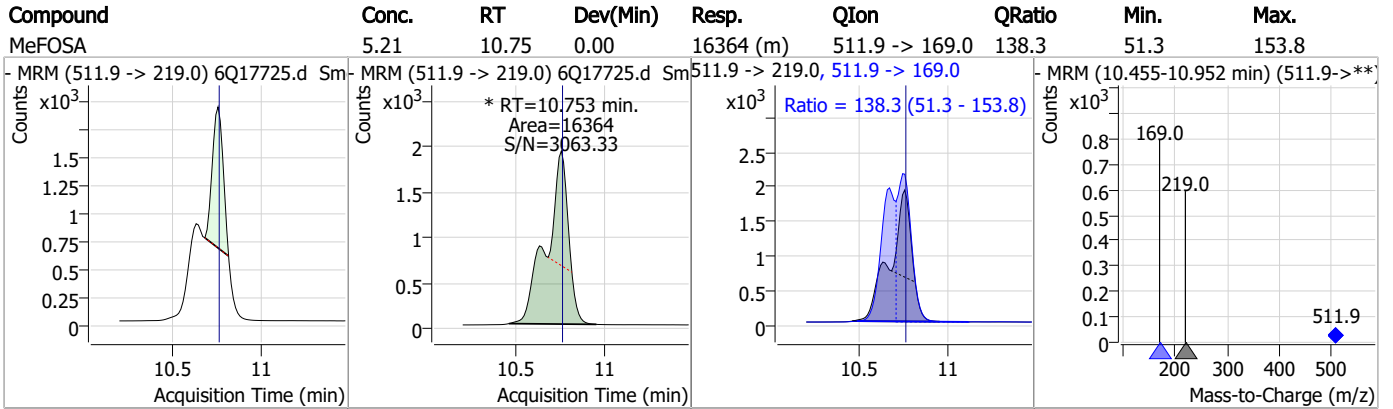


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.36	10.75	0.00	6850				



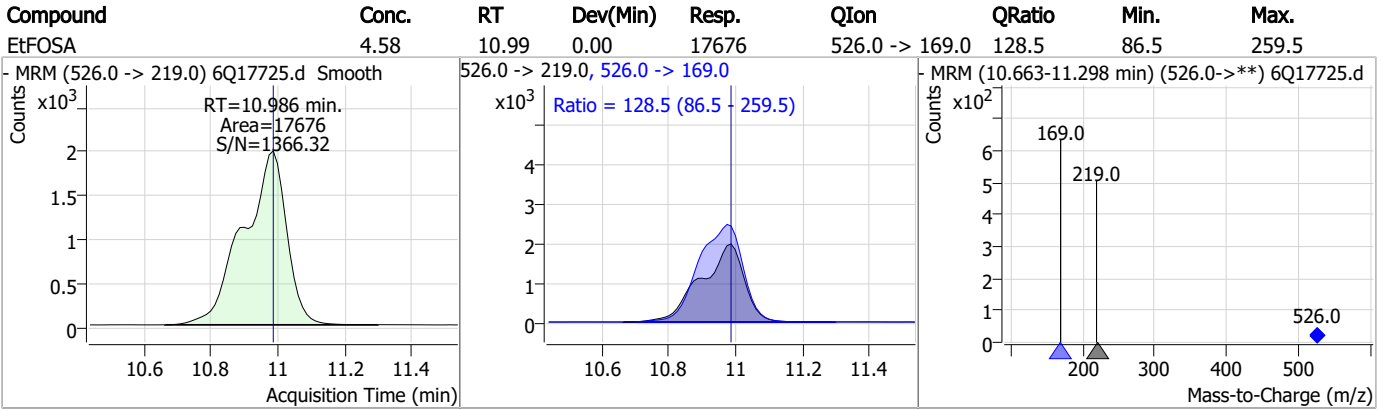
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q267-CC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17725.D Analyst approved: 05/11/23 11:20 Martha Valls
Injection Time: 05/10/23 22:44 Supervisor approved: 05/11/23 14:15 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSE	24448-09-7		10.67	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.30.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17730.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/10/2023 11:56:44 PM
 Sample Name : ecc265-4
 Vial : P1-A5
 DA Method File : 1633_050823_S6Q265.quantmethod.xml
 Batch Name : s6q267.batch.bin
 Sample Information : OP96663,S6Q267,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.913	216.8 -> 171.9	153411	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	48079	5.00 µg/L	0.000
M5-PFHxA	5.478	318.0 -> 273.0	57114	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	43883	2.50 µg/L	-0.012
M8-PFOA	7.077	421.1 -> 376.0	71512	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22483	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	15499	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	22569	1.25 µg/L	0.012
M2-PFDoDA	8.949	615.1 -> 570.0	20395	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14048	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	21209	2.50 µg/L	0.000
M3-PFBS	5.409	302.1 -> 79.9	18213	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10881	2.50 µg/L	-0.012
M8-PFOS	8.239	507.1 -> 79.9	9127	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1539	5.00 µg/L	-0.012
M2-6:2FTS	6.850	429.1 -> 80.9	1982	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2148	5.00 µg/L	-0.012
M3-MeFOSAA	8.133	573.2 -> 419.0	19837	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	32906	10.00 µg/L	-0.012
M5-EtFOSAA	8.341	589.2 -> 419.0	16313	5.00 µg/L	0.012
M7-MeFOSE	10.660	623.2 -> 58.9	78488	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	94996	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8862	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7263	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13222	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	63815	5.00 µg/L	0.012
18O2-PFHxS	7.178	403.0 -> 83.9	8391	2.50 µg/L	-0.012
13C4-PFOA	7.065	417.1 -> 372.0	71721	2.50 µg/L	-0.012
13C2-PFDA	8.076	515.1 -> 470.1	22379	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	24695	1.25 µg/L	0.000
13C2-PFHxA	5.479	315.1 -> 270.0	44902	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1539	4.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-6:2FTS	6.850	429.1 -> 80.9	1982	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2148	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20395	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.2%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14048	1.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.0%		
13C3-PFBS	5.409	302.1 -> 79.9	18213	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFHxS	7.179	402.1 -> 79.9	10881	2.49 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 = 99.6%	
13C4-PFBA	2.913	216.8 -> 171.9	153411	10.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C4-PFHpA	6.420	367.1 -> 322.0	43883	2.31 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C5-PFHxA	5.478	318.0 -> 273.0	57114	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C5-PFPeA	4.272	268.3 -> 223.0	48079	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.076	519.1 -> 474.1	15499	1.06 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 84.5%	
13C7-PFUnDA	8.530	570.0 -> 525.1	22569	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C8-FOSA	9.636	506.1 -> 77.8	21209	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-PFOA	7.077	421.1 -> 376.0	71512	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-PFOS	8.239	507.1 -> 79.9	9127	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.3%	
13C9-PFNA	7.595	472.1 -> 427.0	22483	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSAA	8.133	573.2 -> 419.0	19837	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	32906	9.87 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d3-MeFOSA	10.752	515.0 -> 219.0	7263	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.5%	
d5-EtFOSAA	8.341	589.2 -> 419.0	16313	5.02 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d7-MeFOSE	10.660	623.2 -> 58.9	78488	21.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	94996	22.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	8862	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.5%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	21485	9.14 µg/L	98
		327.1 -> 80.9	8663		
6:2FTS	6.838	427.1 -> 407.0	22159	10.17 µg/L	96
		427.1 -> 80.9	6784		
8:2FTS	7.877	527.1 -> 507.0	12587	10.09 µg/L	97
		527.1 -> 80.8	4837		
EtFOSAA	8.342	584.2 -> 419.1	6559	2.24 µg/L	96
		584.2 -> 526.0	3804		
FOSA	9.639	498.1 -> 77.9	17601	2.26 µg/L	98
		498.1 -> 478.0	589		
MeFOSAA	8.134	570.1 -> 419.0	9448	2.30 µg/L	92
		570.1 -> 483.0	1531		
PFBA	2.907	212.8 -> 168.9	52798	9.61 µg/L	100
PFBS	5.398	298.7 -> 79.9	18970	2.10 µg/L	96
		298.7 -> 98.8	6985		
PFDA	8.076	512.9 -> 469.0	54796	2.86 µg/L	95
		512.9 -> 219.0	8204		
PFDODA	8.950	613.1 -> 569.0	42305	2.60 µg/L	98
		613.1 -> 319.0	6119		
PFDS	9.113	599.0 -> 79.9	7378	2.40 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	3378	2.60	µg/L	100
		363.1 -> 319.0	57542			
PFHpS	7.735	363.1 -> 169.0	9305	2.41	µg/L	99
		449.0 -> 79.9	11851			
PFHxA	5.481	449.0 -> 98.9	5913	2.28	µg/L	99
		313.0 -> 269.0	52887			
PFHxS	7.180	313.0 -> 118.9	2345	1.96	µg/L	m
		398.7 -> 79.9	12616			
PFNA	7.596	398.7 -> 98.9	6956	2.58	µg/L	92
		463.0 -> 419.0	43755			
PFNS	8.693	463.0 -> 219.0	7117	2.49	µg/L	95
		548.8 -> 79.9	11268			
PFOA	7.078	548.8 -> 98.9	5838	2.16	µg/L	98
		413.0 -> 369.0	75318			
PFOS	8.240	413.0 -> 169.0	14229	2.28	µg/L	m
		498.9 -> 79.9	10800			
PFPeA	4.274	498.9 -> 98.8	5578	4.80	µg/L	100
		263.0 -> 219.0	67411			
PFPeS	6.471	349.1 -> 79.9	13436	2.19	µg/L	97
		349.1 -> 98.9	6502			
PFTeDA	9.677	713.1 -> 669.0	36424	2.51	µg/L	99
		713.1 -> 168.9	2685			
PFTrDA	9.333	663.0 -> 619.0	50229	2.61	µg/L	97
		663.0 -> 168.9	3957			
PFUnDA	8.531	563.1 -> 519.0	36564	2.31	µg/L	99
		563.1 -> 269.1	5625			
11CI-PF3OUdS	9.385	630.9 -> 450.9	55678	4.42	µg/L	97
		632.9 -> 452.9	19046			
9CI-PF3ONS	8.557	530.8 -> 351.0	94712	4.90	µg/L	97
		532.8 -> 353.0	28100			
ADONA	6.683	376.9 -> 250.9	228800	4.34	µg/L	98
		376.9 -> 84.8	60850			
HFPO-DA	5.845	284.9 -> 168.9	15618	4.92	µg/L	98
		284.9 -> 184.9	2087			
3:3FTCA	3.790	241.0 -> 177.0	10270	11.45	µg/L	97
		241.0 -> 117.0	1279			
5:3FTCA	6.174	341.0 -> 237.1	222184	56.07	µg/L	95
		341.0 -> 217.0	157990			
7:3FTCA	7.586	441.0 -> 316.9	104262	58.42	µg/L	93
		441.0 -> 336.9	225787			
EtFOSA	10.986	526.0 -> 219.0	18473	4.81	µg/L	68
		526.0 -> 169.0	23689			
EtFOSE	10.920	630.0 -> 58.9	49421	12.10	µg/L	100
		511.9 -> 219.0	17439			
MeFOSA	10.753	511.9 -> 169.0	23421	5.24	µg/L	m
		616.1 -> 58.9	45138			
MeFOSE	10.686	699.1 -> 79.9	3806	12.85	µg/L	m
		699.1 -> 98.8	1980			
PFDoDS	9.805	295.0 -> 201.0	11828	2.32	µg/L	95
		295.0 -> 84.9	2802			
NFDHA	5.361	279.0 -> 85.1	48053	4.77	µg/L	94
		229.0 -> 84.9	34713			
PFMBA	4.688	314.8 -> 134.9	124086	4.84	µg/L	100
		314.8 -> 82.9	4162			
PFMPA	3.442			4.87	µg/L	100
PFEESA	5.938			4.09	µg/L	100

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

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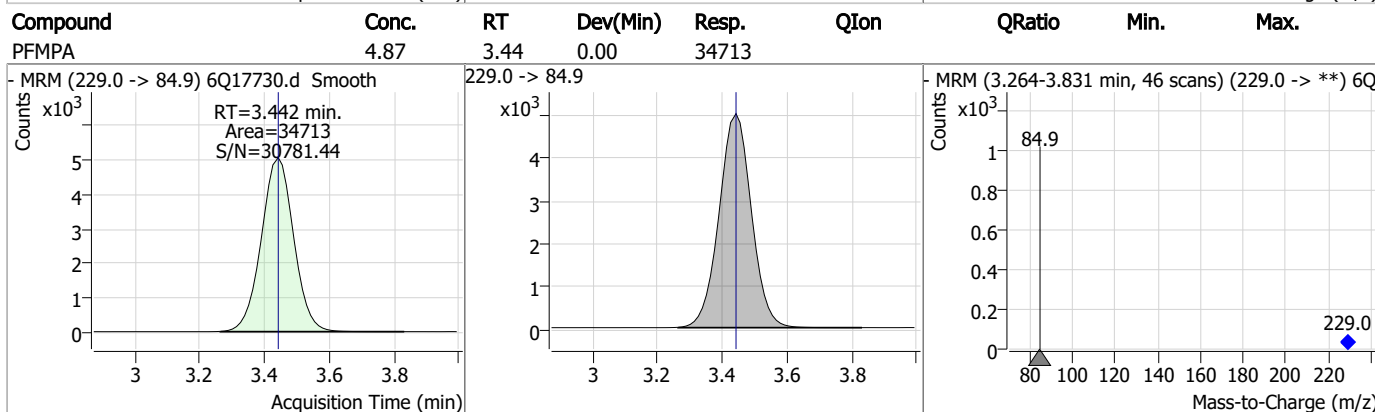
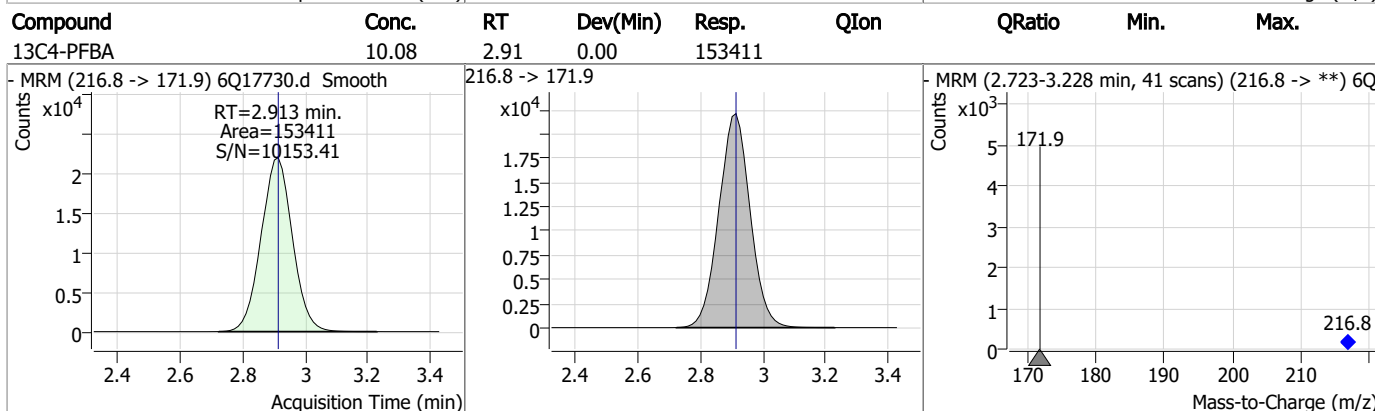
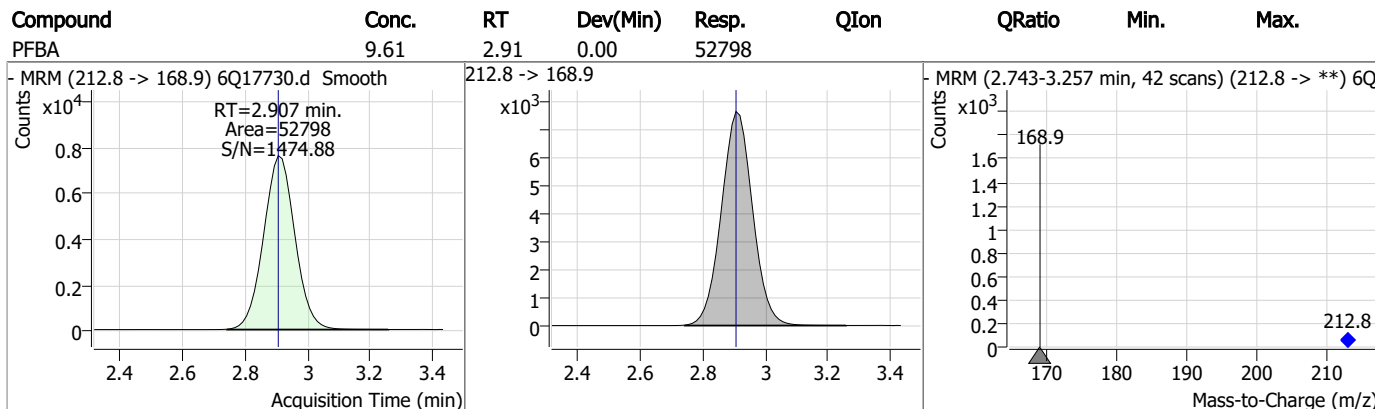
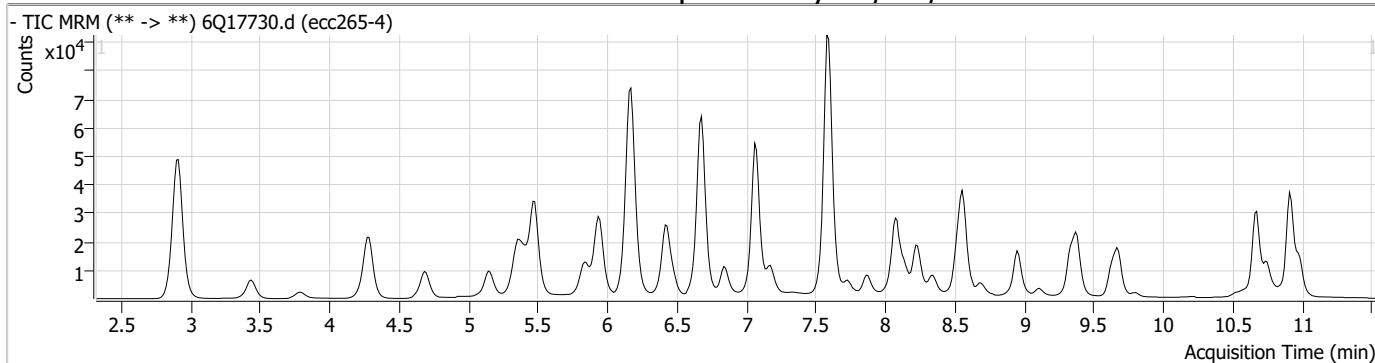
Perfluorinated Compounds by LC/MS/MS

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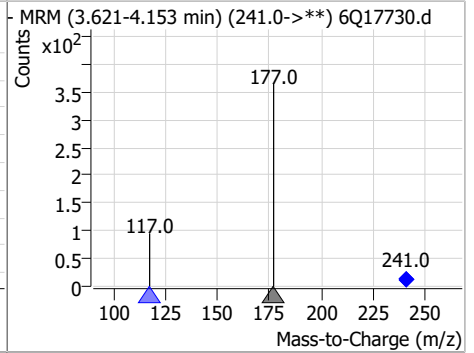
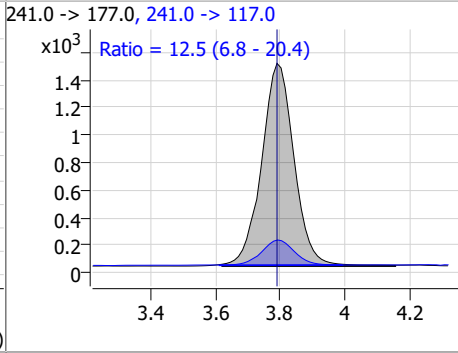
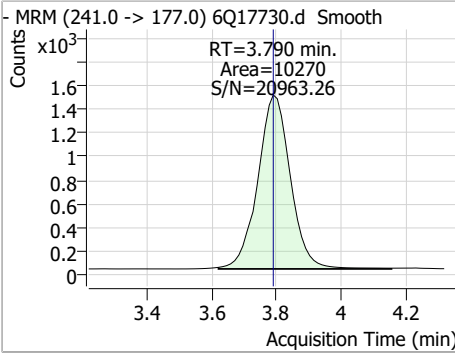
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Perfluorinated Compounds by LC/MS/MS

