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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC6097

Sampling Date: 05/15/23



Report to:

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Total number of pages in report: 708



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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Test results relate only to samples analyzed.

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Sample Summary

AECOM, INC.

Job No: FC6097

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC6097-1	05/15/23	09:40	OSNM 05/16/23	AQ	Ground Water	AF-RHMW04-WGN01LF-2305W3
FC6097-2	05/15/23	11:10	OSNM 05/16/23	AQ	Ground Water	AF-RHMW06-WGN01LF-2305W3
FC6097-3	05/15/23	09:23	RS 05/16/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2305W3
FC6097-4	05/15/23	09:23	RS 05/16/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2305W3
FC6097-5	05/15/23	11:38	RS 05/16/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2305W3

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC6097

Site: N6274223F0104 RH Fire Suppression System

Report Date: 5/23/2023 11:40:35 AM

On 05/16/2023, 5 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3.4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC6097 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: OP96921

Sample(s) FC5594-2MS, FC5594-2MSD were used as the QC samples indicated.

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

OP96921-BS for 13C4-PFBA: Outside control limits.

FC6097-1 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-1 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-2 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-2 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-3 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-3 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-4 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-4 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-5 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

FC6097-5 for PFMPA: Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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: FC6097
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 05/15/23



Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method
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FC6097-1 AF-RHMW04-WGN01LF-2305W3

No hits reported in this sample.

FC6097-2 AF-RHMW06-WGN01LF-2305W3

No hits reported in this sample.

FC6097-3 AF-RHMW12A-WGN01LF-2305W3

Perfluoropentanoic acid	3.2 J	7.4	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	0.98 J	3.7	1.9	ng/l	EPA DRAFT 1633

FC6097-4 AF-RHMW12A-WGFD01LF-2305W3

Perfluoropentanoic acid	3.1 J	7.4	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.0 J	3.7	1.9	ng/l	EPA DRAFT 1633

FC6097-5 AF-RHMW16-WGN01LF-2305W3

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW04-WGN01LF-2305W3		
Lab Sample ID:	FC6097-1	Date Sampled:	05/15/23
Matrix:	AQ - Ground Water	Date Received:	05/16/23
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	6Q18132.D	1	05/19/23 14:18	MV	05/17/23 11:00	OP96921	S6Q272
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5 U	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.0	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.5	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	0.88	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2305W3		
Lab Sample ID:	FC6097-1	Date Sampled:	05/15/23
Matrix:	AQ - Ground Water	Date Received:	05/16/23
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	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.5	1.8	0.88	ng/l	
919005-14-4	ADONA	3.5 U	7.0	3.5	1.6	ng/l	
377-73-1	PFMPA ^a	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 carboxylat ^a	8.8 U	18	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	88	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	88	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	86%		20-150%
	13C5-PFPeA	92%		20-150%
	13C5-PFHxA	90%		20-150%
	13C4-PFHpA	94%		20-150%
	13C8-PFOA	91%		20-150%
	13C9-PFNA	88%		20-150%
	13C6-PFDA	75%		20-150%
	13C7-PFUnDA	73%		20-150%
	13C2-PFDoDA	68%		20-150%
	13C2-PFTeDA	63%		20-150%
	13C3-PFBS	90%		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

Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2305W3	
Lab Sample ID:	FC6097-1	Date Sampled: 05/15/23
Matrix:	AQ - Ground Water	Date Received: 05/16/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	89%		20-150%
	13C8-FOSA	69%		20-150%
	d3-MeFOSA	64%		20-150%
	d5-EtFOSA	70%		20-150%
	d3-MeFOSAA	95%		20-150%
	d5-EtFOSAA	89%		20-150%
	d7-MeFOSE	59%		20-150%
	d9-EtFOSE	66%		20-150%
	13C2-4:2FTS	117%		20-180%
	13C2-6:2FTS	122%		20-180%
	13C2-8:2FTS	108%		20-180%
	13C3-HFPO-DA	94%		20-150%

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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-RHMW06-WGN01LF-2305W3		
Lab Sample ID:	FC6097-2	Date Sampled:	05/15/23
Matrix:	AQ - Ground Water	Date Received:	05/16/23
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	6Q18133.D	1	05/19/23 14:33	MV	05/17/23 11:00	OP96921	S6Q272
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-RHMW06-WGN01LF-2305W3		Date Sampled:	05/15/23
Lab Sample ID:	FC6097-2		Date Received:	05/16/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

2355-31-9	MeFOSAA	3.8 U	4.7	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 ^a	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	94%		20-150%
13C5-PFPeA	93%		20-150%
13C5-PFHxA	93%		20-150%
13C4-PFHpA	96%		20-150%
13C8-PFOA	98%		20-150%
13C9-PFNA	91%		20-150%
13C6-PFDA	84%		20-150%
13C7-PFUnDA	72%		20-150%
13C2-PFDoDA	67%		20-150%
13C2-PFTeDA	59%		20-150%
13C3-PFBS	98%		20-150%
13C3-PFHxS	89%		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-RHMW06-WGN01LF-2305W3		Date Sampled:	05/15/23
Lab Sample ID:	FC6097-2		Date Received:	05/16/23
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	83%		20-150%
	13C8-FOSA	76%		20-150%
	d3-MeFOSA	61%		20-150%
	d5-EtFOSA	66%		20-150%
	d3-MeFOSAA	89%		20-150%
	d5-EtFOSAA	85%		20-150%
	d7-MeFOSE	58%		20-150%
	d9-EtFOSE	64%		20-150%
	13C2-4:2FTS	116%		20-180%
	13C2-6:2FTS	115%		20-180%
	13C2-8:2FTS	114%		20-180%
	13C3-HFPO-DA	93%		20-150%

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW12A-WGN01LF-2305W3		
Lab Sample ID:	FC6097-3	Date Sampled:	05/15/23
Matrix:	AQ - Ground Water	Date Received:	05/16/23
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	6Q18134.D	1	05/19/23 14:47	MV	05/17/23 11:00	OP96921	S6Q272
Run #2							

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

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

375-22-4	Perfluorobutanoic acid	3.7 U	15	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	3.2	7.4	1.9	0.87	ng/l	J
307-24-4	Perfluorohexanoic acid	0.98	3.7	1.9	0.46	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
335-67-1	Perfluorooctanoic acid	0.93 U	3.7	0.93	0.46	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.7	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

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

FLUOROTELOMER SULFONIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	3.7	1.9	0.62	ng/l	
31506-32-8	MeFOSA	3.7 U	7.4	3.7	0.93	ng/l	
4151-50-2	EtFOSA	3.7 U	7.4	3.7	0.93	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2305W3		
Lab Sample ID:	FC6097-3	Date Sampled:	05/15/23
Matrix:	AQ - Ground Water	Date Received:	05/16/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	45%		20-150%
	13C5-PFPeA	94%		20-150%
	13C5-PFHxA	93%		20-150%
	13C4-PFHpA	95%		20-150%
	13C8-PFOA	90%		20-150%
	13C9-PFNA	88%		20-150%
	13C6-PFDA	87%		20-150%
	13C7-PFUnDA	85%		20-150%
	13C2-PFDoDA	73%		20-150%
	13C2-PFTeDA	65%		20-150%
	13C3-PFBS	90%		20-150%
	13C3-PFHxS	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

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2305W3		
Lab Sample ID:	FC6097-3	Date Sampled:	05/15/23
Matrix:	AQ - Ground Water	Date Received:	05/16/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	88%		20-150%
	13C8-FOSA	82%		20-150%
	d3-MeFOSA	70%		20-150%
	d5-EtFOSA	70%		20-150%
	d3-MeFOSAA	99%		20-150%
	d5-EtFOSAA	100%		20-150%
	d7-MeFOSE	58%		20-150%
	d9-EtFOSE	63%		20-150%
	13C2-4:2FTS	107%		20-180%
	13C2-6:2FTS	114%		20-180%
	13C2-8:2FTS	115%		20-180%
	13C3-HFPO-DA	93%		20-150%

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW12A-WGFD01LF-2305W3		
Lab Sample ID:	FC6097-4	Date Sampled:	05/15/23
Matrix:	AQ - Ground Water	Date Received:	05/16/23
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	6Q18135.D	1	05/19/23 15:02	MV	05/17/23 11:00	OP96921	S6Q272
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.7 U	15	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	3.1	7.4	1.9	0.87	ng/l	J
307-24-4	Perfluorohexanoic acid	1.0	3.7	1.9	0.46	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
335-67-1	Perfluorooctanoic acid	0.93 U	3.7	0.93	0.46	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.7	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.7	1.9	0.46	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.6	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.7	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.7	1.9	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.7	1.9	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.7	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.7	1.9	0.59	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.6	3.7	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.8	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.7	1.9	0.62	ng/l	
31506-32-8	MeFOSA	3.7 U	7.4	3.7	0.93	ng/l	
4151-50-2	EtFOSA	3.7 U	7.4	3.7	0.93	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2305W3	
Lab Sample ID:	FC6097-4	Date Sampled: 05/15/23
Matrix:	AQ - Ground Water	Date Received: 05/16/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	57%		20-150%
	13C5-PFPeA	100%		20-150%
	13C5-PFHxA	99%		20-150%
	13C4-PFHpA	101%		20-150%
	13C8-PFOA	100%		20-150%
	13C9-PFNA	97%		20-150%
	13C6-PFDA	94%		20-150%
	13C7-PFUnDA	90%		20-150%
	13C2-PFDoDA	82%		20-150%
	13C2-PFTeDA	69%		20-150%
	13C3-PFBS	97%		20-150%
	13C3-PFHxS	94%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2305W3	
Lab Sample ID:	FC6097-4	Date Sampled: 05/15/23
Matrix:	AQ - Ground Water	Date Received: 05/16/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	96%		20-150%
	13C8-FOSA	80%		20-150%
	d3-MeFOSA	75%		20-150%
	d5-EtFOSA	77%		20-150%
	d3-MeFOSAA	110%		20-150%
	d5-EtFOSAA	112%		20-150%
	d7-MeFOSE	66%		20-150%
	d9-EtFOSE	75%		20-150%
	13C2-4:2FTS	132%		20-180%
	13C2-6:2FTS	130%		20-180%
	13C2-8:2FTS	119%		20-180%
	13C3-HFPO-DA	98%		20-150%

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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-RHMW16-WGN01LF-2305W3		
Lab Sample ID:	FC6097-5	Date Sampled:	05/15/23
Matrix:	AQ - Ground Water	Date Received:	05/16/23
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	6Q18136.D	1	05/19/23 15:16	MV	05/17/23 11:00	OP96921	S6Q272
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-RHMW16-WGN01LF-2305W3		Date Sampled:	05/15/23
Lab Sample ID:	FC6097-5	Date Received:	05/16/23	
Matrix:	AQ - Ground Water	Percent Solids:	n/a	
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

2355-31-9	MeFOSAA	3.8 U	4.7	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 ^a	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	81%		20-150%
	13C5-PFPeA	102%		20-150%
	13C5-PFHxA	106%		20-150%
	13C4-PFHpA	104%		20-150%
	13C8-PFOA	100%		20-150%
	13C9-PFNA	98%		20-150%
	13C6-PFDA	88%		20-150%
	13C7-PFUnDA	79%		20-150%
	13C2-PFDoDA	69%		20-150%
	13C2-PFTeDA	63%		20-150%
	13C3-PFBS	110%		20-150%
	13C3-PFHxS	105%		20-150%

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

4.5
4

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2305W3		Date Sampled:	05/15/23
Lab Sample ID:	FC6097-5		Date Received:	05/16/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	93%		20-150%
	13C8-FOSA	87%		20-150%
	d3-MeFOSA	67%		20-150%
	d5-EtFOSA	68%		20-150%
	d3-MeFOSAA	85%		20-150%
	d5-EtFOSAA	84%		20-150%
	d7-MeFOSE	63%		20-150%
	d9-EtFOSE	70%		20-150%
	13C2-4:2FTS	135%		20-180%
	13C2-6:2FTS	134%		20-180%
	13C2-8:2FTS	121%		20-180%
	13C3-HFPO-DA	103%		20-150%

(a) Associated BS recovery outside control limits; LLBS recovery was within control limits and sample was ND.

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 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-425-6700 FAX: 407-425-0717
www.sgs.com

FC6097

CoC #: 2305W3AFSG09

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; width: 100%; height: 100%; position: relative;"> AS </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 #															
Sampler(s) Name(s) (Printed) Sampler 1: O. Shively Sampler 2: N. Magster		Client Purchase Order #															
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PC	PCB	PAQS	PERCA	INACH-ZNAC	IN WATER	WICH	PFAS EPA Draft 1633	LAB USE ONLY
1	AF-RHMMW06-WGN01LF-2305W3	5/15/23	05:44	OS, NA	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 AFB 616-17895393										
Rush T/A Data Available VIA Email or Lablink																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler/Affiliation		Date Time		Received By/Affiliation		Date Time		Relinquished By/Affiliation		Date Time		Received By/Affiliation		Date Time		Received By/Affiliation	
1 Oling Shively		5/15/23		2 Alex Edwards AECOM		5/15/23		3 Alex Edwards AECOM		5/15/23		4 [Signature]		5/16/23		10/10	
5 United Cargo				6				7				8					
Lab Use Only: Cooler Temperature (s) Celsius (corrected):																	
http://www.sgs.com/en/terms-and-conditions																	

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FC6097: Chain of Custody

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FC6097

COC #: 2305W3AFSG05

SGS - ORLANDO JOB # :

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes												
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge 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 Manager: Watson Tanji Email: watson.tanji@aecom.com Phone #: 303-796-4624 / 808-954-4512		Project # 60697810 Fax #																								
Sampler(s) Name(s) (Printed) Sampler 1:		Client Purchase Order #		PFAS EPA Draft 1633 X X										LAB USE ONLY												
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME												SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PC	ANCH	PANCS	PERCH	NACH-ZNAC	DI WATER	MECH
3	AF-RHMW12A-WGN01LF-2305W3	5/15/23	0923													GW	3		X							
4	AF-RHMW12A-WGFD01LF-2305W3	5/15/23	0923													GW	3		X							
Turnaround Time (Business days)		Data Deliverable Information													Comments / Remarks											
10 Day (Business) _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____		Approved By: / Date: _____ <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S													EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016-17895393											
Rush T/A Data Available VIA Email or Lablink		Sample Custody must be documented below each time samples change possession, including courier delivery.																								
Relinquished by Sampler/Affiliation 1 Ryan Johnson		Date Time: 5/15/23													Received By/Affiliation 2 Alex Edwards AECOM		Date Time: 5/15/23		Relinquished By/Affiliation 3 Alex Edwards		Date Time: 5/15/23		Received By/Affiliation 4 [Signature] 05/16/23			
Relinquished by/Affiliation 5 United Cargo		Date Time: 5/15/23													Received By/Affiliation 6 United Cargo		Date Time: 5/15/23		Relinquished By/Affiliation 7		Date Time: 5/15/23		Received By/Affiliation 8			
Lab Use Only: Cooler Temperature (°) Celsius (corrected):		http://www.sgs.com/en/terms-and-conditions																								

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FC6097: Chain of Custody

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Chain of Custody

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www.sgs.com

FC6097

COC #: 2305W3AFSG06

SGS - ORLANDO JOB #:

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes											
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge 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 # 80697810																							
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #																							
Sampler(s) Name(s) (Printed)		Client Purchase Order #		PFAS EPA Draft 1633 X										LAB USE ONLY											
Sampler 1:		Sampler 2:																							
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME												SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	PCB	MECH	PANCS	PERCHL	NO3-N/NO2-N	BIOWATER	MECH
5	AF-RHMMW16-WGN01LF-2305W3	5/15/23	1138													GW	3		X						
Turnaround Time (Business days)				Data Deliverable Information				Comments / Remarks																	
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		Approved By: / Date:		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AUVS 016-17895393																	
Rush T/A Data Available VIA Email or Lablink				Sample Custody must be documented below each time samples change possession, including courier delivery.																					
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation													
1 Ryan Shimoto		6/15/23		2 Alex Edwards AECOM		5/15/23		3 Alex Edwards AECOM		5/15/23		4 [Signature] 05/16/23													
5 United Cargo				6 United Cargo				7				8													
Lab Use Only: Cooler Temperature (s) Celsius (corrected):								http://www.sgs.com/env/terms-and-conditions																	

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FC6097: Chain of Custody

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SGS Sample Receipt Summary

Job Number: FC6097

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 5/16/2023 2:40:00 PM

Delivery Method: United Cargo/Airspace

Airbill #s: United Cargo AWB #: 016-17895393

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.5);

Cooler Temps (Corrected) °C: Cooler 1: (3.4);

Cooler Information

Y or N

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

Trip Blank Information

Y or N

N/A

- 1. Trip Blank present / cooler
 - 2. Trip Blank listed on COC
- W or S N/A
- 3. Type Of TB Received

Sample Information

Y or N

N/A

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

Misc. Information

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

Comments

SM001
Rev. Date 05/24/17

Technician: SHAYLAP

Date: 5/16/2023 2:40:00 PM

Reviewer: CD

Date: 5/18/2023

FC6097: Chain of Custody

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QC Evaluation: DOD QSM5.x Limits

Job Number: FC6097
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 05/15/23

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 FC6097

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: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q272-IBLK	6Q18060.D	1	05/18/23	MV	n/a	n/a	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

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: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q272-IBLK	6Q18060.D	1	05/18/23	MV	n/a	n/a	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

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	101% 20-150%
	13C5-PFHxA	96% 20-150%
	13C4-PFHpA	96% 20-150%
	13C8-PFOA	109% 20-150%
	13C9-PFNA	100% 20-150%
	13C6-PFDA	93% 20-150%
	13C7-PFUnDA	102% 20-150%
	13C2-PFDoDA	96% 20-150%
	13C2-PFTeDA	89% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	93% 20-150%
	13C8-PFOS	95% 20-150%
	13C8-FOSA	97% 20-150%
	d3-MeFOSA	90% 20-150%
	d5-EtFOSA	98% 20-150%
	d3-MeFOSAA	110% 20-150%
	d5-EtFOSAA	100% 20-150%
	d7-MeFOSE	97% 20-150%
	d9-EtFOSE	98% 20-150%
	13C2-4:2FTS	108% 20-180%
	13C2-6:2FTS	103% 20-180%
	13C2-8:2FTS	105% 20-180%
	13C3-HFPO-DA	98% 20-150%

Continuing Calibration Blank

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q272-ICCB	6Q18131.D	1	05/19/23	MV	n/a	n/a	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

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: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q272-ICCB	6Q18131.D	1	05/19/23	MV	n/a	n/a	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

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	101% 20-150%
	13C5-PFHxA	101% 20-150%
	13C4-PFHpA	106% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	107% 20-150%
	13C6-PFDA	91% 20-150%
	13C7-PFUnDA	95% 20-150%
	13C2-PFDoDA	95% 20-150%
	13C2-PFTeDA	92% 20-150%
	13C3-PFBS	97% 20-150%
	13C3-PFHxS	98% 20-150%
	13C8-PFOS	98% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSA	94% 20-150%
	d5-EtFOSA	94% 20-150%
	d3-MeFOSAA	112% 20-150%
	d5-EtFOSAA	111% 20-150%
	d7-MeFOSE	97% 20-150%
	d9-EtFOSE	96% 20-150%
	13C2-4:2FTS	122% 20-180%
	13C2-6:2FTS	127% 20-180%
	13C2-8:2FTS	122% 20-180%
	13C3-HFPO-DA	106% 20-150%

Continuing Calibration Blank

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q272-ICCB	6Q18138.D	1	05/19/23	MV	n/a	n/a	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

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: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q272-ICCB	6Q18138.D	1	05/19/23	MV	n/a	n/a	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

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	99% 20-150%
	13C5-PFHxA	100% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	98% 20-150%
	13C9-PFNA	92% 20-150%
	13C6-PFDA	104% 20-150%
	13C7-PFUnDA	103% 20-150%
	13C2-PFDoDA	100% 20-150%
	13C2-PFTeDA	98% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	97% 20-150%
	13C8-PFOS	96% 20-150%
	13C8-FOSA	106% 20-150%
	d3-MeFOSA	99% 20-150%
	d5-EtFOSA	105% 20-150%
	d3-MeFOSAA	125% 20-150%
	d5-EtFOSAA	118% 20-150%
	d7-MeFOSE	100% 20-150%
	d9-EtFOSE	104% 20-150%
	13C2-4:2FTS	127% 20-180%
	13C2-6:2FTS	131% 20-180%
	13C2-8:2FTS	110% 20-180%
	13C3-HFPO-DA	102% 20-150%

Method Blank Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96921-MB	6Q18122.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

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: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96921-MB	6Q18122.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

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	94% 20-150%
	13C5-PFPeA	96% 20-150%
	13C5-PFHxA	93% 20-150%
	13C4-PFHpA	96% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	97% 20-150%
	13C6-PFDA	90% 20-150%
	13C7-PFUnDA	92% 20-150%
	13C2-PFDoDA	86% 20-150%
	13C2-PFTeDA	81% 20-150%
	13C3-PFBS	88% 20-150%
	13C3-PFHxS	88% 20-150%
	13C8-PFOS	91% 20-150%
	13C8-FOSA	67% 20-150%
	d3-MeFOSA	60% 20-150%
	d5-EtFOSA	63% 20-150%
	d3-MeFOSAA	106% 20-150%
	d5-EtFOSAA	95% 20-150%
	d7-MeFOSE	58% 20-150%
	d9-EtFOSE	67% 20-150%
	13C2-4:2FTS	106% 20-180%
	13C2-6:2FTS	108% 20-180%
	13C2-8:2FTS	105% 20-180%
	13C3-HFPO-DA	93% 20-150%

6.1.4
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Continuing Calibration Blank

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q272-ICCB	6Q18119.D	1	05/19/23	MV	n/a	n/a	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96921-BS, OP96921-LLBS, OP96921-MB, OP96921-MS, OP96921-MSD

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: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q272-ICCB	6Q18119.D	1	05/19/23	MV	n/a	n/a	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96921-BS, OP96921-LLBS, OP96921-MB, OP96921-MS, OP96921-MSD

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	102% 20-150%
	13C5-PFHxA	104% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	104% 20-150%
	13C9-PFNA	96% 20-150%
	13C6-PFDA	90% 20-150%
	13C7-PFUnDA	96% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	98% 20-150%
	13C3-PFBS	96% 20-150%
	13C3-PFHxS	97% 20-150%
	13C8-PFOS	97% 20-150%
	13C8-FOSA	109% 20-150%
	d3-MeFOSA	104% 20-150%
	d5-EtFOSA	105% 20-150%
	d3-MeFOSAA	121% 20-150%
	d5-EtFOSAA	122% 20-150%
	d7-MeFOSE	108% 20-150%
	d9-EtFOSE	112% 20-150%
	13C2-4:2FTS	130% 20-180%
	13C2-6:2FTS	123% 20-180%
	13C2-8:2FTS	126% 20-180%
	13C3-HFPO-DA	102% 20-150%

Blank Spike Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96921-LLBS	6Q18121.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0288	96	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0143	95	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0075	100	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0065	87	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0074	99	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0071	95	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0072	96	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0071	95	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0072	96	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0071	95	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0065	87	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0066	99	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0071	101	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0074	108	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0069	97	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0062	89	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0064	89	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0061	84	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0058	80	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0294	105	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0306	107	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0299	104	40-150
754-91-6	PFOSA	0.0075	0.0081	108	40-150
31506-32-8	MeFOSA	0.015	0.0145	97	40-150
4151-50-2	EtFOSA	0.015	0.0145	97	40-150
2355-31-9	MeFOSAA	0.0075	0.0071	95	40-150
2991-50-6	EtFOSAA	0.0075	0.0080	107	40-150
24448-09-7	MeFOSE	0.0375	0.0351	94	40-150
1691-99-2	EtFOSE	0.0375	0.0334	89	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0152	101	40-150
919005-14-4	ADONA	0.0142	0.0142	100	40-150
377-73-1	PFMPA	0.015	0.0139	93	40-150
863090-89-5	PFMBA	0.015	0.0139	93	40-150
151772-58-6	NFDHA	0.015	0.0138	92	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0133	95	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0123	87	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96921-LLBS	6Q18121.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0133	100	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0180	48	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.155	83	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.170	91	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	79%	20-150%
	13C5-PFPeA	84%	20-150%
	13C5-PFHxA	82%	20-150%
	13C4-PFHpA	87%	20-150%
	13C8-PFOA	83%	20-150%
	13C9-PFNA	81%	20-150%
	13C6-PFDA	81%	20-150%
	13C7-PFUnDA	80%	20-150%
	13C2-PFDoDA	71%	20-150%
	13C2-PFTeDA	74%	20-150%
	13C3-PFBS	84%	20-150%
	13C3-PFHxS	80%	20-150%
	13C8-PFOS	86%	20-150%
	13C8-FOSA	60%	20-150%
	d3-MeFOSA	58%	20-150%
	d5-EtFOSA	59%	20-150%
	d3-MeFOSAA	98%	20-150%
	d5-EtFOSAA	93%	20-150%
	d7-MeFOSE	49%	20-150%
	d9-EtFOSE	58%	20-150%
	13C2-4:2FTS	102%	20-180%
	13C2-6:2FTS	99%	20-180%
	13C2-8:2FTS	108%	20-180%
	13C3-HFPO-DA	80%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96921-BS	6Q18120.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0937	94	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0462	92	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0248	99	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0223	89	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0224	90	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0228	91	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0241	96	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0263	105	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0230	92	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0228	91	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0233	93	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0208	94	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0231	98	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0220	96	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0209	88	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0194	84	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0206	86	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0203	84	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0189	78	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0900	96	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0873	92	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0892	93	40-150
754-91-6	PFOSA	0.025	0.0234	94	40-150
31506-32-8	MeFOSA	0.05	0.0507	101	40-150
4151-50-2	EtFOSA	0.05	0.0470	94	40-150
2355-31-9	MeFOSAA	0.025	0.0238	95	40-150
2991-50-6	EtFOSAA	0.025	0.0217	87	40-150
24448-09-7	MeFOSE	0.125	0.121	97	40-150
1691-99-2	EtFOSE	0.125	0.112	90	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0478	96	40-150
919005-14-4	ADONA	0.0473	0.0462	98	40-150
377-73-1	PFMPA	0.05	0.0184	37*	40-150
863090-89-5	PFMBA	0.05	0.0521	104	40-150
151772-58-6	NFDHA	0.05	0.0477	95	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0444	95	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0426	90	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96921-BS	6Q18120.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0417	94	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0309	25*	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.516	83	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.574	92	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	18%* a	20-150%
	13C5-PFPeA	80%	20-150%
	13C5-PFHxA	93%	20-150%
	13C4-PFHpA	97%	20-150%
	13C8-PFOA	98%	20-150%
	13C9-PFNA	96%	20-150%
	13C6-PFDA	94%	20-150%
	13C7-PFUnDA	88%	20-150%
	13C2-PFDoDA	93%	20-150%
	13C2-PFTeDA	93%	20-150%
	13C3-PFBS	91%	20-150%
	13C3-PFHxS	90%	20-150%
	13C8-PFOS	119%	20-150%
	13C8-FOSA	90%	20-150%
	d3-MeFOSA	83%	20-150%
	d5-EtFOSA	90%	20-150%
	d3-MeFOSAA	120%	20-150%
	d5-EtFOSAA	124%	20-150%
	d7-MeFOSE	65%	20-150%
	d9-EtFOSE	77%	20-150%
	13C2-4:2FTS	116%	20-180%
	13C2-6:2FTS	119%	20-180%
	13C2-8:2FTS	117%	20-180%
	13C3-HFPO-DA	95%	20-150%

(a) Outside control limits.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96921-MS	6Q18125.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272
OP96921-MSD	6Q18126.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272
FC5594-2	6Q18124.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

CAS No.	Compound	FC5594-2 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	0.0157	0.0877	0.0988	95	0.0877	0.0966	92	2	40-150/30
2706-90-3	Perfluoropentanoic acid	0.0070 U	0.0439	0.0420	96	0.0439	0.0414	94	1	40-150/30
307-24-4	Perfluorohexanoic acid	0.0035 U	0.0219	0.0215	98	0.0219	0.0197	90	9	40-150/30
375-85-9	Perfluoroheptanoic acid	0.0035 U	0.0219	0.0208	95	0.0219	0.0202	92	3	40-150/30
335-67-1	Perfluorooctanoic acid	0.0035 U	0.0219	0.0211	96	0.0219	0.0208	95	1	40-150/30
375-95-1	Perfluorononanoic acid	0.0035 U	0.0219	0.0220	100	0.0219	0.0205	93	7	40-150/30
335-76-2	Perfluorodecanoic acid	0.0035 U	0.0219	0.0204	93	0.0219	0.0216	98	6	40-150/30
2058-94-8	Perfluoroundecanoic acid	0.0035 U	0.0219	0.0222	101	0.0219	0.0213	97	4	40-150/30
307-55-1	Perfluorododecanoic acid	0.0035 U	0.0219	0.0214	98	0.0219	0.0220	100	3	40-150/30
72629-94-8	Perfluorotridecanoic acid	0.0035 U	0.0219	0.0207	94	0.0219	0.0209	95	1	40-150/30
376-06-7	Perfluorotetradecanoic acid	0.0035 U	0.0219	0.0230	105	0.0219	0.0208	95	10	40-150/30
375-73-5	Perfluorobutanesulfonic acid	0.0035 U	0.0195	0.0192	99	0.0195	0.0177	91	8	40-150/30
2706-91-4	Perfluoropentanesulfonic acid	0.0044 U	0.0206	0.0205	99	0.0206	0.0193	94	6	40-150/30
355-46-4	Perfluorohexanesulfonic acid	0.0035 U	0.02	0.0188	94	0.02	0.0190	95	1	40-150/30
375-92-8	Perfluoroheptanesulfonic acid	0.0035 U	0.0209	0.0229	110	0.0209	0.0184	88	22	40-150/30
1763-23-1	Perfluorooctanesulfonic acid	0.0035 U	0.0204	0.0206	101	0.0204	0.0170	84	19	40-150/30
68259-12-1	Perfluorononanesulfonic acid	0.0035 U	0.0211	0.0201	95	0.0211	0.0182	86	10	40-150/30
335-77-3	Perfluorodecanesulfonic acid	0.0035 U	0.0212	0.0194	92	0.0212	0.0156	74	22	40-150/30
79780-39-5	Perfluorododecanesulfonic aci	0.0044 U	0.0213	0.0172	81	0.0213	0.0155	73	10	40-150/30
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0822	0.0812	99	0.0822	0.0781	95	4	40-150/30
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.0833	0.0873	105	0.0833	0.0816	98	7	40-150/30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0842	0.0884	105	0.0842	0.0818	97	8	40-150/30
754-91-6	PFOSA	0.0035 U	0.0219	0.0223	102	0.0219	0.0225	103	1	40-150/30
31506-32-8	MeFOSA	0.0070 U	0.0439	0.0466	106	0.0439	0.0402	92	15	40-150/30
4151-50-2	EtFOSA	0.0070 U	0.0439	0.0422	96	0.0439	0.0412	94	2	40-150/30
2355-31-9	MeFOSAA	0.0044 U	0.0219	0.0198	90	0.0219	0.0215	98	8	40-150/30
2991-50-6	EtFOSAA	0.0044 U	0.0219	0.0211	96	0.0219	0.0204	93	3	40-150/30
24448-09-7	MeFOSE	0.035 U	0.11	0.110	100	0.11	0.105	96	5	40-150/30
1691-99-2	EtFOSE	0.035 U	0.11	0.106	97	0.11	0.0949	87	11	40-150/30
13252-13-6	HFPO-DA (GenX)	0.0035 U	0.0439	0.0442	101	0.0439	0.0407	93	8	40-150/30
919005-14-4	ADONA	0.0070 U	0.0414	0.0407	98	0.0414	0.0394	95	3	40-150/30
377-73-1	PFMPA	0.0070 U	0.0439	0.0370	84	0.0439	0.0359	82	3	40-150/30
863090-89-5	PFMBA	0.0070 U	0.0439	0.0413	94	0.0439	0.0404	92	2	40-150/30
151772-58-6	NFDHA	0.0070 U	0.0439	0.0423	96	0.0439	0.0399	91	6	40-150/30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0070 U	0.041	0.0359	88	0.041	0.0329	80	9	40-150/30
763051-92-911	Cl-PF3OUdS (F-53B Minor)	0.0070 U	0.0414	0.0295	71	0.0414	0.0282	68	5	40-150/30

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96921-MS	6Q18125.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272
OP96921-MSD	6Q18126.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272
FC5594-2	6Q18124.D	1	05/19/23	MV	05/17/23	OP96921	S6Q272

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6097-1, FC6097-2, FC6097-3, FC6097-4, FC6097-5

CAS No.	Compound	FC5594-2 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
113507-82-7	PFEESA	0.0070 U	0.039	0.0372	95	0.039	0.0367	94	1	40-150/30
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	0.11	0.0556	51	0.11	0.0532	49	4	40-150/30
914637-49-35:3	Fluorotelomer carboxylate	0.088 U	0.548	0.476	87	0.548	0.390	71	20	40-150/30
812-70-4	7:3 Fluorotelomer carboxylate	0.088 U	0.548	0.534	97	0.548	0.443	81	19	40-150/30

CAS No.	ID Standard Recoveries	MS	MSD	FC5594-2	Limits
	13C4-PFBA	49%	50%	59%	20-150%
	13C5-PFPeA	83%	91%	87%	20-150%
	13C5-PFHxA	80%	93%	89%	20-150%
	13C4-PFHpA	85%	95%	89%	20-150%
	13C8-PFOA	82%	94%	91%	20-150%
	13C9-PFNA	78%	93%	82%	20-150%
	13C6-PFDA	79%	75%	86%	20-150%
	13C7-PFU _n DA	68%	72%	89%	20-150%
	13C2-PFDoDA	60%	67%	68%	20-150%
	13C2-PFTeDA	58%	69%	62%	20-150%
	13C3-PFBS	83%	89%	86%	20-150%
	13C3-PFHxS	81%	91%	82%	20-150%
	13C8-PFOS	77%	97%	89%	20-150%
	13C8-FOSA	72%	58%	71%	20-150%
	d3-MeFOSA	59%	60%		20-150%
	d5-EtFOSA	65%	61%		20-150%
	d3-MeFOSAA	93%	93%	89%	20-150%
	d5-EtFOSAA	86%	87%	89%	20-150%
	d7-MeFOSE	54%	47%		20-150%
	d9-EtFOSE	59%	58%		20-150%
	13C2-4:2FTS	99%	116%	105%	20-180%
	13C2-6:2FTS	97%	111%	111%	20-180%
	13C2-8:2FTS	97%	108%	100%	20-180%
	13C3-HFPO-DA	84%	96%		20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q272-CC272	Injection Date:	05/19/23
Lab File ID:	6Q18118.D	Injection Time:	10:55
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	62492	2.88	45839	5.44	75826	7.05	26554	7.57	22279	8.06
Check Std ^c	68312	2.88	48785	5.44	82456	7.04	29763	7.57	26451	8.05
Upper Limit ^d	124984	3.28	91678	5.84	151652	7.44	53108	7.97	44558	8.45
Lower Limit ^e	18748	2.48	13752	5.04	22748	6.64	7966	7.17	6684	7.65

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
S6Q272-ICCB	69259	2.88	48944	5.43	83487	7.04	28607	7.57	24848	8.05	1
OP96921-BS	61324	2.88	45107	5.44	74014	7.05	26501	7.57	21723	8.05	1
OP96921-LLBS	70537	2.88	50252	5.44	83644	7.05	29111	7.57	25108	8.05	1
OP96921-MB	67450	2.88	47161	5.44	77416	7.05	28346	7.57	23914	8.05	1
ZZZZZZ	73592	2.89	52329	5.43	86490	7.04	31706	7.57	27743	8.04	1
FC5594-2	69679	2.89	50529	5.44	81216	7.05	30840	7.57	24326	8.05	1
OP96921-MS	73543	2.89	52515	5.44	89037	7.05	31626	7.57	26124	8.05	1
OP96921-MSD	68144	2.89	48911	5.44	80272	7.04	27760	7.57	24809	8.05	1
ZZZZZZ	67558	2.89	47987	5.44	84264	7.05	28043	7.57	25200	8.05	1
ZZZZZZ	70925	2.88	54173	5.44	83647	7.04	31156	7.57	24321	8.05	1
ZZZZZZ	70285	2.88	50844	5.44	86853	7.04	32267	7.57	26562	8.05	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: S6Q272-ICC272 6Q18055.D 05/18/23 19:42. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q272-CC272	Injection Date:	05/19/23
Lab File ID:	6Q18118.D	Injection Time:	10:55
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	8200	7.15	12914	8.21
Check Std ^c	8597	7.15	13007	8.20
Upper Limit ^d	16400	7.55	25828	8.60
Lower Limit ^e	2460	6.75	3874	7.80

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q272-ICCB	8937	7.15	12997	8.20	1
OP96921-BS	8108	7.15	10799	8.20	1
OP96921-LLBS	8779	7.15	13642	8.20	1
OP96921-MB	9227	7.15	13599	8.20	1
ZZZZZZ	9414	7.15	13895	8.20	1
FC5594-2	8867	7.15	13191	8.20	1
OP96921-MS	9525	7.15	13906	8.20	1
OP96921-MSD	8812	7.15	12783	8.20	1
ZZZZZZ	8765	7.15	13204	8.20	1
ZZZZZZ	8817	7.15	14289	8.20	1
ZZZZZZ	8923	7.15	13883	8.20	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q272-ICC272 6Q18055.D 05/18/23 19:42. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q272-CC272	Injection Date:	05/19/23
Lab File ID:	6Q18130.D	Injection Time:	13:49
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	62492	2.88	45839	5.44	75826	7.05	26554	7.57	22279	8.06
Check Std ^c	68853	2.88	48204	5.43	81918	7.04	28859	7.57	25141	8.04
Upper Limit ^d	124984	3.28	91678	5.83	151652	7.44	53108	7.97	44558	8.44
Lower Limit ^e	18748	2.48	13752	5.03	22748	6.64	7966	7.17	6684	7.64

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
S6Q272-ICCB	69331	2.88	48913	5.44	83754	7.05	28247	7.57	25845	8.05	1
FC6097-1	69465	2.89	48860	5.44	81584	7.04	29097	7.57	27132	8.05	1
FC6097-2	64128	2.89	48611	5.44	76838	7.05	29166	7.57	25234	8.04	1
FC6097-3	67341	2.88	46676	5.44	81131	7.04	29816	7.57	23003	8.05	1
FC6097-4	61541	2.89	44604	5.44	74128	7.05	25669	7.57	22458	8.05	1
FC6097-5	61627	2.89	44635	5.44	75619	7.05	27791	7.57	22193	8.05	1
S6Q272-ECC272	68840	2.88	51159	5.43	83238	7.04	29286	7.57	25003	8.04	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: S6Q272-ICC272 6Q18055.D 05/18/23 19:42. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q272-CC272	Injection Date:	05/19/23
Lab File ID:	6Q18130.D	Injection Time:	13:49
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	8200	7.15	12914	8.21
Check Std ^c	8316	7.15	12911	8.20
Upper Limit ^d	16400	7.55	25828	8.60
Lower Limit ^e	2460	6.75	3874	7.80

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q272-ICCB	8936	7.15	14093	8.20	1
FC6097-1	8674	7.15	13799	8.20	1
FC6097-2	8570	7.15	13384	8.20	1
FC6097-3	8618	7.15	12906	8.20	1
FC6097-4	8210	7.15	12279	8.20	1
FC6097-5	7859	7.15	13276	8.20	1
S6Q272-ECC272	8274	7.15	12955	8.20	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q272-ICCB 6Q18055.D 05/18/23 19:42. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

TDCA Retention Time Check

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q272-RT	Injection Date:	05/18/23
Lab File ID:	6Q18041.D	Injection Time:	16:07
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.215	--	--
TDCA	6.774	1.441	1.000
TCDCA	6.625	1.590	1.000
TUDCA	5.760	2.455	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
S6Q272-IC272	6Q18051.D	05/18/23	18:45	02:38	Mass Calibration Verification
S6Q272-IC272	6Q18052.D	05/18/23	18:59	02:52	Initial cal 1
S6Q272-IC272	6Q18053.D	05/18/23	19:14	03:07	Initial cal 2
S6Q272-IC272	6Q18054.D	05/18/23	19:28	03:21	Initial cal 3
S6Q272-ICC272	6Q18055.D	05/18/23	19:42	03:35	Initial cal 4
S6Q272-IC272	6Q18056.D	05/18/23	19:57	03:50	Initial cal 5
S6Q272-IC272	6Q18057.D	05/18/23	20:11	04:04	Initial cal 6
S6Q272-IC272	6Q18058.D	05/18/23	20:26	04:19	Initial cal 7
S6Q272-IC272	6Q18059.D	05/18/23	20:40	04:33	Initial cal 8
S6Q272-IBLK	6Q18060.D	05/18/23	20:55	04:48	Instrument Blank
S6Q272-IBLK	6Q18060.D	05/18/23	20:55	04:48	Instrument Blank
S6Q272-ICV272	6Q18061.D	05/18/23	21:09	05:02	Initial cal verification 4
S6Q272-ICV272	6Q18062.D	05/18/23	21:24	05:17	Initial cal verification 20
S6Q272-CC272	6Q18063.D	05/18/23	21:38	05:31	Continuing cal 4
S6Q272-CC272	6Q18064.D	05/18/23	21:53	05:46	Continuing cal 1.0LL
OP96919-BS	6Q18065.D	05/18/23	22:07	06:00	Blank Spike
OP96919-LLBS	6Q18066.D	05/18/23	22:22	06:15	Blank Spike
OP96919-MB	6Q18067.D	05/18/23	22:36	06:29	Method Blank
ZZZZZZ	6Q18068.D	05/18/23	22:51	06:44	(unrelated sample)
ZZZZZZ	6Q18069.D	05/18/23	23:05	06:58	(unrelated sample)
FC5567-1	6Q18070.D	05/18/23	23:20	07:13	(used for QC only; not part of job FC6097)
OP96919-MS	6Q18071.D	05/18/23	23:34	07:27	Matrix Spike
FC5567-2	6Q18072.D	05/18/23	23:49	07:42	(used for QC only; not part of job FC6097)
OP96919-DUP	6Q18073.D	05/19/23	00:03	07:56	Duplicate
ZZZZZZ	6Q18074.D	05/19/23	00:18	08:11	(unrelated sample)
S6Q272-CC272	6Q18075.D	05/19/23	00:32	08:25	Continuing cal 4
S6Q272-ICCB	6Q18076.D	05/19/23	00:47	08:40	Continuing Calibration Blank
ZZZZZZ	6Q18077.D	05/19/23	01:01	08:54	(unrelated sample)
ZZZZZZ	6Q18078.D	05/19/23	01:16	09:09	(unrelated sample)
ZZZZZZ	6Q18079.D	05/19/23	01:30	09:23	(unrelated sample)
ZZZZZZ	6Q18080.D	05/19/23	01:45	09:38	(unrelated sample)
ZZZZZZ	6Q18081.D	05/19/23	01:59	09:52	(unrelated sample)
ZZZZZZ	6Q18082.D	05/19/23	02:14	10:07	(unrelated sample)
ZZZZZZ	6Q18083.D	05/19/23	02:28	10:21	(unrelated sample)

TDCA Retention Time Check

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q272-RT	Injection Date:	05/18/23
Lab File ID:	6Q18041.D	Injection Time:	16:07
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q18084.D	05/19/23	02:43	10:36	(unrelated sample)
ZZZZZZ	6Q18085.D	05/19/23	02:57	10:50	(unrelated sample)
ZZZZZZ	6Q18086.D	05/19/23	03:12	11:05	(unrelated sample)
S6Q272-CC272	6Q18087.D	05/19/23	03:26	11:19	Continuing cal 4
S6Q272-ICCB	6Q18088.D	05/19/23	03:41	11:34	Continuing Calibration Blank
ZZZZZZ	6Q18089.D	05/19/23	03:55	11:48	(unrelated sample)
ZZZZZZ	6Q18090.D	05/19/23	04:10	12:03	(unrelated sample)
ZZZZZZ	6Q18091.D	05/19/23	04:24	12:17	(unrelated sample)
ZZZZZZ	6Q18092.D	05/19/23	04:39	12:32	(unrelated sample)
S6Q272-CC272	6Q18093.D	05/19/23	04:53	12:46	Continuing cal 4
S6Q272-ICCB	6Q18094.D	05/19/23	05:08	13:01	Continuing Calibration Blank
ZZZZZZ	6Q18095.D	05/19/23	05:22	13:15	(unrelated sample)
ZZZZZZ	6Q18096.D	05/19/23	05:37	13:30	(unrelated sample)
ZZZZZZ	6Q18097.D	05/19/23	05:51	13:44	(unrelated sample)
FC5501-4	6Q18098.D	05/19/23	06:06	13:59	(used for QC only; not part of job FC6097)
OP96916-MS	6Q18099.D	05/19/23	06:20	14:13	Matrix Spike
ZZZZZZ	6Q18100.D	05/19/23	06:34	14:27	(unrelated sample)
ZZZZZZ	6Q18101.D	05/19/23	06:49	14:42	(unrelated sample)
ZZZZZZ	6Q18102.D	05/19/23	07:04	14:57	(unrelated sample)
ZZZZZZ	6Q18103.D	05/19/23	07:18	15:11	(unrelated sample)
ZZZZZZ	6Q18104.D	05/19/23	07:32	15:25	(unrelated sample)
S6Q272-CC272	6Q18105.D	05/19/23	07:47	15:40	Continuing cal 4
S6Q272-CC272	6Q18106.D	05/19/23	08:01	15:54	Continuing cal 1.0LL
S6Q272-ICCB	6Q18107.D	05/19/23	08:16	16:09	Continuing Calibration Blank
ZZZZZZ	6Q18108.D	05/19/23	08:30	16:23	(unrelated sample)
ZZZZZZ	6Q18109.D	05/19/23	08:45	16:38	(unrelated sample)
ZZZZZZ	6Q18110.D	05/19/23	08:59	16:52	(unrelated sample)
ZZZZZZ	6Q18111.D	05/19/23	09:14	17:07	(unrelated sample)
FC5542-6	6Q18112.D	05/19/23	09:28	17:21	(used for QC only; not part of job FC6097)
OP96917-DUP	6Q18113.D	05/19/23	09:43	17:36	Duplicate
ZZZZZZ	6Q18117.D	05/19/23	10:41	18:34	(unrelated sample)
S6Q272-CC272	6Q18118.D	05/19/23	10:55	18:48	Continuing cal 4
S6Q272-ICCB	6Q18119.D	05/19/23	11:10	19:03	Continuing Calibration Blank
OP96921-BS	6Q18120.D	05/19/23	11:24	19:17	Blank Spike
OP96921-LLBS	6Q18121.D	05/19/23	11:39	19:32	Blank Spike
OP96921-MB	6Q18122.D	05/19/23	11:53	19:46	Method Blank
ZZZZZZ	6Q18123.D	05/19/23	12:08	20:01	(unrelated sample)
FC5594-2	6Q18124.D	05/19/23	12:22	20:15	(used for QC only; not part of job FC6097)
OP96921-MS	6Q18125.D	05/19/23	12:37	20:30	Matrix Spike
OP96921-MSD	6Q18126.D	05/19/23	12:51	20:44	Matrix Spike Duplicate
ZZZZZZ	6Q18127.D	05/19/23	13:06	20:59	(unrelated sample)
ZZZZZZ	6Q18128.D	05/19/23	13:20	21:13	(unrelated sample)
ZZZZZZ	6Q18129.D	05/19/23	13:35	21:28	(unrelated sample)
S6Q272-CC272	6Q18130.D	05/19/23	13:49	21:42	Continuing cal 4

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TDCA Retention Time Check

Job Number: FC6097
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-RT	Injection Date: 05/18/23
Lab File ID: 6Q18041.D	Injection Time: 16:07
Instrument ID: GCMS6Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q272-ICCB	6Q18131.D	05/19/23	14:04	21:57	Continuing Calibration Blank
FC6097-1	6Q18132.D	05/19/23	14:18	22:11	AF-RHMW04-WGN01LF-2305W3
FC6097-2	6Q18133.D	05/19/23	14:33	22:26	AF-RHMW06-WGN01LF-2305W3
FC6097-3	6Q18134.D	05/19/23	14:47	22:40	AF-RHMW12A-WGN01LF-2305W3
FC6097-4	6Q18135.D	05/19/23	15:02	22:55	AF-RHMW12A-WGFD01LF-2305W3
FC6097-5	6Q18136.D	05/19/23	15:16	23:09	AF-RHMW16-WGN01LF-2305W3
S6Q272-ECC272	6Q18137.D	05/19/23	15:31	23:24	Ending cal 4
S6Q272-ICCB	6Q18138.D	05/19/23	15:45	23:38	Continuing Calibration Blank

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Ion Ratio Summary

Job Number: FC6097
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q272	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios	
		PFPeA	PFHxA
S6Q272-ICC272	6Q18055.D	0	4.5
FC6097-1	6Q18132.D		
FC6097-2	6Q18133.D		
FC6097-3	6Q18134.D	0	4.9
FC6097-4	6Q18135.D	0	5.5
FC6097-5	6Q18136.D		

Isotope Dilution Standard Recovery Summary

Job Number: FC6097
 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
FC6097-1	6Q18132.D	86	92	90	94	91	88	75	73
FC6097-2	6Q18133.D	94	93	93	96	98	91	84	72
FC6097-3	6Q18134.D	45	94	93	95	90	88	87	85
FC6097-4	6Q18135.D	57	100	99	101	100	97	94	90
FC6097-5	6Q18136.D	81	102	106	104	100	98	88	79
OP96921-BS	6Q18120.D	18* a	80	93	97	98	96	94	88
OP96921-LLBS	6Q18121.D	79	84	82	87	83	81	81	80
OP96921-MB	6Q18122.D	94	96	93	96	100	97	90	92
OP96921-MS	6Q18125.D	49	83	80	85	82	78	79	68
OP96921-MSD	6Q18126.D	50	91	93	95	94	93	75	72
S6Q272-IBLK	6Q18060.D	100	101	96	96	109	100	93	102
S6Q272-ICCB	6Q18131.D	100	101	101	106	99	107	91	95
S6Q272-ICCB	6Q18138.D	101	99	100	98	98	92	104	103
S6Q272-ICCB	6Q18119.D	100	102	104	104	104	96	90	96

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.

Isotope Dilution Standard Recovery Summary

Job Number: FC6097
 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
FC6097-1	6Q18132.D	68	63	90	92	89	69	64	70
FC6097-2	6Q18133.D	67	59	98	89	83	76	61	66
FC6097-3	6Q18134.D	73	65	90	90	88	82	70	70
FC6097-4	6Q18135.D	82	69	97	94	96	80	75	77
FC6097-5	6Q18136.D	69	63	110	105	93	87	67	68
OP96921-BS	6Q18120.D	93	93	91	90	119	90	83	90
OP96921-LLBS	6Q18121.D	71	74	84	80	86	60	58	59
OP96921-MB	6Q18122.D	86	81	88	88	91	67	60	63
OP96921-MS	6Q18125.D	60	58	83	81	77	72	59	65
OP96921-MSD	6Q18126.D	67	69	89	91	97	58	60	61
S6Q272-IBLK	6Q18060.D	96	89	98	93	95	97	90	98
S6Q272-ICCB	6Q18131.D	95	92	97	98	98	100	94	94
S6Q272-ICCB	6Q18138.D	100	98	98	97	96	106	99	105
S6Q272-ICCB	6Q18119.D	99	98	96	97	97	109	104	105

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

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Isotope Dilution Standard Recovery Summary

Job Number: FC6097
 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
FC6097-1	6Q18132.D	95	89	59	66	117	122	108	94
FC6097-2	6Q18133.D	89	85	58	64	116	115	114	93
FC6097-3	6Q18134.D	99	100	58	63	107	114	115	93
FC6097-4	6Q18135.D	110	112	66	75	132	130	119	98
FC6097-5	6Q18136.D	85	84	63	70	135	134	121	103
OP96921-BS	6Q18120.D	120	124	65	77	116	119	117	95
OP96921-LLBS	6Q18121.D	98	93	49	58	102	99	108	80
OP96921-MB	6Q18122.D	106	95	58	67	106	108	105	93
OP96921-MS	6Q18125.D	93	86	54	59	99	97	97	84
OP96921-MSD	6Q18126.D	93	87	47	58	116	111	108	96
S6Q272-IBLK	6Q18060.D	110	100	97	98	108	103	105	98
S6Q272-ICCB	6Q18131.D	112	111	97	96	122	127	122	106
S6Q272-ICCB	6Q18138.D	125	118	100	104	127	131	110	102
S6Q272-ICCB	6Q18119.D	121	122	108	112	130	123	126	102

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%

Initial Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ICC272
 Lab FileID: 6Q18055.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	Avg RF	%RSD
D:\MassHunter\Methods	1633_051823_S6Q272.quantmethod.xml	D:\MassHunter\Data\051823_1633_S6Q272	5/19/2023 10:21:25 AM	D:\MassHunter\Data\051823_1633_S6Q272\6Q18052.d	1	0.3433	0.3462	0.3525	0.3543	0.3875	0.3846	0.3741	0.3627	0.3631	4.706	
D:\MassHunter\Data\051823_1633_S6Q272	6Q18053.d	D:\MassHunter\Data\051823_1633_S6Q272	6Q18054.d	D:\MassHunter\Data\051823_1633_S6Q272	6Q18055.d	D:\MassHunter\Data\051823_1633_S6Q272	6Q18056.d	D:\MassHunter\Data\051823_1633_S6Q272	6Q18057.d	D:\MassHunter\Data\051823_1633_S6Q272	6Q18058.d	D:\MassHunter\Data\051823_1633_S6Q272	6Q18059.d			
Compound																
I M4-PFBA	T PFBA	Avg RF	0.3433	0.3462	0.3525	0.3543	0.3875	0.3846	0.3741	ISTD	ISTD	ISTD	ISTD	0.3627	0.3631	4.706
I M5-PFPeA	T PFMPA	Avg RF	0.7332	0.7395	0.7430	0.7373	0.8196	0.8165	0.7994	ISTD	ISTD	ISTD	ISTD	0.7699	0.7698	4.804
T 3:3FTCA	Avg RF	0.0943	0.0876	0.0892	0.0886	0.0965	0.0972	0.0958	0.0932	ISTD	ISTD	ISTD	ISTD	0.9321	0.9321	4.314
T PFPeA	Avg RF	1.4408	1.4454	1.4530	1.4151	1.5392	1.5454	1.5462	1.4621	ISTD	ISTD	ISTD	ISTD	1.4809	1.4809	3.624
T PFMBa	Avg RF	0.9967	1.0145	1.0232	0.9984	1.0755	1.0787	1.0959	1.0466	ISTD	ISTD	ISTD	ISTD	1.0412	1.0412	3.711
I M5-PFHxA	T NFDHA	Avg RF	0.1100	0.1161	0.1079	0.1008	0.1140	0.1073	0.1132	ISTD	ISTD	ISTD	ISTD	0.1044	0.1092	4.716
T PFHxA	Avg RF	0.9611	0.9741	0.9058	0.9166	1.0345	0.9636	1.0225	1.0138	ISTD	ISTD	ISTD	ISTD	0.9740	0.9740	4.880
T PFEEsA	Avg RF	1.3027	1.3034	1.2497	1.1277	1.3696	1.3099	1.3372	1.3075	ISTD	ISTD	ISTD	ISTD	1.2885	1.2885	5.684
T 5:3FTCA	Avg RF	0.1926	0.1773	0.1673	0.1643	0.1806	0.1655	0.1797	0.1811	ISTD	ISTD	ISTD	ISTD	0.1760	0.1760	5.510
T 7:3FTCA	Avg RF	0.0858	0.0835	0.0853	0.0831	0.0987	0.0852	0.0910	0.0872	ISTD	ISTD	ISTD	ISTD	0.0875	0.0875	5.897
I M4-PFHpA	T PFHpA	Avg RF	1.1556	1.2974	1.1876	1.2481	1.4606	1.2386	1.3460	ISTD	ISTD	ISTD	ISTD	1.2962	1.2787	7.493
I M8-PFOA	T PFOA	Avg RF	1.2816	1.1441	1.1498	1.1915	1.2846	1.2401	1.2257	ISTD	ISTD	ISTD	ISTD	1.2529	1.2213	4.483
I M9-PFNA	T PFNA	Avg RF	0.8853	0.8953	0.9034	0.8326	1.0092	0.9722	0.9298	ISTD	ISTD	ISTD	ISTD	0.9400	0.9210	5.933
I M6-PFDA	T PFDA	Avg RF	1.4747	1.4169	1.4272	1.4371	1.5627	1.5396	1.6422	ISTD	ISTD	ISTD	ISTD	1.4295	1.4912	5.488
I M7-PFUnDA	T PFUnDA	Avg RF	0.7569	0.8103	0.8699	0.8215	0.9549	1.0010	0.8741	ISTD	ISTD	ISTD	ISTD	0.8968	0.8732	9.052
I M2-PFDODA										ISTD	ISTD	ISTD	ISTD			

Generated at 10:22 AM on 5/19/2023

Page 1 of 4



Initial Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ICC272
 Lab FileID: 6Q18055.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.9930	1.0390	1.0541	0.9629	1.0930	1.0797	0.9485	0.8688	1.0049	7.573
T PFTfDA	Avg RF	1.1985	1.1395	1.1777	1.1040	1.2380	1.2270	1.1055	1.0638	1.1568	5.474
I M2-PFTeDA	Avg RF	1.2675	1.1899	1.3091	1.2539	1.3163	1.3962	1.3852	1.2192	1.2922	5.716
T PFTeDA	Avg RF	1.2675	1.1899	1.3091	1.2539	1.3163	1.3962	1.3852	1.2192	1.2922	5.716
I M8-FOSA	Avg RF	0.8497	0.8773	0.8747	0.8832	0.9848	0.9237	0.9867	0.9542	0.9168	5.819
T FOSA	Avg RF	0.8497	0.8773	0.8747	0.8832	0.9848	0.9237	0.9867	0.9542	0.9168	5.819
I M3-PFBS	Avg RF	1.2151	1.2032	1.2602	1.1843	1.3158	1.1906	1.2456	1.1433	1.2198	4.358
T PFBS	Avg RF	1.2151	1.2032	1.2602	1.1843	1.3158	1.1906	1.2456	1.1433	1.2198	4.358
I M3-PFHxS	Avg RF	1.3023	1.3454	1.3465	1.2997	1.5129	1.4482	1.4600	1.4261	1.3927	5.716
T PFPeS	Avg RF	1.3023	1.3454	1.3465	1.2997	1.5129	1.4482	1.4600	1.4261	1.3927	5.716
T PFHxS	Avg RF	1.3921	1.3537	1.3682	1.3109	1.5029	1.3923	1.4496	1.4066	1.3970	4.213
I M8-PFOS	Avg RF	1.3764	1.3431	1.3398	1.2890	1.4586	1.2813	1.3261	1.3999	1.3518	4.341
T PFHpS	Avg RF	1.3764	1.3431	1.3398	1.2890	1.4586	1.2813	1.3261	1.3999	1.3518	4.341
T PFOS	Avg RF	1.5371	1.3922	1.2861	1.1941	1.4059	1.3261	1.2846	1.3029	1.3411	7.706
T PFNS	Avg RF	1.1338	1.0977	1.2295	1.2280	1.2908	1.3791	1.2345	1.2139	1.2259	7.087
T PFDS	Avg RF	0.8200	0.8342	0.8553	0.7667	0.8811	0.8873	0.8339	0.8372	0.8395	4.504
T PFDoDS	Avg RF	0.4487	0.4716	0.4530	0.4303	0.4557	0.4752	0.4386	0.4521	0.4531	3.326
I M2-4:2FTS	Avg RF	7.0035	7.2071	7.7072	7.3290	8.5311	7.6145	7.3586	6.2850	7.3795	8.663
T 4:2FTS	Avg RF	7.0035	7.2071	7.7072	7.3290	8.5311	7.6145	7.3586	6.2850	7.3795	8.663
I M2-6:2FTS	Avg RF	5.3554	5.3942	5.4447	5.3077	5.8210	5.8812	5.1888	4.8512	5.4055	6.123
T 6:2FTS	Avg RF	5.3554	5.3942	5.4447	5.3077	5.8210	5.8812	5.1888	4.8512	5.4055	6.123
I M2-8:2FTS	Avg RF	2.6586	2.9767	3.1430	2.5877	3.2547	3.0020	2.6387	2.6043	2.8582	9.339
T 8:2FTS	Avg RF	2.6586	2.9767	3.1430	2.5877	3.2547	3.0020	2.6387	2.6043	2.8582	9.339
I M3-MeFOSAA	Avg RF	0.8629	1.0415	0.9690	0.9014	0.9930	1.0120	1.0104	1.0857	0.9845	7.376
T MeFOSAA	Avg RF	0.8629	1.0415	0.9690	0.9014	0.9930	1.0120	1.0104	1.0857	0.9845	7.376
I M3-HFO-DA	Avg RF	0.9453	0.9581	1.0241	0.9058	1.0344	0.9808	0.9850	0.9439	0.9722	4.423
T HFO-DA	Avg RF	0.9453	0.9581	1.0241	0.9058	1.0344	0.9808	0.9850	0.9439	0.9722	4.423
T ADONA	Avg RF	14.89	14.99	16.81	15.09	17.87	16.27	16.87	15.25	16.01	6.935
T 9Cl-PF3ONS	Avg RF	5.5380	5.7039	6.3584	5.8186	6.7836	6.2899	6.4147	5.9882	6.1119	6.865
T 11Cl-PF3OUds	Avg RF	3.5519	3.9768	3.9361	3.7512	4.2189	3.9277	4.0993	3.8362	3.9123	5.252
I M5-EFOSAA	Avg RF	0.7309	0.7921	0.8947	0.8418	0.9172	0.9533	0.9043	0.8205	0.8568	8.624
T EFOSAA	Avg RF	0.7309	0.7921	0.8947	0.8418	0.9172	0.9533	0.9043	0.8205	0.8568	8.624
I M7-MeFOSE	Avg RF	1.0885	1.1798	1.0818	1.2399	1.2347	1.1921	1.2177	1.1817	1.1770	5.187
T MeFOSE	Avg RF	1.0885	1.1798	1.0818	1.2399	1.2347	1.1921	1.2177	1.1817	1.1770	5.187
I M9-EFOSE	Avg RF	1.1219	1.0786	1.0855	1.0934	1.1130	1.0930	1.1813	1.1878	1.1193	3.813
T EFOSE	Avg RF	1.1219	1.0786	1.0855	1.0934	1.1130	1.0930	1.1813	1.1878	1.1193	3.813

Generated at 10:22 AM on 5/19/2023

Page 2 of 4

Initial Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ICC272
 Lab FileID: 6Q18055.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.0640	1.0580	1.0386	1.1016	1.1528	1.0890	1.0692	1.1417	1.0894	3.723
T EFOSA	Avg RF					ISTD					
I M3-MeFOSA		1.0767	1.1140	1.1756	1.1207	1.2310	1.1900	1.1898	1.0203	1.1398	6.106
T MeFOSA	Avg RF					ISTD					
I 13C4-PFOS		0.9638	0.9349	0.9726	0.9846	0.9923	0.8778	0.9236	0.8406	0.9363	5.751
S d3-MeFOSAA	Linear					ISTD					
S 13C8-PFOS	Linear	0.7393	0.7494	0.7420	0.7942	0.7892	0.6931	0.7782	0.7446	0.7537	4.378
S d5-EFOSAA	Linear	0.7629	0.8112	0.7747	0.7904	0.8120	0.6801	0.7823	0.7711	0.7731	5.383
S 13C8-FOSA	Linear	1.7833	1.6908	1.7067	1.7088	1.7132	1.6159	1.6854	1.6500	1.6943	2.895
S d7-MeFOSE	Linear	0.6695	0.6398	0.6777	0.6225	0.6709	0.6097	0.6281	0.5914	0.6387	4.938
S d3-MeFOSA	Linear	0.6004	0.5857	0.5873	0.6023	0.6334	0.5728	0.6202	0.6709	0.6091	5.192
S d9-EFOSE	Linear	0.7449	0.7705	0.7790	0.7602	0.8232	0.7397	0.7289	0.6792	0.7532	5.550
S d5-EFOSA	Linear	0.7274	0.7152	0.6964	0.7032	0.7324	0.6602	0.7524	0.6888	0.7095	4.051
I 13C3-PFBA		1.2015	1.1937	1.1971	1.1827	1.1965	1.1911	1.1928	1.1878	1.1929	0.489
S 13C4-PFBA	Linear					ISTD					
I 1802-PFHxS		0.1350	0.1328	0.1250	0.1326	0.1293	0.1404	0.1385	0.1399	0.1342	4.029
S 13C2-4:2FTS	Linear	2.2101	2.2795	2.0857	2.2387	2.1631	2.3284	2.1539	2.2333	2.2116	3.460
S 13C3-PFBS	Linear	0.1771	0.1695	0.1625	0.1730	0.1761	0.1643	0.1752	0.1755	0.1717	3.272
S 13C2-6:2FTS	Linear	1.3484	1.3421	1.2873	1.3591	1.3286	1.3652	1.2994	1.3676	1.3372	2.249
S 13C3-PFHxS	Linear	0.1889	0.1815	0.1692	0.2021	0.1725	0.1809	0.1944	0.1921	0.1852	6.058
S 13C2-8:2FTS	Linear					ISTD					
I 13C4-PFOA		0.9292	0.9225	0.9930	0.8973	0.9772	0.9416	0.9116	0.8633	0.9295	4.501
S 13C8-PFOA	Linear					ISTD					
I 13C2-PFDA		0.8855	0.8238	0.8530	0.8873	0.8288	0.8765	0.7895	0.8663	0.8513	4.069
S 13C6-PFDA	Linear	1.2327	1.1230	1.0652	1.1975	1.0509	1.0284	1.0837	0.9511	1.0916	8.357
S 13C7-PFUDA	Linear	1.1824	1.0787	1.0070	1.1287	1.0439	1.0682	1.0744	1.0850	1.0835	4.882
S 13C2-PFDODA	Linear	0.7800	0.7754	0.7209	0.7196	0.7407	0.7350	0.6842	0.7285	0.7356	4.220
S 13C2-PFTEDA	Linear					ISTD					
I 13C5-PFNA		0.8997	0.8806	0.9838	1.0182	0.9247	0.8872	0.9859	0.9338	0.9392	5.451
S 13C9-PFNA	Linear					ISTD					
I 13C2-PFHxA		0.5229	0.5076	0.5247	0.5127	0.5320	0.5080	0.5160	0.4917	0.5144	2.433
S 13C5-PPeA	Linear	1.2279	1.1609	1.2511	1.2281	1.2320	1.2558	1.2224	1.1190	1.2121	3.911
S 13C5-PFHxA	Linear	0.1865	0.1769	0.1769	0.1795	0.1795	0.1816	0.1836	0.1813	0.1806	1.864
S 13C3-HPOD-A	Linear	1.0685	1.0116	1.0644	1.0361	1.0190	1.0655	1.0341	1.0016	1.0376	2.517
S 13C4-PFHpA	Linear					ISTD					

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

Initial Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ICC272
 Lab FileID: 6Q18055.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 = 1.192888 * x	
S 13C5-PFPeA	Linear	y = 0.514440 * x	
S 13C2-4:2FTS	Linear	y = 0.134182 * x	
S 13C3-PFBS	Linear	y = 2.211599 * x	
S 13C5-PFHxA	Linear	y = 1.212138 * x	
S 13C3-HFPO-DA	Linear	y = 0.180638 * x	
S 13C4-PFHpA	Linear	y = 1.037595 * x	
S 13C8-PFOA	Linear	y = 0.171651 * x	
S 13C3-PFHxS	Linear	y = 0.929459 * x	
S 13C9-PFNA	Linear	y = 1.337223 * x	
S 13C2-8:2FTS	Linear	y = 0.939223 * x	
S 13C6-PEDA	Linear	y = 0.185196 * x	
S d3-MeFOSAA	Linear	y = 0.851335 * x	
S 13C8-PFOS	Linear	y = 0.936272 * x	
S d5-EFOSAA	Linear	y = 0.753741 * x	
S 13C7-PFUIndA	Linear	y = 0.773080 * x	
S 13C2-PFDODA	Linear	y = 1.091566 * x	
S 13C8-FOSA	Linear	y = 1.083548 * x	
S 13C2-PFTeDA	Linear	y = 1.694271 * x	
S d7-MeFOSE	Linear	y = 0.735557 * x	
S d3-MeFOSA	Linear	y = 0.638727 * x	
S d9-EFOSE	Linear	y = 0.609131 * x	
S d5-EFOSA	Linear	y = 0.753206 * x	
S d5-EFOSA	Linear	y = 0.709506 * x	

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

Initial Calibration Verification

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ICV272
 Lab FileID: 6Q18061.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051823_1633_S6Q272\s6q272.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051823_1633_S6Q272\6Q18052.d
 2:D:\MassHunter\Data\051823_1633_S6Q272\6Q18053.d
 3:D:\MassHunter\Data\051823_1633_S6Q272\6Q18054.d
 4:D:\MassHunter\Data\051823_1633_S6Q272\6Q18055.d
 5:D:\MassHunter\Data\051823_1633_S6Q272\6Q18056.d
 6:D:\MassHunter\Data\051823_1633_S6Q272\6Q18057.d
 7:D:\MassHunter\Data\051823_1633_S6Q272\6Q18058.d
 8:D:\MassHunter\Data\051823_1633_S6Q272\6Q18059.d

Data File: 6Q18061
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.569	11.4	111.4
13C2-6:2FTS	5.000	5.130	2.6	102.6
13C2-8:2FTS	5.000	4.753	-4.9	95.1
13C2-PFDoDA	1.250	1.353	8.3	108.3
13C2-PFTeDA	1.250	1.367	9.4	109.4
13C3-PFBS	2.500	2.479	-0.8	99.2
13C3-PFHxS	2.500	2.520	0.8	100.8
13C4-PFBA	10.000	10.154	1.5	101.5
13C4-PFHpA	2.500	2.546	1.9	101.9
13C5-PFHxA	2.500	2.512	0.5	100.5
13C5-PFPeA	5.000	5.067	1.3	101.3
13C6-PFDA	1.250	1.380	10.4	110.4
13C7-PFUnDA	1.250	1.261	0.9	100.9
13C8-FOSA	2.500	2.542	1.7	101.7
13C8-PFOA	2.500	2.497	-0.1	99.9
13C8-PFOS	2.500	2.539	1.6	101.6
13C9-PFNA	1.250	1.310	4.8	104.8
4:2FTS	9.375	8.048	-14.2	85.8
6:2FTS	9.500	8.269	-13.0	87.0
8:2FTS	9.600	9.198	-4.2	95.8
d3-MeFOSAA	5.000	5.367	7.3	107.3
EtFOSAA	2.500	2.249	-10.0	90.0
FOSA	2.500	2.223	-11.1	88.9
MeFOSAA	2.500	2.074	-17.0	83.0
PFBA	10.000	8.647	-13.5	86.5
PFBS	2.218	2.003	-9.7	90.3
PFDA	2.500	2.085	-16.6	83.4
PFDoDA	2.500	2.116	-15.4	84.6
PFDS	2.413	2.165	-10.3	89.7
PFHpA	2.500	2.145	-14.2	85.8
PFHpS	2.383	2.143	-10.1	89.9
PFHxA	2.500	2.375	-5.0	95.0
PFHxS	2.285	1.968	-13.9	86.1
PFNA	2.500	2.209	-11.7	88.3
PFNS	2.405	2.109	-12.3	87.7
PFOA	2.500	2.186	-12.5	87.5
PFOS	2.320	1.947	-16.1	83.9

Initial Calibration Verification

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ICV272
 Lab FileID: 6Q18061.D

PFPeA	5.000	4.396	-12.1	87.9
PFPeS	2.353	2.037	-13.4	86.6
PFTeDA	2.500	2.104	-15.8	84.2
PFTrDA	2.500	2.253	-9.9	90.1
PFUnDA	2.500	2.337	-6.5	93.5
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	3.756	-20.5	79.5
13C3-HFPO-DA	10.000	10.120	1.2	101.2
9C1-PF3ONS	4.675	3.929	-16.0	84.0
ADONA	4.725	4.217	-10.8	89.2
HFPO-DA	5.000	4.470	-10.6	89.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.104	-11.0	89.0
5:3FTCA	62.400	53.700	-13.9	86.1
7:3FTCA	62.400	54.461	-12.7	87.3
d3-MeFOSA	2.500	2.541	1.6	101.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.014	-19.7	80.3
EtFOSE	12.500	11.082	-11.3	88.7
MeFOSA	5.000	4.334	-13.3	86.7
MeFOSE	12.500	10.379	-17.0	83.0
PFDoDS	2.425	2.008	-17.2	82.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.023	0.5	100.5
d7-MeFOSE	25.000	24.959	-0.2	99.8
d9-EtFOSE	25.000	24.533	-1.9	98.1
d5-EtFOSA	2.500	2.671	6.8	106.8
NFDHA	5.000	4.266	-14.7	85.3
PFMBA	5.000	4.185	-16.3	83.7
PFMPA	5.000	4.236	-15.3	84.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.819	-14.2	85.8

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ICV272
 Lab FileID: 6Q18062.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051823_1633_S6Q272\s6q272.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051823_1633_S6Q272\6Q18052.d
 2:D:\MassHunter\Data\051823_1633_S6Q272\6Q18053.d
 3:D:\MassHunter\Data\051823_1633_S6Q272\6Q18054.d
 4:D:\MassHunter\Data\051823_1633_S6Q272\6Q18055.d
 5:D:\MassHunter\Data\051823_1633_S6Q272\6Q18056.d
 6:D:\MassHunter\Data\051823_1633_S6Q272\6Q18057.d
 7:D:\MassHunter\Data\051823_1633_S6Q272\6Q18058.d
 8:D:\MassHunter\Data\051823_1633_S6Q272\6Q18059.d

Data File: 6Q18062
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.139	2.8	102.8
13C2-6:2FTS	5.000	4.614	-7.7	92.3
13C2-8:2FTS	5.000	4.562	-8.8	91.2
13C2-PFDoDA	1.250	1.297	3.7	103.7
13C2-PFTeDA	1.250	1.295	3.6	103.6
13C3-PFBS	2.500	2.451	-2.0	98.0
13C3-PFHxS	2.500	2.401	-4.0	96.0
13C4-PFBA	10.000	10.222	2.2	102.2
13C4-PFHpA	2.500	2.647	5.9	105.9
13C5-PFHxA	2.500	2.516	0.7	100.7
13C5-PFPeA	5.000	5.165	3.3	103.3
13C6-PFDA	1.250	1.184	-5.3	94.7
13C7-PFUnDA	1.250	1.280	2.4	102.4
13C8-FOSA	2.500	2.613	4.5	104.5
13C8-PFOA	2.500	2.529	1.2	101.2
13C8-PFOS	2.500	2.703	8.1	108.1
13C9-PFNA	1.250	1.280	2.4	102.4
4:2FTS	20.000	22.420	12.1	112.1
6:2FTS	20.000	23.680	18.4	118.4
8:2FTS	20.000	23.881	19.4	119.4
d3-MeFOSAA	5.000	5.977	19.5	119.5
EtFOSAA	20.000	22.750	13.8	113.8
FOSA	20.000	22.012	10.1	110.1
MeFOSAA	20.000	18.879	-5.6	94.4
PFBA	20.000	20.841	4.2	104.2
PFBS	20.000	21.471	7.4	107.4
PFDA	20.000	25.046	25.2	125.2
PFDoDA	20.000	18.625	-6.9	93.1
PFDS	20.000	20.920	4.6	104.6
PFHpA	20.000	19.650	-1.7	98.3
PFHpS	20.000	21.117	5.6	105.6
PFHxA	20.000	22.679	13.4	113.4
PFHxS	20.000	22.840	14.2	114.2
PFNA	20.000	22.421	12.1	112.1
PFNS	20.000	22.579	12.9	112.9
PFOA	20.000	22.155	10.8	110.8
PFOS	20.000	17.493	-12.5	87.5

Initial Calibration Verification

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ICV272
 Lab FileID: 6Q18062.D

PFPeA	20.000	22.956	14.8	114.8
PFPeS	20.000	22.715	13.6	113.6
PFTeDA	20.000	22.887	14.4	114.4
PFTTrDA	20.000	19.489	-2.6	97.4
PFUnDA	20.000	22.743	13.7	113.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.943	4.7	104.7
13C3-HFPO-DA	10.000	10.486	4.9	104.9
9C1-PF3ONS	20.000	20.712	3.6	103.6
ADONA	20.000	21.713	8.6	108.6
HFPO-DA	20.000	20.191	1.0	101.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	21.321	6.6	106.6
5:3FTCA	20.000	23.082	15.4	115.4
7:3FTCA	20.000	21.339	6.7	106.7
d3-MeFOSA	2.500	2.635	5.4	105.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.921	-0.4	99.6
EtFOSE	100.000	107.352	7.4	107.4
MeFOSA	20.000	19.735	-1.3	98.7
MeFOSE	100.000	108.298	8.3	108.3
PFDoDS	20.000	19.076	-4.6	95.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.982	-0.4	99.6
d7-MeFOSE	25.000	25.287	1.1	101.1
d9-EtFOSE	25.000	27.443	9.8	109.8
d5-EtFOSA	2.500	2.738	9.5	109.5
NFDHA	20.000	22.112	10.6	110.6
PFMBA	20.000	21.667	8.3	108.3
PFMPA	20.000	22.220	11.1	111.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	20.000	19.167	-4.2	95.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18063.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051823_1633_S6Q272\s6q272.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051823_1633_S6Q272\6Q18052.d
 2:D:\MassHunter\Data\051823_1633_S6Q272\6Q18053.d
 3:D:\MassHunter\Data\051823_1633_S6Q272\6Q18054.d
 4:D:\MassHunter\Data\051823_1633_S6Q272\6Q18055.d
 5:D:\MassHunter\Data\051823_1633_S6Q272\6Q18056.d
 6:D:\MassHunter\Data\051823_1633_S6Q272\6Q18057.d
 7:D:\MassHunter\Data\051823_1633_S6Q272\6Q18058.d
 8:D:\MassHunter\Data\051823_1633_S6Q272\6Q18059.d

Data File: 6Q18063
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.293	5.9	105.9
13C2-6:2FTS	5.000	5.539	10.8	110.8
13C2-8:2FTS	5.000	5.237	4.7	104.7
13C2-PFDoDA	1.250	1.271	1.7	101.7
13C2-PFTeDA	1.250	1.258	0.6	100.6
13C3-PFBS	2.500	2.543	1.7	101.7
13C3-PFHxS	2.500	2.502	0.1	100.1
13C4-PFBA	10.000	10.068	0.7	100.7
13C4-PFHpA	2.500	2.510	0.4	100.4
13C5-PFHxA	2.500	2.471	-1.2	98.8
13C5-PFPeA	5.000	4.998	0.0	100.0
13C6-PFDA	1.250	1.261	0.9	100.9
13C7-PFUnDA	1.250	1.259	0.8	100.8
13C8-FOSA	2.500	2.529	1.2	101.2
13C8-PFOA	2.500	2.505	0.2	100.2
13C8-PFOS	2.500	2.369	-5.2	94.8
13C9-PFNA	1.250	1.141	-8.8	91.2
4:2FTS	9.375	9.061	-3.4	96.6
6:2FTS	9.500	9.174	-3.4	96.6
8:2FTS	9.600	9.965	3.8	103.8
d3-MeFOSAA	5.000	5.425	8.5	108.5
EtFOSAA	2.500	2.327	-6.9	93.1
FOSA	2.500	2.497	-0.1	99.9
MeFOSAA	2.500	2.348	-6.1	93.9
PFBA	10.000	9.741	-2.6	97.4
PFBS	2.218	2.164	-2.4	97.6
PFDA	2.500	2.555	2.2	102.2
PFDoDA	2.500	2.389	-4.4	95.6
PFDS	2.413	2.596	7.6	107.6
PFHpA	2.500	2.391	-4.3	95.7
PFHpS	2.383	2.671	12.1	112.1
PFHxA	2.500	2.492	-0.3	99.7
PFHxS	2.285	2.137	-6.5	93.5
PFNA	2.500	2.317	-7.3	92.7
PFNS	2.405	2.594	7.9	107.9
PFOA	2.500	2.373	-5.1	94.9
PFOS	2.320	2.405	3.6	103.6

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18063.D

PFPeA	5.000	4.813	-3.7	96.3
PFPeS	2.353	2.293	-2.6	97.4
PFTeDA	2.500	2.502	0.1	100.1
PFTTrDA	2.500	2.518	0.7	100.7
PFUnDA	2.500	2.661	6.4	106.4
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	4.702	-0.5	99.5
13C3-HFPO-DA	10.000	9.666	-3.3	96.7
9C1-PF3ONS	4.675	4.625	-1.1	98.9
ADONA	4.725	4.559	-3.5	96.5
HFPO-DA	5.000	4.950	-1.0	99.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.844	-5.1	94.9
5:3FTCA	62.400	60.457	-3.1	96.9
7:3FTCA	62.400	64.189	2.9	102.9
d3-MeFOSA	2.500	2.469	-1.2	98.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.875	-2.5	97.5
EtFOSE	12.500	12.189	-2.5	97.5
MeFOSA	5.000	5.028	0.6	100.6
MeFOSE	12.500	12.530	0.2	100.2
PFDoDS	2.425	2.437	0.5	100.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.152	3.0	103.0
d7-MeFOSE	25.000	25.003	0.0	100.0
d9-EtFOSE	25.000	25.032	0.1	100.1
d5-EtFOSA	2.500	2.550	2.0	102.0
NFDHA	5.000	4.958	-0.8	99.2
PFMBA	5.000	4.871	-2.6	97.4
PFMPA	5.000	4.818	-3.6	96.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.207	-5.5	94.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18064.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051823_1633_S6Q272\s6q272.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051823_1633_S6Q272\6Q18052.d
 2:D:\MassHunter\Data\051823_1633_S6Q272\6Q18053.d
 3:D:\MassHunter\Data\051823_1633_S6Q272\6Q18054.d
 4:D:\MassHunter\Data\051823_1633_S6Q272\6Q18055.d
 5:D:\MassHunter\Data\051823_1633_S6Q272\6Q18056.d
 6:D:\MassHunter\Data\051823_1633_S6Q272\6Q18057.d
 7:D:\MassHunter\Data\051823_1633_S6Q272\6Q18058.d
 8:D:\MassHunter\Data\051823_1633_S6Q272\6Q18059.d

Data File: 6Q18064
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.130	2.6	102.6
13C2-6:2FTS	5.000	5.242	4.8	104.8
13C2-8:2FTS	5.000	4.799	-4.0	96.0
13C2-PFDoDA	1.250	1.195	-4.4	95.6
13C2-PFTeDA	1.250	1.228	-1.7	98.3
13C3-PFBS	2.500	2.532	1.3	101.3
13C3-PFHxS	2.500	2.481	-0.8	99.2
13C4-PFBA	10.000	9.953	-0.5	99.5
13C4-PFHpA	2.500	2.464	-1.5	98.5
13C5-PFHxA	2.500	2.484	-0.6	99.4
13C5-PFPeA	5.000	4.831	-3.4	96.6
13C6-PFDA	1.250	1.156	-7.5	92.5
13C7-PFUnDA	1.250	1.285	2.8	102.8
13C8-FOSA	2.500	2.828	13.1	113.1
13C8-PFOA	2.500	2.485	-0.6	99.4
13C8-PFOS	2.500	2.966	18.6	118.6
13C9-PFNA	1.250	1.279	2.3	102.3
4:2FTS	0.750	0.755	0.7	100.7
6:2FTS	0.760	0.770	1.3	101.3
8:2FTS	0.768	0.796	3.6	103.6
d3-MeFOSAA	5.000	5.940	18.8	118.8
EtFOSAA	0.200	0.237	18.4	118.4
FOSA	0.200	0.188	-5.9	94.1
MeFOSAA	0.200	0.164	-17.8	82.2
PFBA	0.800	0.756	-5.6	94.4
PFBS	0.177	0.169	-4.4	95.6
PFDA	0.200	0.218	9.2	109.2
PFDoDA	0.200	0.214	7.1	107.1
PFDS	0.193	0.163	-15.5	84.5
PFHpA	0.200	0.185	-7.7	92.3
PFHpS	0.191	0.149	-21.7	78.3
PFHxA	0.200	0.192	-3.8	96.2
PFHxS	0.183	0.194	6.2	106.2
PFNA	0.200	0.168	-16.1	83.9
PFNS	0.192	0.157	-18.1	81.9
PFOA	0.200	0.212	5.9	105.9
PFOS	0.186	0.166	-10.6	89.4

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18064.D

PFPeA	0.400	0.382	-4.5	95.5
PFPeS	0.188	0.181	-3.9	96.1
PFTeDA	0.200	0.197	-1.4	98.6
PFTTrDA	0.200	0.195	-2.4	97.6
PFUnDA	0.200	0.166	-16.8	83.2
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	0.389	3.0	103.0
13C3-HFPO-DA	10.000	9.041	-9.6	90.4
9C1-PF3ONS	0.367	0.360	-2.0	98.0
ADONA	0.378	0.388	2.6	102.6
HFPO-DA	0.400	0.375	-6.3	93.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.960	-3.9	96.1
5:3FTCA	4.992	5.156	3.3	103.3
7:3FTCA	4.992	5.023	0.6	100.6
d3-MeFOSA	2.500	2.704	8.2	108.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.408	1.9	101.9
EtFOSE	1.000	0.942	-5.8	94.2
MeFOSA	0.400	0.380	-5.0	95.0
MeFOSE	1.000	0.915	-8.5	91.5
PFDoDS	0.194	0.196	0.9	100.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.901	18.0	118.0
d7-MeFOSE	25.000	28.576	14.3	114.3
d9-EtFOSE	25.000	28.268	13.1	113.1
d5-EtFOSA	2.500	2.748	9.9	109.9
NFDHA	0.400	0.352	-12.0	88.0
PFMBA	0.400	0.383	-4.4	95.6
PFMPA	0.400	0.389	-2.8	97.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.328	-8.0	92.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18106.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051823_1633_S6Q272\s6q272.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051823_1633_S6Q272\6Q18052.d
 2:D:\MassHunter\Data\051823_1633_S6Q272\6Q18053.d
 3:D:\MassHunter\Data\051823_1633_S6Q272\6Q18054.d
 4:D:\MassHunter\Data\051823_1633_S6Q272\6Q18055.d
 5:D:\MassHunter\Data\051823_1633_S6Q272\6Q18056.d
 6:D:\MassHunter\Data\051823_1633_S6Q272\6Q18057.d
 7:D:\MassHunter\Data\051823_1633_S6Q272\6Q18058.d
 8:D:\MassHunter\Data\051823_1633_S6Q272\6Q18059.d

Data File: 6Q18106
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.891	17.8	117.8
13C2-6:2FTS	5.000	5.243	4.9	104.9
13C2-8:2FTS	5.000	5.701	14.0	114.0
13C2-PFDoDA	1.250	1.230	-1.6	98.4
13C2-PFTeDA	1.250	1.186	-5.1	94.9
13C3-PFBS	2.500	2.533	1.3	101.3
13C3-PFHxS	2.500	2.375	-5.0	95.0
13C4-PFBA	10.000	10.046	0.5	100.5
13C4-PFHpA	2.500	2.579	3.2	103.2
13C5-PFHxA	2.500	2.488	-0.5	99.5
13C5-PFPeA	5.000	5.237	4.7	104.7
13C6-PFDA	1.250	1.195	-4.4	95.6
13C7-PFUnDA	1.250	1.232	-1.4	98.6
13C8-FOSA	2.500	2.653	6.1	106.1
13C8-PFOA	2.500	2.559	2.4	102.4
13C8-PFOS	2.500	2.615	4.6	104.6
13C9-PFNA	1.250	1.212	-3.0	97.0
4:2FTS	0.750	0.726	-3.2	96.8
6:2FTS	0.760	0.863	13.5	113.5
8:2FTS	0.768	0.794	3.4	103.4
d3-MeFOSAA	5.000	5.714	14.3	114.3
EtFOSAA	0.200	0.173	-13.4	86.6
FOSA	0.200	0.204	1.8	101.8
MeFOSAA	0.200	0.223	11.7	111.7
PFBA	0.800	0.752	-6.0	94.0
PFBS	0.177	0.166	-6.2	93.8
PFDA	0.200	0.214	7.1	107.1
PFDoDA	0.200	0.202	0.8	100.8
PFDS	0.193	0.180	-6.6	93.4
PFHpA	0.200	0.196	-2.1	97.9
PFHpS	0.191	0.180	-5.5	94.5
PFHxA	0.200	0.222	11.2	111.2
PFHxS	0.183	0.189	3.1	103.1
PFNA	0.200	0.188	-6.2	93.8
PFNS	0.192	0.190	-1.0	99.0
PFOA	0.200	0.169	-15.7	84.3
PFOS	0.186	0.157	-15.6	84.4

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18106.D

PFPeA	0.400	0.390	-2.6	97.4
PFPeS	0.188	0.186	-1.2	98.8
PFTeDA	0.200	0.184	-8.1	91.9
PFTrDA	0.200	0.201	0.3	100.3
PFUnDA	0.200	0.189	-5.7	94.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.347	-8.2	91.8
13C3-HFPO-DA	10.000	10.334	3.3	103.3
9C1-PF3ONS	0.367	0.370	0.8	100.8
ADONA	0.378	0.353	-6.7	93.3
HFPO-DA	0.400	0.404	1.0	101.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.978	-2.0	98.0
5:3FTCA	4.992	5.401	8.2	108.2
7:3FTCA	4.992	4.637	-7.1	92.9
d3-MeFOSA	2.500	2.586	3.4	103.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.357	-10.9	89.1
EtFOSE	1.000	0.993	-0.7	99.3
MeFOSA	0.400	0.350	-12.6	87.4
MeFOSE	1.000	0.968	-3.2	96.8
PFDoDS	0.194	0.190	-2.0	98.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.541	10.8	110.8
d7-MeFOSE	25.000	25.353	1.4	101.4
d9-EtFOSE	25.000	25.306	1.2	101.2
d5-EtFOSA	2.500	2.596	3.8	103.8
NFDHA	0.400	0.441	10.3	110.3
PFMBA	0.400	0.376	-5.9	94.1
PFMPA	0.400	0.377	-5.8	94.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.352	-1.2	98.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18118.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051823_1633_S6Q272\s6q272.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051823_1633_S6Q272\6Q18052.d
 2:D:\MassHunter\Data\051823_1633_S6Q272\6Q18053.d
 3:D:\MassHunter\Data\051823_1633_S6Q272\6Q18054.d
 4:D:\MassHunter\Data\051823_1633_S6Q272\6Q18055.d
 5:D:\MassHunter\Data\051823_1633_S6Q272\6Q18056.d
 6:D:\MassHunter\Data\051823_1633_S6Q272\6Q18057.d
 7:D:\MassHunter\Data\051823_1633_S6Q272\6Q18058.d
 8:D:\MassHunter\Data\051823_1633_S6Q272\6Q18059.d

Data File: 6Q18118
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.452	29.0	129.0
13C2-6:2FTS	5.000	6.171	23.4	123.4
13C2-8:2FTS	5.000	6.198	24.0	124.0
13C2-PFDoDA	1.250	1.171	-6.3	93.7
13C2-PFTeDA	1.250	1.115	-10.8	89.2
13C3-PFBS	2.500	2.616	4.6	104.6
13C3-PFHxS	2.500	2.587	3.5	103.5
13C4-PFBA	10.000	10.100	1.0	101.0
13C4-PFHpA	2.500	2.598	3.9	103.9
13C5-PFHxA	2.500	2.537	1.5	101.5
13C5-PFPeA	5.000	5.019	0.4	100.4
13C6-PFDA	1.250	1.122	-10.3	89.7
13C7-PFUnDA	1.250	1.160	-7.2	92.8
13C8-FOSA	2.500	2.785	11.4	111.4
13C8-PFOA	2.500	2.639	5.6	105.6
13C8-PFOS	2.500	2.603	4.1	104.1
13C9-PFNA	1.250	1.215	-2.8	97.2
4:2FTS	9.375	8.684	-7.4	92.6
6:2FTS	9.500	9.495	-0.1	99.9
8:2FTS	9.600	10.536	9.7	109.7
d3-MeFOSAA	5.000	5.819	16.4	116.4
EtFOSAA	2.500	2.411	-3.6	96.4
FOSA	2.500	2.335	-6.6	93.4
MeFOSAA	2.500	2.602	4.1	104.1
PFBA	10.000	9.739	-2.6	97.4
PFBS	2.218	2.068	-6.8	93.2
PFDA	2.500	2.577	3.1	103.1
PFDoDA	2.500	2.236	-10.6	89.4
PFDS	2.413	2.426	0.6	100.6
PFHpA	2.500	2.276	-9.0	91.0
PFHpS	2.383	2.479	4.0	104.0
PFHxA	2.500	2.477	-0.9	99.1
PFHxS	2.285	2.157	-5.6	94.4
PFNA	2.500	2.294	-8.2	91.8
PFNS	2.405	2.350	-2.3	97.7
PFOA	2.500	2.355	-5.8	94.2
PFOS	2.320	2.305	-0.7	99.3

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18118.D

PFPeA	5.000	4.856	-2.9	97.1
PFPeS	2.353	2.185	-7.1	92.9
PFTeDA	2.500	2.477	-0.9	99.1
PFTTrDA	2.500	2.340	-6.4	93.6
PFUnDA	2.500	2.424	-3.0	97.0
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	4.699	-0.6	99.4
13C3-HFPO-DA	10.000	9.904	-1.0	99.0
9C1-PF3ONS	4.675	4.522	-3.3	96.7
ADONA	4.725	4.636	-1.9	98.1
HFPO-DA	5.000	4.839	-3.2	96.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.006	-3.8	96.2
5:3FTCA	62.400	59.612	-4.5	95.5
7:3FTCA	62.400	59.556	-4.6	95.4
d3-MeFOSA	2.500	2.472	-1.1	98.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.033	0.7	100.7
EtFOSE	12.500	12.412	-0.7	99.3
MeFOSA	5.000	5.126	2.5	102.5
MeFOSE	12.500	12.034	-3.7	96.3
PFDoDS	2.425	2.295	-5.4	94.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.837	16.7	116.7
d7-MeFOSE	25.000	26.428	5.7	105.7
d9-EtFOSE	25.000	25.579	2.3	102.3
d5-EtFOSA	2.500	2.543	1.7	101.7
NFDHA	5.000	4.951	-1.0	99.0
PFMBA	5.000	4.870	-2.6	97.4
PFMPA	5.000	4.923	-1.5	98.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.074	-8.4	91.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18130.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051823_1633_S6Q272\s6q272.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051823_1633_S6Q272\6Q18052.d
 2:D:\MassHunter\Data\051823_1633_S6Q272\6Q18053.d
 3:D:\MassHunter\Data\051823_1633_S6Q272\6Q18054.d
 4:D:\MassHunter\Data\051823_1633_S6Q272\6Q18055.d
 5:D:\MassHunter\Data\051823_1633_S6Q272\6Q18056.d
 6:D:\MassHunter\Data\051823_1633_S6Q272\6Q18057.d
 7:D:\MassHunter\Data\051823_1633_S6Q272\6Q18058.d
 8:D:\MassHunter\Data\051823_1633_S6Q272\6Q18059.d

Data File: 6Q18130
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.781	# 35.6	135.6
13C2-6:2FTS	5.000	6.479	29.6	129.6
13C2-8:2FTS	5.000	6.490	29.8	129.8
13C2-PFDoDA	1.250	1.242	-0.6	99.4
13C2-PFTeDA	1.250	1.272	1.7	101.7
13C3-PFBS	2.500	2.562	2.5	102.5
13C3-PFHxS	2.500	2.519	0.7	100.7
13C4-PFBA	10.000	10.026	0.3	100.3
13C4-PFHpA	2.500	2.523	0.9	100.9
13C5-PFHxA	2.500	2.501	0.0	100.0
13C5-PFPeA	5.000	5.074	1.5	101.5
13C6-PFDA	1.250	1.146	-8.3	91.7
13C7-PFUnDA	1.250	1.227	-1.8	98.2
13C8-FOSA	2.500	2.813	12.5	112.5
13C8-PFOA	2.500	2.538	1.5	101.5
13C8-PFOS	2.500	2.773	10.9	110.9
13C9-PFNA	1.250	1.216	-2.7	97.3
4:2FTS	9.375	8.675	-7.5	92.5
6:2FTS	9.500	9.496	0.0	100.0
8:2FTS	9.600	10.286	7.1	107.1
d3-MeFOSAA	5.000	5.818	16.4	116.4
EtFOSAA	2.500	2.431	-2.8	97.2
FOSA	2.500	2.372	-5.1	94.9
MeFOSAA	2.500	2.523	0.9	100.9
PFBA	10.000	9.719	-2.8	97.2
PFBS	2.218	2.243	1.1	101.1
PFDA	2.500	2.611	4.4	104.4
PFDoDA	2.500	2.363	-5.5	94.5
PFDS	2.413	2.146	-11.1	88.9
PFHpA	2.500	2.457	-1.7	98.3
PFHpS	2.383	2.138	-10.3	89.7
PFHxA	2.500	2.572	2.9	102.9
PFHxS	2.285	2.250	-1.5	98.5
PFNA	2.500	2.448	-2.1	97.9
PFNS	2.405	2.134	-11.3	88.7
PFOA	2.500	2.324	-7.0	93.0
PFOS	2.320	2.065	-11.0	89.0

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-CC272
 Lab FileID: 6Q18130.D

PFPeA	5.000	4.862	-2.8	97.2
PFPeS	2.353	2.432	3.4	103.4
PFTeDA	2.500	2.349	-6.1	93.9
PFTrDA	2.500	2.216	-11.4	88.6
PFUnDA	2.500	2.490	-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	4.604	-2.6	97.4
13C3-HFPO-DA	10.000	10.212	2.1	102.1
9C1-PF3ONS	4.675	4.636	-0.8	99.2
ADONA	4.725	4.596	-2.7	97.3
HFPO-DA	5.000	4.890	-2.2	97.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.060	-3.4	96.6
5:3FTCA	62.400	61.132	-2.0	98.0
7:3FTCA	62.400	61.458	-1.5	98.5
d3-MeFOSA	2.500	2.478	-0.9	99.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.951	-1.0	99.0
EtFOSE	12.500	11.781	-5.8	94.2
MeFOSA	5.000	5.203	4.1	104.1
MeFOSE	12.500	11.267	-9.9	90.1
PFDoDS	2.425	2.320	-4.3	95.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.870	17.4	117.4
d7-MeFOSE	25.000	27.410	9.6	109.6
d9-EtFOSE	25.000	27.585	10.3	110.3
d5-EtFOSA	2.500	2.515	0.6	100.6
NFDHA	5.000	5.117	2.3	102.3
PFMBA	5.000	4.930	-1.4	98.6
PFMPA	5.000	4.901	-2.0	98.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.332	-2.7	97.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ECC272
 Lab FileID: 6Q18137.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051823_1633_S6Q272\s6q272.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051823_1633_S6Q272\6Q18052.d
 2:D:\MassHunter\Data\051823_1633_S6Q272\6Q18053.d
 3:D:\MassHunter\Data\051823_1633_S6Q272\6Q18054.d
 4:D:\MassHunter\Data\051823_1633_S6Q272\6Q18055.d
 5:D:\MassHunter\Data\051823_1633_S6Q272\6Q18056.d
 6:D:\MassHunter\Data\051823_1633_S6Q272\6Q18057.d
 7:D:\MassHunter\Data\051823_1633_S6Q272\6Q18058.d
 8:D:\MassHunter\Data\051823_1633_S6Q272\6Q18059.d

Data File: 6Q18137
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.455	29.1	129.1
13C2-6:2FTS	5.000	6.589	# 31.8	131.8
13C2-8:2FTS	5.000	7.084	# 41.7	141.7
13C2-PFDoDA	1.250	1.203	-3.7	96.3
13C2-PFTeDA	1.250	1.206	-3.5	96.5
13C3-PFBS	2.500	2.602	4.1	104.1
13C3-PFHxS	2.500	2.555	2.2	102.2
13C4-PFBA	10.000	9.883	-1.2	98.8
13C4-PFHpA	2.500	2.409	-3.6	96.4
13C5-PFHxA	2.500	2.363	-5.5	94.5
13C5-PFPeA	5.000	4.777	-4.5	95.5
13C6-PFDA	1.250	1.165	-6.8	93.2
13C7-PFUnDA	1.250	1.188	-4.9	95.1
13C8-FOSA	2.500	2.684	7.4	107.4
13C8-PFOA	2.500	2.447	-2.1	97.9
13C8-PFOS	2.500	2.691	7.6	107.6
13C9-PFNA	1.250	1.297	3.8	103.8
4:2FTS	9.375	10.097	7.7	107.7
6:2FTS	9.500	9.503	0.0	100.0
8:2FTS	9.600	9.578	-0.2	99.8
d3-MeFOSAA	5.000	5.966	19.3	119.3
EtFOSAA	2.500	2.562	2.5	102.5
FOSA	2.500	2.472	-1.1	98.9
MeFOSAA	2.500	2.502	0.1	100.1
PFBA	10.000	9.846	-1.5	98.5
PFBS	2.218	2.179	-1.7	98.3
PFDA	2.500	2.649	6.0	106.0
PFDoDA	2.500	2.461	-1.5	98.5
PFDS	2.413	2.319	-3.9	96.1
PFHpA	2.500	2.429	-2.9	97.1
PFHpS	2.383	2.211	-7.2	92.8
PFHxA	2.500	2.493	-0.3	99.7
PFHxS	2.285	2.310	1.1	101.1
PFNA	2.500	2.260	-9.6	90.4
PFNS	2.405	2.341	-2.6	97.4
PFOA	2.500	2.432	-2.7	97.3
PFOS	2.320	2.222	-4.2	95.8

Continuing Calibration Summary

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q272-ECC272
 Lab FileID: 6Q18137.D

PFPeA	5.000	4.870	-2.6	97.4
PFPeS	2.353	2.341	-0.5	99.5
PFTeDA	2.500	2.455	-1.8	98.2
PFTTrDA	2.500	2.513	0.5	100.5
PFUnDA	2.500	2.620	4.8	104.8
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	4.519	-4.4	95.6
13C3-HFPO-DA	10.000	9.616	-3.8	96.2
9C1-PF3ONS	4.675	4.404	-5.8	94.2
ADONA	4.725	4.704	-0.4	99.6
HFPO-DA	5.000	4.964	-0.7	99.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.926	-4.4	95.6
5:3FTCA	62.400	60.121	-3.7	96.3
7:3FTCA	62.400	61.526	-1.4	98.6
d3-MeFOSA	2.500	2.528	1.1	101.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.834	-3.3	96.7
EtFOSE	12.500	12.001	-4.0	96.0
MeFOSA	5.000	4.780	-4.4	95.6
MeFOSE	12.500	11.886	-4.9	95.1
PFDoDS	2.425	2.314	-4.6	95.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.843	16.9	116.9
d7-MeFOSE	25.000	26.103	4.4	104.4
d9-EtFOSE	25.000	26.634	6.5	106.5
d5-EtFOSA	2.500	2.602	4.1	104.1
NFDHA	5.000	5.013	0.3	100.3
PFMBA	5.000	4.834	-3.3	96.7
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	4.183	-6.0	94.0

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q272	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q272-RT	6Q18041.D	05/18/23 16:07	n/a	Retention Time Marker
S6Q272-RT	6Q18050.D	05/18/23 18:30	n/a	Retention Time Marker
S6Q272-IC272	6Q18051.D	05/18/23 18:45	n/a	Mass Calibration Verification
S6Q272-IC272	6Q18052.D	05/18/23 18:59	n/a	Initial cal 1
S6Q272-IC272	6Q18053.D	05/18/23 19:14	n/a	Initial cal 2
S6Q272-IC272	6Q18054.D	05/18/23 19:28	n/a	Initial cal 3
S6Q272-ICC272	6Q18055.D	05/18/23 19:42	n/a	Initial cal 4
S6Q272-IC272	6Q18056.D	05/18/23 19:57	n/a	Initial cal 5
S6Q272-IC272	6Q18057.D	05/18/23 20:11	n/a	Initial cal 6
S6Q272-IC272	6Q18058.D	05/18/23 20:26	n/a	Initial cal 7
S6Q272-IC272	6Q18059.D	05/18/23 20:40	n/a	Initial cal 8
S6Q272-IBLK	6Q18060.D	05/18/23 20:55	n/a	Instrument Blank
S6Q272-IBLK	6Q18060.D	05/18/23 20:55	n/a	Instrument Blank
S6Q272-ICV272	6Q18061.D	05/18/23 21:09	n/a	Initial cal verification 4
S6Q272-ICV272	6Q18062.D	05/18/23 21:24	n/a	Initial cal verification 20
S6Q272-CC272	6Q18063.D	05/18/23 21:38	n/a	Continuing cal 4
S6Q272-CC272	6Q18064.D	05/18/23 21:53	n/a	Continuing cal 1.0LL
OP96919-BS	6Q18065.D	05/18/23 22:07	OP96919	Blank Spike
OP96919-LLBS	6Q18066.D	05/18/23 22:22	OP96919	Blank Spike
OP96919-MB	6Q18067.D	05/18/23 22:36	OP96919	Method Blank
ZZZZZZ	6Q18068.D	05/18/23 22:51	OP96919	(unrelated sample)
ZZZZZZ	6Q18069.D	05/18/23 23:05	OP96919	(unrelated sample)
FC5567-1	6Q18070.D	05/18/23 23:20	OP96919	(used for QC only; not part of job FC6097)
OP96919-MS	6Q18071.D	05/18/23 23:34	OP96919	Matrix Spike
FC5567-2	6Q18072.D	05/18/23 23:49	OP96919	(used for QC only; not part of job FC6097)
OP96919-DUP	6Q18073.D	05/19/23 00:03	OP96919	Duplicate
ZZZZZZ	6Q18074.D	05/19/23 00:18	OP96919	(unrelated sample)
S6Q272-CC272	6Q18075.D	05/19/23 00:32	n/a	Continuing cal 4
S6Q272-ICCB	6Q18076.D	05/19/23 00:47	n/a	Continuing Calibration Blank
ZZZZZZ	6Q18077.D	05/19/23 01:01	OP96919	(unrelated sample)
ZZZZZZ	6Q18078.D	05/19/23 01:16	OP96919	(unrelated sample)
ZZZZZZ	6Q18079.D	05/19/23 01:30	OP96919	(unrelated sample)
ZZZZZZ	6Q18080.D	05/19/23 01:45	OP96919	(unrelated sample)
ZZZZZZ	6Q18081.D	05/19/23 01:59	OP96919	(unrelated sample)
ZZZZZZ	6Q18082.D	05/19/23 02:14	OP96919	(unrelated sample)
ZZZZZZ	6Q18083.D	05/19/23 02:28	OP96919	(unrelated sample)
ZZZZZZ	6Q18084.D	05/19/23 02:43	OP96919	(unrelated sample)
ZZZZZZ	6Q18085.D	05/19/23 02:57	OP96919	(unrelated sample)
ZZZZZZ	6Q18086.D	05/19/23 03:12	OP96919	(unrelated sample)
S6Q272-CC272	6Q18087.D	05/19/23 03:26	n/a	Continuing cal 4
S6Q272-ICCB	6Q18088.D	05/19/23 03:41	n/a	Continuing Calibration Blank
ZZZZZZ	6Q18089.D	05/19/23 03:55	OP96919	(unrelated sample)
ZZZZZZ	6Q18090.D	05/19/23 04:10	OP96919	(unrelated sample)
ZZZZZZ	6Q18091.D	05/19/23 04:24	OP96919	(unrelated sample)
ZZZZZZ	6Q18092.D	05/19/23 04:39	OP96919	(unrelated sample)
S6Q272-CC272	6Q18093.D	05/19/23 04:53	n/a	Continuing cal 4

Run Sequence Report

Job Number: FC6097
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q272	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
S6Q272-ICCB	6Q18094.D	05/19/23 05:08	n/a	Continuing Calibration Blank
ZZZZZZ	6Q18095.D	05/19/23 05:22	OP96916	(unrelated sample)
ZZZZZZ	6Q18096.D	05/19/23 05:37	OP96916	(unrelated sample)
ZZZZZZ	6Q18097.D	05/19/23 05:51	OP96916	(unrelated sample)
FC5501-4	6Q18098.D	05/19/23 06:06	OP96916	(used for QC only; not part of job FC6097)
OP96916-MS	6Q18099.D	05/19/23 06:20	OP96916	Matrix Spike
ZZZZZZ	6Q18100.D	05/19/23 06:34	OP96916	(unrelated sample)
ZZZZZZ	6Q18101.D	05/19/23 06:49	OP96916	(unrelated sample)
ZZZZZZ	6Q18102.D	05/19/23 07:04	OP96916	(unrelated sample)
ZZZZZZ	6Q18103.D	05/19/23 07:18	OP96916	(unrelated sample)
ZZZZZZ	6Q18104.D	05/19/23 07:32	OP96916	(unrelated sample)
S6Q272-CC272	6Q18105.D	05/19/23 07:47	n/a	Continuing cal 4
S6Q272-CC272	6Q18106.D	05/19/23 08:01	n/a	Continuing cal 1.0LL
S6Q272-ICCB	6Q18107.D	05/19/23 08:16	n/a	Continuing Calibration Blank
ZZZZZZ	6Q18108.D	05/19/23 08:30	OP96916	(unrelated sample)
ZZZZZZ	6Q18109.D	05/19/23 08:45	OP96917	(unrelated sample)
ZZZZZZ	6Q18110.D	05/19/23 08:59	OP96917	(unrelated sample)
ZZZZZZ	6Q18111.D	05/19/23 09:14	OP96917	(unrelated sample)
FC5542-6	6Q18112.D	05/19/23 09:28	OP96917	(used for QC only; not part of job FC6097)
OP96917-DUP	6Q18113.D	05/19/23 09:43	OP96917	Duplicate
ZZZZZZ	6Q18117.D	05/19/23 10:41	OP96918	(unrelated sample)
S6Q272-CC272	6Q18118.D	05/19/23 10:55	n/a	Continuing cal 4
S6Q272-ICCB	6Q18119.D	05/19/23 11:10	n/a	Continuing Calibration Blank
OP96921-BS	6Q18120.D	05/19/23 11:24	OP96921	Blank Spike
OP96921-LLBS	6Q18121.D	05/19/23 11:39	OP96921	Blank Spike
OP96921-MB	6Q18122.D	05/19/23 11:53	OP96921	Method Blank
ZZZZZZ	6Q18123.D	05/19/23 12:08	OP96921	(unrelated sample)
FC5594-2	6Q18124.D	05/19/23 12:22	OP96921	(used for QC only; not part of job FC6097)
OP96921-MS	6Q18125.D	05/19/23 12:37	OP96921	Matrix Spike
OP96921-MSD	6Q18126.D	05/19/23 12:51	OP96921	Matrix Spike Duplicate
ZZZZZZ	6Q18127.D	05/19/23 13:06	OP96921	(unrelated sample)
ZZZZZZ	6Q18128.D	05/19/23 13:20	OP96921	(unrelated sample)
ZZZZZZ	6Q18129.D	05/19/23 13:35	OP96921	(unrelated sample)
S6Q272-CC272	6Q18130.D	05/19/23 13:49	n/a	Continuing cal 4
S6Q272-ICCB	6Q18131.D	05/19/23 14:04	n/a	Continuing Calibration Blank
FC6097-1	6Q18132.D	05/19/23 14:18	OP96921	AF-RHMW04-WGN01LF-2305W3
FC6097-2	6Q18133.D	05/19/23 14:33	OP96921	AF-RHMW06-WGN01LF-2305W3
FC6097-3	6Q18134.D	05/19/23 14:47	OP96921	AF-RHMW12A-WGN01LF-2305W3
FC6097-4	6Q18135.D	05/19/23 15:02	OP96921	AF-RHMW12A-WGFD01LF-2305W3
FC6097-5	6Q18136.D	05/19/23 15:16	OP96921	AF-RHMW16-WGN01LF-2305W3
S6Q272-ECC272	6Q18137.D	05/19/23 15:31	n/a	Ending cal 4
S6Q272-ICCB	6Q18138.D	05/19/23 15:45	n/a	Continuing Calibration Blank

6.9.1
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MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18132.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 2:18:46 PM
 Sample Name : FC6097-1
 Vial : P5-A1
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	143134	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	46042	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	53504	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	47907	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	68843	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	24097	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	17375	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	21482	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	19861	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	12538	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	16158	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	17261	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	10619	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9285	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2715	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	3631	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3457	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	24657	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	33286	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	19066	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	51695	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	68344	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	6834	2.50 µg/L	0.012
M3-MeFOSA	10.739	515.0 -> 219.0	5339	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	13799	2.50 µg/L	-0.012
13C3-PFBA	2.891	216.0 -> 172.0	69465	5.00 µg/L	0.012
18O2-PFHxS	7.154	403.0 -> 83.9	8674	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	81584	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	27132	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	29097	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	48860	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2715	5.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.6%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3631	6.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.9%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3457	5.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-PFDoDA	8.925	615.1 -> 570.0	19861	0.84 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 67.6%		
13C2-PFTeDA	9.652	715.2 -> 670.0	12538	0.79 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 62.8%		
13C3-PFBS	5.359	302.1 -> 79.9	17261	2.25 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C3-PFHxS	7.155	402.1 -> 79.9	10619	2.29 µg/L	0.000

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 = 91.6%	
13C4-PFBA	2.888	216.8 -> 171.9	143134	8.64 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.4%	
13C4-PFHpA	6.395	367.1 -> 322.0	47907	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C5-PFHxA	5.441	318.0 -> 273.0	53504	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.3%	
13C5-PFPeA	4.247	268.3 -> 223.0	46042	4.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C6-PFDA	8.051	519.1 -> 474.1	17375	0.94 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 75.2%	
13C7-PFUnDA	8.492	570.0 -> 525.1	21482	0.91 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 72.5%	
13C8-FOSA	9.611	506.1 -> 77.8	16158	1.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 69.1%	
13C8-PFOA	7.038	421.1 -> 376.0	68843	2.27 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C8-PFOS	8.202	507.1 -> 79.9	9285	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.3%	
13C9-PFNA	7.569	472.1 -> 427.0	24097	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.2%	
d3-MeFOSAA	8.108	573.2 -> 419.0	24657	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	33286	9.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
d3-MeFOSA	10.739	515.0 -> 219.0	5339	1.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 63.5%	
d5-EtFOSAA	8.304	589.2 -> 419.0	19066	4.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.4%	
d7-MeFOSE	10.660	623.2 -> 58.9	51695	14.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 58.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	68344	16.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 65.8%	
d5-EtFOSA	10.984	531.1 -> 219.0	6834	1.75 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 69.8%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	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	7.015	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



7.1.1
7

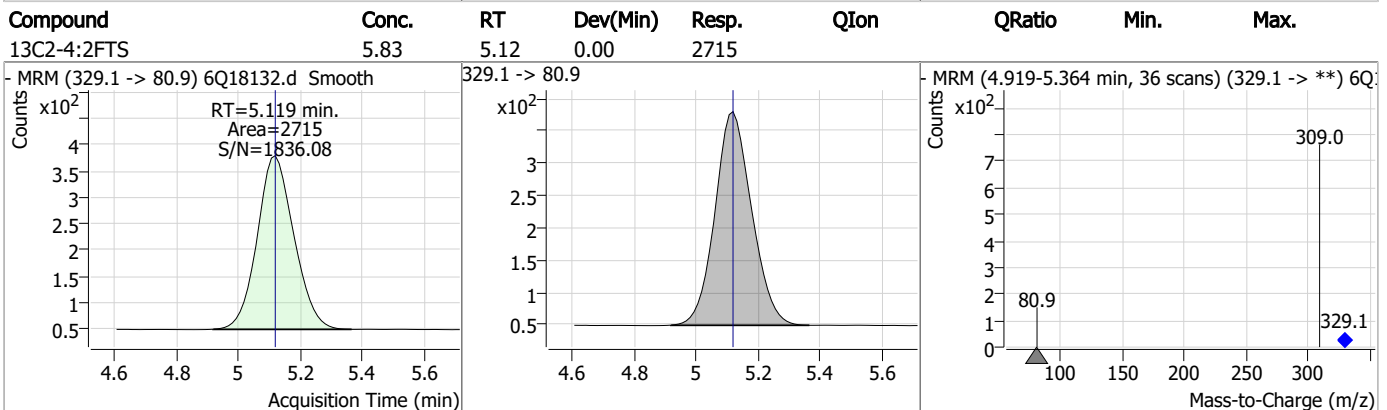
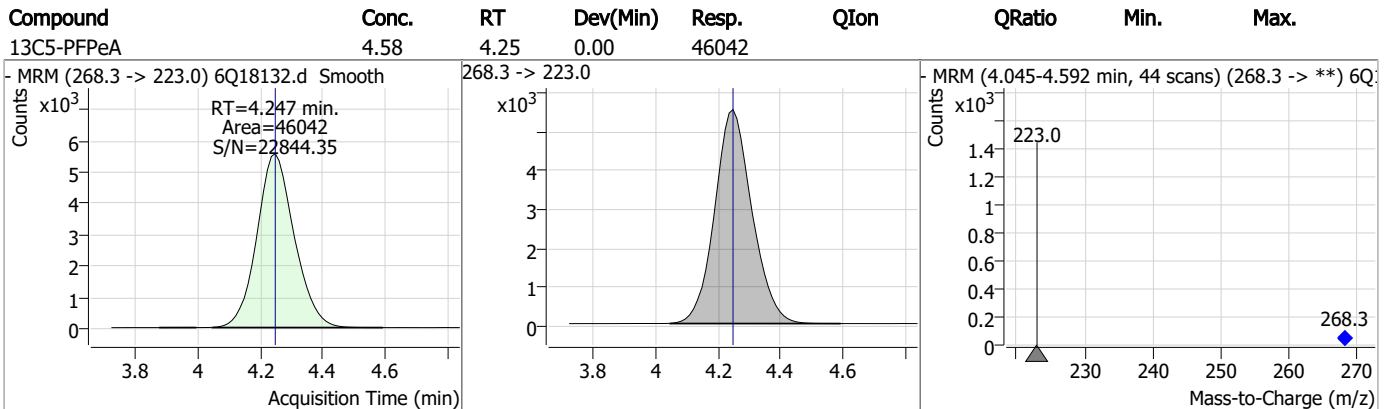
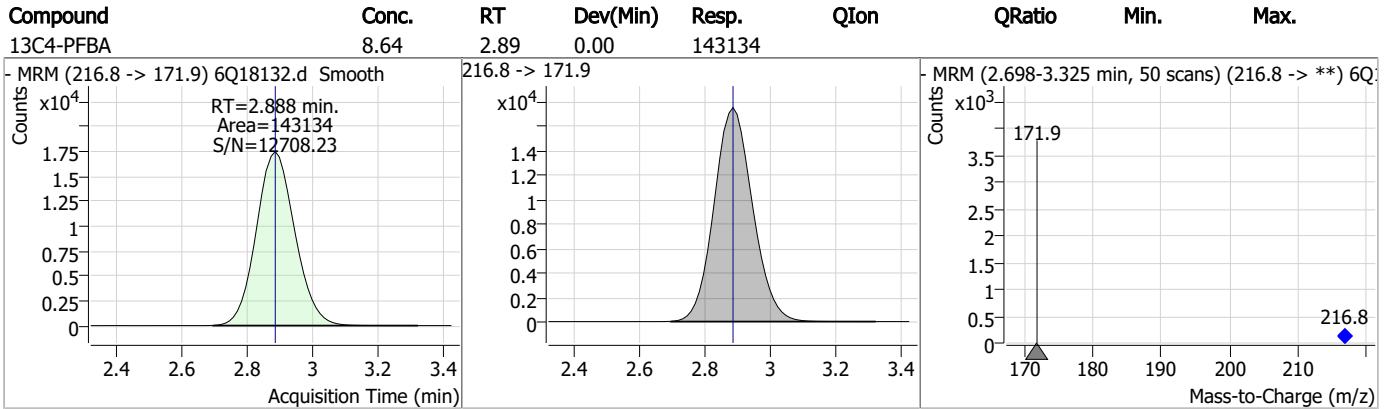
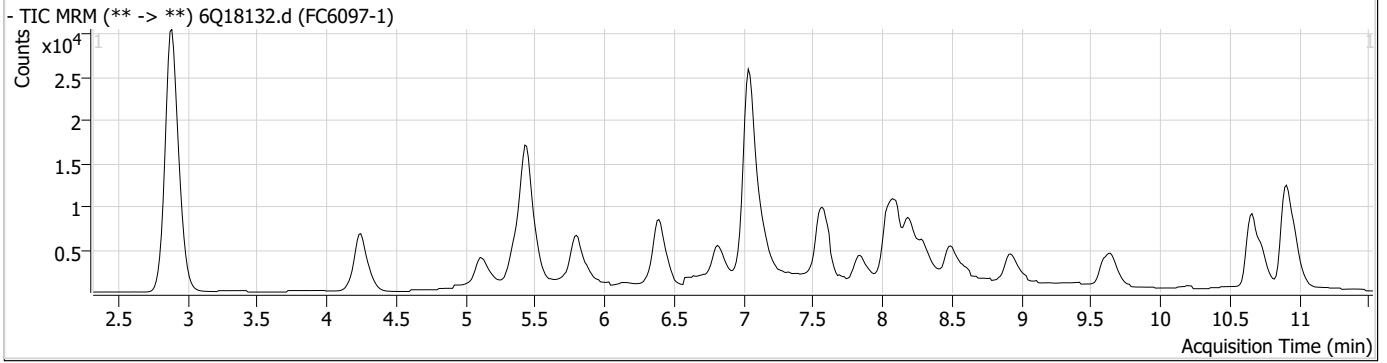
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.1

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Perfluorinated Compounds by LC/MS/MS

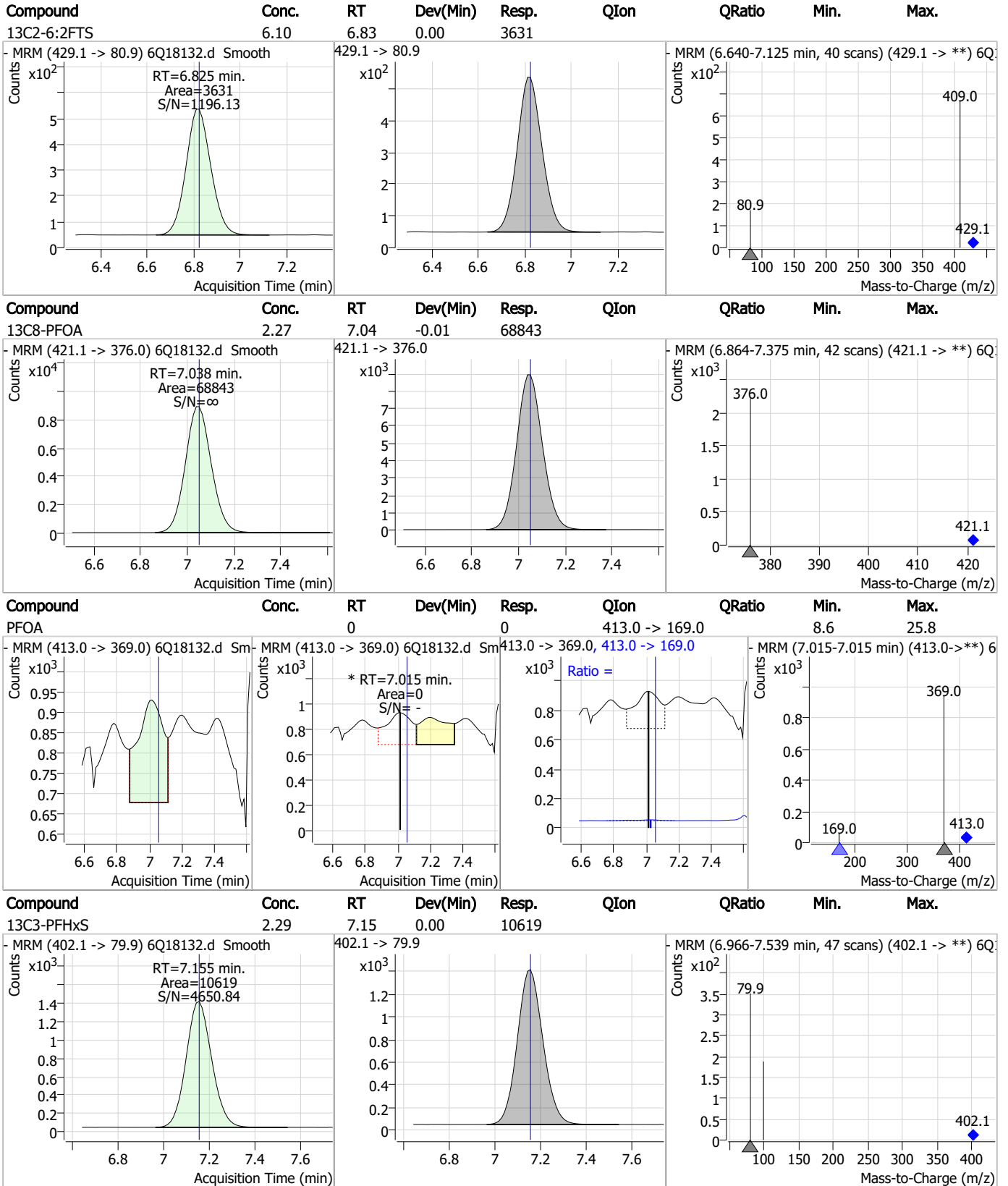


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.25	5.36	-0.01	17261				
13C5-PFHxA	2.26	5.44	0.00	53504				
13C3-HFPO-DA	9.43	5.81	0.00	33286				
13C4-PFHpA	2.36	6.39	-0.01	47907				

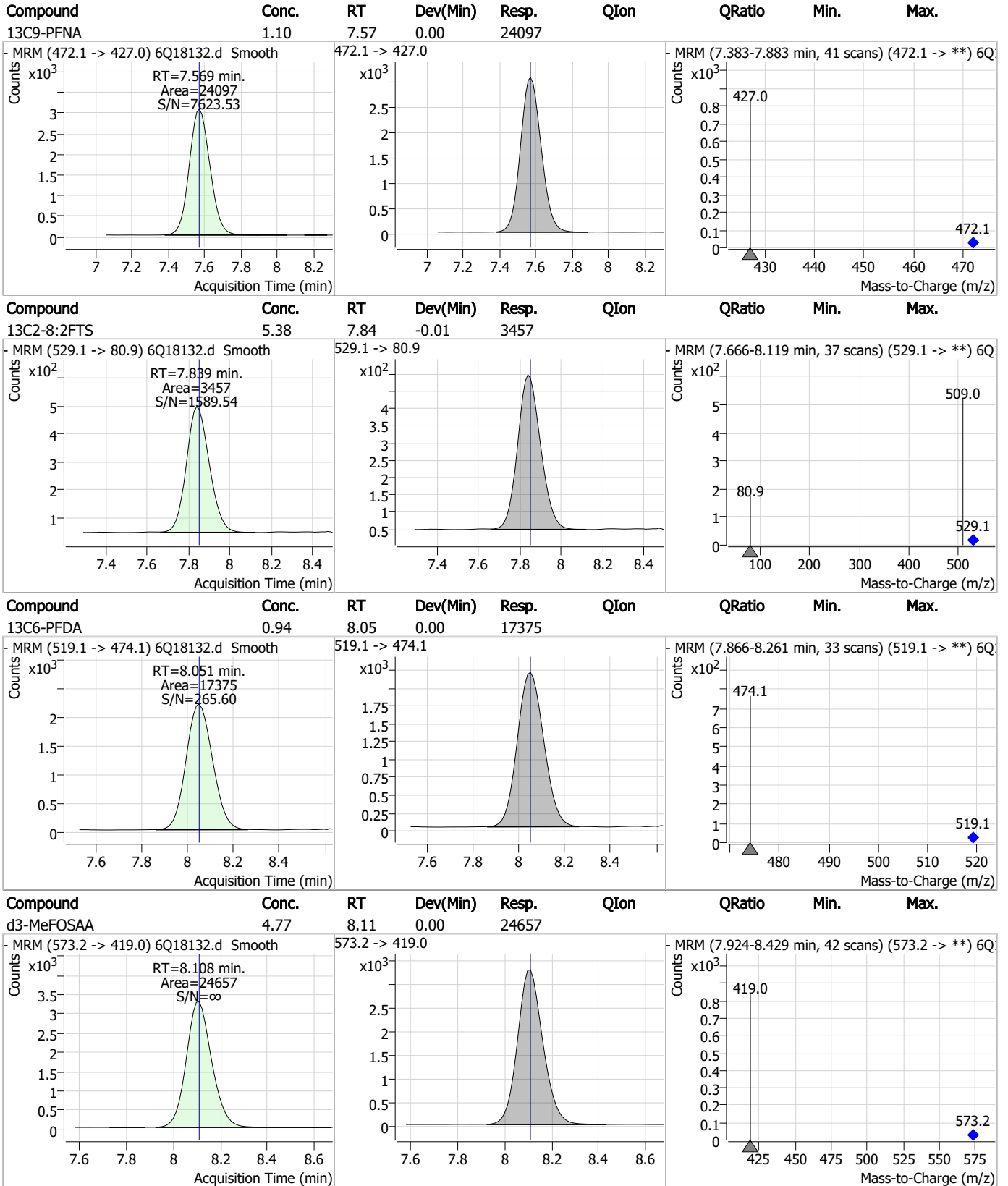
7.1.1
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Perfluorinated Compounds by LC/MS/MS



7.1.1
7

Perfluorinated Compounds by LC/MS/MS



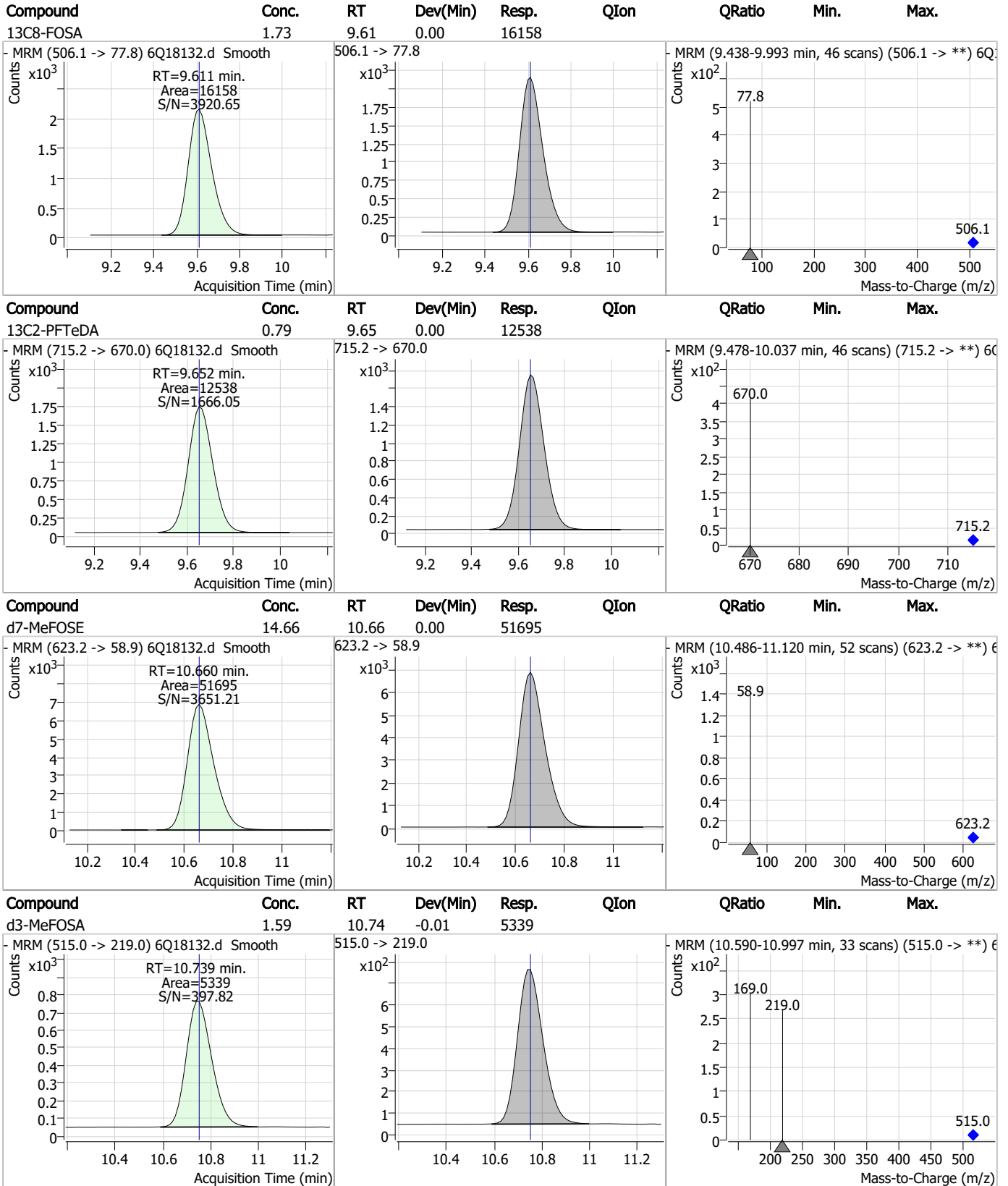
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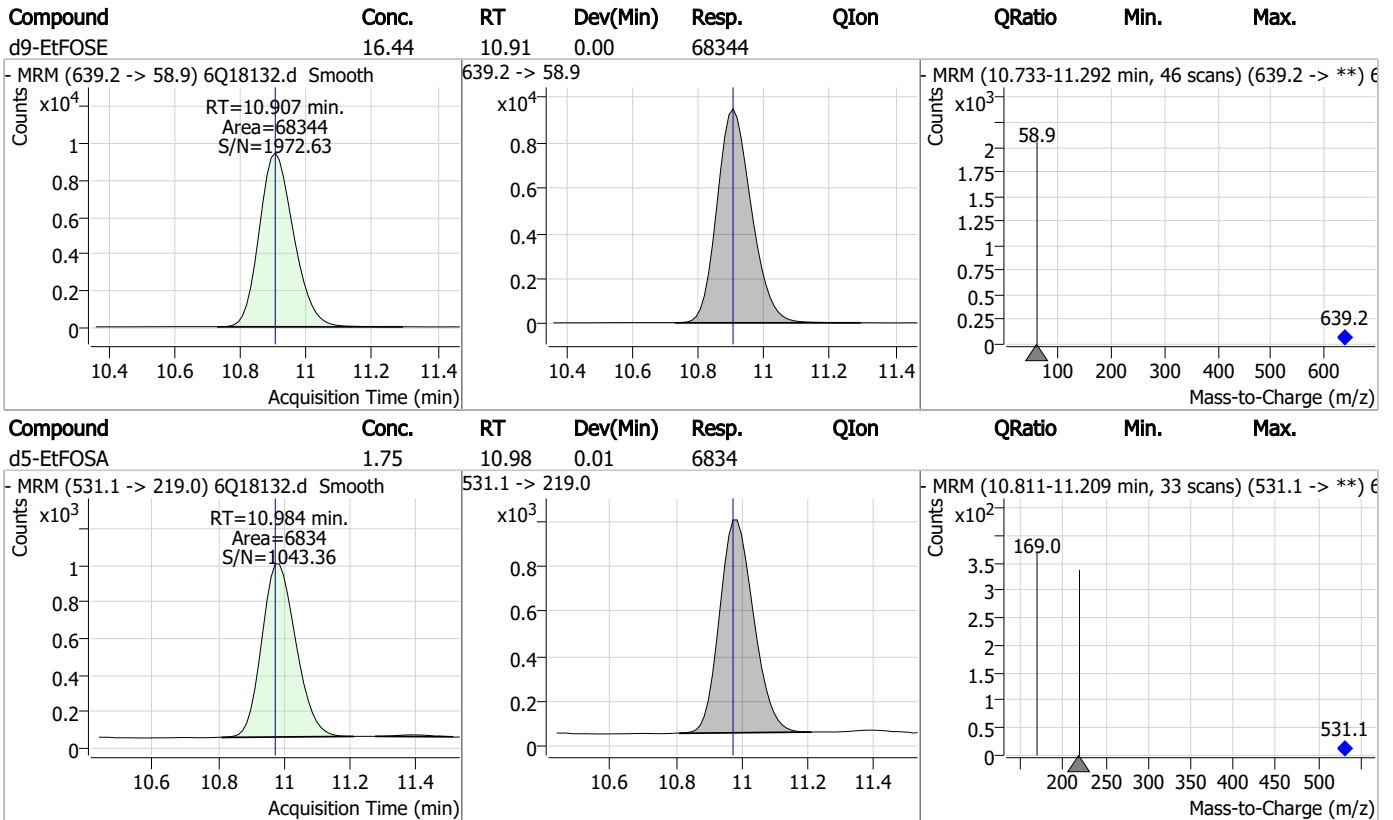
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.23	8.20	0.00	9285				
d5-EtFOSAA	4.47	8.30	0.00	19066				
13C7-PFUnDA	0.91	8.49	-0.01	21482				
13C2-PFDoDA	0.84	8.92	0.00	19861				

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.1

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18133.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 2:33:15 PM
 Sample Name : FC6097-2
 Vial : P5-A2
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	143729	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	46728	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	54826	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	48344	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	69727	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	24811	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	17964	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	19746	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	18280	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	11027	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	17235	2.50 µg/L	0.000
M3-PFBS	5.372	302.1 -> 79.9	18511	2.50 µg/L	0.000
M3-PFHxS	7.155	402.1 -> 79.9	10181	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	8395	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2666	5.00 µg/L	0.000
M2-6:2FTS	6.813	429.1 -> 80.9	3385	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	3604	5.00 µg/L	-0.012
M3-MeFOSAA	8.096	573.2 -> 419.0	22296	5.00 µg/L	-0.012
M3-HFPO-DA	5.807	286.9 -> 168.9	32756	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	17499	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	49901	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	64427	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	6271	2.50 µg/L	0.012
M3-MeFOSA	10.752	515.0 -> 219.0	4982	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	13384	2.50 µg/L	-0.012
13C3-PFBA	2.891	216.0 -> 172.0	64128	5.00 µg/L	0.012
18O2-PFHxS	7.154	403.0 -> 83.9	8570	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	76838	2.50 µg/L	0.000
13C2-PFDA	8.039	515.1 -> 470.1	25234	1.25 µg/L	-0.025
13C5-PFNA	7.570	468.0 -> 423.0	29166	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	48611	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2666	5.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.9%		
13C2-6:2FTS	6.813	429.1 -> 80.9	3385	5.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3604	5.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.5%		
13C2-PFDoDA	8.925	615.1 -> 570.0	18280	0.84 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 66.9%		
13C2-PFTeDA	9.652	715.2 -> 670.0	11027	0.74 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 59.4%		
13C3-PFBS	5.372	302.1 -> 79.9	18511	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFHxS	7.155	402.1 -> 79.9	10181	2.22 µg/L	0.000



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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%	
13C4-PFBA	2.888	216.8 -> 171.9	143729	9.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C4-PFHpA	6.395	367.1 -> 322.0	48344	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C5-PFHxA	5.441	318.0 -> 273.0	54826	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C5-PFPeA	4.247	268.3 -> 223.0	46728	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C6-PFDA	8.051	519.1 -> 474.1	17964	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.6%	
13C7-PFUnDA	8.492	570.0 -> 525.1	19746	0.90 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 71.7%	
13C8-FOSA	9.611	506.1 -> 77.8	17235	1.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.0%	
13C8-PFOA	7.051	421.1 -> 376.0	69727	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C8-PFOS	8.202	507.1 -> 79.9	8395	2.08 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.2%	
13C9-PFNA	7.569	472.1 -> 427.0	24811	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.6%	
d3-MeFOSAA	8.096	573.2 -> 419.0	22296	4.45 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	32756	9.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d3-MeFOSA	10.752	515.0 -> 219.0	4982	1.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 61.1%	
d5-EtFOSAA	8.304	589.2 -> 419.0	17499	4.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 84.6%	
d7-MeFOSE	10.660	623.2 -> 58.9	49901	14.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 58.4%	
d9-EtFOSE	10.907	639.2 -> 58.9	64427	15.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.9%	
d5-EtFOSA	10.985	531.1 -> 219.0	6271	1.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 66.0%	

Target Compounds

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



7.12

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Perfluorinated Compounds by LC/MS/MS

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

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



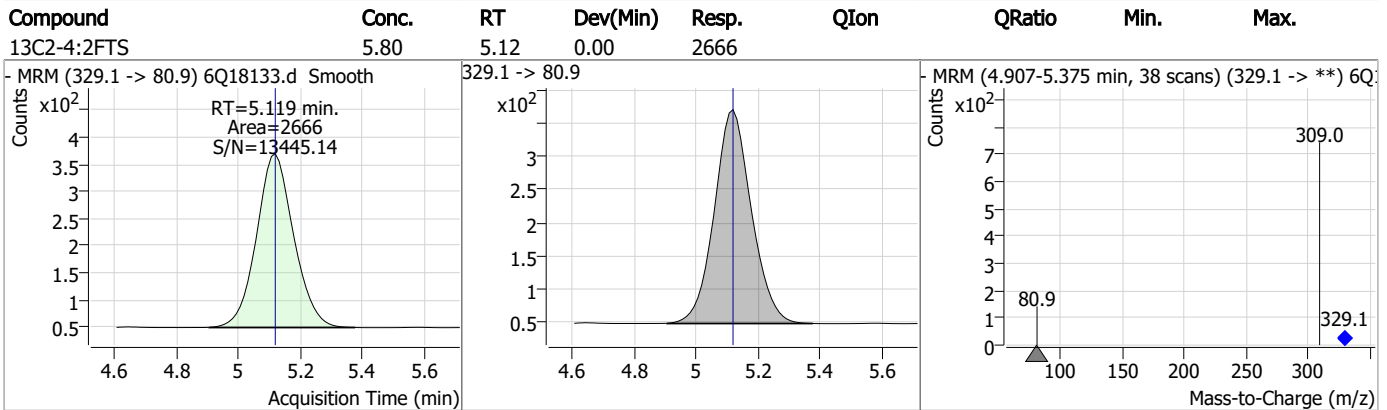
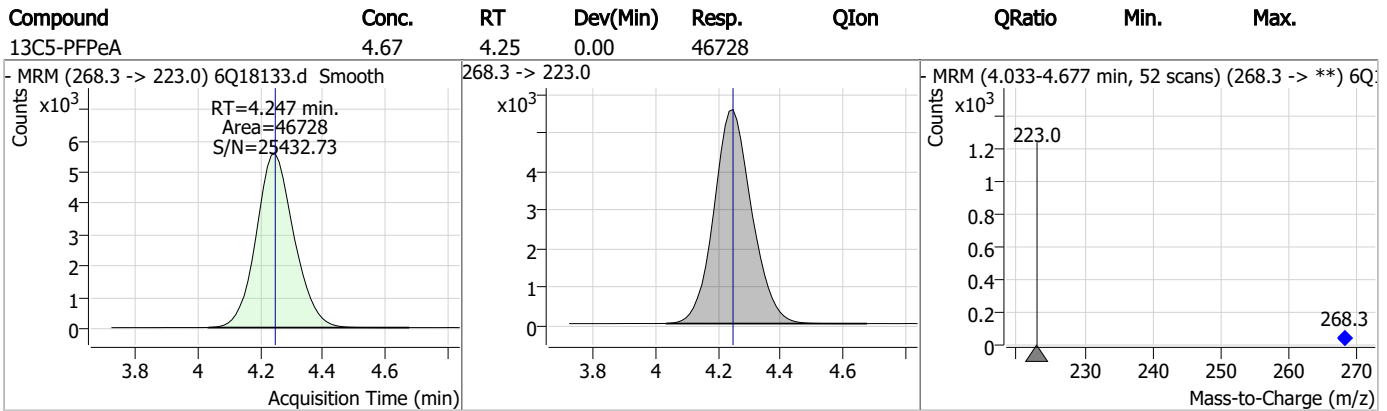
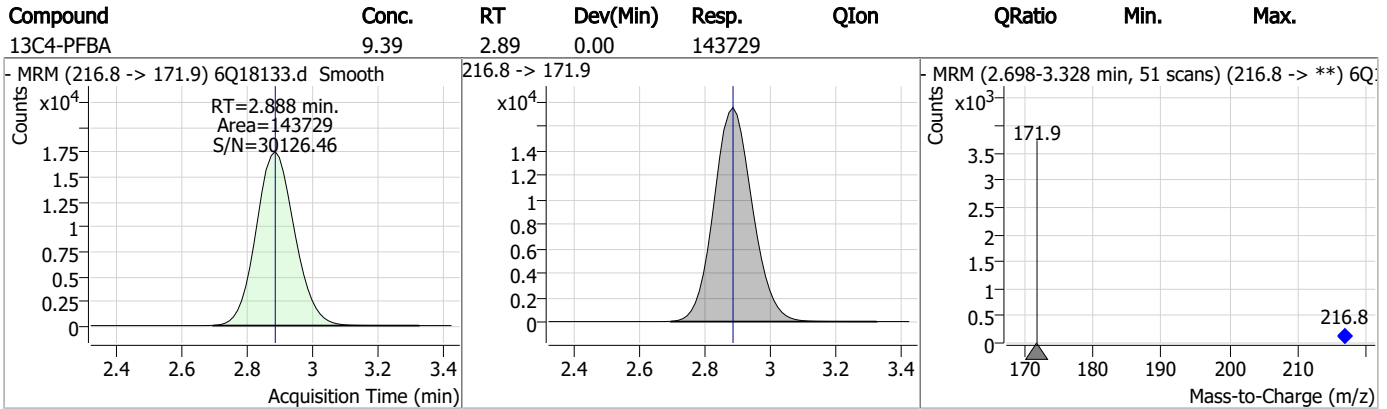
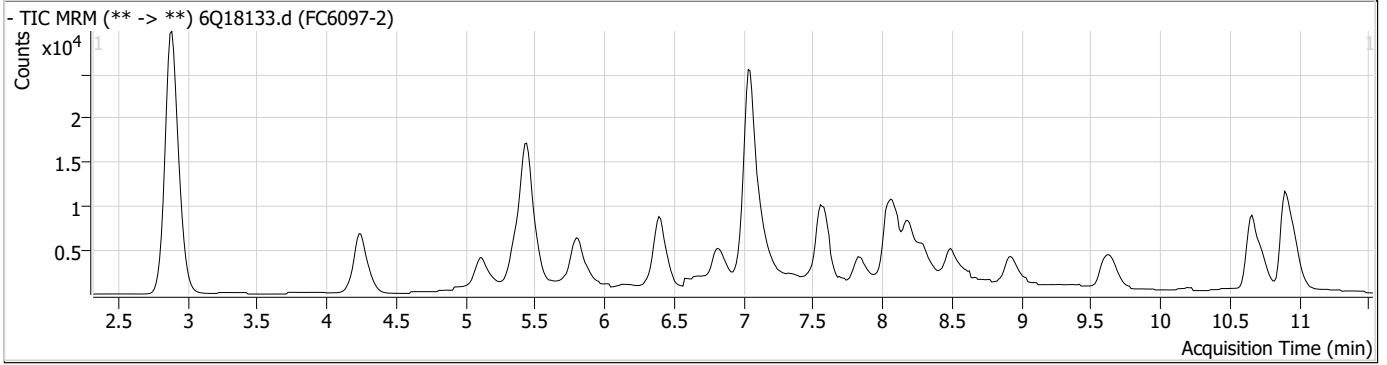
Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS



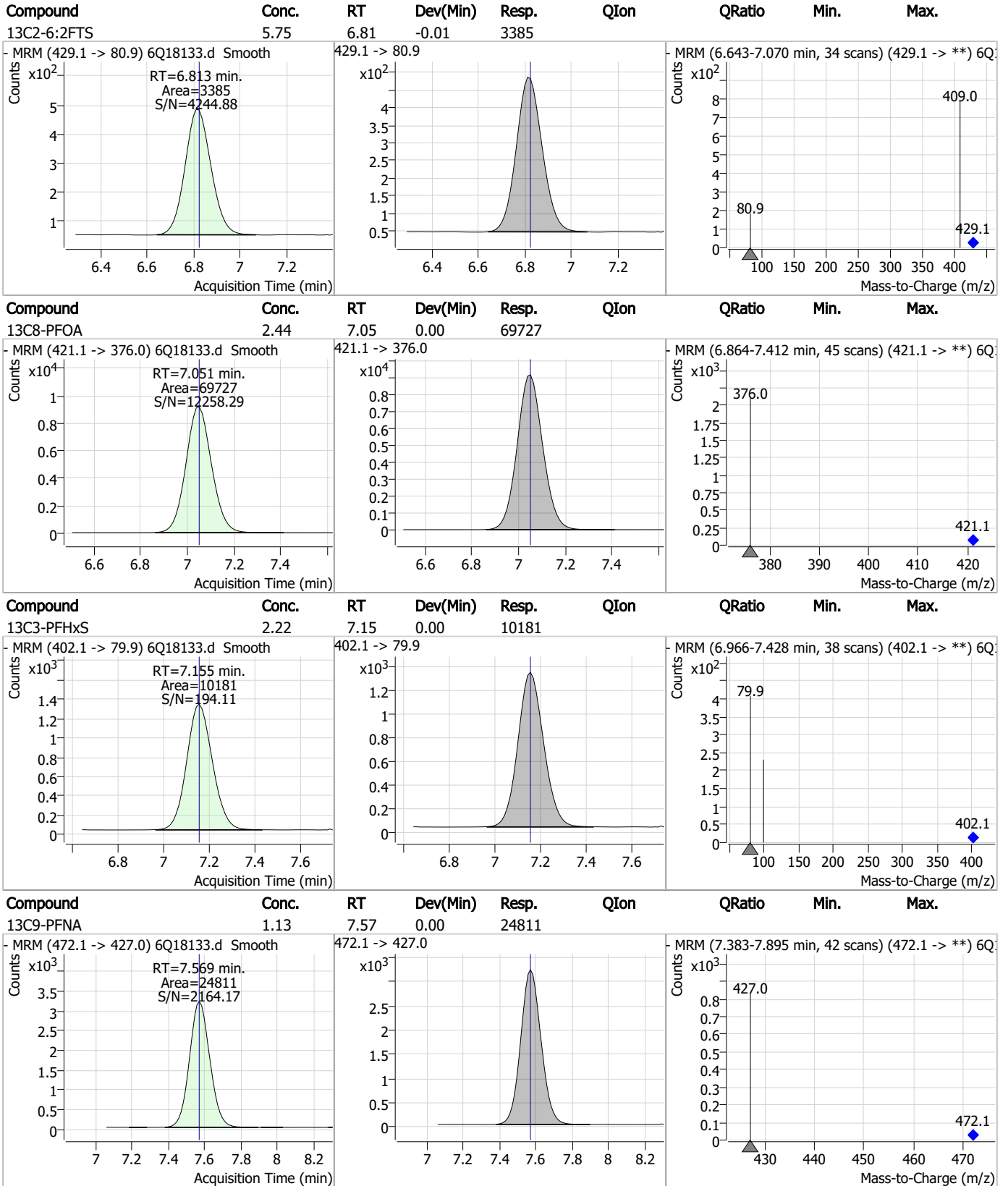
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.44	5.37	0.00	18511				
13C5-PFHxA	2.33	5.44	0.00	54826				
13C3-HFPO-DA	9.33	5.81	0.00	32756				
13C4-PFHpA	2.40	6.39	-0.01	48344				

7.1.2

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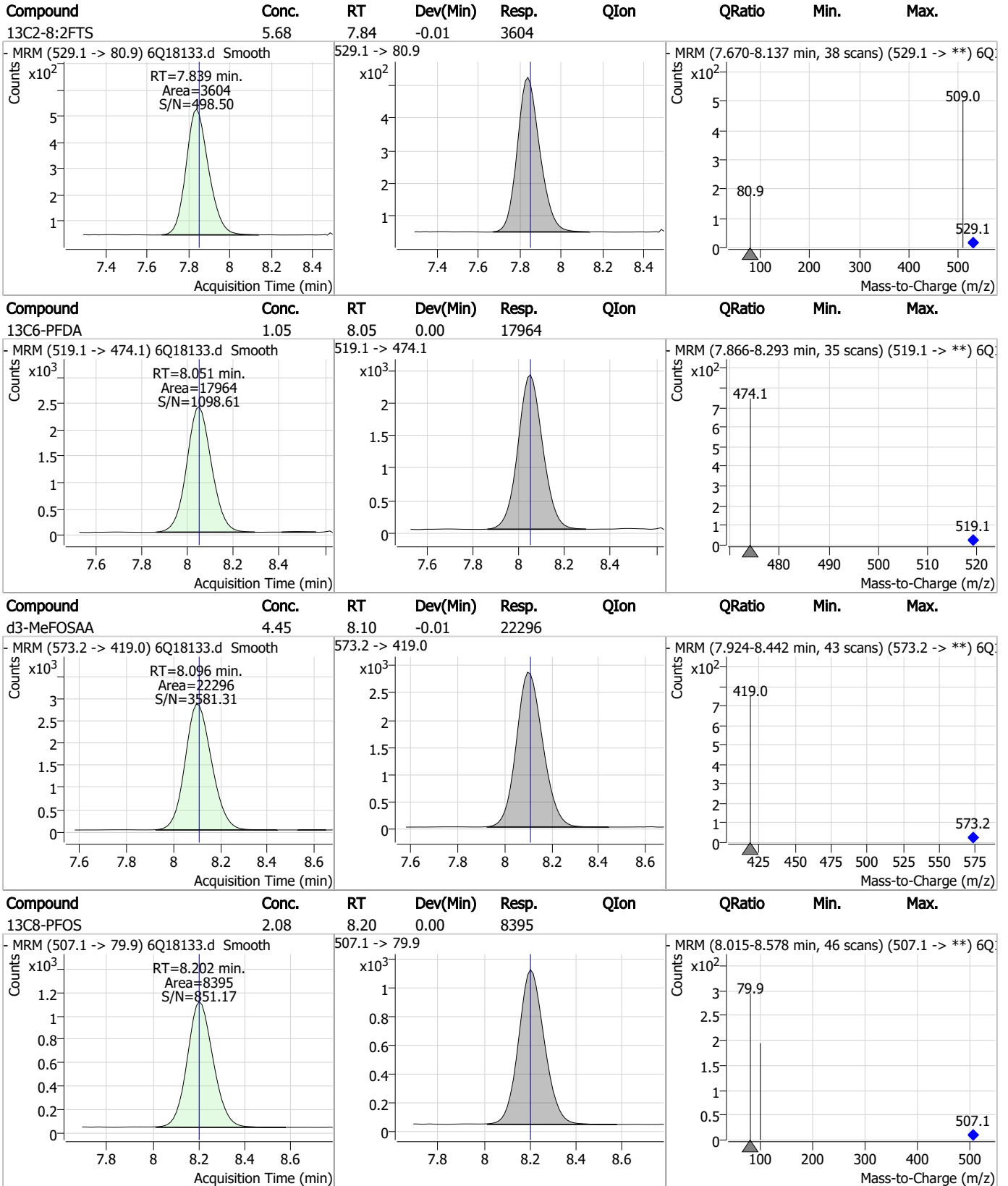
Perfluorinated Compounds by LC/MS/MS



7.1.2

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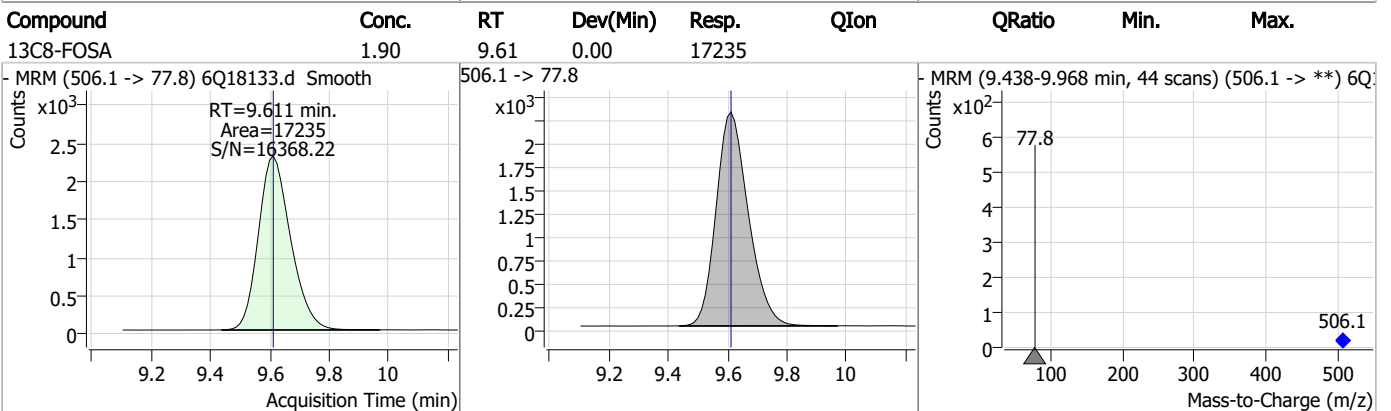
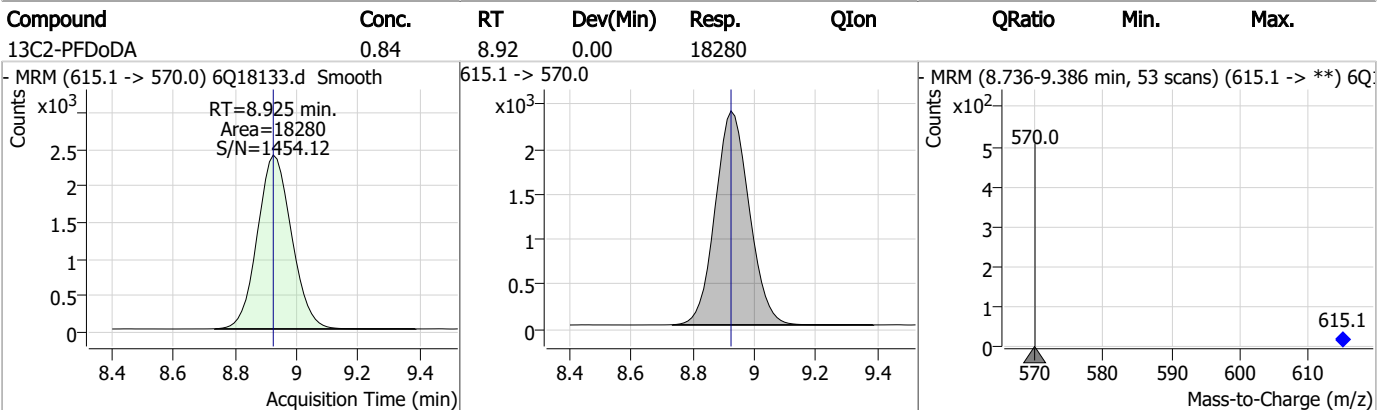
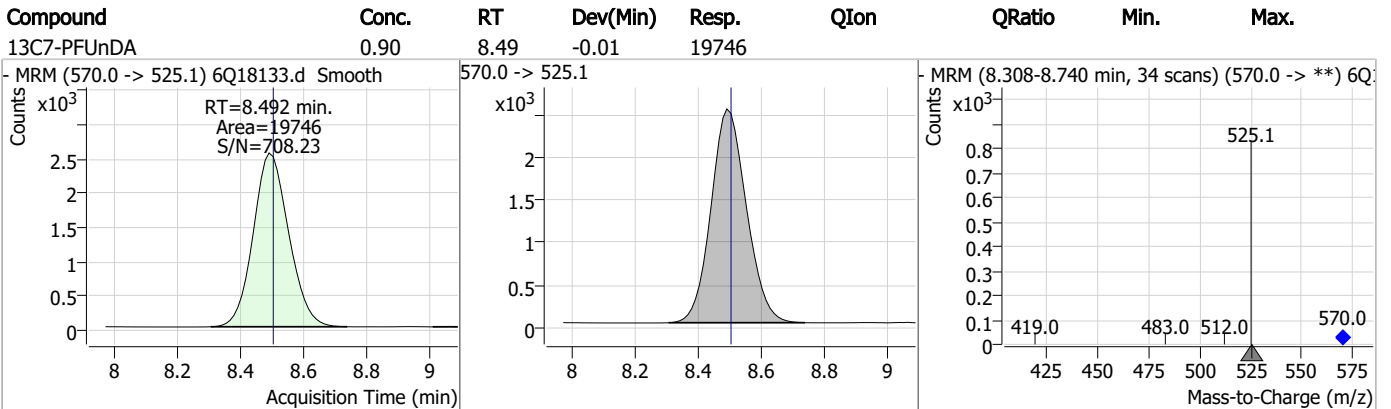
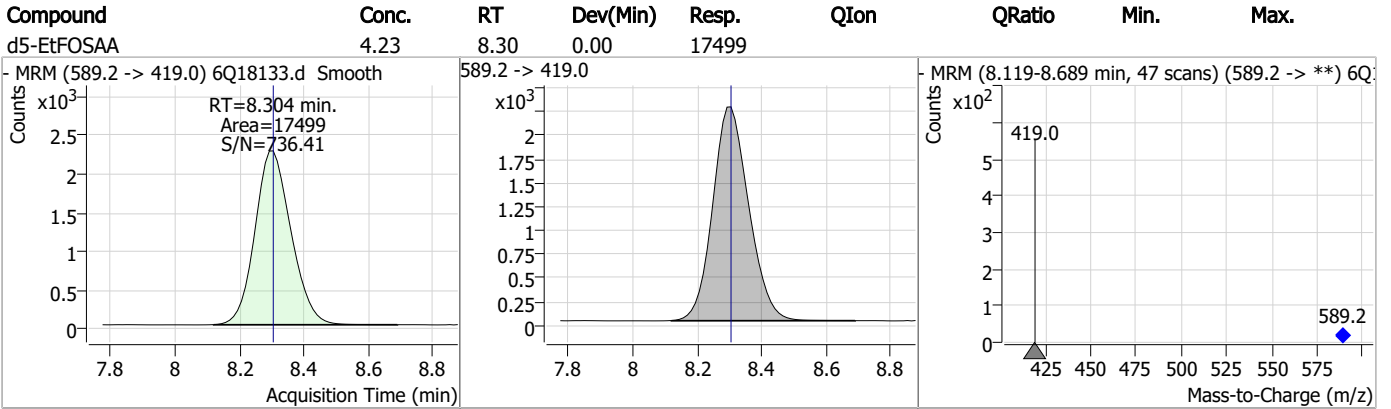
Perfluorinated Compounds by LC/MS/MS



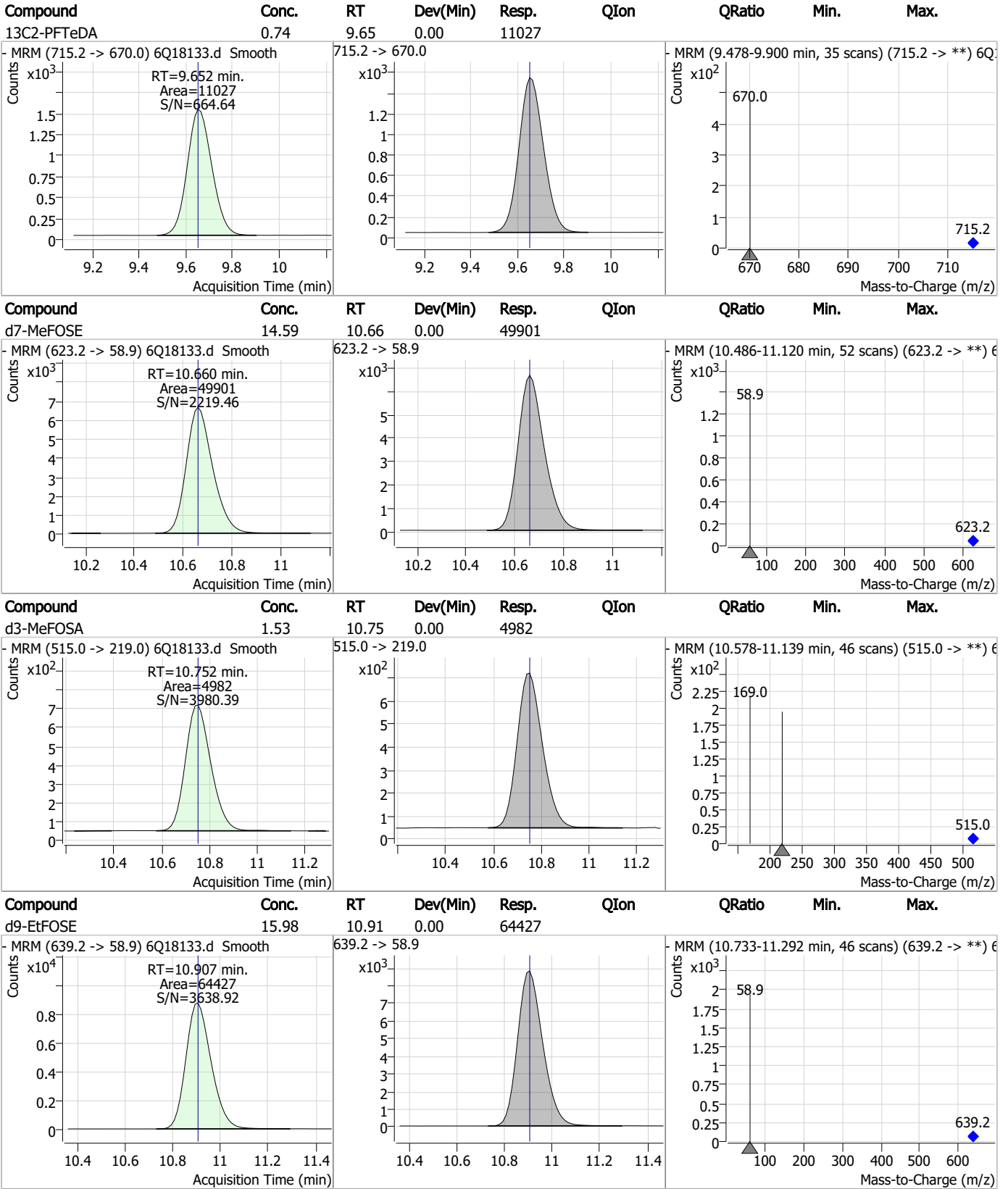
7.1.2

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Perfluorinated Compounds by LC/MS/MS



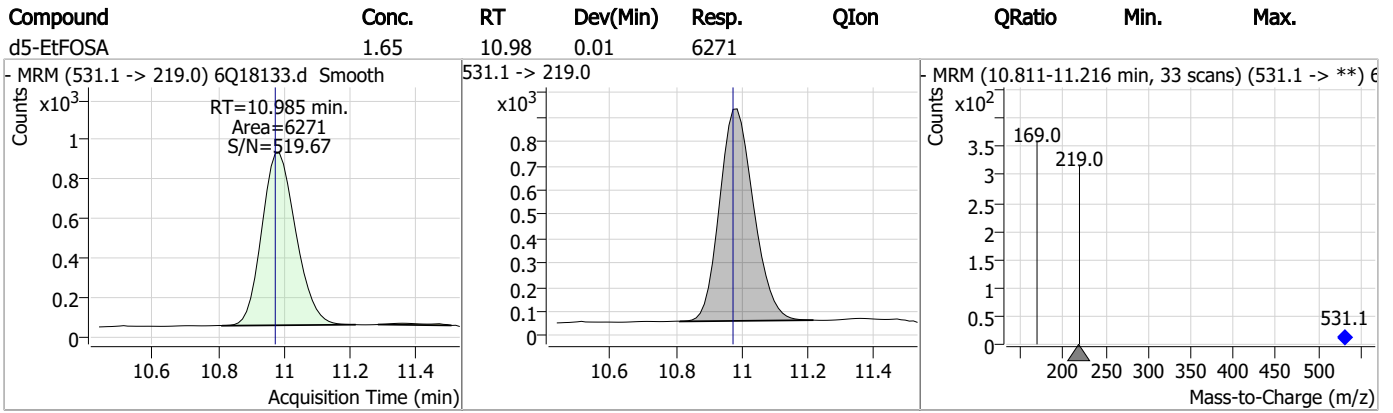
Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS



7.1.2
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18134.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 2:47:43 PM
 Sample Name : FC6097-3
 Vial : P5-A3
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	72722	10.00 µg/L	-0.012
M5-PFPeA	4.235	268.3 -> 223.0	45365	5.00 µg/L	-0.012
M5-PFHxA	5.429	318.0 -> 273.0	52458	2.50 µg/L	-0.012
M4-PFHpA	6.395	367.1 -> 322.0	45809	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	68022	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	24506	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	17031	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	21410	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	18172	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	11044	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	17973	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	17217	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	10341	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	8543	2.50 µg/L	0.000
M2-4:2FTS	5.106	329.1 -> 80.9	2465	5.00 µg/L	-0.012
M2-6:2FTS	6.813	429.1 -> 80.9	3371	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	3664	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	23905	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	31319	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	19961	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	48123	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	61617	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	6410	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	5481	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	12906	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	67341	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8618	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	81131	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	23003	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	29816	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	46676	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.106	329.1 -> 80.9	2465	5.33 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-6:2FTS	6.813	429.1 -> 80.9	3371	5.70 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.0%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3664	5.74 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.8%		
13C2-PFDoDA	8.925	615.1 -> 570.0	18172	0.91 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.9%		
13C2-PFTeDA	9.652	715.2 -> 670.0	11044	0.82 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 65.3%		
13C3-PFBS	5.359	302.1 -> 79.9	17217	2.26 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.3%		
13C3-PFHxS	7.155	402.1 -> 79.9	10341	2.24 µg/L	0.000

7.1.3
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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 = 89.7%	
13C4-PFBA	2.876	216.8 -> 171.9	72722	4.53 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 45.3%	
13C4-PFHpA	6.395	367.1 -> 322.0	45809	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C5-PFHxA	5.429	318.0 -> 273.0	52458	2.32 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C5-PFPeA	4.235	268.3 -> 223.0	45365	4.72 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C6-PFDA	8.051	519.1 -> 474.1	17031	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.0%	
13C7-PFUnDA	8.492	570.0 -> 525.1	21410	1.07 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 85.3%	
13C8-FOSA	9.611	506.1 -> 77.8	17973	2.05 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C8-PFOA	7.038	421.1 -> 376.0	68022	2.26 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.2%	
13C8-PFOS	8.202	507.1 -> 79.9	8543	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.8%	
13C9-PFNA	7.569	472.1 -> 427.0	24506	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.5%	
d3-MeFOSAA	8.108	573.2 -> 419.0	23905	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	31319	9.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
d3-MeFOSA	10.739	515.0 -> 219.0	5481	1.74 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 69.7%	
d5-EtFOSAA	8.304	589.2 -> 419.0	19961	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d7-MeFOSE	10.660	623.2 -> 58.9	48123	14.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 58.4%	
d9-EtFOSE	10.907	639.2 -> 58.9	61617	15.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.4%	
d5-EtFOSA	10.972	531.1 -> 219.0	6410	1.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.0%	

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	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	5.444	449.0 -> 98.9	2153	0.11 µg/L	99
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	105	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	4.237	498.9 -> 98.8	4587	0.34 µg/L	100
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	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