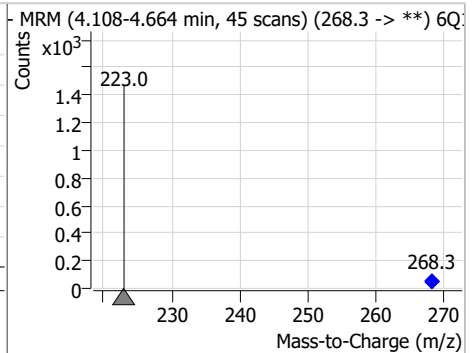
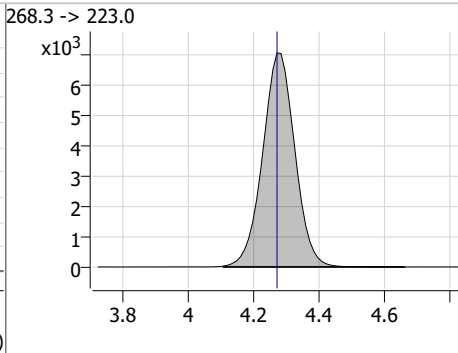
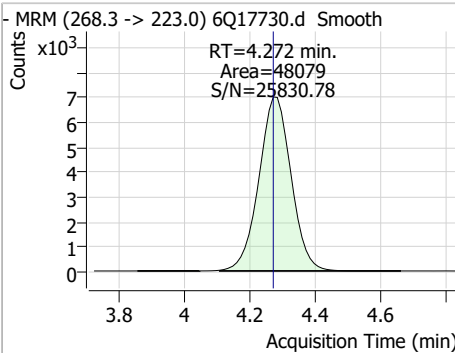


Perfluorinated Compounds by LC/MS/MS

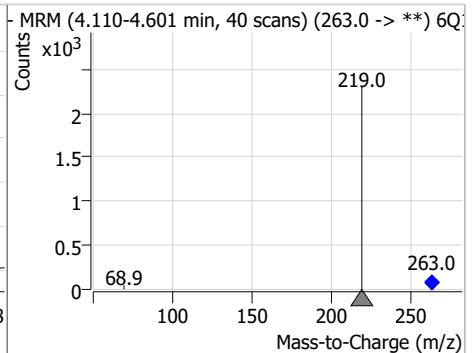
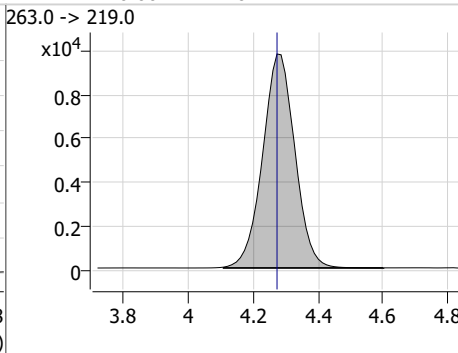
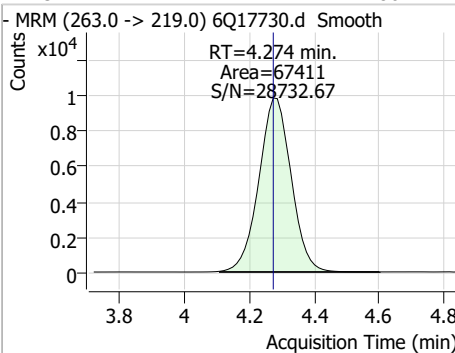
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.45	3.79	0.00	10270	241.0 -> 117.0	12.5	6.8	20.4



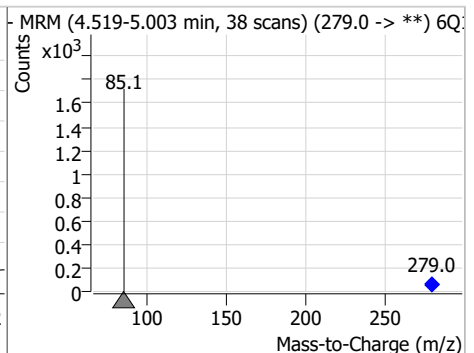
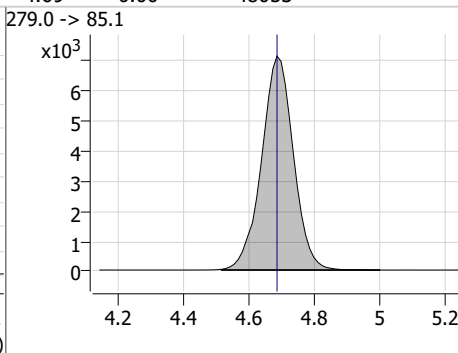
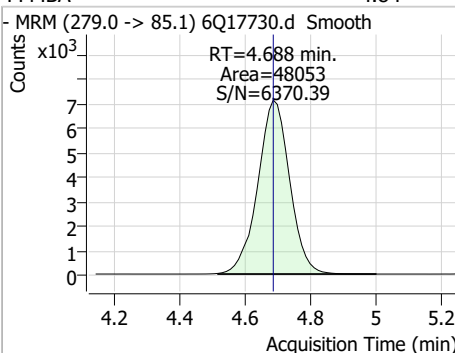
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.07	4.27	0.00	48079				



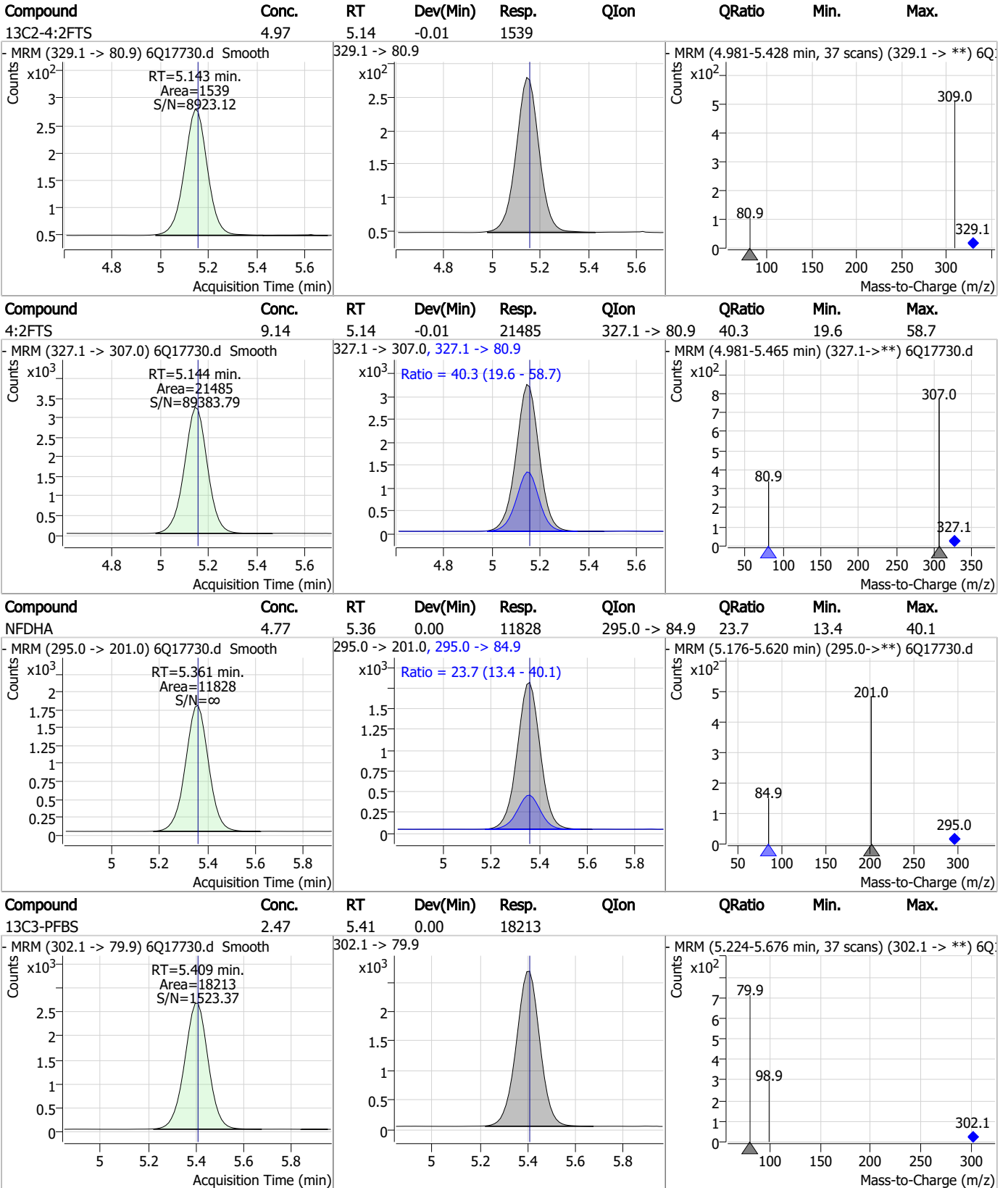
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.80	4.27	0.00	67411				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.84	4.69	0.00	48053				



Perfluorinated Compounds by LC/MS/MS

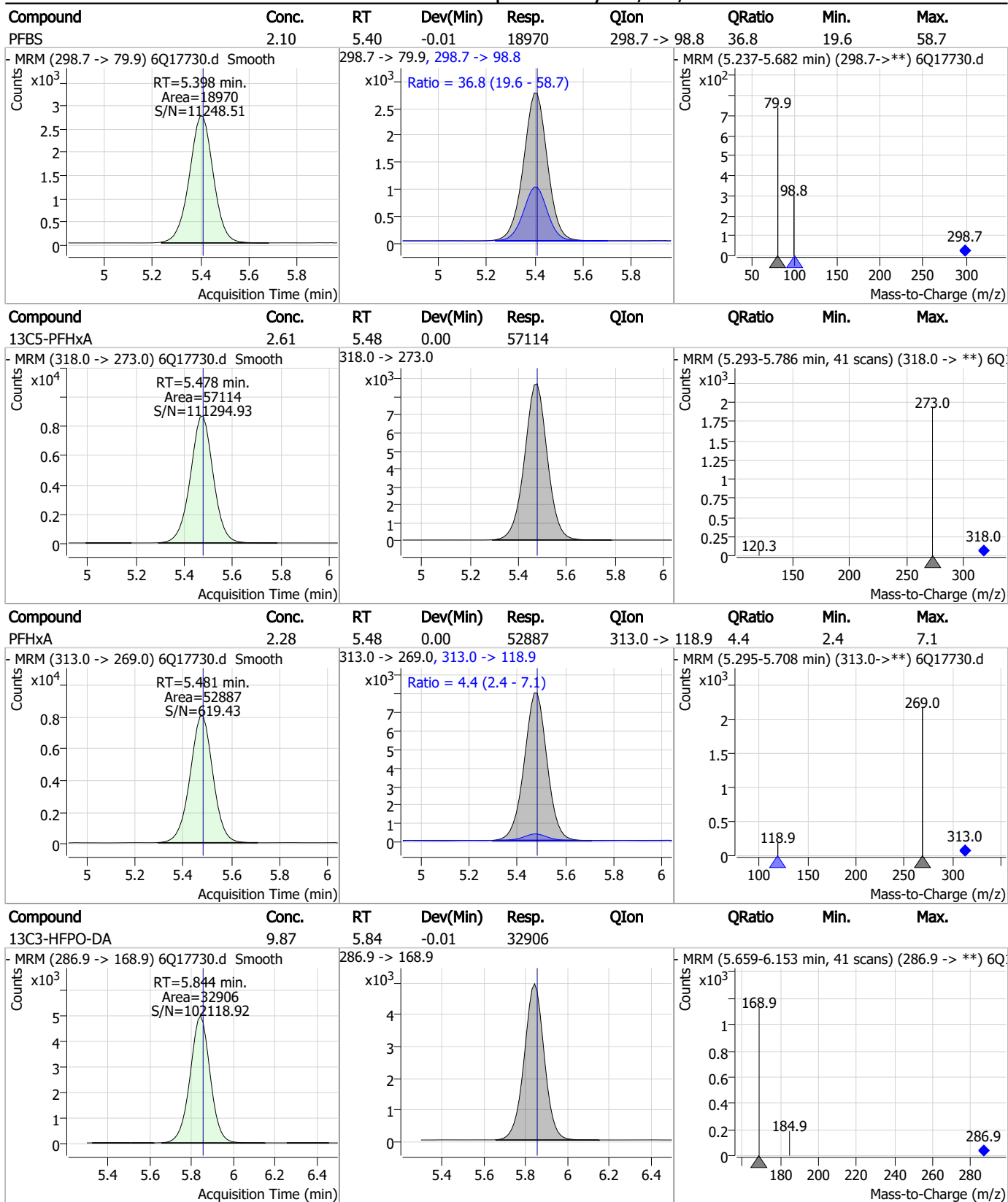


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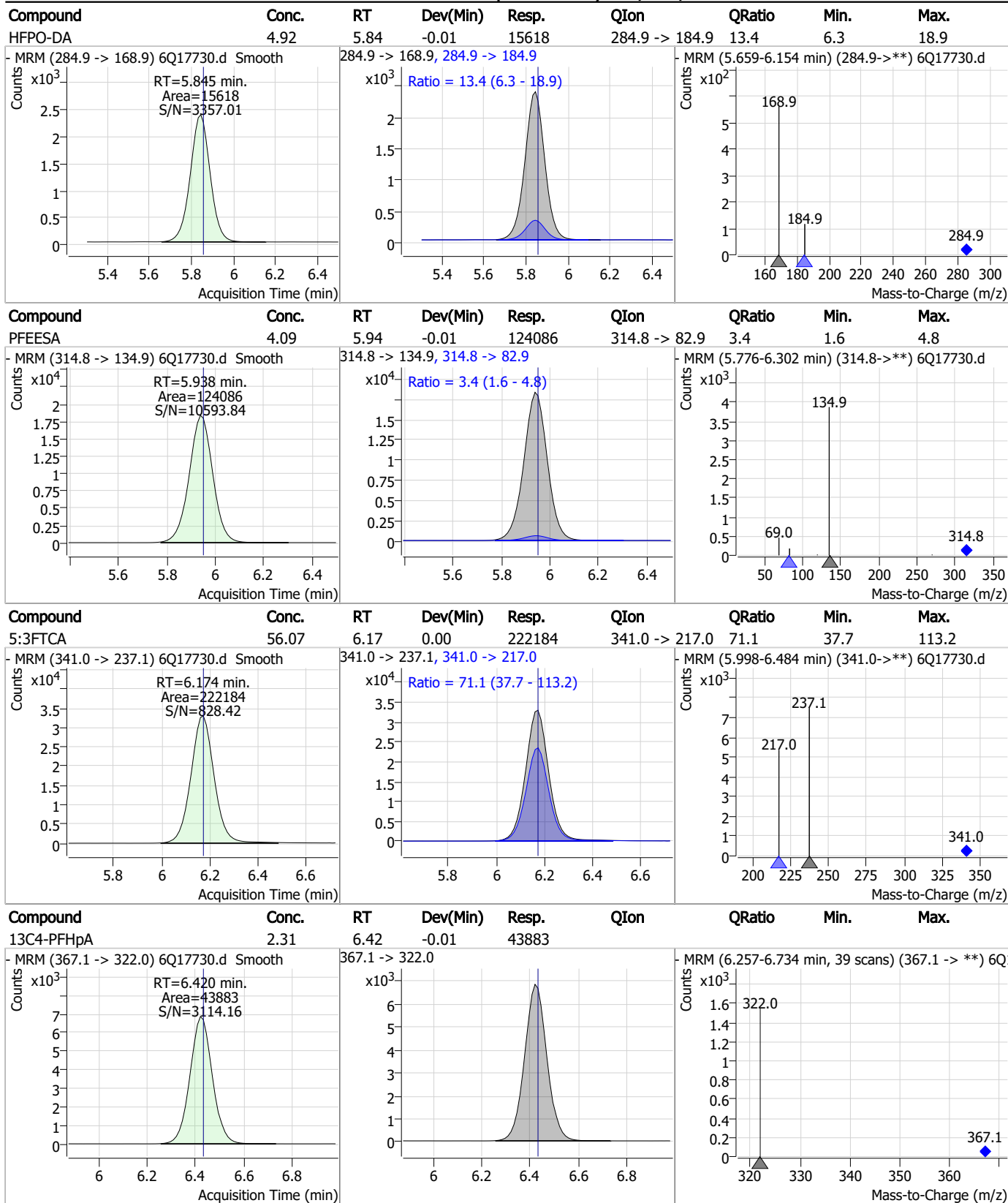
Perfluorinated Compounds by LC/MS/MS



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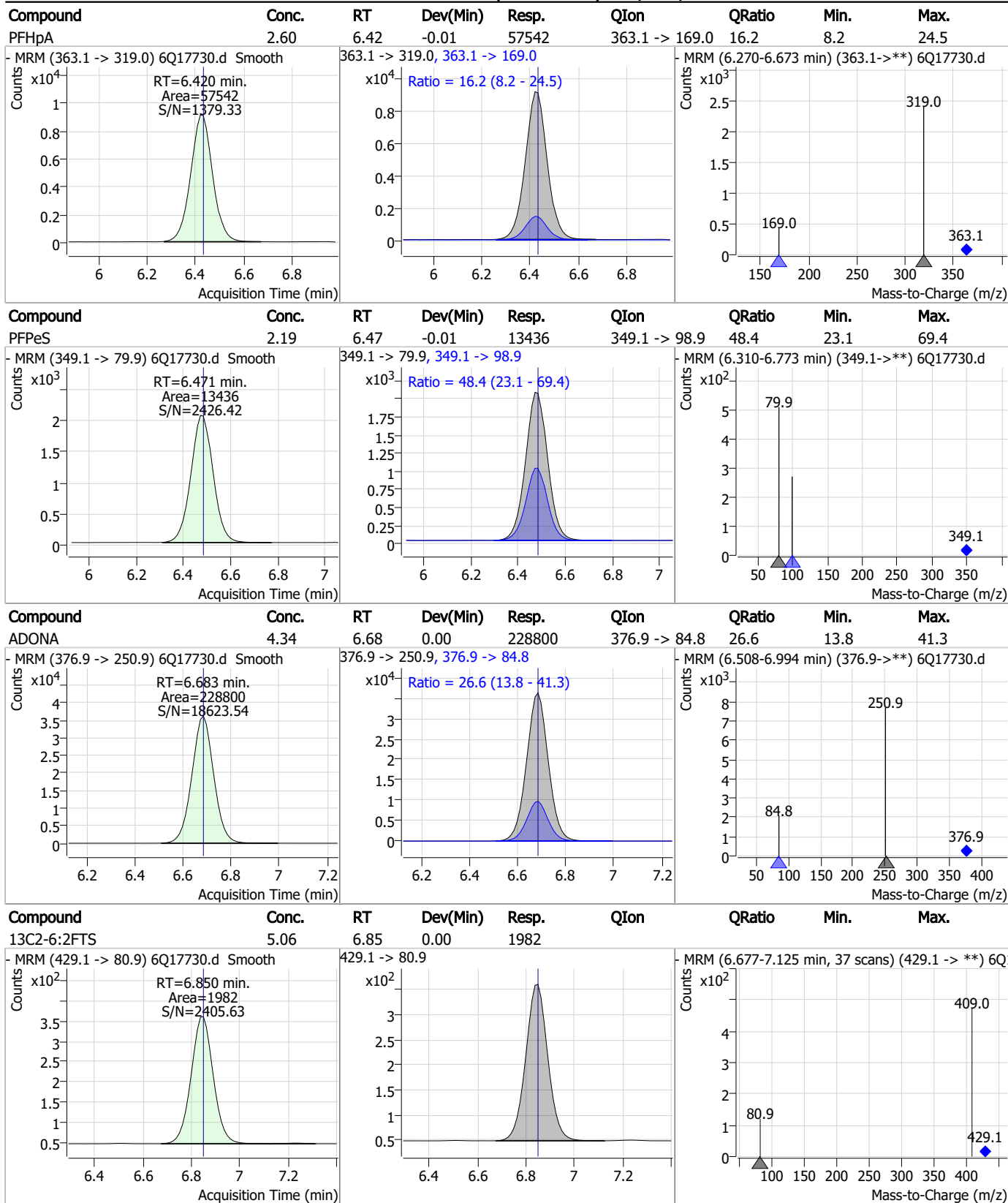
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Perfluorinated Compounds by LC/MS/MS