7.1.3

7

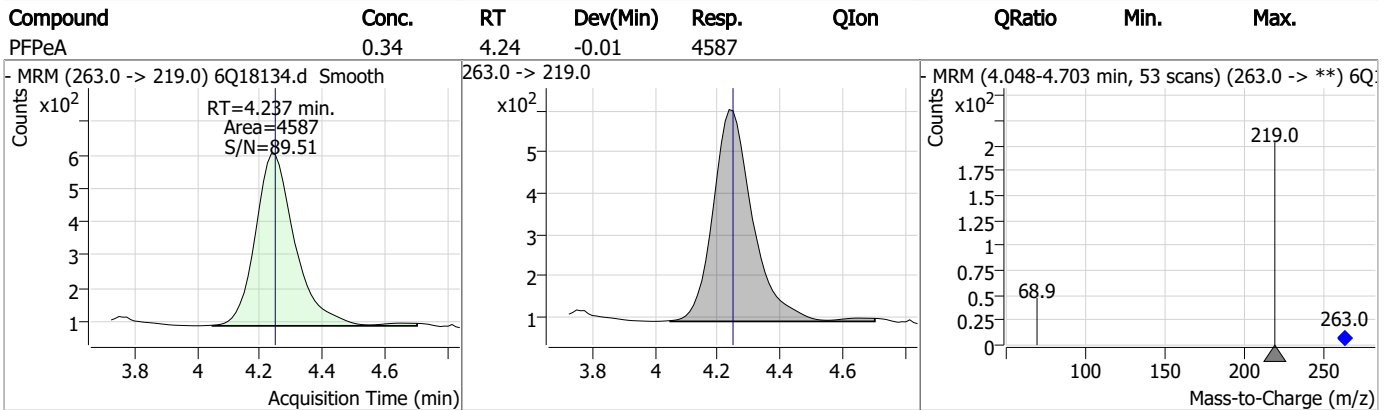
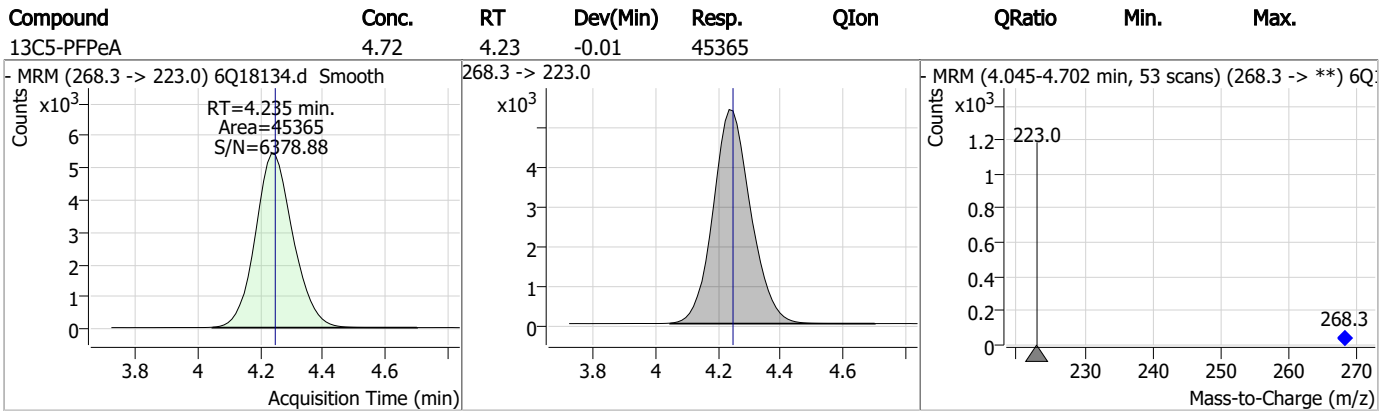
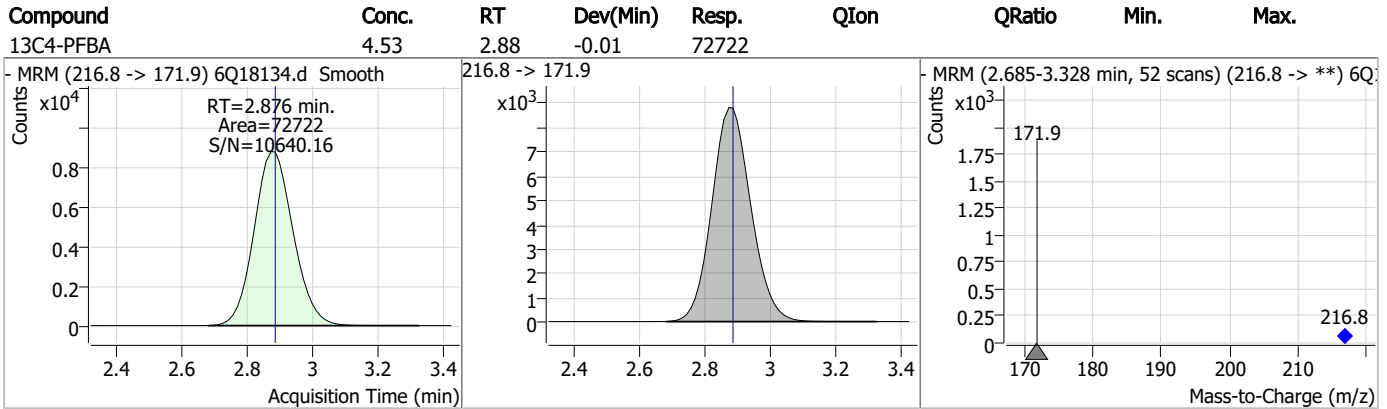
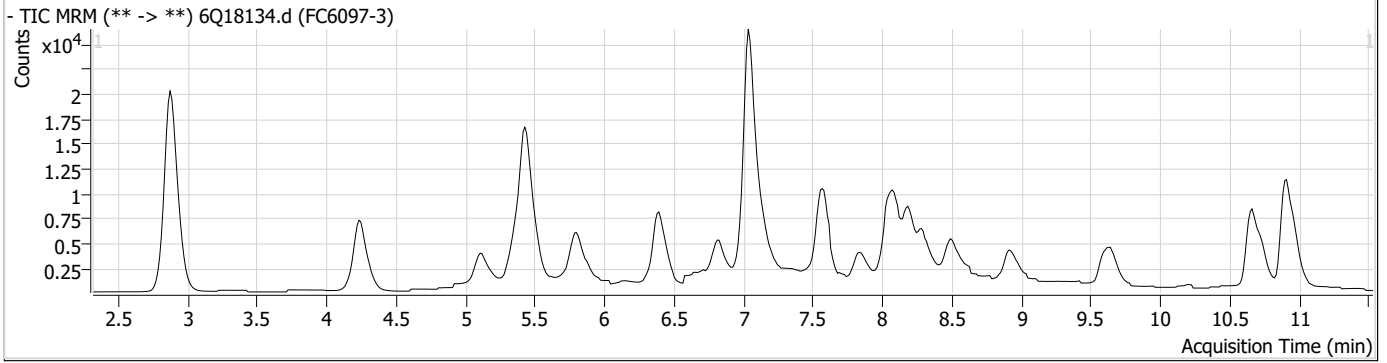
Perfluorinated Compounds by LC/MS/MS

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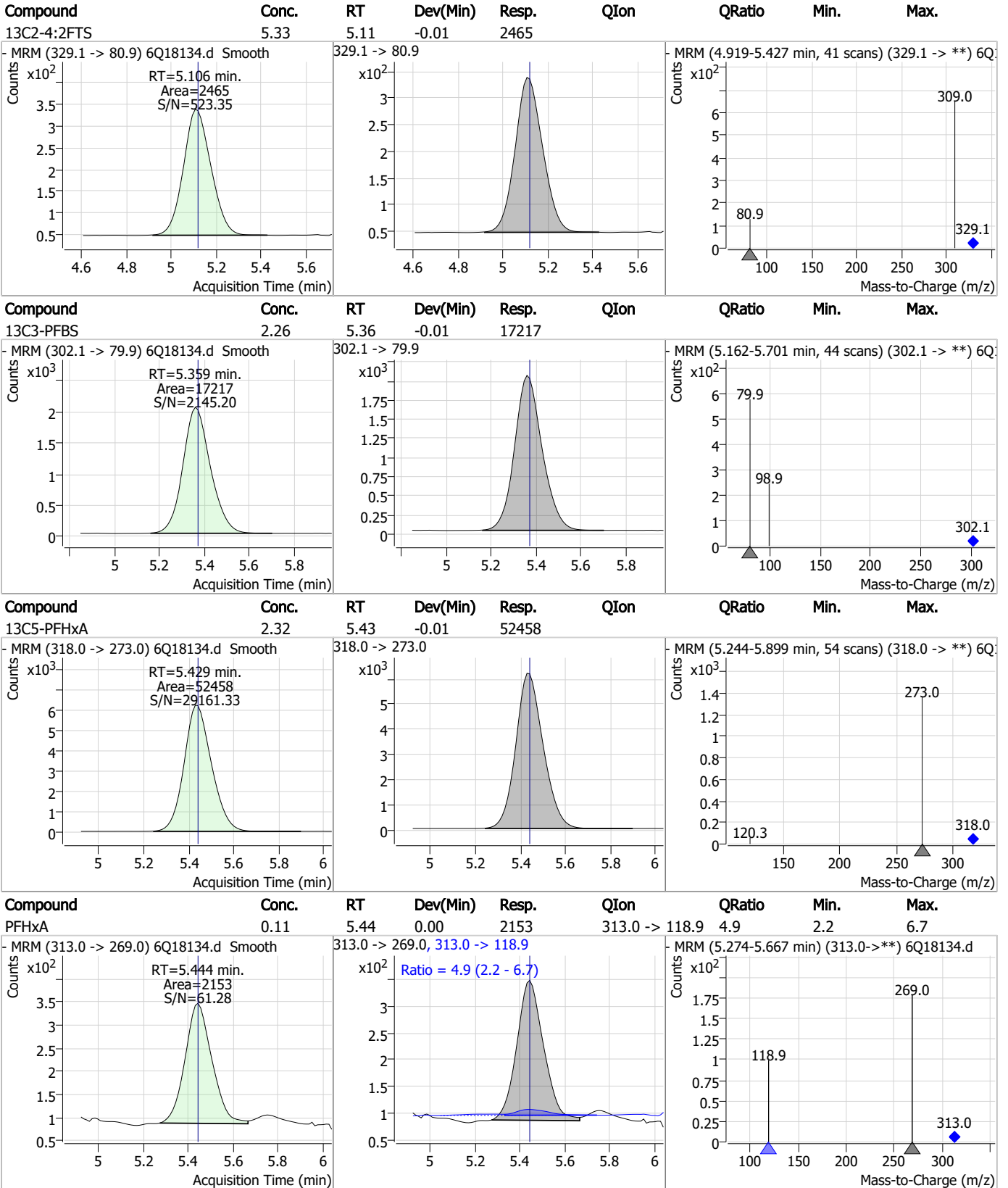
7.1.3

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Perfluorinated Compounds by LC/MS/MS



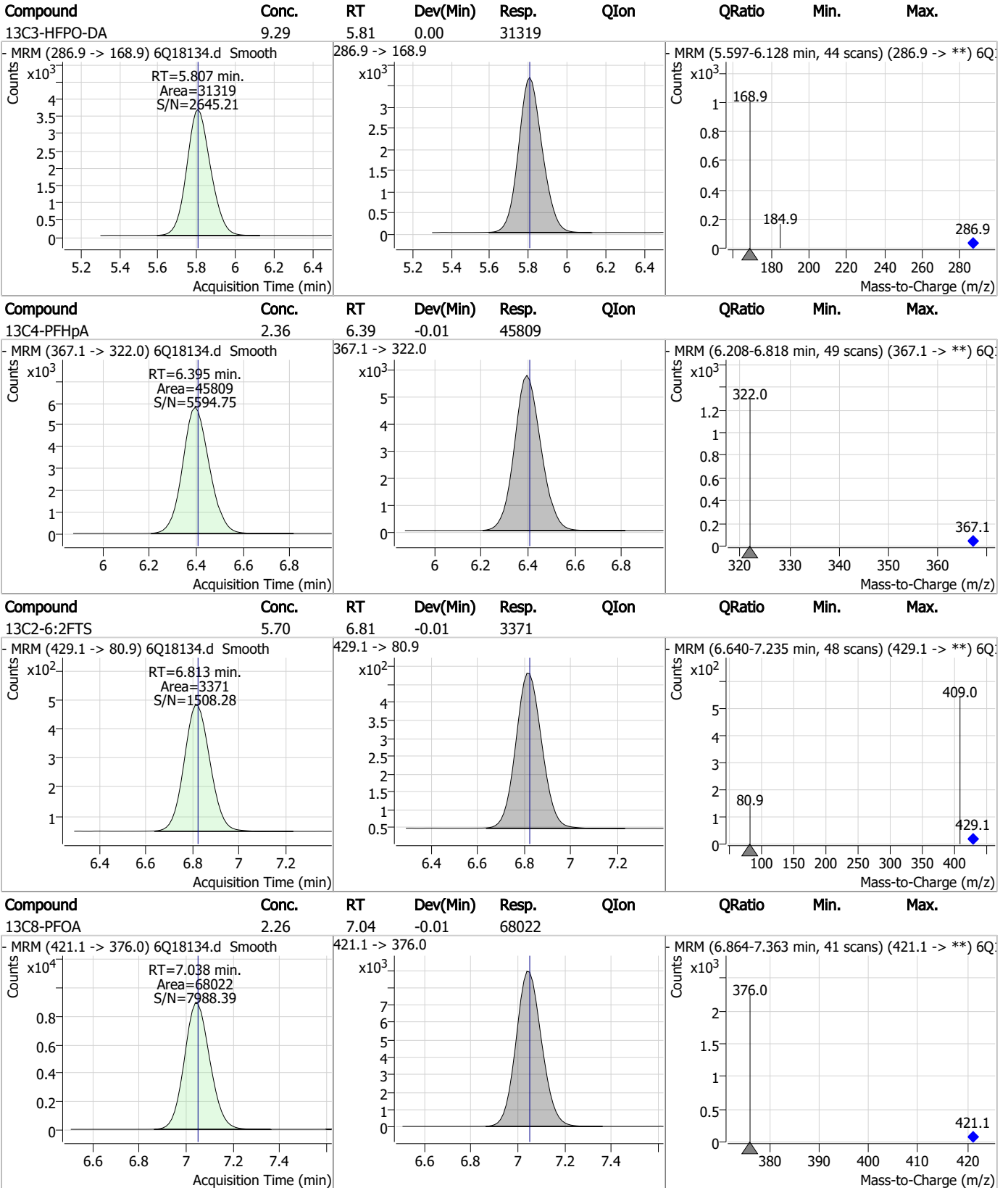
Perfluorinated Compounds by LC/MS/MS



7.1.3

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Perfluorinated Compounds by LC/MS/MS

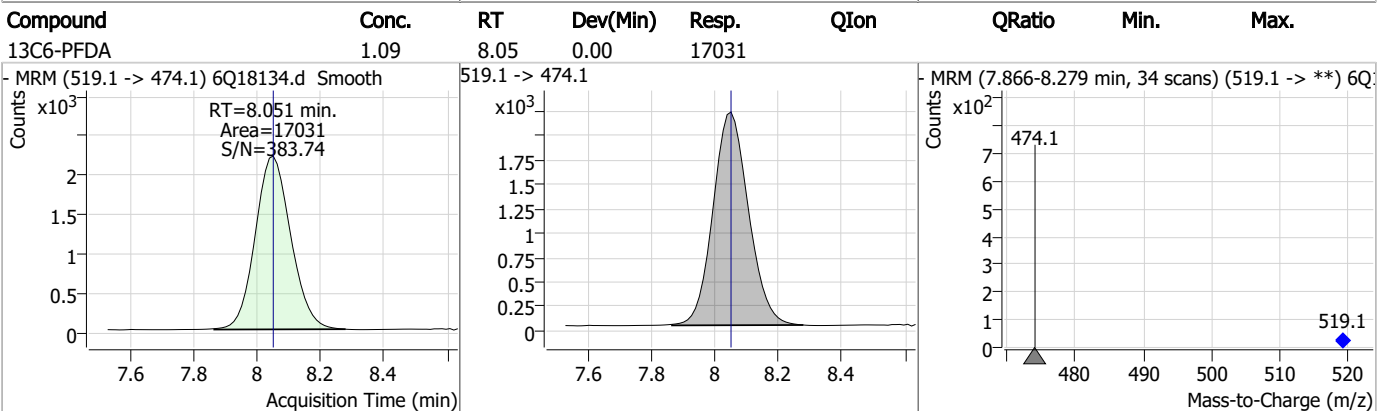
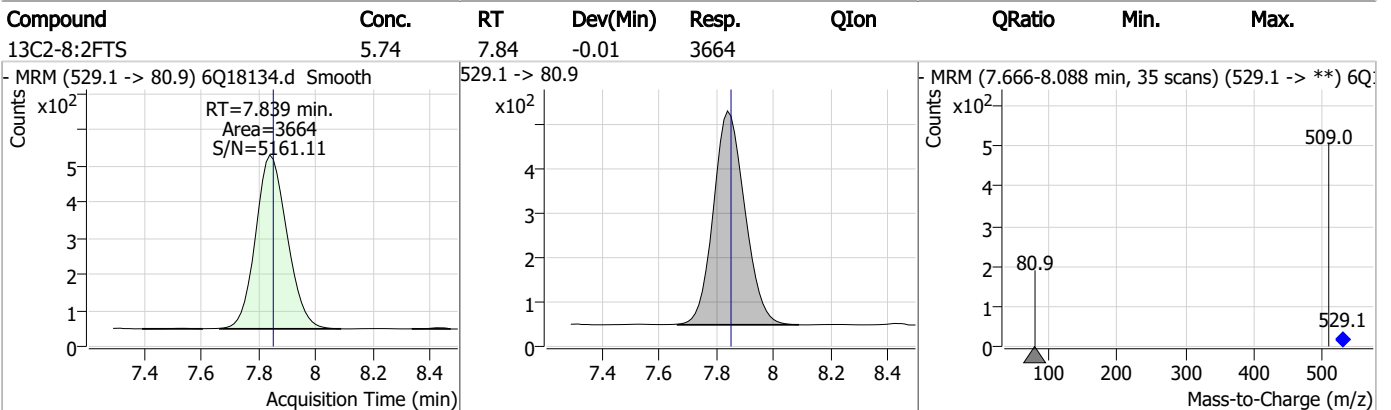
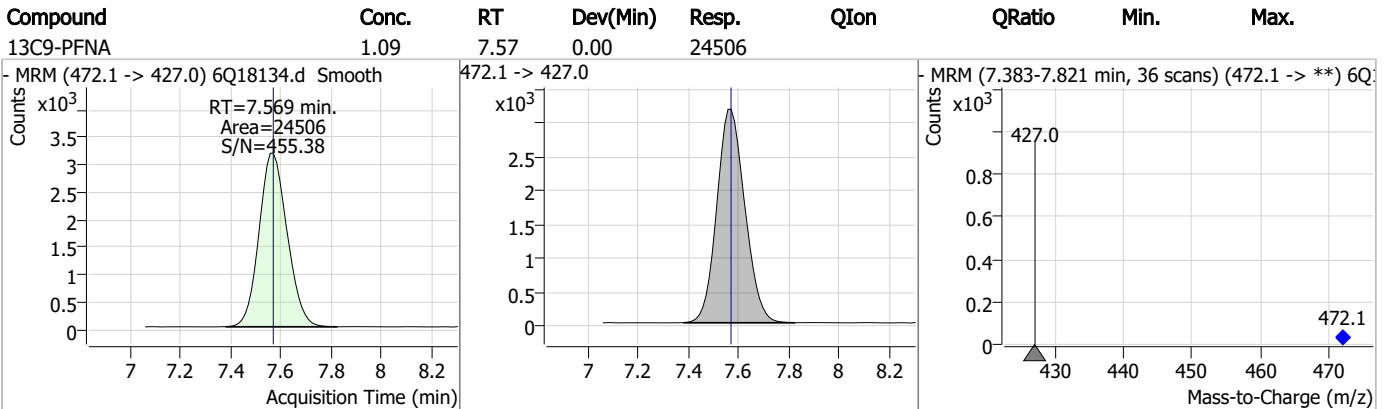
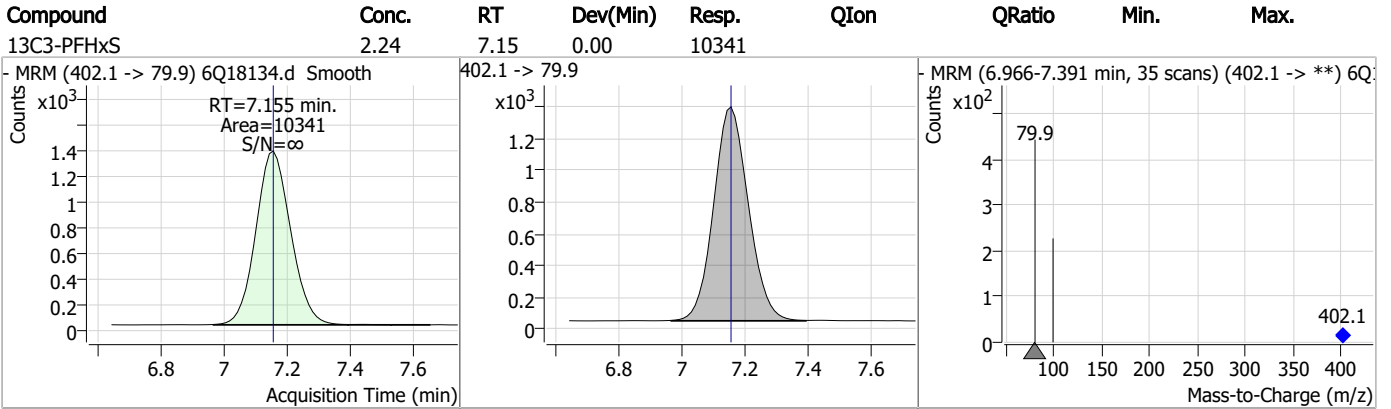


7.1.3

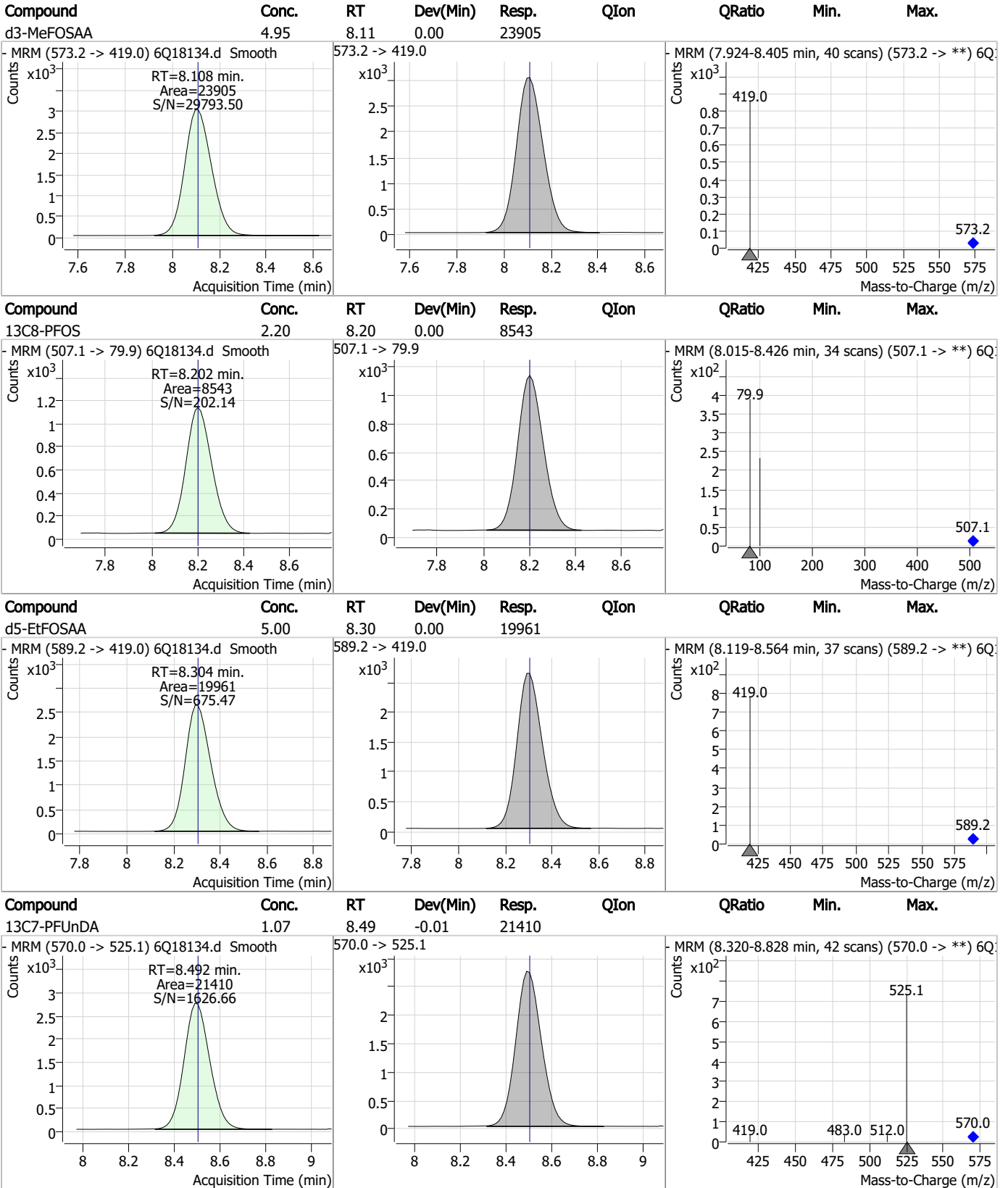
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Perfluorinated Compounds by LC/MS/MS



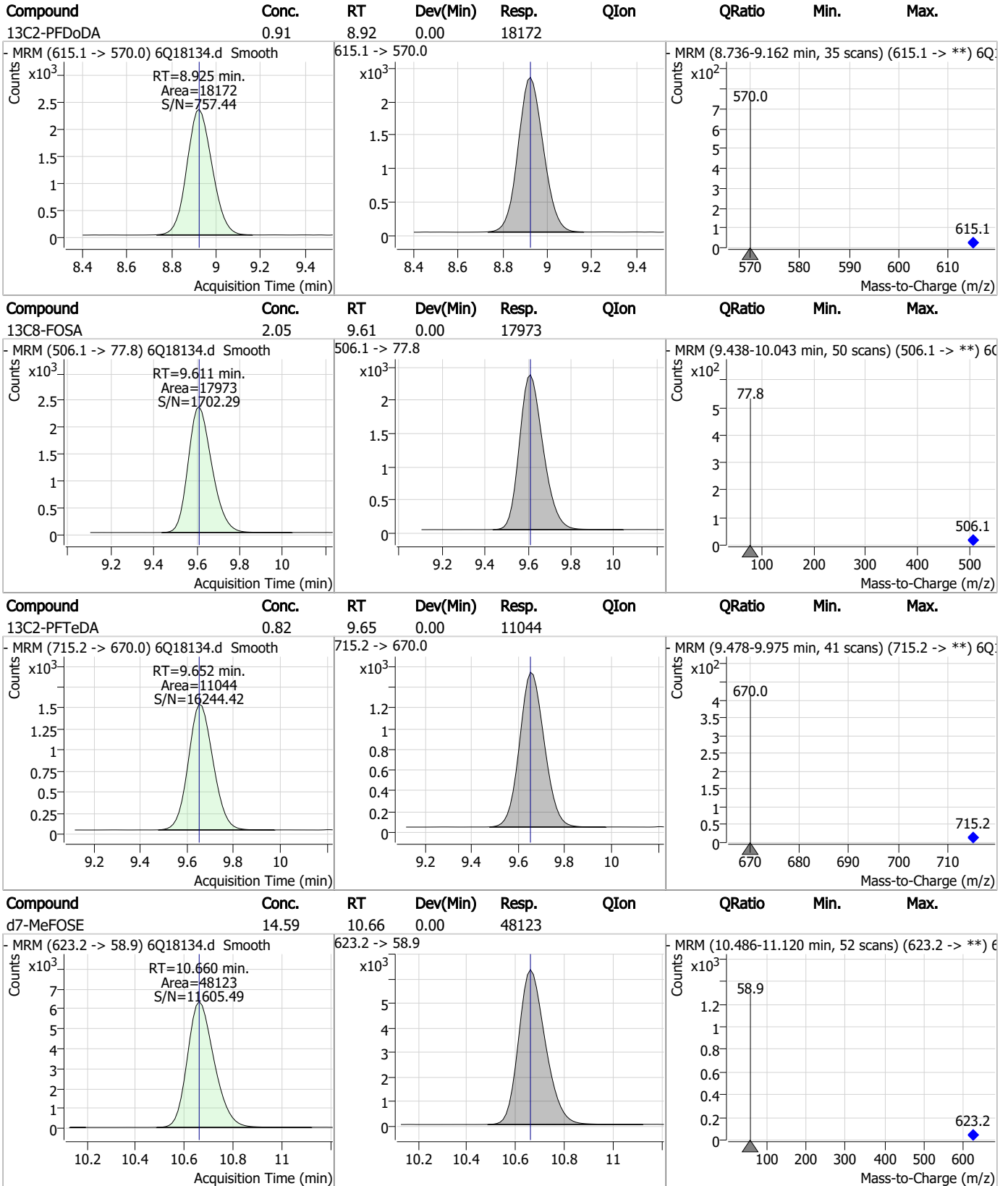
Perfluorinated Compounds by LC/MS/MS



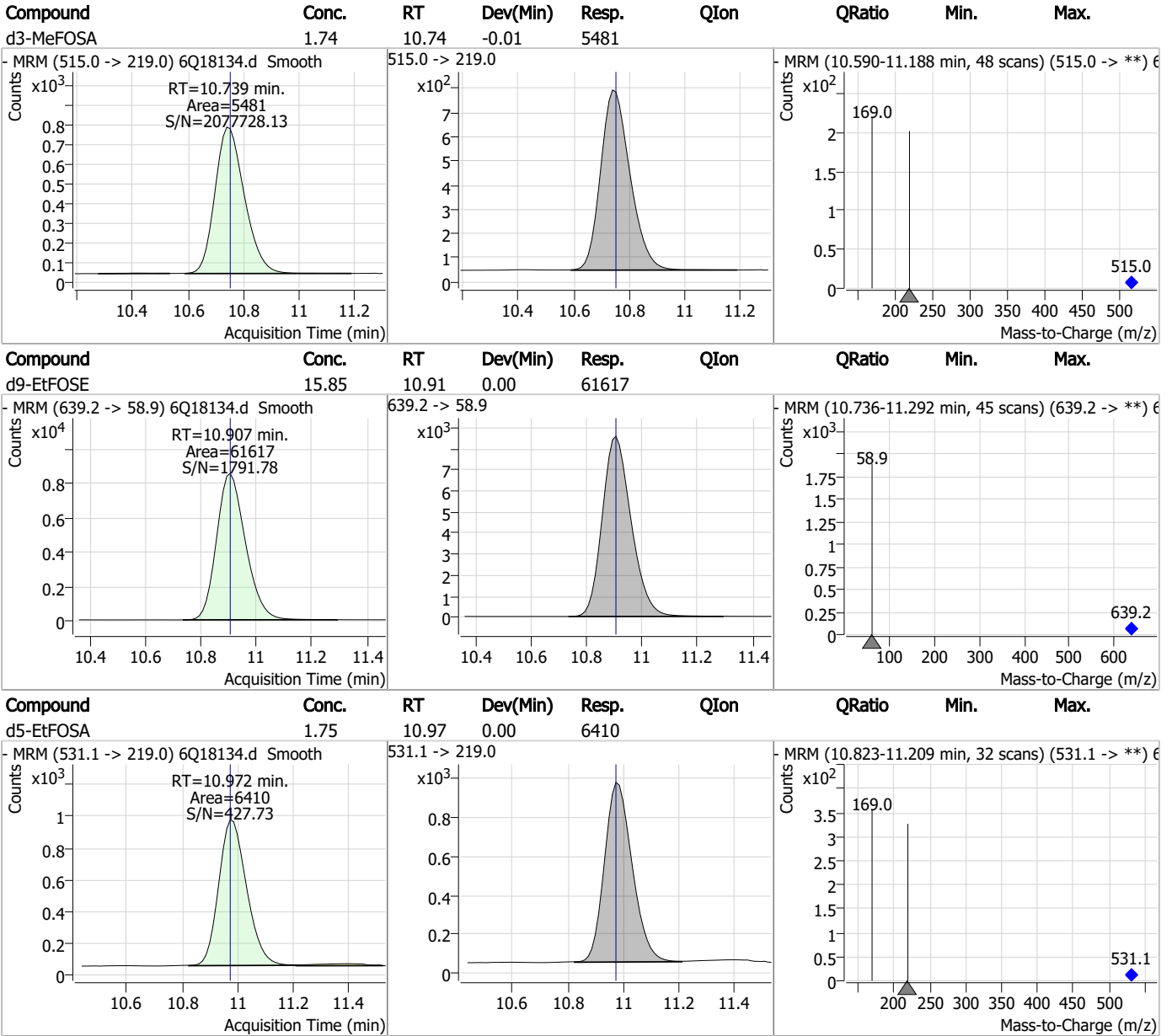
7.1.3

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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

Data File : 6Q18135.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 3:02:12 PM
 Sample Name : FC6097-4
 Vial : P5-A4
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	83622	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	45932	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	53687	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	46863	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	69027	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	23378	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	18008	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	22079	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	19966	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	11432	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	16738	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	17612	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	10297	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	8914	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2908	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	3676	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3629	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	25395	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	31539	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	21189	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	51633	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	69338	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	6725	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	5626	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	12279	2.50 µg/L	-0.012
13C3-PFBA	2.891	216.0 -> 172.0	61541	5.00 µg/L	0.012
18O2-PFHxS	7.154	403.0 -> 83.9	8210	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	74128	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	22458	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	25669	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	44604	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2908	6.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 132.0%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3676	6.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.4%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3629	5.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.3%		
13C2-PFDoDA	8.925	615.1 -> 570.0	19966	1.03 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.0%		
13C2-PFTeDA	9.652	715.2 -> 670.0	11432	0.87 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.2%		
13C3-PFBS	5.359	302.1 -> 79.9	17612	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.155	402.1 -> 79.9	10297	2.34 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 13C4-PFBA	Range: 50.0 - 150.0% 2.888	216.8 -> 171.9	83622	Recovery = 93.8% 5.70 µg/L	0.000
Spiked Amount: 10.00 13C4-PFHpA	Range: 50.0 - 150.0% 6.395	367.1 -> 322.0	46863	Recovery = 57.0% 2.53 µg/L	-0.012
Spiked Amount: 2.50 13C5-PFHxA	Range: 50.0 - 150.0% 5.441	318.0 -> 273.0	53687	Recovery = 101.3% 2.48 µg/L	0.000
Spiked Amount: 2.50 13C5-PFPeA	Range: 50.0 - 150.0% 4.247	268.3 -> 223.0	45932	Recovery = 99.3% 5.00 µg/L	0.000
Spiked Amount: 5.00 13C6-PFDA	Range: 50.0 - 150.0% 8.051	519.1 -> 474.1	18008	Recovery = 100.1% 1.18 µg/L	0.000
Spiked Amount: 1.25 13C7-PFUnDA	Range: 50.0 - 150.0% 8.492	570.0 -> 525.1	22079	Recovery = 94.2% 1.13 µg/L	-0.013
Spiked Amount: 1.25 13C8-FOSA	Range: 50.0 - 150.0% 9.611	506.1 -> 77.8	16738	Recovery = 90.1% 2.01 µg/L	0.000
Spiked Amount: 2.50 13C8-PFOA	Range: 50.0 - 150.0% 7.051	421.1 -> 376.0	69027	Recovery = 80.5% 2.50 µg/L	0.000
Spiked Amount: 2.50 13C8-PFOS	Range: 50.0 - 150.0% 8.202	507.1 -> 79.9	8914	Recovery = 100.2% 2.41 µg/L	0.000
Spiked Amount: 2.50 13C9-PFNA	Range: 50.0 - 150.0% 7.569	472.1 -> 427.0	23378	Recovery = 96.3% 1.21 µg/L	0.000
Spiked Amount: 1.25 d3-MeFOSAA	Range: 50.0 - 150.0% 8.108	573.2 -> 419.0	25395	Recovery = 97.0% 5.52 µg/L	0.000
Spiked Amount: 5.00 13C3-HFPO-DA	Range: 50.0 - 150.0% 5.807	286.9 -> 168.9	31539	Recovery = 110.4% 9.79 µg/L	0.000
Spiked Amount: 10.00 d3-MeFOSA	Range: 50.0 - 150.0% 10.739	515.0 -> 219.0	5626	Recovery = 97.9% 1.88 µg/L	-0.012
Spiked Amount: 2.50 d5-EtFOSAA	Range: 50.0 - 150.0% 8.304	589.2 -> 419.0	21189	Recovery = 75.2% 5.58 µg/L	0.000
Spiked Amount: 5.00 d7-MeFOSE	Range: 50.0 - 150.0% 10.660	623.2 -> 58.9	51633	Recovery = 111.6% 16.46 µg/L	0.000
Spiked Amount: 25.00 d9-EtFOSE	Range: 50.0 - 150.0% 10.907	639.2 -> 58.9	69338	Recovery = 65.8% 18.74 µg/L	0.000
Spiked Amount: 25.00 d5-EtFOSA	Range: 50.0 - 150.0% 10.972	531.1 -> 219.0	6725	Recovery = 75.0% 1.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.2%	

Target Compounds

Compound	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	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	-	599.0 -> 79.9	-	N.D.	

7.14
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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	5.432	449.0 -> 98.9	2278	0.11	µg/L	97
		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	7.290	548.8 -> 98.9	0		µg/L	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	4.249	498.9 -> 98.8	4609	0.34	µg/L	100
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	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

7.1.4
7



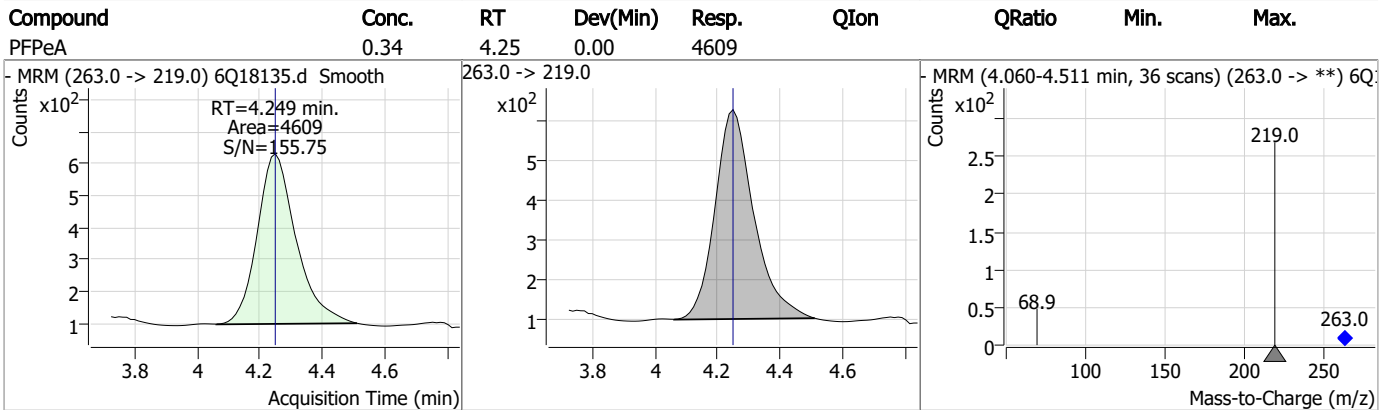
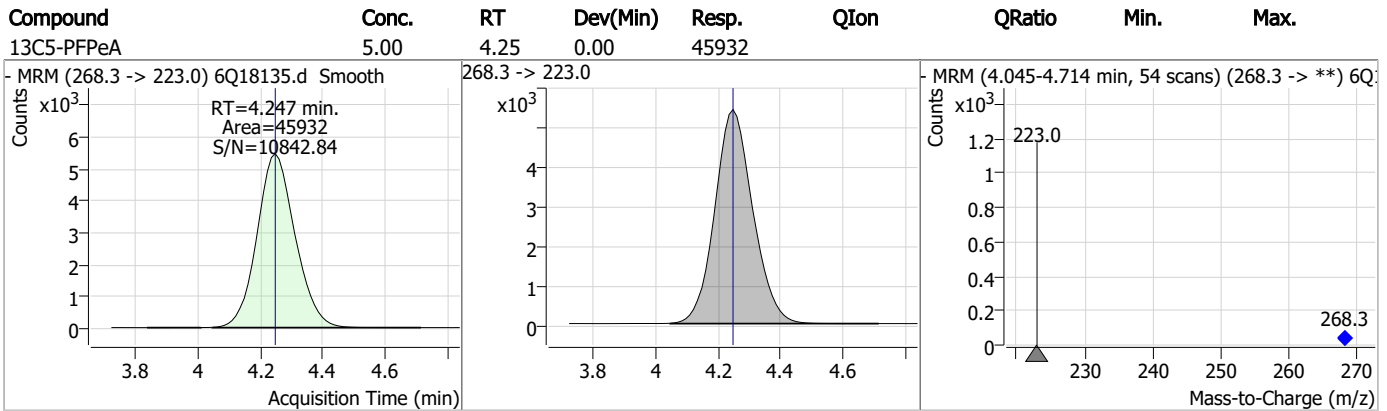
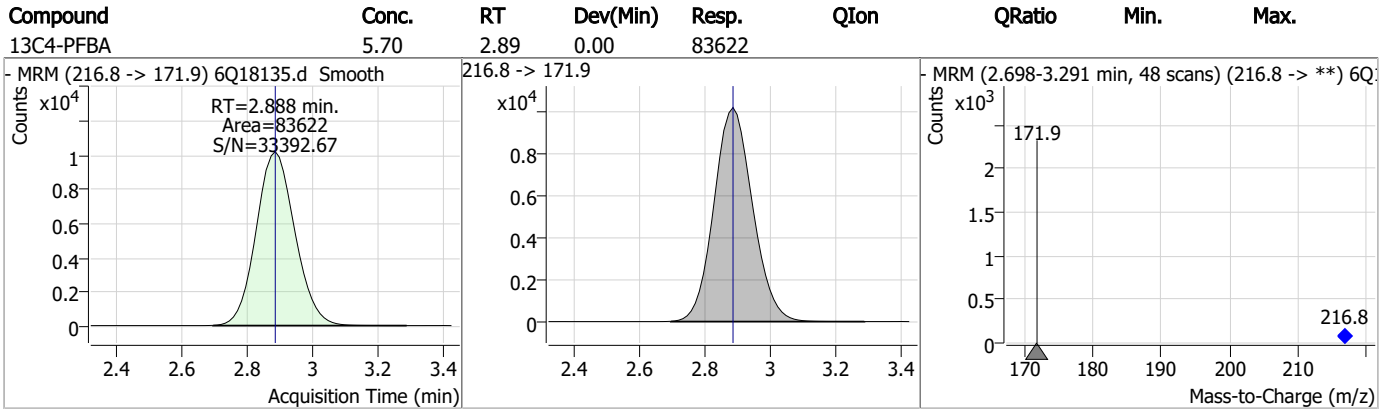
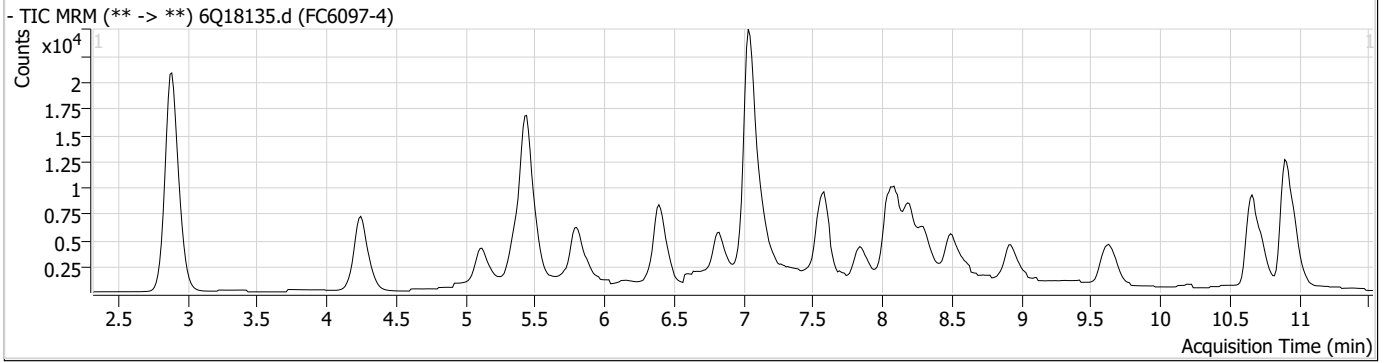
Perfluorinated Compounds by LC/MS/MS

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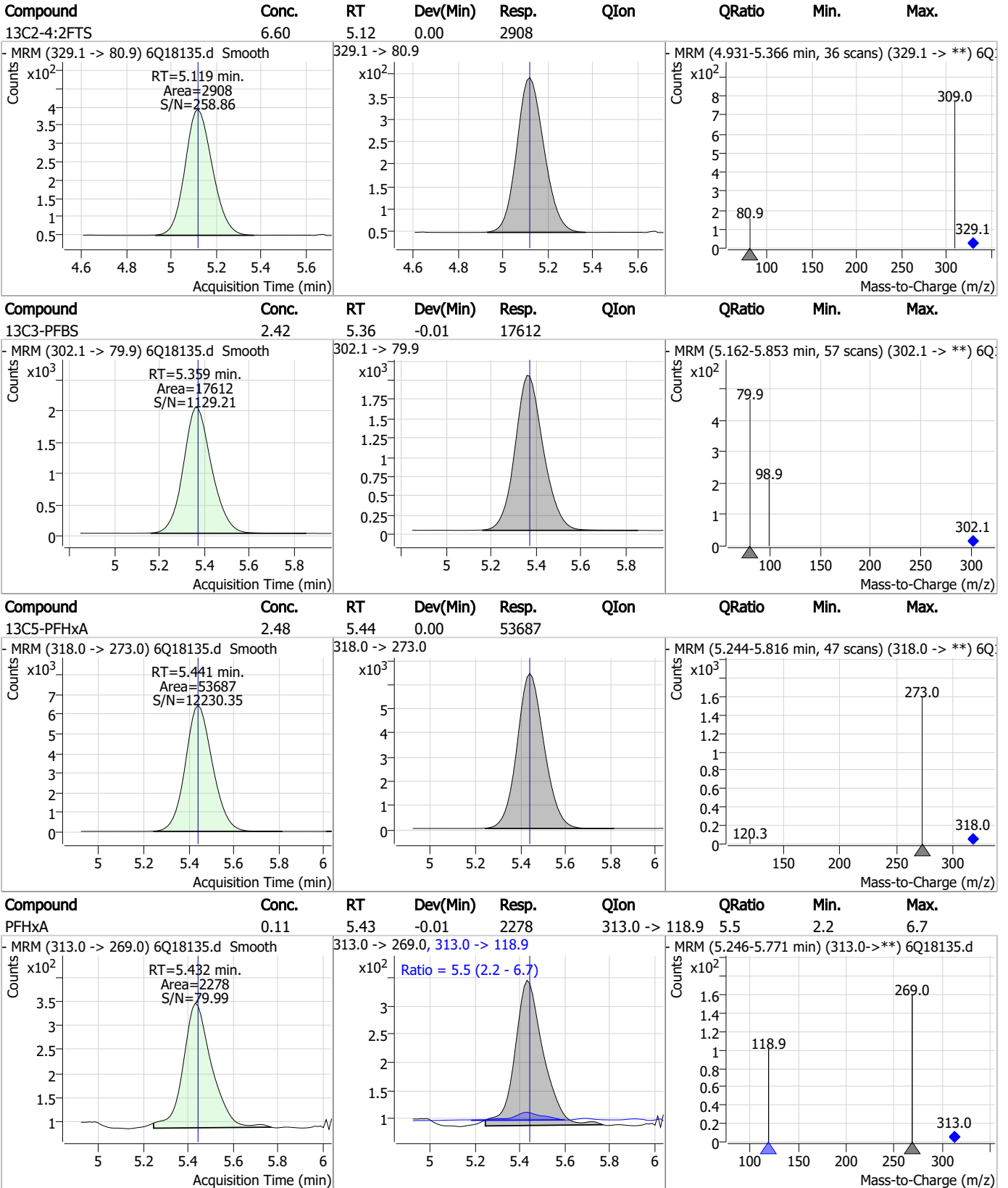
7.1.4

7

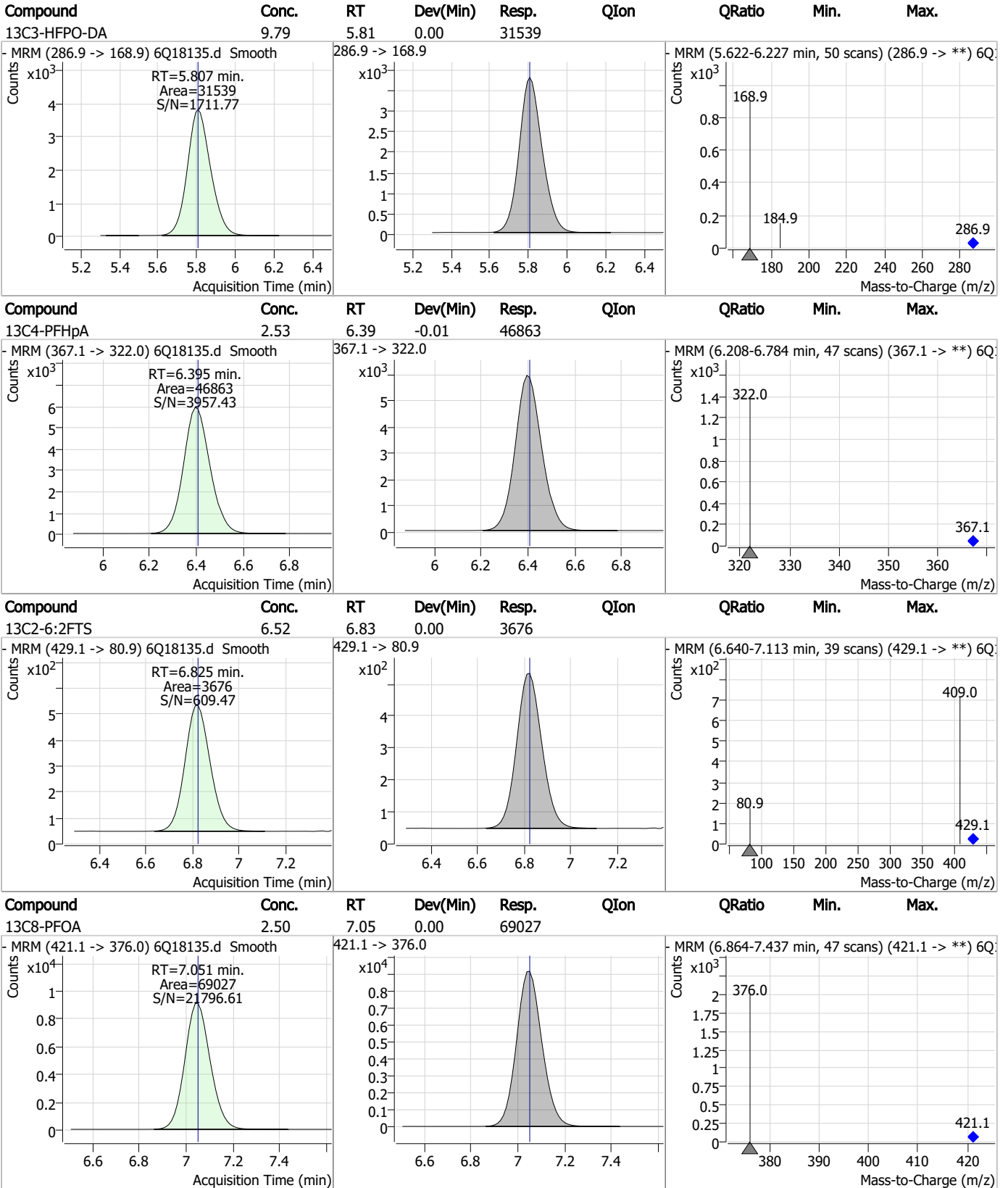
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

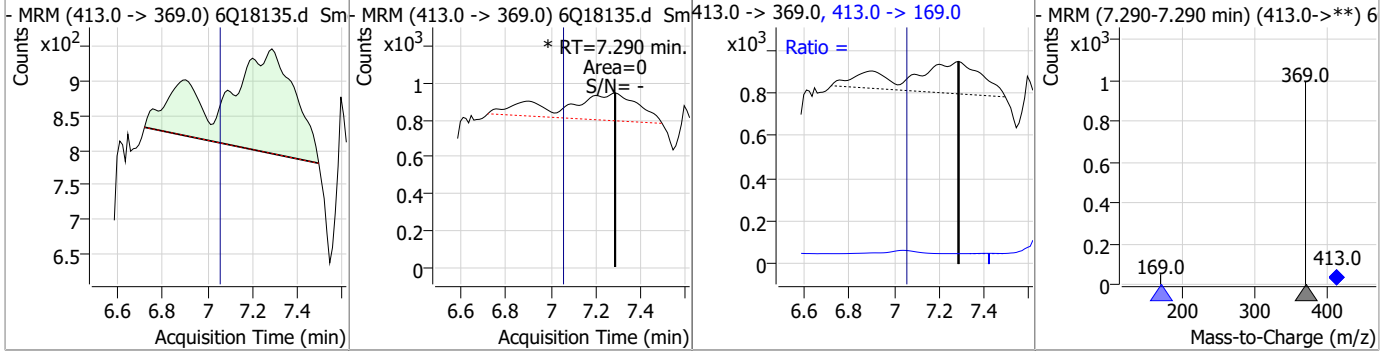


Perfluorinated Compounds by LC/MS/MS

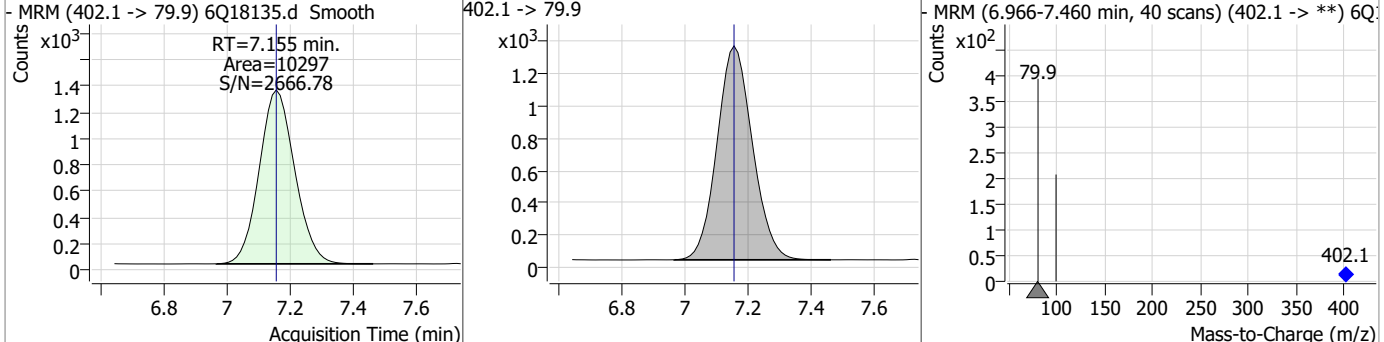


Perfluorinated Compounds by LC/MS/MS

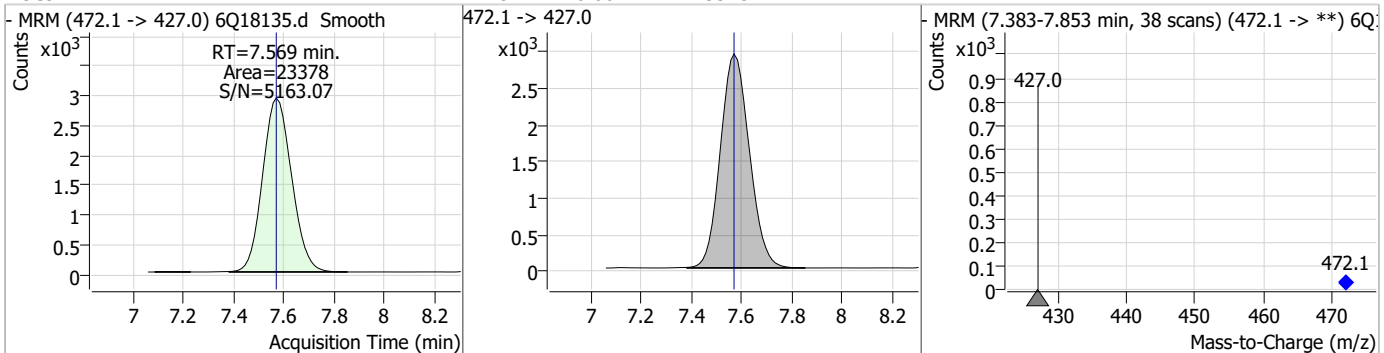
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0	0		0	413.0 -> 169.0		8.6	25.8



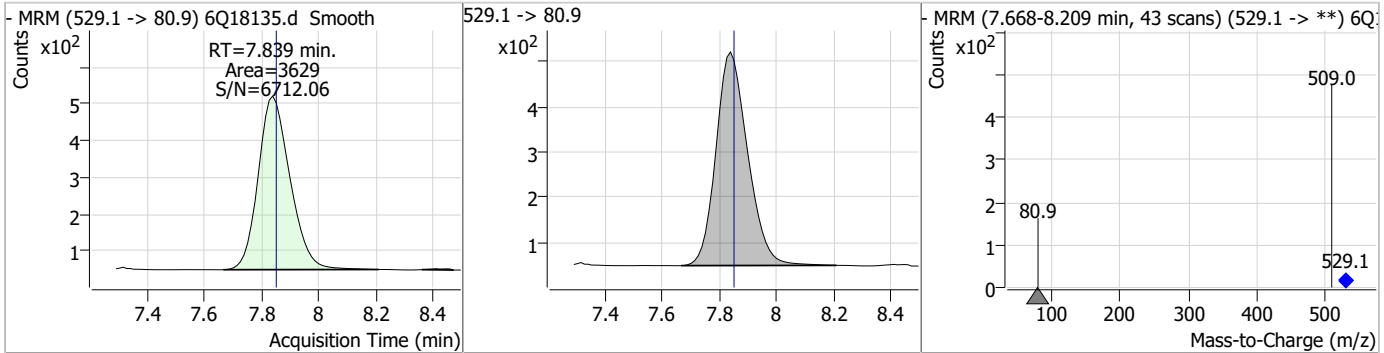
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.34	7.15	0.00	10297				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.21	7.57	0.00	23378				

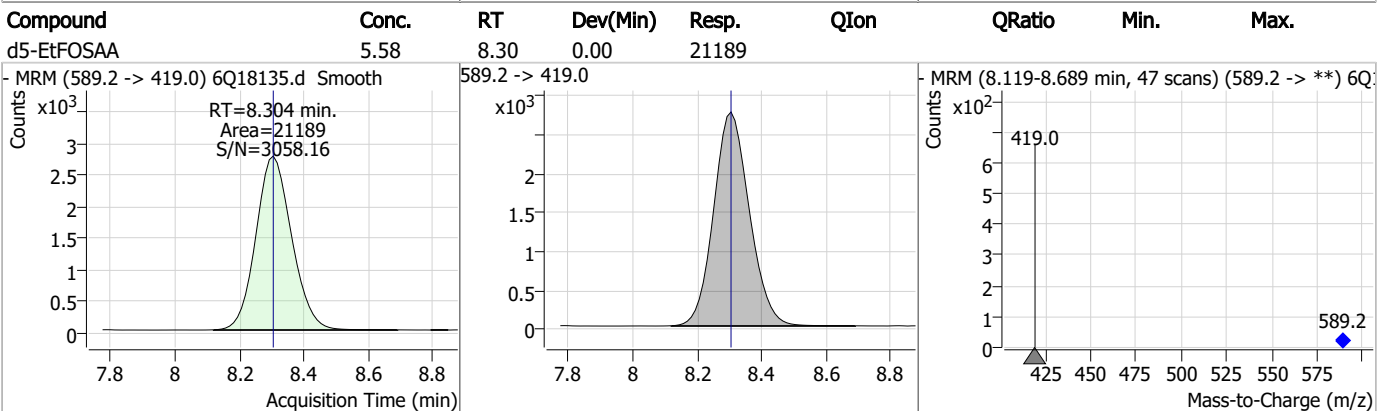
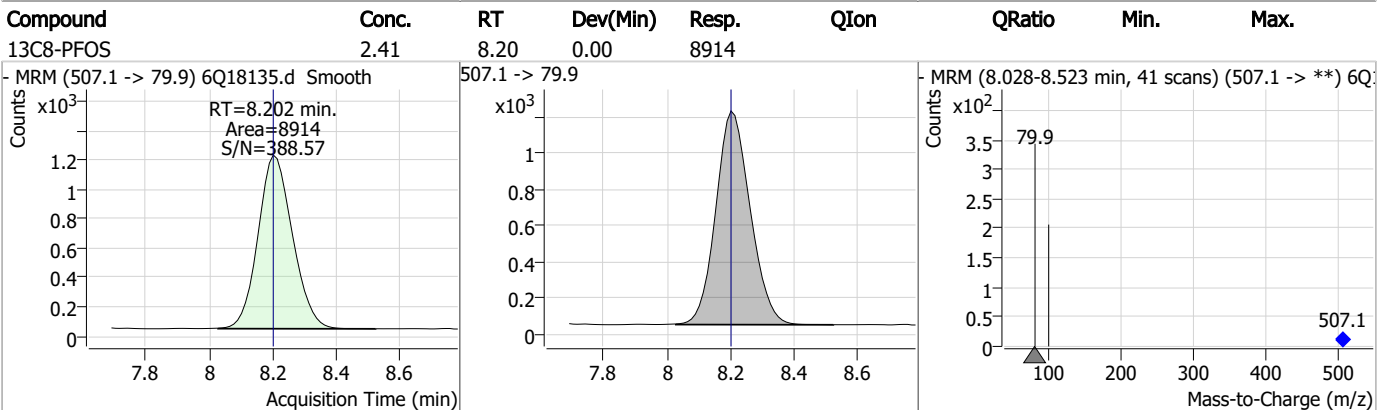
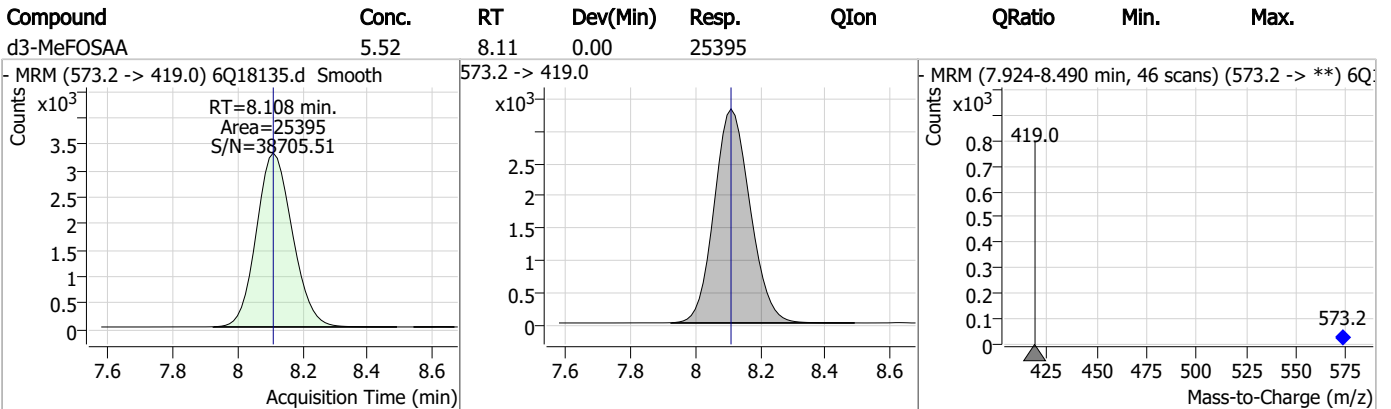
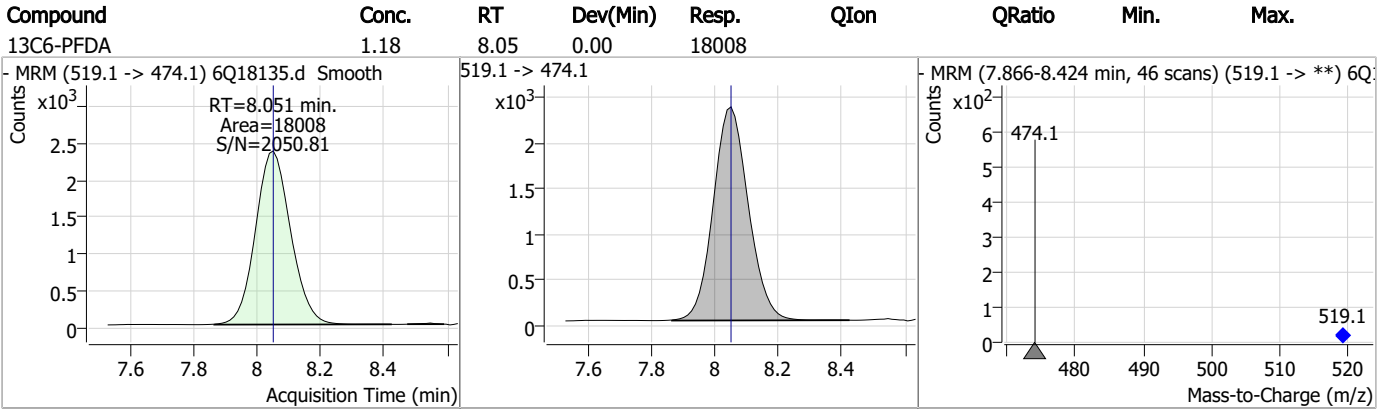


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.97	7.84	-0.01	3629				

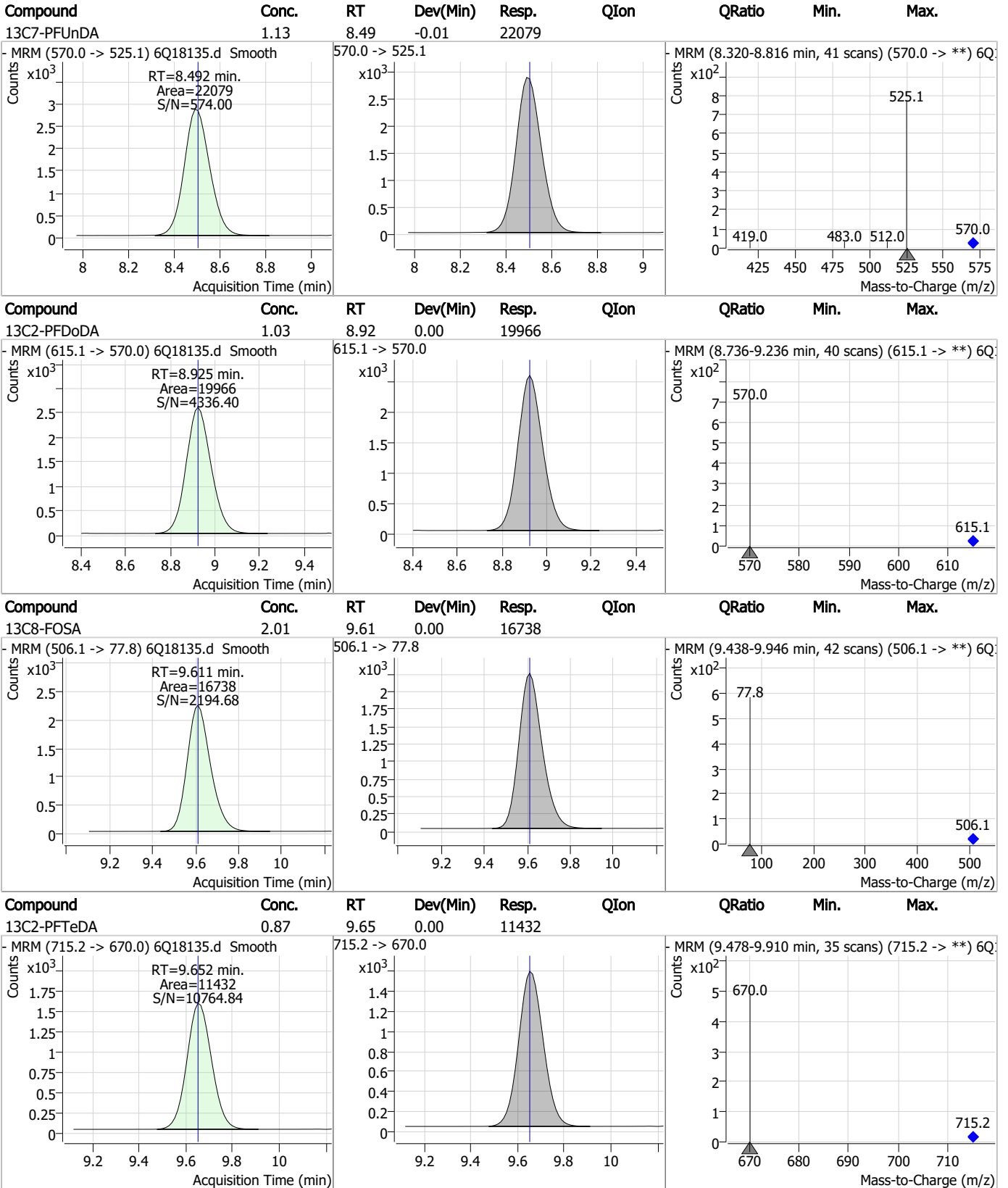


7.1.4
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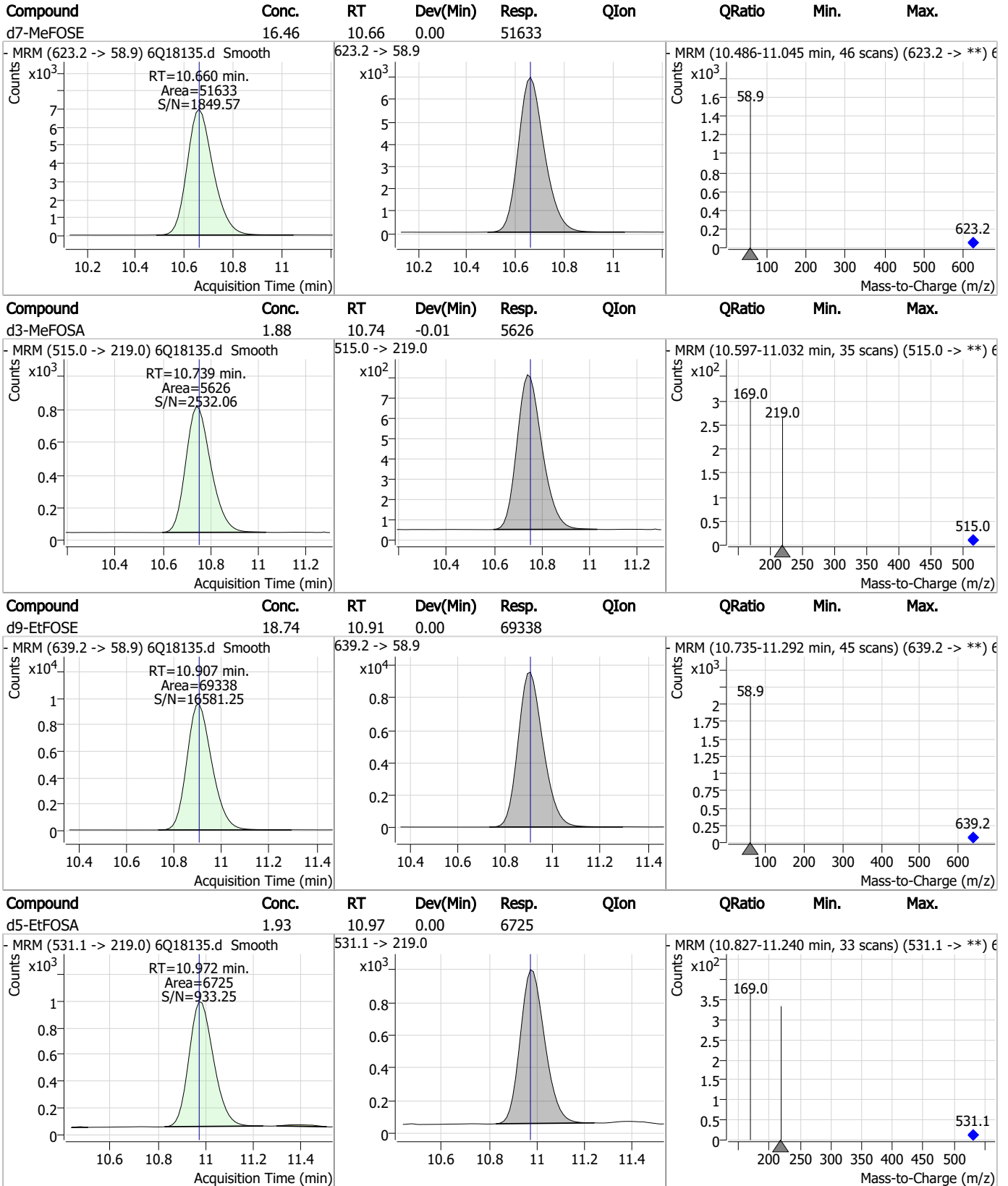
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18136.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 3:16:41 PM
 Sample Name : FC6097-5
 Vial : P5-A5
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	119302	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	47053	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	57357	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	48356	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	70201	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	25636	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	16534	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	19053	1.25 µg/L	0.000
M2-PFDoDA	8.925	615.1 -> 570.0	16514	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	10317	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	19457	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	19104	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11036	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9260	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2856	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	3617	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3528	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	21042	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	33294	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	17154	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	53513	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	69976	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	6397	2.50 µg/L	0.012
M3-MeFOSA	10.739	515.0 -> 219.0	5450	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	13276	2.50 µg/L	-0.012
13C3-PFBA	2.891	216.0 -> 172.0	61627	5.00 µg/L	0.012
18O2-PFHxS	7.154	403.0 -> 83.9	7859	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	75619	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	22193	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	27791	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	44635	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2856	6.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.4%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3617	6.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 134.0%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3528	6.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.2%		
13C2-PFDoDA	8.925	615.1 -> 570.0	16514	0.86 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.7%		
13C2-PFTeDA	9.652	715.2 -> 670.0	10317	0.79 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 63.2%		
13C3-PFBS	5.359	302.1 -> 79.9	19104	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C3-PFHxS	7.155	402.1 -> 79.9	11036	2.63 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 = 105.0%	
13C4-PFBA	2.888	216.8 -> 171.9	119302	8.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.1%	
13C4-PFHpA	6.395	367.1 -> 322.0	48356	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFHxA	5.441	318.0 -> 273.0	57357	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C5-PFPeA	4.247	268.3 -> 223.0	47053	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C6-PFDA	8.051	519.1 -> 474.1	16534	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.5%	
13C7-PFUnDA	8.506	570.0 -> 525.1	19053	0.98 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 78.6%	
13C8-FOSA	9.611	506.1 -> 77.8	19457	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C8-PFOA	7.051	421.1 -> 376.0	70201	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-PFOS	8.202	507.1 -> 79.9	9260	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C9-PFNA	7.569	472.1 -> 427.0	25636	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSAA	8.108	573.2 -> 419.0	21042	4.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 84.6%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	33294	10.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSA	10.739	515.0 -> 219.0	5450	1.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.4%	
d5-EtFOSAA	8.304	589.2 -> 419.0	17154	4.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 83.6%	
d7-MeFOSE	10.660	623.2 -> 58.9	53513	15.78 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.1%	
d9-EtFOSE	10.907	639.2 -> 58.9	69976	17.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 70.0%	
d5-EtFOSA	10.985	531.1 -> 219.0	6397	1.70 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.9%	

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.	



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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	7.315	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

7.1.5
7



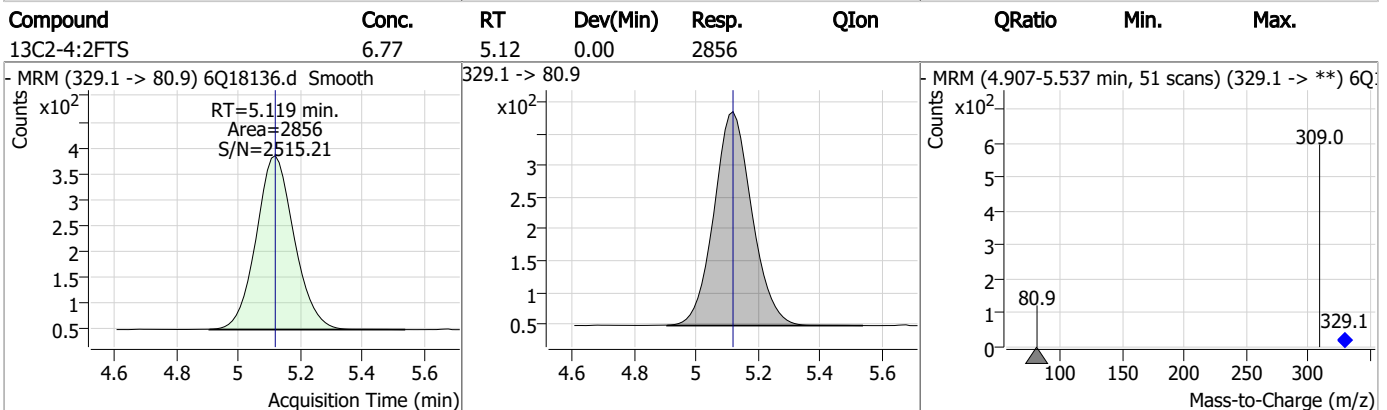
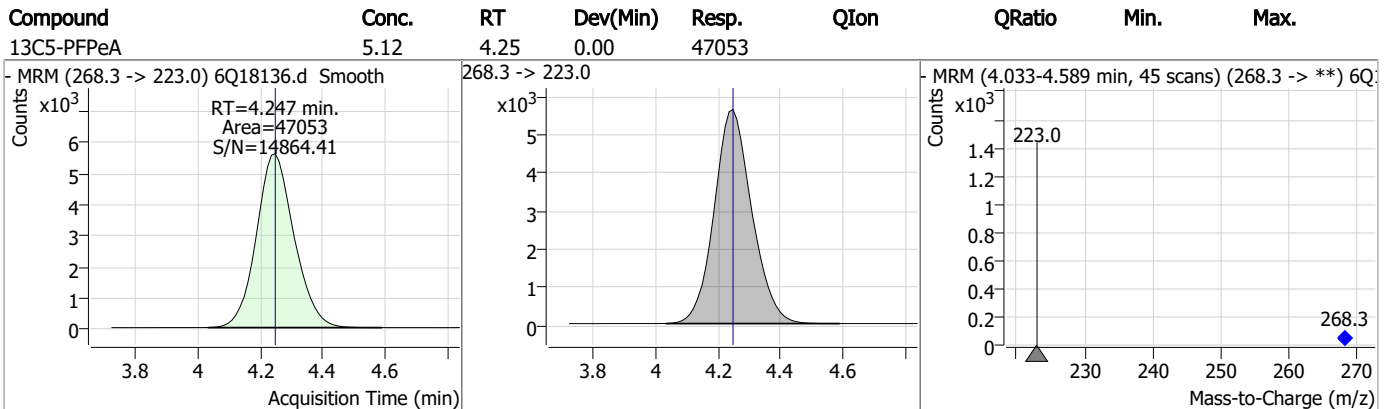
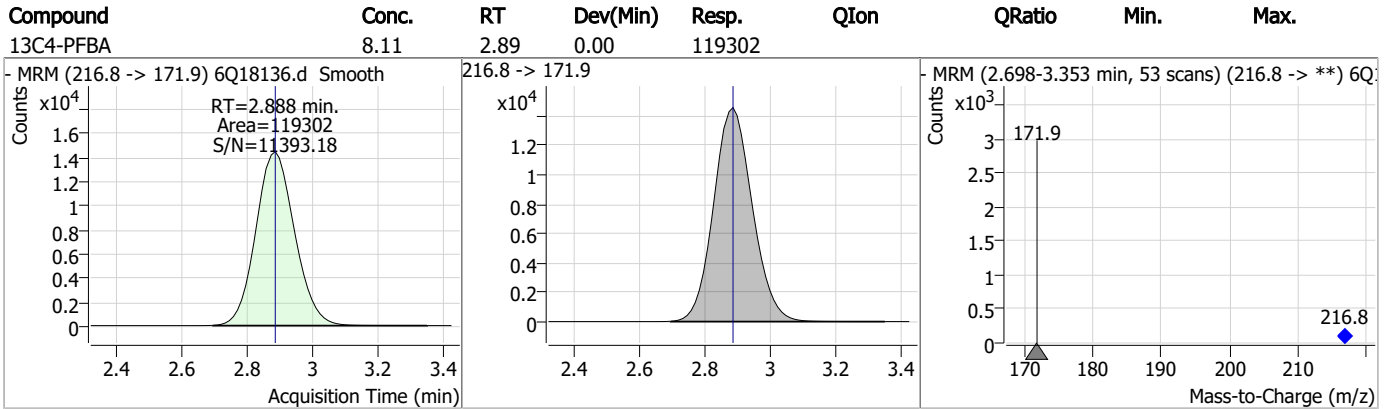
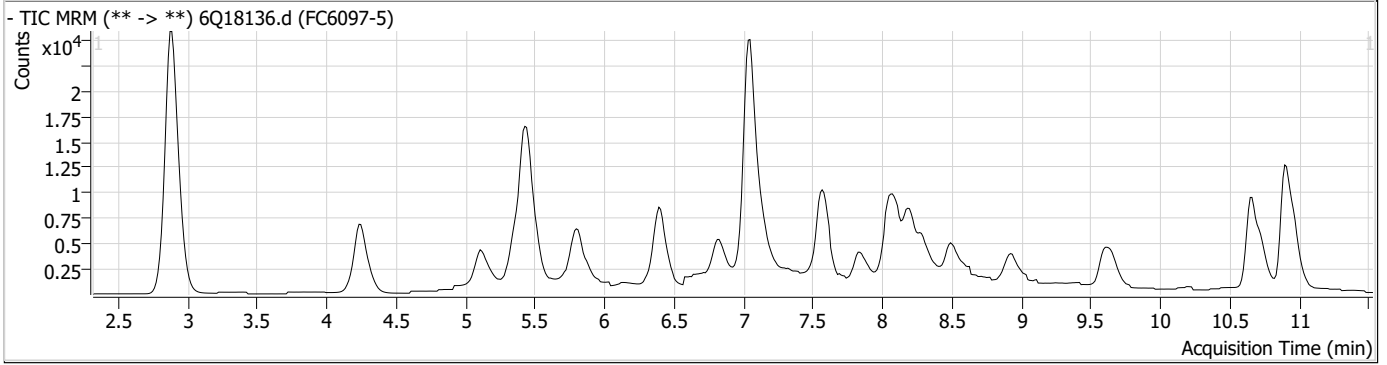
Perfluorinated Compounds by LC/MS/MS

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

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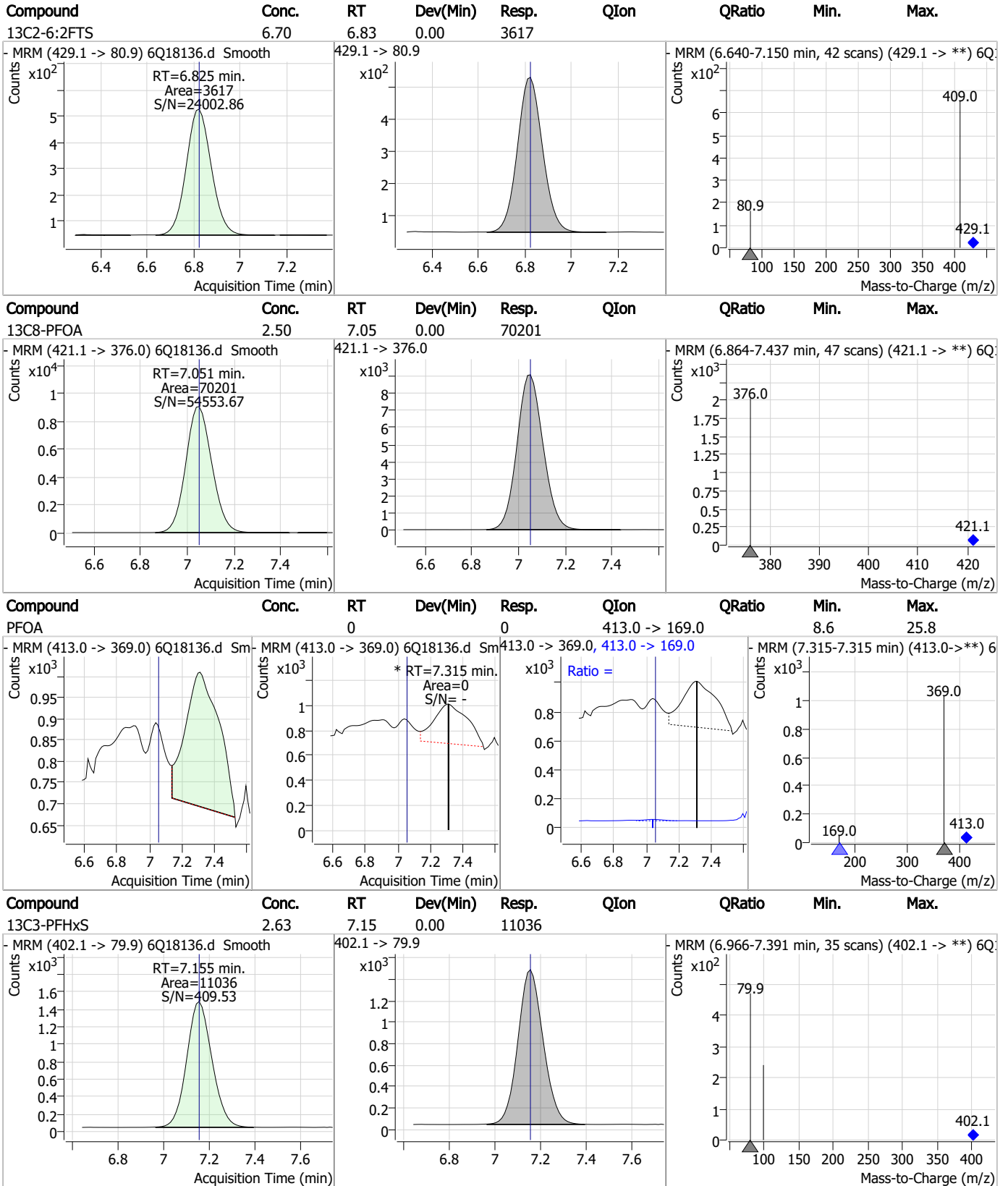
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.75	5.36	-0.01	19104				
13C5-PFHxA	2.65	5.44	0.00	57357				
13C3-HFPO-DA	10.32	5.81	0.00	33294				
13C4-PFHpA	2.61	6.39	-0.01	48356				

Perfluorinated Compounds by LC/MS/MS

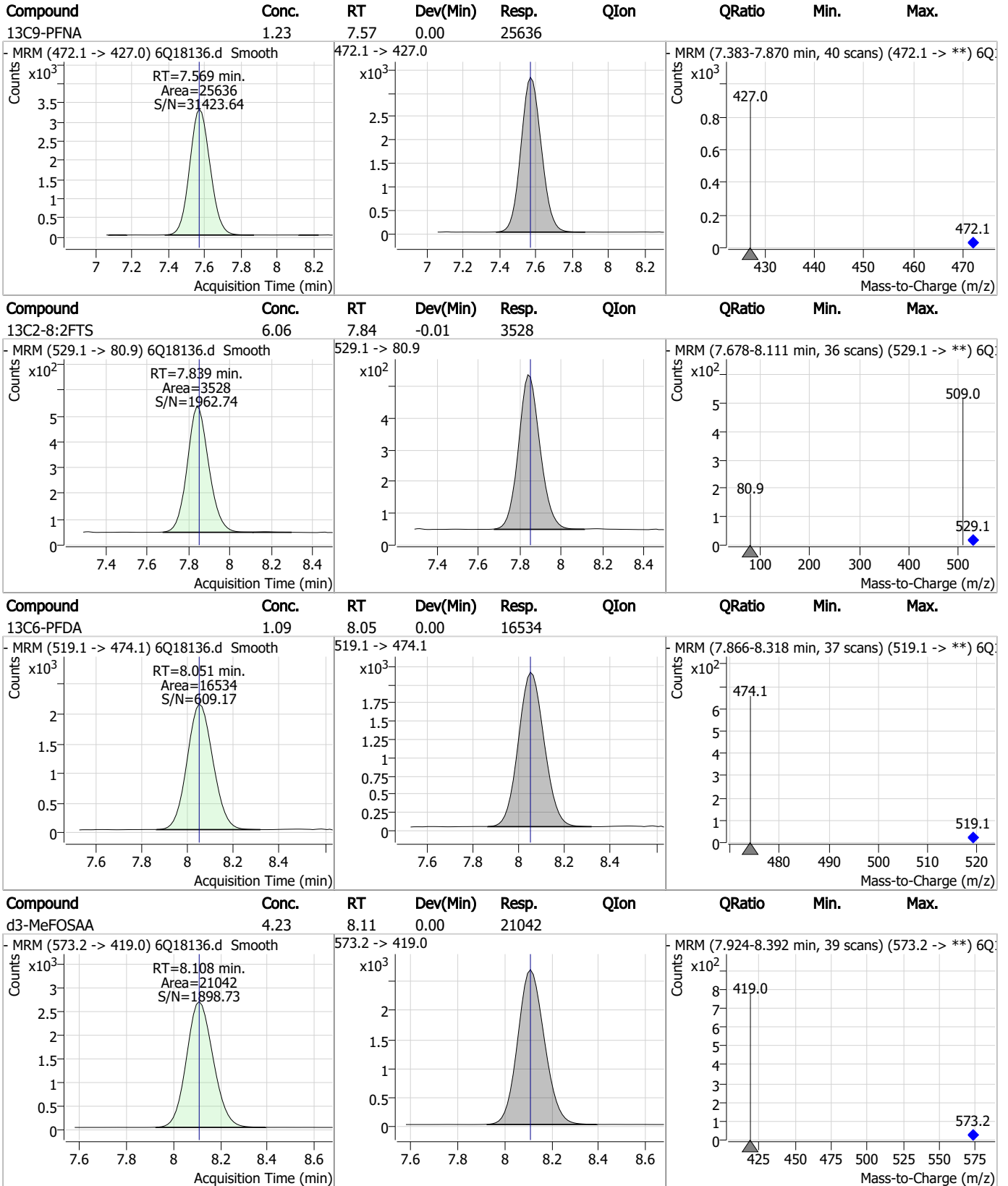


7.15

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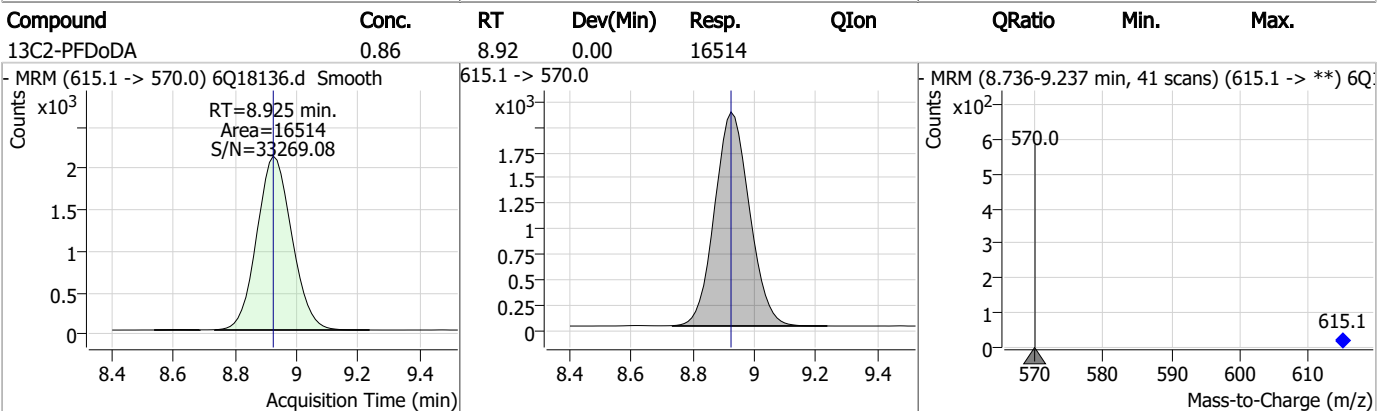
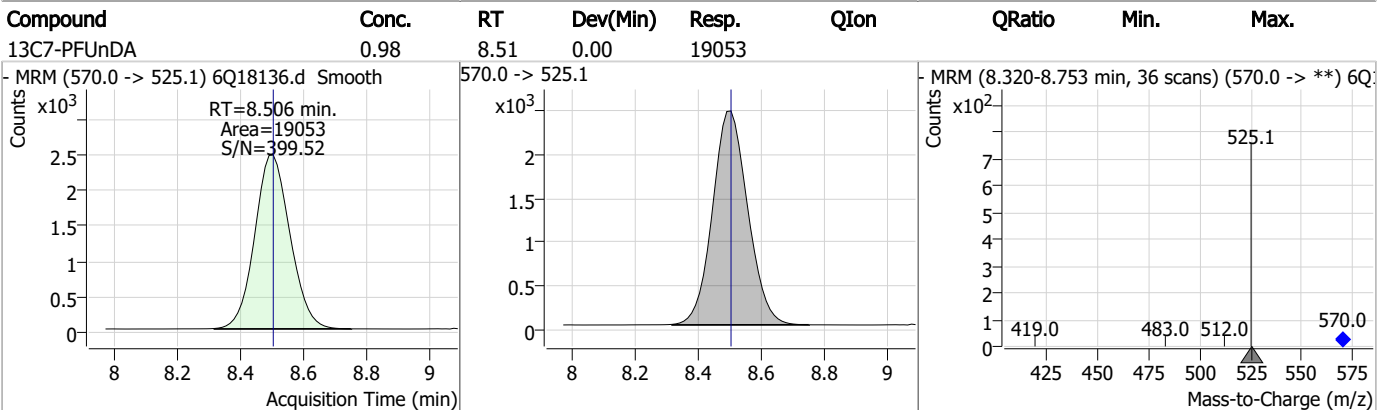
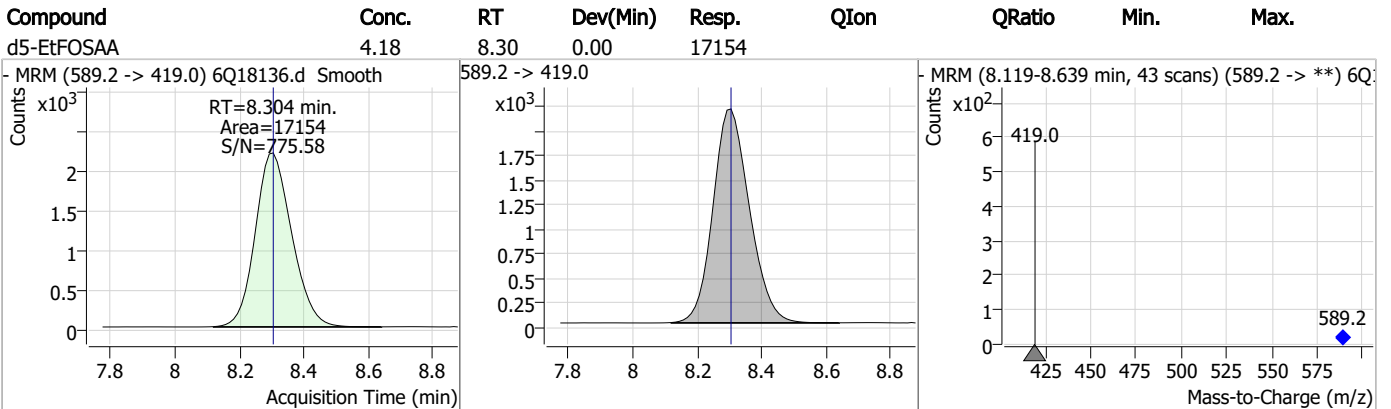
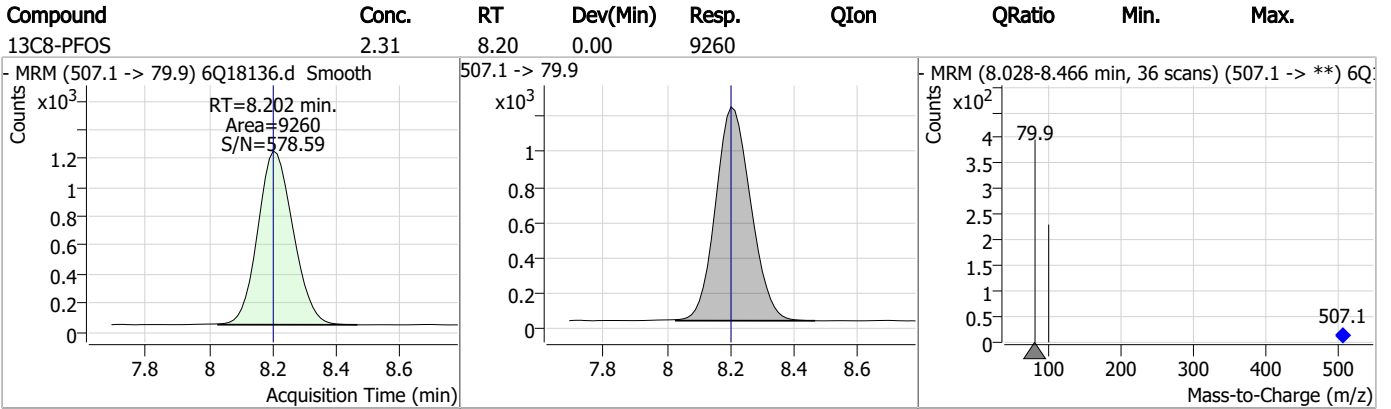
Perfluorinated Compounds by LC/MS/MS



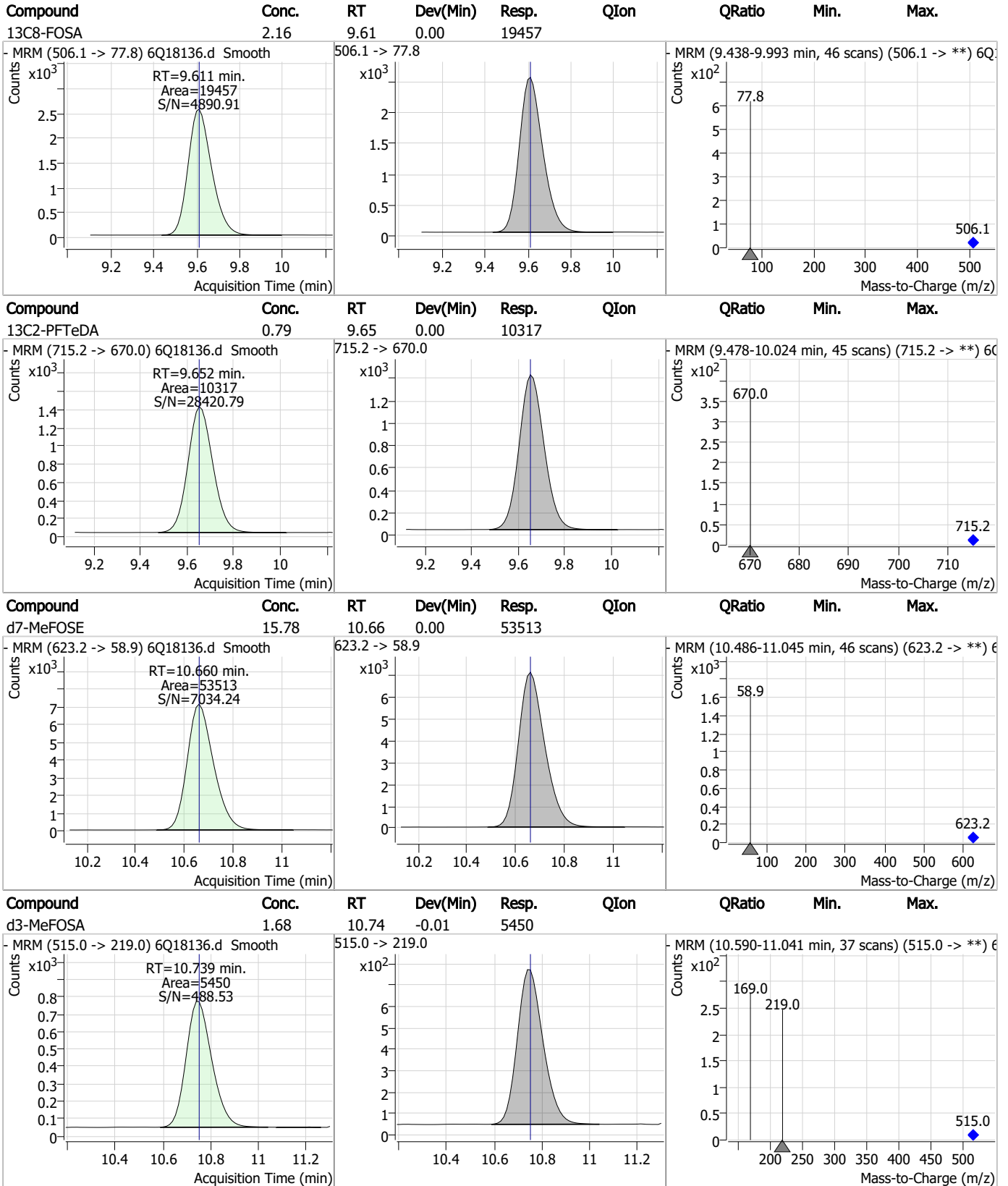
7.1.5

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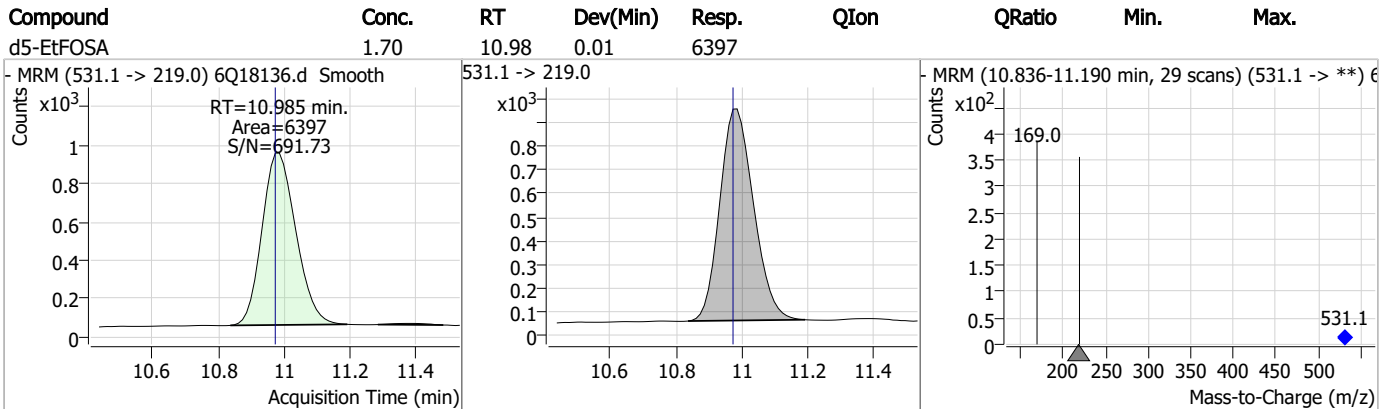
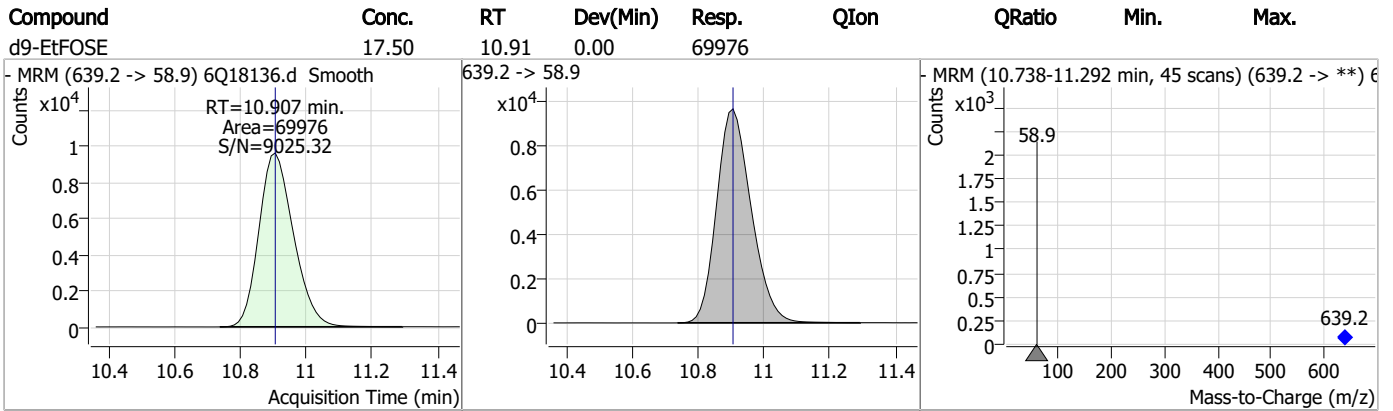
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18122.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 11:53:52 AM
 Sample Name : op96921-mb
 Vial : P4-F2
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	150769	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	46624	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	53383	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	47005	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	71652	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	25786	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	18396	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	24119	1.25 µg/L	0.000
M2-PFDoDA	8.925	615.1 -> 570.0	22187	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	14243	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	15378	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	17975	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	10868	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9358	2.50 µg/L	0.000
M2-4:2FTS	5.106	329.1 -> 80.9	2622	5.00 µg/L	-0.012
M2-6:2FTS	6.825	429.1 -> 80.9	3429	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3595	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	26870	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	31627	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	20000	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	50312	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	68233	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	6081	2.50 µg/L	0.012
M3-MeFOSA	10.739	515.0 -> 219.0	5006	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	13599	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	67450	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	9227	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	77416	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	23914	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	28346	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	47161	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.106	329.1 -> 80.9	2622	5.29 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3429	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3595	5.26 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-PFDoDA	8.925	615.1 -> 570.0	22187	1.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.6%		
13C2-PFTeDA	9.652	715.2 -> 670.0	14243	1.01 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.0%		
13C3-PFBS	5.359	302.1 -> 79.9	17975	2.20 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.1%		
13C3-PFHxS	7.155	402.1 -> 79.9	10868	2.20 µg/L	0.000

7.2.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.1%	
13C4-PFBA	2.888	216.8 -> 171.9	150769	9.37 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C4-PFHpA	6.395	367.1 -> 322.0	47005	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFHxA	5.441	318.0 -> 273.0	53383	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C5-PFPeA	4.247	268.3 -> 223.0	46624	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C6-PFDA	8.051	519.1 -> 474.1	18396	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.4%	
13C7-PFUnDA	8.506	570.0 -> 525.1	24119	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C8-FOSA	9.611	506.1 -> 77.8	15378	1.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 66.7%	
13C8-PFOA	7.051	421.1 -> 376.0	71652	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOS	8.202	507.1 -> 79.9	9358	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C9-PFNA	7.569	472.1 -> 427.0	25786	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSAA	8.108	573.2 -> 419.0	26870	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	31627	9.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
d3-MeFOSA	10.739	515.0 -> 219.0	5006	1.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 60.4%	
d5-EtFOSAA	8.304	589.2 -> 419.0	20000	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d7-MeFOSE	10.660	623.2 -> 58.9	50312	14.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 57.9%	
d9-EtFOSE	10.907	639.2 -> 58.9	68233	16.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.6%	
d5-EtFOSA	10.984	531.1 -> 219.0	6081	1.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 63.0%	

7.2.1
7

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	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	7.090	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

7.2.1
7

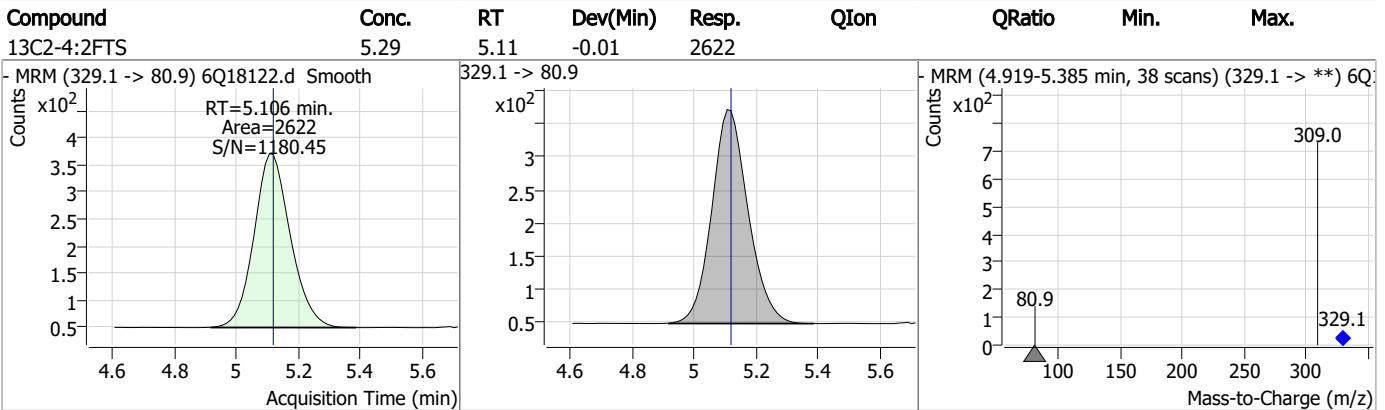
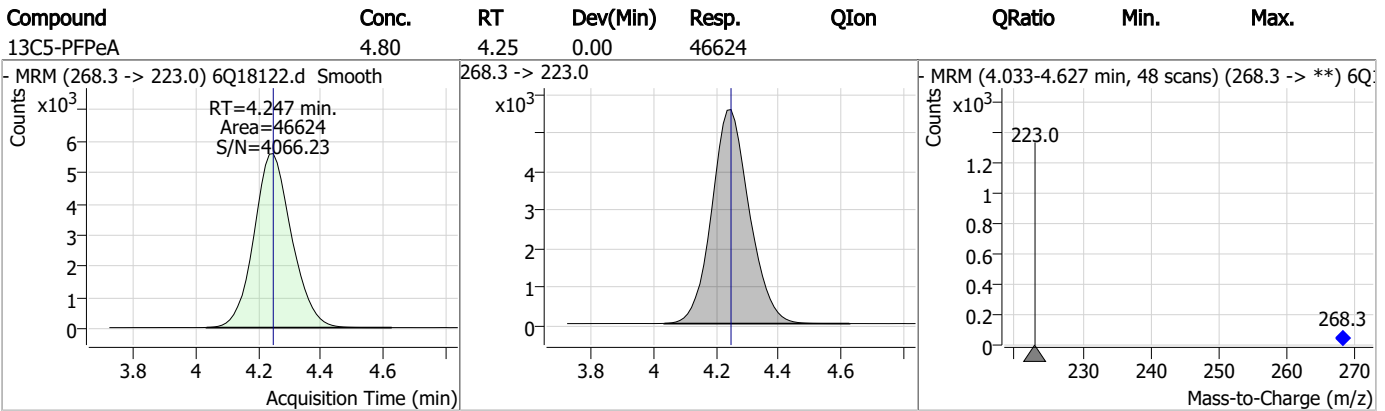
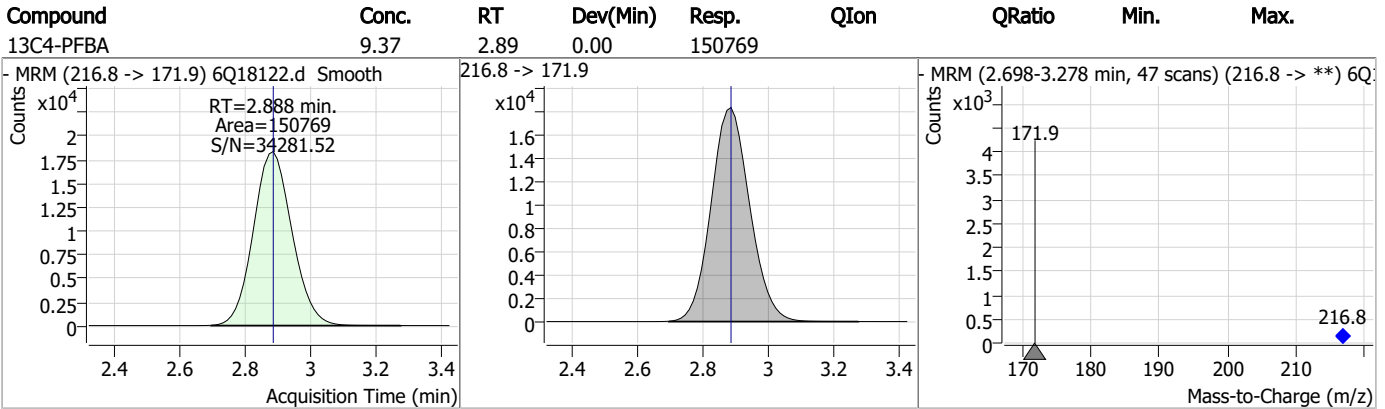
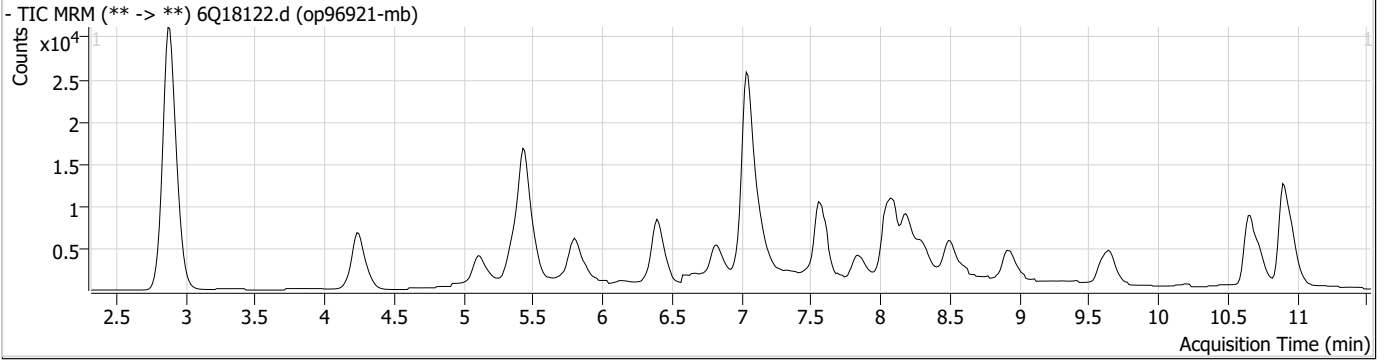
Perfluorinated Compounds by LC/MS/MS

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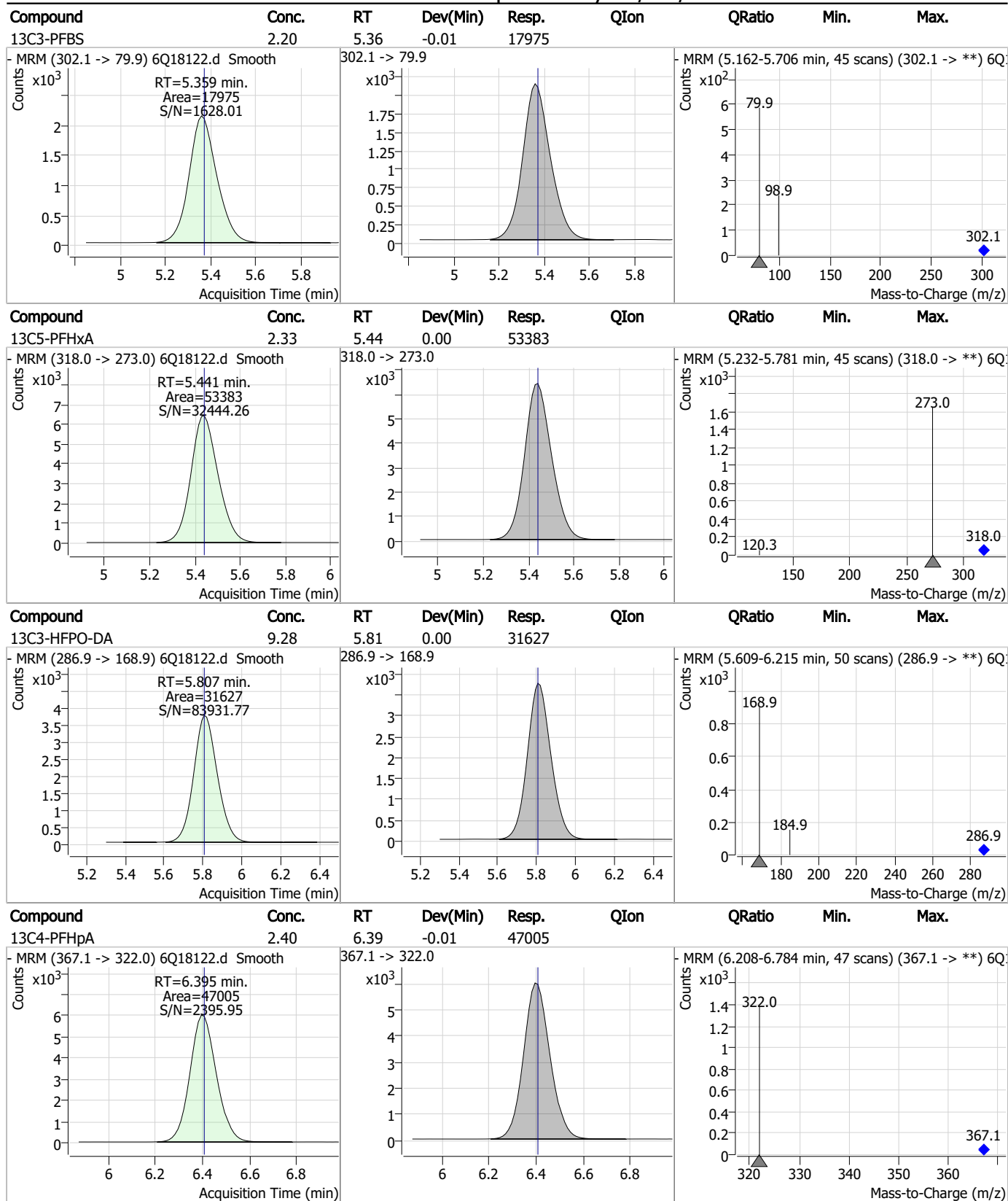
7.2.1

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Perfluorinated Compounds by LC/MS/MS

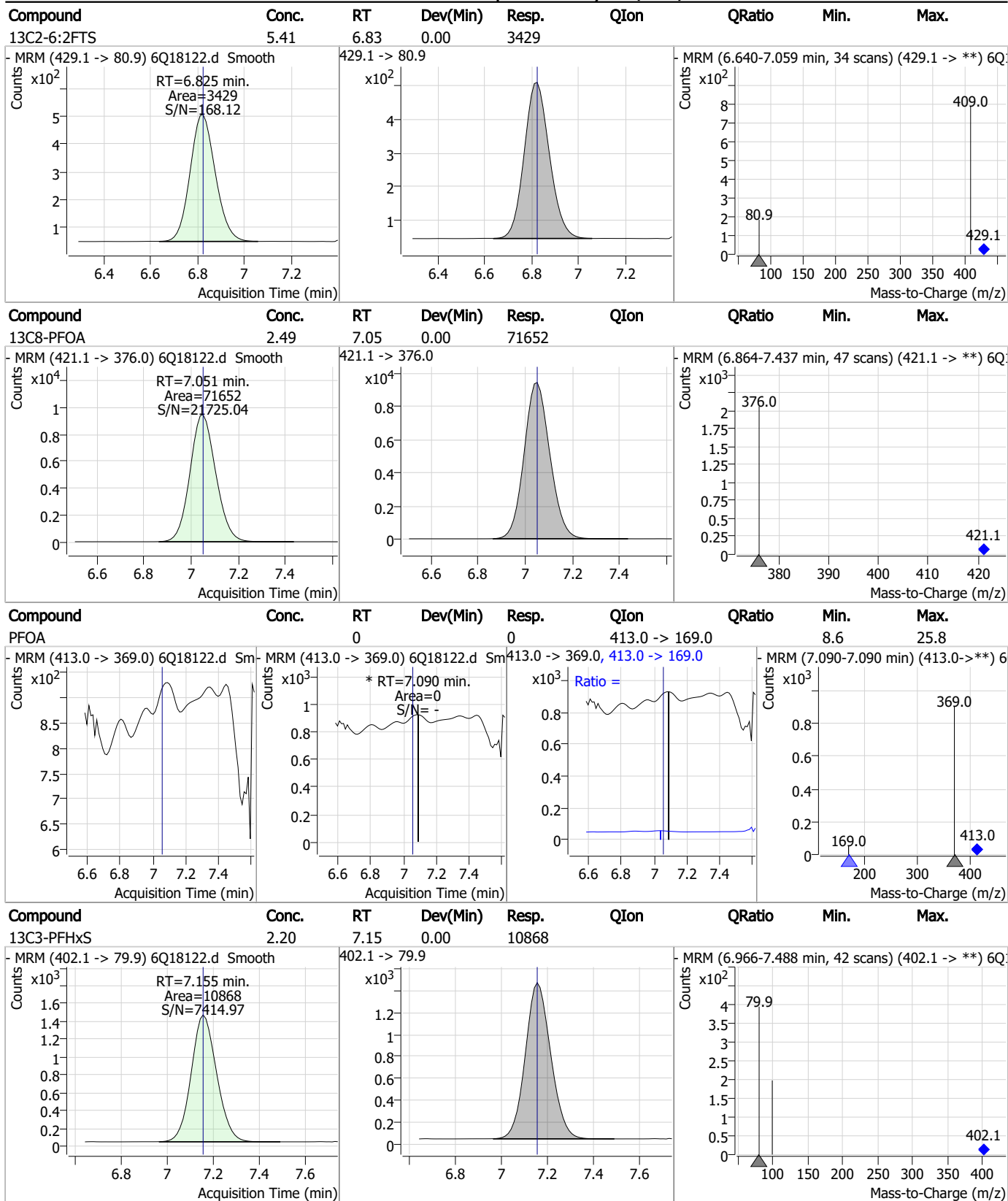


Perfluorinated Compounds by LC/MS/MS



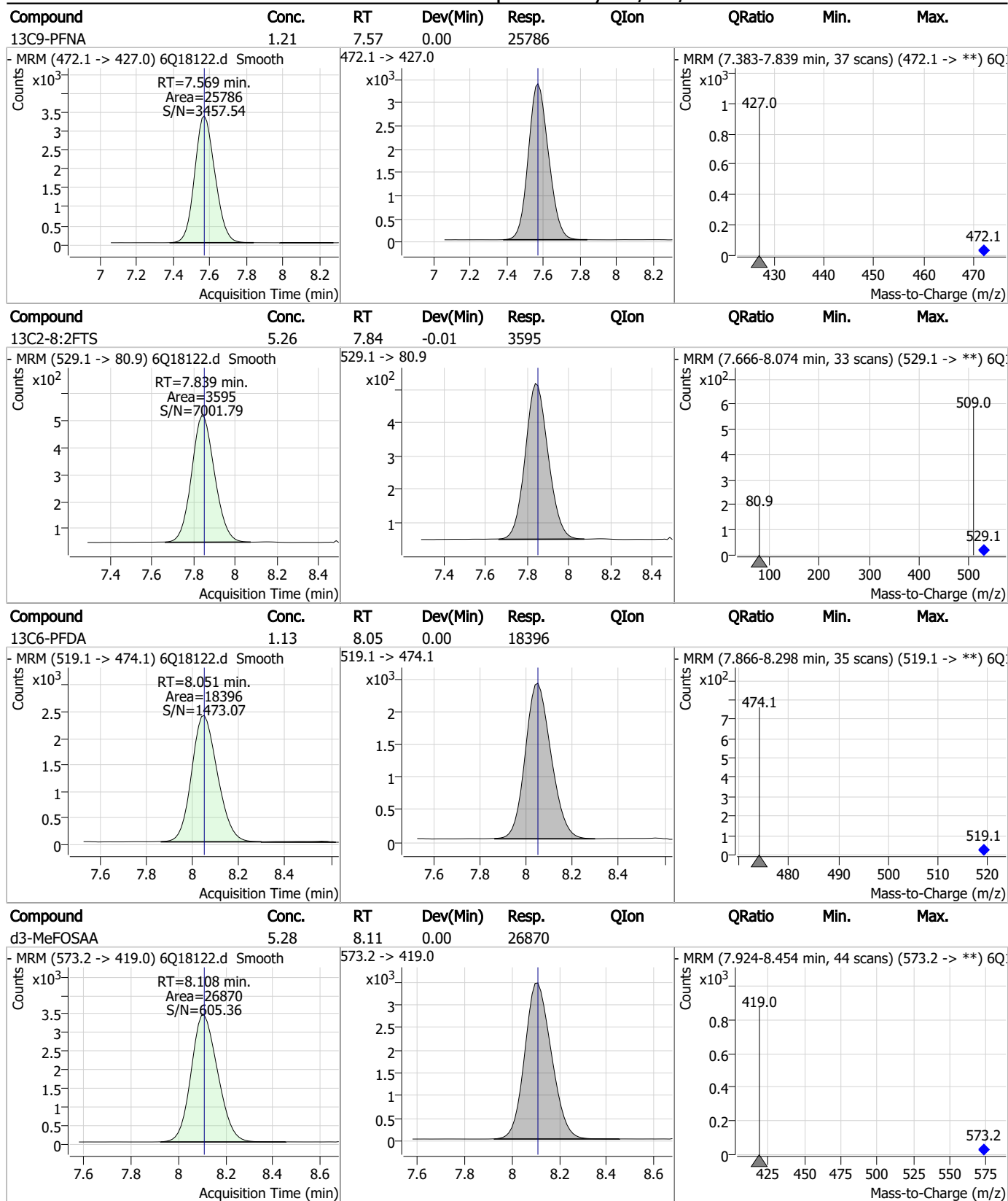
7.2.1
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Perfluorinated Compounds by LC/MS/MS



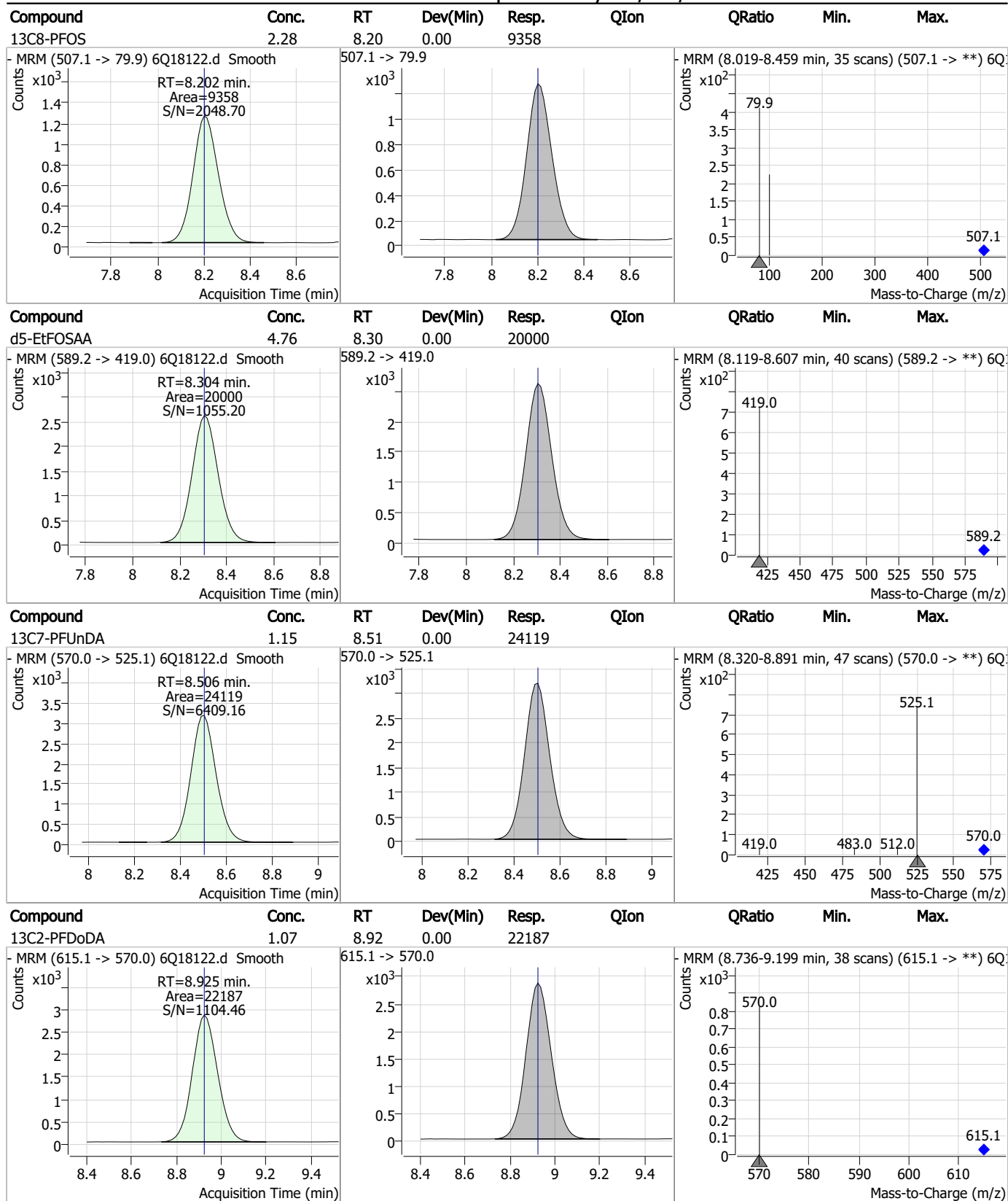
7.2.1
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Perfluorinated Compounds by LC/MS/MS



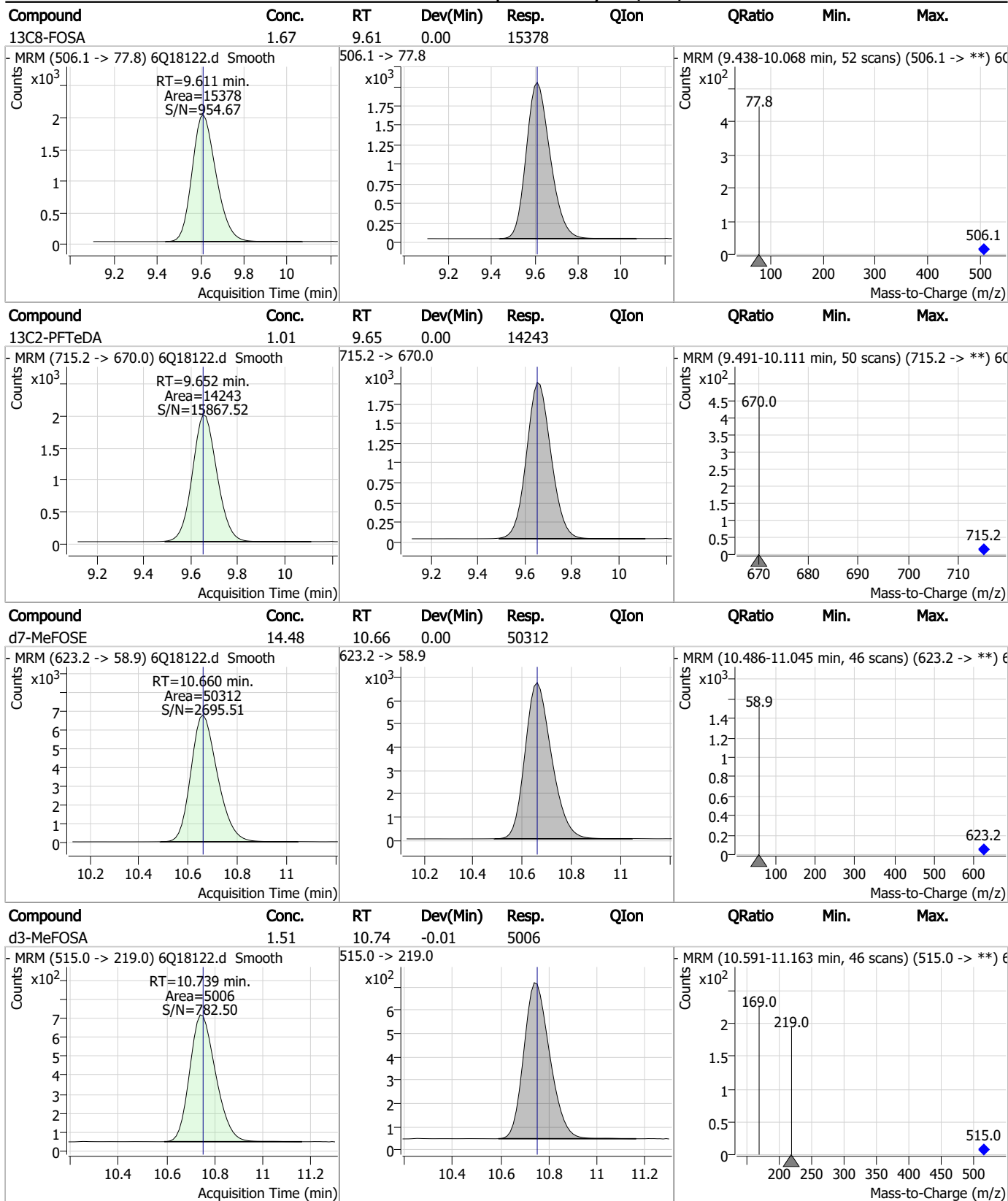
7.2.1
7

Perfluorinated Compounds by LC/MS/MS



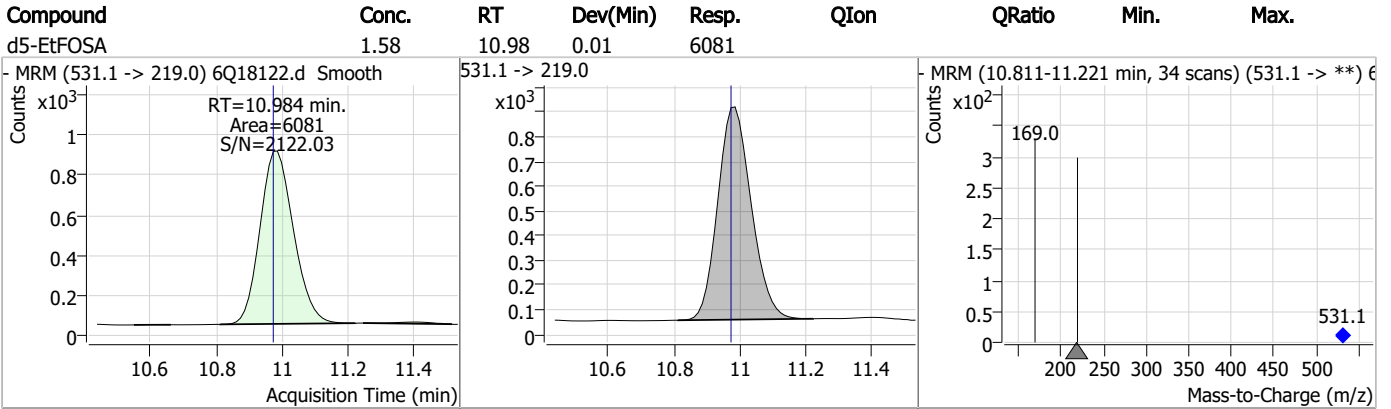
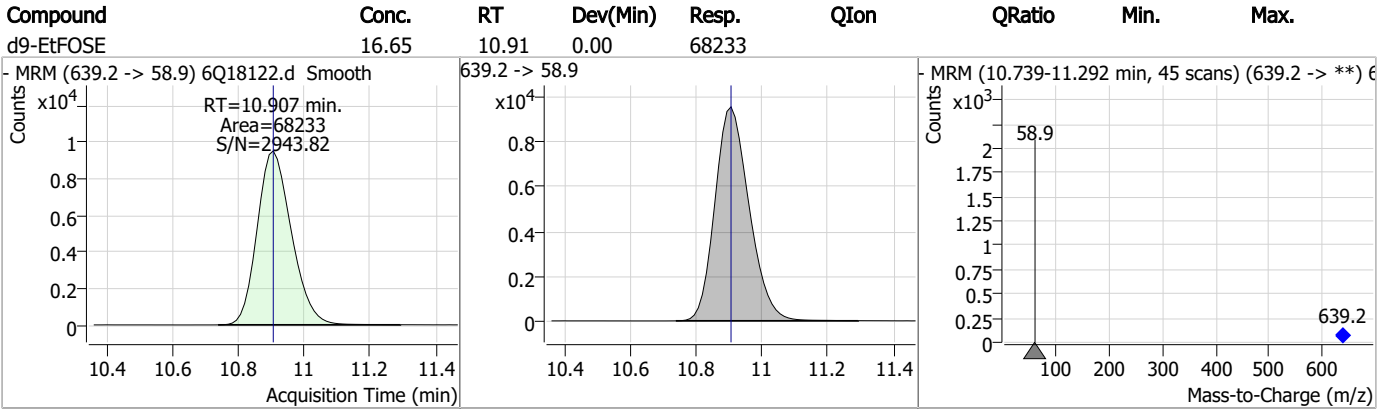
7.2.1
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Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18060.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 8:55:23 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	157947	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	49909	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	56294	2.50 µg/L	0.000
M4-PFHpA	6.407	367.1 -> 322.0	48192	2.50 µg/L	0.000
M8-PFOA	7.051	421.1 -> 376.0	75488	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	25451	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	18283	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	25786	1.25 µg/L	0.000
M2-PFDoDA	8.925	615.1 -> 570.0	24182	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	15112	1.25 µg/L	0.012
M8-FOSA	9.611	506.1 -> 77.8	22496	2.50 µg/L	0.000
M3-PFBS	5.371	302.1 -> 79.9	18719	2.50 µg/L	0.000
M3-PFHxS	7.155	402.1 -> 79.9	10746	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9813	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2507	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	3037	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	3347	5.00 µg/L	0.000
M3-MeFOSAA	8.108	573.2 -> 419.0	28079	5.00 µg/L	0.000
M3-HFPO-DA	5.819	286.9 -> 168.9	34145	10.00 µg/L	0.012
M5-EtFOSAA	8.304	589.2 -> 419.0	21157	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	84839	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	100826	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	9530	2.50 µg/L	0.012
M3-MeFOSA	10.739	515.0 -> 219.0	7481	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	13662	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	66149	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	8624	2.50 µg/L	0.012
13C4-PFOA	7.051	417.1 -> 372.0	74838	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	23206	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	27152	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	48134	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2507	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3037	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-8:2FTS	7.852	529.1 -> 80.9	3347	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-PFDoDA	8.925	615.1 -> 570.0	24182	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C2-PFTeDA	9.664	715.2 -> 670.0	15112	1.11 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.5%		
13C3-PFBS	5.371	302.1 -> 79.9	18719	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.155	402.1 -> 79.9	10746	2.33 µg/L	0.000

7.2.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C4-PFBA	2.888	216.8 -> 171.9	157947	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.407	367.1 -> 322.0	48192	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C5-PFHxA	5.441	318.0 -> 273.0	56294	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C5-PFPeA	4.247	268.3 -> 223.0	49909	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C6-PFDA	8.051	519.1 -> 474.1	18283	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C7-PFUnDA	8.506	570.0 -> 525.1	25786	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-FOSA	9.611	506.1 -> 77.8	22496	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-PFOA	7.051	421.1 -> 376.0	75488	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C8-PFOS	8.202	507.1 -> 79.9	9813	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C9-PFNA	7.569	472.1 -> 427.0	25451	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.8%	
d3-MeFOSAA	8.108	573.2 -> 419.0	28079	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C3-HFPO-DA	5.819	286.9 -> 168.9	34145	9.82 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSA	10.739	515.0 -> 219.0	7481	2.25 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
d5-EtFOSAA	8.304	589.2 -> 419.0	21157	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d7-MeFOSE	10.660	623.2 -> 58.9	84839	24.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d9-EtFOSE	10.907	639.2 -> 58.9	100826	24.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d5-EtFOSA	10.985	531.1 -> 219.0	9530	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	

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7

Target Compounds

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	7.227	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.2
7

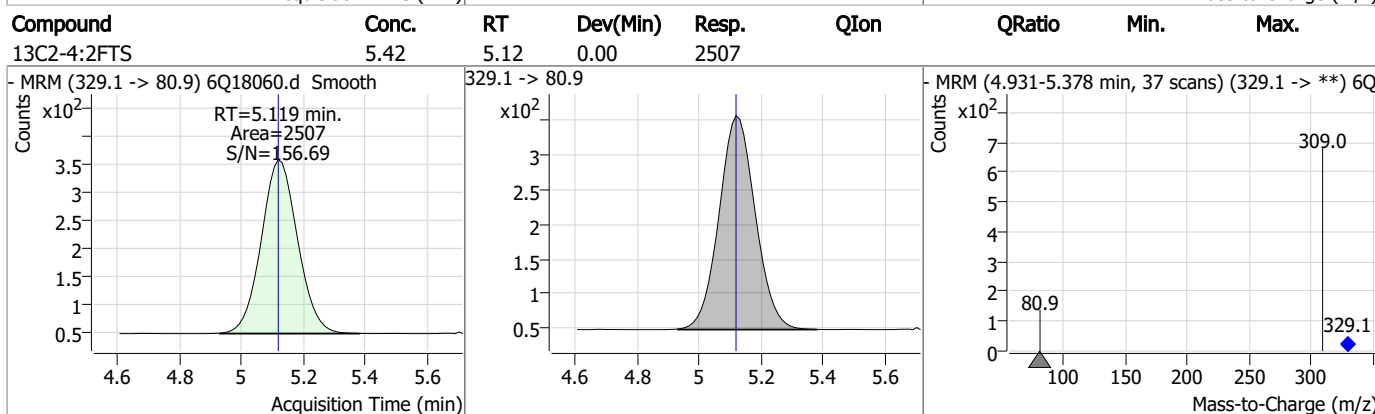
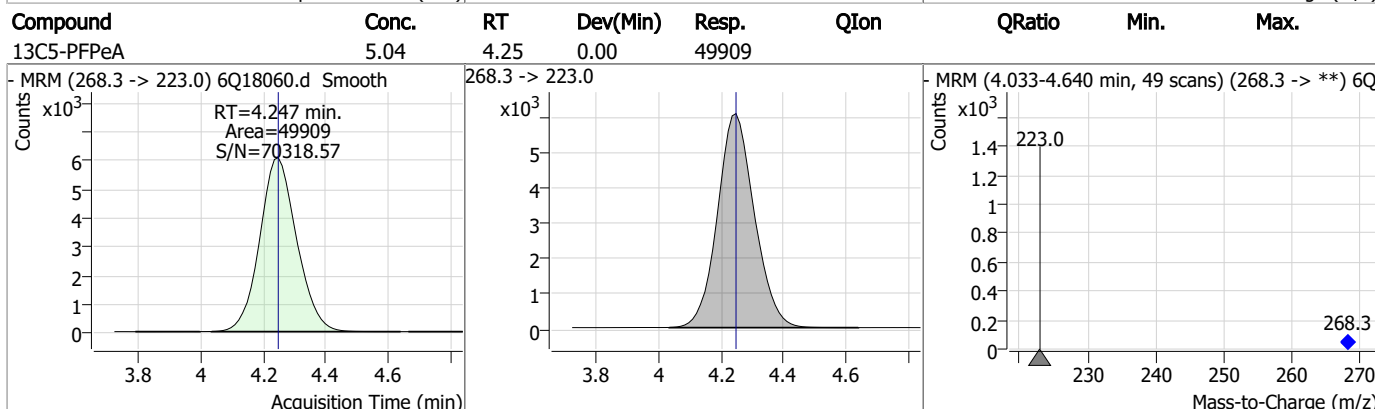
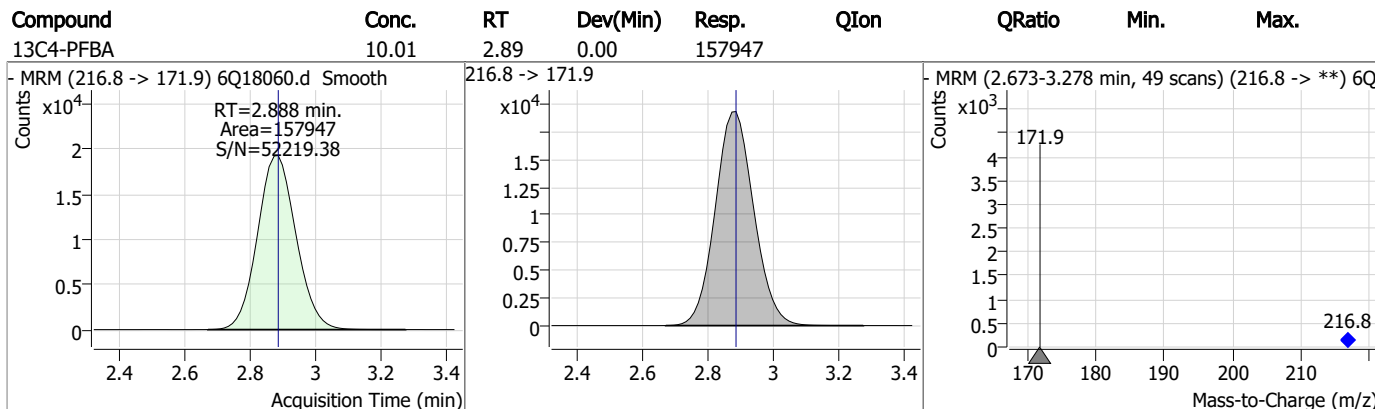
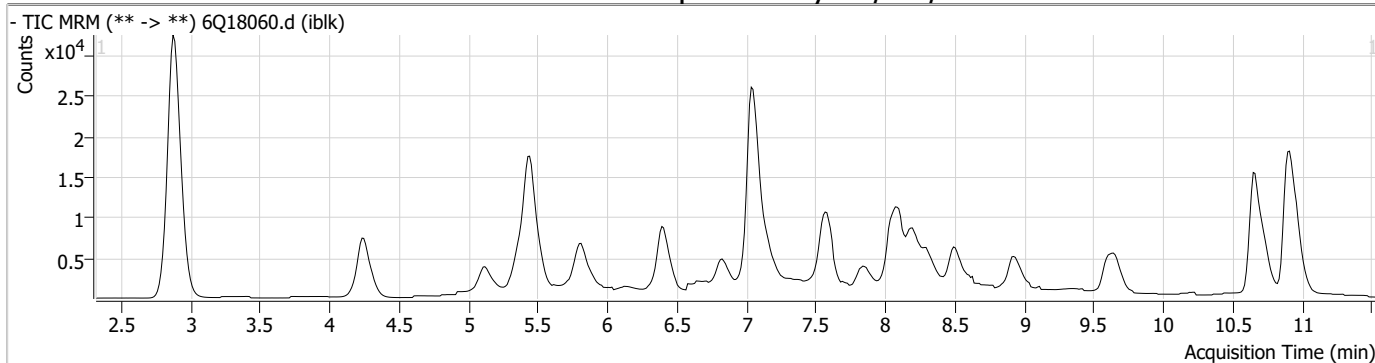
Perfluorinated Compounds by LC/MS/MS

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

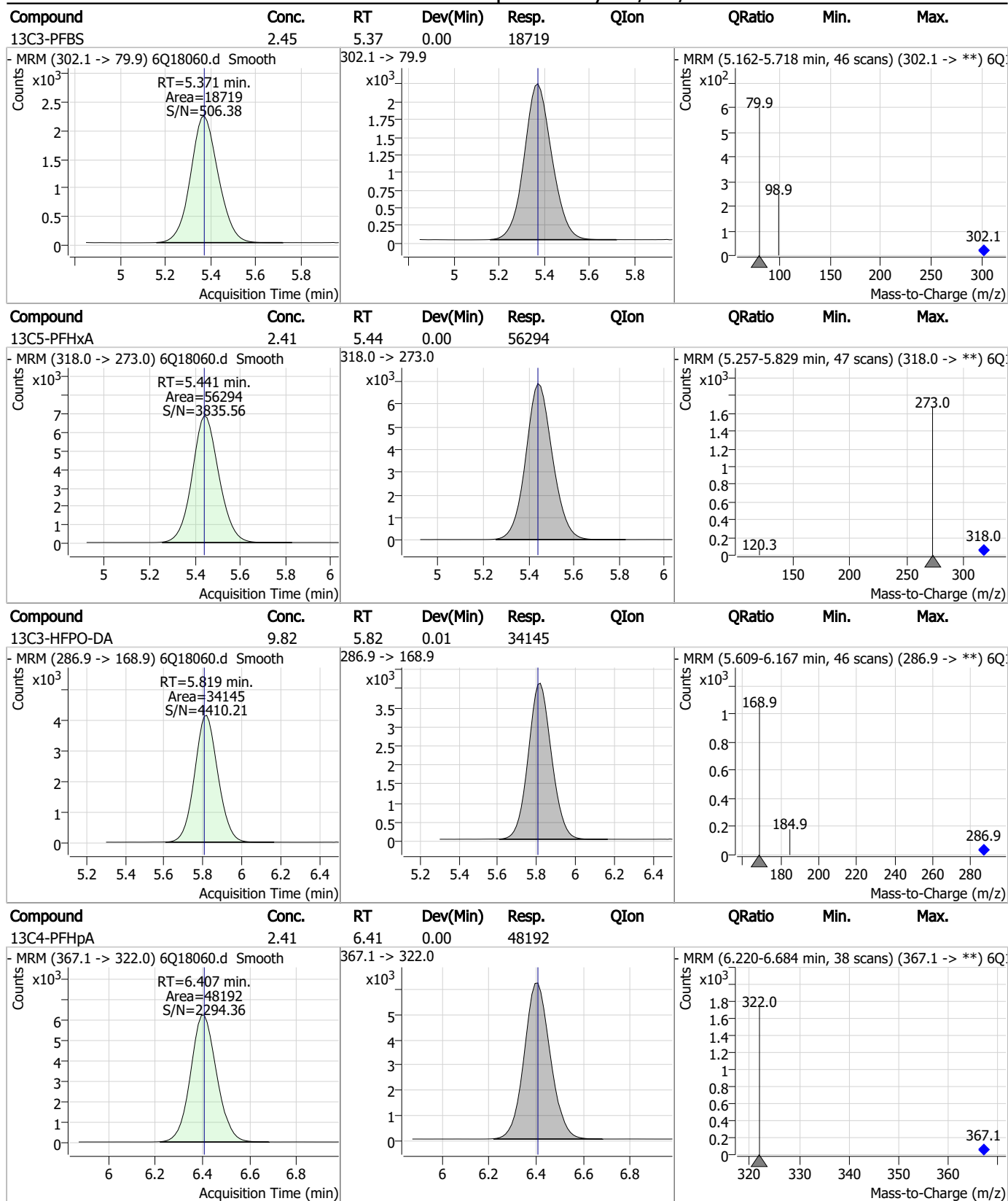
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Perfluorinated Compounds by LC/MS/MS



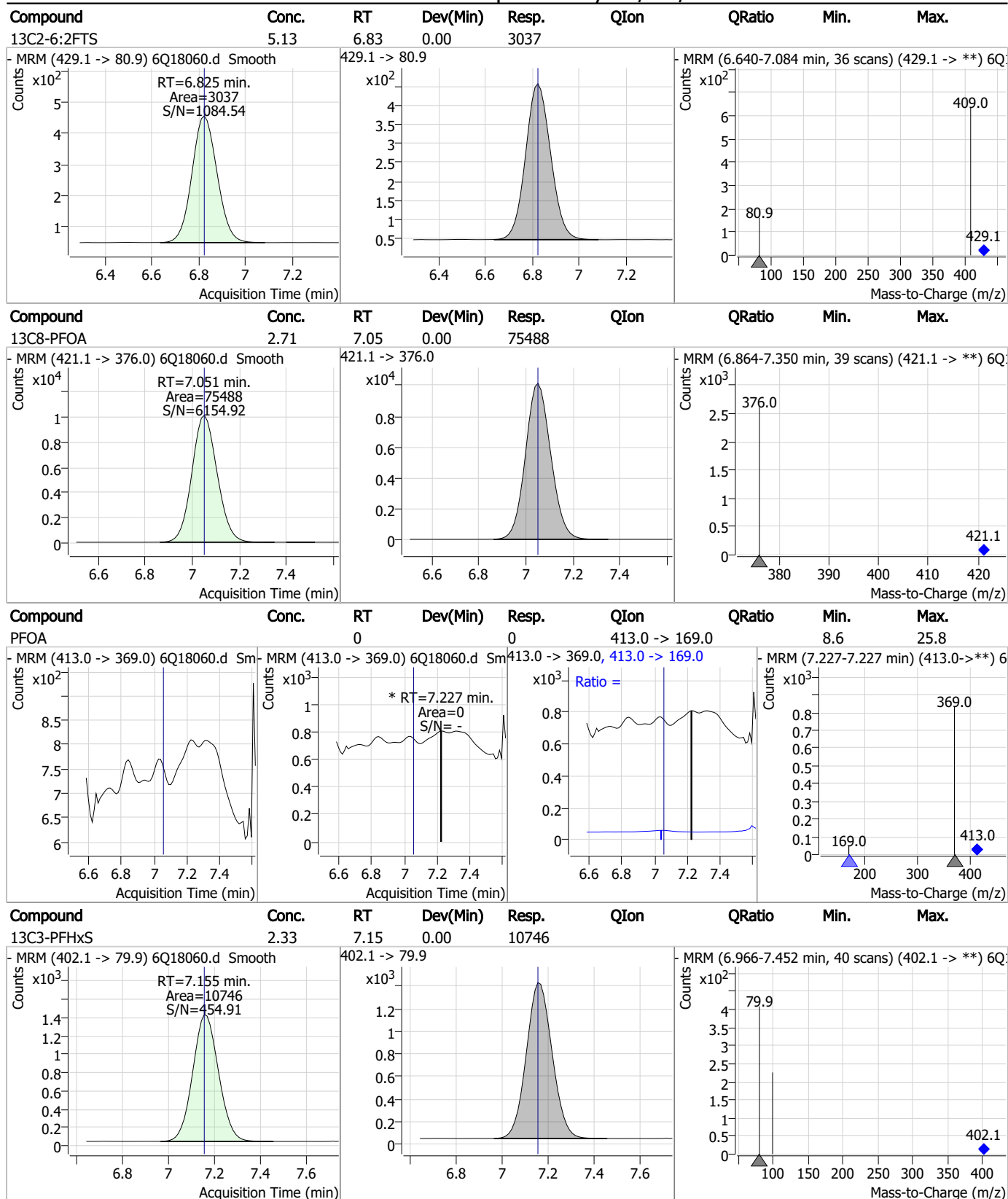
7.2.2
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Perfluorinated Compounds by LC/MS/MS



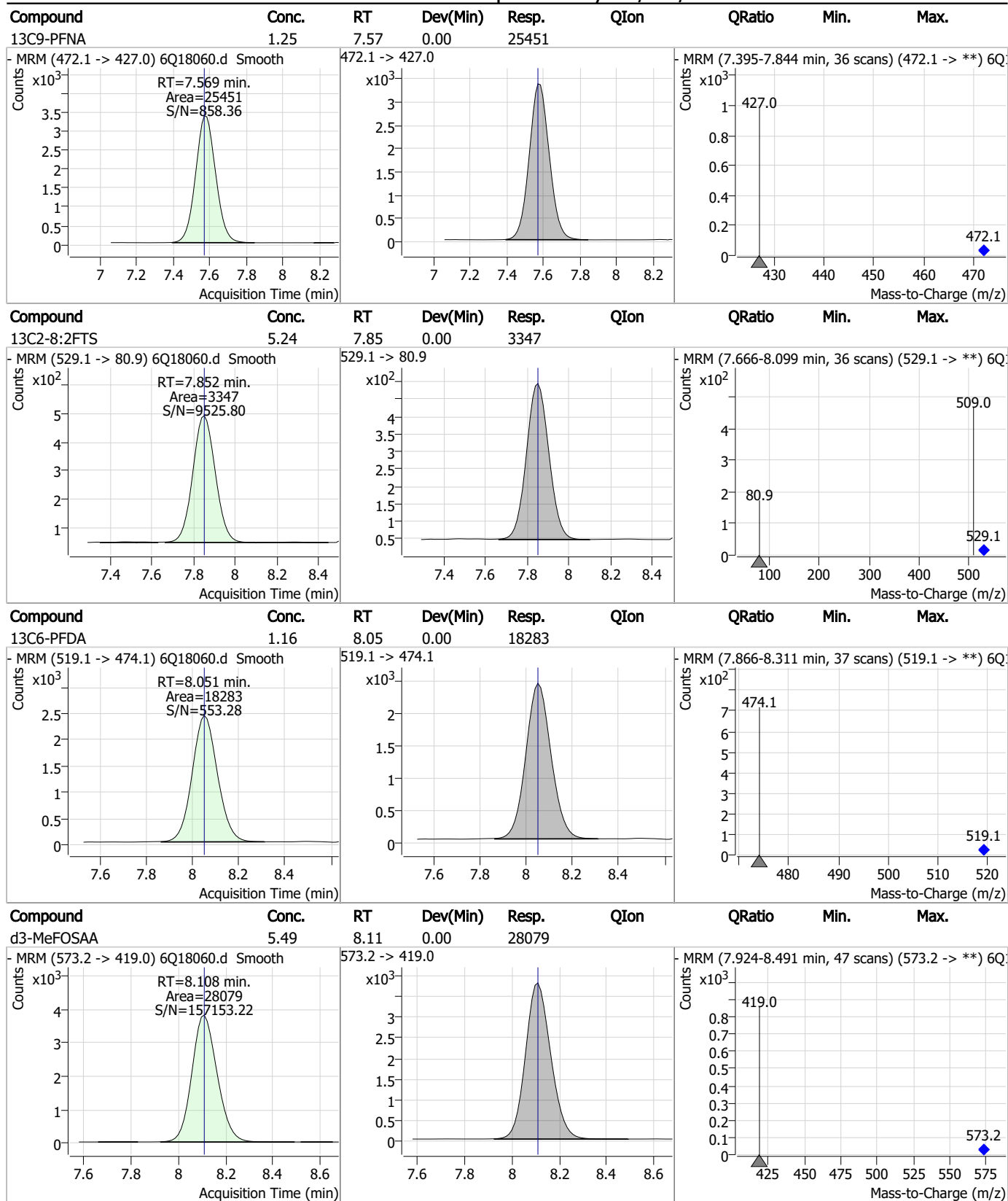
7.2.2
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Perfluorinated Compounds by LC/MS/MS



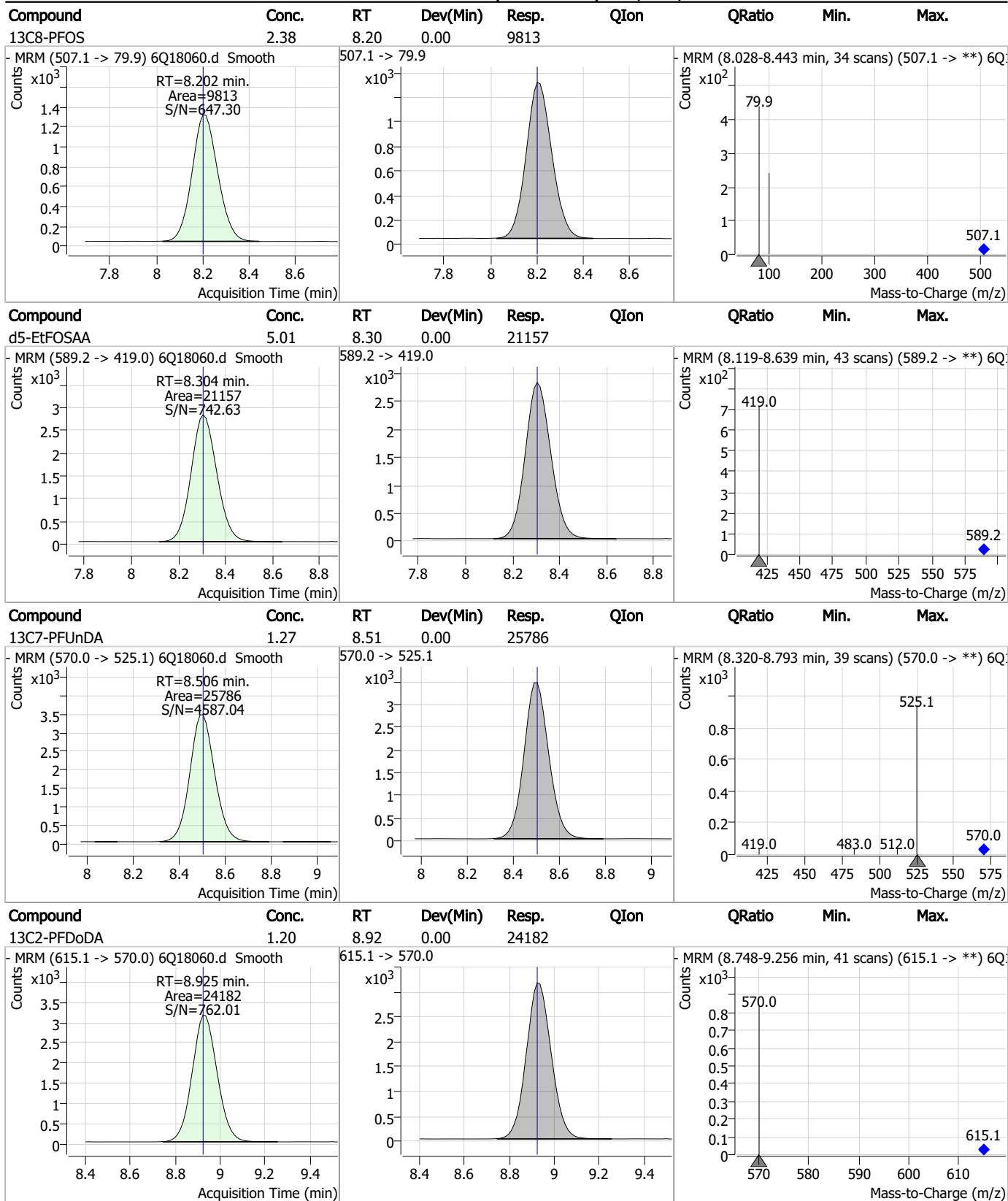
7.22
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Perfluorinated Compounds by LC/MS/MS



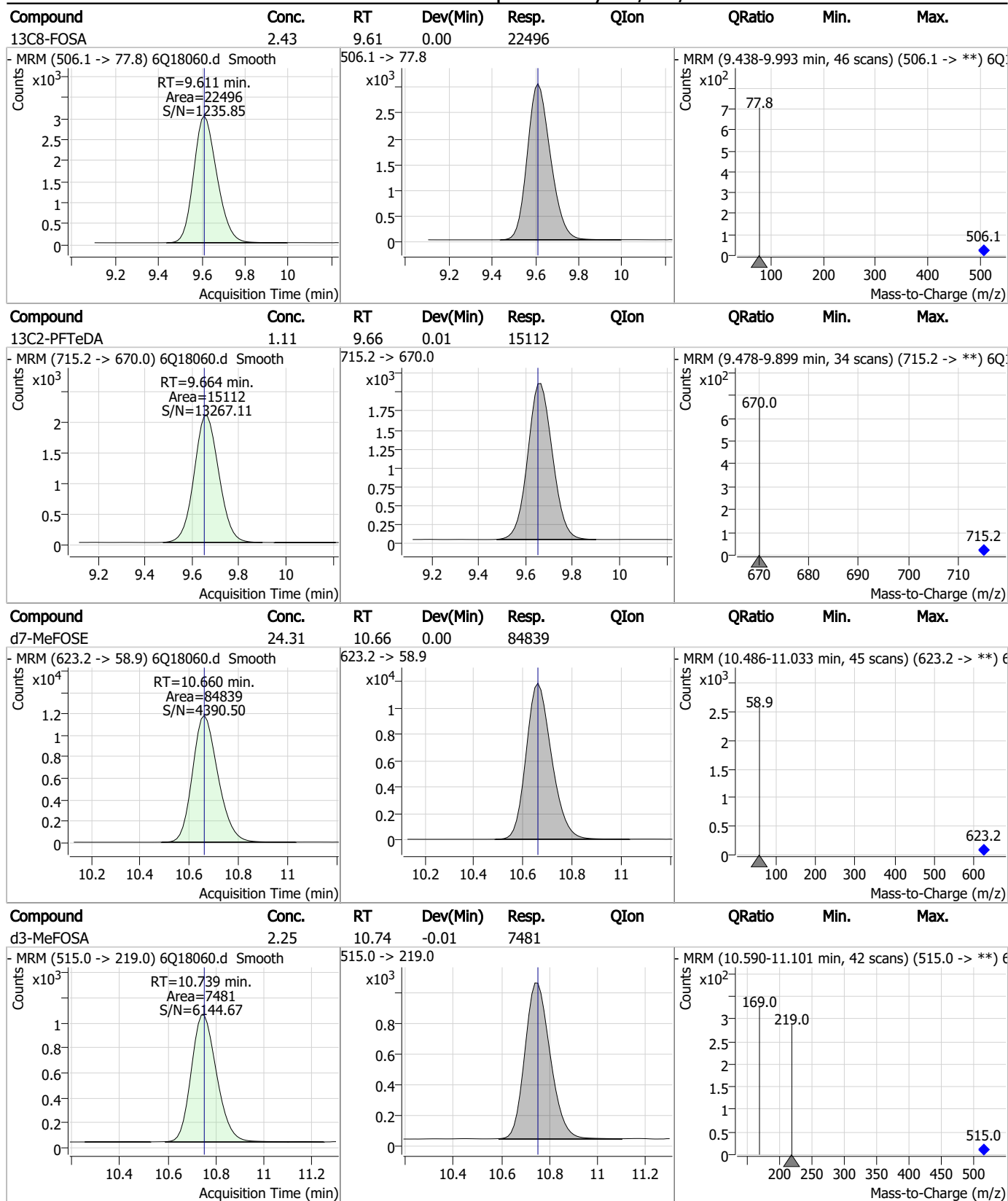
7.2.2
7

Perfluorinated Compounds by LC/MS/MS



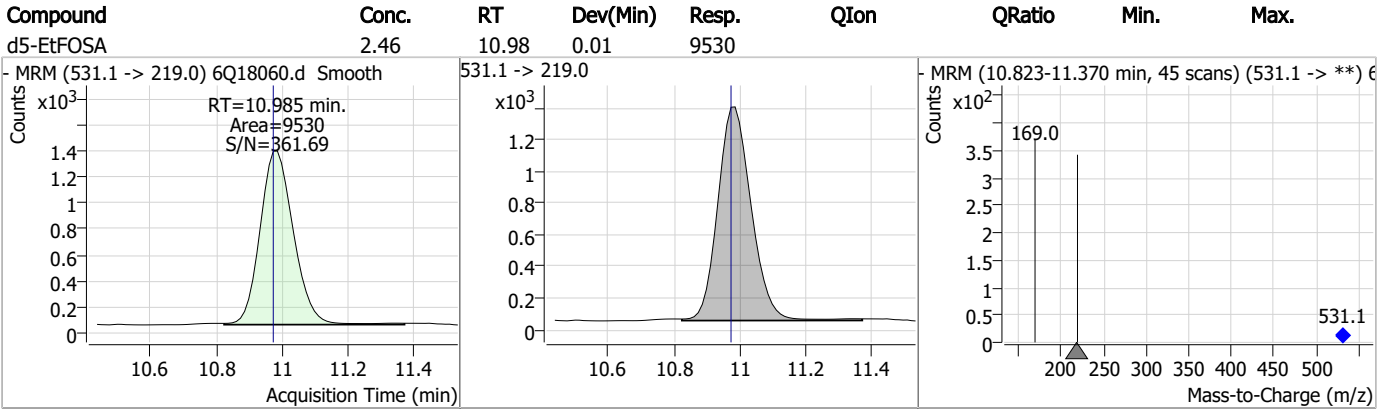
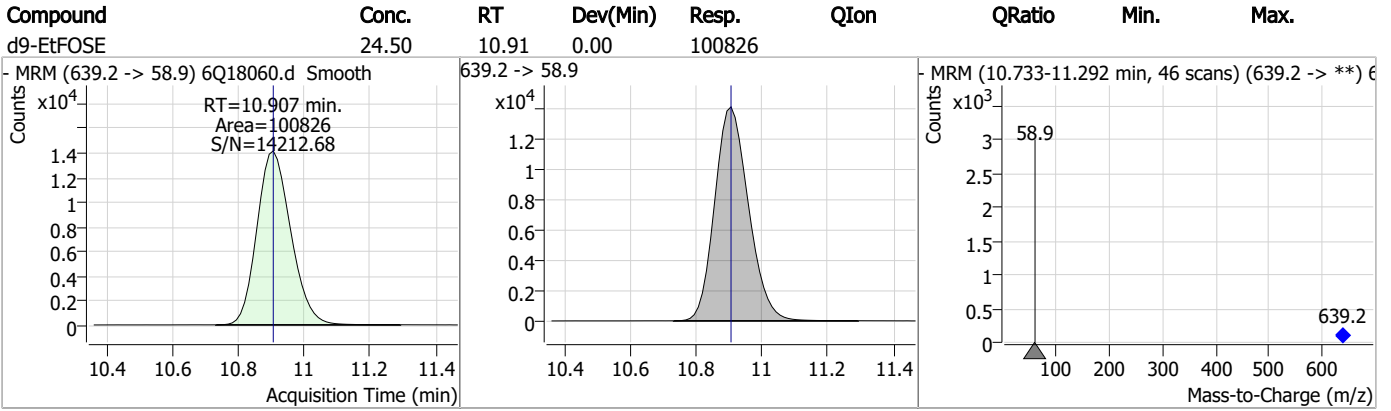
7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18131.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 2:04:15 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	166100	10.00 µg/L	-0.012
M5-PFPeA	4.235	268.3 -> 223.0	51029	5.00 µg/L	-0.012
M5-PFHxA	5.441	318.0 -> 273.0	59674	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	53763	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	77213	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	28334	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	20056	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	26805	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	26692	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	17464	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	23794	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	19241	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11660	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	10410	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2931	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	3882	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	4025	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	29625	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	37401	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	24124	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	87265	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	102026	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9416	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	8107	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	14093	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	69331	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8936	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	83754	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	25845	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	28247	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	48913	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2931	6.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.2%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3882	6.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.5%		
13C2-8:2FTS	7.839	529.1 -> 80.9	4025	6.08 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.6%		
13C2-PFDoDA	8.925	615.1 -> 570.0	26692	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-PFTeDA	9.652	715.2 -> 670.0	17464	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C3-PFBS	5.359	302.1 -> 79.9	19241	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFHxS	7.155	402.1 -> 79.9	11660	2.44 µg/L	0.000

7.2.3
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C4-PFBA	2.876	216.8 -> 171.9	166100	10.04 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.395	367.1 -> 322.0	53763	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C5-PFHxA	5.441	318.0 -> 273.0	59674	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFPeA	4.235	268.3 -> 223.0	51029	5.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C6-PFDA	8.051	519.1 -> 474.1	20056	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C7-PFUnDA	8.492	570.0 -> 525.1	26805	1.19 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C8-FOSA	9.611	506.1 -> 77.8	23794	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOA	7.051	421.1 -> 376.0	77213	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOS	8.202	507.1 -> 79.9	10410	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C9-PFNA	7.569	472.1 -> 427.0	28334	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.8%	
d3-MeFOSAA	8.108	573.2 -> 419.0	29625	5.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	37401	10.58 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
d3-MeFOSA	10.739	515.0 -> 219.0	8107	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
d5-EtFOSAA	8.304	589.2 -> 419.0	24124	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.7%	
d7-MeFOSE	10.660	623.2 -> 58.9	87265	24.24 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
d9-EtFOSE	10.907	639.2 -> 58.9	102026	24.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
d5-EtFOSA	10.972	531.1 -> 219.0	9416	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.620	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.3
7