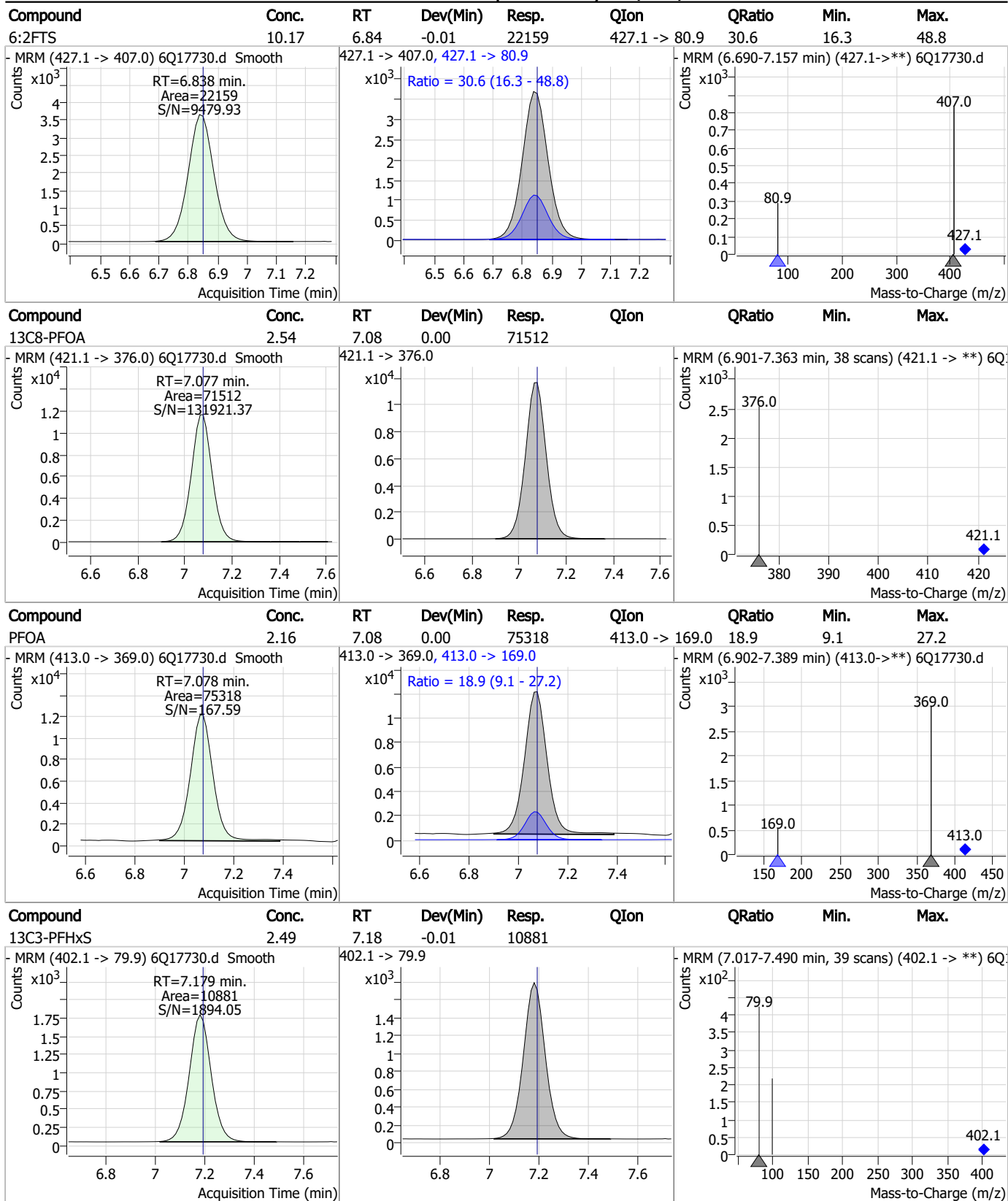
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Perfluorinated Compounds by LC/MS/MS



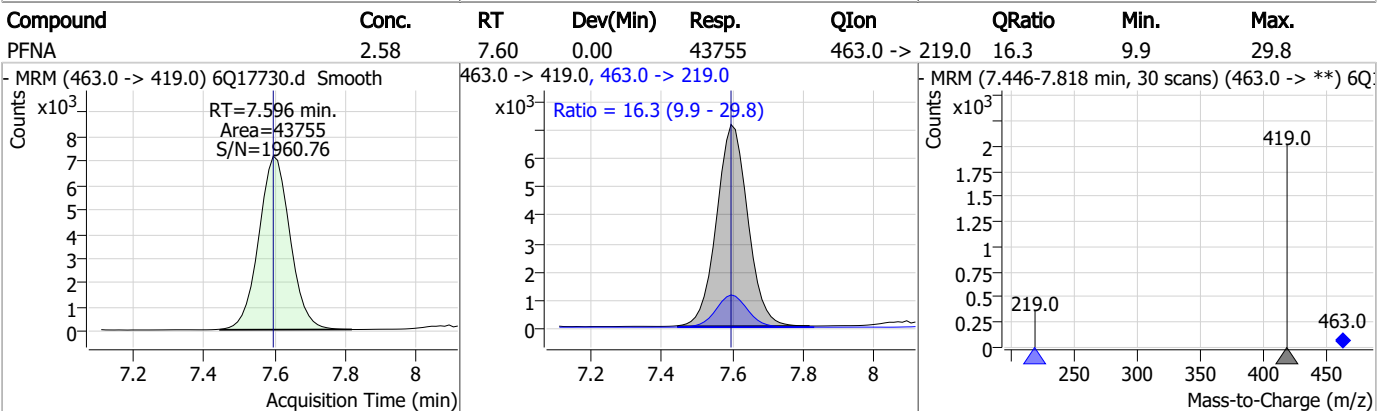
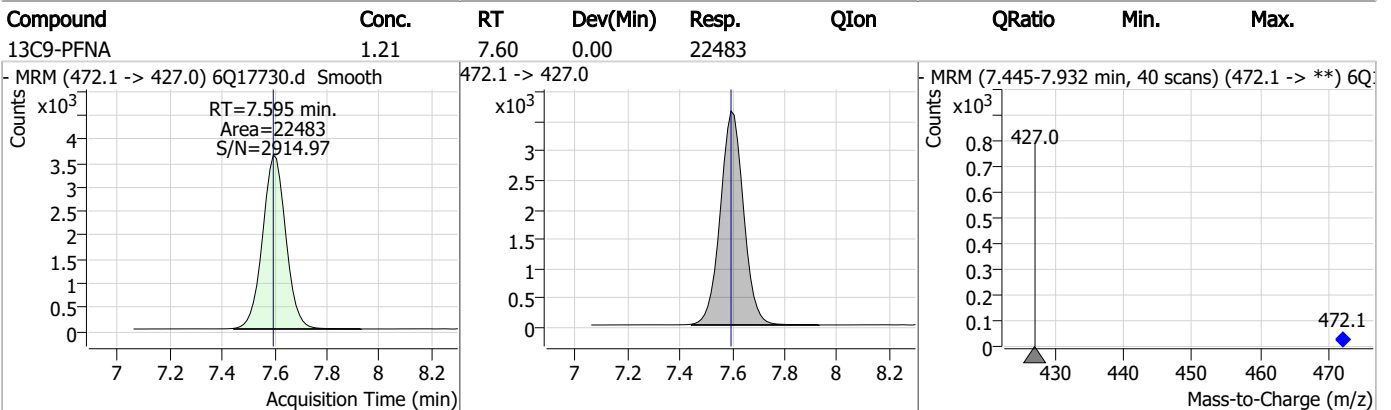
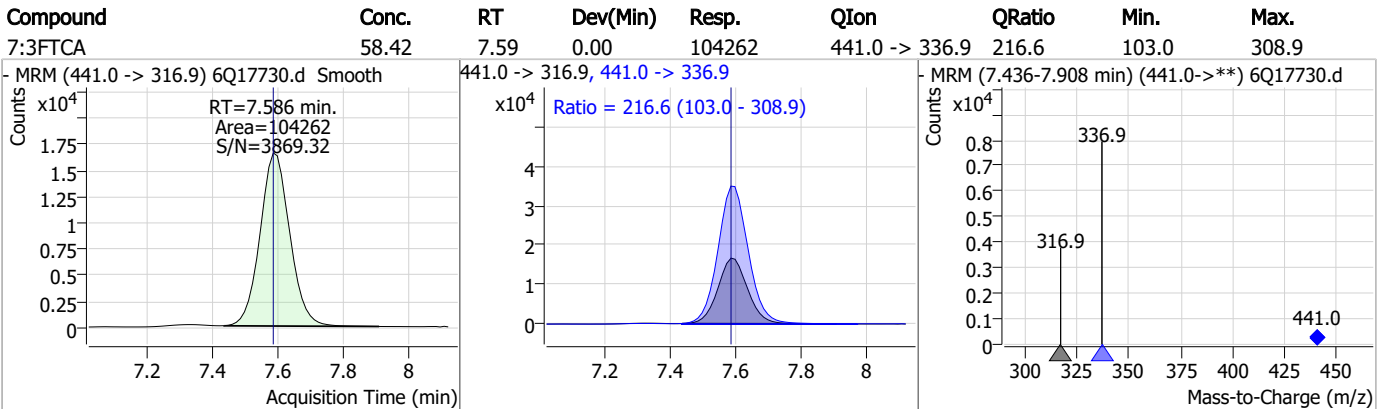
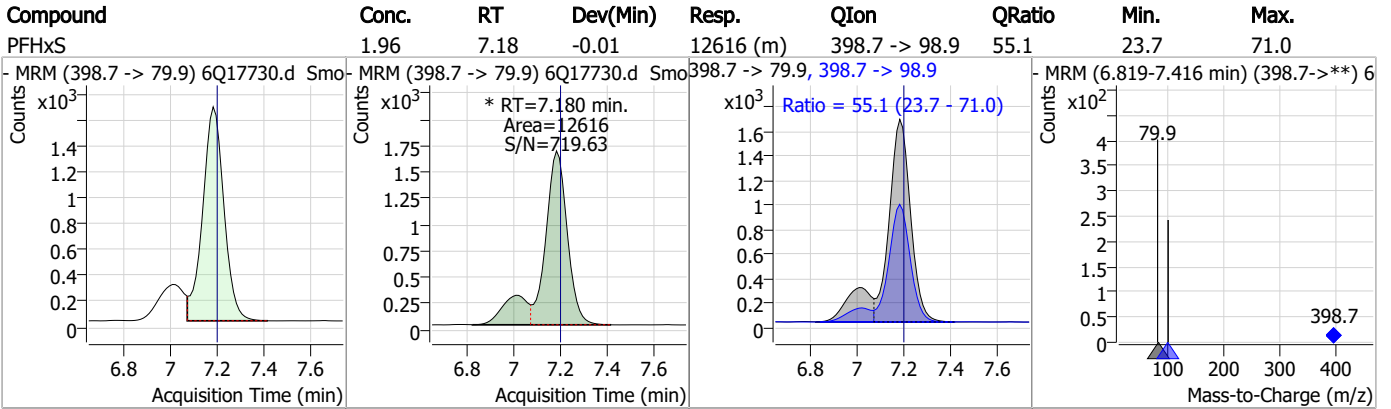
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



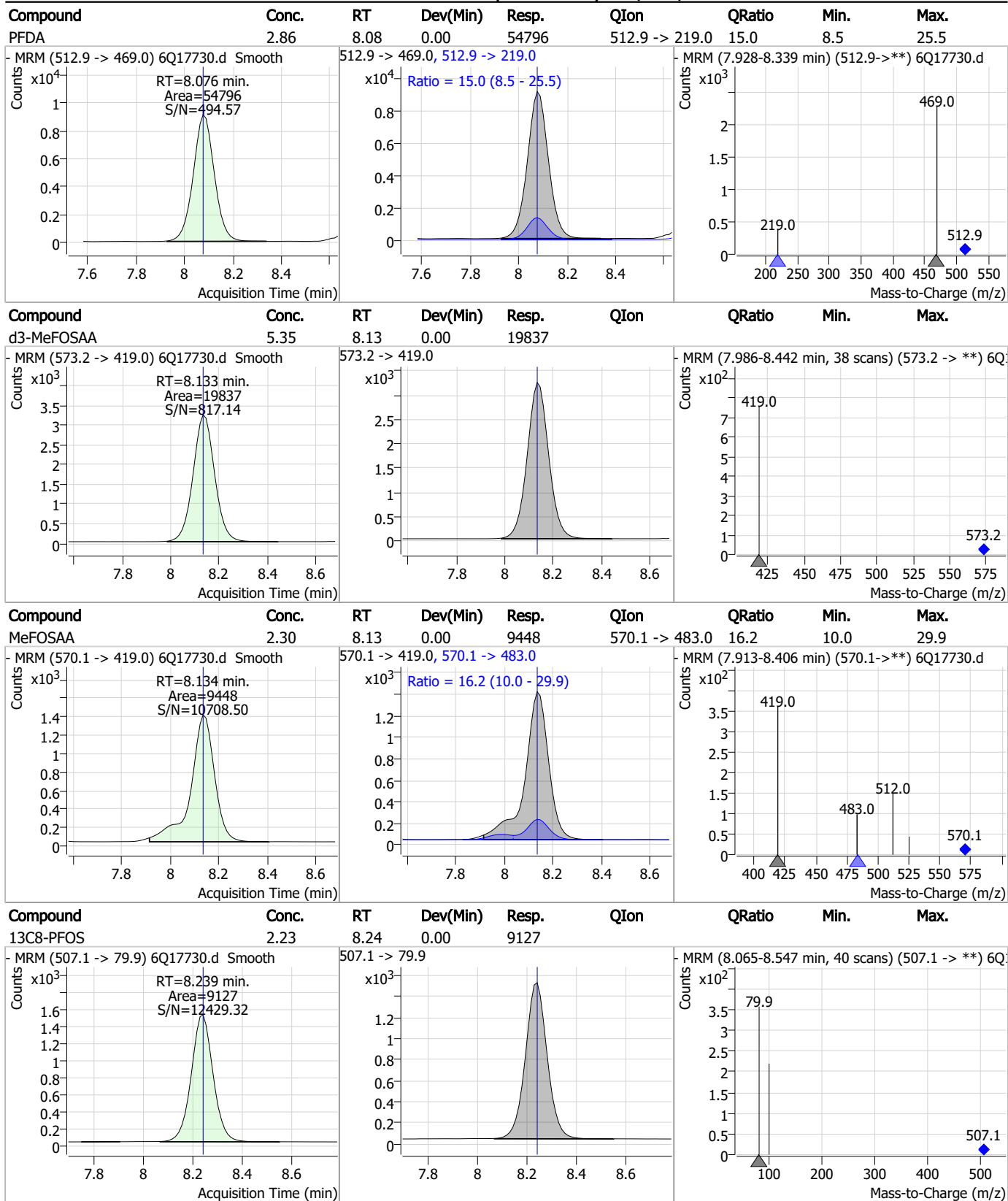
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.41	7.73	-0.01	11851	449.0 -> 98.9	49.9	25.4	76.2
13C2-8:2FTS	5.12	7.86	-0.01	2148	529.1 -> 80.9			
8:2FTS	10.09	7.88	0.00	12587	527.1 -> 80.8	38.4	20.0	59.9
13C6-PFDA	1.06	8.08	0.00	15499	519.1 -> 474.1			

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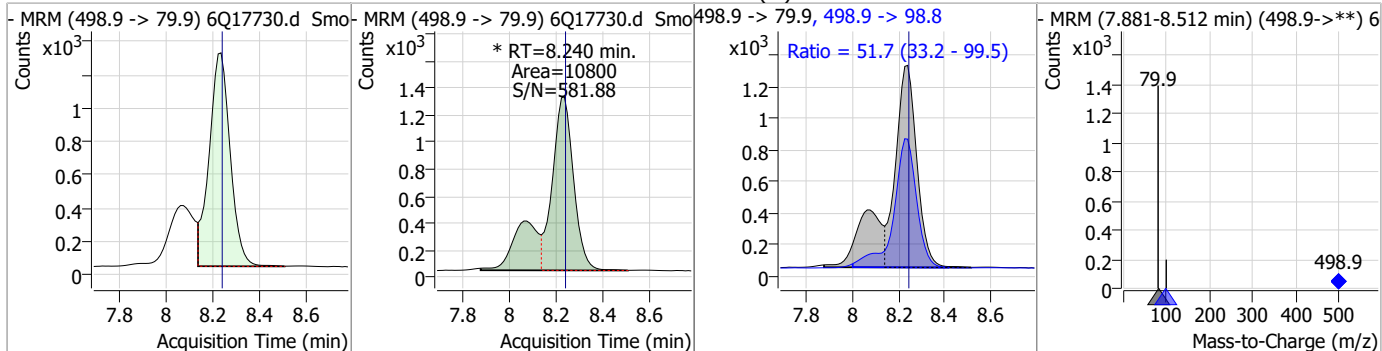
Perfluorinated Compounds by LC/MS/MS



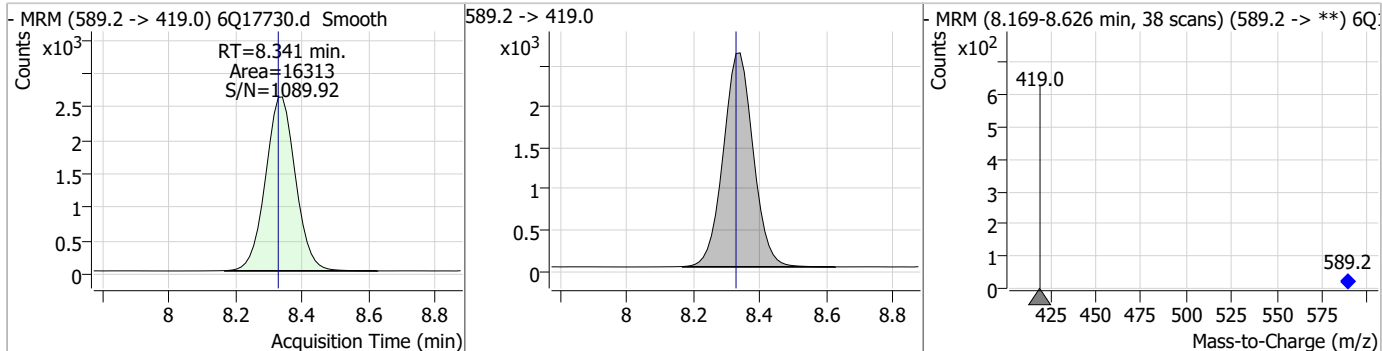
7.7.31
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Perfluorinated Compounds by LC/MS/MS

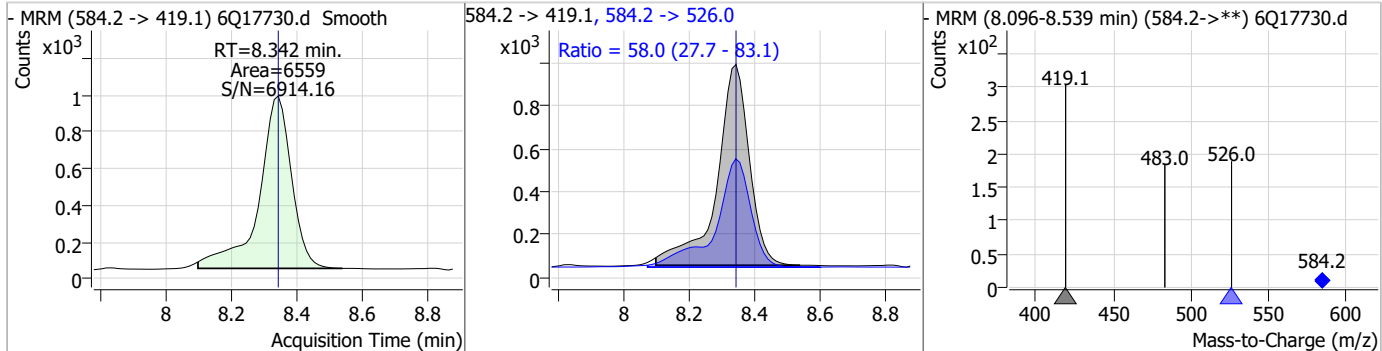
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.28	8.24	0.00	10800 (m)	498.9 -> 98.8	51.7	33.2	99.5