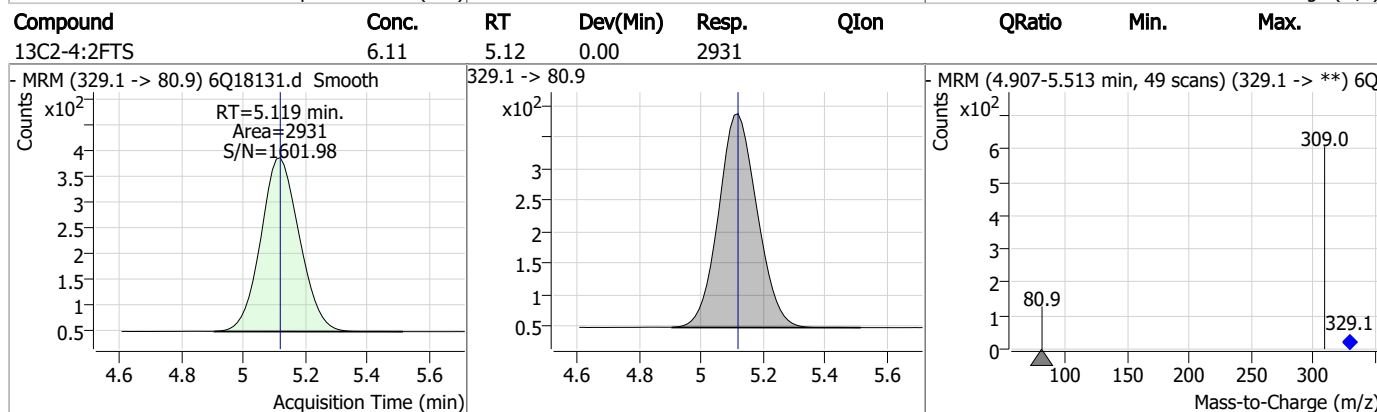
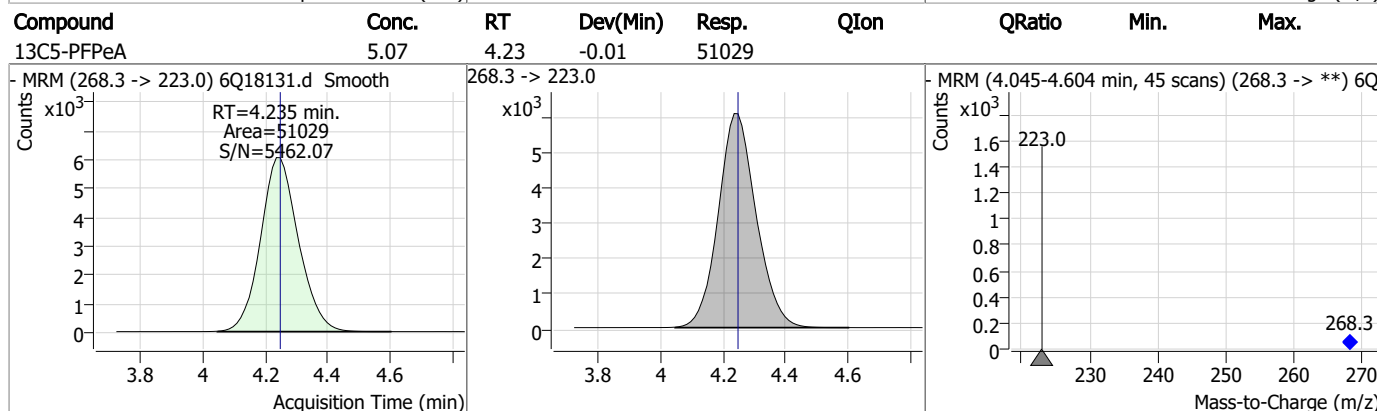
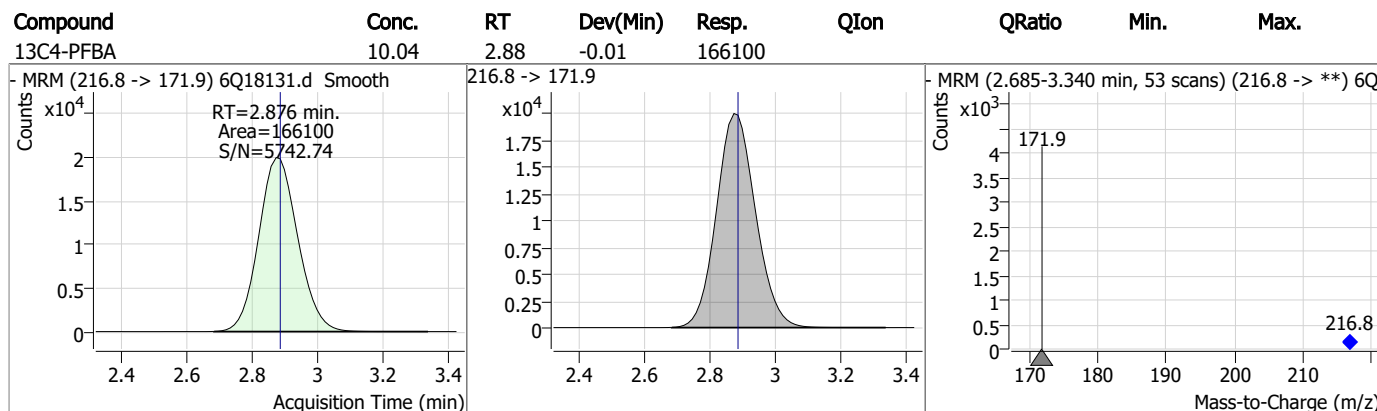
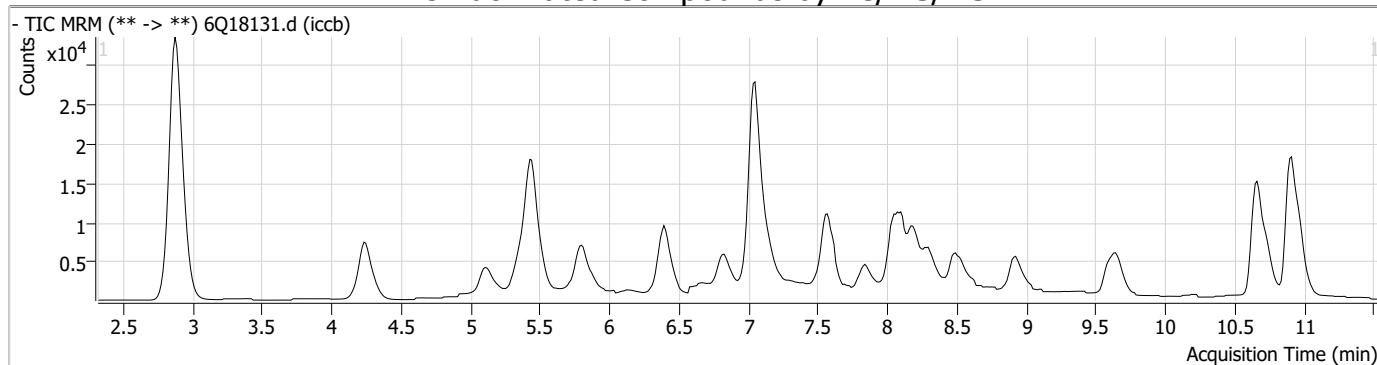
Perfluorinated Compounds by LC/MS/MS

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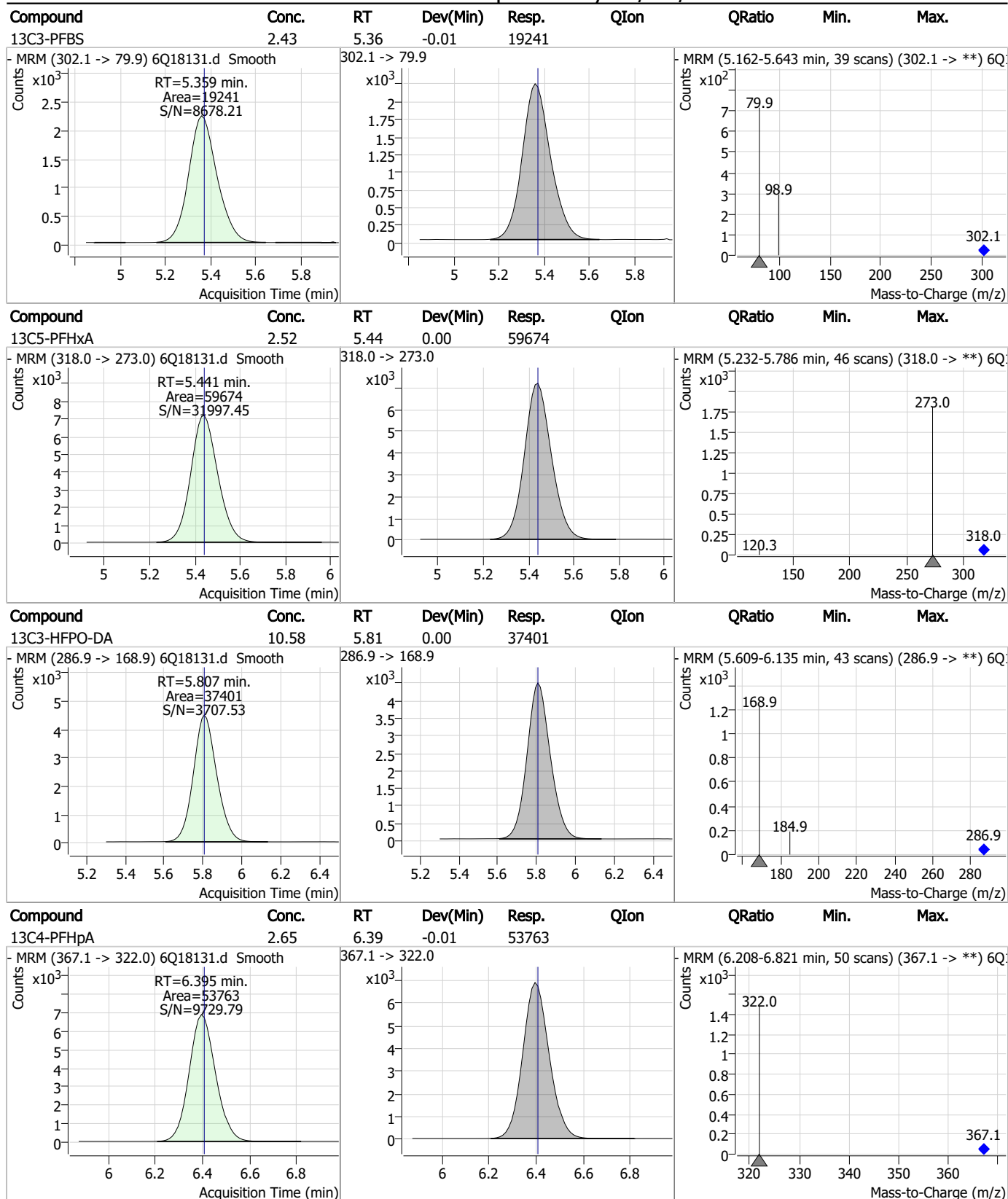
7.2.3

7

Perfluorinated Compounds by LC/MS/MS

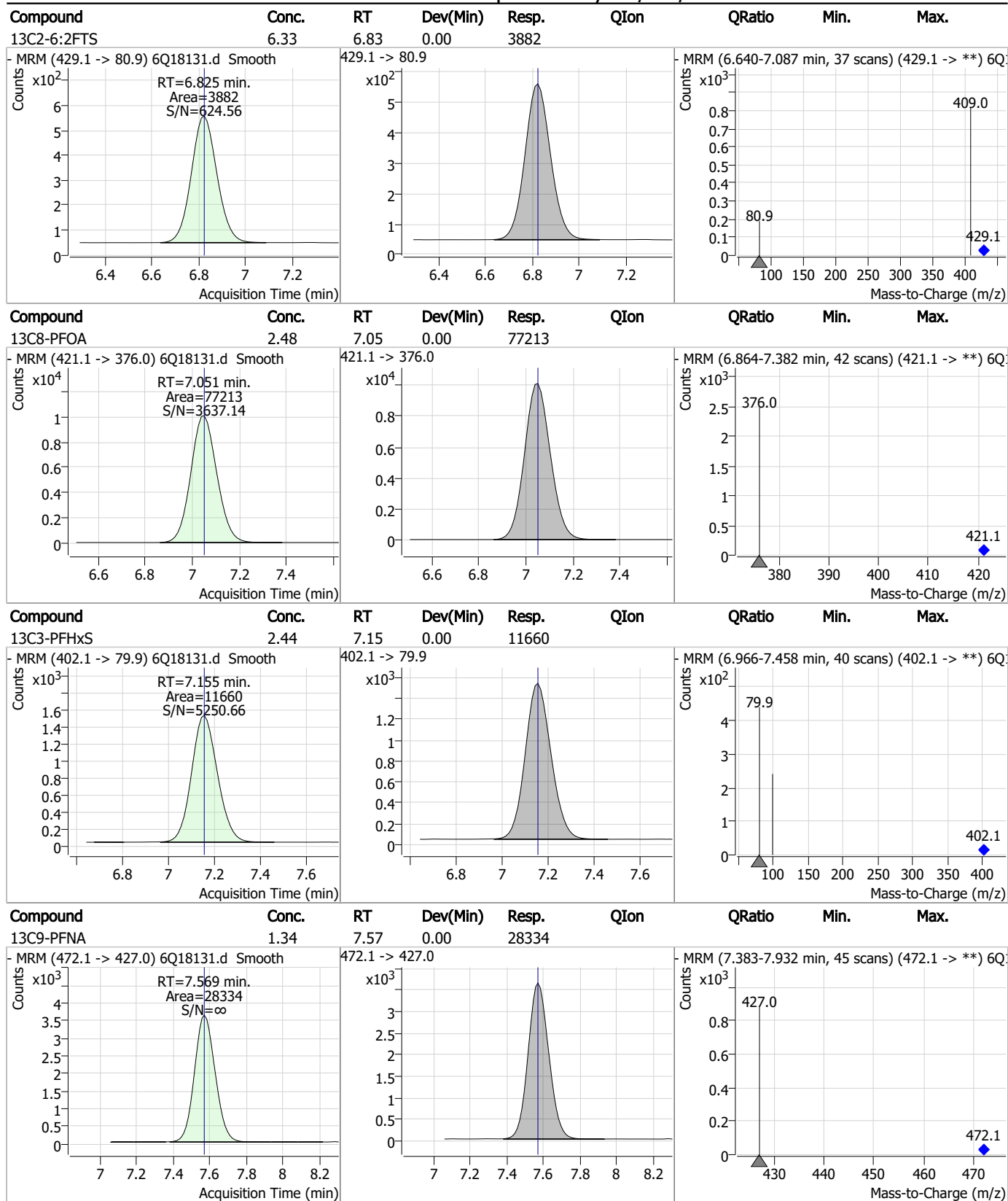


Perfluorinated Compounds by LC/MS/MS



7.2.3
7

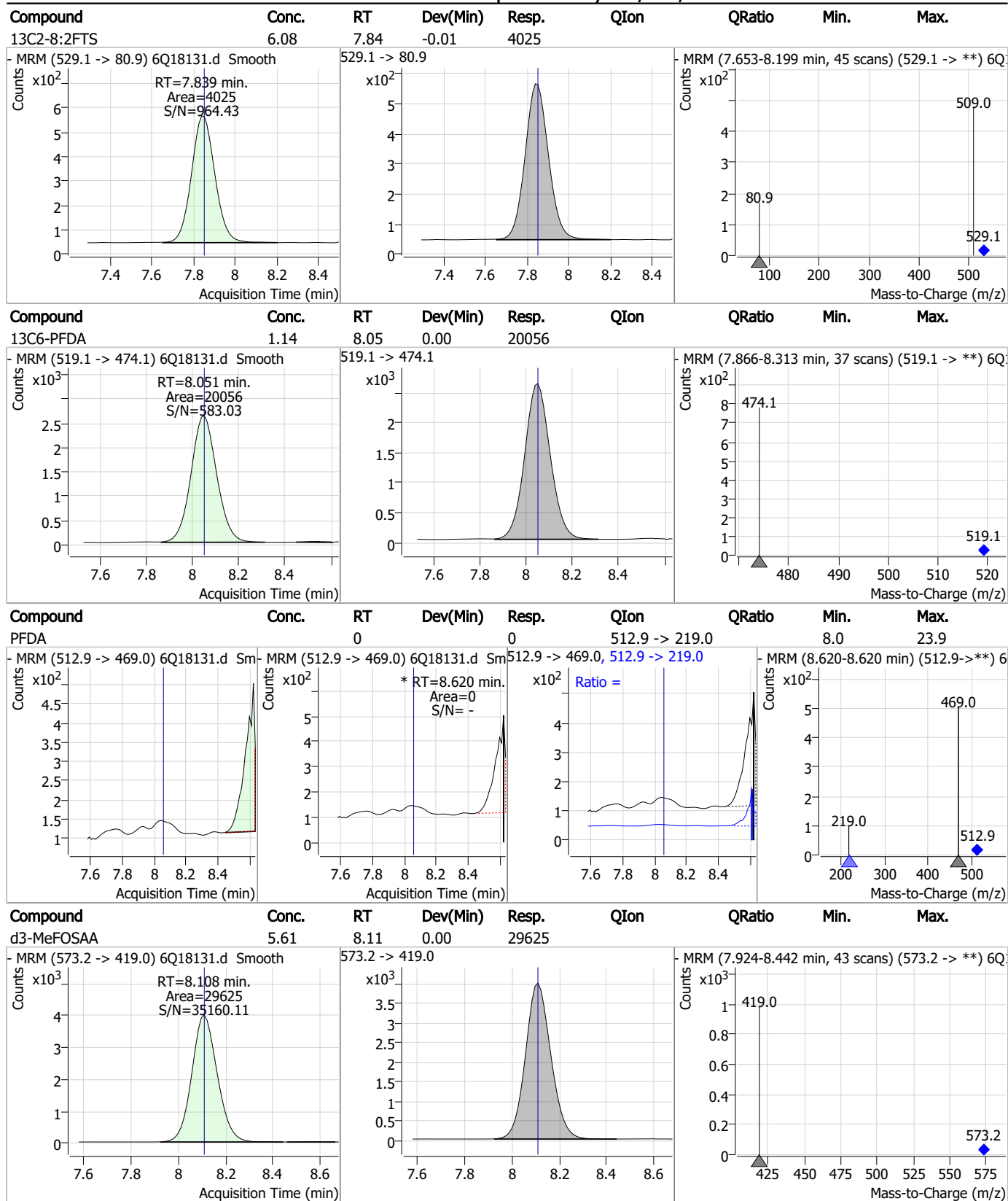
Perfluorinated Compounds by LC/MS/MS



7.2.3

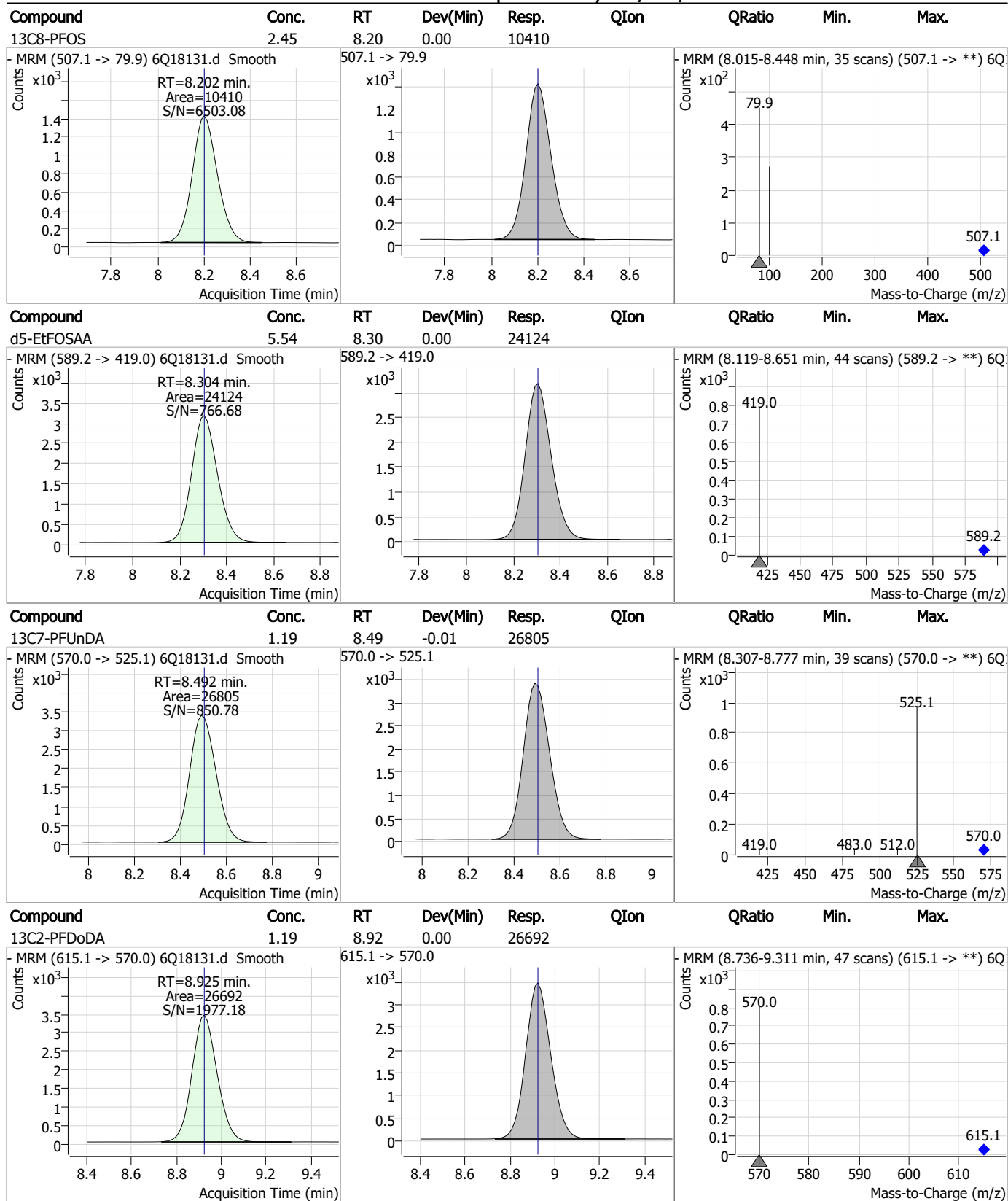
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Perfluorinated Compounds by LC/MS/MS



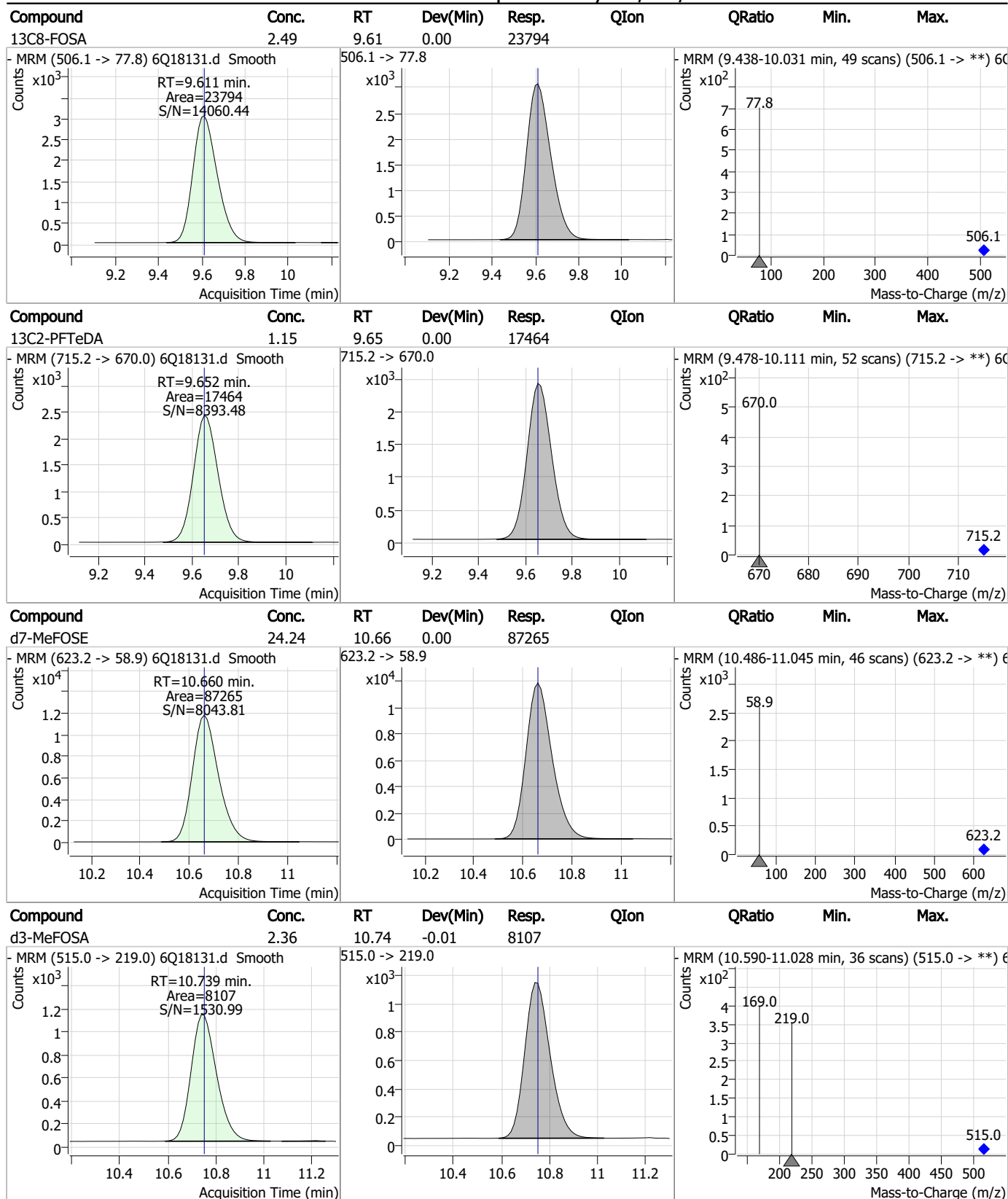
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

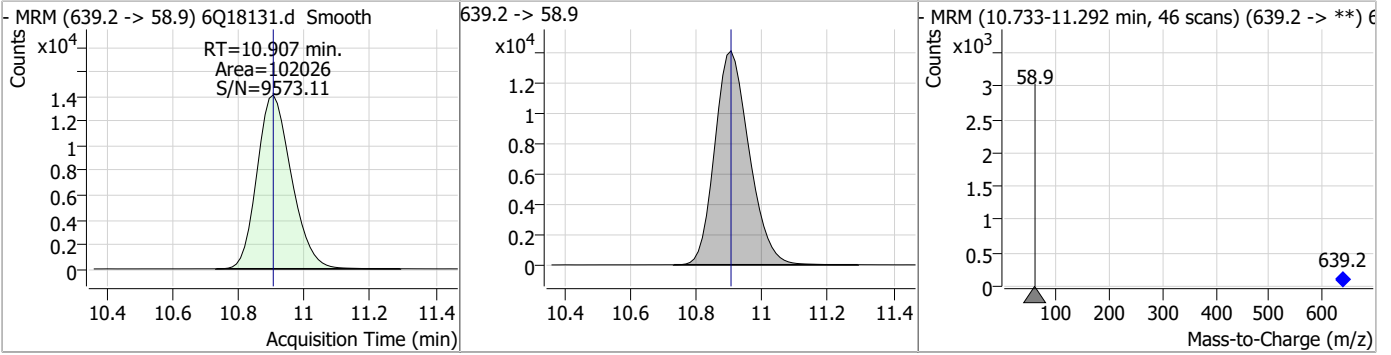


7.2.3

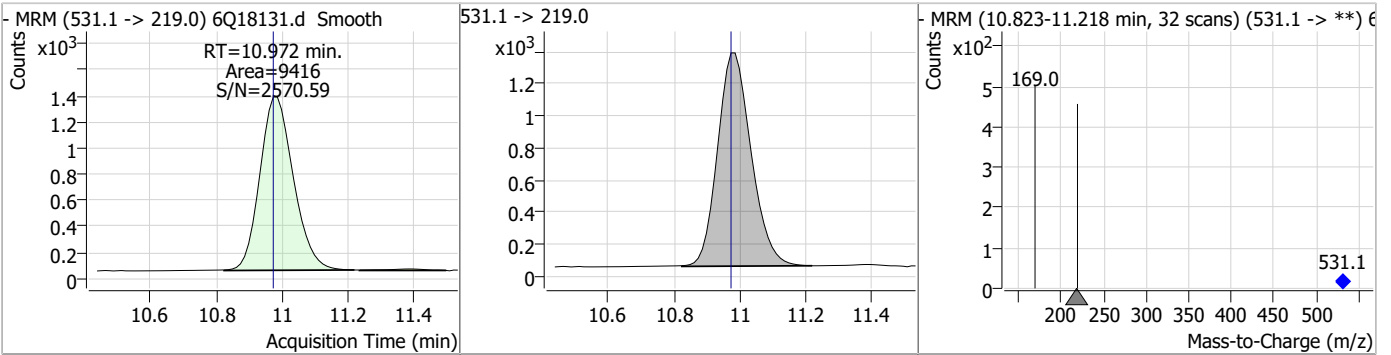
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.03	10.91	0.00	102026				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.35	10.97	0.00	9416				



7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18138.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 3:45:40 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	166062	10.00 µg/L	-0.012
M5-PFPeA	4.235	268.3 -> 223.0	50805	5.00 µg/L	-0.012
M5-PFHxA	5.441	318.0 -> 273.0	60355	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	50856	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	76804	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	26866	1.25 µg/L	0.000
M6-PFDA	8.039	519.1 -> 474.1	21274	1.25 µg/L	-0.012
M7-PFUnDA	8.492	570.0 -> 525.1	27007	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	26002	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	17328	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	24338	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	19553	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11699	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9818	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	3063	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	4033	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3672	5.00 µg/L	-0.012
M3-MeFOSAA	8.096	573.2 -> 419.0	31604	5.00 µg/L	-0.012
M3-HFPO-DA	5.807	286.9 -> 168.9	36585	10.00 µg/L	0.000
M5-EtFOSAA	8.292	589.2 -> 419.0	24598	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	86599	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	106113	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	10040	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	8116	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	13504	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	69003	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	9000	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	84497	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	24068	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	30928	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	49796	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	3063	6.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.8%		
13C2-6:2FTS	6.825	429.1 -> 80.9	4033	6.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.5%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3672	5.51 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-PFDoDA	8.925	615.1 -> 570.0	26002	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	9.652	715.2 -> 670.0	17328	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C3-PFBS	5.359	302.1 -> 79.9	19553	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFHxS	7.155	402.1 -> 79.9	11699	2.43 µg/L	0.000

7.2.4
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C4-PFBA	2.876	216.8 -> 171.9	166062	10.09 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	6.395	367.1 -> 322.0	50856	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFHxA	5.441	318.0 -> 273.0	60355	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFPeA	4.235	268.3 -> 223.0	50805	4.96 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C6-PFDA	8.039	519.1 -> 474.1	21274	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C7-PFUnDA	8.492	570.0 -> 525.1	27007	1.28 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C8-FOSA	9.611	506.1 -> 77.8	24338	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C8-PFOA	7.051	421.1 -> 376.0	76804	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.202	507.1 -> 79.9	9818	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C9-PFNA	7.569	472.1 -> 427.0	26866	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.5%	
d3-MeFOSAA	8.096	573.2 -> 419.0	31604	6.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 125.0%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	36585	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d3-MeFOSA	10.739	515.0 -> 219.0	8116	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
d5-EtFOSAA	8.292	589.2 -> 419.0	24598	5.89 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.8%	
d7-MeFOSE	10.660	623.2 -> 58.9	86599	25.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d9-EtFOSE	10.907	639.2 -> 58.9	106113	26.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
d5-EtFOSA	10.972	531.1 -> 219.0	10040	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.596	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.2.4
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	7.389	413.0 -> 369.0	0	µg/L	m	1
		413.0 -> 169.0	0			
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.24
7

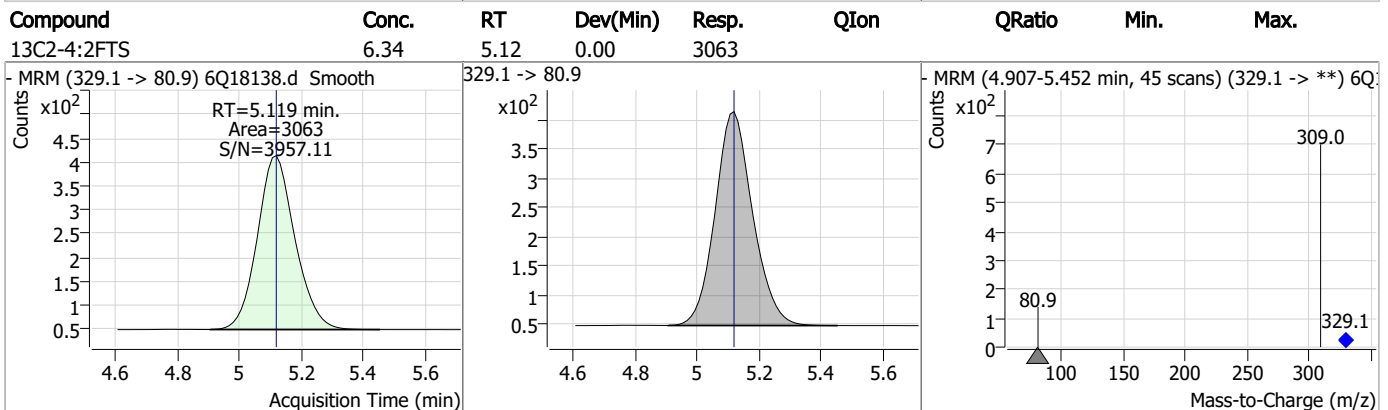
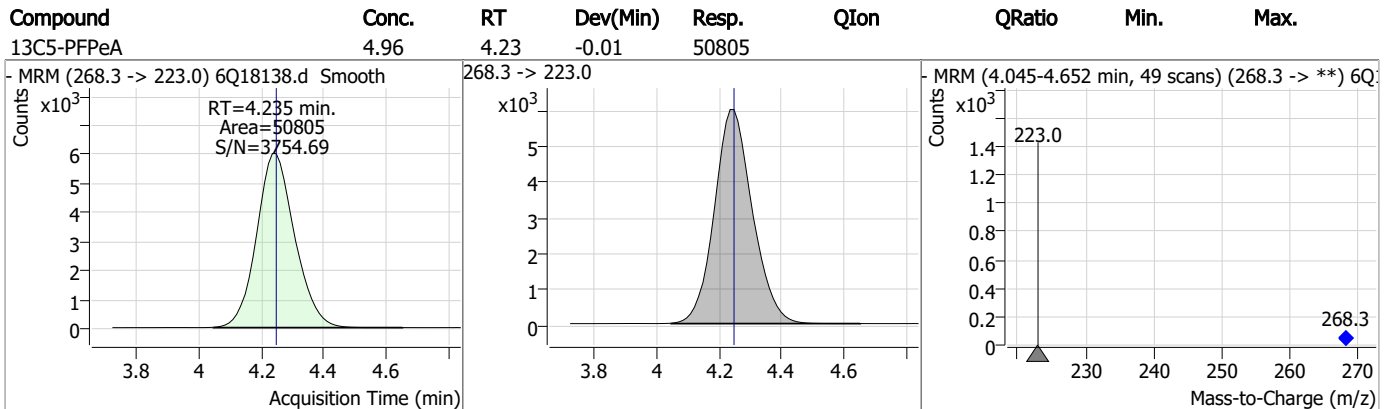
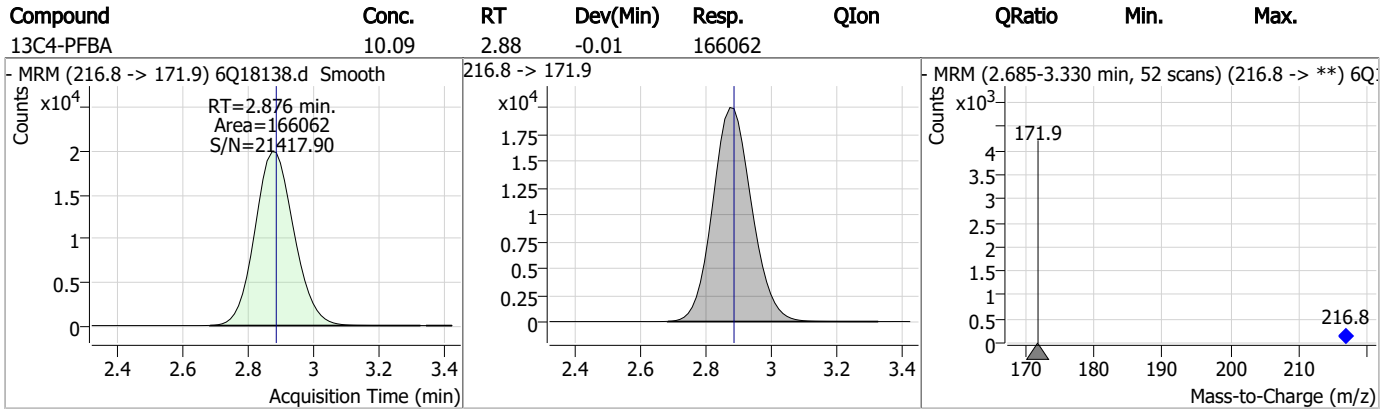
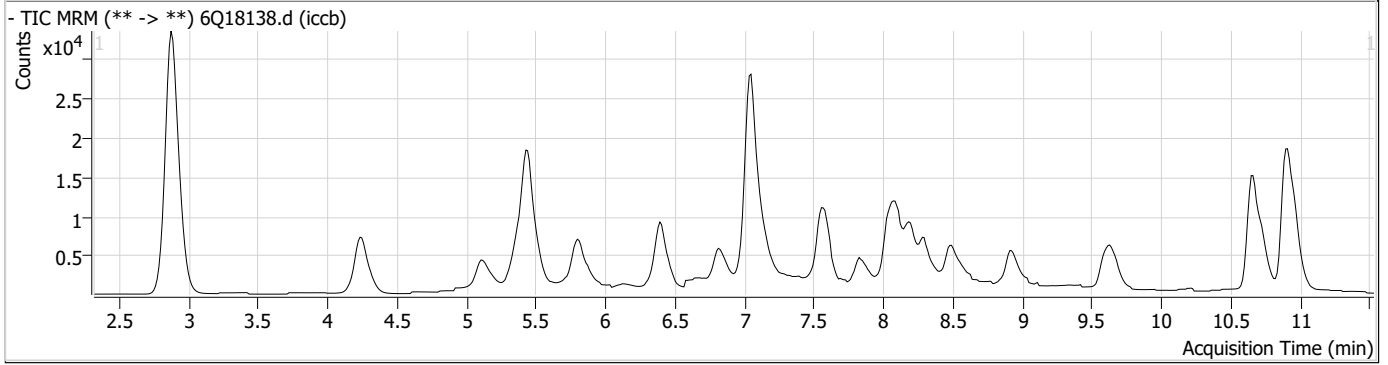
Perfluorinated Compounds by LC/MS/MS

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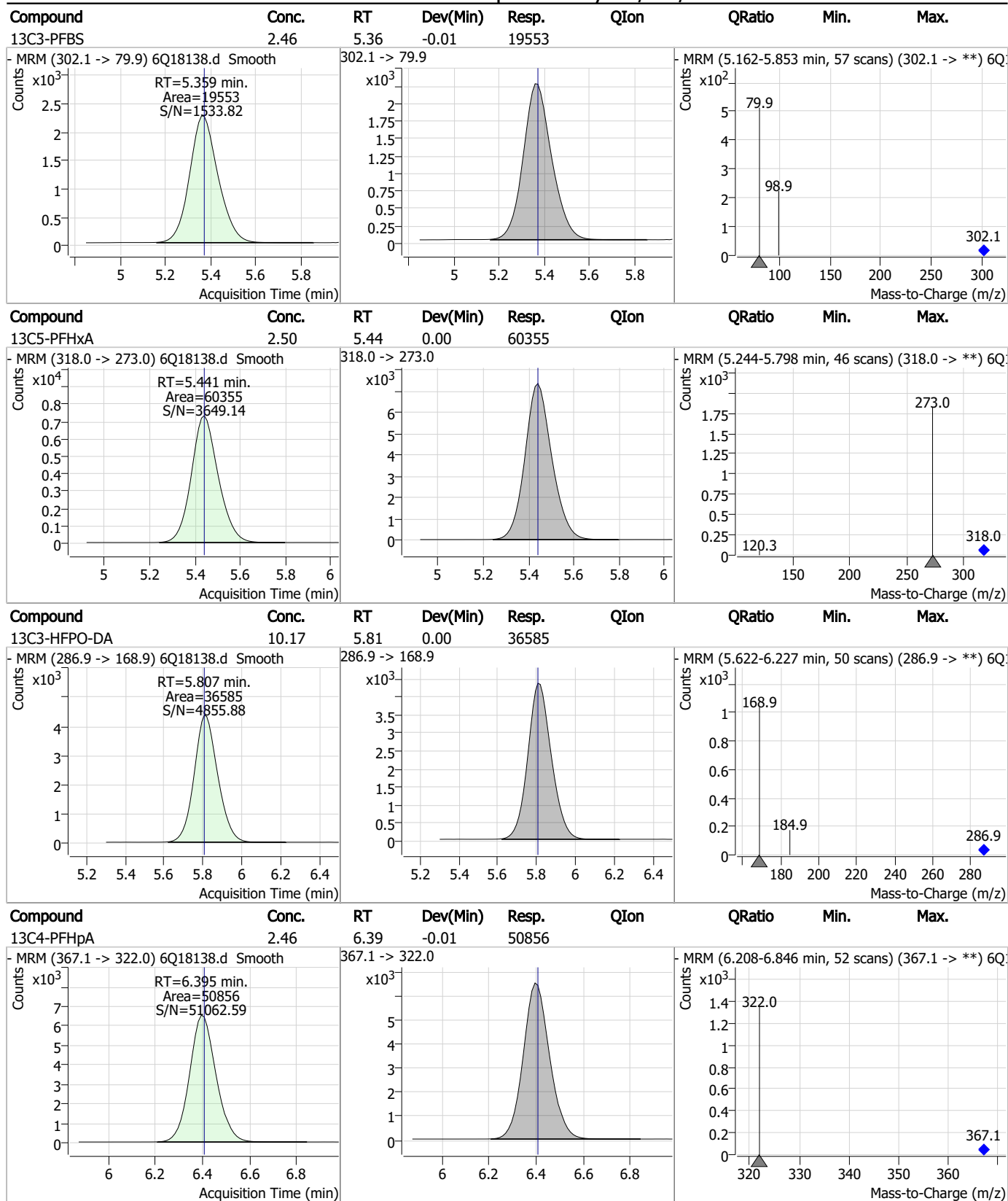
7.2.4

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Perfluorinated Compounds by LC/MS/MS



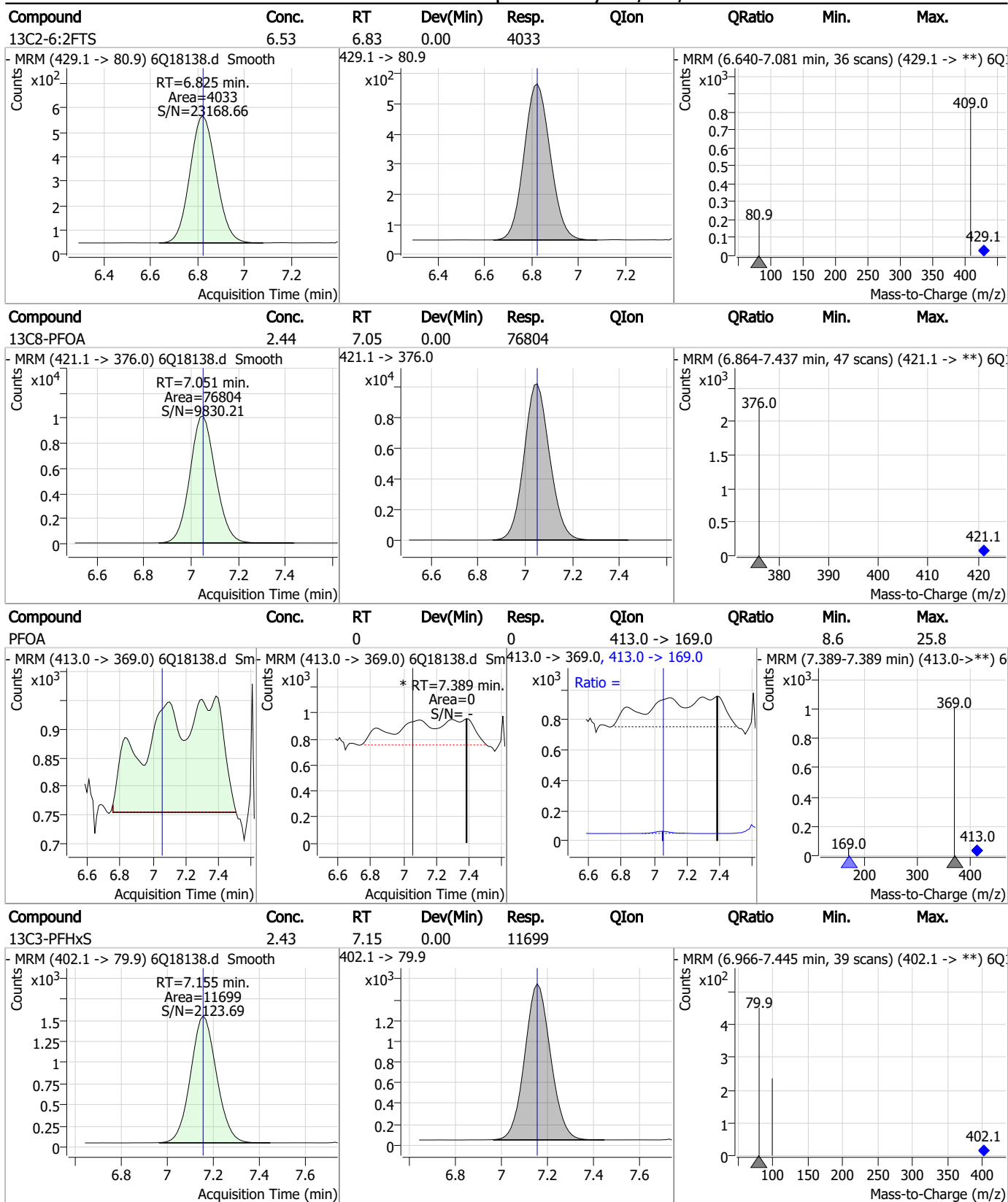
Perfluorinated Compounds by LC/MS/MS



7.2.4
7

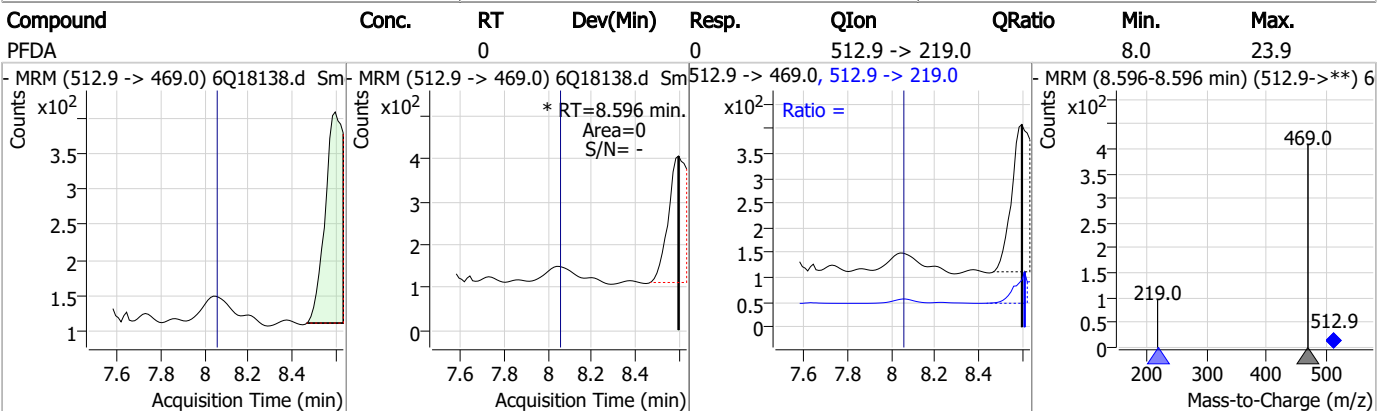
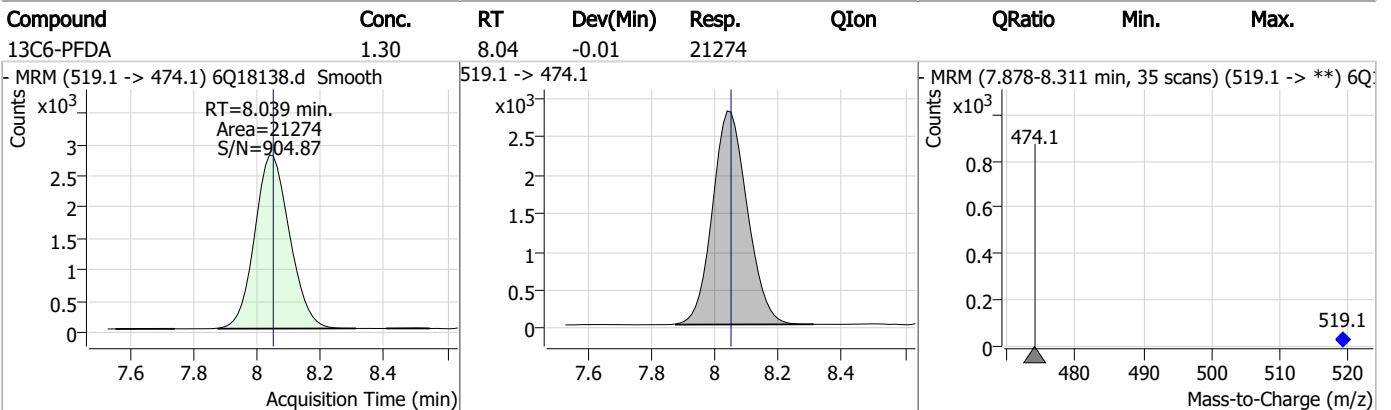
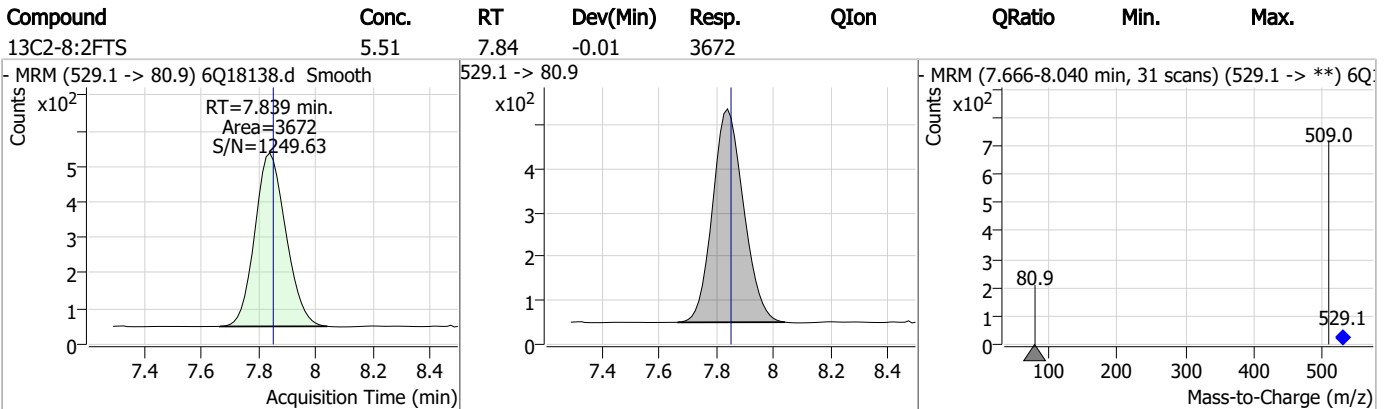
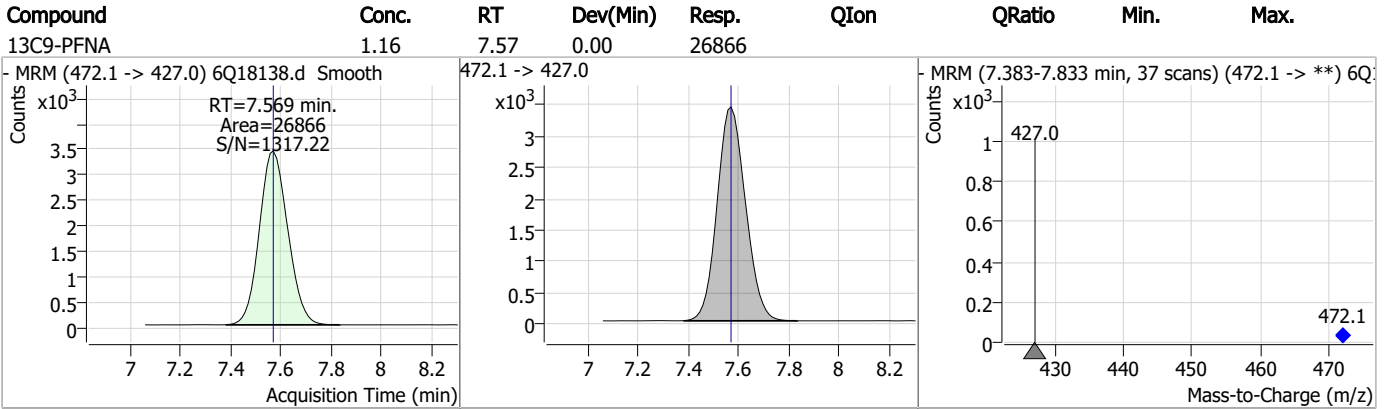


Perfluorinated Compounds by LC/MS/MS

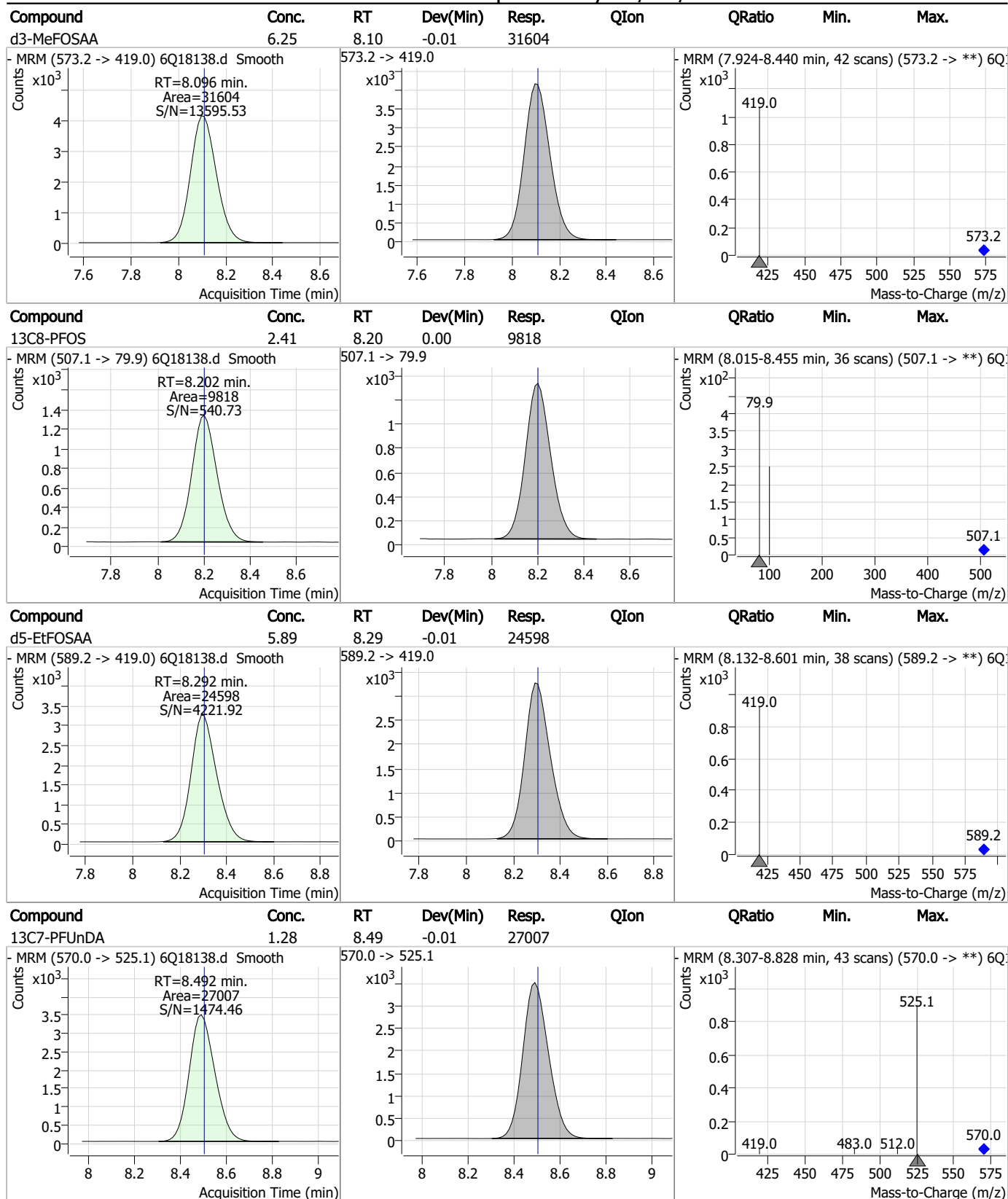


7.24
7

Perfluorinated Compounds by LC/MS/MS

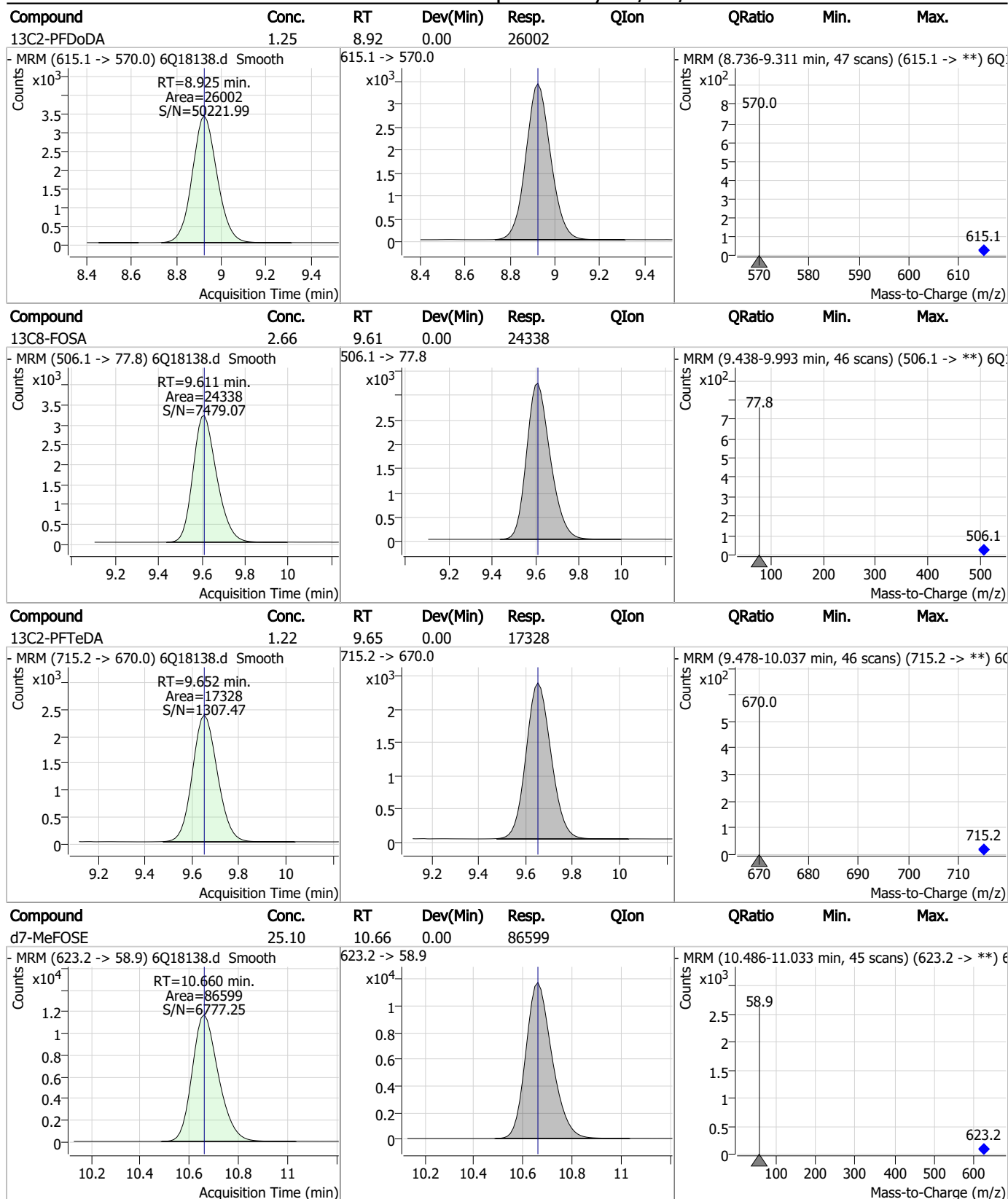


Perfluorinated Compounds by LC/MS/MS



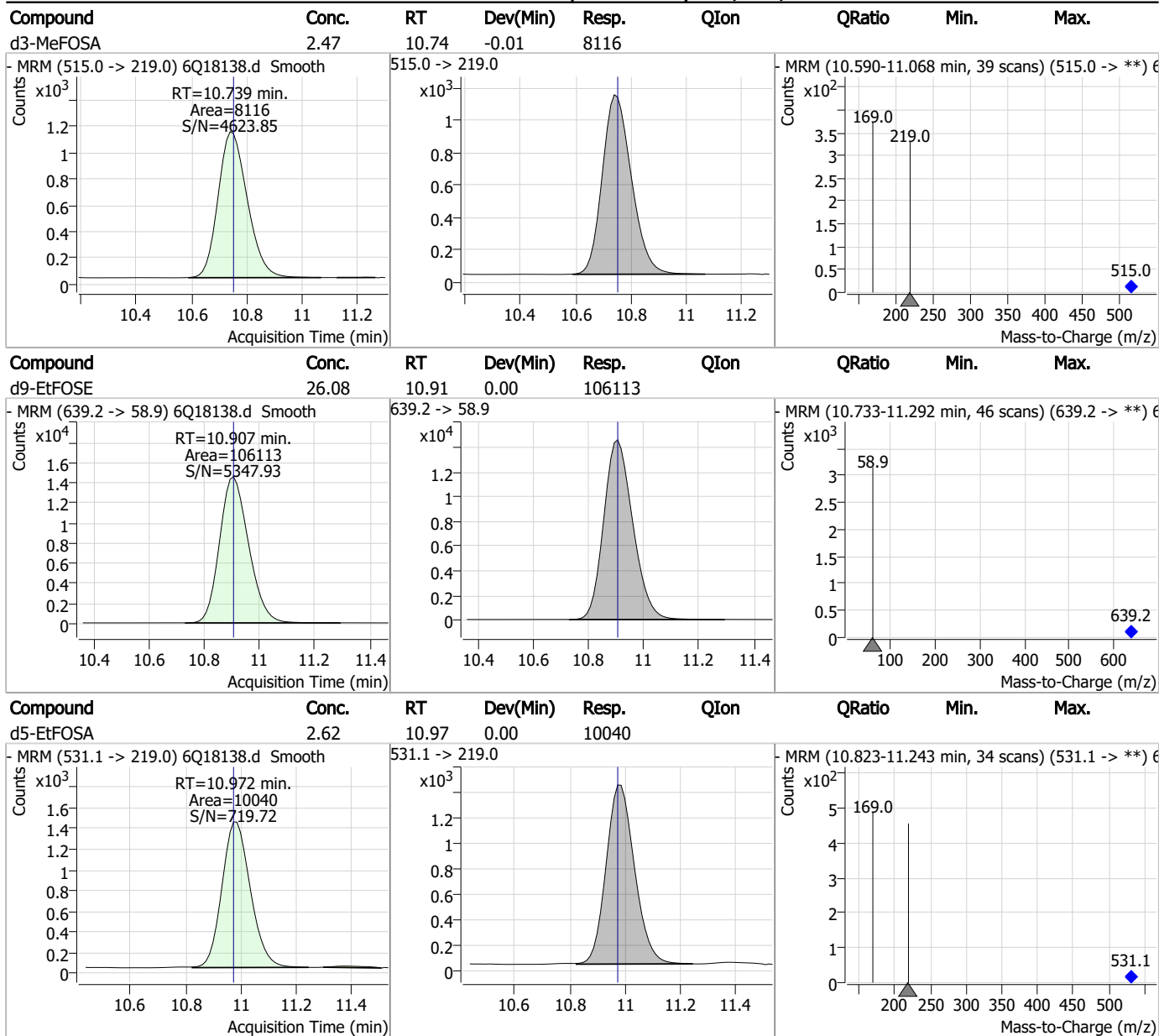
7.2.4
7

Perfluorinated Compounds by LC/MS/MS



7.2.4
7

Perfluorinated Compounds by LC/MS/MS



7.2.4
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18119.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 11:10:22 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	165424	10.00 µg/L	-0.012
M5-PFPeA	4.235	268.3 -> 223.0	51384	5.00 µg/L	-0.012
M5-PFHxA	5.429	318.0 -> 273.0	61444	2.50 µg/L	-0.012
M4-PFHpA	6.395	367.1 -> 322.0	53052	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	80628	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	25867	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	19044	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	26169	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	26723	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	17946	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	23896	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	19057	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11565	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9468	2.50 µg/L	0.000
M2-4:2FTS	5.106	329.1 -> 80.9	3117	5.00 µg/L	-0.012
M2-6:2FTS	6.813	429.1 -> 80.9	3785	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	4184	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	29422	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	36246	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	24533	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	89845	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	109692	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9640	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	8225	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	12997	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	69259	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8937	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	83487	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	24848	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	28607	1.25 µg/L	0.000
13C2-PFHxA	5.430	315.1 -> 270.0	48944	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.106	329.1 -> 80.9	3117	6.50 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.0%		
13C2-6:2FTS	6.813	429.1 -> 80.9	3785	6.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.4%		
13C2-8:2FTS	7.839	529.1 -> 80.9	4184	6.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.4%		
13C2-PFDoDA	8.925	615.1 -> 570.0	26723	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-PFTeDA	9.652	715.2 -> 670.0	17946	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.359	302.1 -> 79.9	19057	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.155	402.1 -> 79.9	11565	2.42 µg/L	0.000

7.2.5
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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 = 96.8%	
13C4-PFBA	2.876	216.8 -> 171.9	165424	10.01 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.395	367.1 -> 322.0	53052	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFHxA	5.429	318.0 -> 273.0	61444	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFPeA	4.235	268.3 -> 223.0	51384	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C6-PFDA	8.051	519.1 -> 474.1	19044	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C7-PFUnDA	8.492	570.0 -> 525.1	26169	1.21 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-FOSA	9.611	506.1 -> 77.8	23896	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C8-PFOA	7.038	421.1 -> 376.0	80628	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-PFOS	8.202	507.1 -> 79.9	9468	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C9-PFNA	7.569	472.1 -> 427.0	25867	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSAA	8.108	573.2 -> 419.0	29422	6.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.9%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	36246	10.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d3-MeFOSA	10.739	515.0 -> 219.0	8225	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
d5-EtFOSAA	8.304	589.2 -> 419.0	24533	6.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 122.1%	
d7-MeFOSE	10.660	623.2 -> 58.9	89845	27.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
d9-EtFOSE	10.907	639.2 -> 58.9	109692	28.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 112.0%	
d5-EtFOSA	10.972	531.1 -> 219.0	9640	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	

Target Compounds

QValue

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



7.25
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.5
7

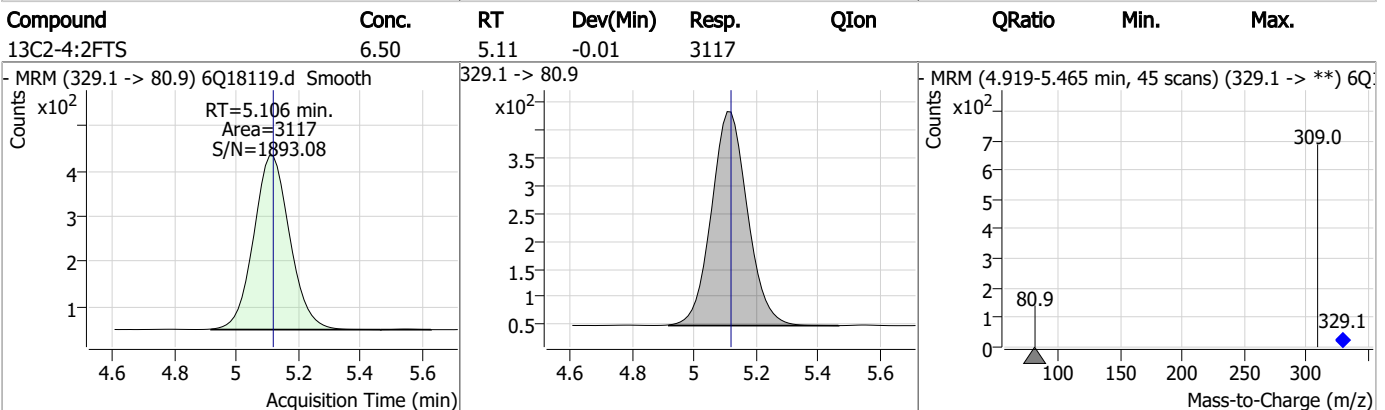
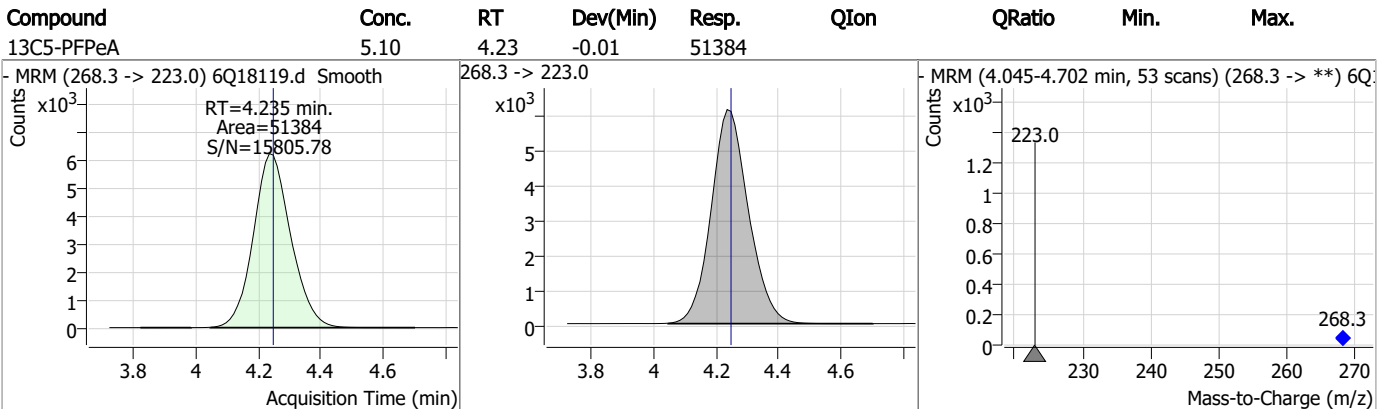
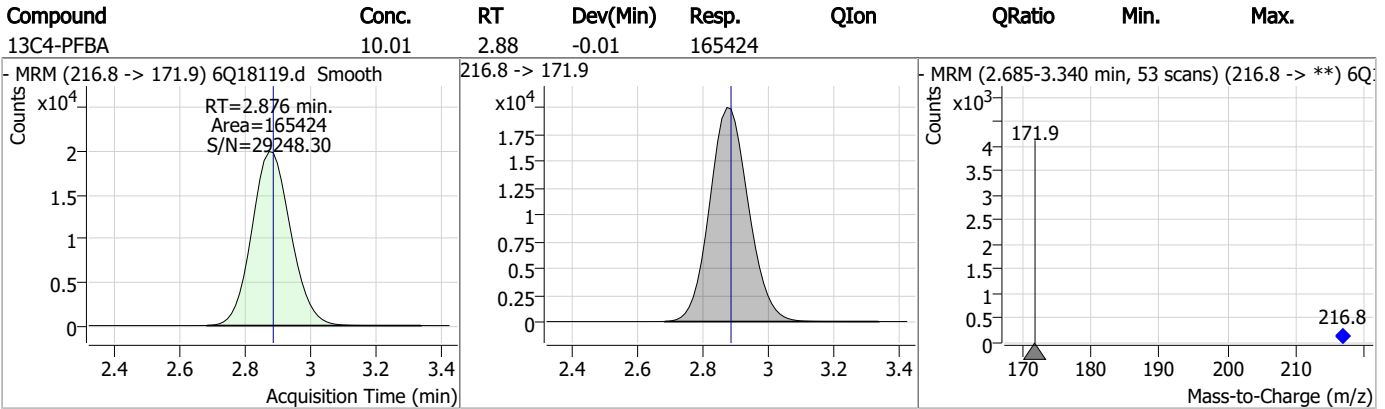
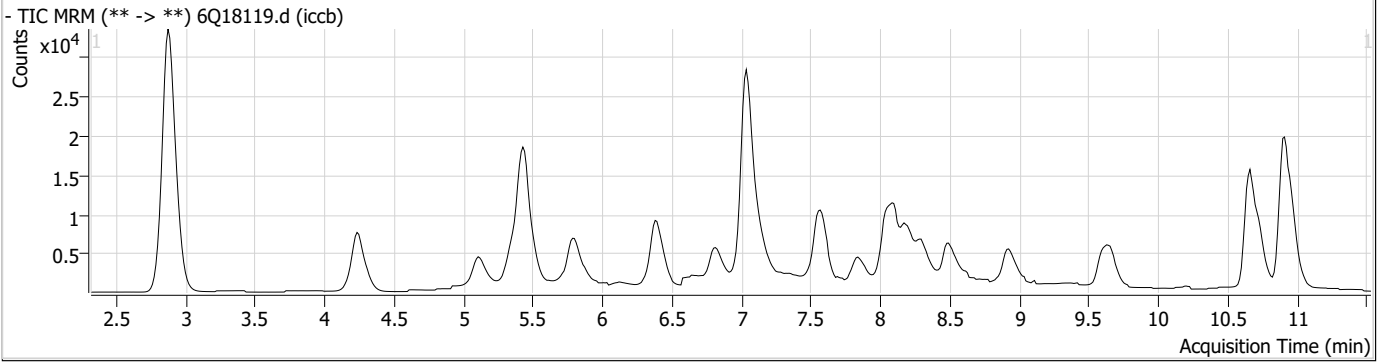
Perfluorinated Compounds by LC/MS/MS

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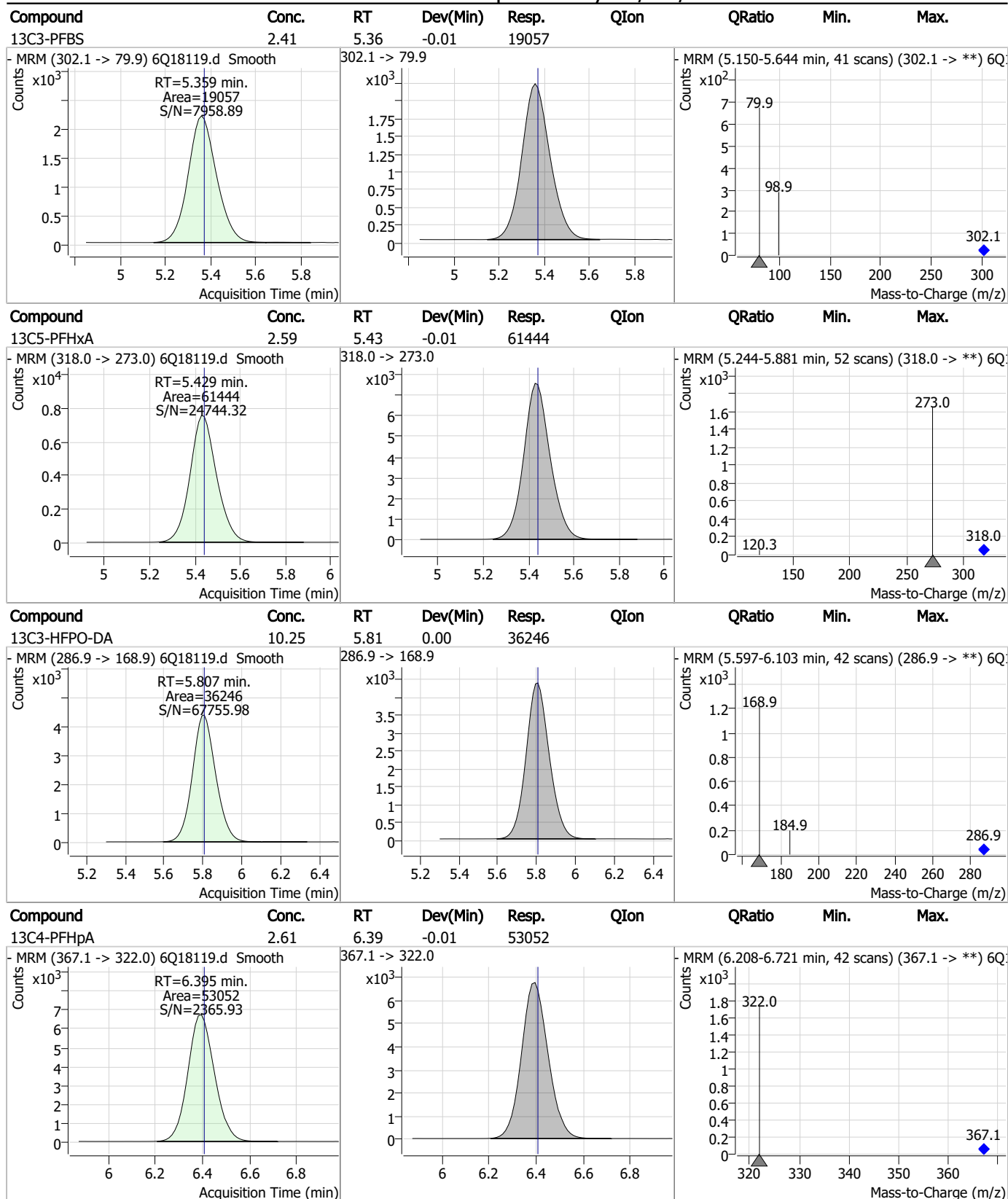
7.2.5

7

Perfluorinated Compounds by LC/MS/MS

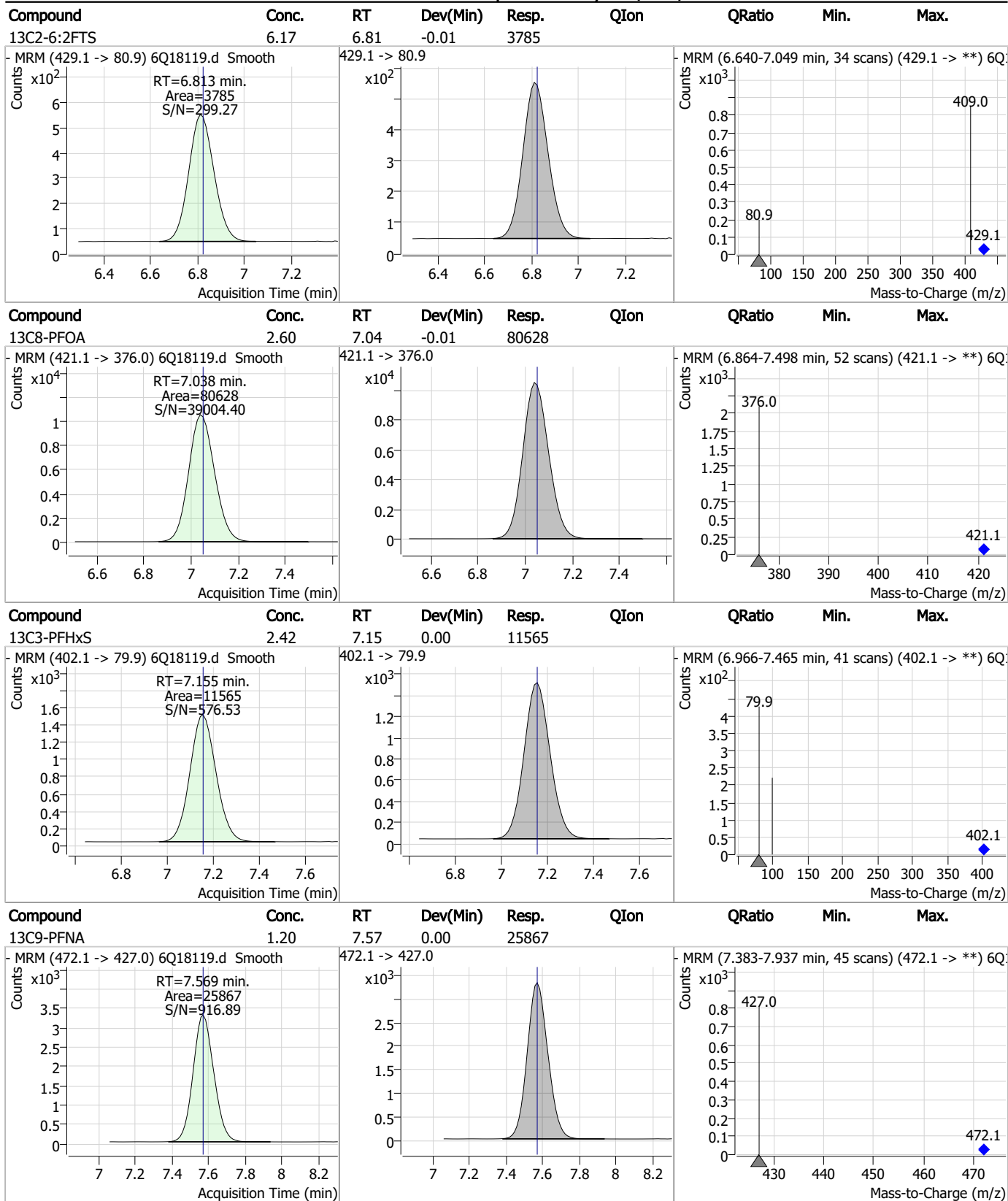


Perfluorinated Compounds by LC/MS/MS



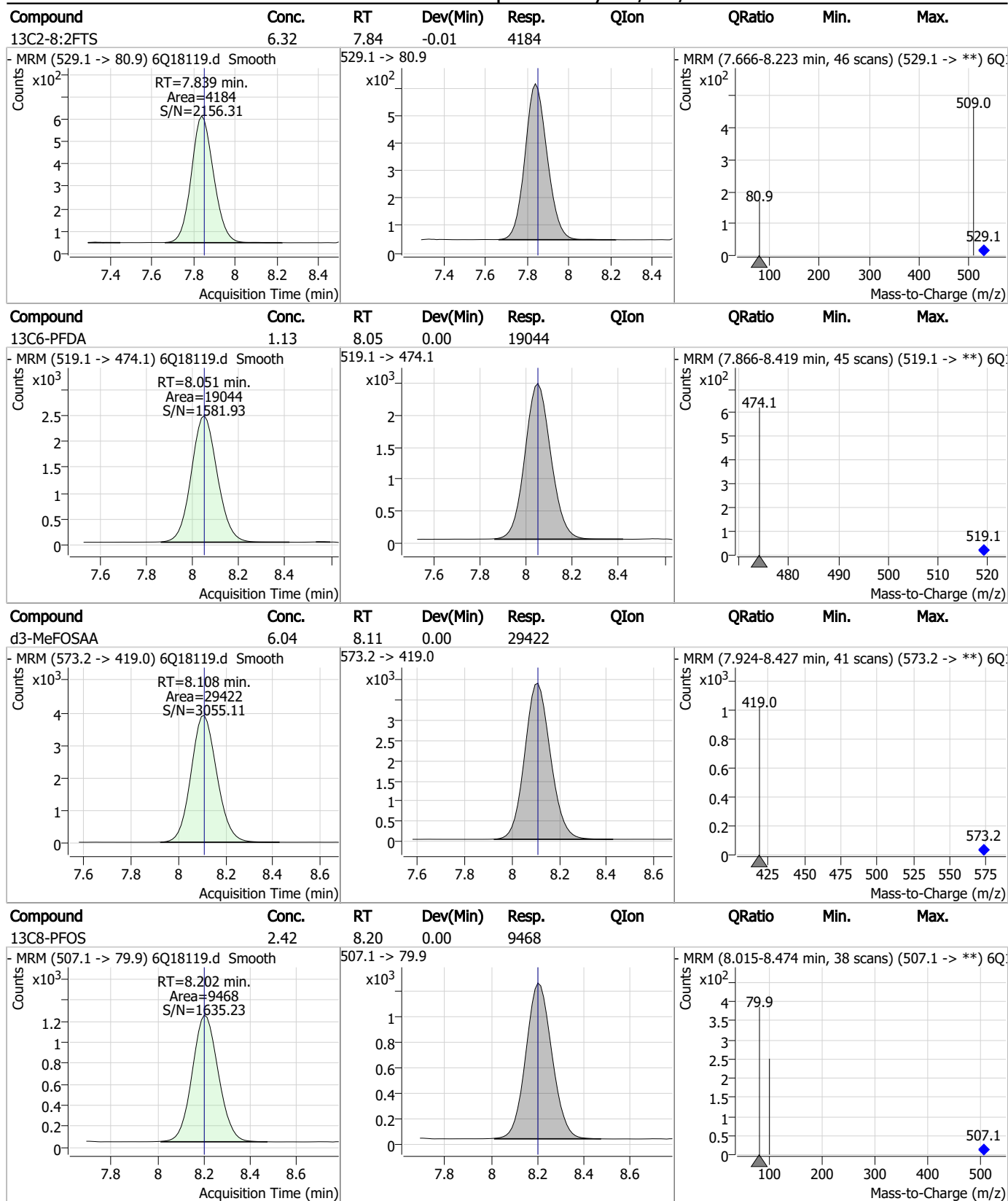
7.25
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Perfluorinated Compounds by LC/MS/MS



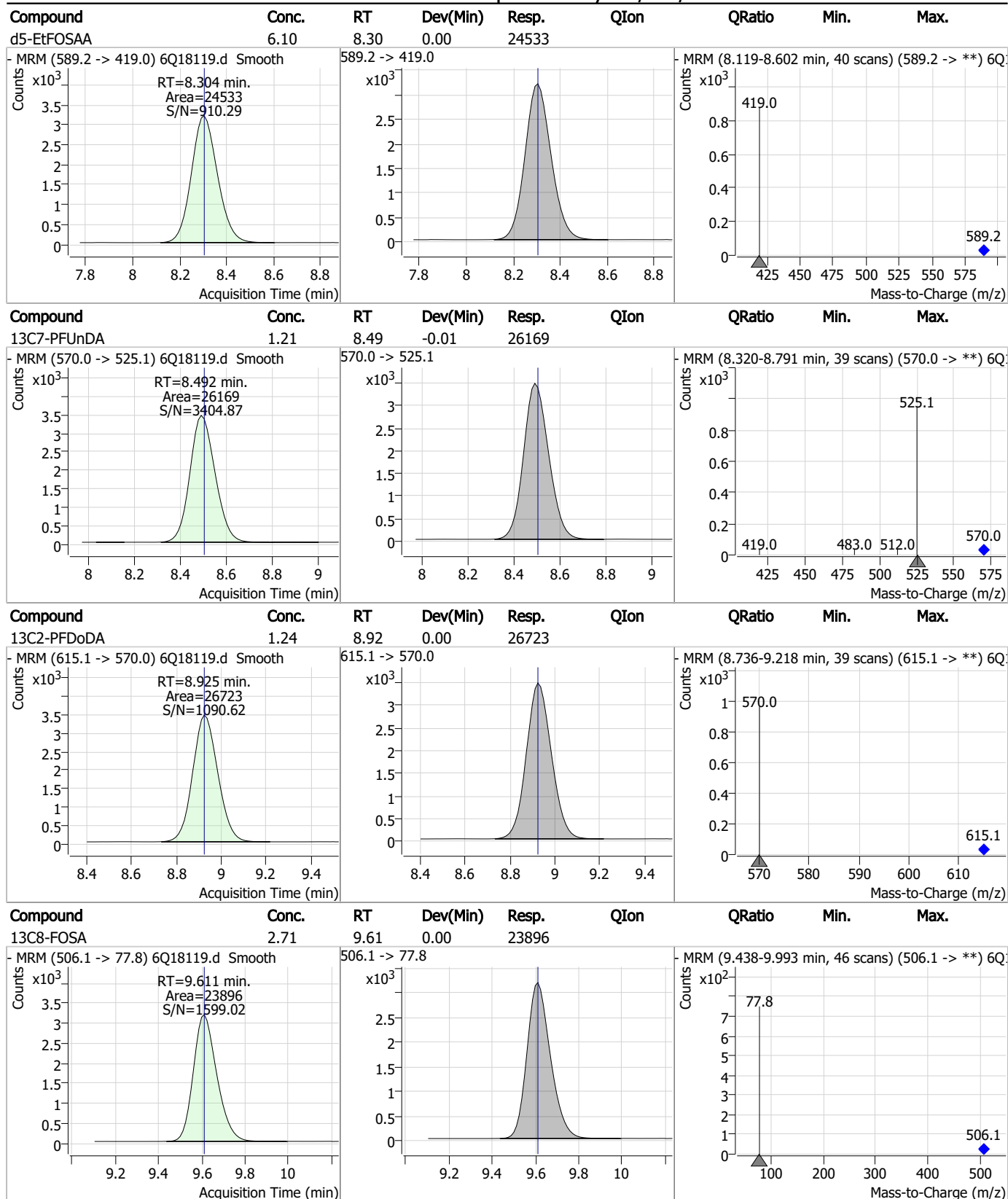
7.25
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Perfluorinated Compounds by LC/MS/MS



7.25
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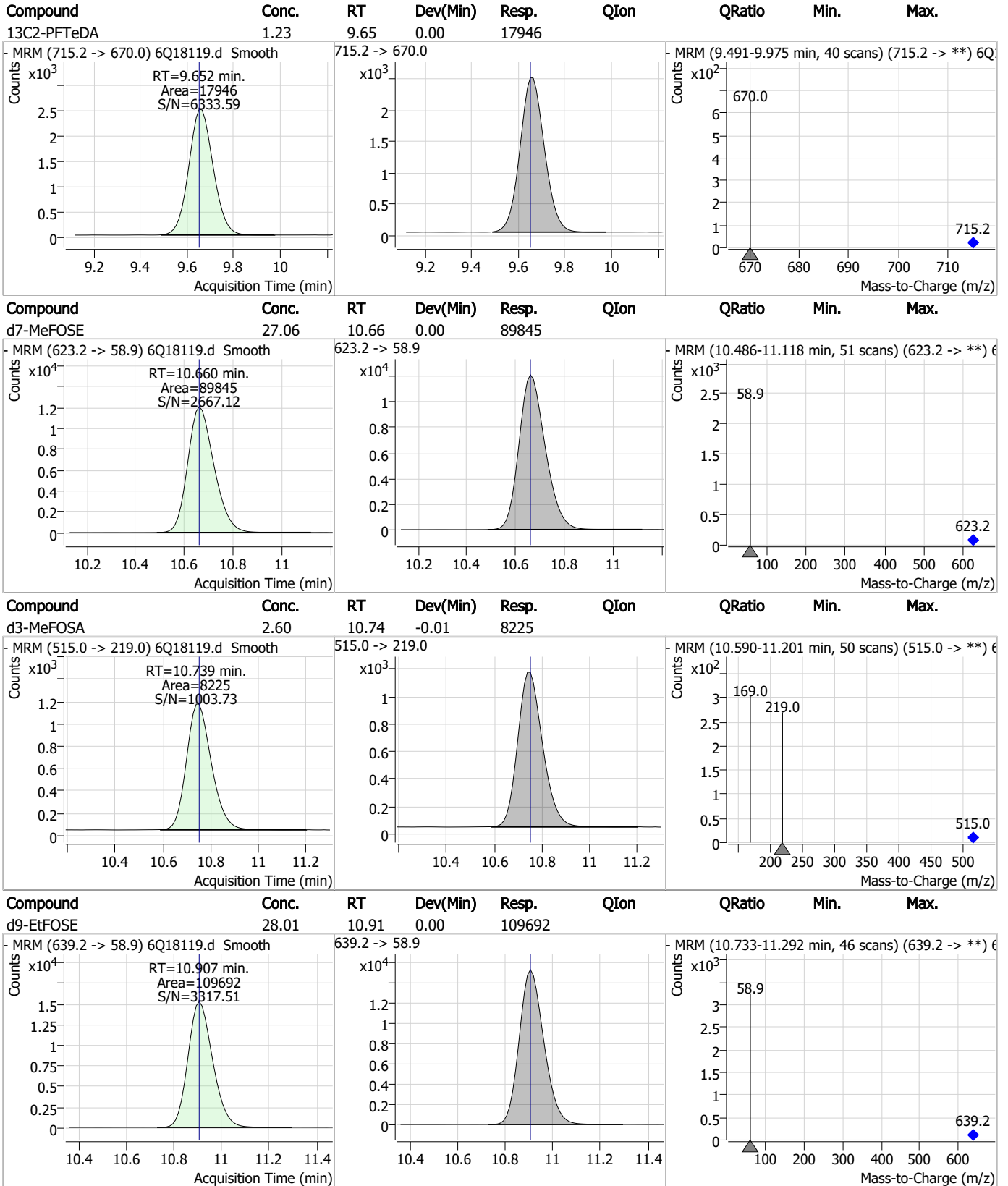
Perfluorinated Compounds by LC/MS/MS



7.2.5
7



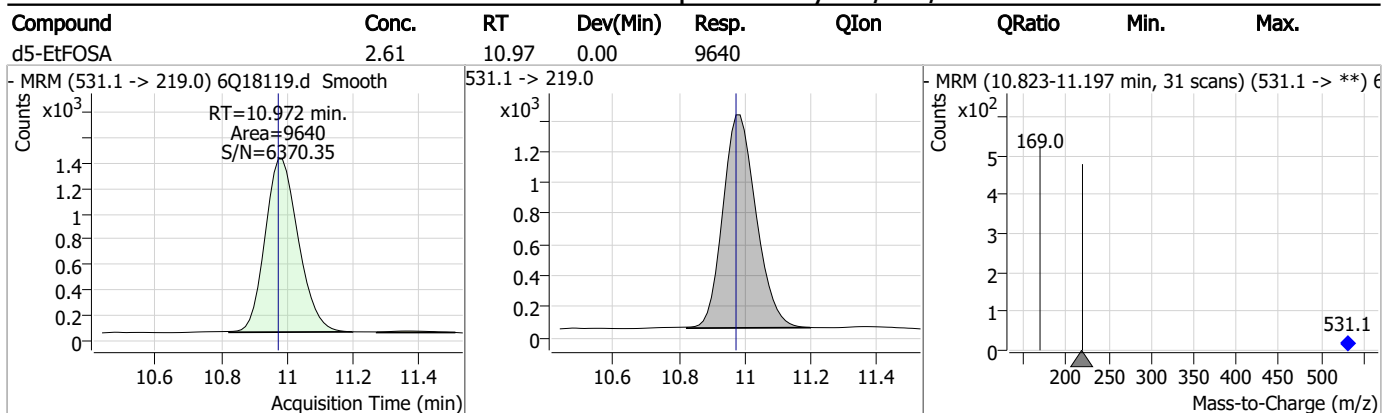
Perfluorinated Compounds by LC/MS/MS



7.2.5

7

Perfluorinated Compounds by LC/MS/MS



7.2.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18120.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 11:24:50 AM
 Sample Name : op96921-bs
 Vial : P4-E9
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	26347	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	37196	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	50971	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	45343	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	67308	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	23961	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	17385	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	20950	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	21827	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	14810	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	16471	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	16283	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	9784	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9659	2.50 µg/L	0.000
M2-4:2FTS	5.106	329.1 -> 80.9	2519	5.00 µg/L	-0.012
M2-6:2FTS	6.813	429.1 -> 80.9	3315	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	3518	5.00 µg/L	-0.012
M3-MeFOSAA	8.096	573.2 -> 419.0	24335	5.00 µg/L	-0.012
M3-HFPO-DA	5.807	286.9 -> 168.9	30894	10.00 µg/L	0.000
M5-EtFOSAA	8.292	589.2 -> 419.0	20660	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	44956	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	62965	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	6892	2.50 µg/L	0.012
M3-MeFOSA	10.752	515.0 -> 219.0	5457	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	10799	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	61324	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8108	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	74014	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	21723	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	26501	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	45107	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.106	329.1 -> 80.9	2519	5.79 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.8%		
13C2-6:2FTS	6.813	429.1 -> 80.9	3315	5.95 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3518	5.86 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.1%		
13C2-PFDoDA	8.925	615.1 -> 570.0	21827	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C2-PFTeDA	9.652	715.2 -> 670.0	14810	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C3-PFBS	5.359	302.1 -> 79.9	16283	2.27 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C3-PFHxS	7.155	402.1 -> 79.9	9784	2.26 µg/L	0.000

7.31
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.2%	
13C4-PFBA	2.888	216.8 -> 171.9	26347	1.80 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 18.0%	
13C4-PFHpA	6.395	367.1 -> 322.0	45343	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C5-PFHxA	5.441	318.0 -> 273.0	50971	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C5-PFPeA	4.247	268.3 -> 223.0	37196	4.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.1%	
13C6-PFDA	8.051	519.1 -> 474.1	17385	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C7-PFUnDA	8.492	570.0 -> 525.1	20950	1.10 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C8-FOSA	9.611	506.1 -> 77.8	16471	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C8-PFOA	7.051	421.1 -> 376.0	67308	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.202	507.1 -> 79.9	9659	2.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.7%	
13C9-PFNA	7.569	472.1 -> 427.0	23961	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSAA	8.096	573.2 -> 419.0	24335	6.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.3%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	30894	9.48 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.8%	
d3-MeFOSA	10.752	515.0 -> 219.0	5457	2.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.0%	
d5-EtFOSAA	8.292	589.2 -> 419.0	20660	6.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 123.7%	
d7-MeFOSE	10.660	623.2 -> 58.9	44956	16.29 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 65.2%	
d9-EtFOSE	10.907	639.2 -> 58.9	62965	19.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.4%	
d5-EtFOSA	10.985	531.1 -> 219.0	6892	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.0%	
Target Compounds					QValue
4:2FTS	5.107	327.1 -> 307.0	33472	9.00 µg/L	98
		327.1 -> 80.9	12796		
6:2FTS	6.826	427.1 -> 407.0	31286	8.73 µg/L	99
		427.1 -> 80.9	10828		
8:2FTS	7.840	527.1 -> 507.0	17946	8.92 µg/L	95
		527.1 -> 80.8	8250		
EtFOSAA	8.305	584.2 -> 419.1	7667	2.17 µg/L	90
		584.2 -> 526.0	4685		
FOSA	9.602	498.1 -> 77.9	14153	2.34 µg/L	100
		498.1 -> 478.0	441		
MeFOSAA	8.109	570.1 -> 419.0	11391	2.38 µg/L	99
		570.1 -> 483.0	2135		
PFBA	2.882	212.8 -> 168.9	8963	9.37 µg/L	100
PFBS	5.360	298.7 -> 79.9	16529	2.08 µg/L	95
		298.7 -> 98.8	6507		
PFDA	8.052	512.9 -> 469.0	49907	2.41 µg/L	95
		512.9 -> 219.0	6860		
PFDoDA	8.925	613.1 -> 569.0	40358	2.30 µg/L	99
		613.1 -> 319.0	5761		
PFDS	9.089	599.0 -> 79.9	6572	2.03 µg/L	96

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3027			
PFHpA	6.396	363.1 -> 319.0	51626	2.23	µg/L	96
		363.1 -> 169.0	8656			
PFHpS	7.710	449.0 -> 79.9	10897	2.09	µg/L	96
		449.0 -> 98.9	5665			
PFHxA	5.444	313.0 -> 269.0	49317	2.48	µg/L	100
		313.0 -> 118.9	2193			
PFHxS	7.156	398.7 -> 79.9	12033	2.20	µg/L	m 97
		398.7 -> 98.9	5978			
PFNA	7.570	463.0 -> 419.0	40185	2.28	µg/L	98
		463.0 -> 219.0	7480			
PFNS	8.657	548.8 -> 79.9	9733	2.05	µg/L	97
		548.8 -> 98.9	4951			
PFOA	7.052	413.0 -> 369.0	73705	2.24	µg/L	100
		413.0 -> 169.0	12734			
PFOS	8.203	498.9 -> 79.9	10060	1.94	µg/L	95
		498.9 -> 98.8	5017			
PFPeA	4.237	263.0 -> 219.0	50883	4.62	µg/L	100
PFPeS	6.447	349.1 -> 79.9	12575	2.31	µg/L	96
		349.1 -> 98.9	5573			
PFTeDA	9.652	713.1 -> 669.0	35723	2.33	µg/L	99
		713.1 -> 168.9	2571			
PFTrDA	9.309	663.0 -> 619.0	46083	2.28	µg/L	99
		663.0 -> 168.9	4473			
PFUnDA	8.493	563.1 -> 519.0	38456	2.63	µg/L	99
		563.1 -> 269.1	5671			
11CI-PF3OUdS	9.360	630.9 -> 450.9	51462	4.26	µg/L	99
		632.9 -> 452.9	16428			
9CI-PF3ONS	8.533	530.8 -> 351.0	83753	4.44	µg/L	99
		532.8 -> 353.0	27165			
ADONA	6.658	376.9 -> 250.9	228684	4.62	µg/L	97
		376.9 -> 84.8	57808			
HFPO-DA	5.807	284.9 -> 168.9	14354	4.78	µg/L	99
		284.9 -> 184.9	1876			
3:3FTCA	3.727	241.0 -> 177.0	2139	3.08	µg/L	93
		241.0 -> 117.0	375			
5:3FTCA	6.111	341.0 -> 237.1	185042	51.55	µg/L	99
		341.0 -> 217.0	133230			
7:3FTCA	7.535	441.0 -> 316.9	102478	57.45	µg/L	98
		441.0 -> 336.9	229310			
EtFOSA	10.974	526.0 -> 219.0	14102	4.70	µg/L	95
		526.0 -> 169.0	18347			
EtFOSE	10.920	630.0 -> 58.9	31674	11.24	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	12624	5.07	µg/L	97
		511.9 -> 169.0	17150			
MeFOSE	10.673	616.1 -> 58.9	25596	12.09	µg/L	100
PFDoDS	9.779	699.1 -> 79.9	3302	1.89	µg/L	88
		699.1 -> 98.8	2053			
NFDHA	5.311	295.0 -> 201.0	10619	4.77	µg/L	98
		295.0 -> 84.9	2775			
PFMBA	4.650	279.0 -> 85.1	40378	5.21	µg/L	100
PFMPA	3.401	229.0 -> 84.9	10538	1.84	µg/L	100
PFEESA	5.900	314.8 -> 134.9	109536	4.17	µg/L	98
		314.8 -> 82.9	3536			

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

7.3.1
7

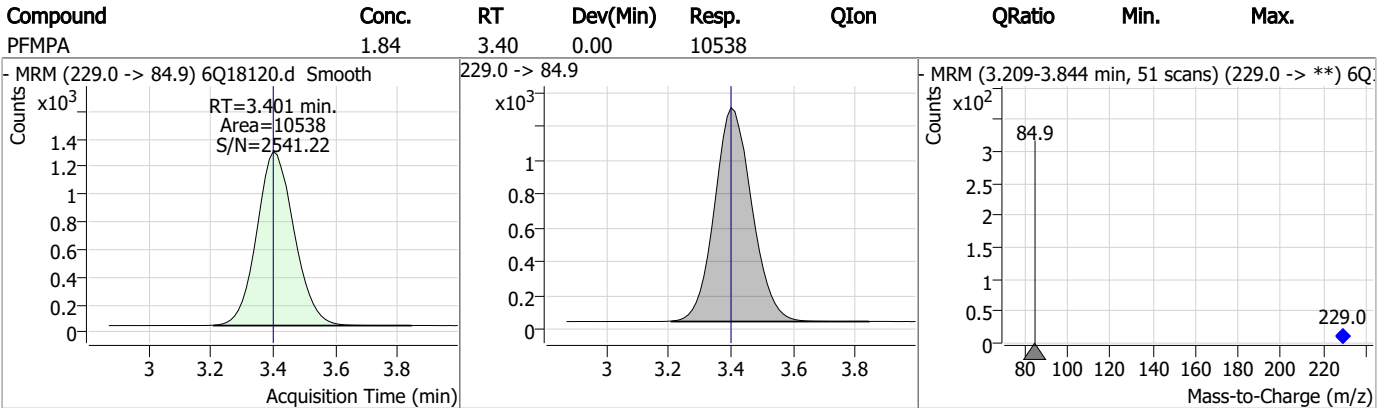
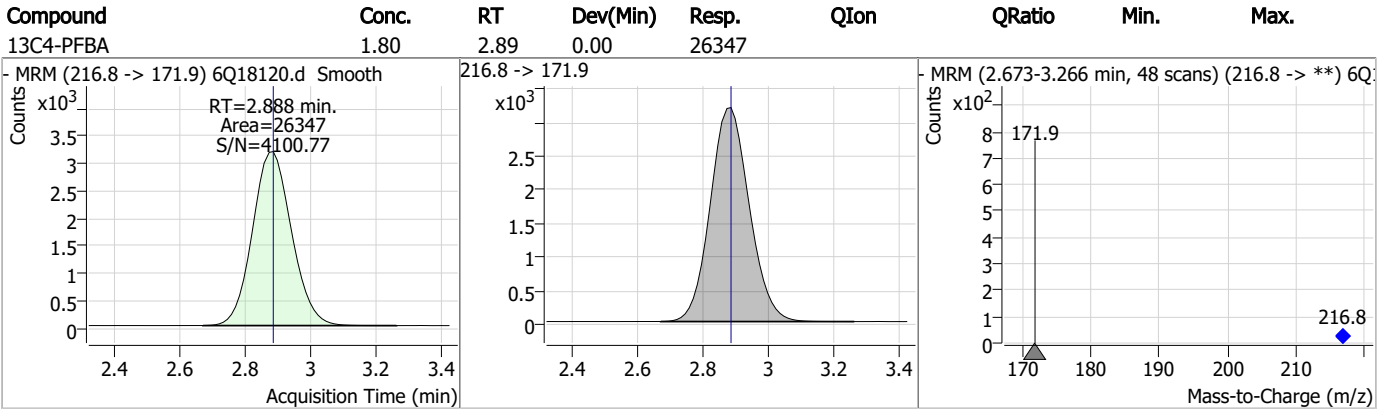
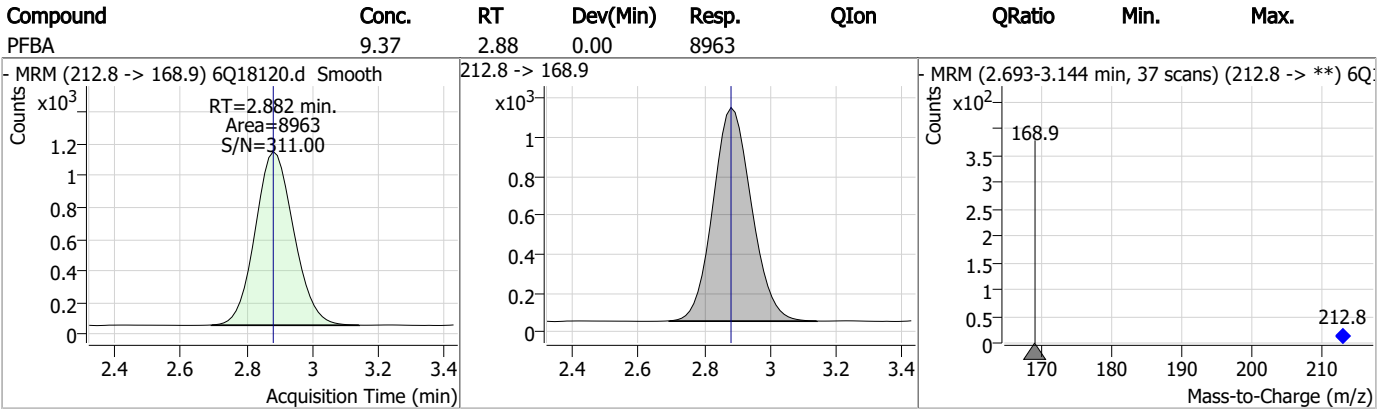
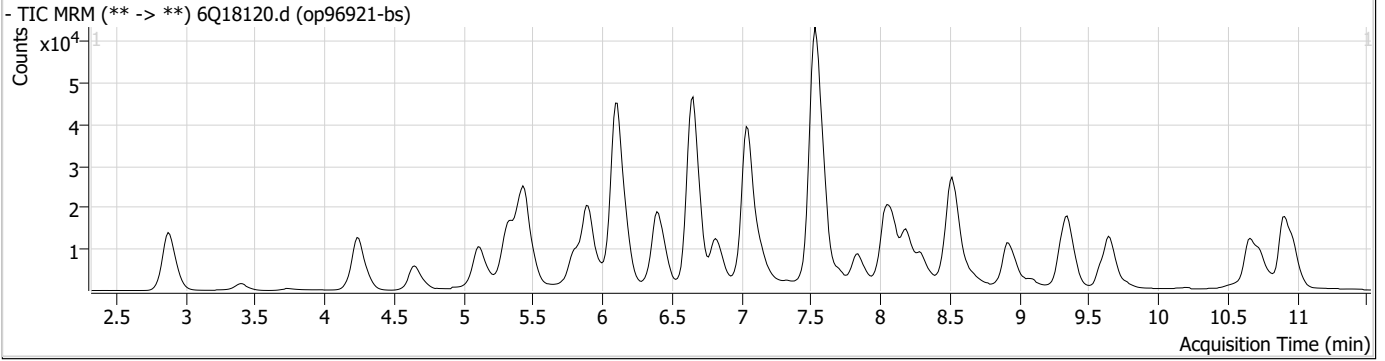
Perfluorinated Compounds by LC/MS/MS

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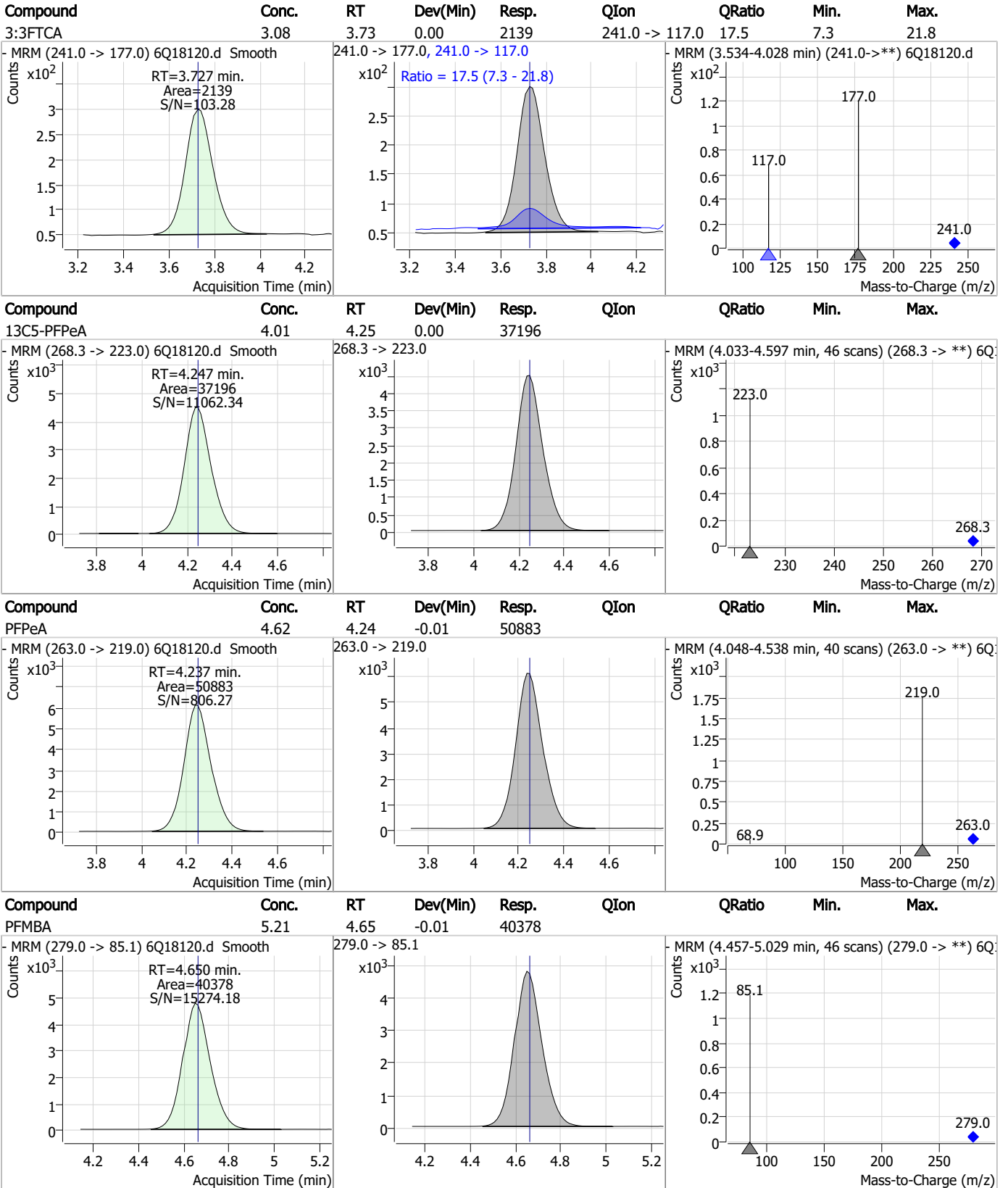
7.3.1

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Perfluorinated Compounds by LC/MS/MS



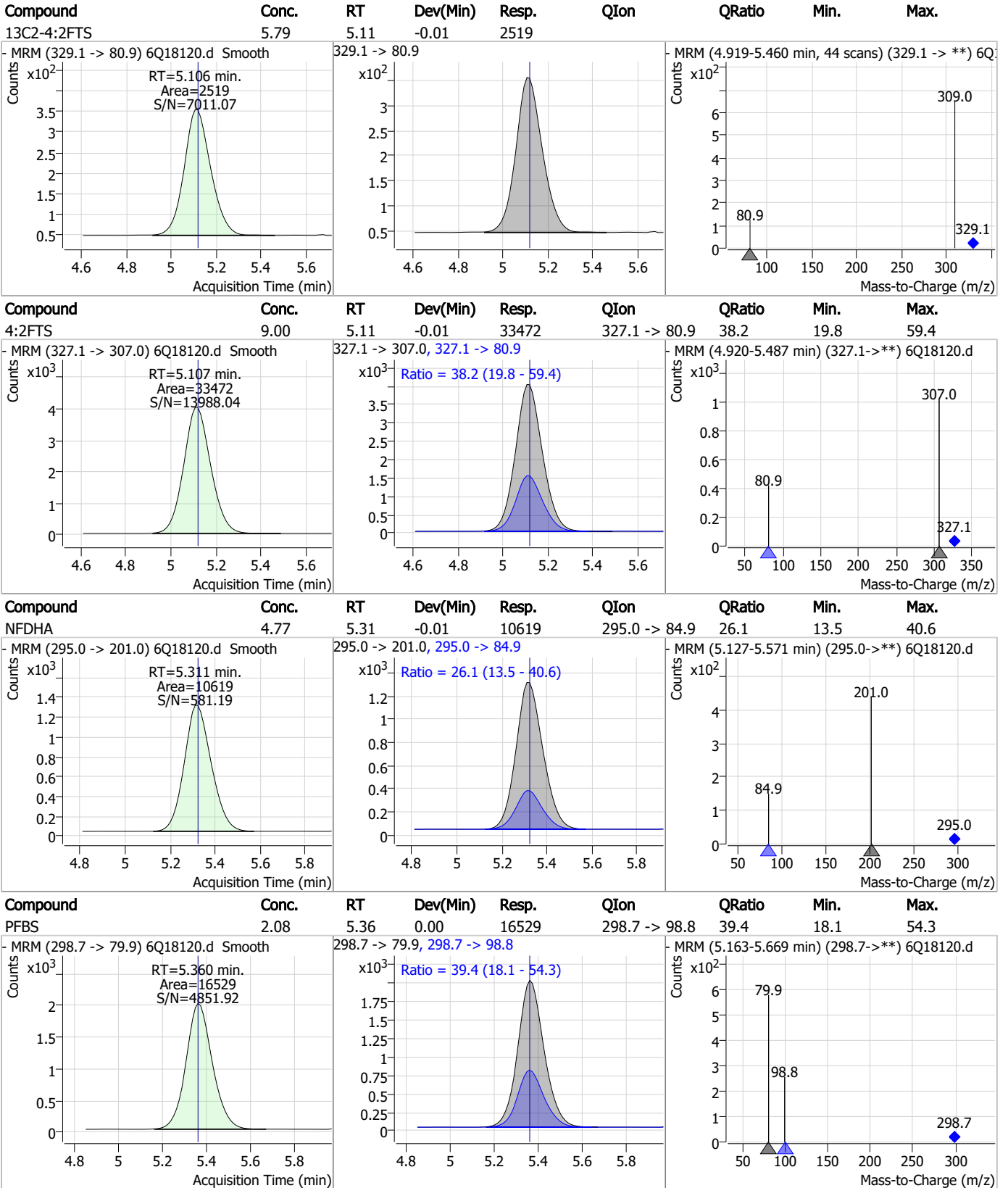
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Perfluorinated Compounds by LC/MS/MS

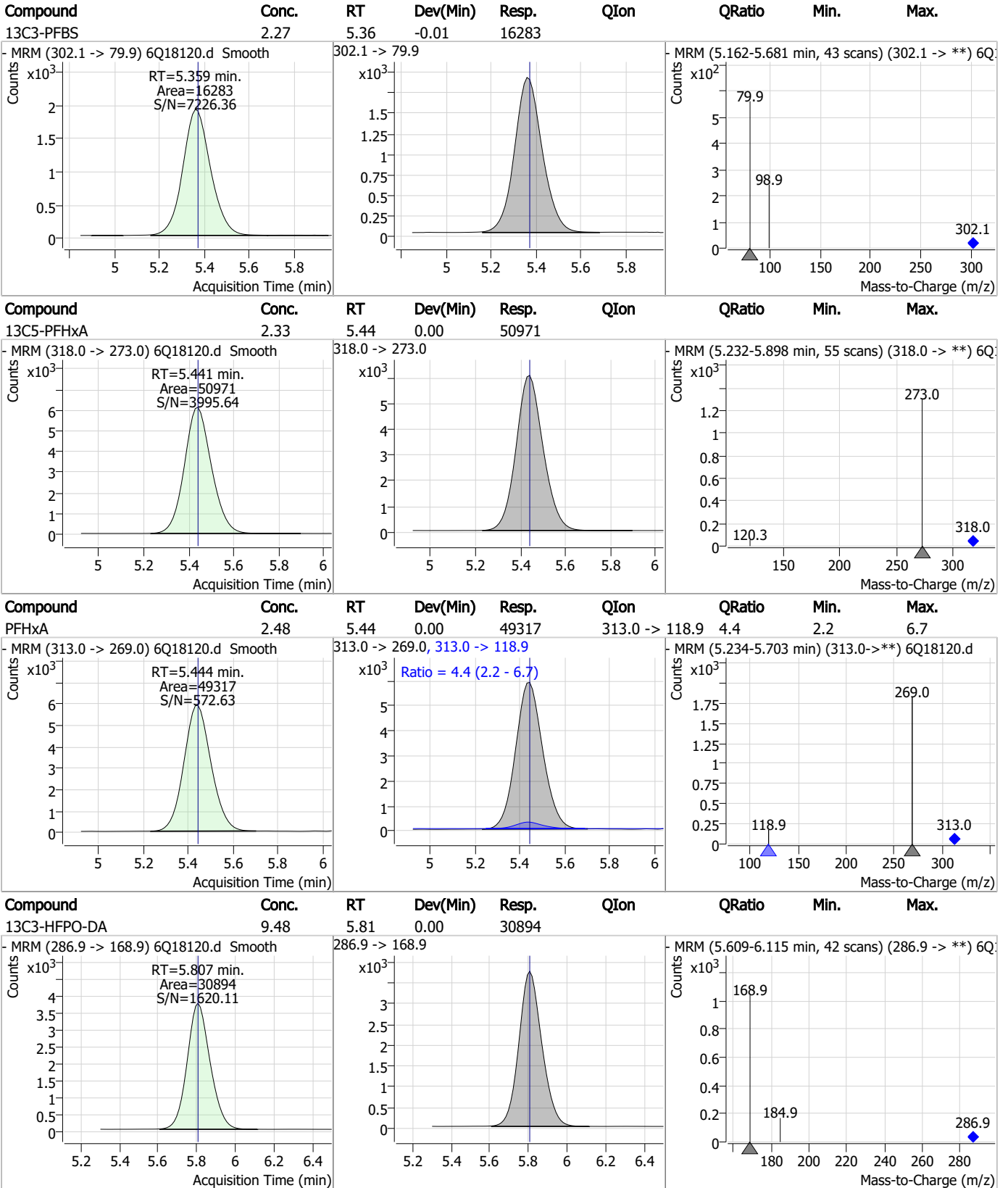


7.3.1

7



Perfluorinated Compounds by LC/MS/MS

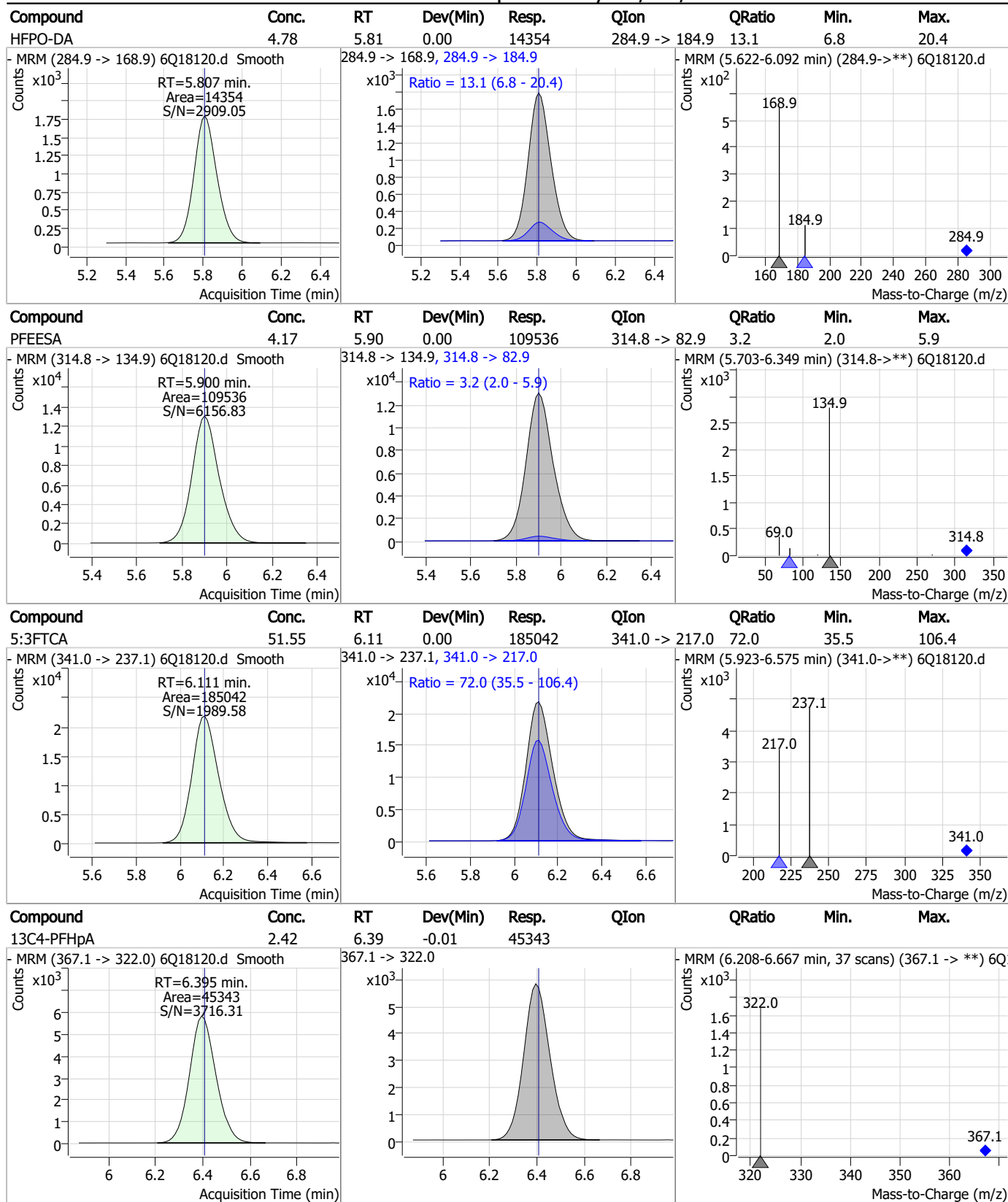


7.3.1

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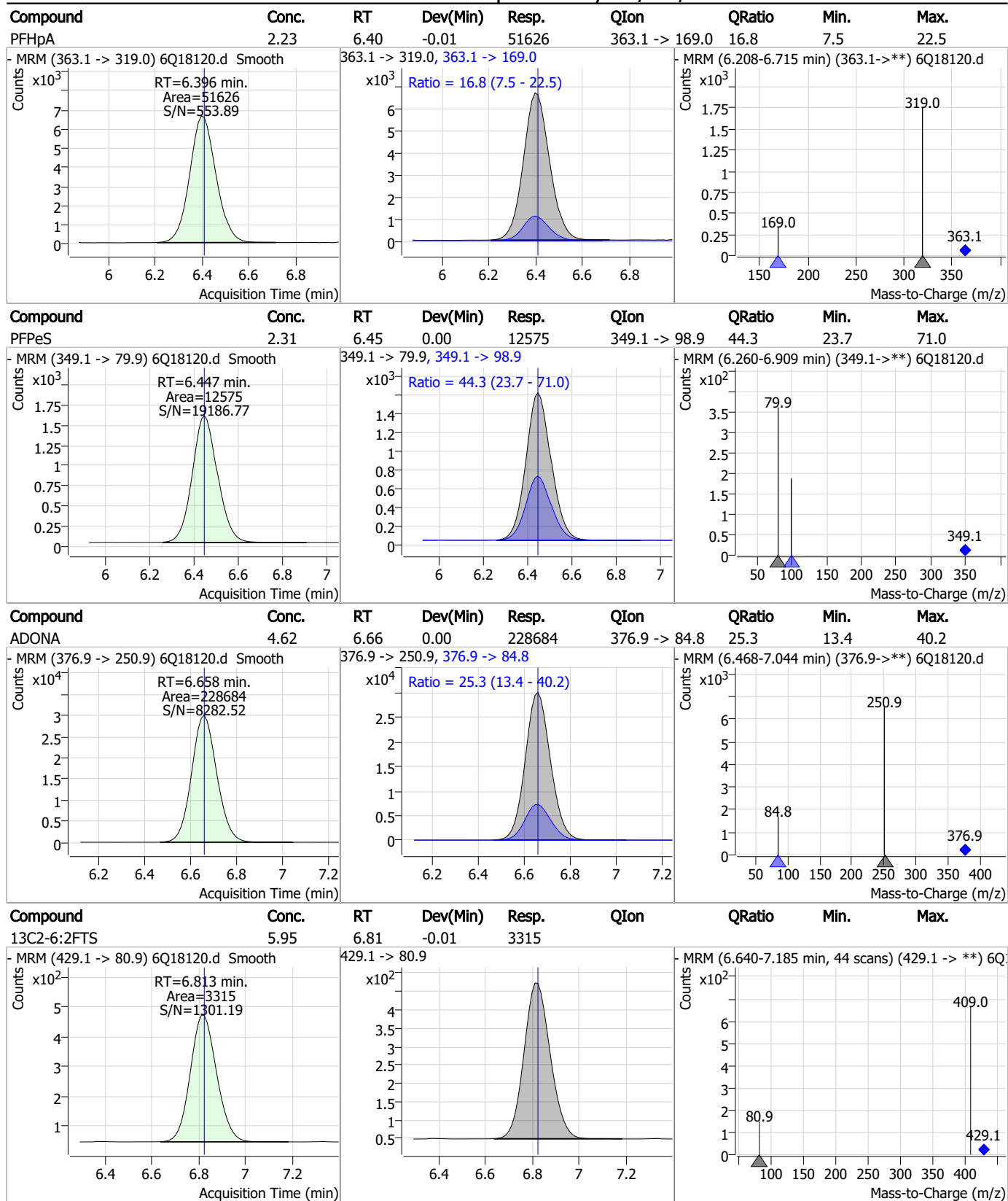


Perfluorinated Compounds by LC/MS/MS



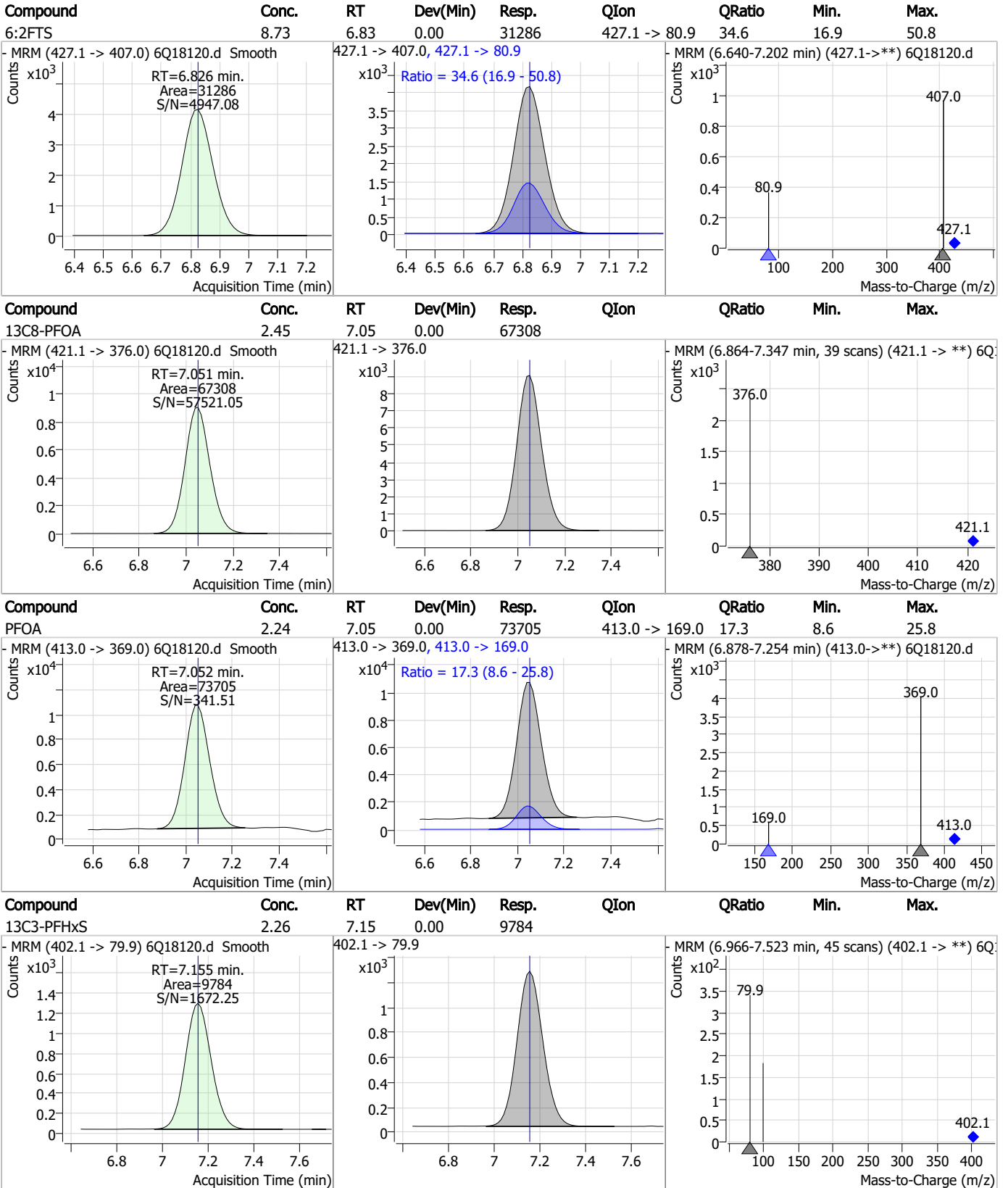
7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1
7

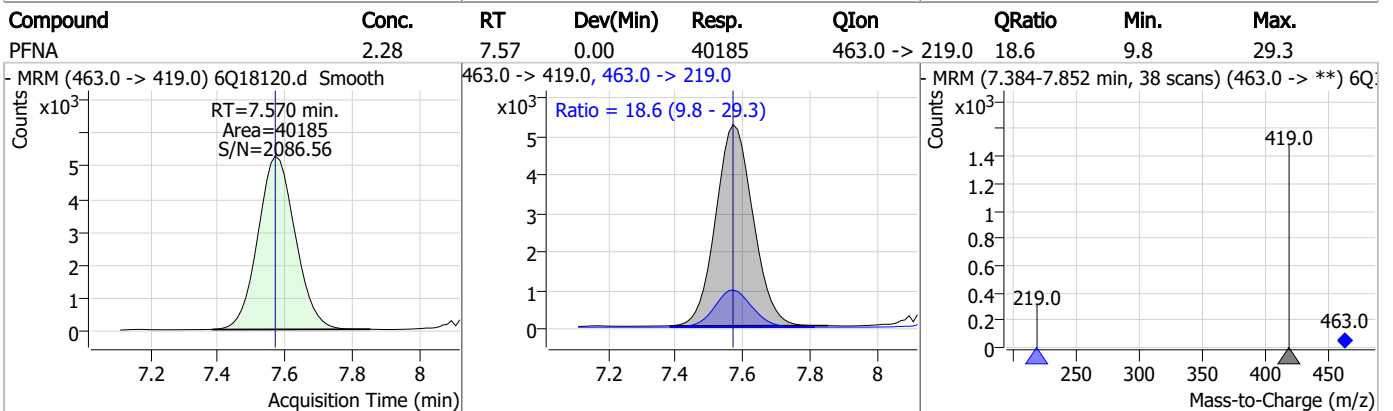
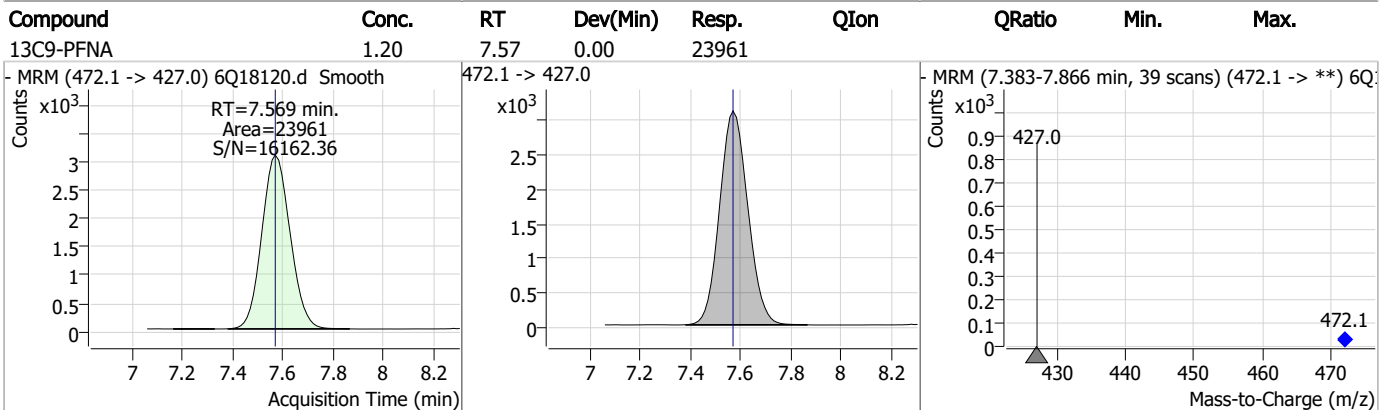
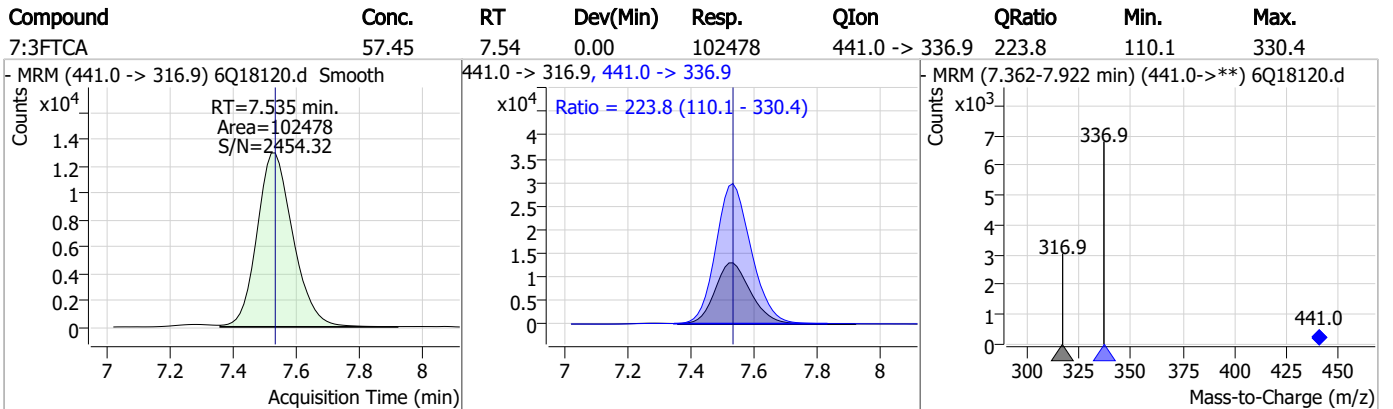
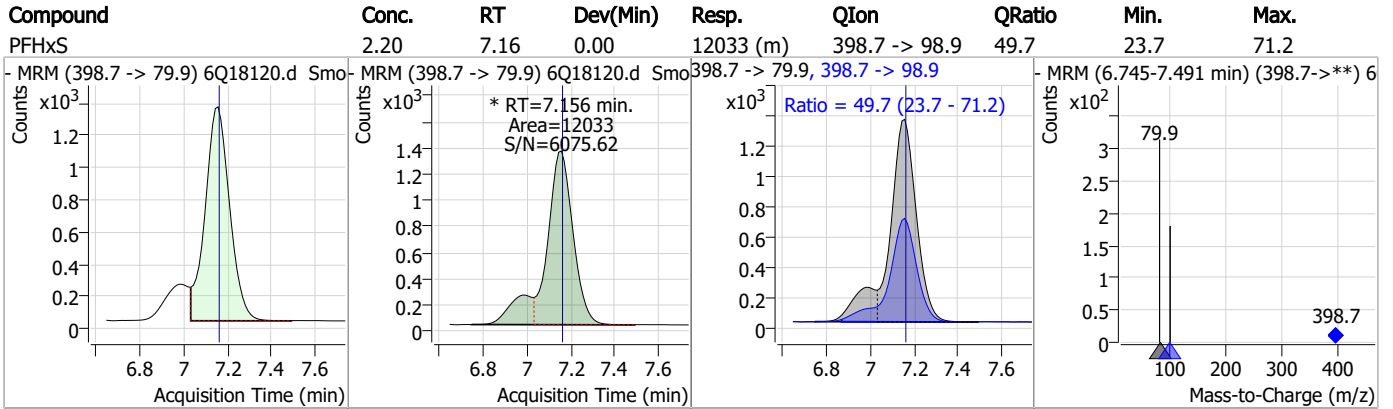
Perfluorinated Compounds by LC/MS/MS



7.3.1

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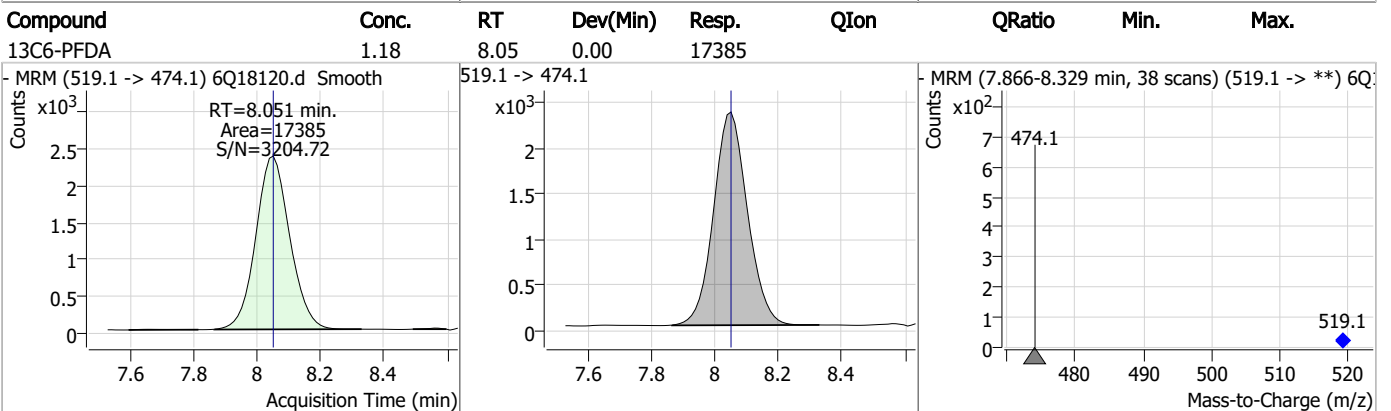
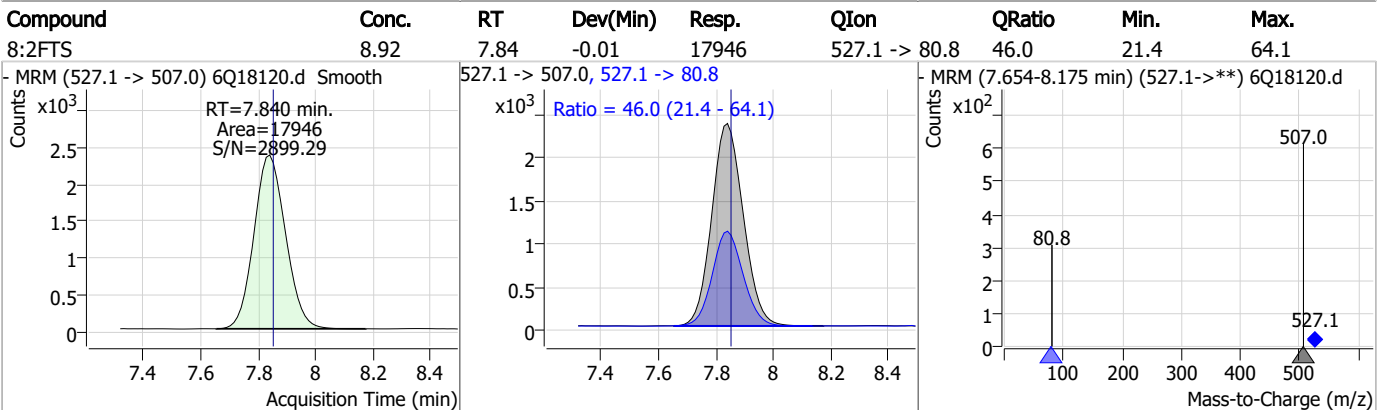
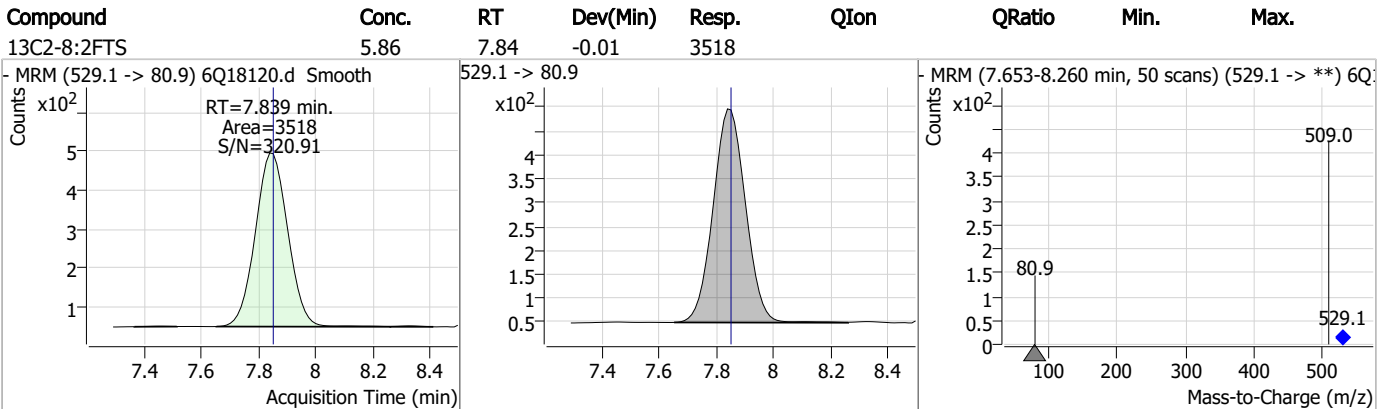
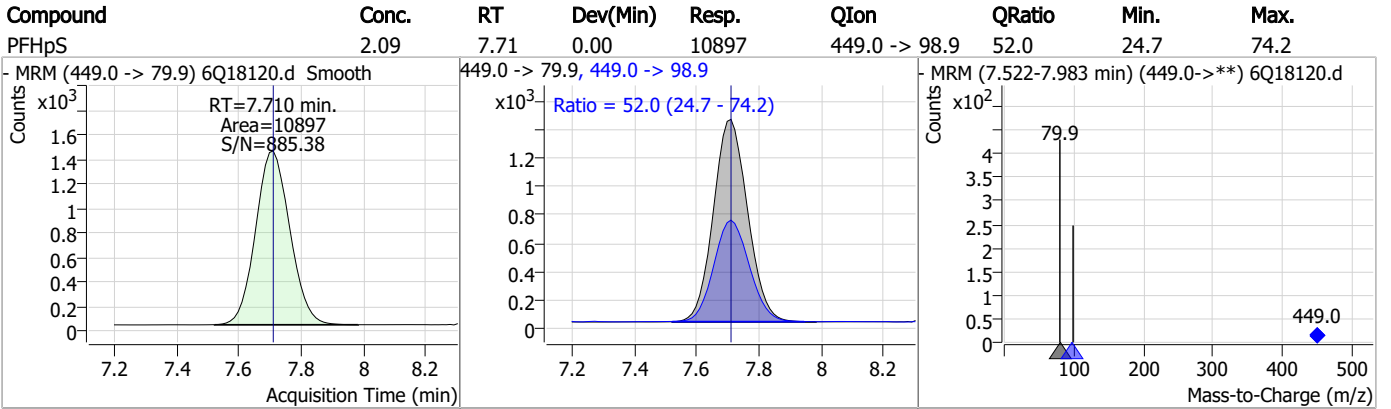
Perfluorinated Compounds by LC/MS/MS



7.3.1

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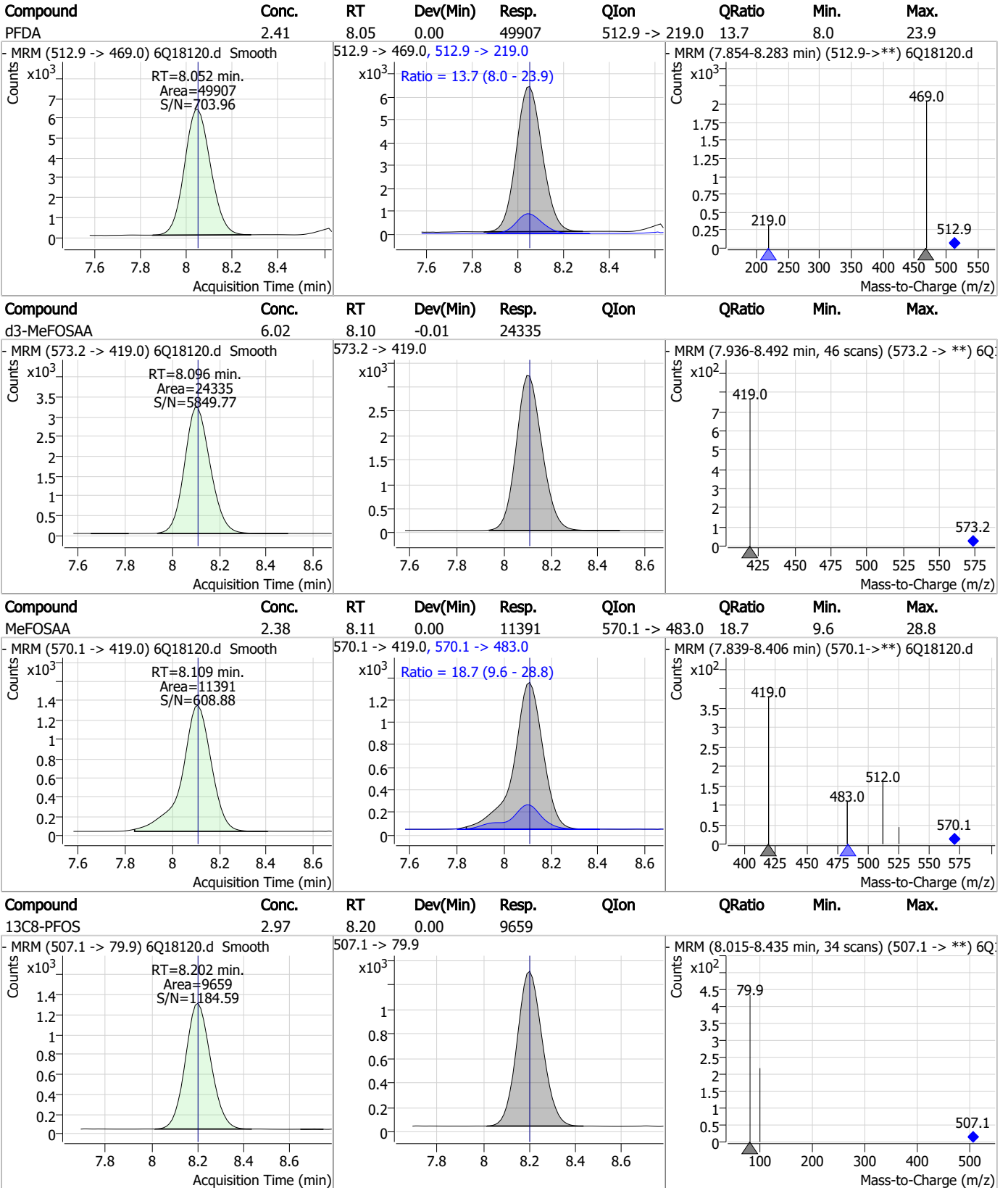
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS

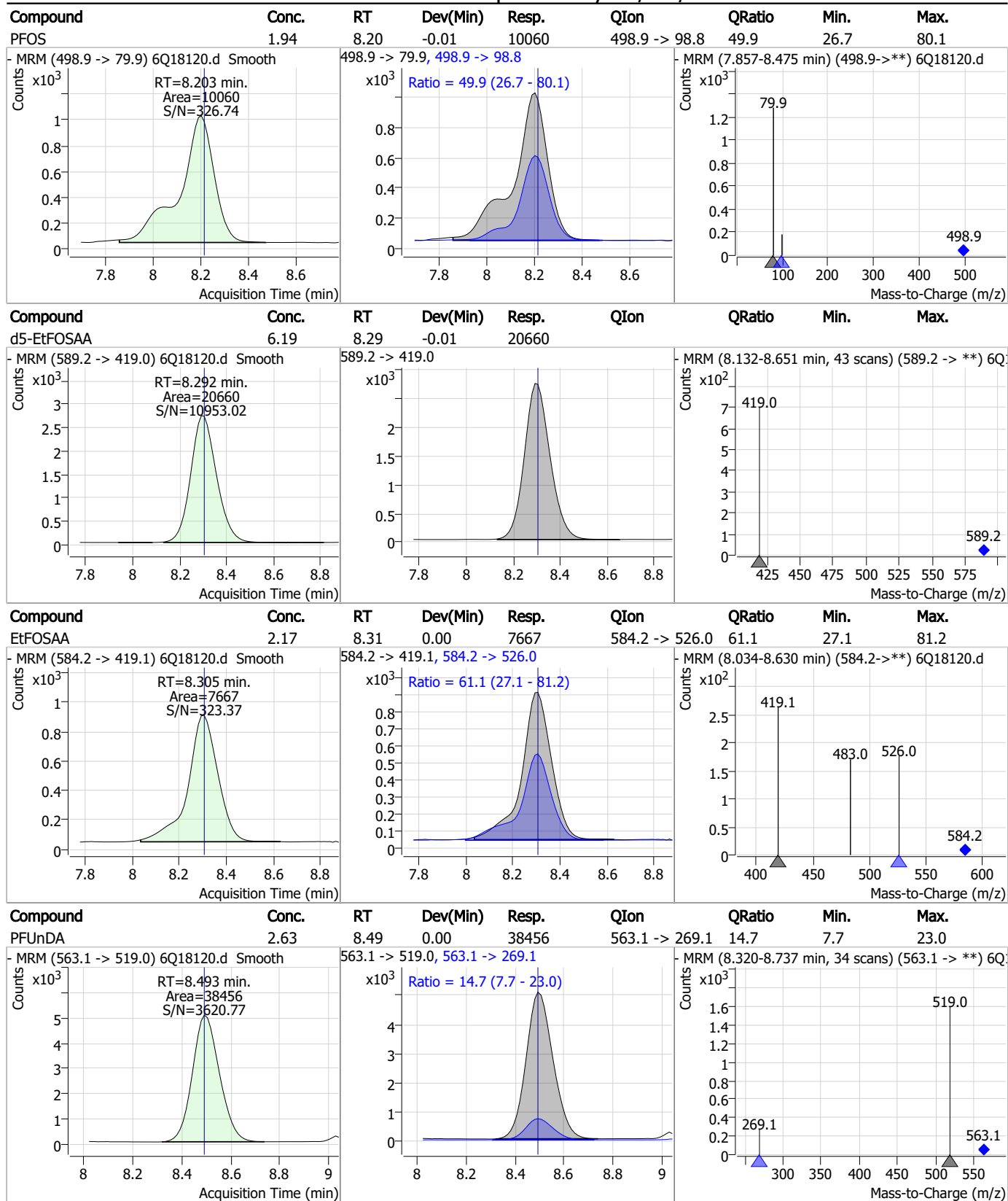


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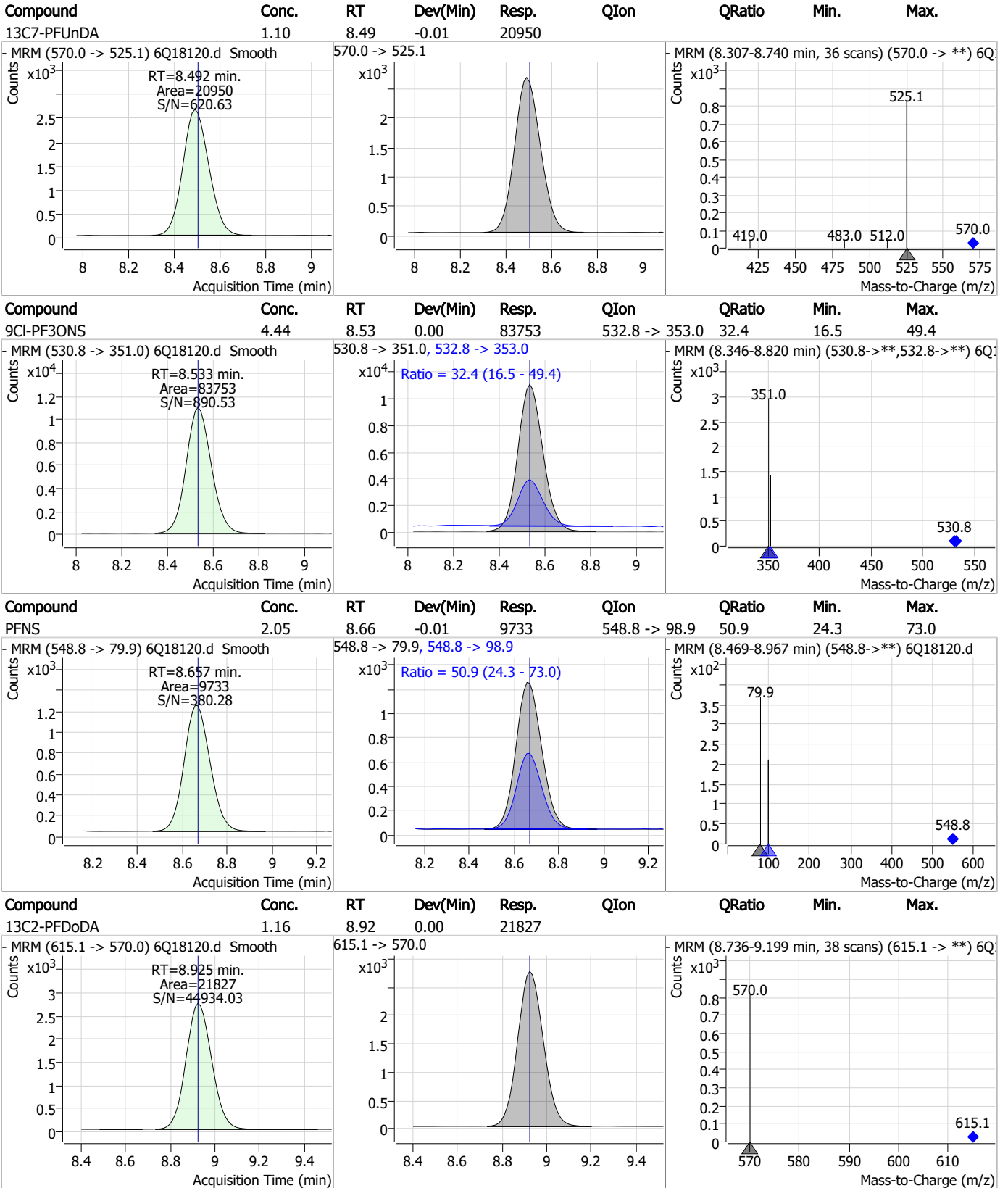


Perfluorinated Compounds by LC/MS/MS



7.3.1
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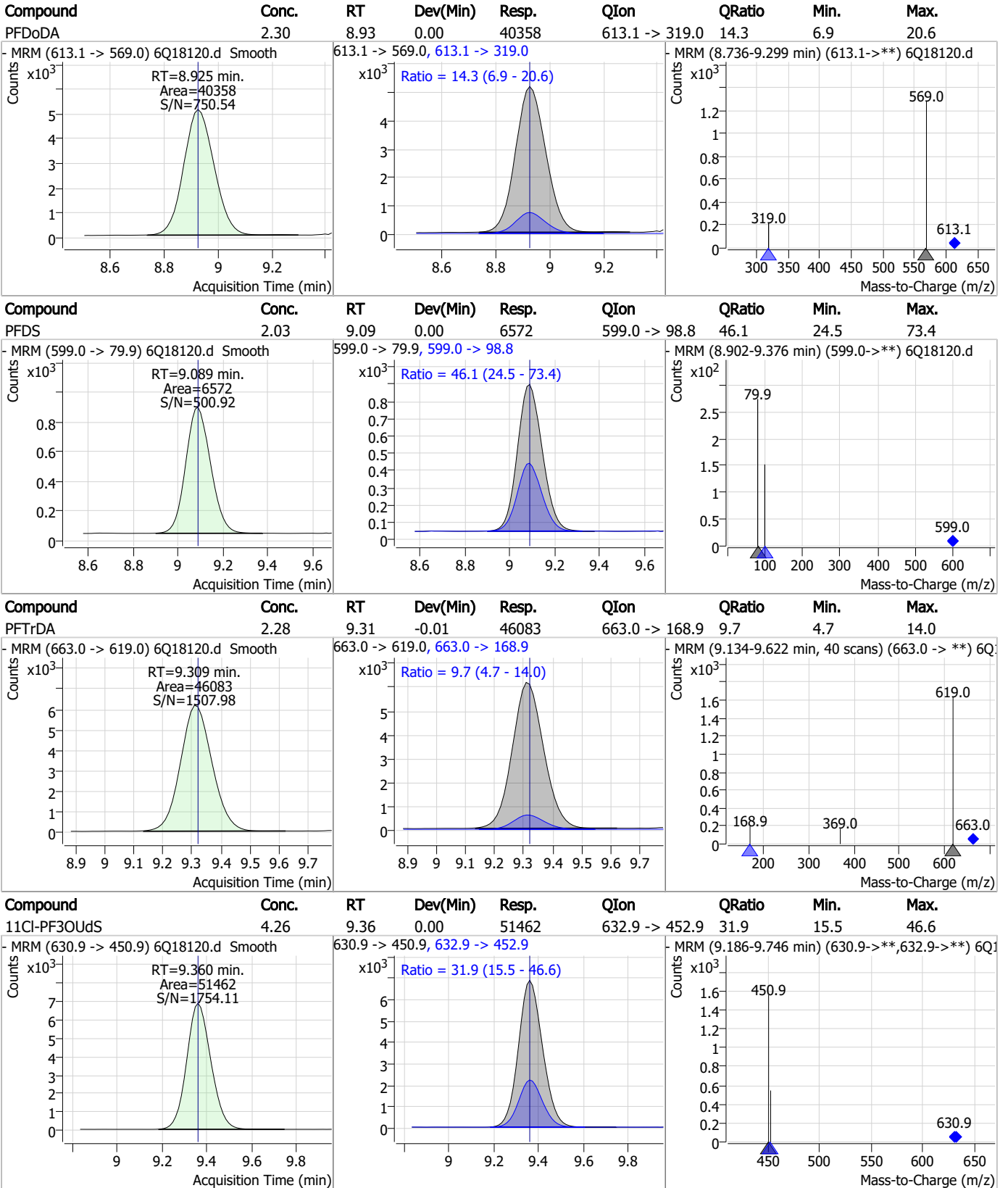
Perfluorinated Compounds by LC/MS/MS



7.3.1

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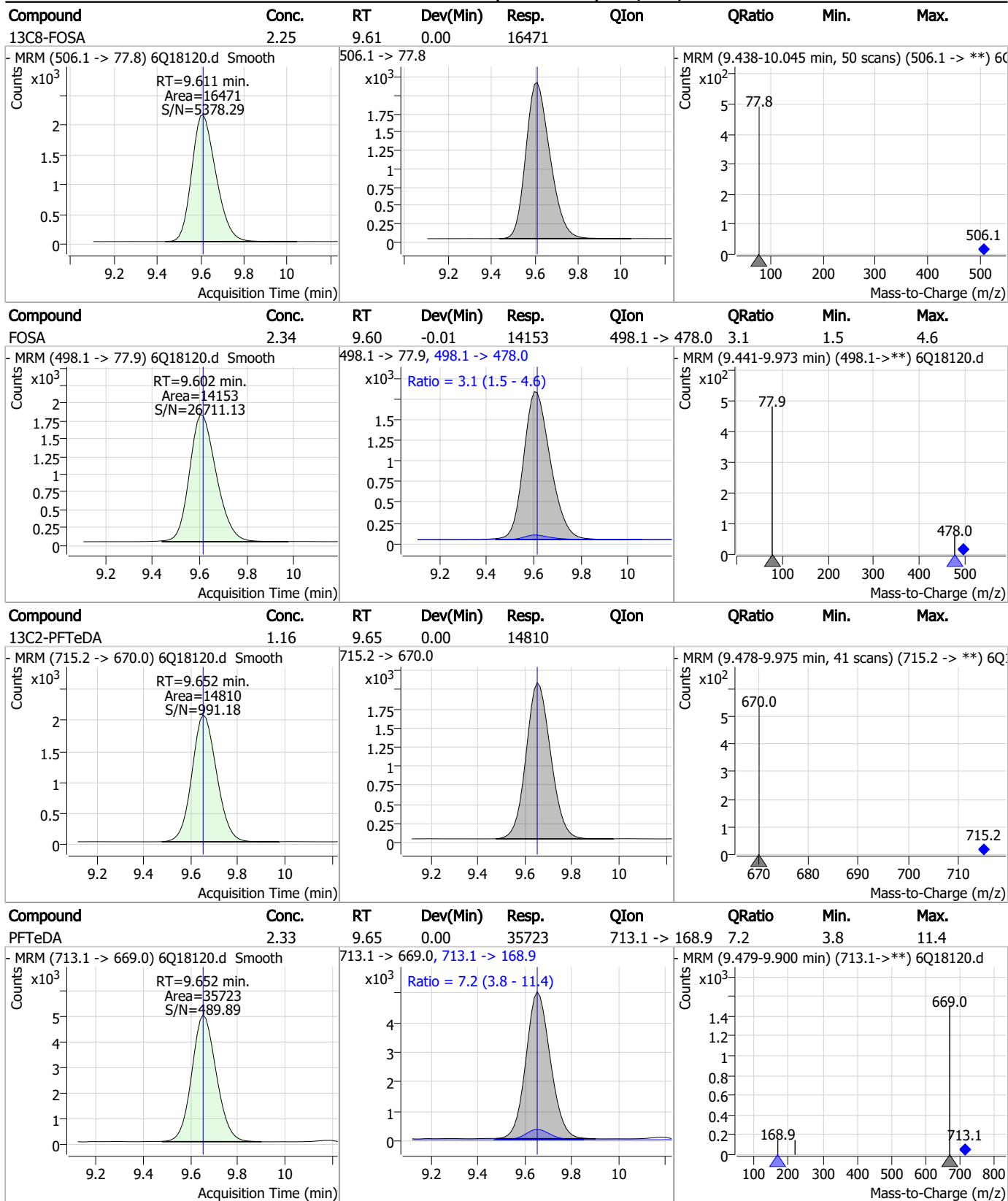
Perfluorinated Compounds by LC/MS/MS



7.3.1

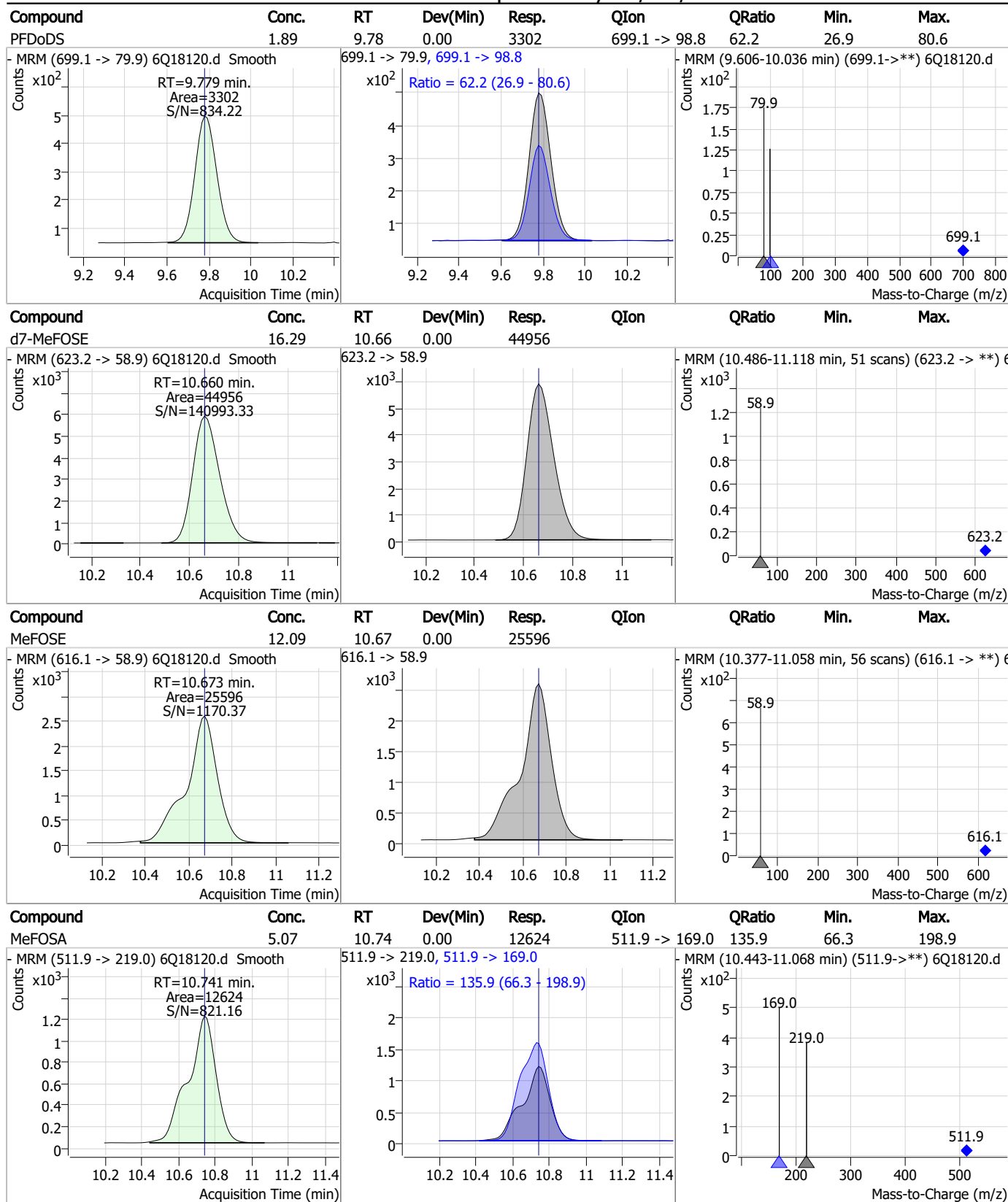
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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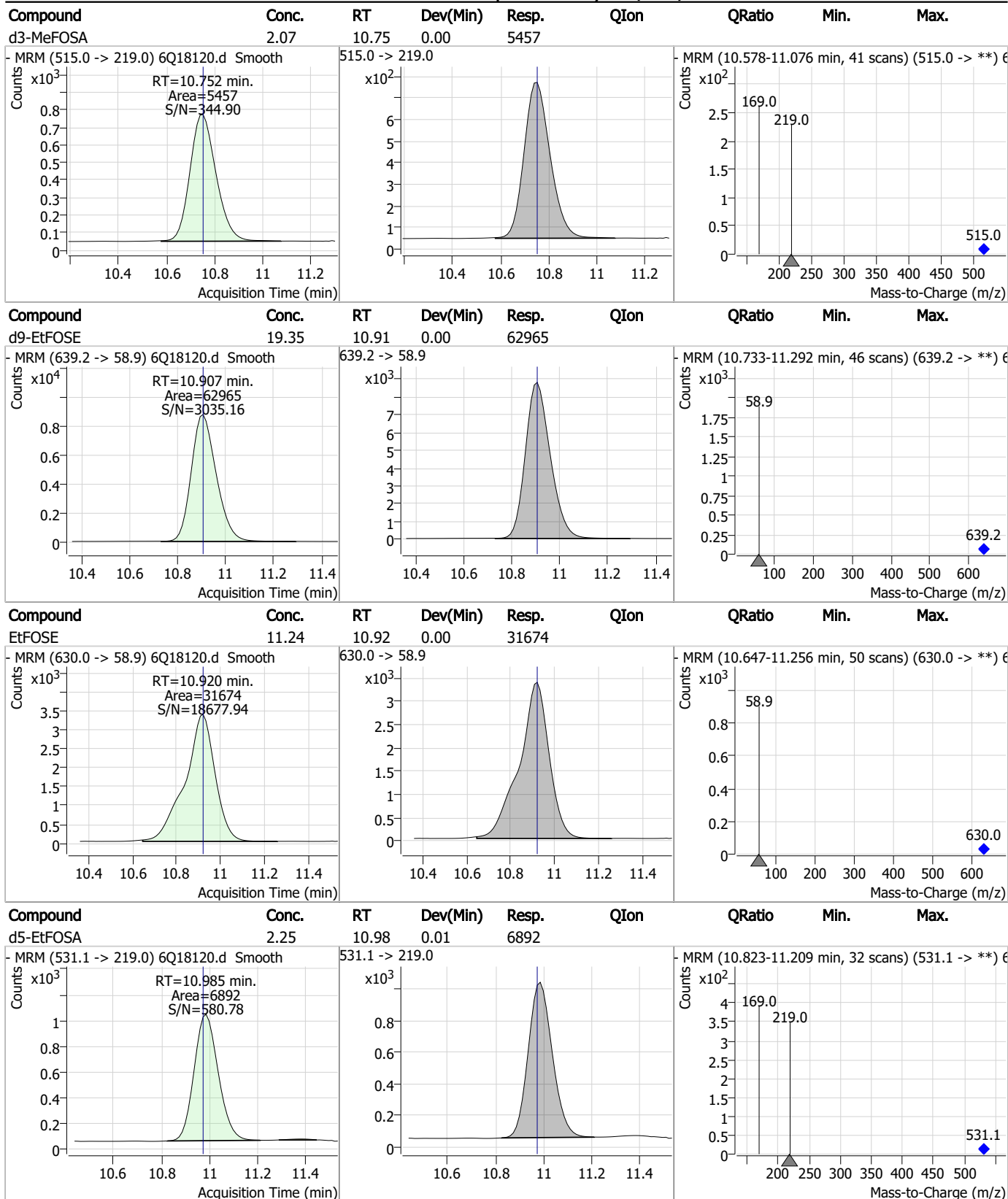
Perfluorinated Compounds by LC/MS/MS



7.3.1

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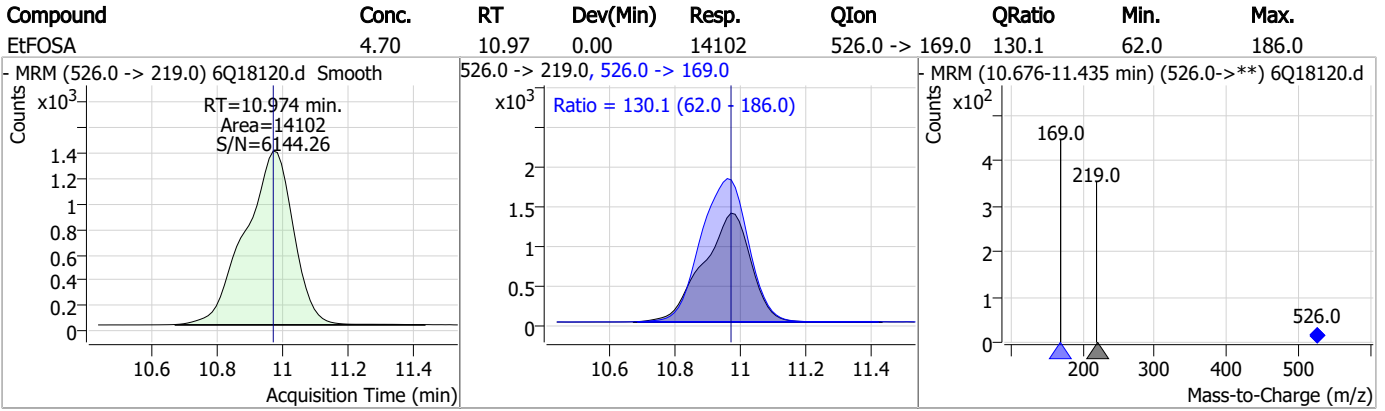
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS



7.3.1

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Manual Integration Approval Summary

Sample Number: OP96921-BS Method: EPA DRAFT 1633
Lab FileID: 6Q18120.D Analyst approved: 05/21/23 08:43 Mike Eger
Injection Time: 05/19/23 11:24 Supervisor approved: 05/23/23 10:24 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak