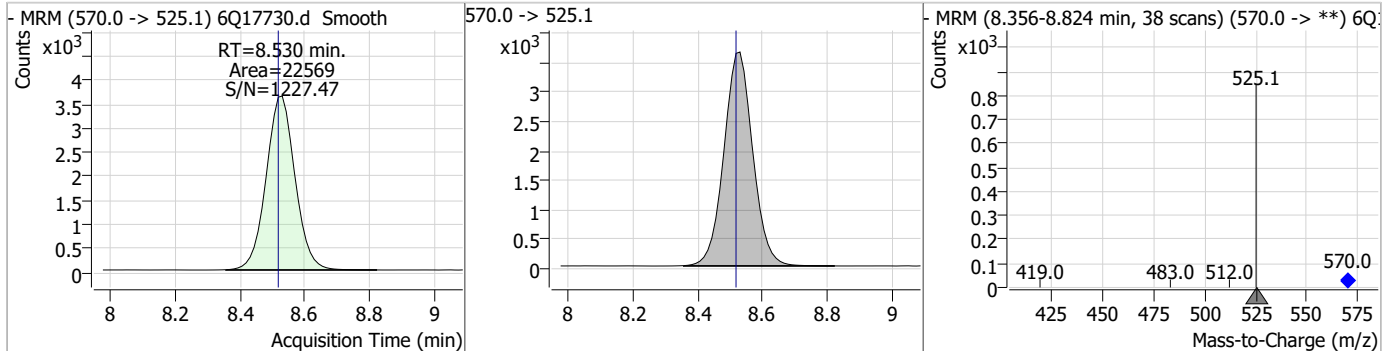
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.02	8.34	0.01	16313				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.24	8.34	0.00	6559	584.2 -> 526.0	58.0	27.7	83.1

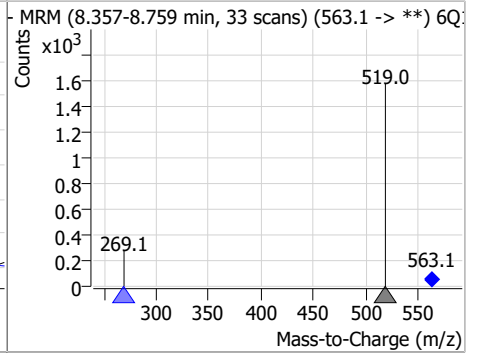
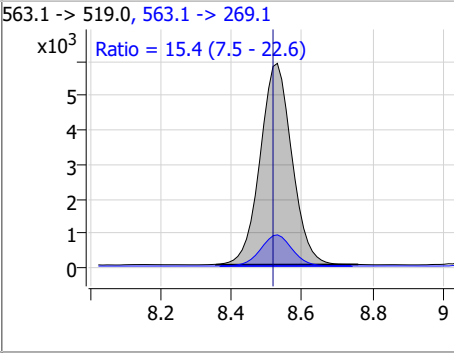
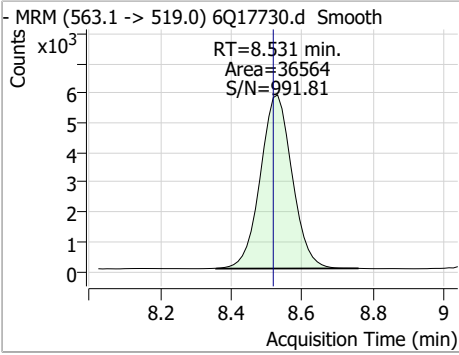


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.15	8.53	0.01	22569				

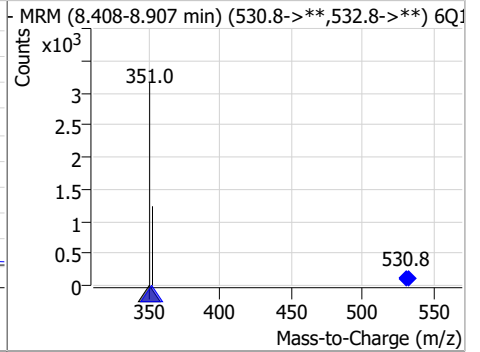
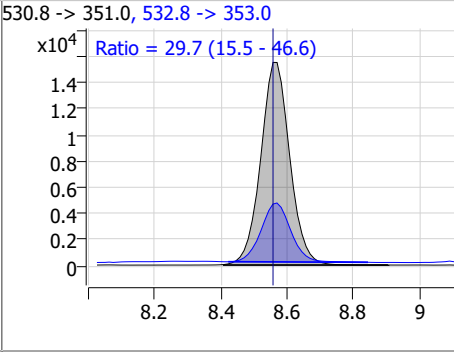
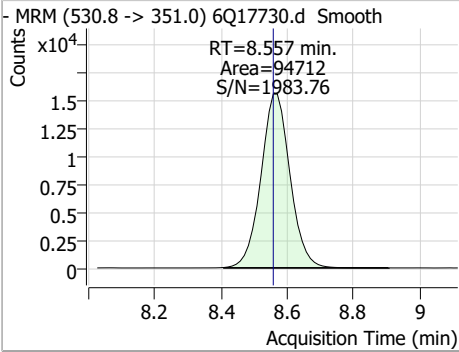


Perfluorinated Compounds by LC/MS/MS

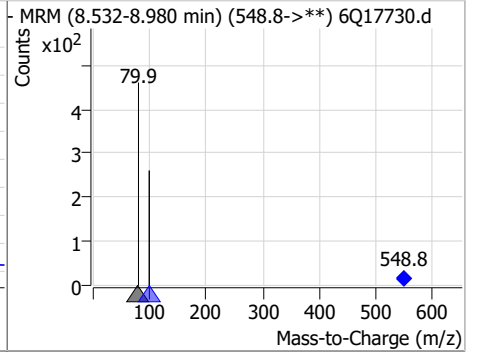
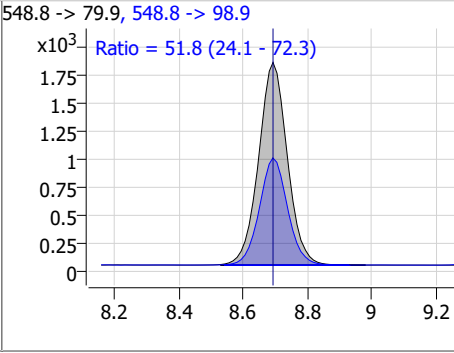
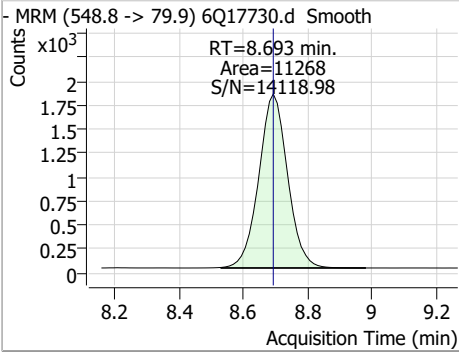
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.31	8.53	0.01	36564	563.1 -> 269.1	15.4	7.5	22.6



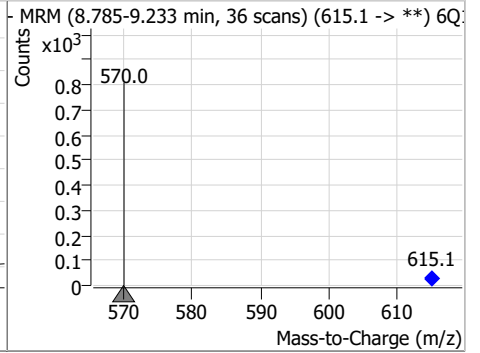
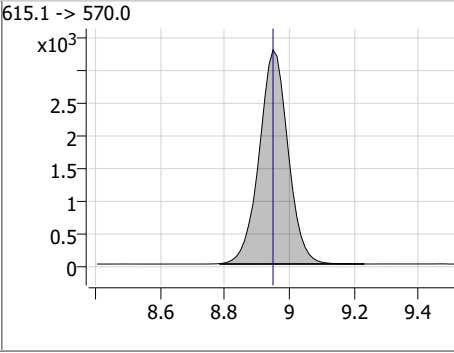
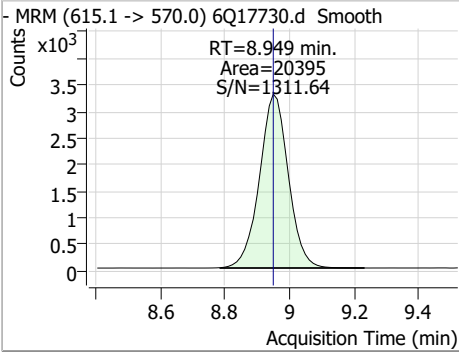
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	4.90	8.56	0.00	94712	532.8 -> 353.0	29.7	15.5	46.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.49	8.69	0.00	11268	548.8 -> 98.9	51.8	24.1	72.3

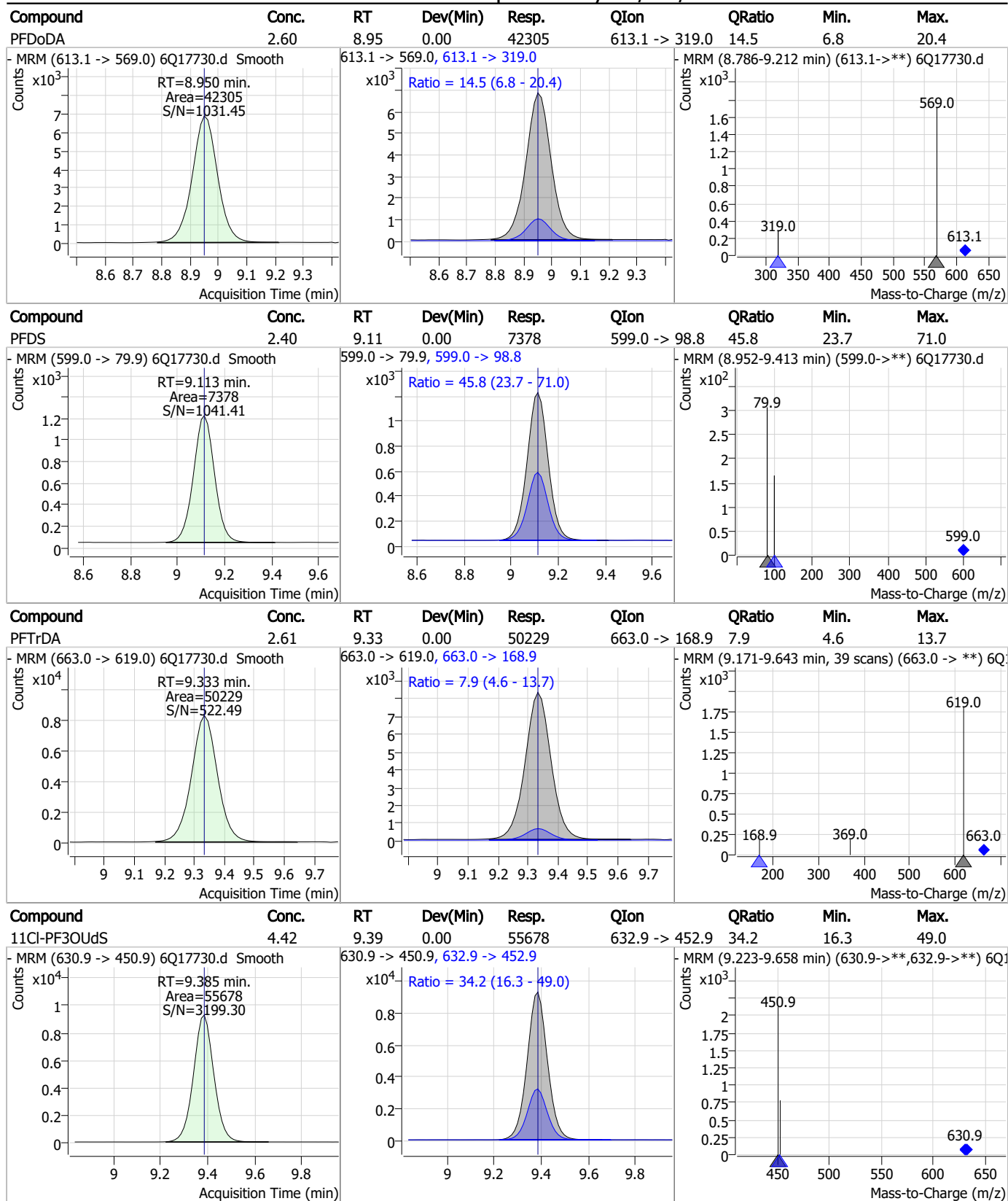


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.05	8.95	0.00	20395	615.1 -> 570.0			



7.7.31
7

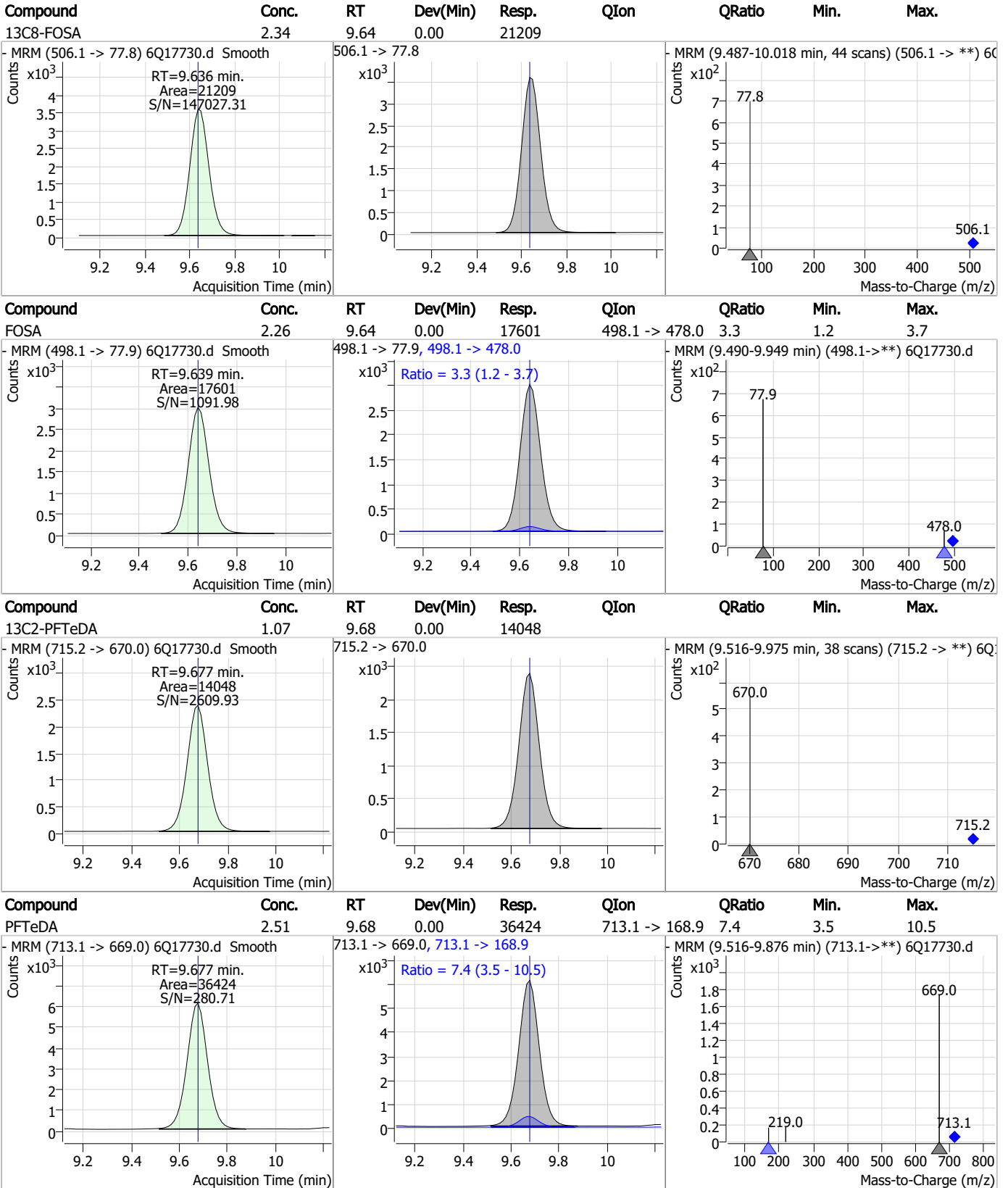
Perfluorinated Compounds by LC/MS/MS



7.7.31

7

Perfluorinated Compounds by LC/MS/MS

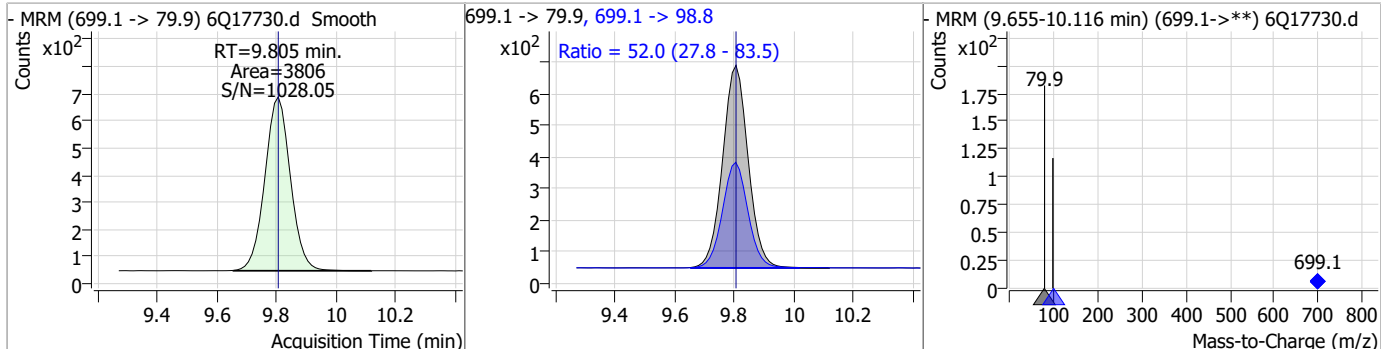


7.7.31
7

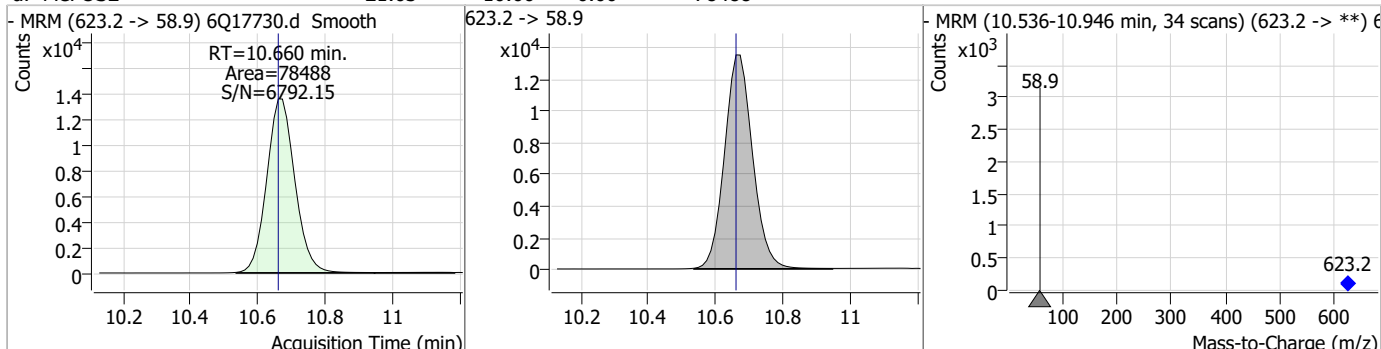


Perfluorinated Compounds by LC/MS/MS

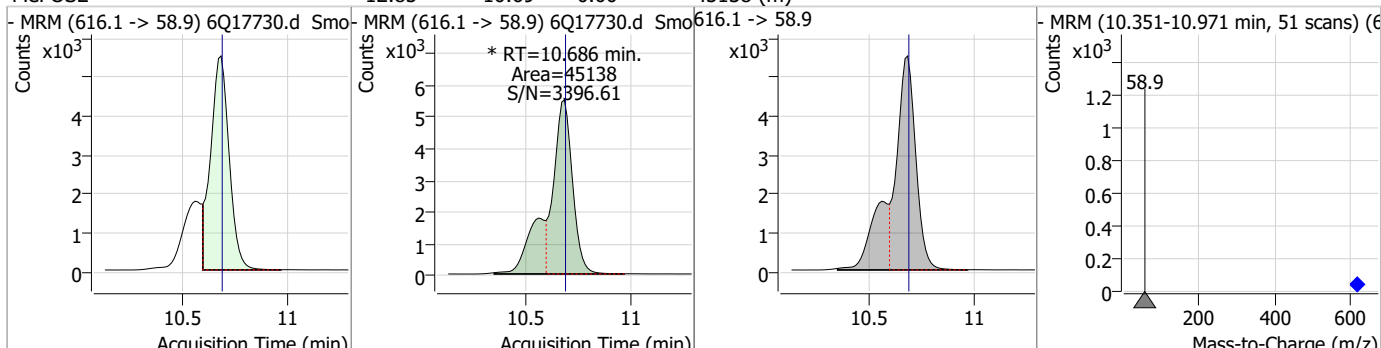
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.32	9.81	0.00	3806	699.1 -> 98.8	52.0	27.8	83.5