7.3.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18121.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 11:39:19 AM
 Sample Name : op96921-llbs:3
 Vial : P4-F1
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	133442	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	43456	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	49665	2.50 µg/L	0.000
M4-PFHpA	6.407	367.1 -> 322.0	45579	2.50 µg/L	0.000
M8-PFOA	7.051	421.1 -> 376.0	64355	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	22171	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	17392	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	21848	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	19378	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	13715	1.25 µg/L	0.012
M8-FOSA	9.611	506.1 -> 77.8	13974	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	16211	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	9405	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	8893	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2413	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	2988	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3522	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	25112	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	29159	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	19584	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	42912	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	59561	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	5663	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	4787	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	13642	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	70537	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8779	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	83644	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	25108	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	29111	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	50252	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.119	329.1 -> 80.9	2413	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-6:2FTS	6.825	429.1 -> 80.9	2988	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3522	5.42 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C2-PFDoDA	8.925	615.1 -> 570.0	19378	0.89 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 71.2%		
13C2-PFTeDA	9.664	715.2 -> 670.0	13715	0.93 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 74.3%		
13C3-PFBS	5.359	302.1 -> 79.9	16211	2.09 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 83.5%		
13C3-PFHxS	7.155	402.1 -> 79.9	9405	2.00 µg/L	0.000



7.32
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.1%	
13C4-PFBA	2.888	216.8 -> 171.9	133442	7.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
13C4-PFHpA	6.407	367.1 -> 322.0	45579	2.19 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.4%	
13C5-PFHxA	5.441	318.0 -> 273.0	49665	2.04 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.5%	
13C5-PFPeA	4.247	268.3 -> 223.0	43456	4.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 84.0%	
13C6-PFDA	8.051	519.1 -> 474.1	17392	1.02 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 81.4%	
13C7-PFUnDA	8.492	570.0 -> 525.1	21848	1.00 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 79.7%	
13C8-FOSA	9.611	506.1 -> 77.8	13974	1.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 60.5%	
13C8-PFOA	7.051	421.1 -> 376.0	64355	2.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.8%	
13C8-PFOS	8.202	507.1 -> 79.9	8893	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C9-PFNA	7.569	472.1 -> 427.0	22171	1.01 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 81.1%	
d3-MeFOSAA	8.108	573.2 -> 419.0	25112	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	29159	8.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 80.3%	
d3-MeFOSA	10.752	515.0 -> 219.0	4787	1.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 57.6%	
d5-EtFOSAA	8.304	589.2 -> 419.0	19584	4.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
d7-MeFOSE	10.660	623.2 -> 58.9	42912	12.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 49.2%	
d9-EtFOSE	10.907	639.2 -> 58.9	59561	14.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 58.0%	
d5-EtFOSA	10.972	531.1 -> 219.0	5663	1.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 58.5%	
Target Compounds					QValue
4:2FTS	5.107	327.1 -> 307.0	10479	2.94 µg/L	95
		327.1 -> 80.9	3823		
6:2FTS	6.826	427.1 -> 407.0	9892	3.06 µg/L	99
		427.1 -> 80.9	3415		
8:2FTS	7.840	527.1 -> 507.0	6014	2.99 µg/L	99
		527.1 -> 80.8	2539		
EtFOSAA	8.305	584.2 -> 419.1	2682	0.80 µg/L	92
		584.2 -> 526.0	1296		
FOSA	9.602	498.1 -> 77.9	4144	0.81 µg/L	99
		498.1 -> 478.0	111		
MeFOSAA	8.097	570.1 -> 419.0	3499	0.71 µg/L	100
		570.1 -> 483.0	667		
PFBA	2.882	212.8 -> 168.9	13978	2.88 µg/L	100
PFBS	5.360	298.7 -> 79.9	5204	0.66 µg/L	99
		298.7 -> 98.8	1909		
PFDA	8.052	512.9 -> 469.0	15033	0.72 µg/L	99
		512.9 -> 219.0	2358		
PFDODA	8.925	613.1 -> 569.0	11162	0.72 µg/L	98
		613.1 -> 319.0	1628		
PFDS	9.089	599.0 -> 79.9	1808	0.61 µg/L	94

7.3.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	962			
PFHpA	6.396	363.1 -> 319.0	15211	0.65	µg/L	96
		363.1 -> 169.0	2527			
PFHpS	7.710	449.0 -> 79.9	3339	0.69	µg/L	100
		449.0 -> 98.9	1642			
PFHxA	5.444	313.0 -> 269.0	14605	0.75	µg/L	98
		313.0 -> 118.9	777			
PFHxS	7.156	398.7 -> 79.9	3878	0.74	µg/L	m 90
		398.7 -> 98.9	1573			
PFNA	7.570	463.0 -> 419.0	11548	0.71	µg/L	96
		463.0 -> 219.0	2437			
PFNS	8.669	548.8 -> 79.9	2806	0.64	µg/L	96
		548.8 -> 98.9	1450			
PFOA	7.052	413.0 -> 369.0	23395	0.74	µg/L	98
		413.0 -> 169.0	4257			
PFOS	8.203	498.9 -> 79.9	2972	0.62	µg/L	m 99
		498.9 -> 98.8	1573			
PFPeA	4.249	263.0 -> 219.0	18466	1.43	µg/L	100
PFPeS	6.447	349.1 -> 79.9	3736	0.71	µg/L	98
		349.1 -> 98.9	1708			
PFTeDA	9.652	713.1 -> 669.0	9270	0.65	µg/L	100
		713.1 -> 168.9	721			
PFTrDA	9.309	663.0 -> 619.0	12807	0.71	µg/L	100
		663.0 -> 168.9	1209			
PFUnDA	8.493	563.1 -> 519.0	10832	0.71	µg/L	99
		563.1 -> 269.1	1713			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	14020	1.23	µg/L	97
		632.9 -> 452.9	4154			
9Cl-PF3ONS	8.533	530.8 -> 351.0	23703	1.33	µg/L	98
		532.8 -> 353.0	7482			
ADONA	6.658	376.9 -> 250.9	66153	1.42	µg/L	100
		376.9 -> 84.8	17655			
HFPO-DA	5.807	284.9 -> 168.9	4311	1.52	µg/L	99
		284.9 -> 184.9	561			
3:3FTCA	3.727	241.0 -> 177.0	1458	1.80	µg/L	93
		241.0 -> 117.0	256			
5:3FTCA	6.111	341.0 -> 237.1	54080	15.46	µg/L	99
		341.0 -> 217.0	38789			
7:3FTCA	7.535	441.0 -> 316.9	29521	16.98	µg/L	95
		441.0 -> 336.9	62448			
EtFOSA	10.974	526.0 -> 219.0	3578	1.45	µg/L	91
		526.0 -> 169.0	4797			
EtFOSE	10.920	630.0 -> 58.9	8914	3.34	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	3173	1.45	µg/L	93
		511.9 -> 169.0	4460			
MeFOSE	10.673	616.1 -> 58.9	7100	3.51	µg/L	100
PFDoDS	9.793	699.1 -> 79.9	941	0.58	µg/L	98
		699.1 -> 98.8	493			
NFDHA	5.324	295.0 -> 201.0	3002	1.38	µg/L	96
		295.0 -> 84.9	870			
PFMBA	4.650	279.0 -> 85.1	12596	1.39	µg/L	100
PFMPA	3.401	229.0 -> 84.9	9269	1.39	µg/L	100
PFEESA	5.900	314.8 -> 134.9	33921	1.33	µg/L	98
		314.8 -> 82.9	1068			

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

7.3.2
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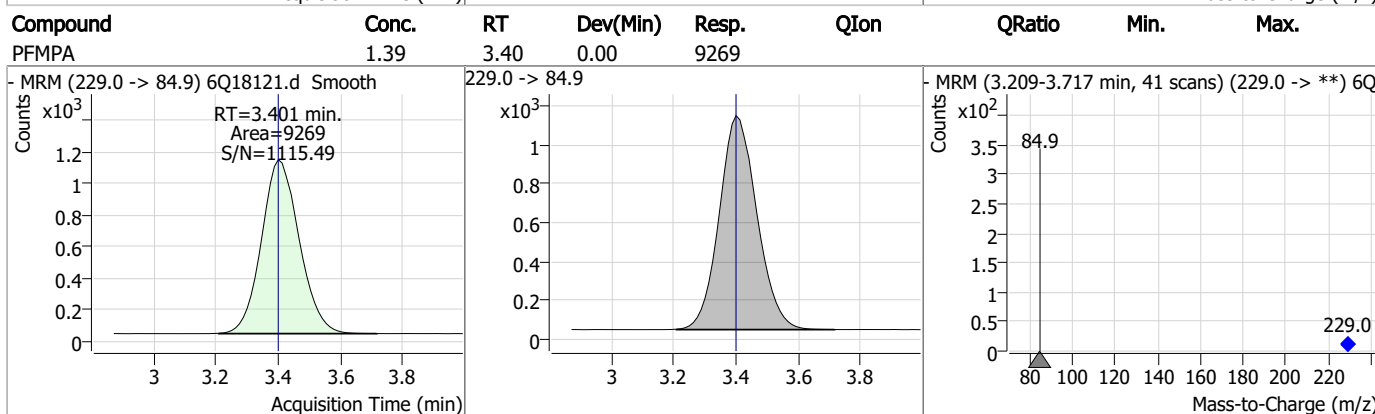
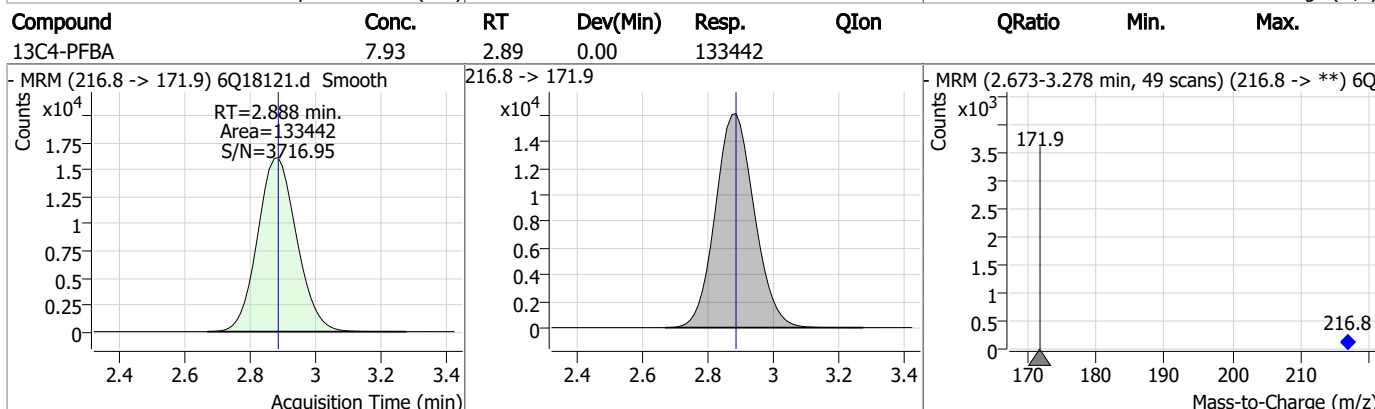
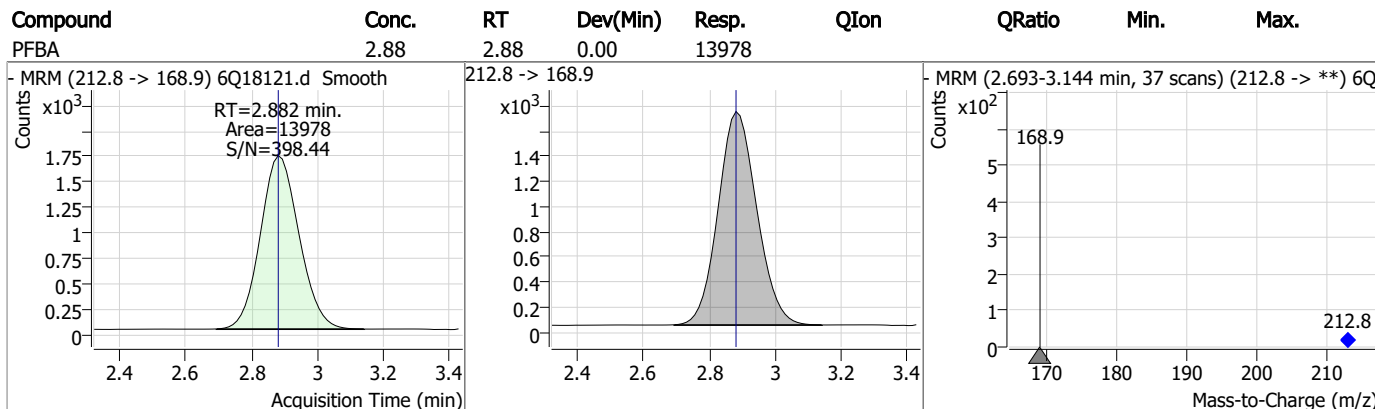
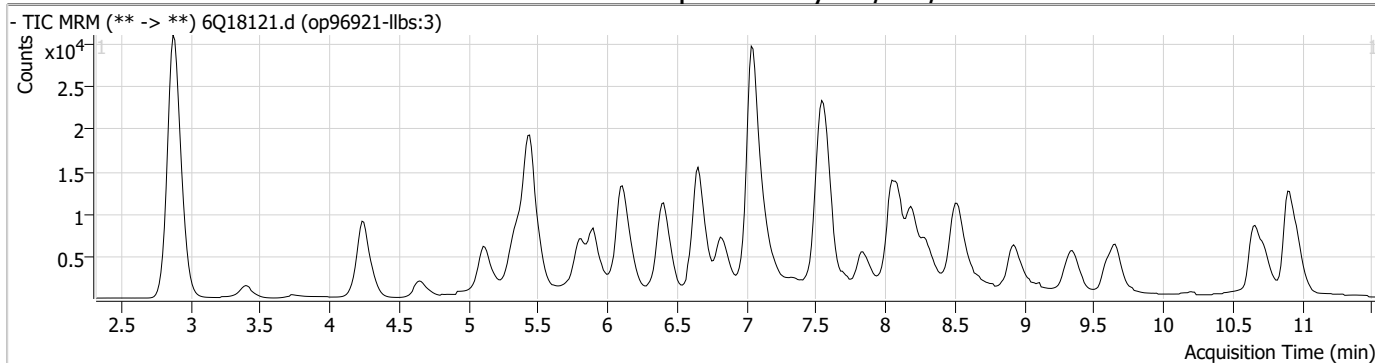
Perfluorinated Compounds by LC/MS/MS

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

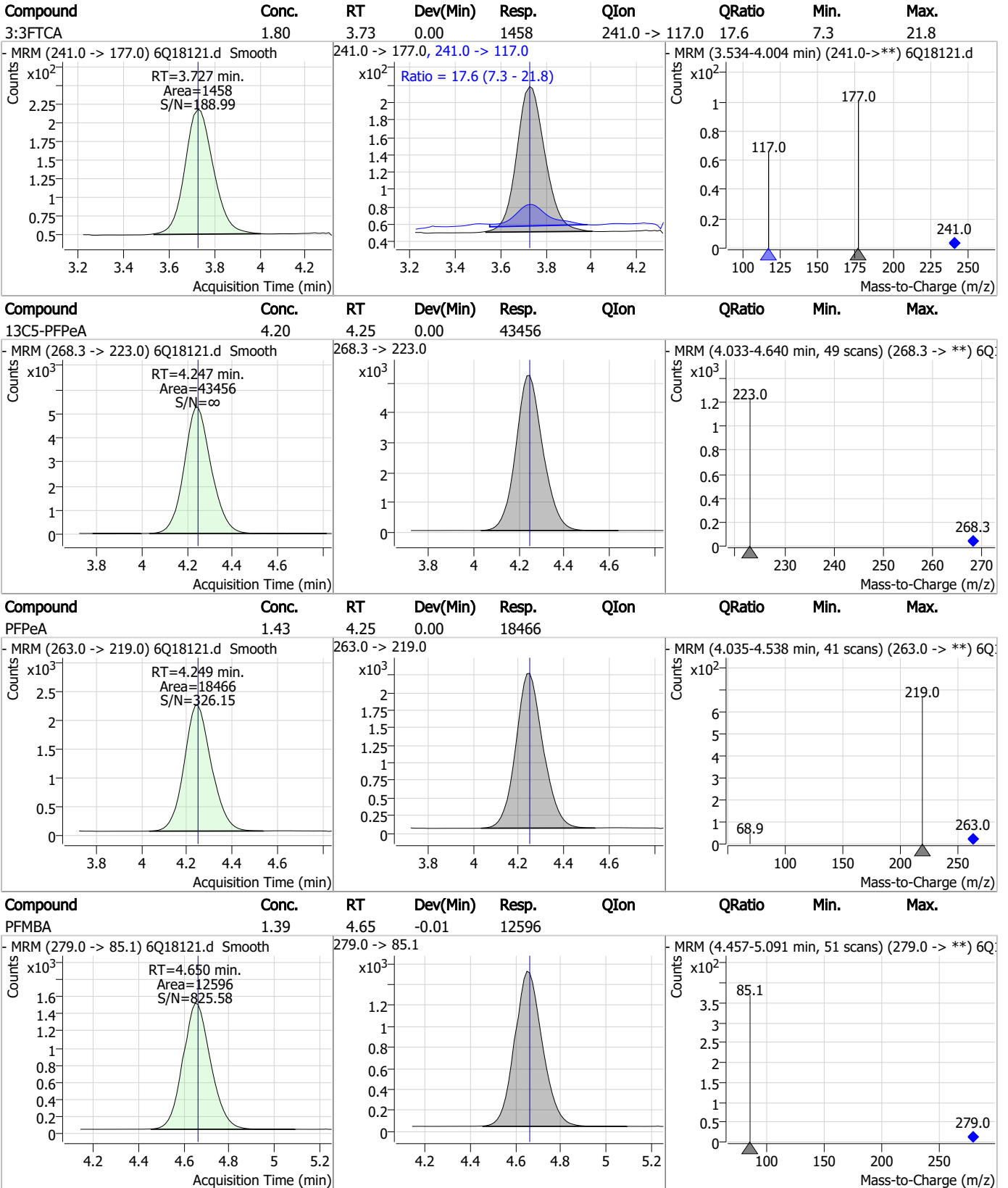
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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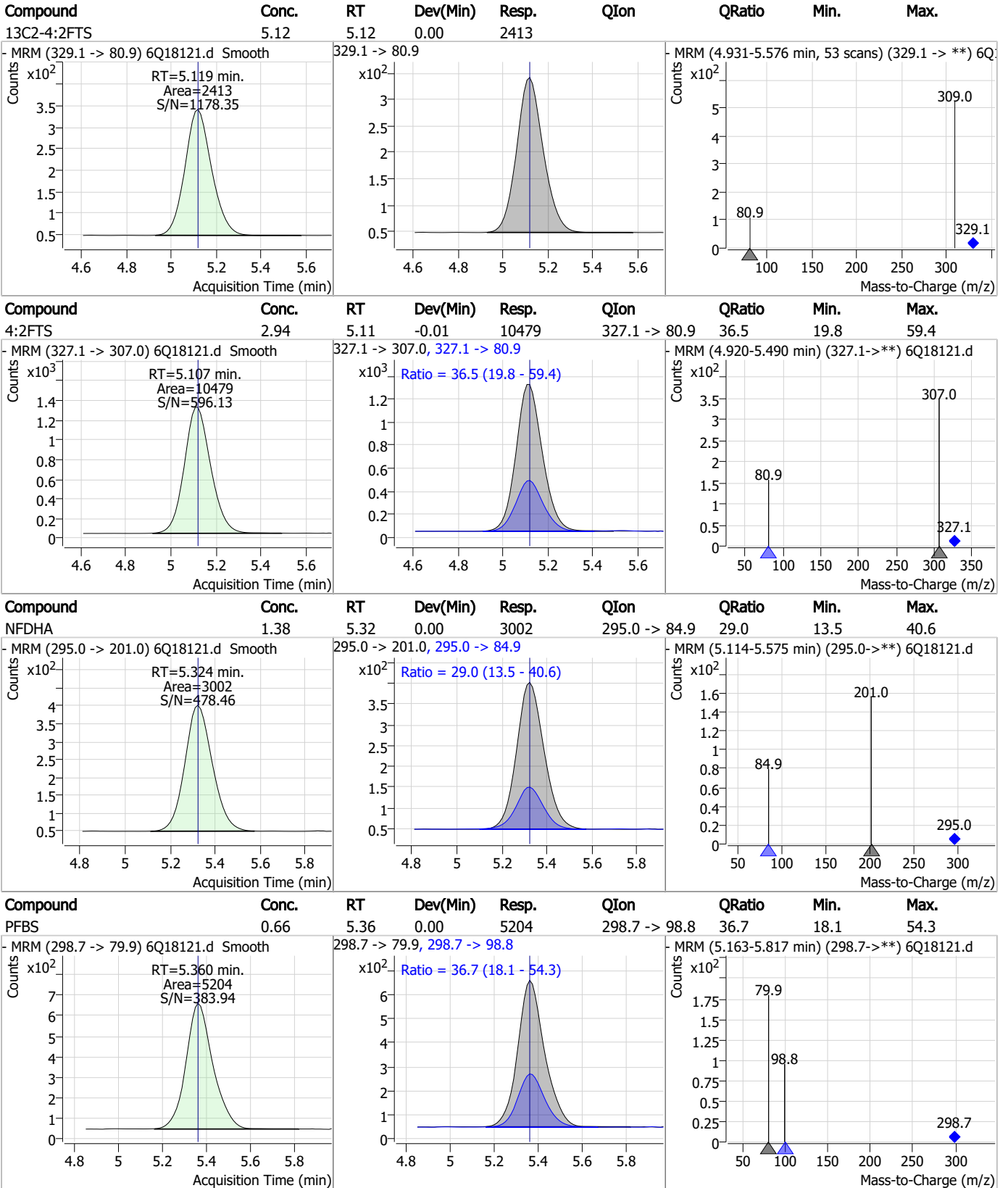
Perfluorinated Compounds by LC/MS/MS



7.3.2

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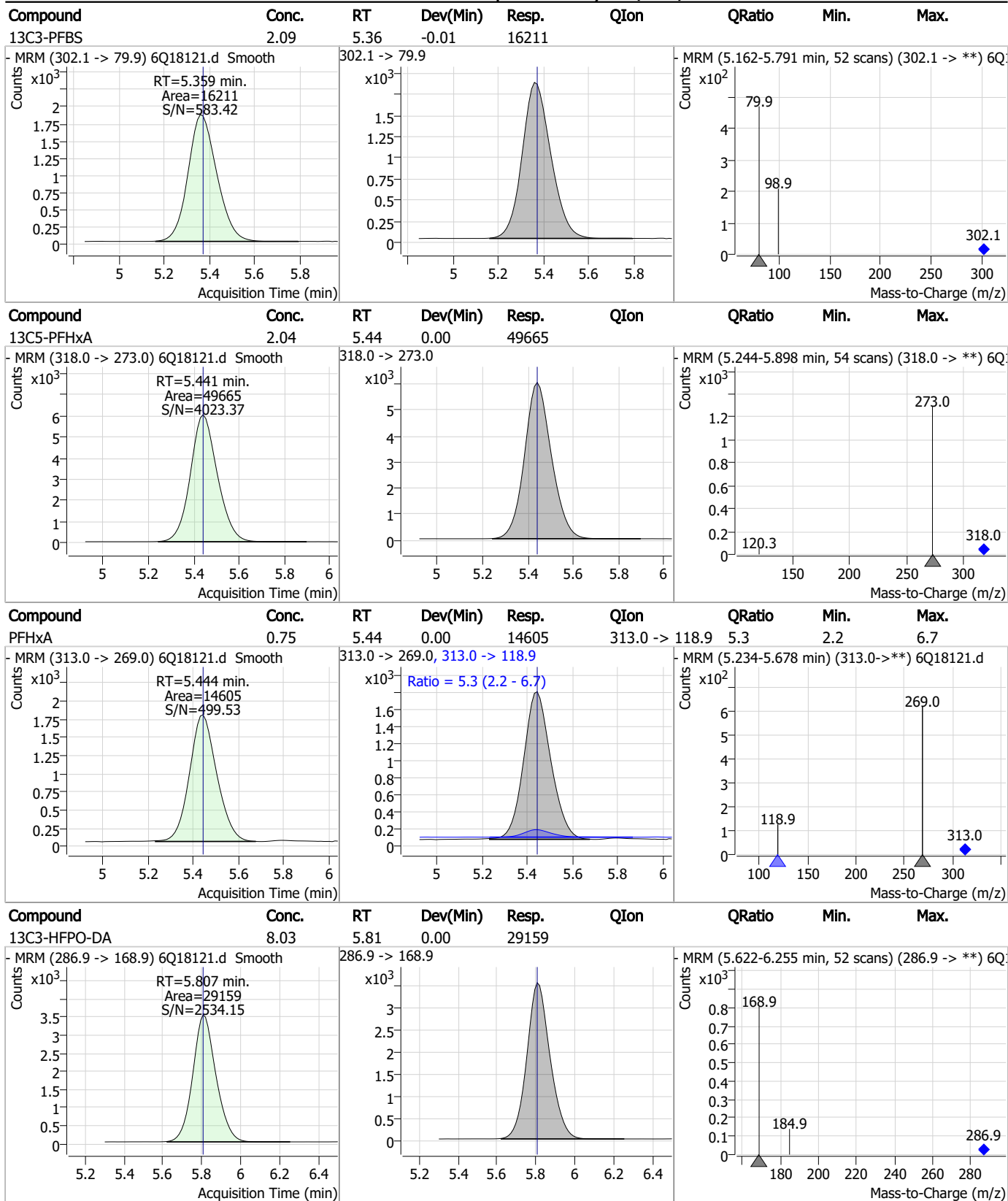
Perfluorinated Compounds by LC/MS/MS



7.3.2

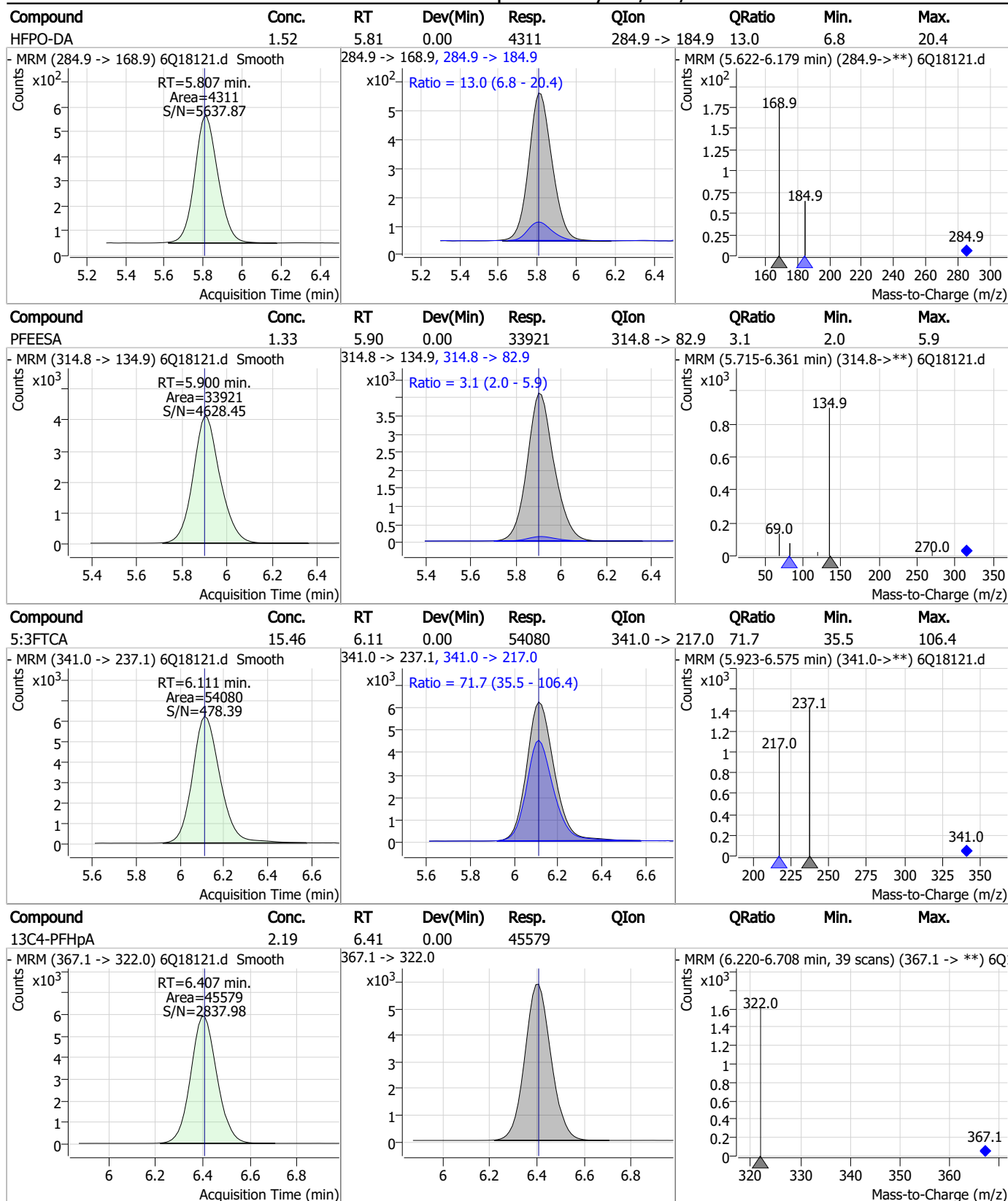
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Perfluorinated Compounds by LC/MS/MS



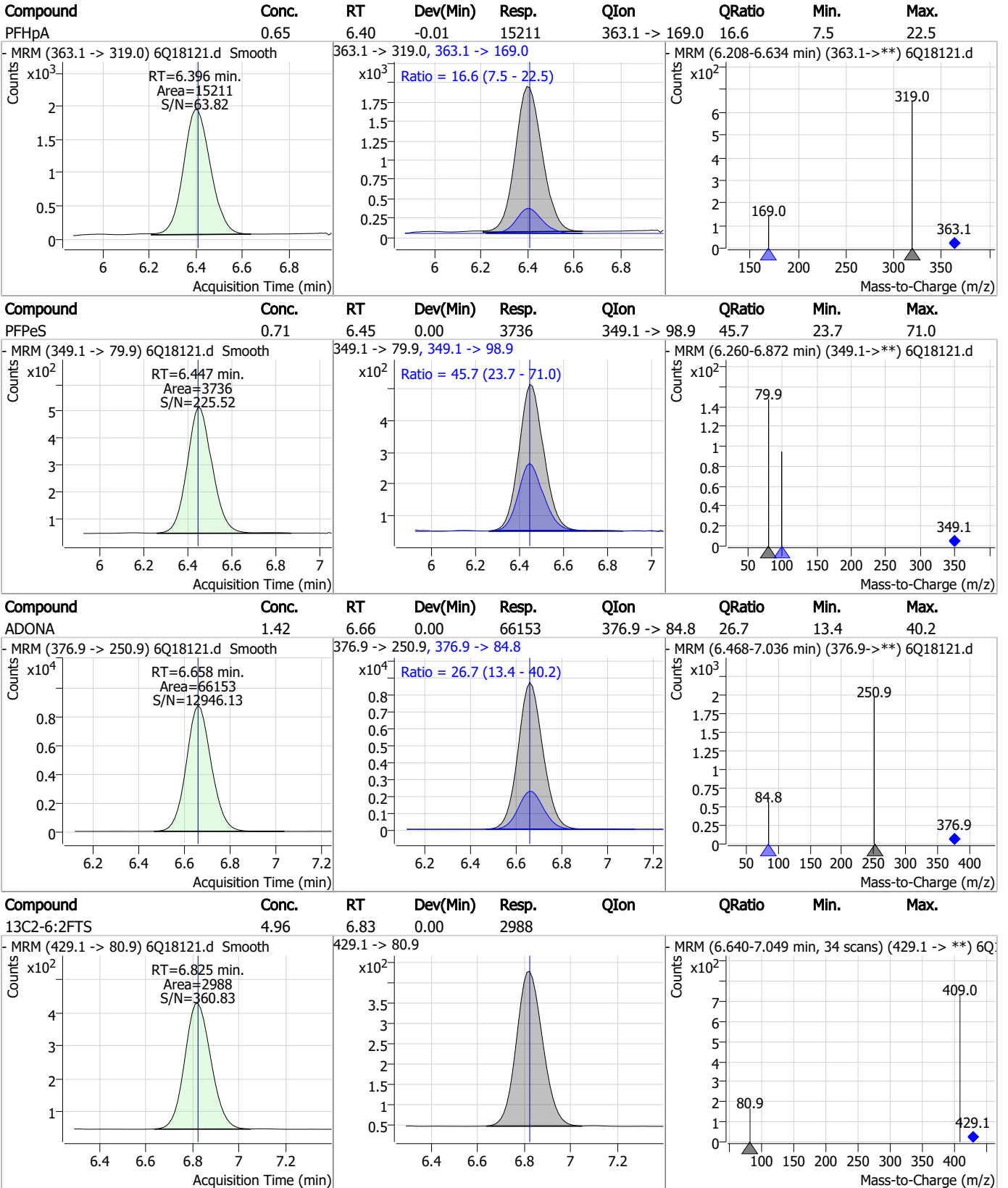
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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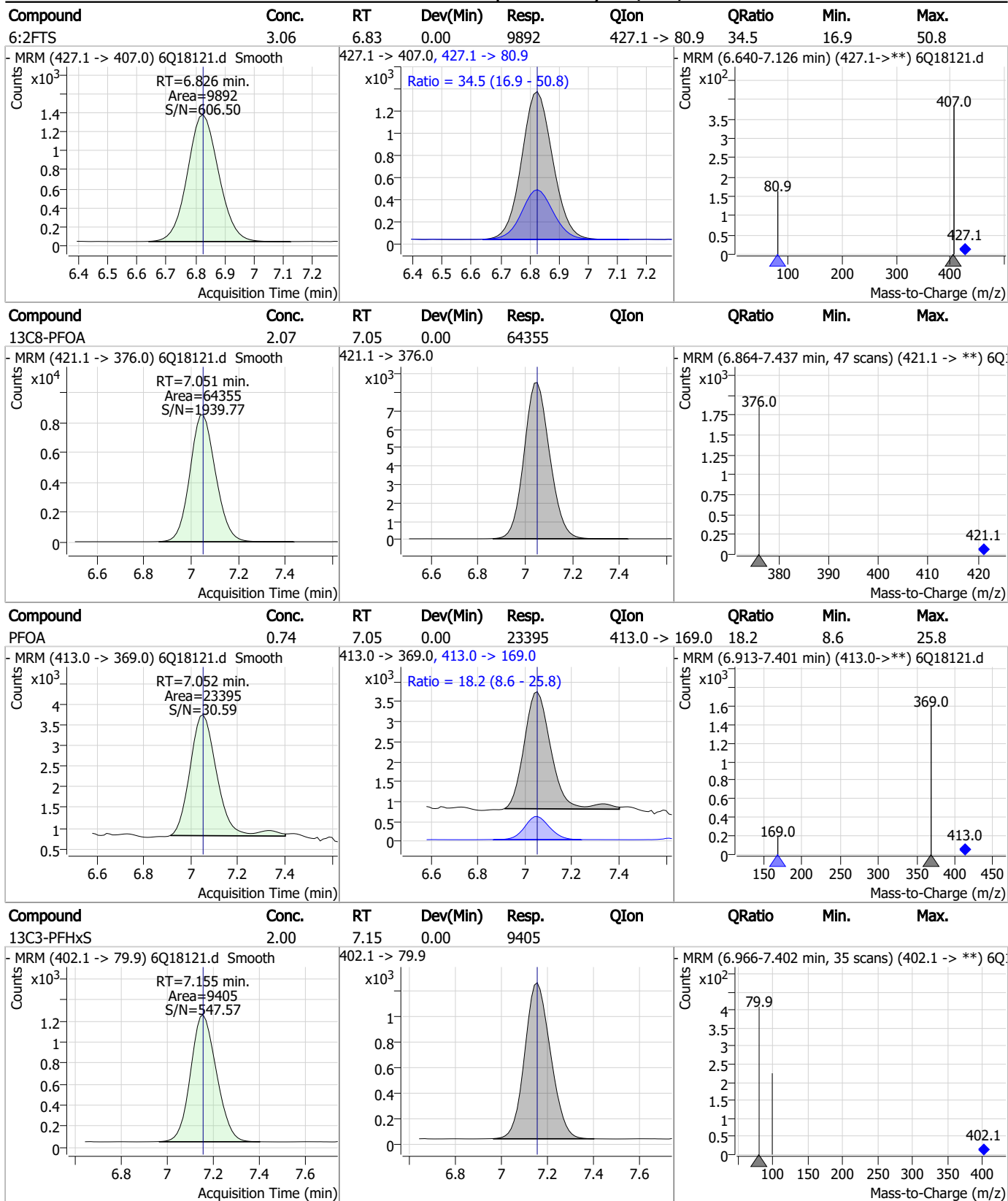
Perfluorinated Compounds by LC/MS/MS



7.3.2

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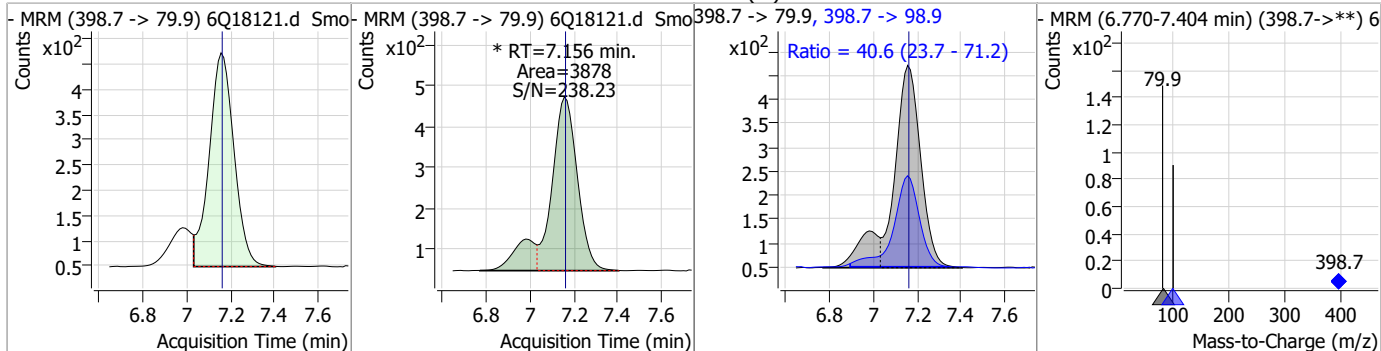
Perfluorinated Compounds by LC/MS/MS



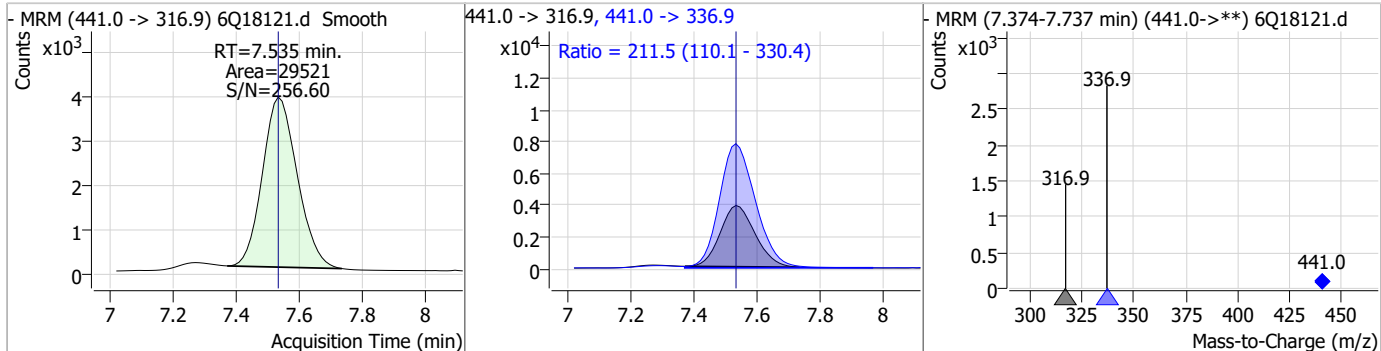
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

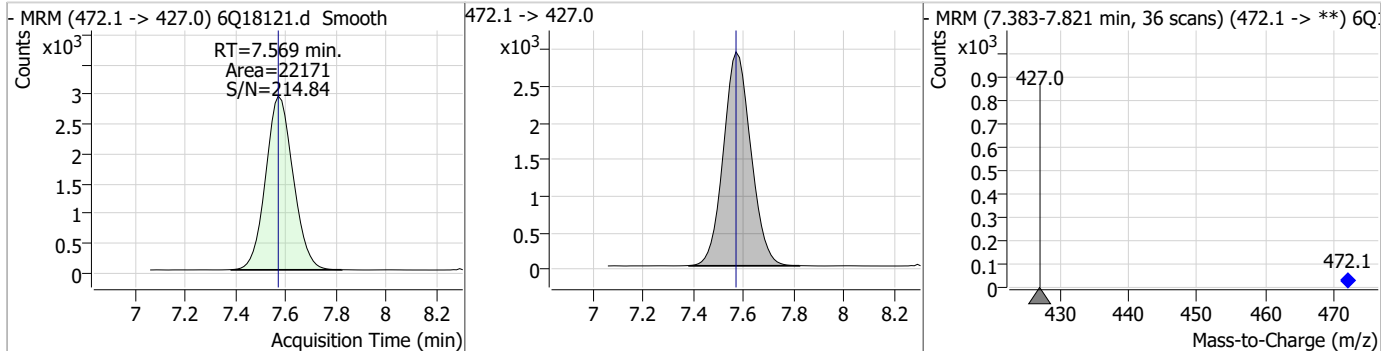
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.74	7.16	0.00	3878 (m)	398.7 -> 98.9	40.6	23.7	71.2



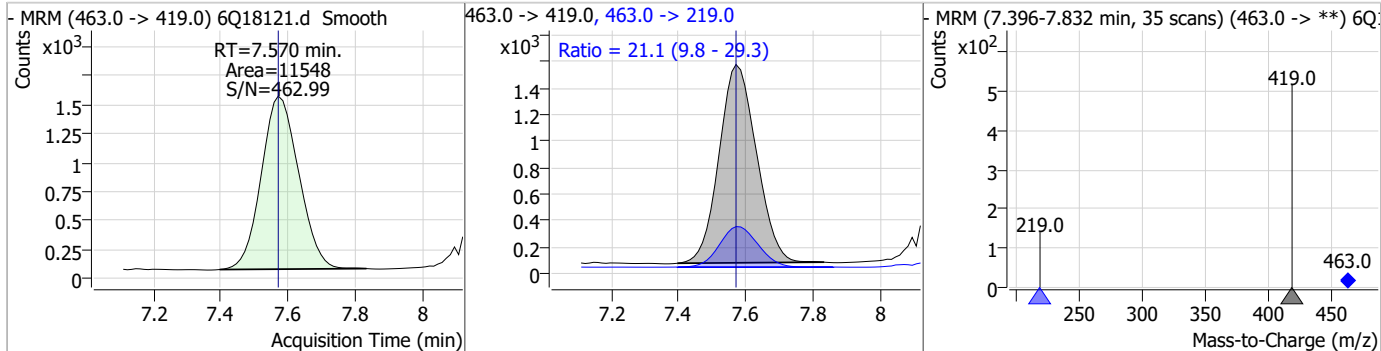
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	16.98	7.54	0.00	29521	441.0 -> 336.9	211.5	110.1	330.4



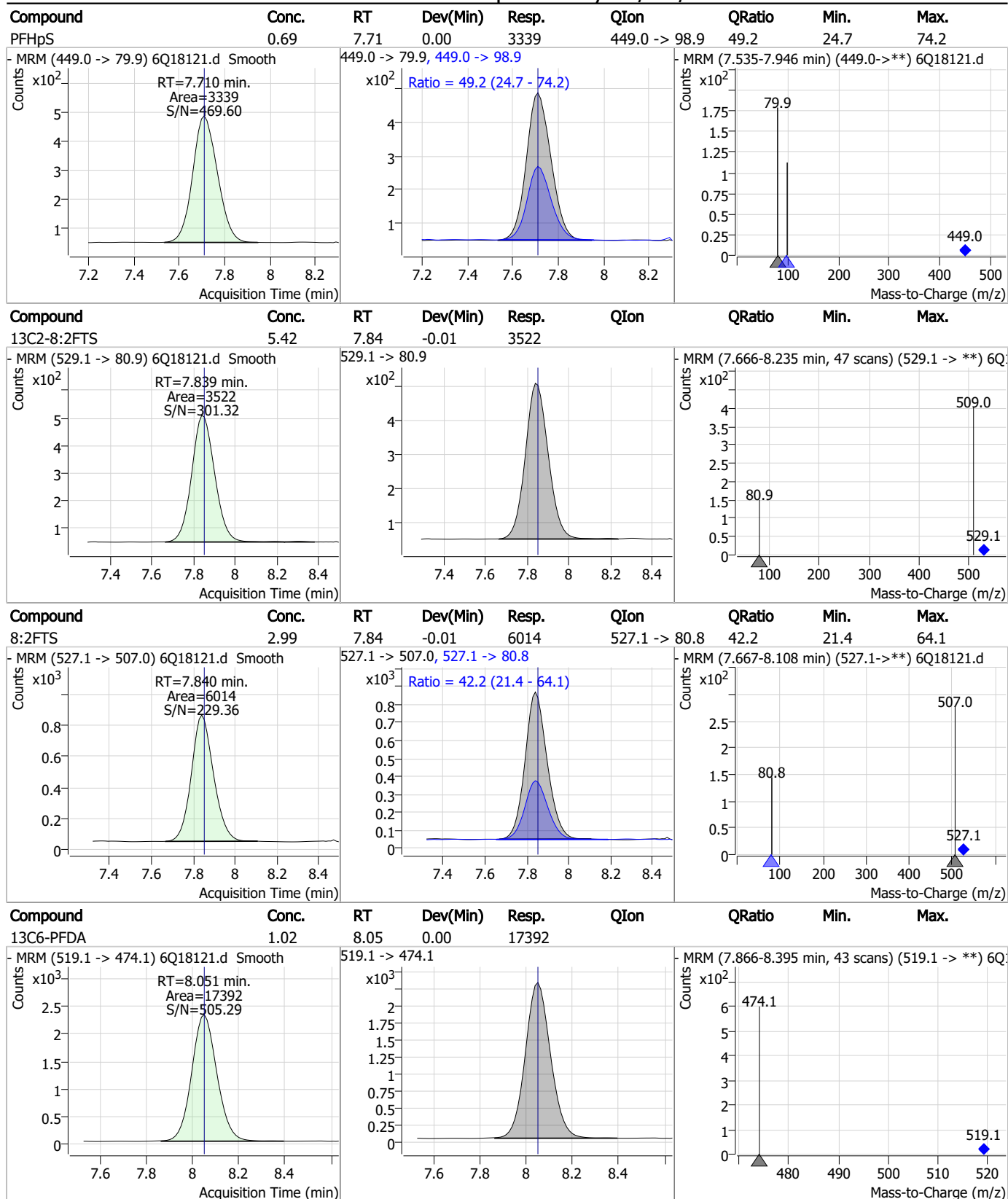
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.01	7.57	0.00	22171	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.71	7.57	0.00	11548	463.0 -> 219.0	21.1	9.8	29.3

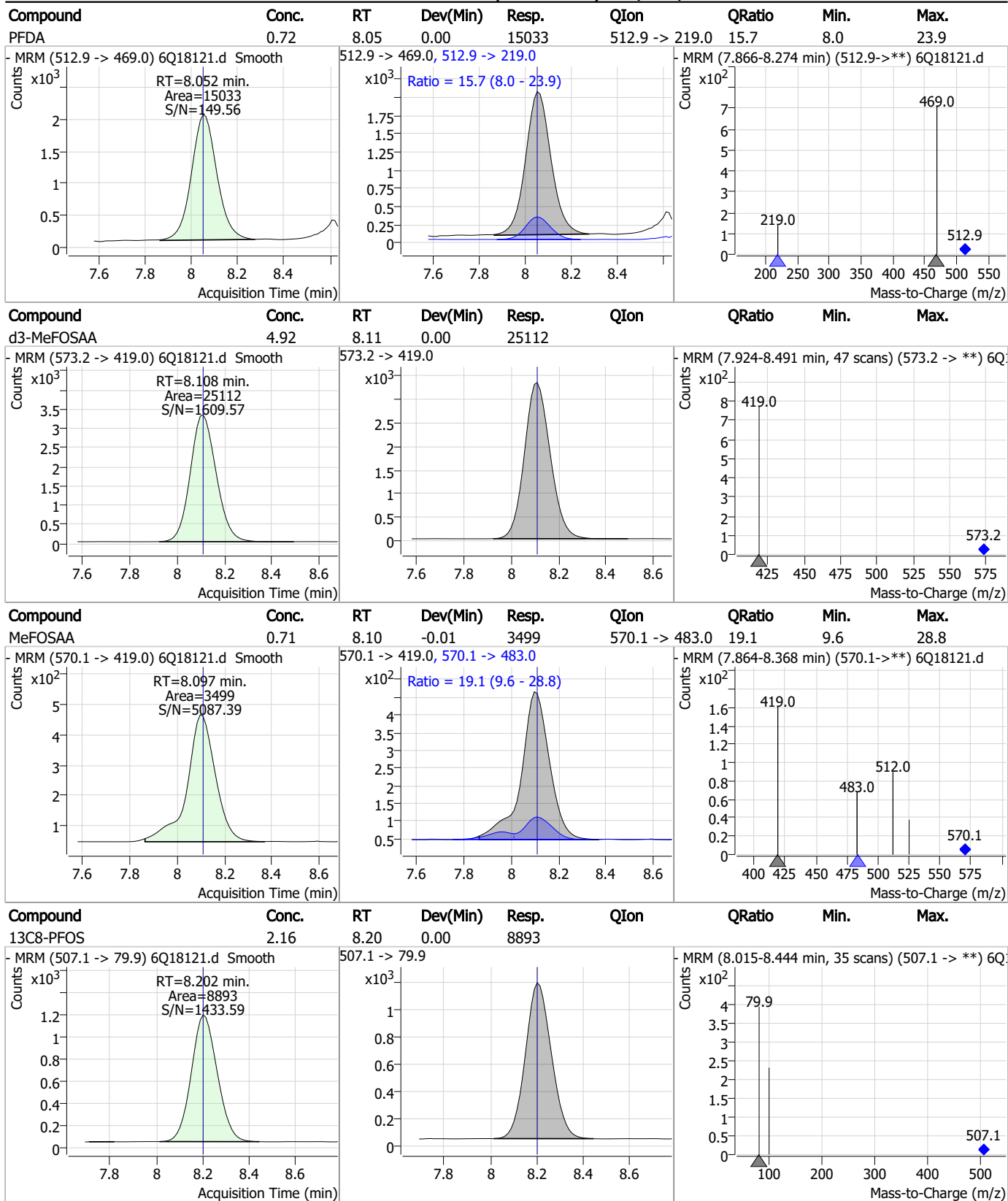


Perfluorinated Compounds by LC/MS/MS



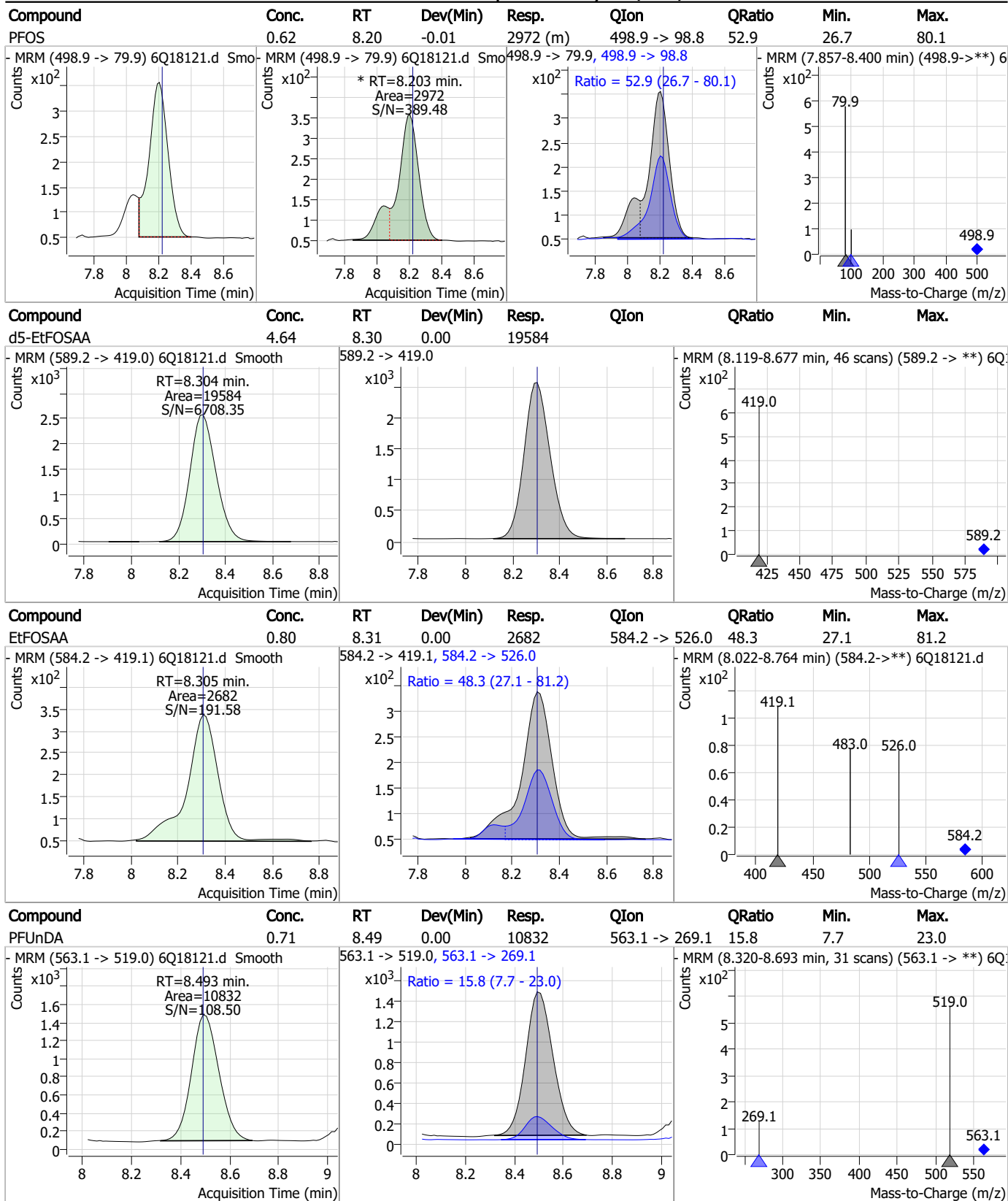
7.3.2
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Perfluorinated Compounds by LC/MS/MS



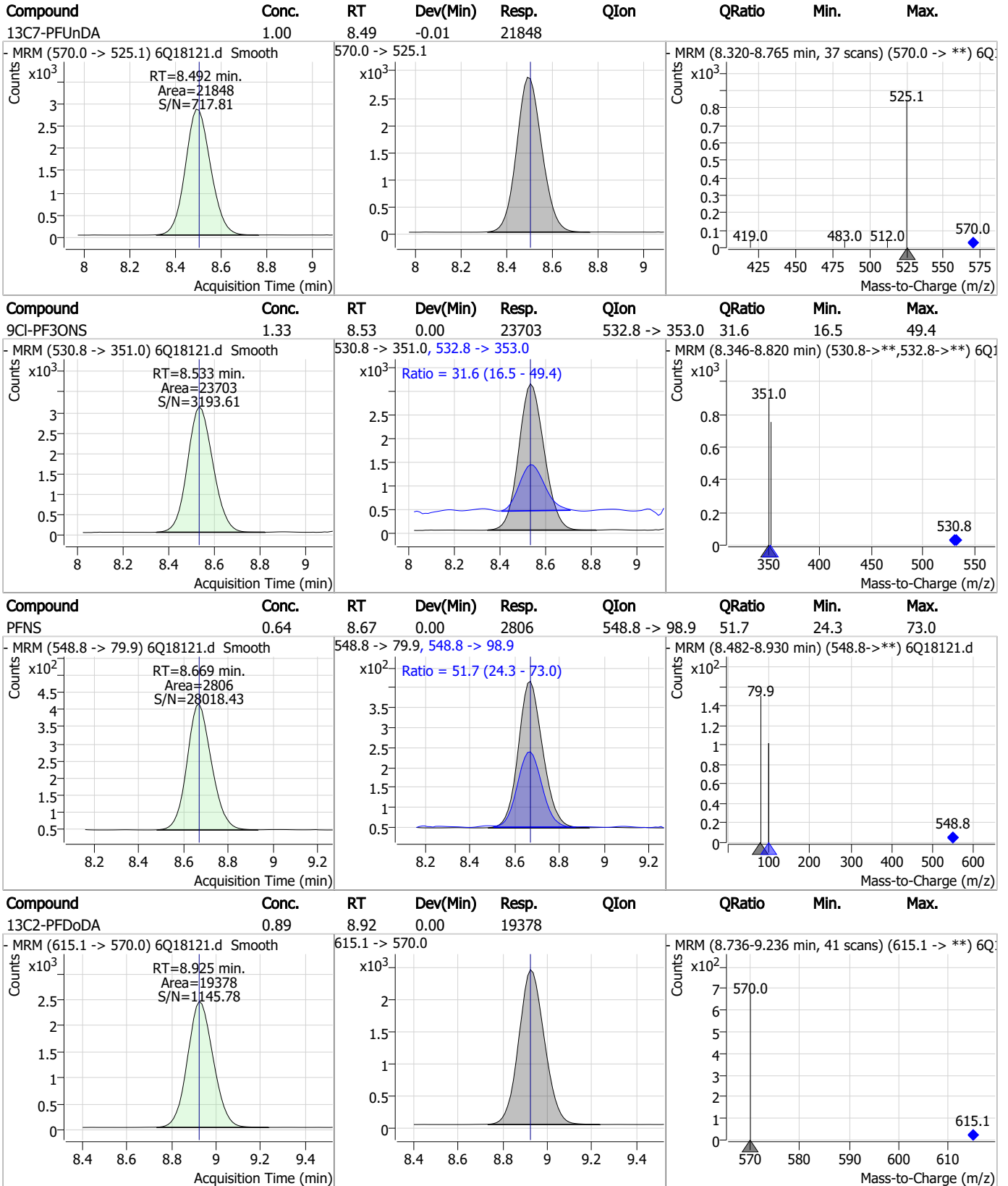
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
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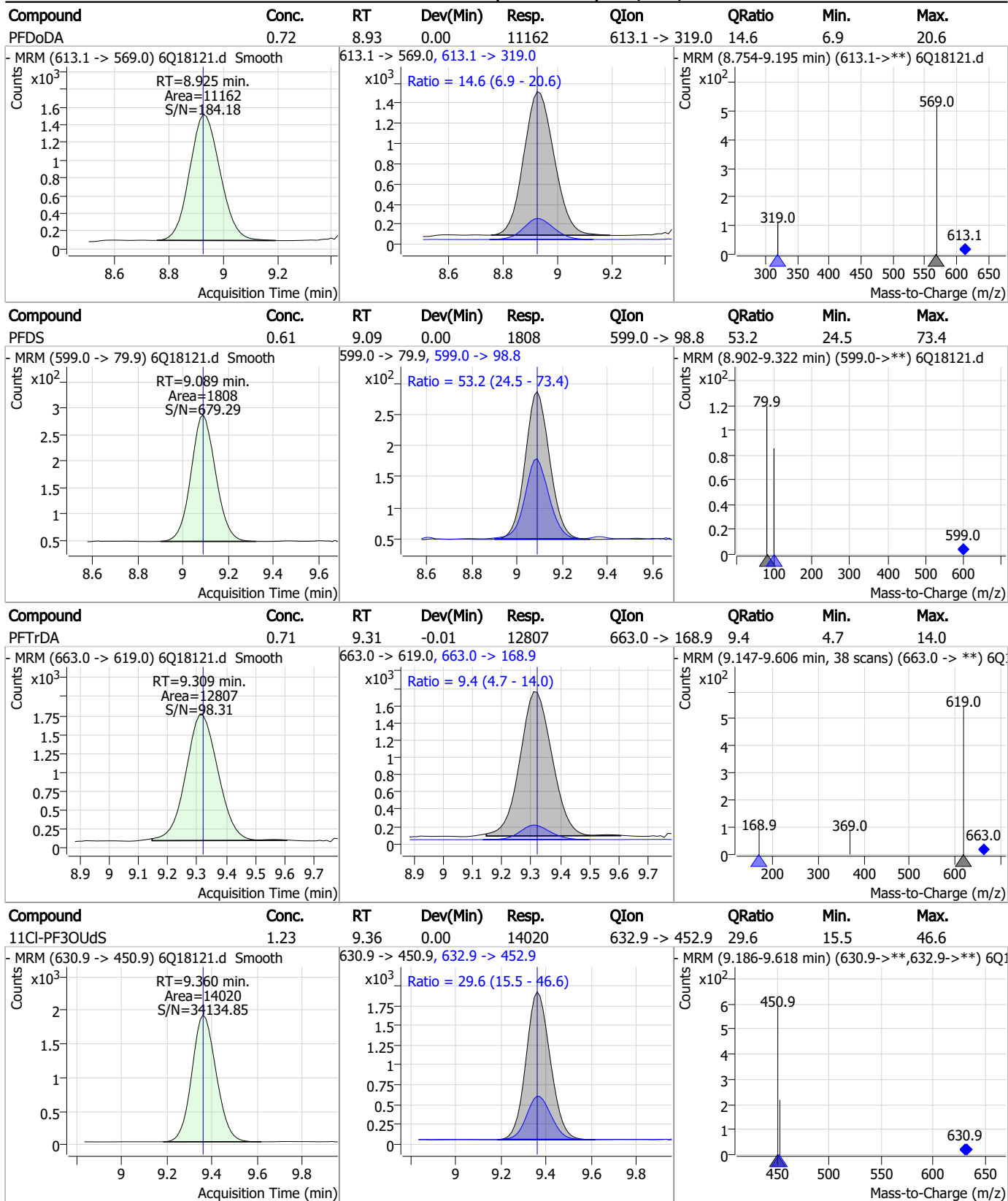
Perfluorinated Compounds by LC/MS/MS



7.3.2

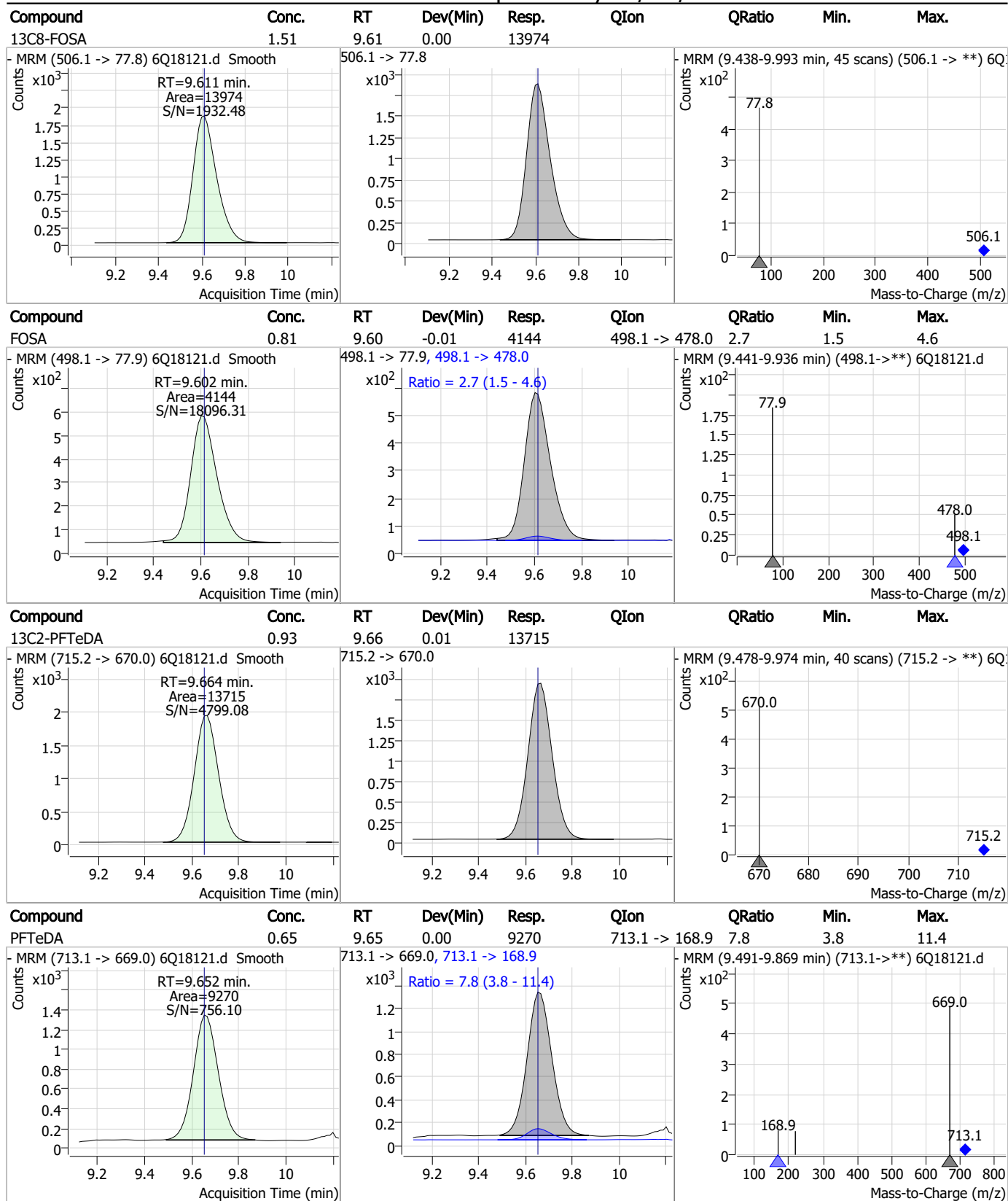
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Perfluorinated Compounds by LC/MS/MS



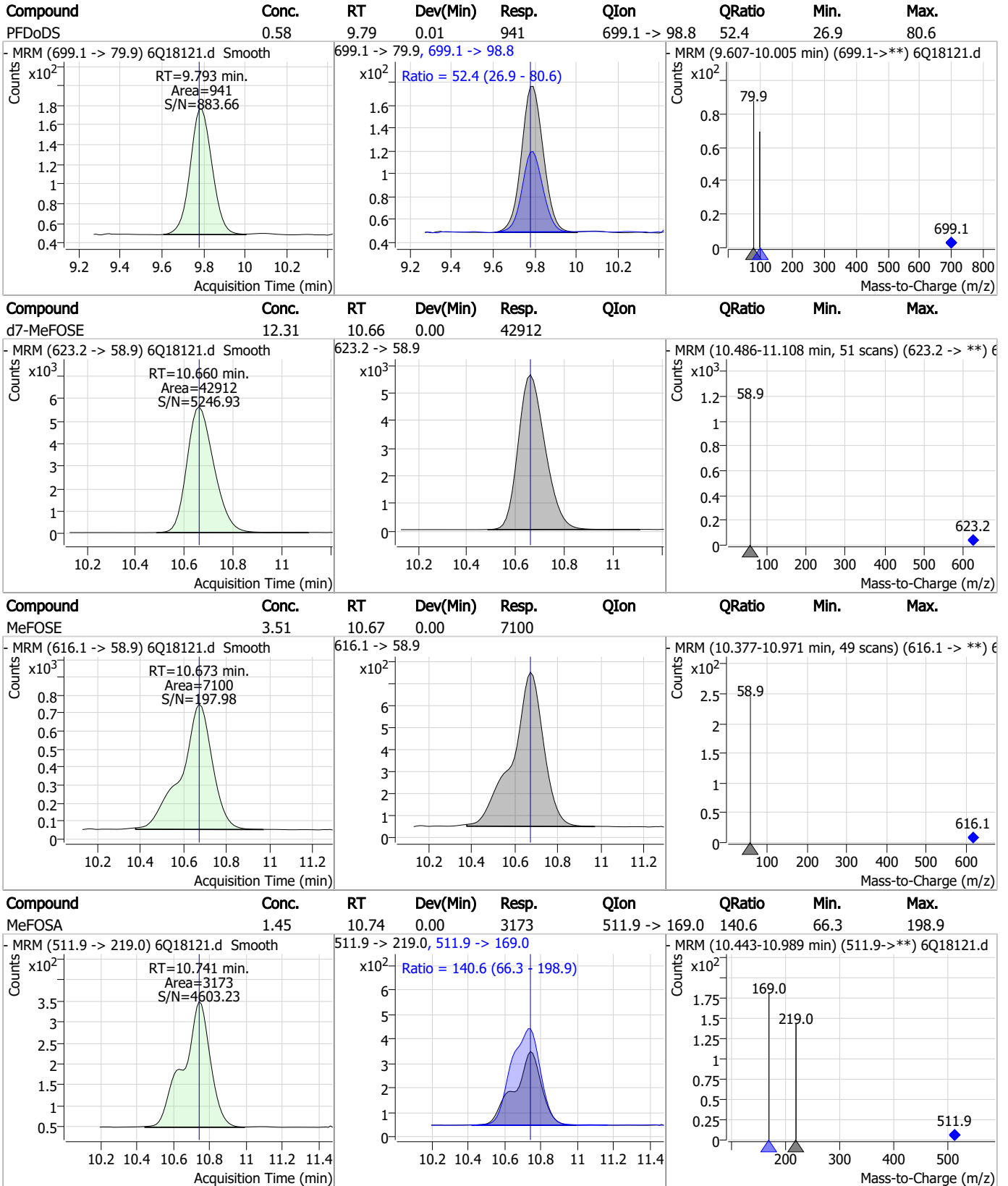
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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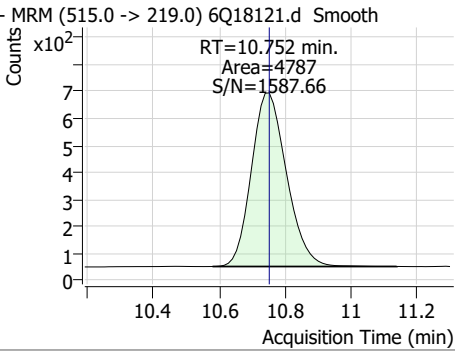
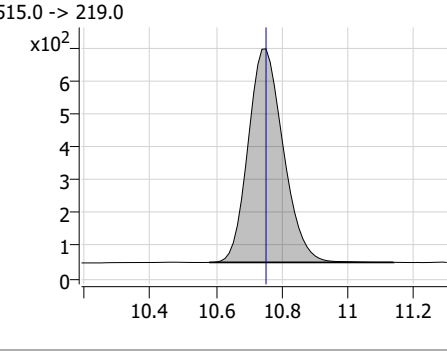
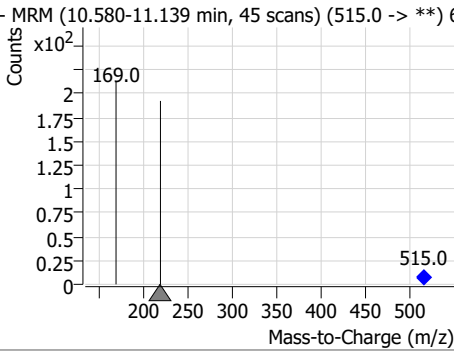
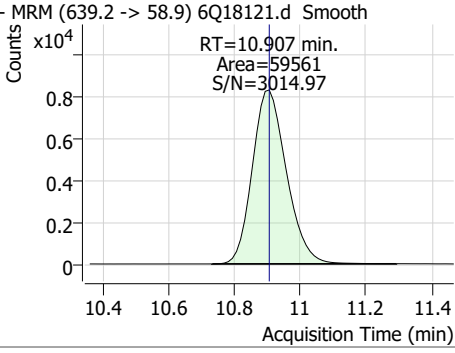
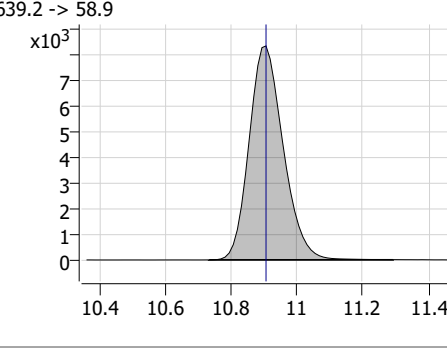
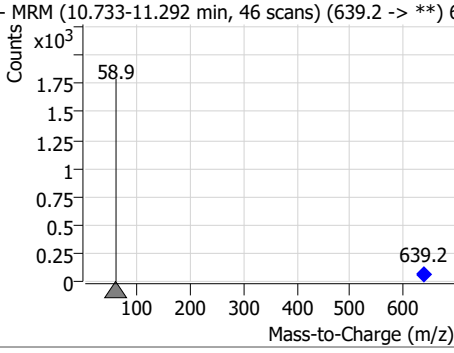
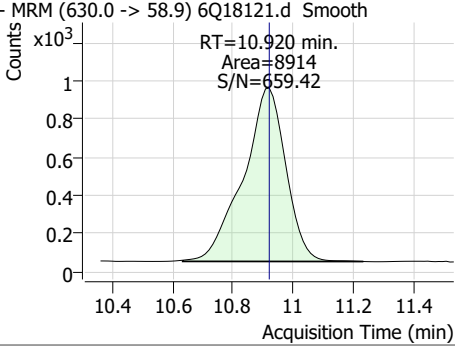
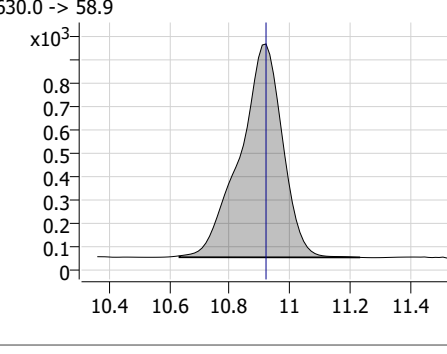
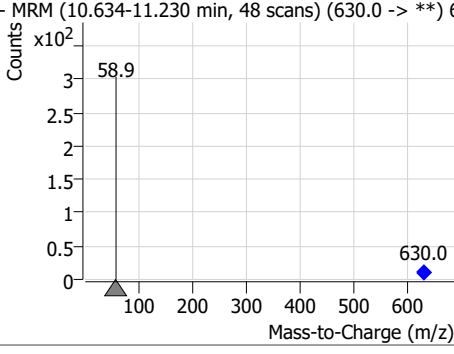
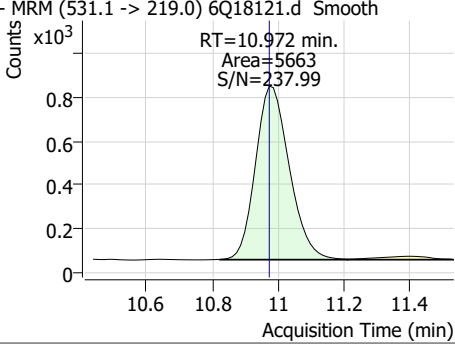
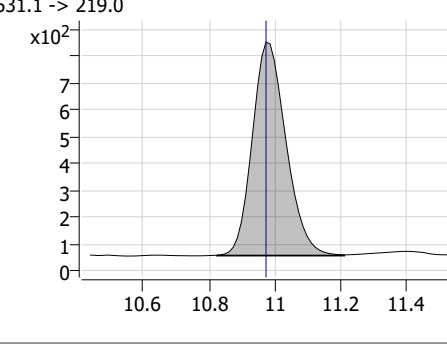
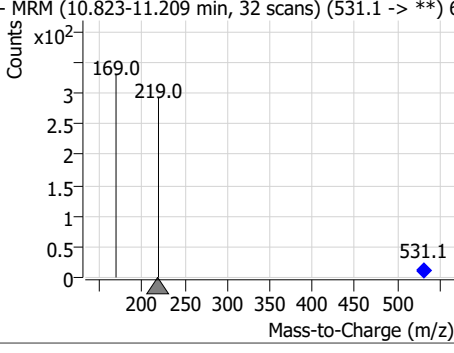
Perfluorinated Compounds by LC/MS/MS



7.3.2

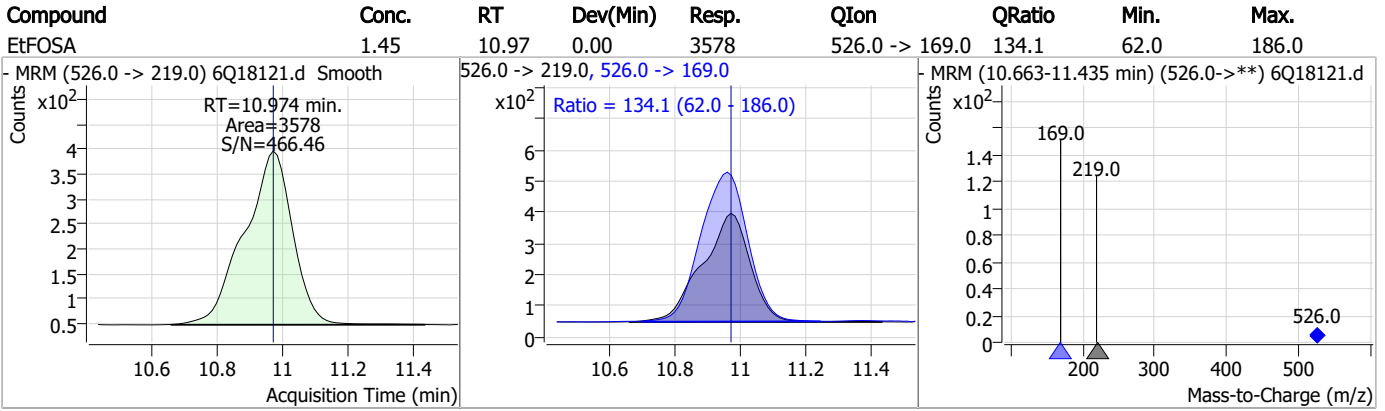
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.44	10.75	0.00	4787				
- MRM (515.0 -> 219.0) 6Q18121.d Smooth 			515.0 -> 219.0 			- MRM (10.580-11.139 min, 45 scans) (515.0 -> **) € 		
d9-EtFOSE	14.49	10.91	0.00	59561				
- MRM (639.2 -> 58.9) 6Q18121.d Smooth 			639.2 -> 58.9 			- MRM (10.733-11.292 min, 46 scans) (639.2 -> **) € 		
EtFOSE	3.34	10.92	0.00	8914				
- MRM (630.0 -> 58.9) 6Q18121.d Smooth 			630.0 -> 58.9 			- MRM (10.634-11.230 min, 48 scans) (630.0 -> **) € 		
d5-EtFOSA	1.46	10.97	0.00	5663				
- MRM (531.1 -> 219.0) 6Q18121.d Smooth 			531.1 -> 219.0 			- MRM (10.823-11.209 min, 32 scans) (531.1 -> **) € 		

7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2

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Manual Integration Approval Summary

Sample Number: OP96921-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q18121.D Analyst approved: 05/21/23 08:45 Mike Eger
Injection Time: 05/19/23 11:39 Supervisor approved: 05/23/23 10:20 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.3.2.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18125.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 12:37:22 PM
 Sample Name : op96921-ms
 Vial : P4-F5
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	86122	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	44857	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	51228	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	46448	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	68096	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	23310	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	17558	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	19484	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	17066	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	11125	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	16908	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	17402	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	10322	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	8102	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2533	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	3180	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3409	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	24247	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	31833	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	18515	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	47618	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	62085	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	6367	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	5007	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	13906	2.50 µg/L	-0.012
13C3-PFBA	2.891	216.0 -> 172.0	73543	5.00 µg/L	0.012
18O2-PFHxS	7.154	403.0 -> 83.9	9525	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	89037	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	26124	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	31626	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	52515	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2533	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3180	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3409	4.83 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-PFDoDA	8.925	615.1 -> 570.0	17066	0.75 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 60.3%		
13C2-PFTeDA	9.652	715.2 -> 670.0	11125	0.72 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 57.9%		
13C3-PFBS	5.359	302.1 -> 79.9	17402	2.07 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 82.6%		
13C3-PFHxS	7.155	402.1 -> 79.9	10322	2.03 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 = 81.0%		
13C4-PFBA	2.888	216.8 -> 171.9	86122	4.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 49.1%		
13C4-PFHpA	6.395	367.1 -> 322.0	46448	2.13 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.2%		
13C5-PFHxA	5.441	318.0 -> 273.0	51228	2.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.5%		
13C5-PFPeA	4.247	268.3 -> 223.0	44857	4.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.0%		
13C6-PFDA	8.051	519.1 -> 474.1	17558	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.9%		
13C7-PFUnDA	8.492	570.0 -> 525.1	19484	0.85 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.3%		
13C8-FOSA	9.611	506.1 -> 77.8	16908	1.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 71.8%		
13C8-PFOA	7.051	421.1 -> 376.0	68096	2.06 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 82.3%		
13C8-PFOS	8.202	507.1 -> 79.9	8102	1.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 77.3%		
13C9-PFNA	7.569	472.1 -> 427.0	23310	0.98 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.5%		
d3-MeFOSAA	8.108	573.2 -> 419.0	24247	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C3-HFPO-DA	5.807	286.9 -> 168.9	31833	8.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 83.9%		
d3-MeFOSA	10.752	515.0 -> 219.0	5007	1.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 59.1%		
d5-EtFOSAA	8.304	589.2 -> 419.0	18515	4.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.1%		
d7-MeFOSE	10.660	623.2 -> 58.9	47618	13.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 53.6%		
d9-EtFOSE	10.907	639.2 -> 58.9	62085	14.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 59.3%		
d5-EtFOSA	10.972	531.1 -> 219.0	6367	1.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 64.5%		
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	34594	9.25 µg/L	99
		327.1 -> 80.9	13827		
6:2FTS	6.826	427.1 -> 407.0	34198	9.95 µg/L	97
		427.1 -> 80.9	11075		
8:2FTS	7.840	527.1 -> 507.0	19636	10.08 µg/L	99
		527.1 -> 80.8	8268		
EtFOSAA	8.305	584.2 -> 419.1	7645	2.41 µg/L	98
		584.2 -> 526.0	4011		
FOSA	9.602	498.1 -> 77.9	15782	2.55 µg/L	100
		498.1 -> 478.0	454		
MeFOSAA	8.109	570.1 -> 419.0	10761	2.25 µg/L	99
		570.1 -> 483.0	2004		
PFBA	2.894	212.8 -> 168.9	35229	11.26 µg/L	100
PFBS	5.360	298.7 -> 79.9	18545	2.18 µg/L	98
		298.7 -> 98.8	6927		
PFDA	8.040	512.9 -> 469.0	48748	2.33 µg/L	100
		512.9 -> 219.0	7775		
PFDoDA	8.925	613.1 -> 569.0	33442	2.44 µg/L	99
		613.1 -> 319.0	4396		
PFDS	9.089	599.0 -> 79.9	6030	2.22 µg/L	92

7.4.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.395	599.0 -> 98.8	2606	2.38	µg/L	100
		363.1 -> 319.0	56454			
PFHpS	7.710	363.1 -> 169.0	8364	2.62	µg/L	100
		449.0 -> 79.9	11461			
PFHxA	5.444	449.0 -> 98.9	5647	2.45	µg/L	99
		313.0 -> 269.0	48920			
PFHxS	7.156	313.0 -> 118.9	2357	2.15	µg/L	99
		398.7 -> 79.9	12386			
PFNA	7.570	398.7 -> 98.9	5938	2.51	µg/L	99
		463.0 -> 419.0	43123			
PFNS	8.669	463.0 -> 219.0	8695	2.30	µg/L	93
		548.8 -> 79.9	9122			
PFOA	7.040	548.8 -> 98.9	4902	2.41	µg/L	100
		413.0 -> 369.0	80166			
PFOS	8.203	413.0 -> 169.0	13763	2.35	µg/L	95
		498.9 -> 79.9	10224			
PFPeA	4.249	498.9 -> 98.8	5084	4.79	µg/L	100
		263.0 -> 219.0	63652			
PFPeS	6.447	349.1 -> 79.9	13464	2.34	µg/L	99
		349.1 -> 98.9	6304			
PFTeDA	9.652	713.1 -> 669.0	30194	2.63	µg/L	99
		713.1 -> 168.9	2216			
PFTrDA	9.309	663.0 -> 619.0	37252	2.36	µg/L	100
		663.0 -> 168.9	3526			
PFUnDA	8.506	563.1 -> 519.0	34379	2.53	µg/L	96
		563.1 -> 269.1	5882			
11CI-PF3OUdS	9.360	630.9 -> 450.9	41952	3.37	µg/L	99
		632.9 -> 452.9	13227			
9CI-PF3ONS	8.533	530.8 -> 351.0	79703	4.10	µg/L	99
		532.8 -> 353.0	25741			
ADONA	6.658	376.9 -> 250.9	236332	4.64	µg/L	100
		376.9 -> 84.8	63360			
HFPO-DA	5.807	284.9 -> 168.9	15592	5.04	µg/L	98
		284.9 -> 184.9	2268			
3:3FTCA	3.740	241.0 -> 177.0	5297	6.34	µg/L	99
		241.0 -> 117.0	737			
5:3FTCA	6.111	341.0 -> 237.1	195943	54.32	µg/L	98
		341.0 -> 217.0	141593			
7:3FTCA	7.535	441.0 -> 316.9	109080	60.84	µg/L	93
		441.0 -> 336.9	227978			
EtFOSA	10.974	526.0 -> 219.0	13333	4.81	µg/L	98
		526.0 -> 169.0	16761			
EtFOSE	10.920	630.0 -> 58.9	33495	12.05	µg/L	100
		511.9 -> 219.0	12129			
MeFOSA	10.741	511.9 -> 169.0	16494	5.31	µg/L	97
		616.1 -> 58.9	28033			
MeFOSE	10.673	699.1 -> 79.9	2883	12.50	µg/L	100
		699.1 -> 98.8	1773			
PFDoDS	9.779	295.0 -> 201.0	10791	1.96	µg/L	89
		295.0 -> 84.9	2855			
NFDHA	5.324	279.0 -> 85.1	44028	4.82	µg/L	99
		229.0 -> 84.9	29142			
PFMBA	4.650	314.8 -> 134.9	111914	4.71	µg/L	100
		314.8 -> 82.9	4276			
PFMPA	3.401			4.22	µg/L	100
PFEESA	5.900			4.24	µg/L	100