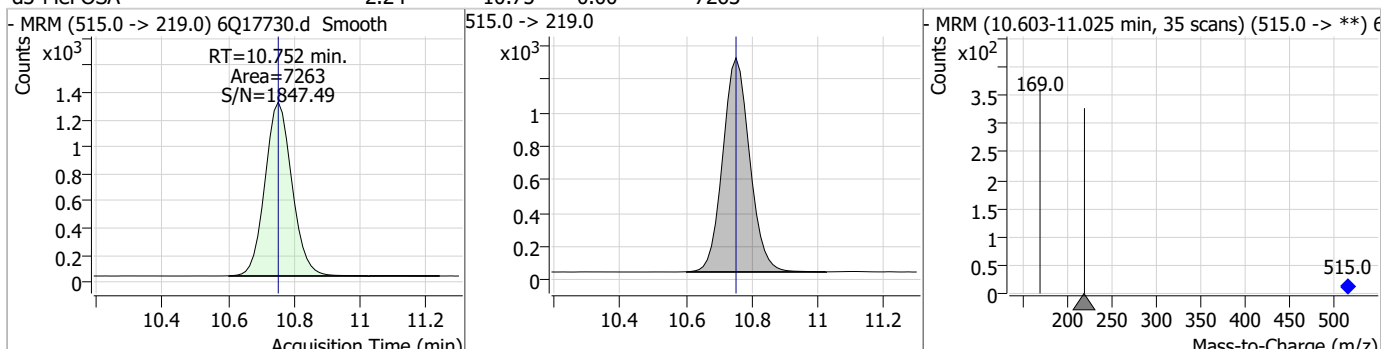
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.63	10.66	0.00	78488				



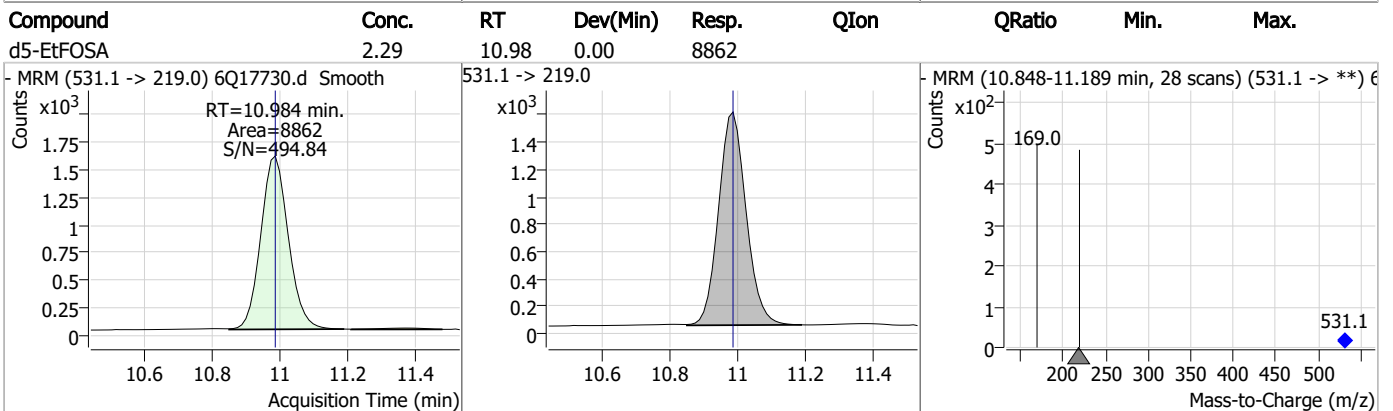
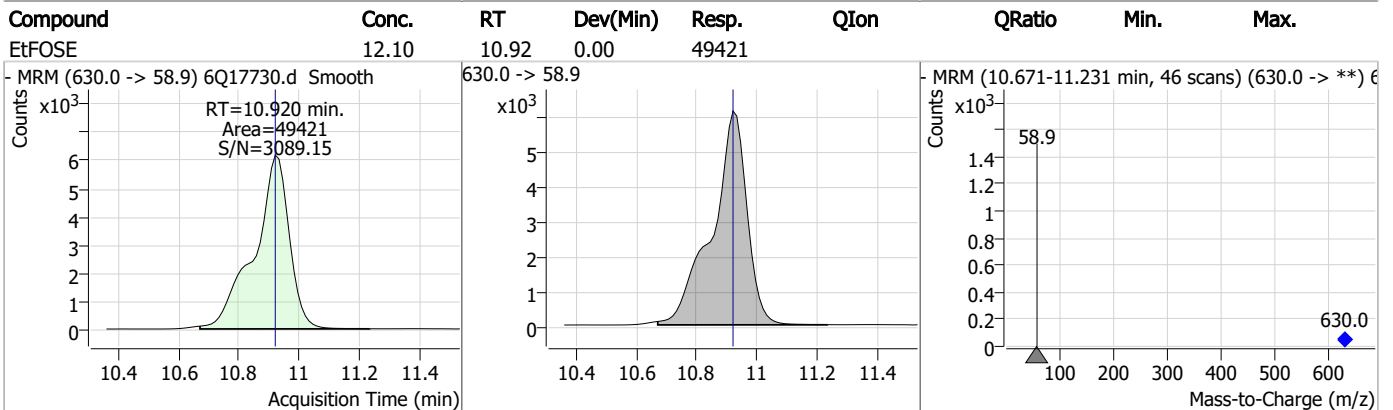
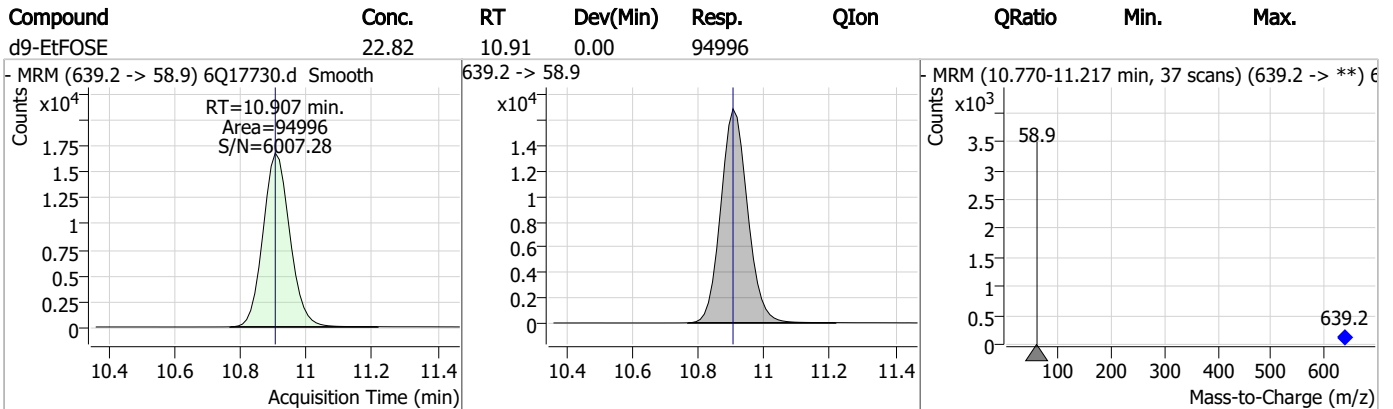
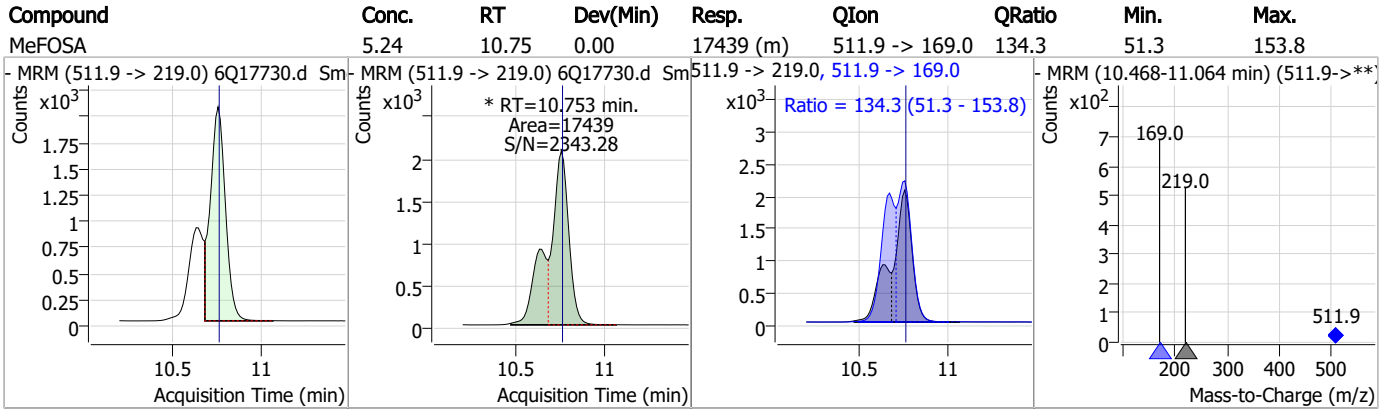
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.85	10.69	0.00	45138 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.24	10.75	0.00	7263				

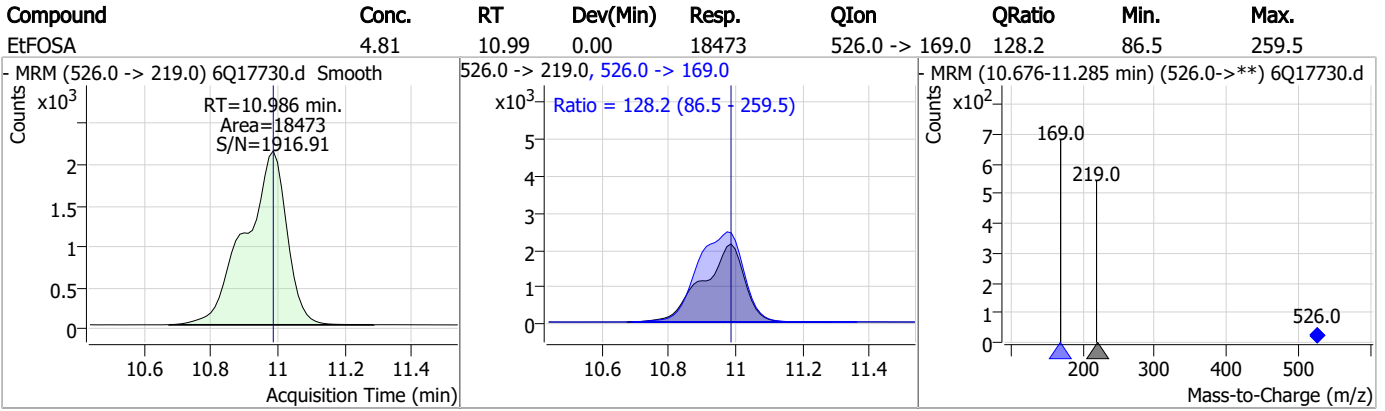


Perfluorinated Compounds by LC/MS/MS



7.7.31
7

Perfluorinated Compounds by LC/MS/MS



7.7.31

7

Manual Integration Approval Summary

Sample Number: S6Q267-ECC265 Method: EPA DRAFT 1633
Lab FileID: 6Q17730.D Analyst approved: 05/11/23 11:20 Martha Valls
Injection Time: 05/10/23 23:56 Supervisor approved: 05/11/23 14:15 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSE	24448-09-7		10.69	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.31.1
7

SGS ORLANDO

DATE:	05/03/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050323_S4Q634
CAL DATE:	05/03/23
ANALYST:	NG
RUN BATCH:	S4Q634

ELUENT A LOT #:	224863 W5%ACN 214785 2mMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/D STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q43879.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
2	4Q43880.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
3	4Q43881.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	✓
4	4Q43882.d	P1-B2	RT br/h	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	✓
5	4Q43883.d	P1-A1	ic634-0	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	Check Tune File
6	4Q43884.d	P1-A2	ic634-1	1633full_4Q.m	Calibration	1.6/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
7	4Q43885.d	P1-A3	ic634-2	1633full_4Q.m	Calibration	3.2/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
8	4Q43886.d	P1-A4	ic634-3	1633full_4Q.m	Calibration	10/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
9	4Q43887.d	P1-A5	ic634-4	1633full_4Q.m	Calibration	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
10	4Q43888.d	P1-A6	ic634-5	1633full_4Q.m	Calibration	40/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
11	4Q43889.d	P1-A7	ic634-6	1633full_4Q.m	Calibration	100/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
12	4Q43890.d	P1-A8	ic634-7	1633full_4Q.m	Calibration	200/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
13	4Q43891.d	P1-A9	ic634-8	1633full_4Q.m	Calibration	1x	OP96548,S4Q634,500,,,5.0,1,water	PASS
14	4Q43892.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
15	4Q43893.d	P1-B3	icv634-4	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	wrong vial position, rerun icv
16	4Q43894.d	P1-B4	icv634-20	1633full_4Q.m	QC	100/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
17	4Q43895.d	P1-B3	icv634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
18	4Q43896.d	P1-A5	cc634-4	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	wrong vial position, (incorrect tray #)
19	4Q43897.d	P1-A2	cc634-1.0LL	1633full_4Q.m	QC	1.6/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
20	4Q43898.d	P1-B5	op96662-bs	1633full_4Q.m	Sample		OP96662,S4Q634,500,,,5.0,1,water	✓
21	4Q43899.d	P1-B6	op96662-llbs:3	1633full_4Q.m	Sample		OP96662,S4Q634,500,,,5.0,1,water	✓
22	4Q43900.d	P1-B7	op96662-mb	1633full_4Q.m	Sample		OP96662,S4Q634,500,,,5.0,1,water	✓
23	4Q43901.d	P1-B8	fc5652-1	1633full_4Q.m	Sample		OP96662,S4Q634,530,,,5.0,1,water	✓
24	4Q43902.d	P1-B9	fc5652-2	1633full_4Q.m	Sample		OP96662,S4Q634,530,,,5.0,1,water	✓
25	4Q43903.d	P1-C1	fc5685-1	1633full_4Q.m	Sample		OP96662,S4Q634,550,,,5.0,1,water	✓
26	4Q43904.d	P1-C2	fc5685-2	1633full_4Q.m	Sample		OP96662,S4Q634,530,,,5.0,1,water	✓
27	4Q43905.d	P1-C3	fc5685-3	1633full_4Q.m	Sample		OP96662,S4Q634,560,,,5.0,1,water	✓
28	4Q43906.d	P1-C4	op96662-ms	1633full_4Q.m	Sample		OP96662,S4Q634,520,,,5.0,1,water	✓
29	4Q43907.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
30	4Q43908.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
31	4Q43909.d	P1-C5	fc5685-4	1633full_4Q.m	Sample		OP96662,S4Q634,570,,,5.0,1,water	rr 5x high and low EIS
32	4Q43910.d	P1-C6	op96662-dup	1633full_4Q.m	Sample		OP96662,S4Q634,570,,,5.0,1,water	rr 5x high and low EIS
33	4Q43911.d	P1-C7	fc5685-5	1633full_4Q.m	Sample		OP96662,S4Q634,550,,,5.0,1,water	✓
34	4Q43912.d	P1-C8	op96659-bs	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
35	4Q43913.d	P1-C9	op96659-llbs:2	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓

LCMS4-4Q ANALYSIS LOG

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36	4Q43914.d	P1-D1	op96659-mb	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
37	4Q43915.d	P1-D2	jd63879-1	1633full_4Q.m	Sample		OP96659,S4Q634,60,,,5.0,1,water	✓
38	4Q43916.d	P1-D3	jd63879-1	1633full_4Q.m	Sample	50/500	OP96659,S4Q634,60,,,5.0,10,water	✓
39	4Q43917.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
40	4Q43918.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
41	4Q43919.d	P1-D4	fc5212-1	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
42	4Q43920.d	P1-D5	fc5212-1A	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
43	4Q43921.d	P1-D6	fc5214-1	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
44	4Q43922.d	P1-D7	fc5214-1A	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
45	4Q43923.d	P1-D8	op96657-bs	1633full_4Q.m	Sample		OP96657,S4Q634,5.00,,,5.0,1,soil	DoDS low rerun BS
46	4Q43924.d	P1-D9	op96657-llbs:3	1633full_4Q.m	Sample		OP96657,S4Q634,5.00,,,5.0,1,soil	DoDS low rerun LLBS
47	4Q43925.d	P1-E1	op96657-mb	1633full_4Q.m	Sample		OP96657,S4Q634,5.00,,,5.0,1,soil	✓
48	4Q43926.d	P1-E2	fc5371-10	1633full_4Q.m	Sample		OP96657,S4Q634,4.98,,,5.0,1,soil	✓
49	4Q43927.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
50	4Q43928.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
51	4Q43929.d	P1-E3	fc5371-11	1633full_4Q.m	Sample		OP96657,S4Q634,5.02,,,5.0,1,soil	✓
52	4Q43930.d	P1-E4	op96657-ms	1633full_4Q.m	Sample		OP96657,S4Q634,5.01,,,5.0,1,soil	✓
53	4Q43931.d	P1-E5	op96657-msd	1633full_4Q.m	Sample		OP96657,S4Q634,5.03,,,5.0,1,soil	✓
54	4Q43932.d	P1-E6	fc5371-12	1633full_4Q.m	Sample		OP96657,S4Q634,5.02,,,5.0,1,soil	✓
55	4Q43933.d	P1-E7	fc5371-13	1633full_4Q.m	Sample		OP96657,S4Q634,5.04,,,5.0,1,soil	rr 10x
56	4Q43934.d	P1-E8	fc5371-14	1633full_4Q.m	Sample		OP96657,S4Q634,5.02,,,5.0,1,soil	rr 1x c/o
57	4Q43935.d	P1-E9	fc5371-15	1633full_4Q.m	Sample		OP96657,S4Q634,5.05,,,5.0,1,soil	✓
58	4Q43936.d	P1-F1	fc5371-16	1633full_4Q.m	Sample		OP96657,S4Q634,4.97,,,5.0,1,soil	rr 10x
59	4Q43937.d	P1-F2	fc5371-17	1633full_4Q.m	Sample		OP96657,S4Q634,5.03,,,5.0,1,soil	rr 1x c/o
60	4Q43938.d	P1-F3	fc5371-18	1633full_4Q.m	Sample		OP96657,S4Q634,5.03,,,5.0,1,soil	rr 10x
61	4Q43939.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
62	4Q43940.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
63	4Q43941.d	P1-F4	fc5371-19	1633full_4Q.m	Sample		OP96657,S4Q634,4.96,,,5.0,1,soil	✓
64	4Q43942.d	P1-F5	fc5371-20	1633full_4Q.m	Sample		OP96657,S4Q634,5.05,,,5.0,1,soil	✓
65	4Q43943.d	P1-F6	op96657-ms2	1633full_4Q.m	Sample		OP96657,S4Q634,4.96,,,5.0,1,soil	✓
66	4Q43944.d	P1-F7	op96657-msd2	1633full_4Q.m	Sample		OP96657,S4Q634,5.05,,,5.0,1,soil	✓
67	4Q43945.d	P1-F8	fc5371-21	1633full_4Q.m	Sample		OP96657,S4Q634,4.99,,,5.0,1,soil	✓
68	4Q43946.d	P1-A5	ecc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
69	4Q43947.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND

SGS ORLANDO

DATE:	05/09/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050323_S4Q634
CAL DATE:	05/03/23
ANALYST:	IMV
RUN BATCH:	S4Q639

ELUENT A LOT #:	224863 W5%ACN 214785 2mMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q44131.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
2	4Q44132.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
3	4Q44133.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
4	4Q44134.d	P1-B2	RT br/h	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
5	4Q44135.d	P1-A9	high std	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
6	4Q44136.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
7	4Q44137.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q639,500,,,5.0,1,water	✓
8	4Q44138.d	P1-A2	cc634-1.0LL	1633full_4Q.m	QC	1.6/500	OP96548,S4Q639,500,,,5.0,1,water	✓
9	4Q44139.d	P3-A1	op96746-bs	1633full_4Q.m	Sample		OP96746,S4Q639,500,,,5.0,1,water	✓
10	4Q44140.d	P3-A2	op96746-llbs:3	1633full_4Q.m	Sample		OP96746,S4Q639,500,,,5.0,1,water	✓
11	4Q44141.d	P3-A3	op96746-mb	1633full_4Q.m	Sample		OP96746,S4Q639,500,,,5.0,1,water	✓
12	4Q44142.d	P3-A4	FC5295-1	1633full_4Q.m	Sample		OP96746,S4Q639,68,,,5.0,1,water	rr10x
13	4Q44143.d	P3-A5	FC5295-3	1633full_4Q.m	Sample		OP96746,S4Q639,480,,,5.0,1,water	rr for co
14	4Q44144.d	P3-A6	FC5309-11	1633full_4Q.m	Sample		OP96746,S4Q639,570,,,5.0,1,water	✓
15	4Q44145.d	P3-A5	FC5295-3	1633full_4Q.m	Sample		OP96746,S4Q639,480,,,5.0,1,water	✓
16	4Q44146.d	P3-A7	FC5295-12	1633full_4Q.m	Sample		OP96746,S4Q639,68,,,5.0,1,water	to confirm
17	4Q44147.d	P3-C8	FC5295-12	1633full_4Q.m	Sample	50/500	OP96746,S4Q639,68,,,5.0,10,water	to confirm
18	4Q44148.d	P3-C7	FC5295-1	1633full_4Q.m	Sample	50/500	OP96746,S4Q639,68,,,5.0,10,water	✓
19	4Q44149.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q639,500,,,5.0,1,water	✓
20	4Q44150.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
21	4Q44151.d	P3-A8	FC5309-12	1633full_4Q.m	Sample		OP96746,S4Q639,570,,,5.0,1,water	✓
22	4Q44152.d	P3-A9	FC5309-13	1633full_4Q.m	Sample		OP96746,S4Q639,570,,,5.0,1,water	✓
23	4Q44153.d	P3-B1	FC5309-14	1633full_4Q.m	Sample		OP96746,S4Q639,570,,,5.0,1,water	✓
24	4Q44154.d	P3-B2	FC5325-1	1633full_4Q.m	Sample		OP96746,S4Q639,560,,,5.0,1,water	cf
25	4Q44155.d	P3-B3	FC5325-2	1633full_4Q.m	Sample		OP96746,S4Q639,560,,,5.0,1,water	cf
26	4Q44156.d	P3-B4	FC5325-3	1633full_4Q.m	Sample		OP96746,S4Q639,560,,,5.0,1,water	cf
27	4Q44157.d	P3-B5	FC5325-6	1633full_4Q.m	Sample		OP96746,S4Q639,560,,,5.0,1,water	cf
28	4Q44158.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q639,500,,,5.0,1,water	✓
29	4Q44159.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q639,500,,,5.0,1,water	✓
30	4Q44160.d	P3-B6	op96747-bs	1633full_4Q.m	Sample		OP96747,S4Q639,500,,,5.0,1,water	✓
31	4Q44161.d	P3-B7	op96747-llbs:3	1633full_4Q.m	Sample		OP96747,S4Q639,500,,,5.0,1,water	✓
32	4Q44162.d	P3-B8	op96747-mb	1633full_4Q.m	Sample		OP96747,S4Q639,500,,,5.0,1,water	✓
33	4Q44163.d	P3-B9	FC5818-1	1633full_4Q.m	Sample		OP96747,S4Q639,550,,,5.0,1,water	✓
34	4Q44164.d	P3-C1	FC5818-2	1633full_4Q.m	Sample		OP96747,S4Q639,530,,,5.0,1,water	✓
35	4Q44165.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q639,500,,,5.0,1,water	✓

Printed 5/10/2023 @ 11:49 AM

SGS ORLANDO LCMS4-4Q ANALYSIS LOG

36	4Q44166.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96548,S4Q639,500,,,5.0,1,water	✓
37	4Q44167.d	P3-C2	FC5818-3	1633full_4Q.m	Sample	OP96747,S4Q639,570,,,5.0,1,water	rf5x surr high. Pfba low
38	4Q44168.d	P3-C3	op96747-ms	1633full_4Q.m	Sample	OP96747,S4Q639,560,,,5.0,1,water	✓
39	4Q44169.d	P3-C4	FC5818-4	1633full_4Q.m	Sample	OP96747,S4Q639,530,,,5.0,1,water	✓
40	4Q44170.d	P3-C5	FC5818-5	1633full_4Q.m	Sample	OP96747,S4Q639,560,,,5.0,1,water	✓
41	4Q44171.d	P3-C6	op96747-dup	1633full_4Q.m	Sample	OP96747,S4Q639,560,,,5.0,1,water	✓
42	4Q44172.d	P1-A5	cc634-4	1633full_4Q.m	QC	OP96548,S4Q639,500,,,5.0,1,water	✓
43	4Q44173.d	P1-A2	cc634-1.0LL	1633full_4Q.m	QC	OP96548,S4Q639,500,,,5.0,1,water	✓
44	4Q44174.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96548,S4Q639,500,,,5.0,1,water	✓
45	4Q44175.d	P3-D1	op96784-bs	1633full_4Q.m	Sample	OP96784,S4Q639,500,,,5.0,1,water	✓
46	4Q44176.d	P3-D2	op96784-llbs:3	1633full_4Q.m	Sample	OP96784,S4Q639,500,,,5.0,1,water	✓
47	4Q44177.d	P3-D3	op96784-mb	1633full_4Q.m	Sample	OP96784,S4Q639,500,,,5.0,1,water	✓
48	4Q44178.d	P3-D4	FC5861-1	1633full_4Q.m	Sample	OP96784,S4Q639,520,,,5.0,1,water	✓
49	4Q44179.d	P3-D5	FC5890-1	1633full_4Q.m	Sample	OP96784,S4Q639,550,,,5.0,1,water	✓
50	4Q44180.d	P3-D6	op96784-ms	1633full_4Q.m	Sample	OP96784,S4Q639,540,,,5.0,1,water	✓
51	4Q44181.d	P3-D7	FC5890-2	1633full_4Q.m	Sample	OP96784,S4Q639,550,,,5.0,1,water	✓
52	4Q44182.d	P3-D8	op96784-dup	1633full_4Q.m	Sample	OP96784,S4Q639,550,,,5.0,1,water	✓
53	4Q44183.d	P3-D9	FC5890-3	1633full_4Q.m	Sample	OP96784,S4Q639,530,,,5.0,1,water	✓
54	4Q44184.d	P1-A5	Ecc634-4	1633full_4Q.m	QC	OP96548,S4Q639,500,,,5.0,1,water	✓
55	4Q44185.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96548,S4Q639,500,,,5.0,1,water	✓

SGS ORLANDO

DATE:	05/08/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050823_S6Q265
CAL DATE:	05/08/23
ANALYST:	M. Valls
RUN BATCH:	S6Q265

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

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q17540.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q265.500,,,5.0,1,water	✓
2	6Q17541.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q265.500,,,5.0,1,water	✓
3	6Q17542.d	P1-A1	CCB	1633full.m	Sample		OP96663.S6Q265.500,,,5.0,1,water	✓
4	6Q17543.d	P1-B3	RT TDCA	1633full.m	Sample		OP96663.S6Q265.500,,,5.0,1,water	✓
5	6Q17544.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96663.S6Q265.500,,,5.0,1,water	✓
6	6Q17545.d	P1-A1	ic265-0	1633full.m	Sample		OP96663.S6Q265.500,,,5.0,1,water	✓
7	6Q17546.d	P1-A2	ic265-1	1633full.m	Calibration	1.6/500	OP96663.S6Q265.500,,,5.0,1,water	✓
8	6Q17547.d	P1-A3	ic265-2	1633full.m	Calibration	3.2/500	OP96663.S6Q265.500,,,5.0,1,water	✓
9	6Q17548.d	P1-A4	ic265-3	1633full.m	Calibration	10/500	OP96663.S6Q265.500,,,5.0,1,water	✓
10	6Q17549.d	P1-A5	icc265-4	1633full.m	Calibration	20/500	OP96663.S6Q265.500,,,5.0,1,water	✓
11	6Q17550.d	P1-A6	ic265-5	1633full.m	Calibration	40/500	OP96663.S6Q265.500,,,5.0,1,water	✓
12	6Q17551.d	P1-A7	ic265-6	1633full.m	Calibration	100/500	OP96663.S6Q265.500,,,5.0,1,water	✓
13	6Q17552.d	P1-A8	ic265-7	1633full.m	Calibration	200/500	OP96663.S6Q265.500,,,5.0,1,water	✓
14	6Q17553.d	P1-A9	ic265-8	1633full.m	Calibration	1x	OP96663.S6Q265.500,,,5.0,1,water	✓
15	6Q17554.d	P1-A1	iblk	1633full.m	Sample		OP96663.S6Q265.500,,,5.0,1,water	✓
16	6Q17555.d	P1-B1	icv265-4	1633full.m	QC	20/500	OP96663.S6Q265.500,,,5.0,1,water	✓
17	6Q17556.d	P1-B2	icv265-20	1633full.m	QC	100/500	OP96663.S6Q265.500,,,5.0,1,water	✓
18	6Q17557.d	P1-A5	cc265-4	1633full.m	QC	20/500	OP96663.S6Q265.500,,,5.0,1,water	✓
19	6Q17558.d	P1-A2	cc265-1.0LL	1633full.m	QC	1.6/500	OP96663.S6Q265.500,,,5.0,1,water	✓
20	6Q17559.d	P5-F2	op96680-bs	1633full.m	Sample		OP96680.S6Q265.500,,,5.0,1,water	✓
21	6Q17560.d	P5-F3	op96680-llbs:3	1633full.m	Sample		OP96680.S6Q265.500,,,5.0,1,water	✓
22	6Q17561.d	P5-F4	op96680-mb	1633full.m	Sample		OP96680.S6Q265.500,,,5.0,1,water	✓
23	6Q17562.d	P5-F5	FC5348-1	1633full.m	Sample		OP96680.S6Q265.540,,,5.0,1,water	✓
24	6Q17563.d	P5-F6	FC5348-2	1633full.m	Sample		OP96680.S6Q265.500,,,5.0,1,water	✓
25	6Q17564.d	P5-F7	FC5348-3	1633full.m	Sample		OP96680.S6Q265.565,,,5.0,1,water	✓
26	6Q17565.d	P5-F8	FC5348-4	1633full.m	Sample		OP96680.S6Q265.565,,,5.0,1,water	✓
27	6Q17566.d	P5-F9	FC5348-5	1633full.m	Sample		OP96680.S6Q265.565,,,5.0,1,water	✓
28	6Q17567.d	P6-A1	FC5348-6	1633full.m	Sample		OP96680.S6Q265.560,,,5.0,1,water	✓
29	6Q17568.d	P6-A2	FC5348-7	1633full.m	Sample		OP96680.S6Q265.560,,,5.0,1,water	✓
30	6Q17569.d	P1-A5	cc265-4	1633full.m	QC	20/500	OP96663.S6Q265.500,,,5.0,1,water	✓
31	6Q17570.d	P1-A1	iccb	1633full.m	Sample		OP96663.S6Q264.500,,,5.0,1,water	✓
32	6Q17571.d	P6-A3	FC5348-8	1633full.m	Sample		OP96663.S6Q264.565,,,5.0,1,water	✓
33	6Q17572.d	P6-A4	FC5348-9	1633full.m	Sample		OP96663.S6Q264.565,,,5.0,1,water	✓
34	6Q17573.d	P6-A5	FC5348-10	1633full.m	Sample		OP96663.S6Q264.560,,,5.0,1,water	✓
35	6Q17574.d	P6-A6	FC5348-11	1633full.m	Sample		OP96663.S6Q264.565,,,5.0,1,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q17575.d	P6-A7	FC5348-12	1633full.m	Sample	OP96680,S6Q264,560,,,5.0,1,water	✓
37	6Q17576.d	P6-A8	FC5348-13	1633full.m	Sample	OP96680,S6Q264,565,,,5.0,1,water	✓
38	6Q17577.d	P6-A9	FC5348-14	1633full.m	Sample	OP96680,S6Q264,530,,,5.0,1,water	✓
39	6Q17578.d	P6-B1	FC5348-15	1633full.m	Sample	OP96680,S6Q264,540,,,5.0,1,water	✓
40	6Q17579.d	P6-B2	op96680-ms	1633full.m	Sample	OP96680,S6Q264,540,,,5.0,1,water	✓
41	6Q17580.d	P6-B3	op96680-msd	1633full.m	Sample	OP96680,S6Q264,500,,,5.0,1,water	✓
42	6Q17581.d	P1-A5	cc265-4	1633full.m	QC	OP96663,S6Q264,500,,,5.0,1,water	✓
43	6Q17582.d	P1-A1	iccb	1633full.m	Sample	OP96680,S6Q264,565,,,5.0,1,water	✓
44	6Q17583.d	P6-B4	FC5348-16	1633full.m	Sample	OP96680,S6Q264,565,,,5.0,1,water	✓
45	6Q17584.d	P6-B5	FC5348-17	1633full.m	Sample	OP96680,S6Q264,565,,,5.0,1,water	✓
46	6Q17585.d	P6-B6	FC5348-18	1633full.m	Sample	OP96680,S6Q264,560,,,5.0,1,water	✓
47	6Q17586.d	P6-B7	op96699-bs	1633full.m	Sample	OP96699,S6Q264,500,,,5.0,1,water	✓
48	6Q17587.d	P6-B8	op96699-llbs:3	1633full.m	Sample	OP96699,S6Q264,500,,,5.0,1,water	✓
49	6Q17588.d	P6-B9	op96699-mb	1633full.m	Sample	OP96699,S6Q264,500,,,5.0,1,water	✓
50	6Q17589.d	P6-C1	FC5391-1	1633full.m	Sample	OP96699,S6Q264,550,,,5.0,1,water	✓
51	6Q17590.d	P6-C2	op96699-ms	1633full.m	Sample	OP96699,S6Q264,550,,,5.0,1,water	✓
52	6Q17591.d	P6-C3	FC5391-2	1633full.m	Sample	OP96699,S6Q264,565,,,5.0,1,water	✓
53	6Q17592.d	P6-C4	op96699-dup	1633full.m	Sample	OP96699,S6Q264,565,,,5.0,1,water	✓
54	6Q17593.d	P1-A5	cc265-4	1633full.m	QC	OP96663,S6Q264,500,,,5.0,1,water	✓
55	6Q17594.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q264,500,,,5.0,1,water	✓
56	6Q17595.d	P6-C5	FC5391-3	1633full.m	Sample	OP96699,S6Q264,535,,,5.0,1,water	✓
57	6Q17596.d	P6-C6	FC5391-4	1633full.m	Sample	OP96699,S6Q264,540,,,5.0,1,water	✓
58	6Q17597.d	P6-C7	FC5391-5	1633full.m	Sample	OP96699,S6Q264,540,,,5.0,1,water	✓
59	6Q17598.d	P6-C8	FC5391-6	1633full.m	Sample	OP96699,S6Q264,510,,,5.0,1,water	✓
60	6Q17599.d	P6-C9	FC5391-7	1633full.m	Sample	OP96699,S6Q264,535,,,5.0,1,water	✓
61	6Q17600.d	P6-D1	FC5391-8	1633full.m	Sample	OP96699,S6Q264,540,,,5.0,1,water	✓
62	6Q17601.d	P6-D2	FC5391-9	1633full.m	Sample	OP96699,S6Q264,540,,,5.0,1,water	✓
63	6Q17602.d	P6-D3	FC5391-10	1633full.m	Sample	OP96699,S6Q264,555,,,5.0,1,water	✓
64	6Q17603.d	P6-D4	FC5391-11	1633full.m	Sample	OP96699,S6Q264,565,,,5.0,1,water	✓
65	6Q17604.d	P6-D5	FC5391-12	1633full.m	Sample	OP96699,S6Q264,565,,,5.0,1,water	✓
66	6Q17605.d	P1-A5	cc265-4	1633full.m	QC	OP96663,S6Q264,500,,,5.0,1,water	✓
67	6Q17606.d	P1-A2	cc265-1.0LL	1633full.m	QC	OP96663,S6Q264,500,,,5.0,1,water	✓
68	6Q17607.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q264,500,,,5.0,1,water	✓
69	6Q17608.d	P6-D6	FC5391-13	1633full.m	Sample	OP96699,S6Q264,565,,,5.0,1,water	✓
70	6Q17609.d	P6-D7	FC5391-14	1633full.m	Sample	OP96699,S6Q264,565,,,5.0,1,water	✓
71	6Q17610.d	P6-D8	FC5391-15	1633full.m	Sample	OP96699,S6Q264,565,,,5.0,1,water	✓
72	6Q17611.d	P6-D9	FC5391-16	1633full.m	Sample	OP96699,S6Q264,530,,,5.0,1,water	✓
73	6Q17612.d	P6-E1	FC5391-17	1633full.m	Sample	OP96699,S6Q264,510,,,5.0,1,water	✓
74	6Q17613.d	P1-F1	FC5501-12	1633full.m	Sample	OP96663,S6Q264,500,,,5.0,1,water	✓
75	6Q17614.d	P1-F2	FC5501-4	1633full.m	Sample	OP96663,S6Q264,500,,,5.0,1,water	✓
76	6Q17615.d	P1-A5	cc265-4	1633full.m	QC	OP96663,S6Q264,500,,,5.0,1,water	✓
77	6Q17616.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q264,500,,,5.0,1,water	✓
78	6Q17617.d	P6-E2	op96700-bs	1633full.m	Sample	OP96700,S6Q264,500,,,5.0,1,water	✓



LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

79	6Q17618.d	P6-E3	op96700-llbs:3	1633full.m	Sample	OP96700,S6Q264,500,,,5.0,1,water	✓
80	6Q17619.d	P6-E4	op96700-mb	1633full.m	Sample	OP96700,S6Q264,500,,,5.0,1,water	✓
81	6Q17620.d	P6-E5	FC5347-1	1633full.m	Sample	OP96700,S6Q264,530,,,5.0,1,water	✓
82	6Q17621.d	P6-E6	FC5347-2	1633full.m	Sample	OP96700,S6Q264,510,,,5.0,1,water	✓
83	6Q17622.d	P6-E7	op96700-ms1	1633full.m	Sample	OP96700,S6Q264,560,,,5.0,1,water	✓
84	6Q17623.d	P6-E8	op96700-msd1	1633full.m	Sample	OP96700,S6Q264,550,,,5.0,1,water	✓
85	6Q17624.d	P6-E9	FC5347-3	1633full.m	Sample	OP96700,S6Q264,540,,,5.0,1,water	✓
86	6Q17625.d	P6-F1	FC5347-4	1633full.m	Sample	OP96700,S6Q264,560,,,5.0,1,water	✓
87	6Q17626.d	P6-F2	FC5347-5	1633full.m	Sample	OP96700,S6Q264,570,,,5.0,1,water	✓
88	6Q17627.d	P1-A5	cc265-4	1633full.m	QC	OP96663,S6Q264,500,,,5.0,1,water	✓
89	6Q17628.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q264,500,,,5.0,1,water	✓
90	6Q17629.d	P6-F3	FC5355-1	1633full.m	Sample	OP96700,S6Q264,560,,,5.0,1,water	✓
91	6Q17630.d	P6-F4	FC5355-2	1633full.m	Sample	OP96700,S6Q264,560,,,5.0,1,water	✓
92	6Q17631.d	P6-F5	FC5355-3	1633full.m	Sample	OP96700,S6Q264,560,,,5.0,1,water	✓
93	6Q17632.d	P6-F6	FC5355-4	1633full.m	Sample	OP96700,S6Q264,560,,,5.0,1,water	✓
94	6Q17633.d	P6-F7	FC5355-5	1633full.m	Sample	OP96700,S6Q264,550,,,5.0,1,water	✓
95	6Q17634.d	P6-F8	FC5355-6	1633full.m	Sample	OP96700,S6Q264,550,,,5.0,1,water	✓
96	6Q17635.d	P6-F9	FC5355-7	1633full.m	Sample	OP96700,S6Q264,570,,,5.0,1,water	✓
97	6Q17636.d	P2-A1	op96700-ms2	1633full.m	Sample	OP96700,S6Q264,570,,,5.0,1,water	✓
98	6Q17637.d	P2-A2	op96700-msd2	1633full.m	Sample	OP96700,S6Q264,570,,,5.0,1,water	✓
99	6Q17638.d	P2-A3	FC5355-8	1633full.m	Sample	OP96700,S6Q264,520,,,5.0,1,water	✓
100	6Q17639.d	P1-A5	cc265-4	1633full.m	QC	OP96663,S6Q264,500,,,5.0,1,water	✓
101	6Q17640.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q264,500,,,5.0,1,water	✓
102	6Q17641.d	P2-A4	FC5355-9	1633full.m	Sample	OP96700,S6Q264,560,,,5.0,1,water	✓
103	6Q17642.d	P1-A5	ecc265-4	1633full.m	QC	OP96663,S6Q264,500,,,5.0,1,water	✓
104	6Q17643.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q264,500,,,5.0,1,water	✓

SGS ORLANDO

DATE:	05/10/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050823_S6Q265
CAL DATE:	05/08/23
ANALYST:	M. Valls
RUN BATCH:	S6Q267

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

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q17707.d	P1-B9	CCB	1633full.m	Sample		OP96663,S6Q267,500,,,5.0,1,water	✓
2	6Q17708.d	P1-B9	CCB	1633full.m	Sample		OP96663,S6Q267,500,,,5.0,1,water	✓
3	6Q17709.d	P1-B3	RT TDCA	1633full.m	Sample		OP96663,S6Q267,500,,,5.0,1,water	✓
4	6Q17710.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96663,S6Q267,500,,,5.0,1,water	✓
5	6Q17711.d	P1-A9	High Std	1633full.m	Sample		OP96663,S6Q267,500,,,5.0,1,water	✓
6	6Q17712.d	P1-A1	iblk	1633full.m	Sample		OP96663,S6Q267,500,,,5.0,1,water	✓
7	6Q17713.d	P1-A5	cc265-4	1633full.m	QC	20/500	OP96663,S6Q267,500,,,5.0,1,water	✓
8	6Q17714.d	P1-A2	cc265-1.0LL	1633full.m	QC	1.6/500	OP96663,S6Q267,500,,,5.0,1,water	✓
9	6Q17715.d	P3-A1	FC5480-1	1633full.m	Sample		OP96723,S6Q267,60,,,5.0,5,water	Redo sample
10	6Q17716.d	P3-A2	FC5480-1	1633full.m	Sample		OP96723,S6Q267,60,,,5.0,10,water	Redo sample
11	6Q17717.d	P3-A3	FC5481-1	1633full.m	Sample		OP96723,S6Q267,565,,,5.0,5,water	Redo sample
12	6Q17718.d	P3-A4	FC5481-2	1633full.m	Sample		OP96723,S6Q267,510,,,5.0,2,water	Redo sample
13	6Q17719.d	P3-A5	FC5481-3	1633full.m	Sample		OP96723,S6Q267,60,,,5.0,2,water	r5x
14	6Q17720.d	P3-A6	op96723-ms	1633full.m	Sample		OP96723,S6Q267,60,,,5.0,2,water	r5x
15	6Q17721.d	P3-A7	op96723-msd	1633full.m	Sample		OP96723,S6Q267,60,,,5.0,2,water	r5x
16	6Q17722.d	P3-A8	FC5481-5	1633full.m	Sample		OP96723,S6Q267,560,,,5.0,10,water	Redo sample
17	6Q17723.d	P3-A9	FC5481-6	1633full.m	Sample		OP96723,S6Q267,510,,,5.0,10,water	Redo sample
18	6Q17724.d	P3-B1	FC5481-4	1633full.m	Sample		OP96723,S6Q267,465,,,5.0,10,water	Redo lower volume
19	6Q17725.d	P1-A5	cc265-4	1633full.m	QC	20/500	OP96663,S6Q267,500,,,5.0,1,water	✓
20	6Q17726.d	P1-A1	iccb	1633full.m	Sample		OP96663,S6Q267,500,,,5.0,1,water	✓
21	6Q17727.d	P3-B2	FC5818-3	1633full.m	Sample		OP96747,S6Q267,570,,,5.0,5,water	Redo to confirm piba low
22	6Q17728.d	P3-B3	op96747-ms	1633full.m	Sample		OP96747,S6Q267,560,,,5.0,5,water	✓
23	6Q17729.d	P3-B4	FC5818-3	1633full.m	Sample		OP96747,S6Q267,570,,,5.0,10,water	Dilution not use.
24	6Q17730.d	P1-A5	ecc265-4	1633full.m	QC	20/500	OP96663,S6Q267,500,,,5.0,1,water	✓
25	6Q17731.d	P1-A1	iccb	1633full.m	Sample		OP96663,S6Q267,500,,,5.0,1,water	✓

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2098A	1033 spike Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	2.50uL	4mL	0.25 ppm	1033 MIX	4/6/23	10/6/23	MW
		11672B	MXH			4/16/24				250ppb				
		LCMS 2097	Br-In Et, Me	Sgs	9/1	10/28/23	3ppm	250uL		312.5ppb				
		11674B	PFAC MXF	Wellington	1/11/25	3/30/24	2ppm	250uL		350ppb				
		11675	PFAC MXG		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11672B	PFAC MXJ		9/14/26	3/23/24	4-20 ppm	312uL		312/1000 ppb				
LCMS 2099	537.1 Du std. (Internal)	11070	MPF-PEA	Wellington Labs	07/06/25	04/06/24	50ppm	80uL	4mL	1.0ppm	2011MEH 41, H2O	04/13/23	06/15/23	NG
		10428A	Mw:2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10528B	d3-N-NECOAA		10/22/25	05/15/23		160uL		2.0ppm				NG
		10498A	M:PFOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M:PFDA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (90)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O	4/11/23	7/24/23	MW
		LCMS 2067	40 List ADD ON #1	Sgs wld.		8/23/23	1.0ppm	400uL			(2, 40031)			
		LCMS 2070	40 List ADD ON #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	Fose std.			7/24/23	5.0ppm	400uL		500ppb				
LCMS 2101	Fose std.	11336	N-et Fose	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me Fose		5/13/27	9/19/23	50ppm	200uL						

* B/C checked are normal

* tested & passed on 10/11/23

LCMS 2100 91B * tested & passed on 10/11/23

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

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

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Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2095A-J	(10ppb) PFC ID SURF	A-J 11669	MPFAC-2YES	Wellington Labs	01/15/23	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	05/11/23 57.425	03/28/23	09/26/23	NS
↓	↓	11585	M2HFO-DA	↓	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-METOSA	↓	05/06/27	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 2096A-B	1033 spike Cal cert.	11672	PFAC-MxH	Wellington Labs	8/15/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 2.50ppb	1033 MIX	3/30/23	9/30/23	MUJ
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	↓	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxG	↓	11/1/25	3/23/29	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxG	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
LCMS 2097A-B	BR-LN metet for 1033	11428	br-N metosa	Wellington Labs	08/23/27	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/16/23	10/28/23	MUJ
↓	↓	11498	br-N Effosa	↓	10/07/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11495	br-N metose	↓	10/07/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N effose	↓	10/17/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/6/24								

* tested
& used
on 3/20
10/21

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List std. ADD-ON #1	10726A	FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth	2/8/23	3/21/23	MV
		10840	L ⁻ PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N ⁻ McFOSA		8/3/26	8/23/23								
		10837	N ⁻ EtFOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFODA		5/7/26	10/18/23								
		11116 B	3:3 FTCA PFAPA		2/3/27	2/8/24								
		10685A	5:3 FTCA PFAPA		11/11/25	8/23/23								
		11116 A	7:3 FTCA FHPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA PF50HxA		3/31/25	10/18/23								
		10764	PFMPA PF406A		3/31/25	2/8/24								
		10765B	NFHDA 3.6-08APA		3/31/25	10/18/23								
					NS	02/10/23								

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
* 2074 A-B LCMS	PFC SPIKE	11613	PROA-SD C8000MS	Absolute	11/09/27	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	03/23/23	UG
↓	↓	10839	N-Me- FSA-M	Wellington Labs	08/23/26	09/23/23	50ppm	40uL	↓	↓	↓	↓	↓	NG
↓	↓	11250	FBSA-1	↓	11/10/26	11/08/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11249	FHSA-1	↓	12/29/26	11/03/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11332	FTECHS	↓	03/28/27	10/18/23	↓	↓	↓	↓	↓	↓	↓	NG
* 2075 A-F LCMS	(10 PPB) PFC ID SURC	11639	MPAC- 24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	02/23/23	NG
↓	↓	11585	N2HFO- DA	Wellington Labs	11/08/25	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	11385	A-N- NFCOSAM	Wellington Labs	05/10/27	01/01/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/17/23	5/19/26	MV
↓	↓	11249	FHSA-1	↓	2/29/26	11/3/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
↓	↓	11140	L-PFAS	↓	7/12/26	5/26/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Acetate	Sigma Aldrich	---	1/25/24	99.9%	0.62g	4L	2mM	MA	2/28/23	4/28/23	MV
↓	↓	224870	HPLC water	Fisher	---	2/28/23	↓	3,800ml	↓	95%	↓	↓	↓	↓
↓	↓	220225	Acetonil trile	↓	---	2/20/24	↓	200mL	↓	5%	↓	↓	↓	↓
↓	↓					n/a	n/a	n/a	2/28/23					
↓	↓					Continue next page 21								

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2052	1633 prep mix	Lot: 221044	MeOH	Fisher	—	1/4/24	99.9%	92 mL	100 mL	92%	N/A	1/19/23	2/19/23	MV
↓	↓	Lot: 219481	NH4OH	↓	—	9/19/23	100%	3.3 mL	↓	1%	↓	↓	↓	↓
↓	↓	Lot: 224863	H2O	↓	—	1/17/24	100%	1.7 mL	↓	4%	↓	↓	↓	↓
↓	↓	Lot: 224297	Acetic ACID	↓	—	6/24	99.7%	0.625 mL	↓	.625%	↓	↓	↓	↓
LCMS 2053	(spike) Full list std	11568	PF6A 200 28	SGS standards	11/9/27	1/10/24	1.0 ppm	400 NL	4.0 mL	100 ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
↓	↓	LCMS 1987	40 list add-on #1	↓	—	3/21/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 1986	40 list add-on #2	↓	—	4/8/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2054	FOSC std.	↓	—	7/24/23	5.0 ppm	400 NL	↓	500 ppb	↓	↓	↓	↓
LCMS 2054	FOSC std.	11336	N-Et-FOSE	Wellington	5/13/27	9/19/23	50 ppm	200 NL	2.0 mL	5 ppm	95% MeOH 5% H2O	12/4/23	7/24/23	MV
↓	↓	11338	N-ME FOSE	↓	5/13/27	9/19/23	50 ppm	200 NL	↓	↓	↓	↓	↓	↓
LCMS 2055	1633 Cal std.	10855	PFAC-MxH	Wellington	9/14/26	1/17/24	1-4 ppm	250 NL	4 mL	62.5 125 250 ppb	1633 MIX	1/24/23	7/24/23	MV
↓	↓	10853I	PFAC-MxI	↓	9/14/26	1/11/24	1-10 ppm	250 NL	↓	62.5 125 250 ppb	↓	↓	↓	↓
↓	↓	11579B	PFAC-MxF	↓	1/11/25	1/11/24	2 ppm	500 NL	↓	250 ppb	↓	↓	↓	↓
↓	↓	11607A	PFAC-MxG	↓	3/4/25	1/24/24	2 ppm	250 NL	↓	125 ppb	↓	↓	↓	↓
↓	↓	10854I	PFAC-MxJ	↓	9/14/26	1/11/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11492	PFAC-MxJ	↓	9/14/26	1/24/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11603	PFAC-MxJ	↓	9/14/26	1/24/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓

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

11494



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSE
<u>LOT NUMBER:</u>	brNMeFOSE0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/02/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 3: LC/MS Data (SIR)
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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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

brNMeFOSE0922 (1 of 7)
rev1

7.9.1

7

11495



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix**

<u>PRODUCT CODE:</u>	br-NEtFOSE
<u>LOT NUMBER:</u>	brNEtFOSE1022
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/12/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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rev1

7.9.1

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

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

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Revision#:9, Revised 2020-12-23

brNMeFOSA0822 (1 of 6)
rev1

7.9.1

7

11498



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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rev1

7.9.1

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11642 A-B
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

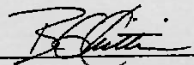
PFACMXJ:0921 (1 of 5)
rev1

7.9.1
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Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:


B.G. Chittim, General Manager

Date: 10/02/2021
(m/mcd/yyyy)

11672
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

**Native PFAS
Solution/Mixture**

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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PFACMXH0822 1 of 11
rev0

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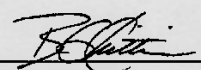
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Table A: PFAC-MXH; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUDA	1000		24
Perfluoro-n-dodecanoic acid	PFDOA	1000		26
Perfluoro-n-tridecanoic acid	PFTDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^a	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-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: 08/09/2022
(mm/dd/yyyy)

11674 A-B
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

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

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUDS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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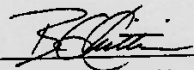
Table A:

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

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxananoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: _____


B.G. Chittim, General Manager

Date: 01/12/2022
(mm/dd/yyyy)

11675
rec'd: 02/23/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Revision# 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

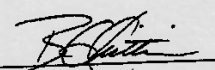
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PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

Table A

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

* Concentrations have been rounded to three significant figures.

Certified By:  Date: 12/09/2022
(mm/dd/yyyy)
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PRODUCT CODE:

FPePA

LOT NUMBER:

FPePA1120

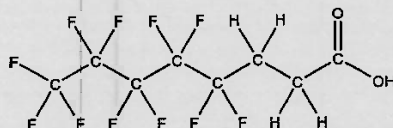
COMPOUND:

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)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

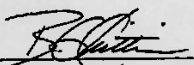
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

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Certified By:


B.G. Chittim, General Manager

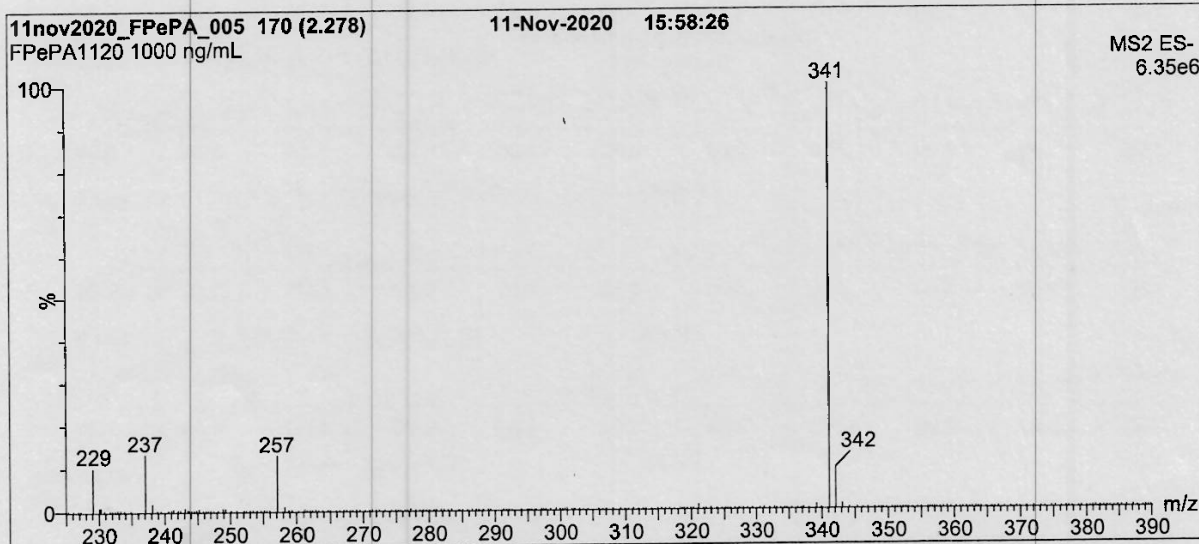
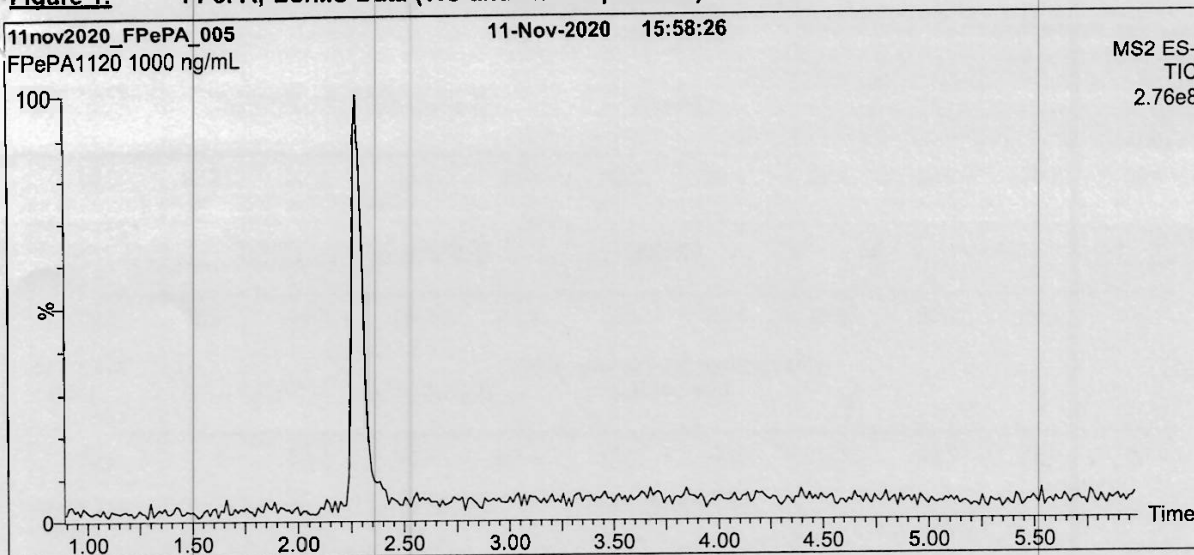
Date: 11/27/2020
(mm/dd/yyyy)

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Revision#:8, Revised 2020-09-10

FPePA1120 (1 of 4)
rev0

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



Conditions for Figure 1:

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

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{1a}
1.7 μm, 2.1 x 100 mm

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

Flow: 300 μL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 18.50
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

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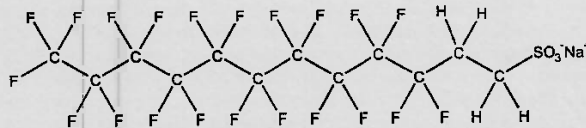


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0221
COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE: **CAS #:** 108026-35-3



MOLECULAR FORMULA: C₁₂H₄F₂₁SO₃Na **MOLECULAR WEIGHT:** 650.18
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
48.3 ± 2.4 µg/mL (10:2FTS acid)
48.2 ± 2.4 µg/mL (10:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/03/2021
EXPIRY DATE: (mm/dd/yyyy) 03/03/2026
RECOMMENDED STORAGE: Refrigerate ampoule

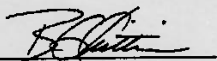
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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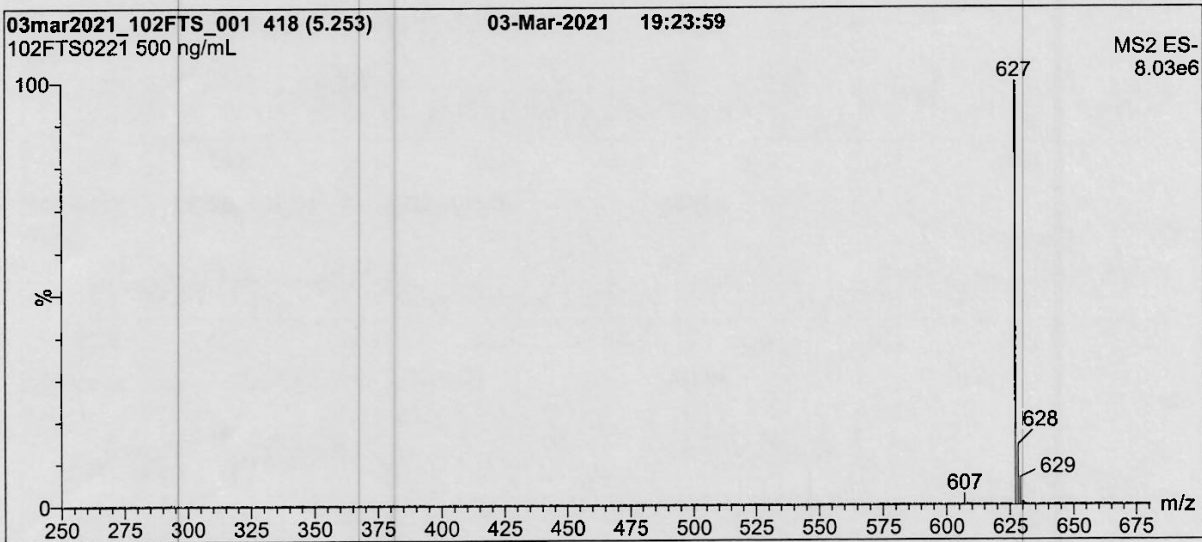
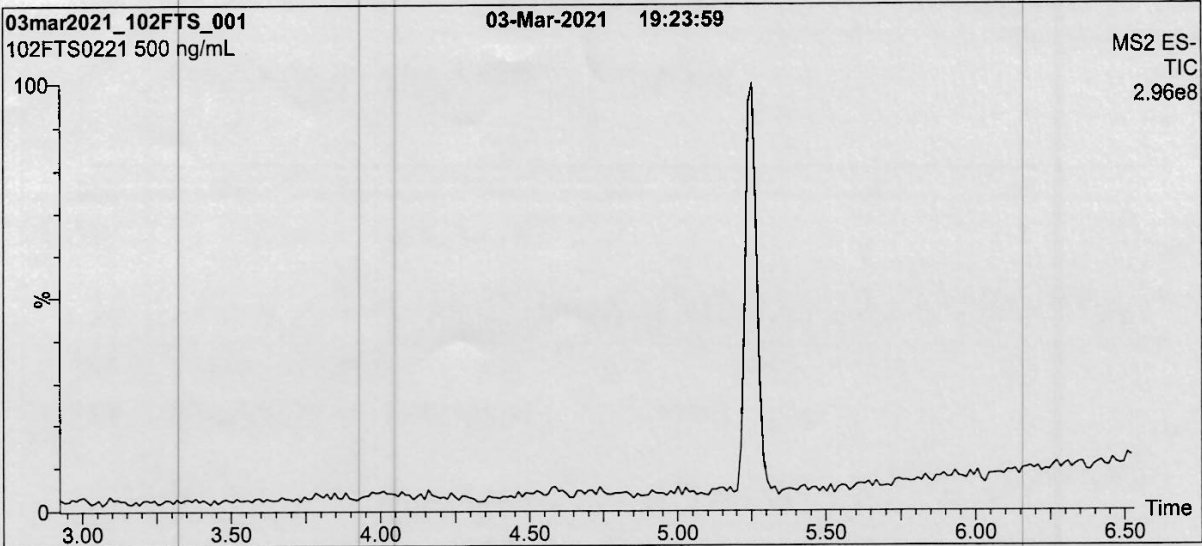
Certified By:  **Date:** 03/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

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Revision#: 9, Revised 2020-12-23

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Figure 1: 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



Conditions for Figure 1:

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

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

Mobile phase: Gradient
 Start: 40% H₂O / 60% (80:20 MeOH:ACN)
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for 3 min
 before returning to initial conditions in 0.75 min.
 Time: 12 min

Flow: 300 μ L/min

MS Parameters:
 Experiment: Full Scan (250 - 850 amu)
 Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 25.00
 Desolvation Temperature ($^{\circ}$ C) = 500
 Desolvation Gas Flow (L/hr) = 1000

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 Revision#: 9, Revised 2020-12-23

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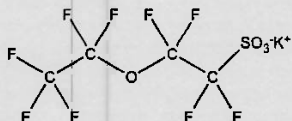
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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd
8/20/21
WPH* **LOT NUMBER:** PFEESA0520

COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₉SO₄K **MOLECULAR WEIGHT:** 354.19

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol

44.6 ± 2.2 µg/ml (PFEESA acid)

44.5 ± 2.2 µg/ml (PFEESA anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2020

EXPIRY DATE: (mm/dd/yyyy) 05/13/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

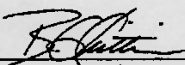
Figure 1: LC/MS Data (TIC and Mass Spectrum)

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

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Certified By:  **Date:** 05/29/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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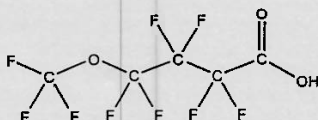
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **MOLECULAR WEIGHT:** 280.05

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

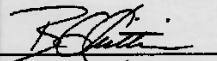
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By:  **Date:** 12/21/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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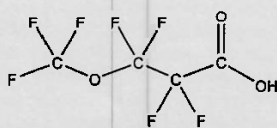
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

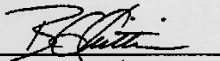
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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

PF4OPeA0320 (1 of 4)
rev1

7.9.1

7

10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

rec'd
WPH
8/20/21

LOT NUMBER:

36OPFHpA0320

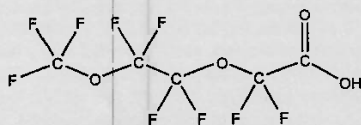
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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10829



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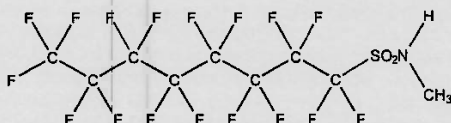
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

MOLECULAR FORMULA: C₈H₄F₁₇NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/03/2021
EXPIRY DATE: (mm/dd/yyyy) 08/03/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

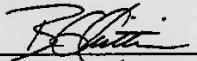
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

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

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

NMeFOSA0721M (1 of 4)
rev0

7.9.1

7



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

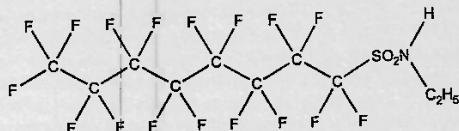
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

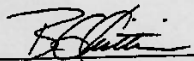
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

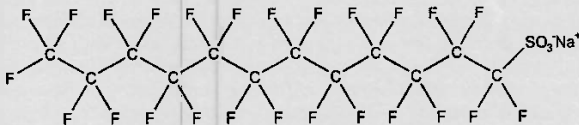
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
48.5 ± 2.4 µg/mL (PFDoS acid)
48.4 ± 2.4 µg/mL (PFDoS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/09/2021
EXPIRY DATE: (mm/dd/yyyy) 07/09/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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

LPFDoS0721 (1 of 4)
rev0

7.9.1
7



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CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NG 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

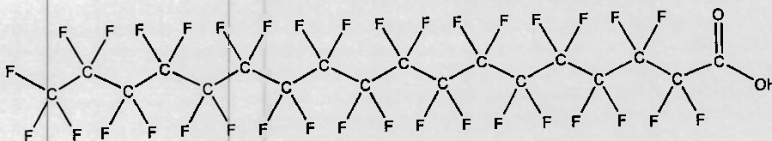
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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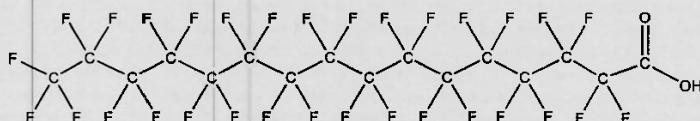
CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

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



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

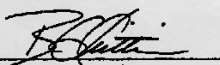
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 B.G. Chittim, General Manager **Date:** 05/25/2021
 (mm/dd/yyyy)

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

PFHxDA0421 (1 of 4)
 rev0

7.9.1
7

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1116B on the back NW



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

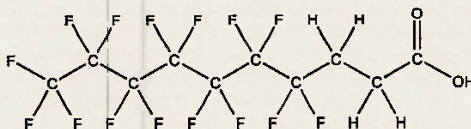
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

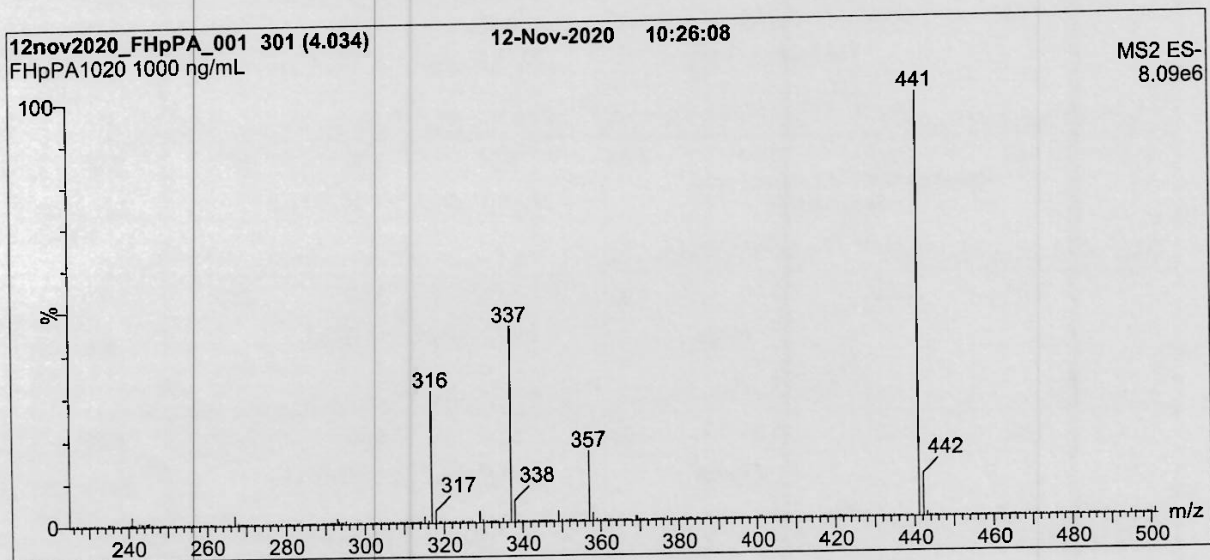
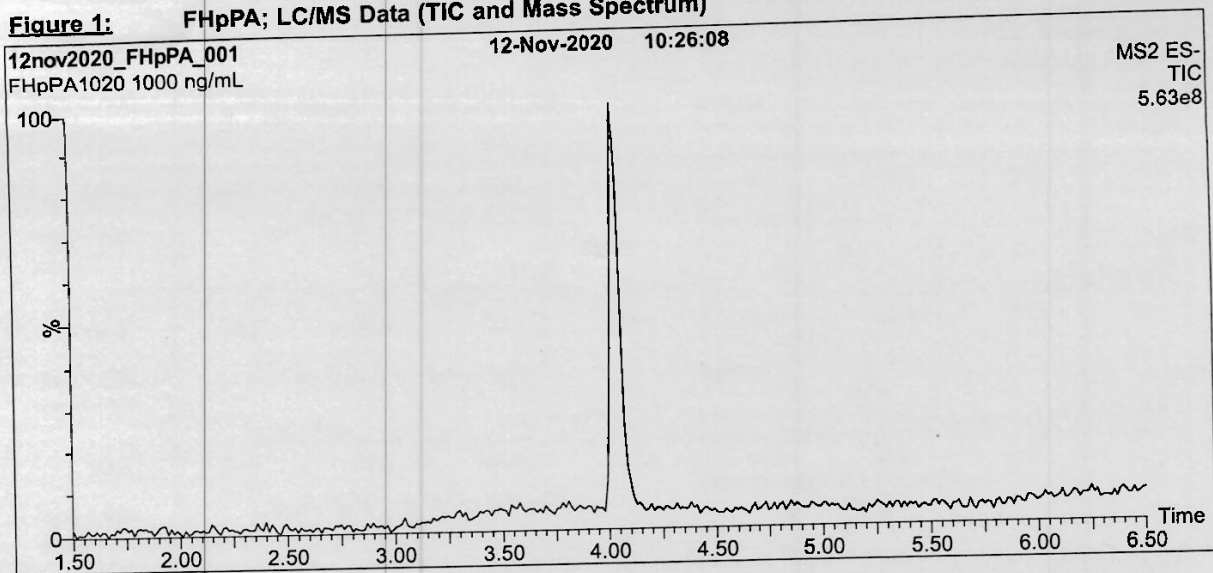
(mm/dd/yyyy)

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

FHpPA1020 (1 of 4)
rev0

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



Conditions for Figure 1:

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

Chromatographic Conditions:

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

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

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

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

FPrPA(3:3FTEA) 1116 B



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

FPrPA

LOT NUMBER:

FPrPA0122

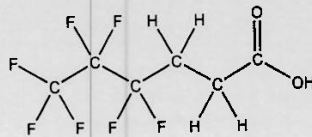
COMPOUND:

3-Perfluoropropyl propanoic acid

STRUCTURE:

CAS #:

356-02-5



MOLECULAR FORMULA:

$C_6H_5F_7O_2$

MOLECULAR WEIGHT:

242.09

CONCENTRATION:

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

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

02/03/2022

EXPIRY DATE: (mm/dd/yyyy)

02/03/2027

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

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

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

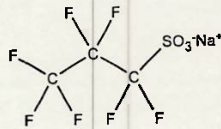
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)

SOLVENT(S):

Methanol

46.0 ± 2.3 µg/mL (PFPrS acid)

45.8 ± 2.3 µg/mL (PFPrS anion)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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7/1/22 KA



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

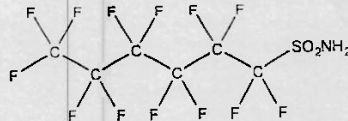
COMPOUND:

Perfluoro-1-hexanesulfonamide

STRUCTURE:

CAS #:

41997-13-1



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT:

399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

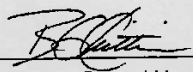
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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PRODUCT CODE:

FBSA-I

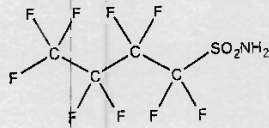
LOT NUMBER: FBSA11211

COMPOUND:

Perfluoro-1-butananesulfonamide

STRUCTURE:

CAS #: 30334-69-1



MOLECULAR FORMULA:

C₄H₂F₉NO₂S

MOLECULAR WEIGHT: 299.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S): Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/10/2021

EXPIRY DATE: (mm/dd/yyyy)

11/10/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 11/10/2021

(mm/dd/yyyy)

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11332



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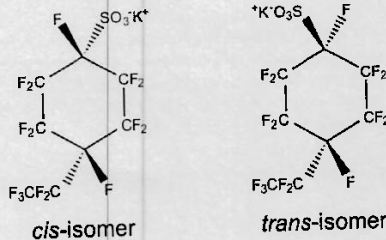
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:

PFECHS
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

LOT NUMBER: PFECHS0222

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:
CONCENTRATION:

$C_8F_{15}SO_3K$
50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)
>98%

MOLECULAR WEIGHT: 500.22
SOLVENT(S): Methanol

CHEMICAL PURITY:

LAST TESTED: (mm/dd/yyyy)

03/28/2022

EXPIRY DATE: (mm/dd/yyyy)

03/28/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022
(mm/dd/yyyy)

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11336



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSE-M

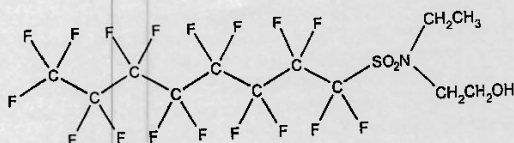
LOT NUMBER: NEtFOSE0622M

COMPOUND:

2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

CAS #: 1691-99-2

STRUCTURE:



MOLECULAR FORMULA:

C₁₂H₁₀F₁₇NO₃S

MOLECULAR WEIGHT: 571.25

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

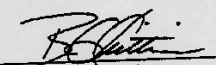
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

Date: 07/13/2022
(mm/dd/yyyy)

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

NEtFOSE0622M (1 of 5) rev0

11338



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

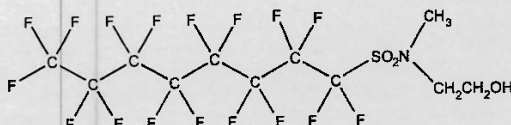
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11615 A-5
rec'd 01/19/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled PFAS Injection
Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/28/2022
LAST TESTED: (mm/dd/yyyy) 11/29/2022
EXPIRY DATE: (mm/dd/yyyy) 11/29/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

MPFACHIFIS1122 (1 of 5)
rev0

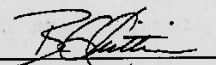
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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

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

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 12/05/2022
(mm/dd/yyyy)



11626
rec'd 01/26/23

CERTIFIED WEIGHT REPORT

Part Number: **64029A**
Lot Number: **110922**
Description: **PFOA - DOD**
28 components
Expiration Date: **110827**
Recommended Storage: **Freezer (0 °C)**
Nominal Concentration (µg/mL): **1.0**
NIST Test ID#: **6UTB**

Solvent(s): **Methanol (1 mM KOH)**
2-Propanol
Lot# **102722 (98%)**
32500 (2%)

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Prashant Chauhan</i>	DATE
Reviewed By: <i>Prashant Chauhan</i>	110922
Reviewed By: <i>Pedro L. Rentes</i>	DATE

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PTTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluorooctanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
14. N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHPS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.01	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	29187-87-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxadecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorooctadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.6	1.00	0.05	756426-58-1	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	6.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
Uncertainty Reference: Taylor, B.N. and Kaye, C.E. "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

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11636 A-J
rec'd 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction
Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES1022
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 10/28/2022
LAST TESTED: (mm/dd/yyyy) 11/23/2022
EXPIRY DATE: (mm/dd/yyyy) 11/23/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

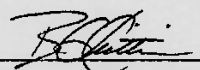
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Table A: MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₆)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₃ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₃ -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 11/24/2022
(mm/dd/yyyy)

SGS - ORLANDO

Date/Time: 05/05/23 11:00
Started (mm/dd/yy 24:00)

Date/Time: 5/9/23 14:00
Finished (mm/dd/yy 24:00)

Batch#: OP96747 Ext. By: GH

SPE LIQUID SAMPLE PREP REPORT

Method: EPA 1633 Draft (QSM) List 46

Balance ID: _____

Conc. By: _____ Viald By: _____

GH
05/05/23

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 96747 MB	/	500	7	N/A	25		5	F	
OP 96747 BS	/	500	7						
OP 96747 LLBS	/	500	7			200			
FC5818-1	2	550	7			60			
	2	530	7						
	3	570	7						
	4	530	7						
	5	560	7	N/A	25		5	F	
OP FC5818-3 MS	3	560	7	N/A	25	200	5	F	
OP FC5818-5 DUP	3	560	7	N/A	25		5	F	

Comments:

EIS (SURR) ID: 11777F-H Conc: 250-5000 ng/ml[±] Exp. Date: 05/01/24 Inj. By: GH Ver. By: AG
 SPIKE 1 ID: LMS2112A Conc: VARIED Exp. Date: 10/28/23 Inj. By: GH Ver. By: AG
 SPIKE 2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11776 I-J Conc: 250-1000 ng/ml[±] Exp. Date: 5/9/24 Inj. By: NU Ver. By: JP

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

Methanol Lot # 223231 1% NH4OH MeOH PE 387 SPE Lot # 6723930-02
 Water Lot# OP 96255 0.3M Formic Acid PF375 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF 386 5% Formic Acid _____ Carbon Lot# 99687

Relinquished By: Gabriela Vasquez
 Accepted By: NU

Date: 05/05/23
 Date: 5/9/23