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

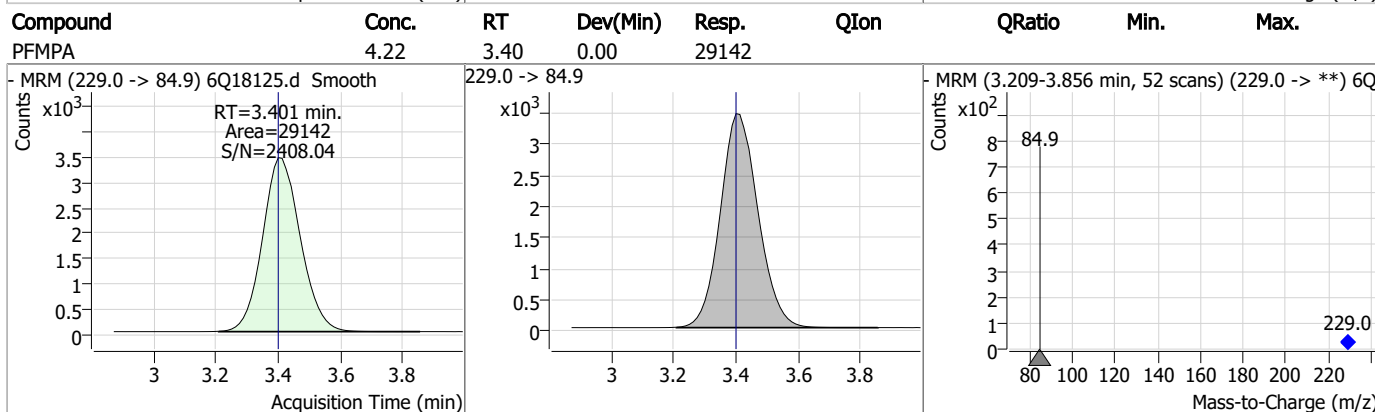
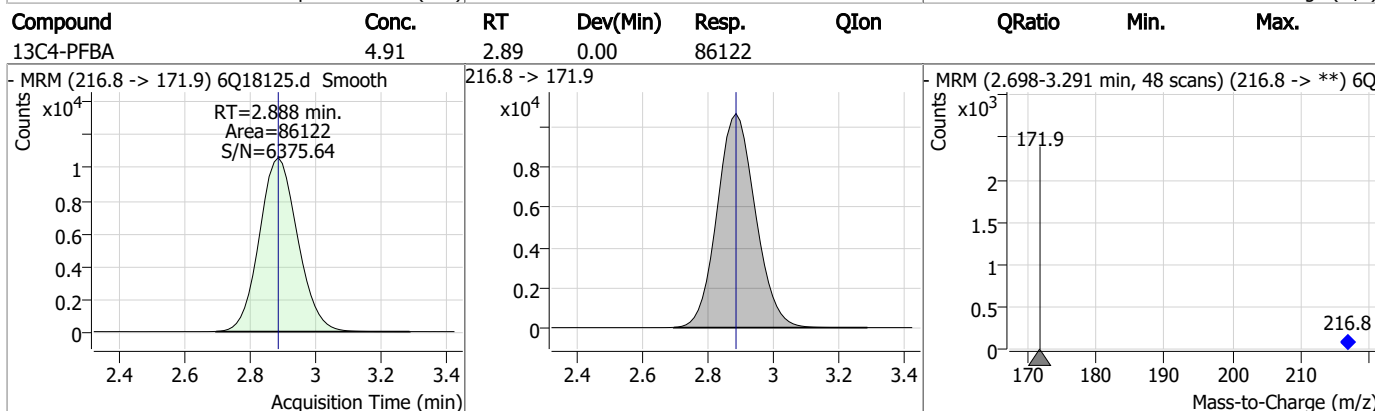
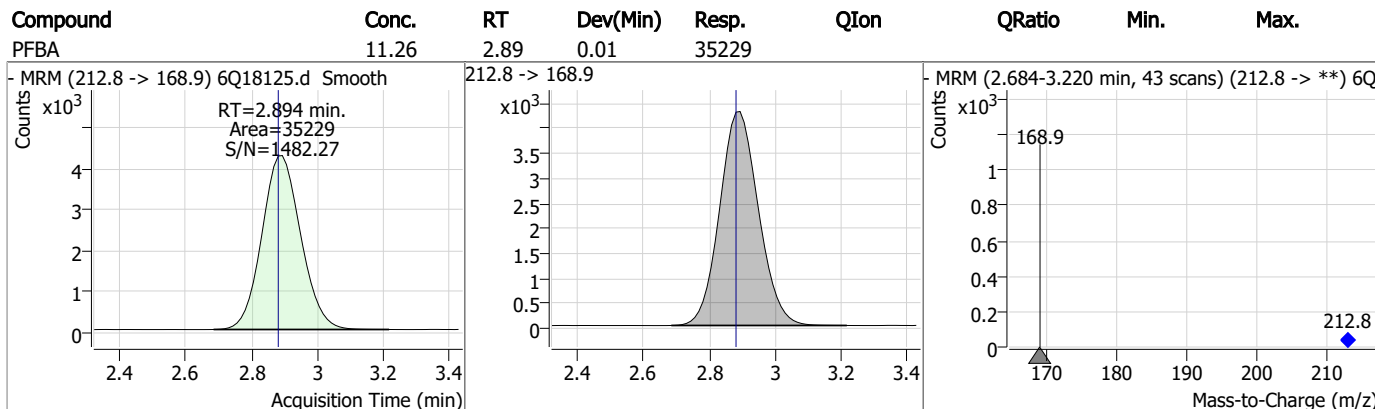
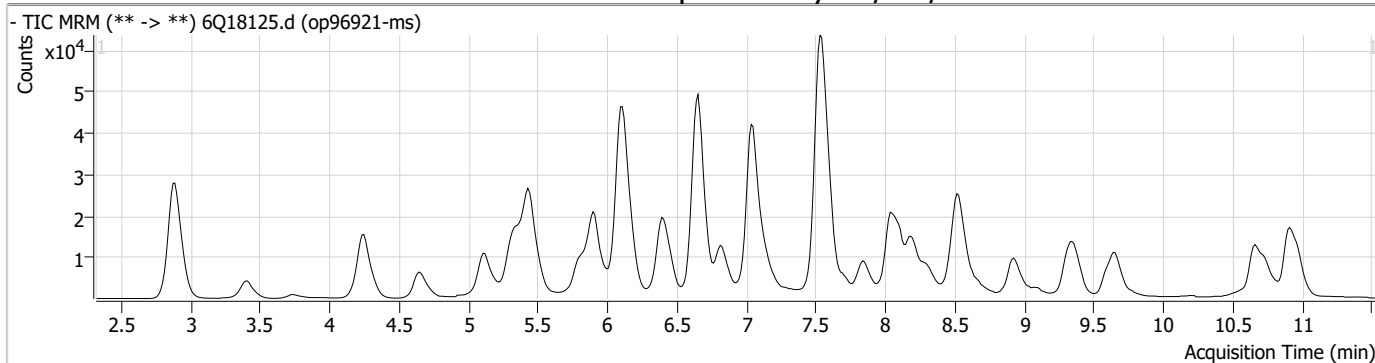
Perfluorinated Compounds by LC/MS/MS

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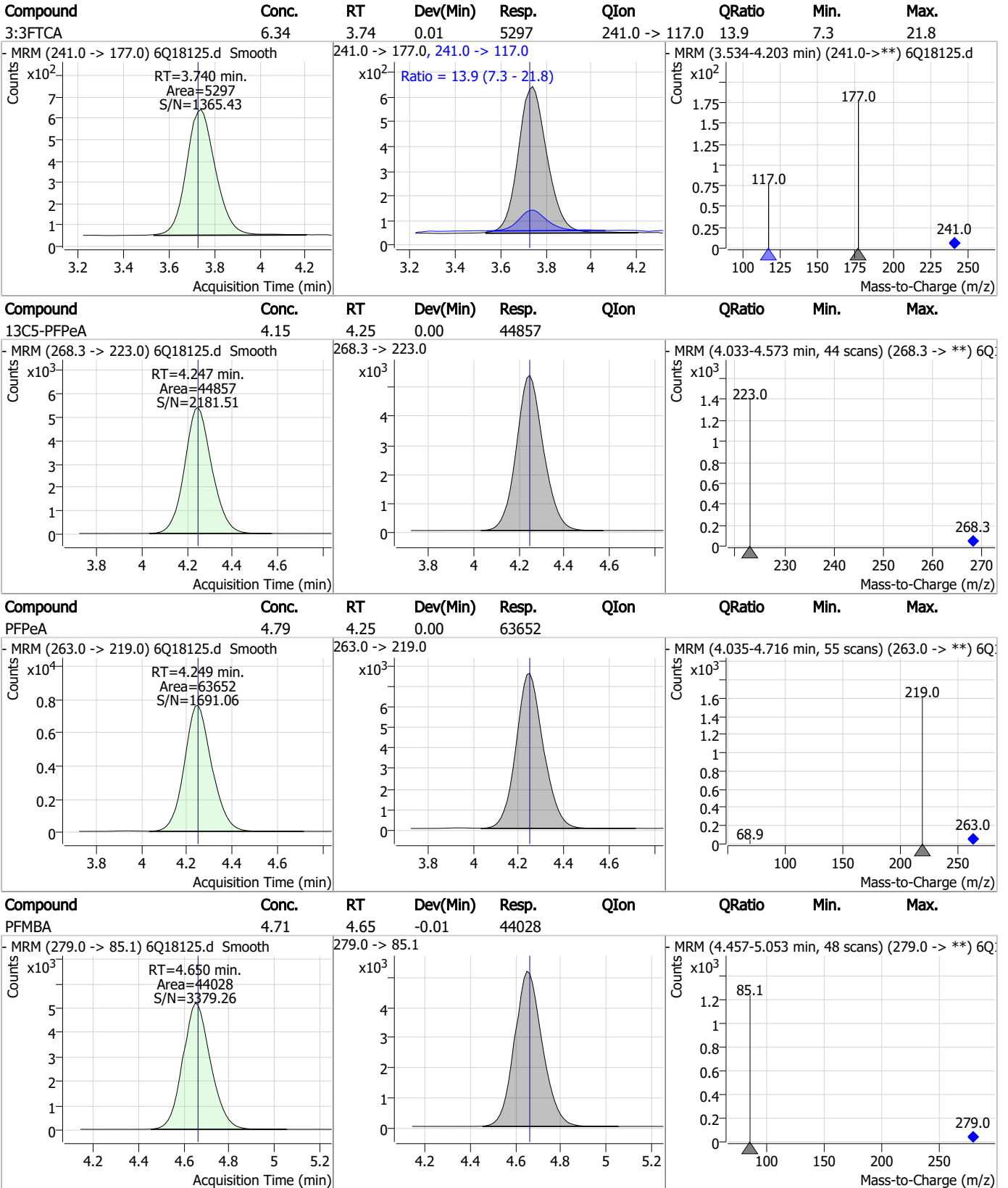
7.4.1

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

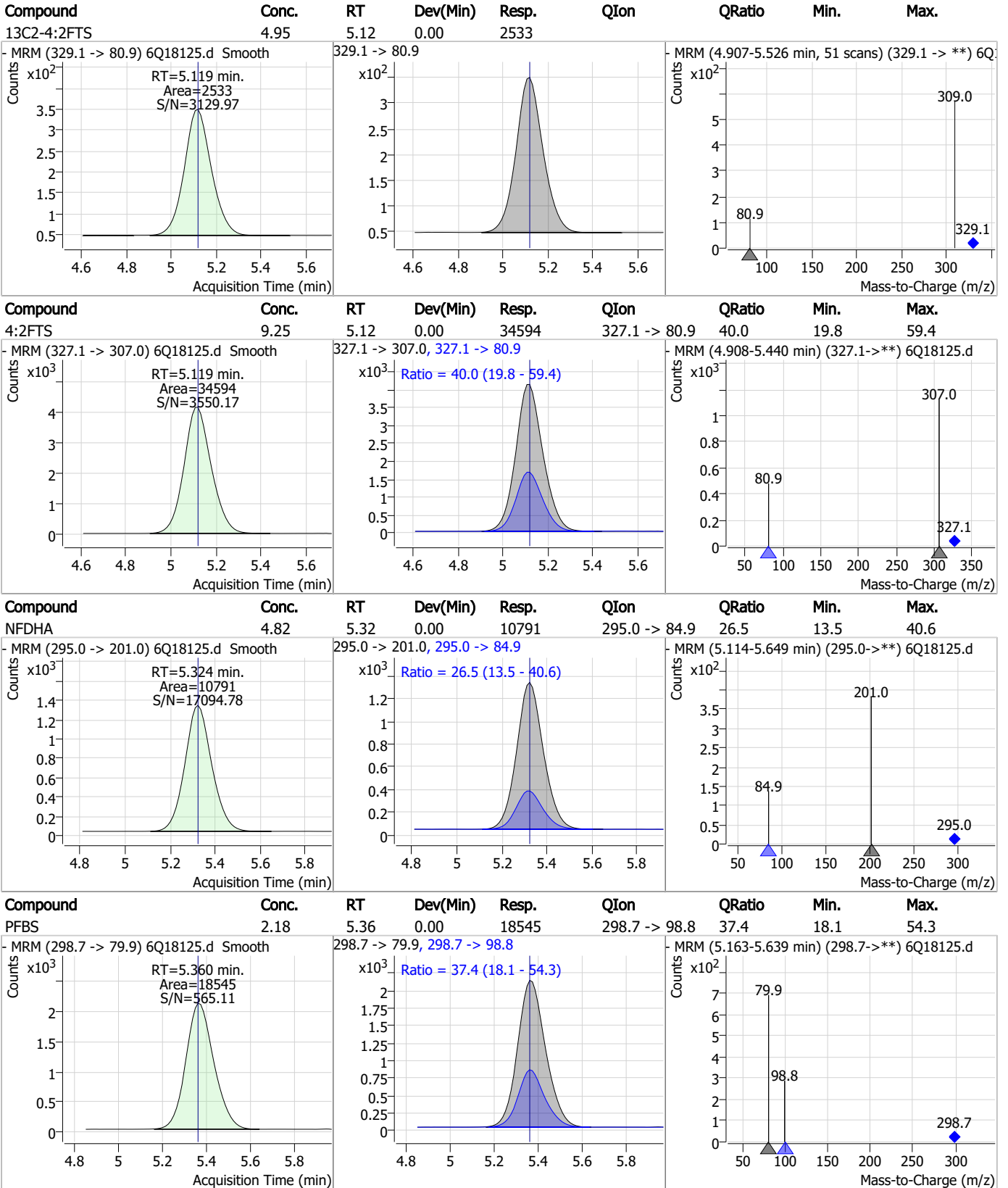


7.4.1

7



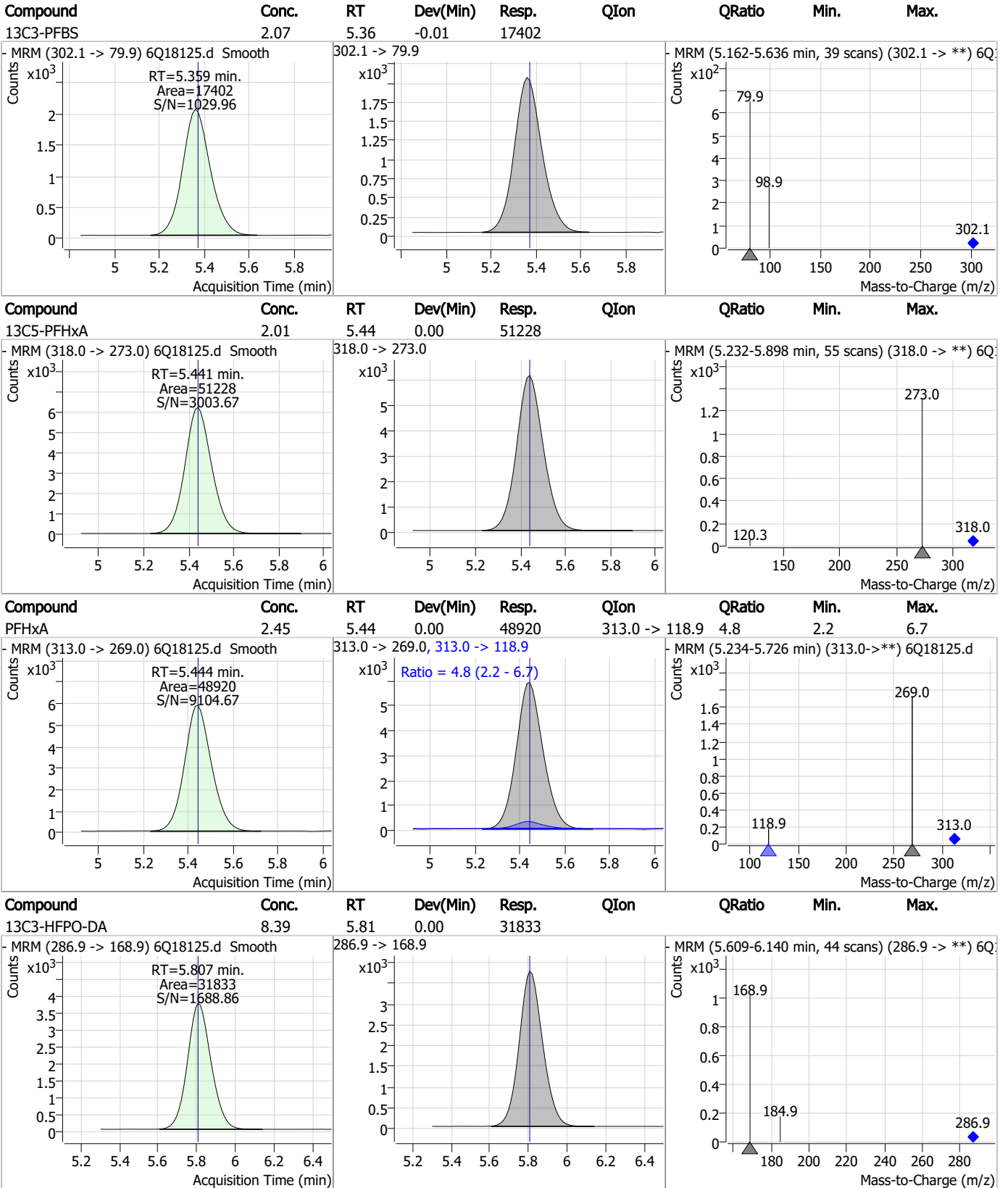
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

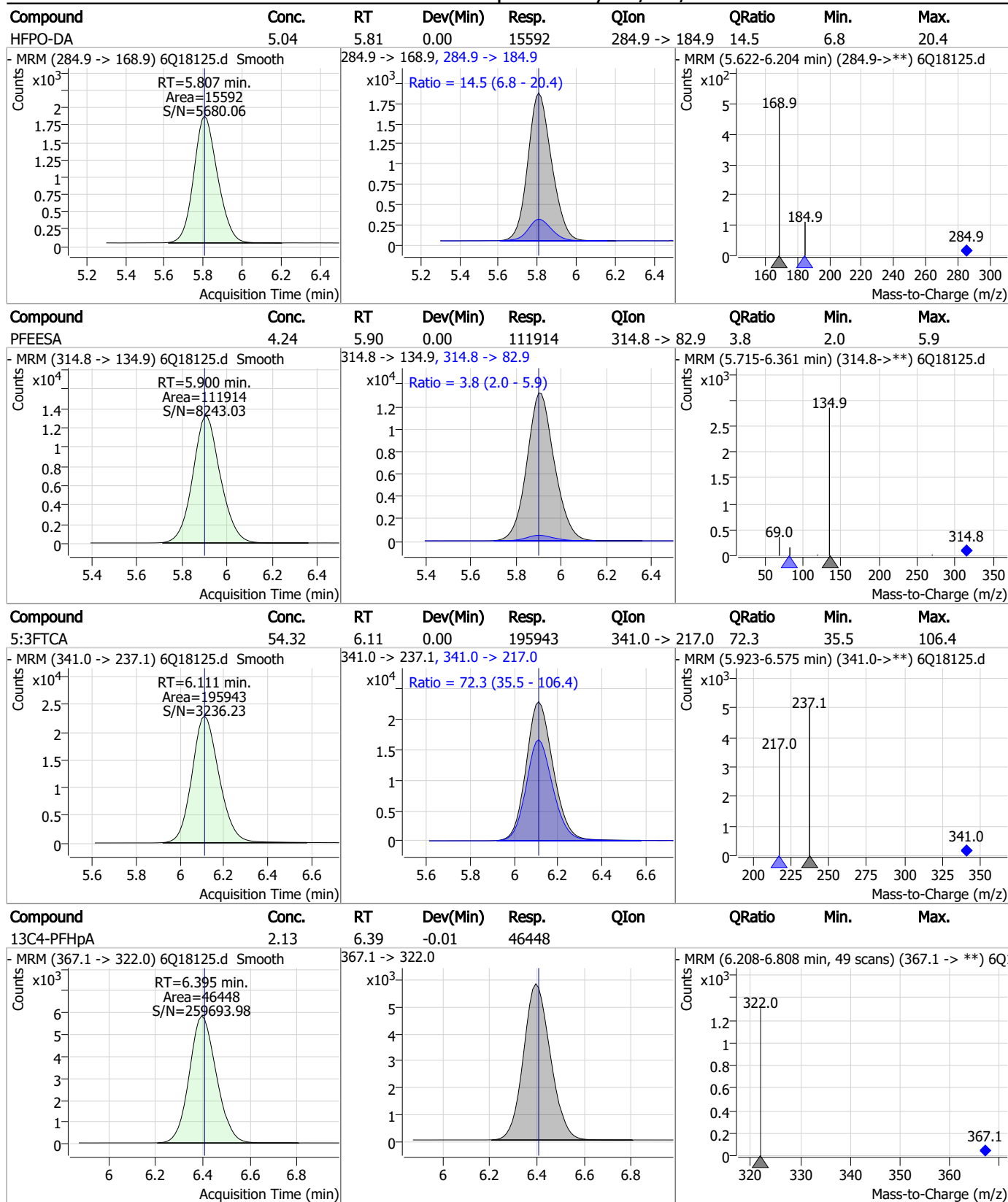
Perfluorinated Compounds by LC/MS/MS



7.4.1

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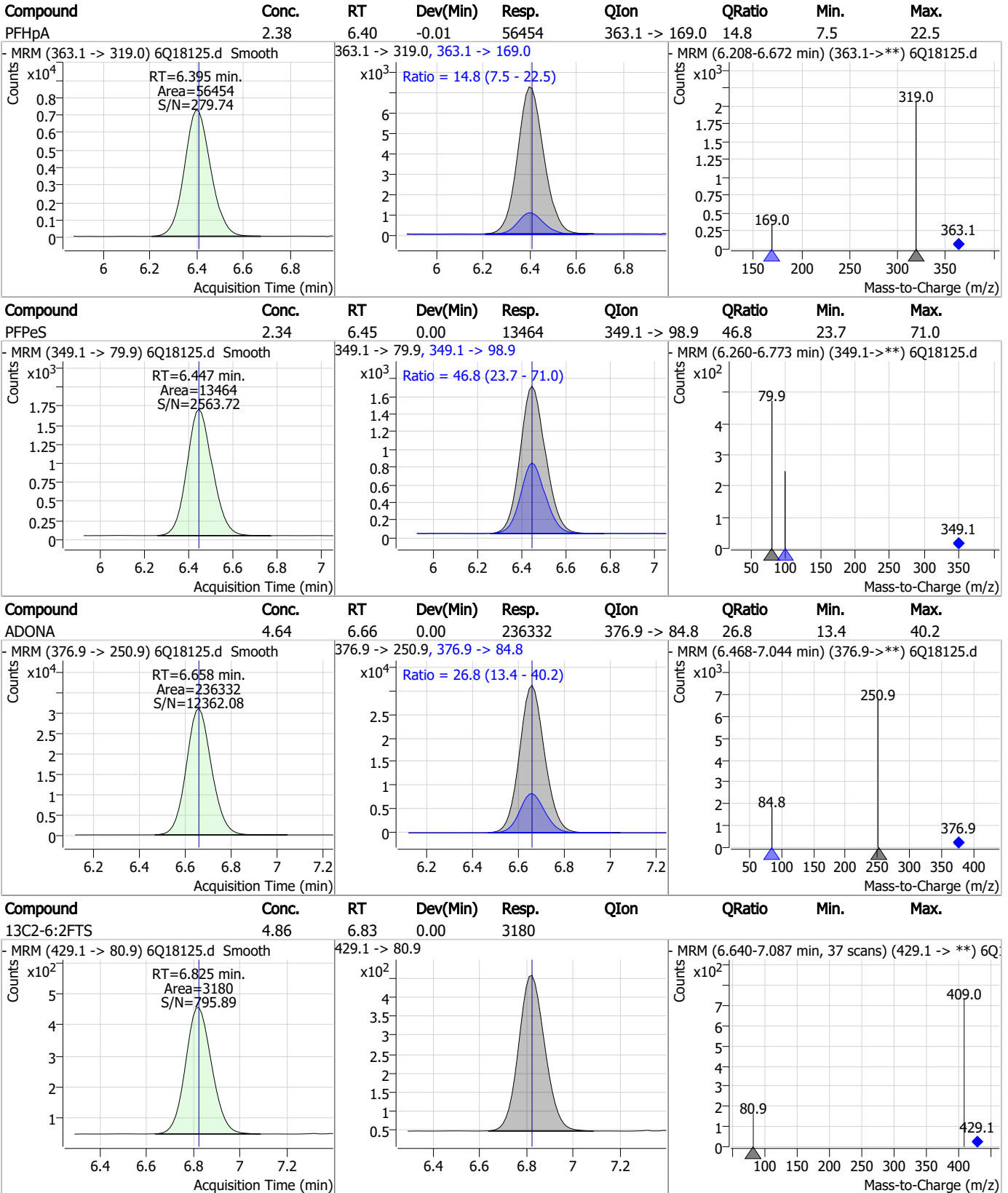
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS

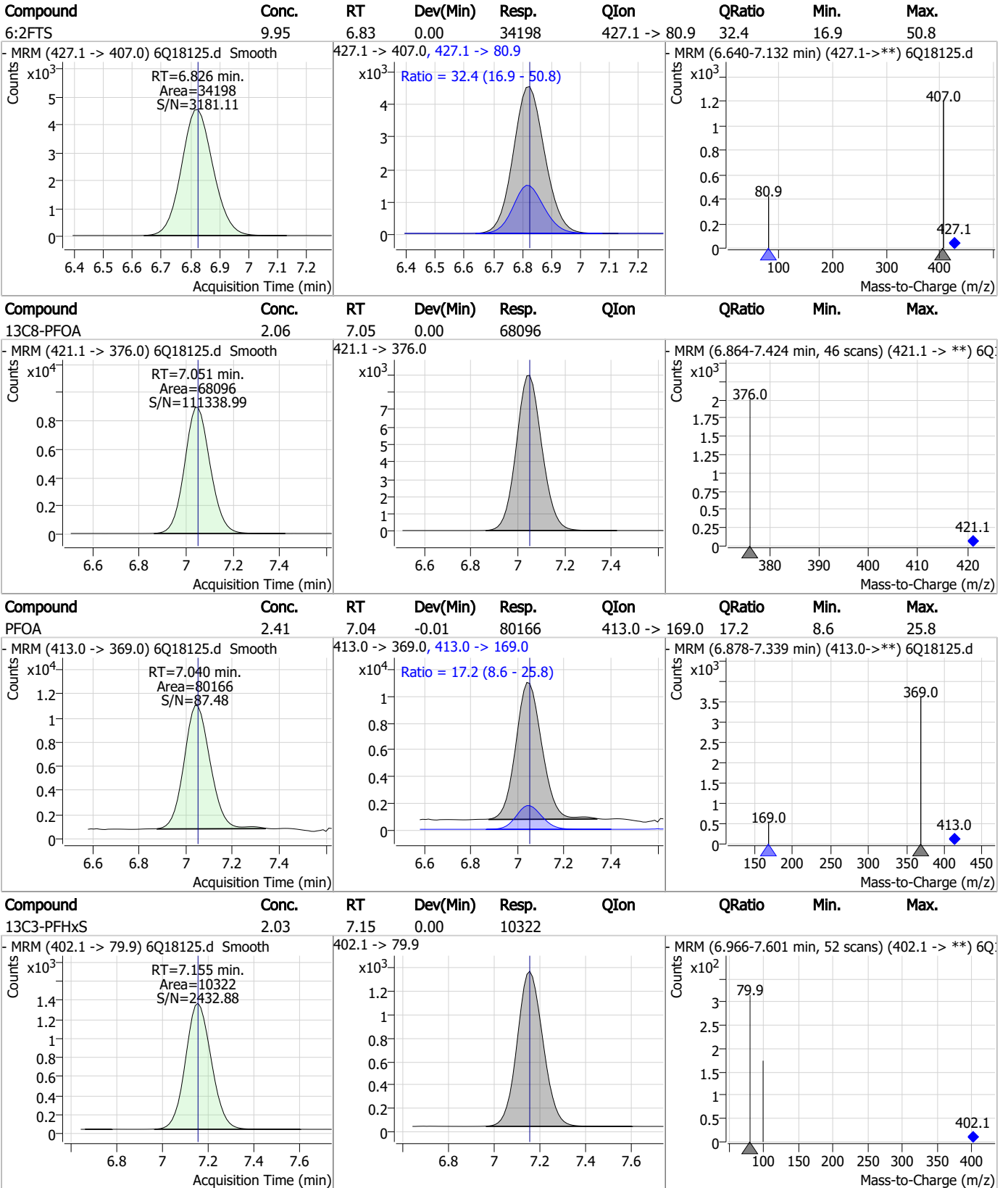


7.4.1

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Perfluorinated Compounds by LC/MS/MS

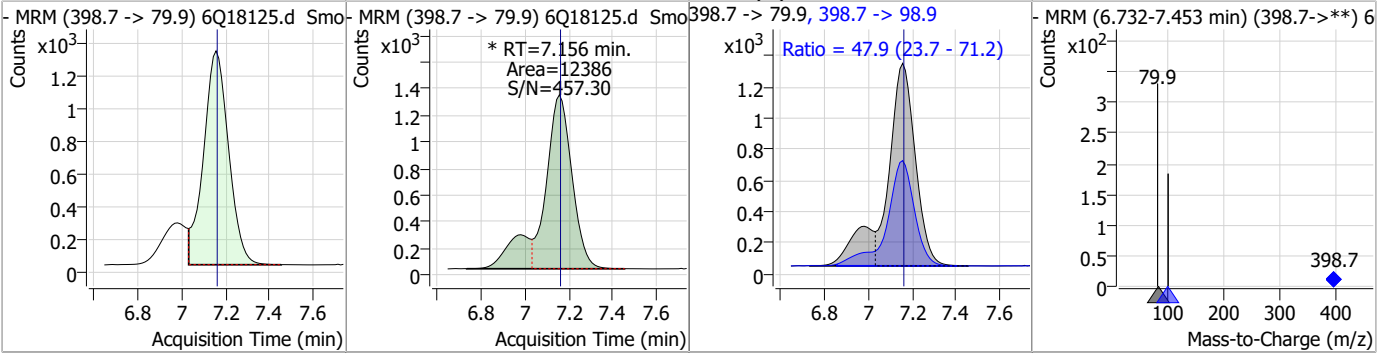


7.4.1

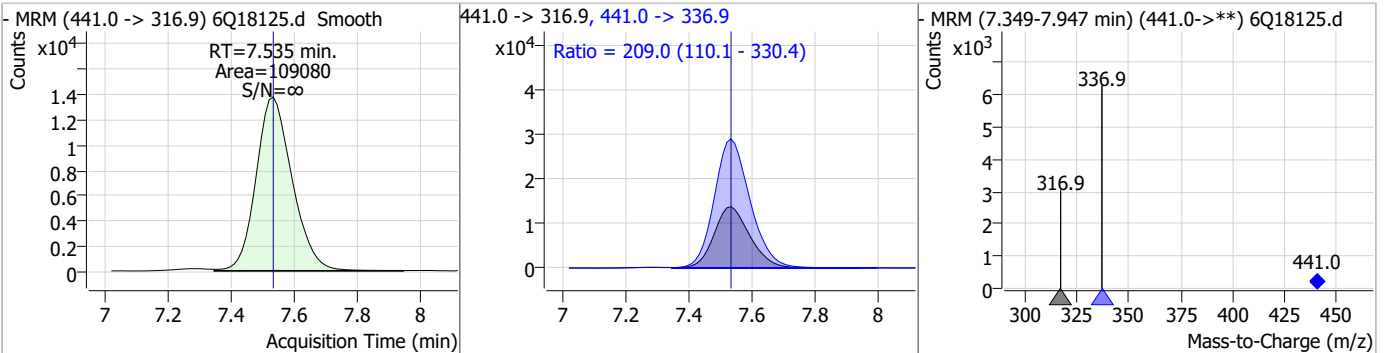
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Perfluorinated Compounds by LC/MS/MS

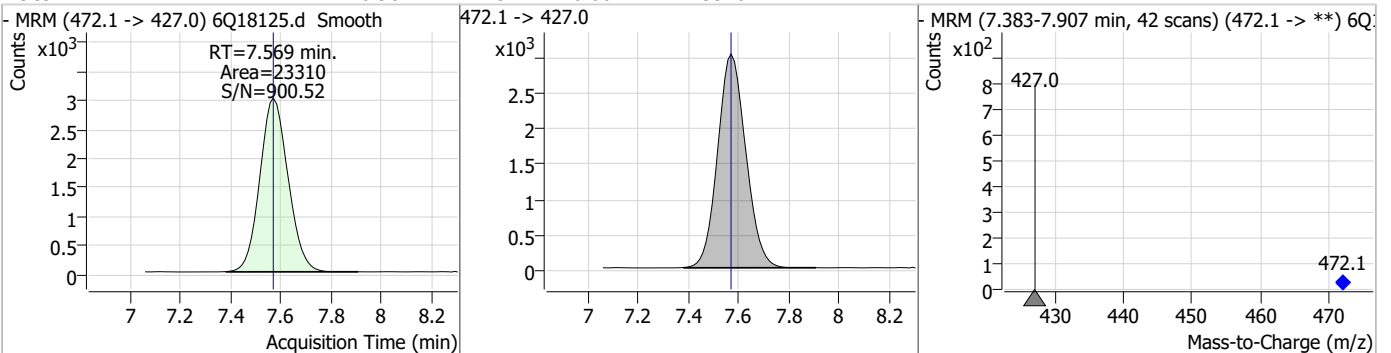
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.15	7.16	0.00	12386 (m)	398.7 -> 98.9	47.9	23.7	71.2



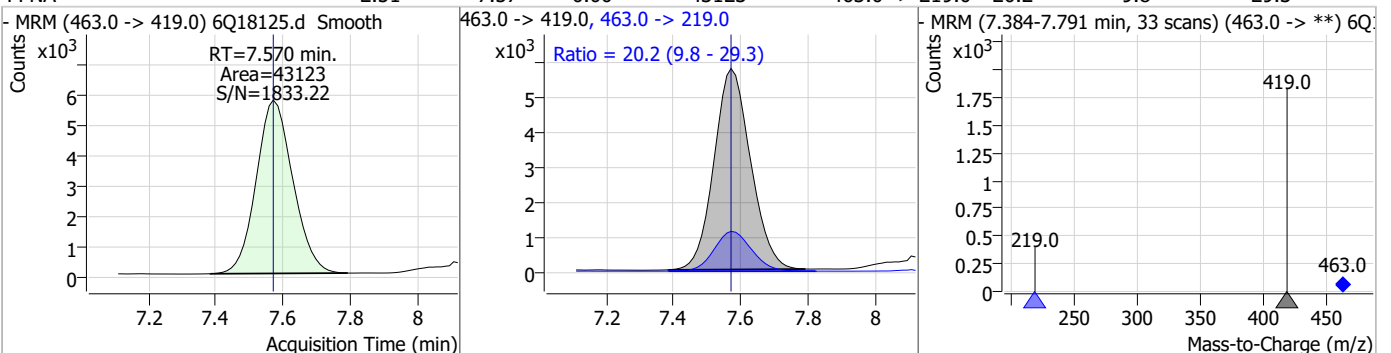
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	60.84	7.54	0.00	109080	441.0 -> 336.9	209.0	110.1	330.4



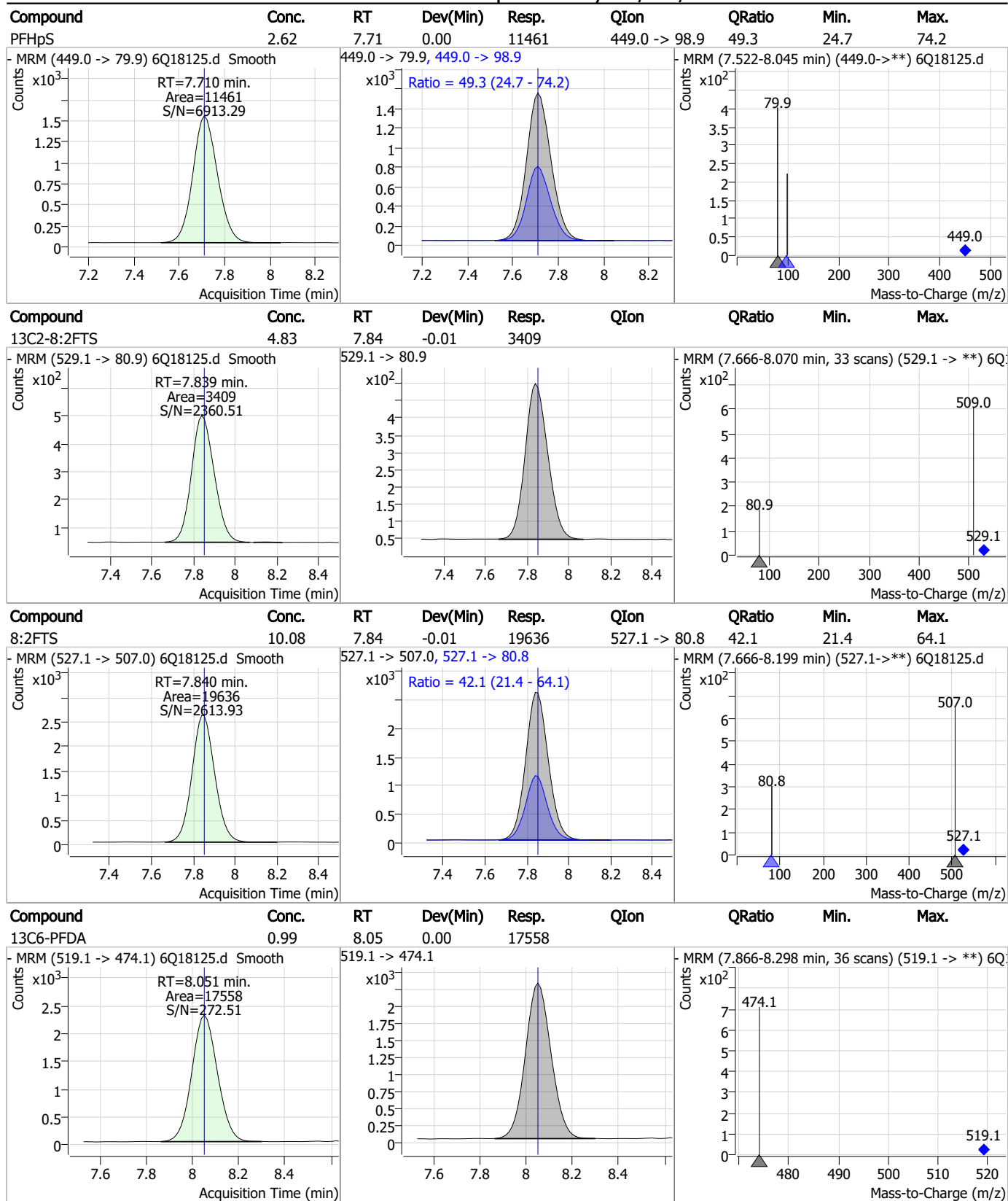
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	0.98	7.57	0.00	23310	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.51	7.57	0.00	43123	463.0 -> 219.0	20.2	9.8	29.3

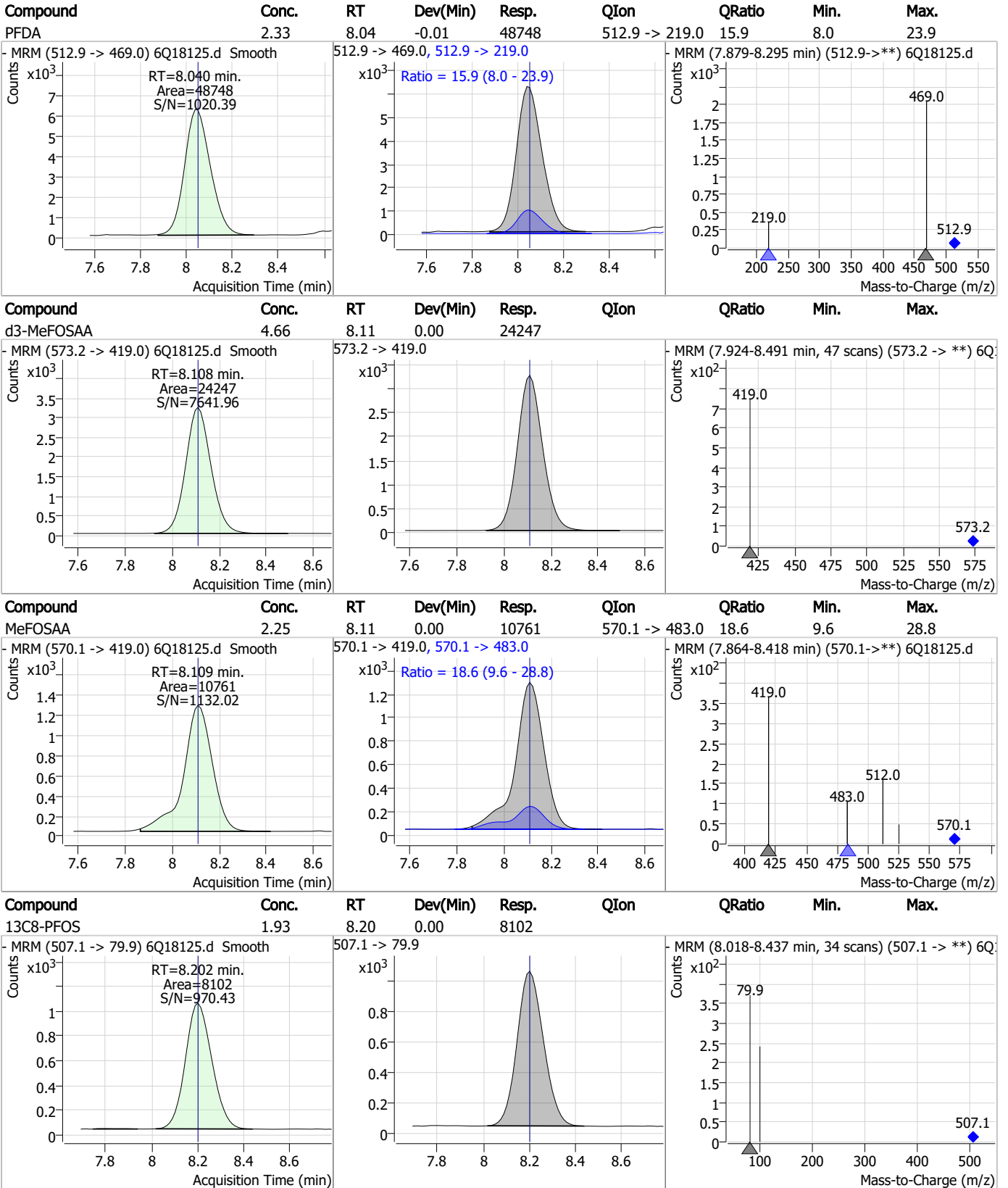


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

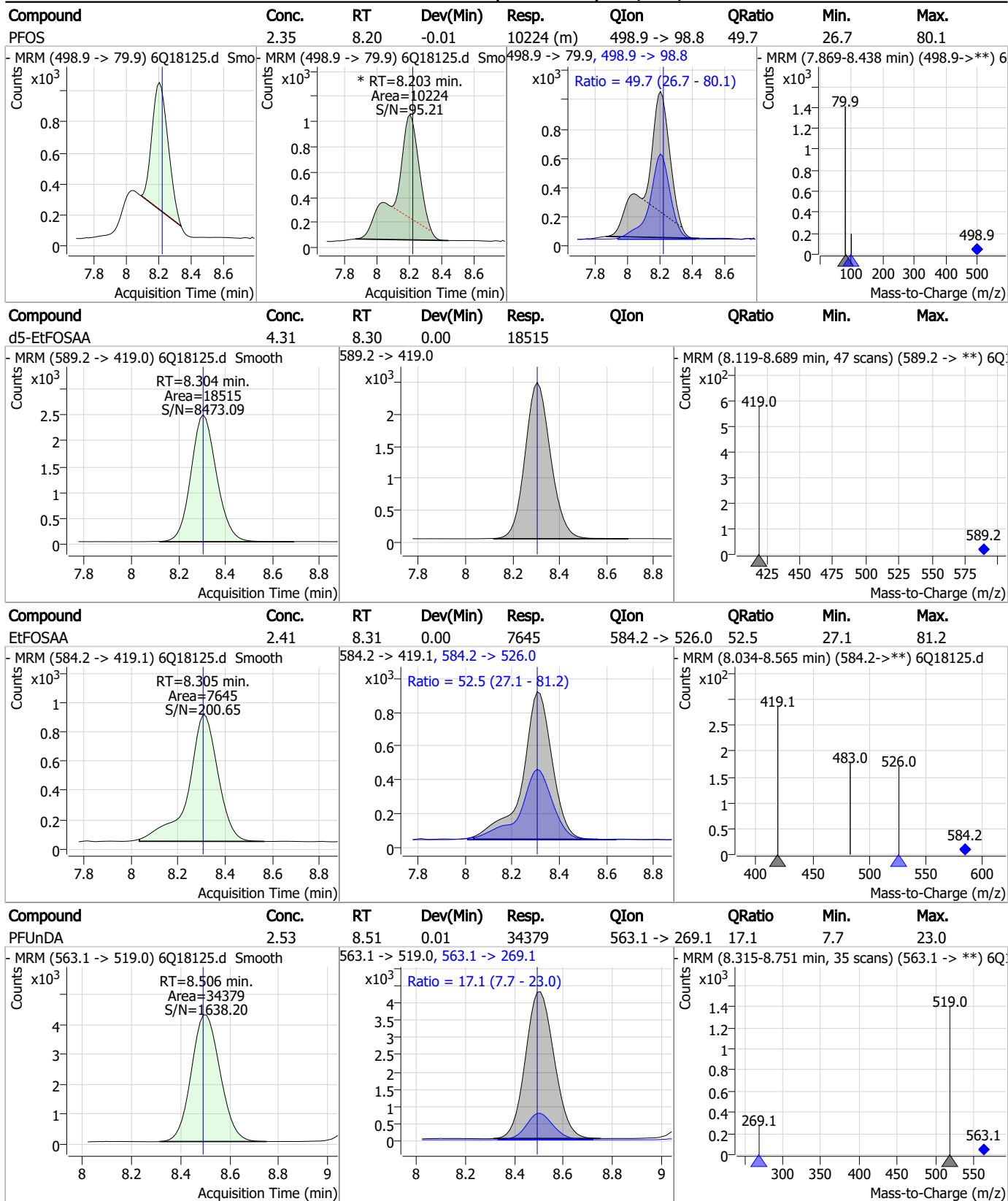
Perfluorinated Compounds by LC/MS/MS



7.4.1

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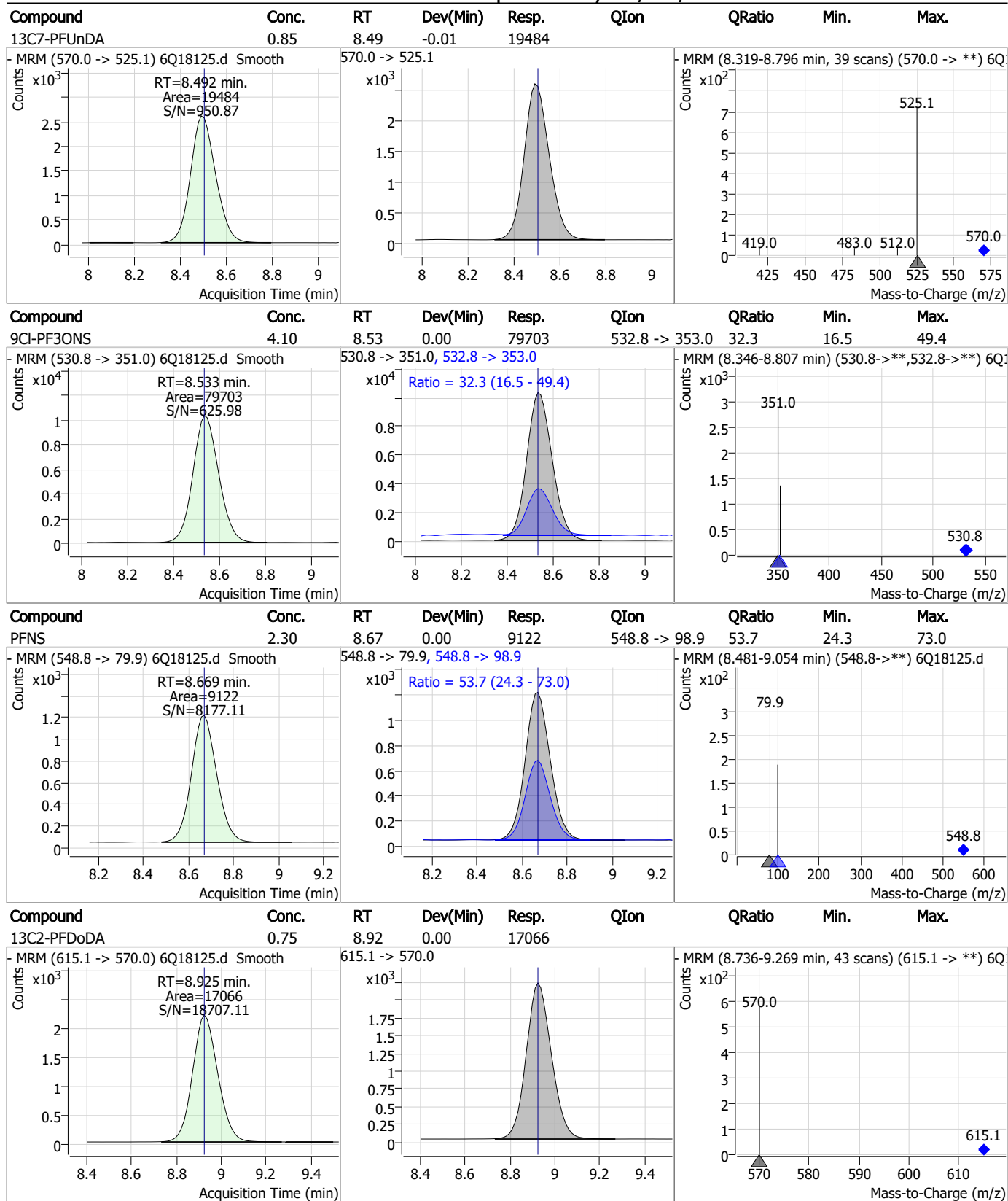
Perfluorinated Compounds by LC/MS/MS



7.4.1

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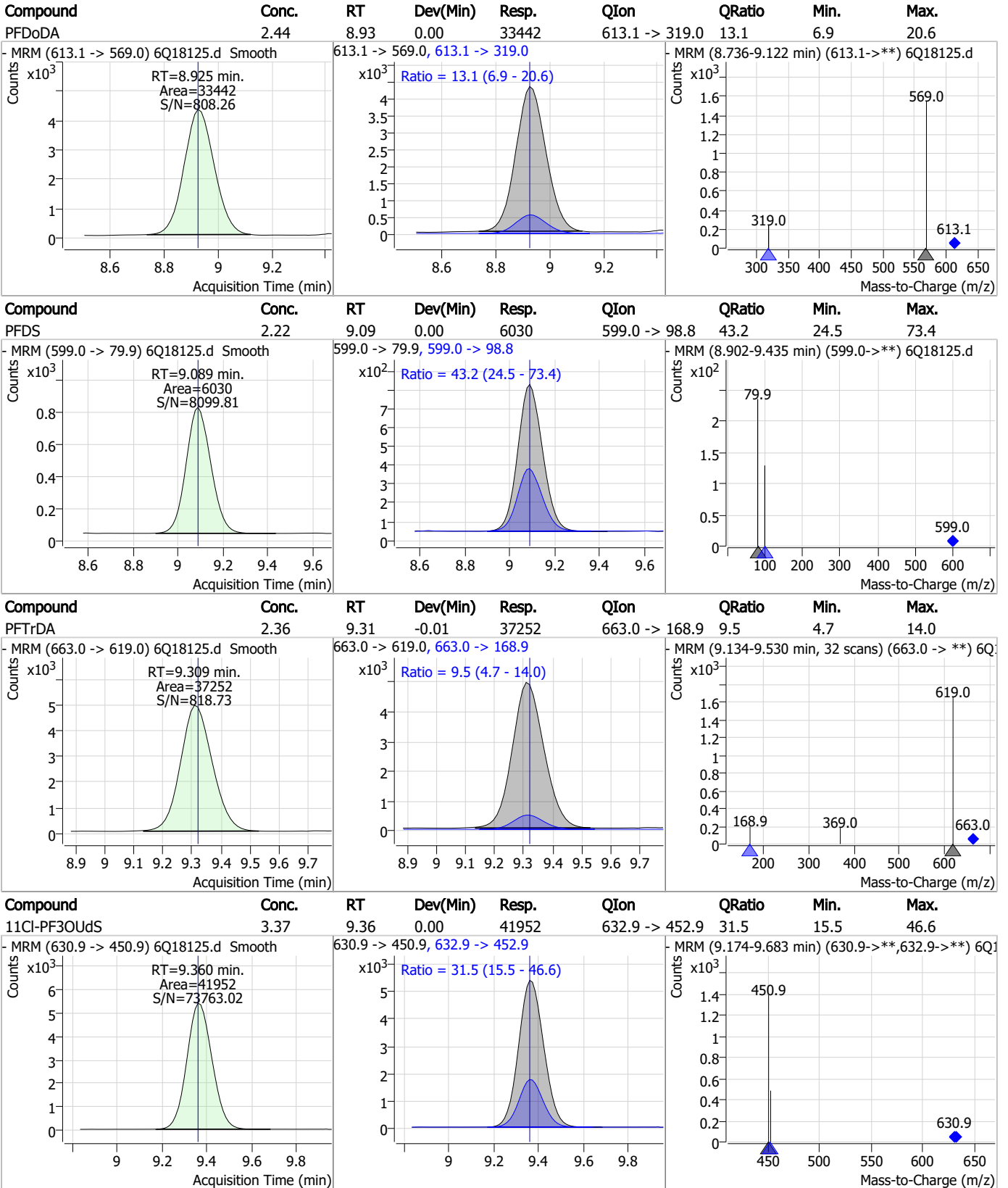
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS

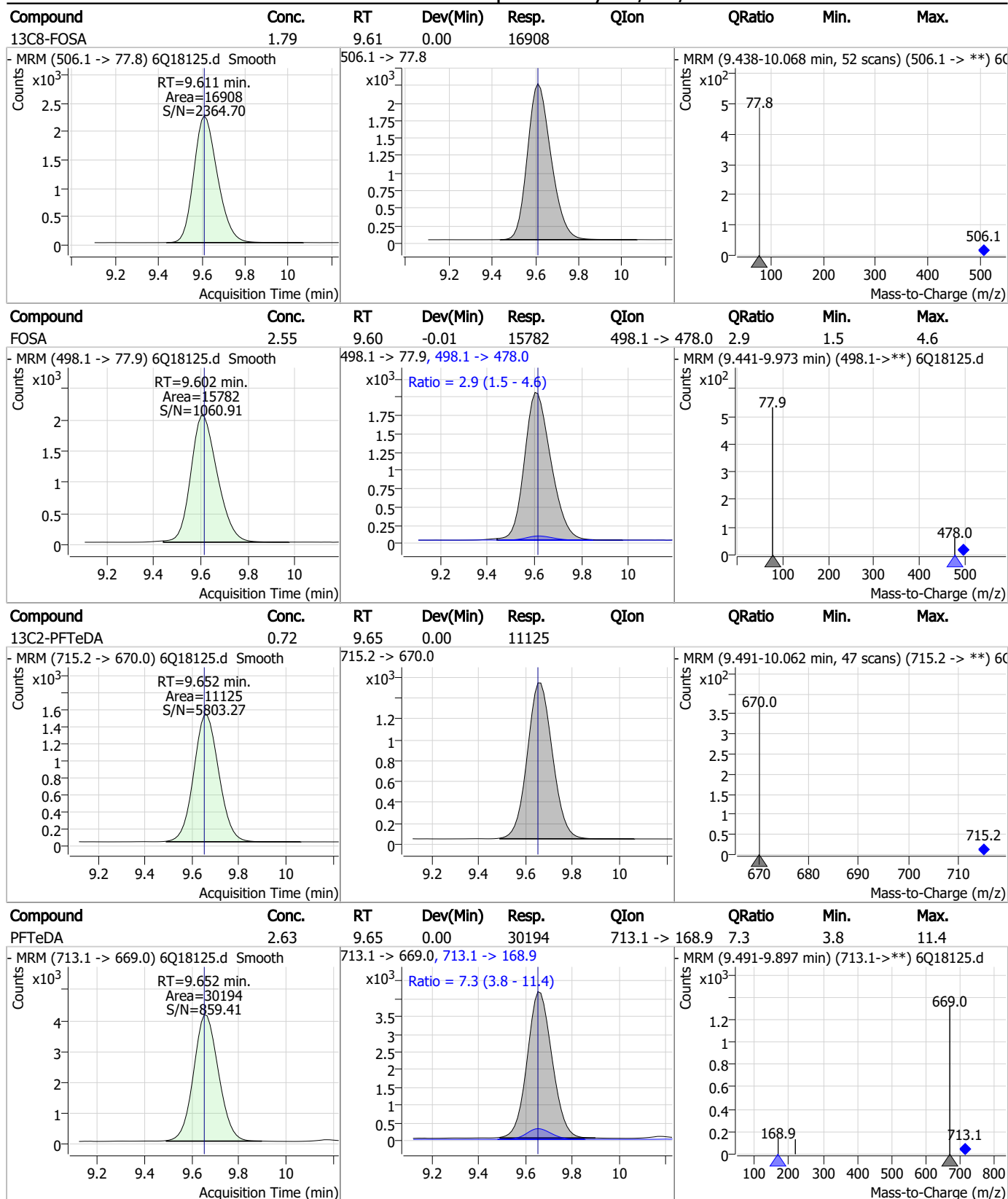


7.4.1

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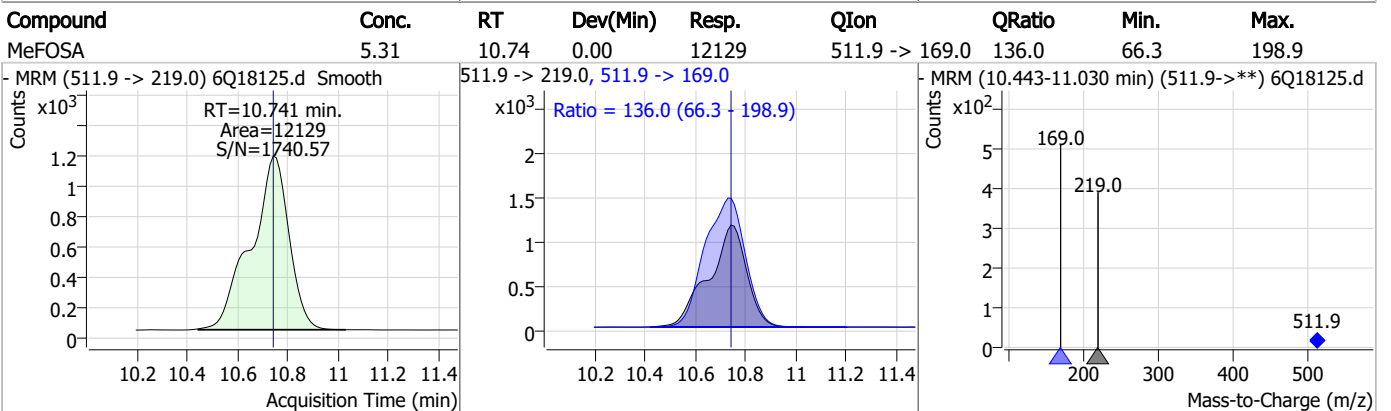
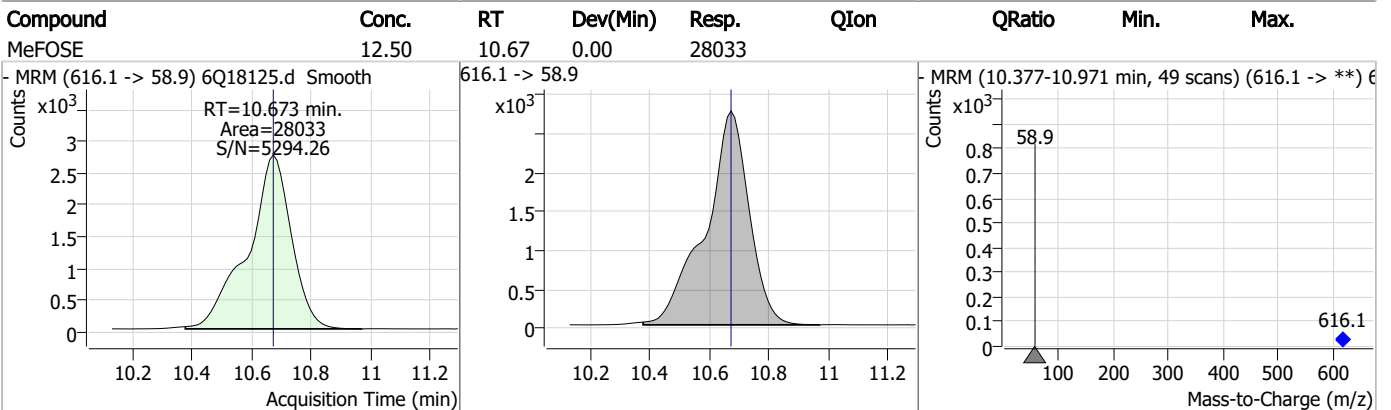
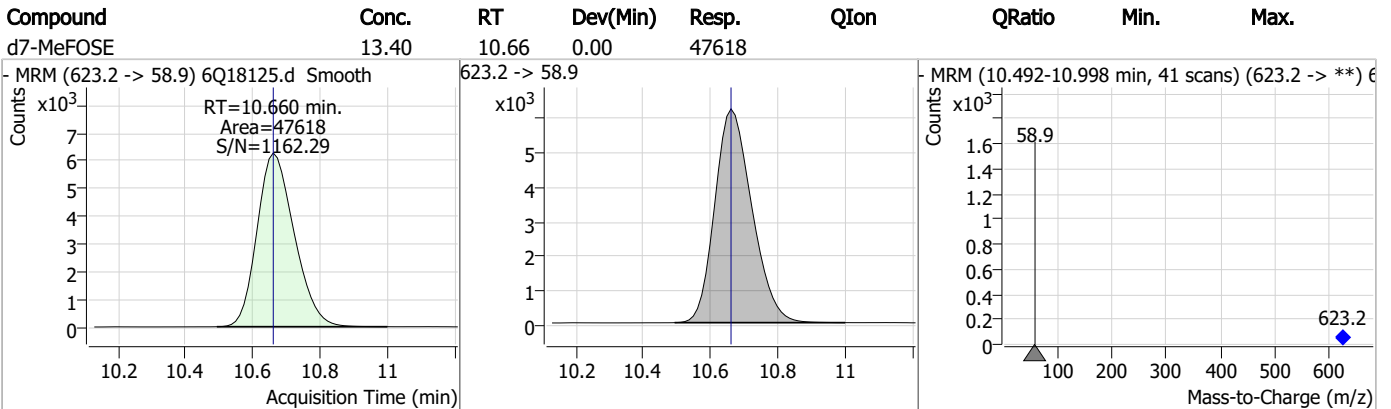
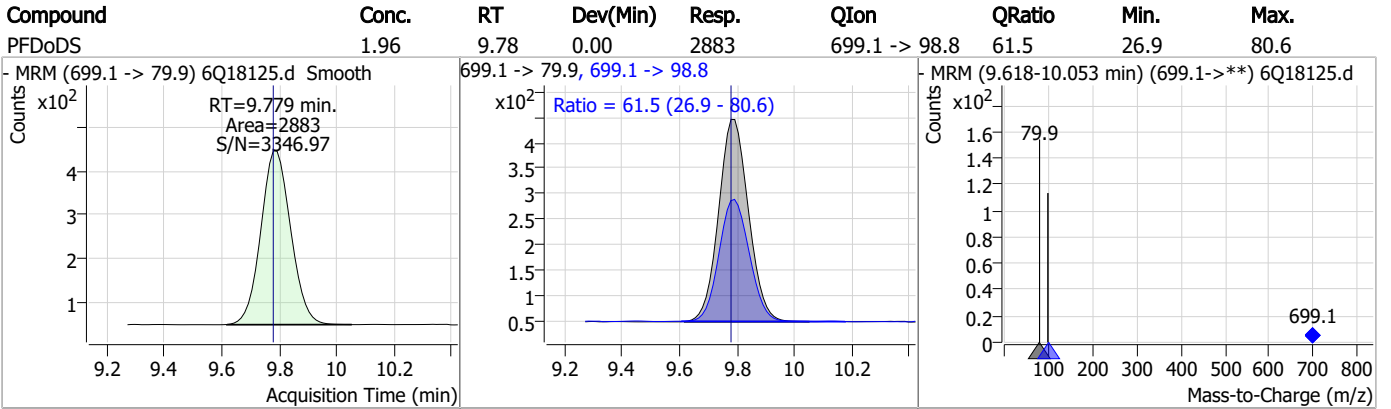
Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS

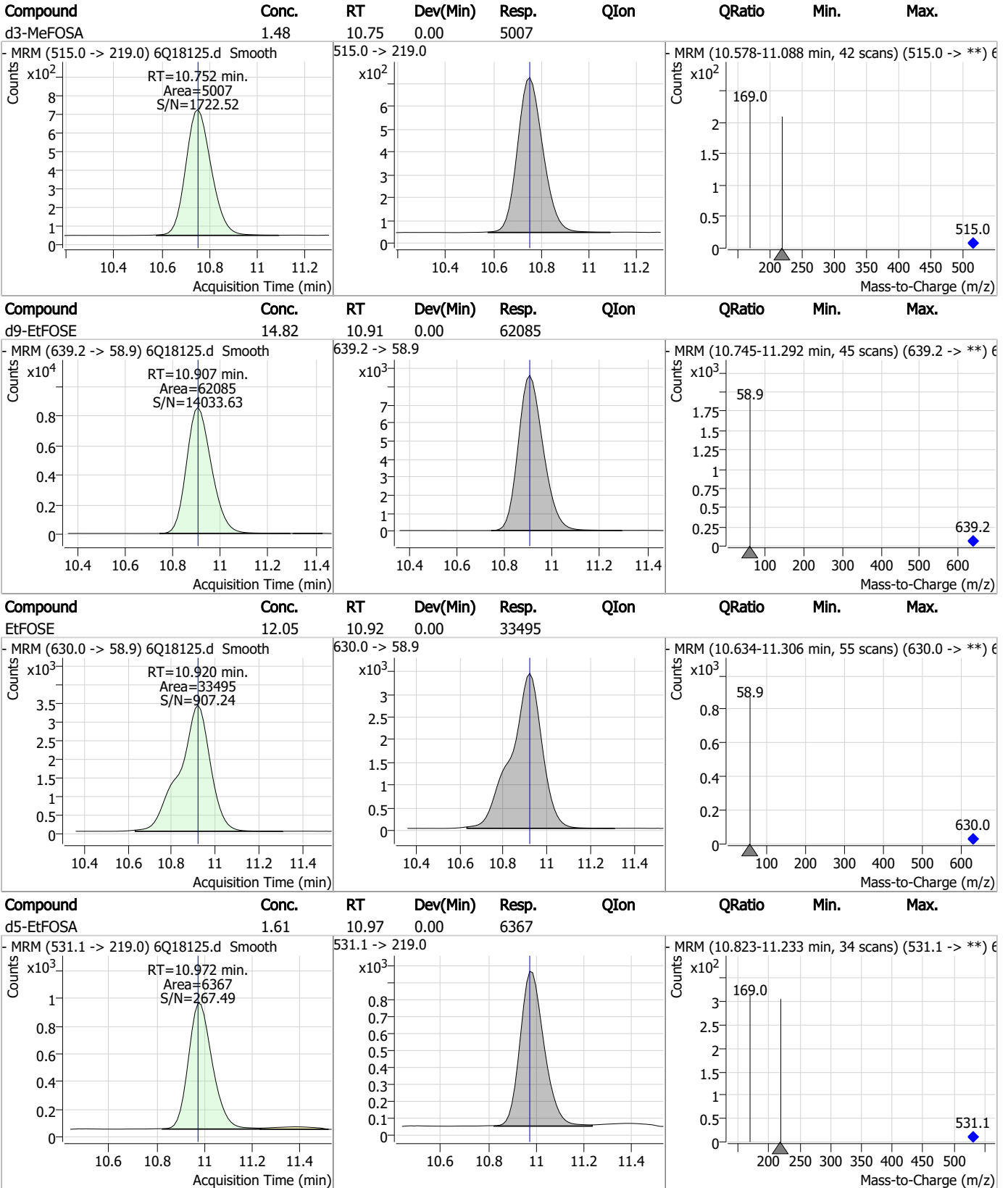


7.4.1

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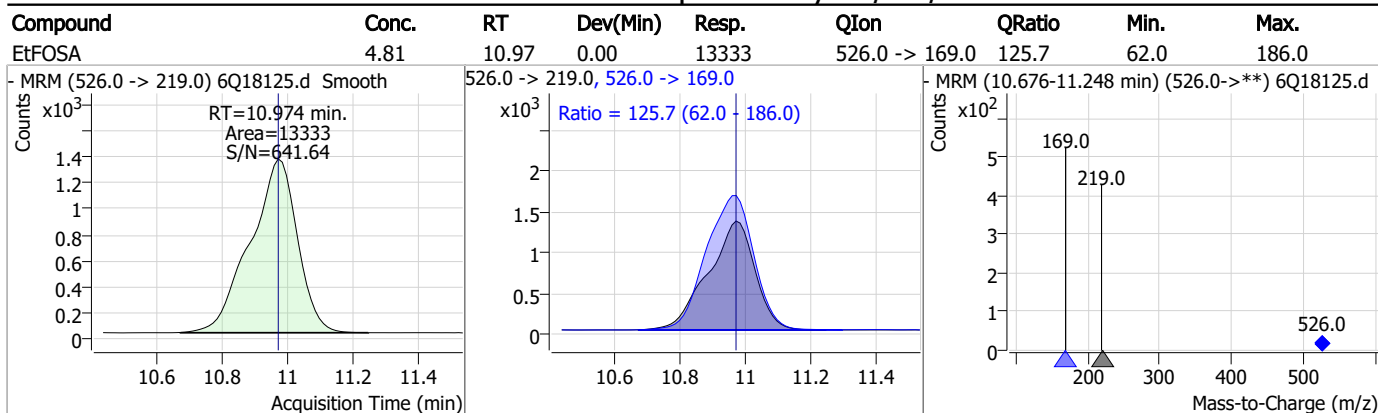
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS



7.4.1

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Manual Integration Approval Summary

Sample Number: OP96921-MS Method: EPA DRAFT 1633
Lab FileID: 6Q18125.D Analyst approved: 05/21/23 08:45 Mike Eger
Injection Time: 05/19/23 12:37 Supervisor approved: 05/23/23 10:19 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18126.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 12:51:51 PM
 Sample Name : op96921-msd
 Vial : P4-F6
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96921,S6Q272,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	80896	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	45830	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	55049	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	47965	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	70253	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	24357	1.25 µg/L	0.000
M6-PFDA	8.039	519.1 -> 474.1	15807	1.25 µg/L	-0.012
M7-PFUnDA	8.492	570.0 -> 525.1	19579	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	17886	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	12571	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	12489	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	17295	2.50 µg/L	-0.012
M3-PFHxS	7.142	402.1 -> 79.9	10730	2.50 µg/L	-0.012
M8-PFOS	8.202	507.1 -> 79.9	9356	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2739	5.00 µg/L	0.000
M2-6:2FTS	6.813	429.1 -> 80.9	3373	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	3520	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	22153	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	33878	10.00 µg/L	0.000
M5-EtFOSAA	8.292	589.2 -> 419.0	17202	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	38354	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	55471	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	5507	2.50 µg/L	0.012
M3-MeFOSA	10.739	515.0 -> 219.0	4679	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	12783	2.50 µg/L	-0.012
13C3-PFBA	2.891	216.0 -> 172.0	68144	5.00 µg/L	0.012
18O2-PFHxS	7.154	403.0 -> 83.9	8812	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	80272	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	24809	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	27760	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	48911	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2739	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.8%		
13C2-6:2FTS	6.813	429.1 -> 80.9	3373	5.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.5%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3520	5.39 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C2-PFDoDA	8.925	615.1 -> 570.0	17886	0.83 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 66.5%		
13C2-PFTeDA	9.652	715.2 -> 670.0	12571	0.86 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.9%		
13C3-PFBS	5.359	302.1 -> 79.9	17295	2.22 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 88.7%		
13C3-PFHxS	7.142	402.1 -> 79.9	10730	2.28 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 = 91.1%		
13C4-PFBA	2.888	216.8 -> 171.9	80896	4.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 49.8%		
13C4-PFHpA	6.395	367.1 -> 322.0	47965	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C5-PFHxA	5.441	318.0 -> 273.0	55049	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C5-PFPeA	4.247	268.3 -> 223.0	45830	4.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.1%		
13C6-PFDA	8.039	519.1 -> 474.1	15807	0.94 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 74.8%		
13C7-PFUnDA	8.492	570.0 -> 525.1	19579	0.90 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.3%		
13C8-FOSA	9.611	506.1 -> 77.8	12489	1.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 57.7%		
13C8-PFOA	7.038	421.1 -> 376.0	70253	2.35 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.2%		
13C8-PFOS	8.202	507.1 -> 79.9	9356	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C9-PFNA	7.569	472.1 -> 427.0	24357	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.4%		
d3-MeFOSAA	8.108	573.2 -> 419.0	22153	4.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.6%		
13C3-HFPO-DA	5.807	286.9 -> 168.9	33878	9.59 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
d3-MeFOSA	10.739	515.0 -> 219.0	4679	1.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 60.1%		
d5-EtFOSAA	8.292	589.2 -> 419.0	17202	4.35 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.0%		
d7-MeFOSE	10.660	623.2 -> 58.9	38354	11.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 47.0%		
d9-EtFOSE	10.907	639.2 -> 58.9	55471	14.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 57.6%		
d5-EtFOSA	10.985	531.1 -> 219.0	5507	1.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 60.7%		
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	35993	8.90 µg/L	95
		327.1 -> 80.9	13249		
6:2FTS	6.813	427.1 -> 407.0	33920	9.30 µg/L	100
		427.1 -> 80.9	11508		
8:2FTS	7.840	527.1 -> 507.0	18760	9.32 µg/L	91
		527.1 -> 80.8	6964		
EtFOSAA	8.305	584.2 -> 419.1	6867	2.33 µg/L	98
		584.2 -> 526.0	3808		
FOSA	9.602	498.1 -> 77.9	11755	2.57 µg/L	100
		498.1 -> 478.0	338		
MeFOSAA	8.097	570.1 -> 419.0	10669	2.45 µg/L	97
		570.1 -> 483.0	1897		
PFBA	2.882	212.8 -> 168.9	32344	11.01 µg/L	100
PFBS	5.360	298.7 -> 79.9	17068	2.02 µg/L	94
		298.7 -> 98.8	6819		
PFDA	8.052	512.9 -> 469.0	46390	2.46 µg/L	99
		512.9 -> 219.0	7155		
PFDODA	8.925	613.1 -> 569.0	36072	2.51 µg/L	100
		613.1 -> 319.0	4958		
PFDS	9.089	599.0 -> 79.9	5595	1.78 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2885			
PFHpA	6.395	363.1 -> 319.0	56466	2.30	µg/L	99
		363.1 -> 169.0	8730			
PFHpS	7.710	449.0 -> 79.9	10595	2.09	µg/L	94
		449.0 -> 98.9	5640			
PFHxA	5.444	313.0 -> 269.0	48262	2.25	µg/L	98
		313.0 -> 118.9	2464			
PFHxS	7.156	398.7 -> 79.9	13005	2.17	µg/L	100
		398.7 -> 98.9	6172		m	
PFNA	7.570	463.0 -> 419.0	41900	2.33	µg/L	99
		463.0 -> 219.0	8380			
PFNS	8.657	548.8 -> 79.9	9504	2.07	µg/L	98
		548.8 -> 98.9	4516			
PFOA	7.040	413.0 -> 369.0	81239	2.37	µg/L	99
		413.0 -> 169.0	13634			
PFOS	8.203	498.9 -> 79.9	9737	1.94	µg/L	100
		498.9 -> 98.8	5169		m	
PFPeA	4.249	263.0 -> 219.0	64028	4.72	µg/L	100
PFPeS	6.447	349.1 -> 79.9	13131	2.20	µg/L	94
		349.1 -> 98.9	5676			
PFTeDA	9.652	713.1 -> 669.0	30759	2.37	µg/L	99
		713.1 -> 168.9	2223			
PFTrDA	9.321	663.0 -> 619.0	39481	2.39	µg/L	99
		663.0 -> 168.9	3471			
PFUnDA	8.493	563.1 -> 519.0	33267	2.43	µg/L	98
		563.1 -> 269.1	5301			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	42634	3.22	µg/L	96
		632.9 -> 452.9	14114			
9Cl-PF3ONS	8.533	530.8 -> 351.0	77774	3.76	µg/L	95
		532.8 -> 353.0	23317			
ADONA	6.658	376.9 -> 250.9	243493	4.49	µg/L	96
		376.9 -> 84.8	60033			
HFPO-DA	5.807	284.9 -> 168.9	15279	4.64	µg/L	99
		284.9 -> 184.9	1993			
3:3FTCA	3.727	241.0 -> 177.0	5182	6.07	µg/L	99
		241.0 -> 117.0	722			
5:3FTCA	6.111	341.0 -> 237.1	172548	44.51	µg/L	99
		341.0 -> 217.0	123938			
7:3FTCA	7.535	441.0 -> 316.9	97385	50.55	µg/L	97
		441.0 -> 336.9	219999			
EtFOSA	10.974	526.0 -> 219.0	11281	4.70	µg/L	94
		526.0 -> 169.0	14799			
EtFOSE	10.920	630.0 -> 58.9	26863	10.82	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	9780	4.58	µg/L	94
		511.9 -> 169.0	13631			
MeFOSE	10.673	616.1 -> 58.9	21597	11.96	µg/L	100
PFDoDS	9.793	699.1 -> 79.9	3002	1.77	µg/L	98
		699.1 -> 98.8	1665			
NFDHA	5.324	295.0 -> 201.0	10951	4.55	µg/L	96
		295.0 -> 84.9	2738			
PFMBA	4.650	279.0 -> 85.1	43922	4.60	µg/L	100
PFMPA	3.401	229.0 -> 84.9	28881	4.09	µg/L	100
PFEESA	5.900	314.8 -> 134.9	118591	4.18	µg/L	99
		314.8 -> 82.9	4055			

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

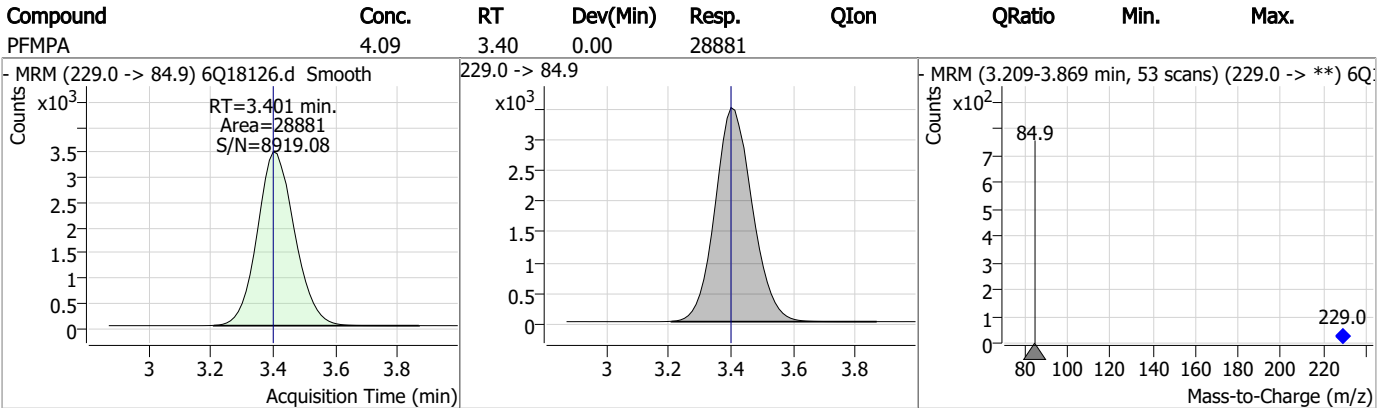
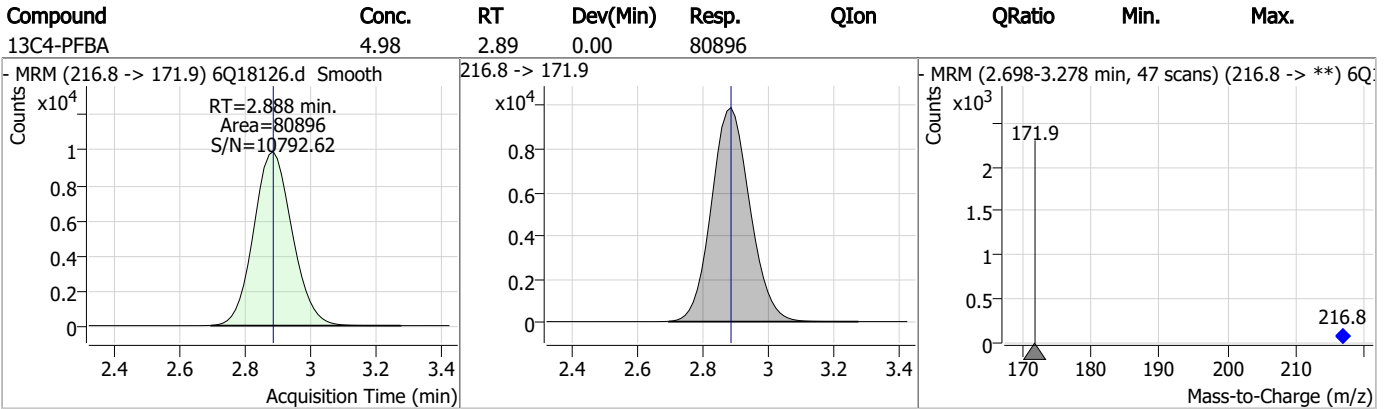
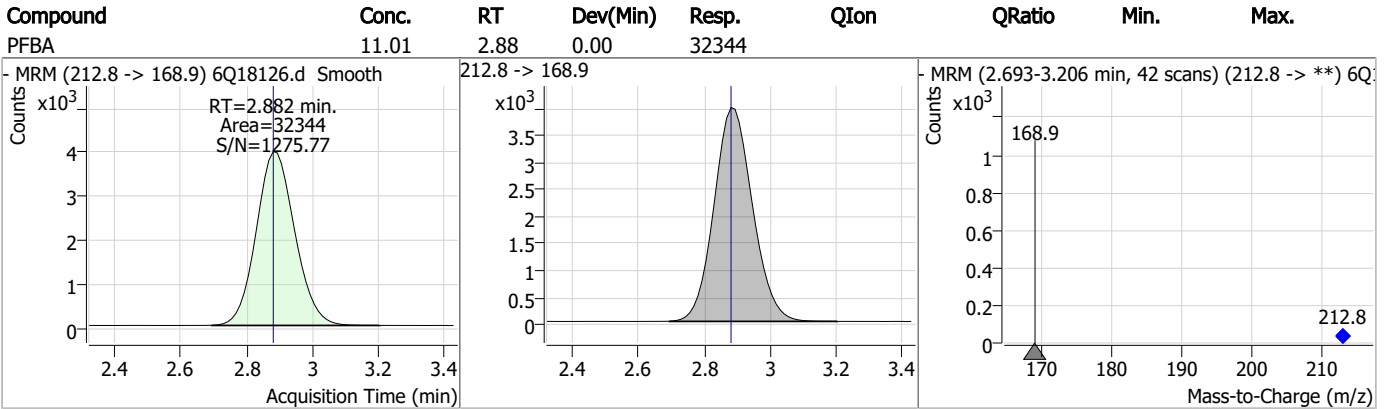
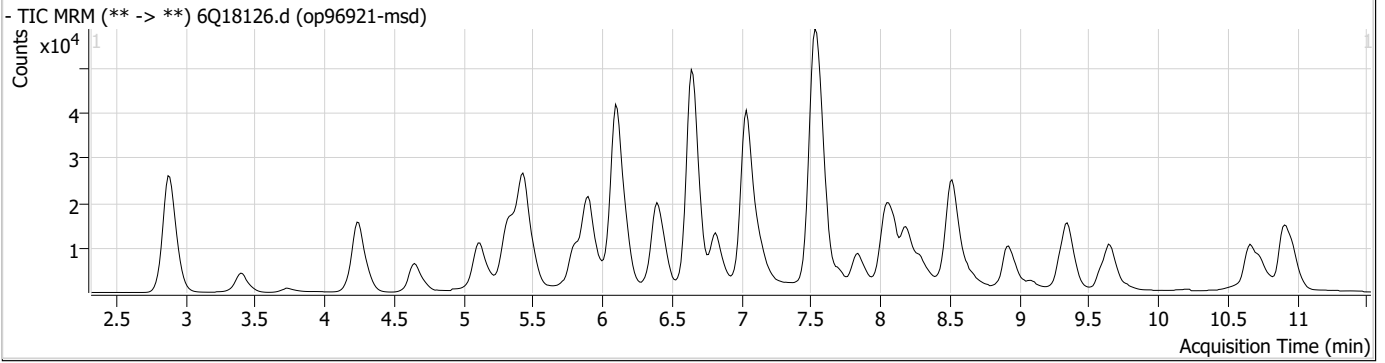
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.4.2
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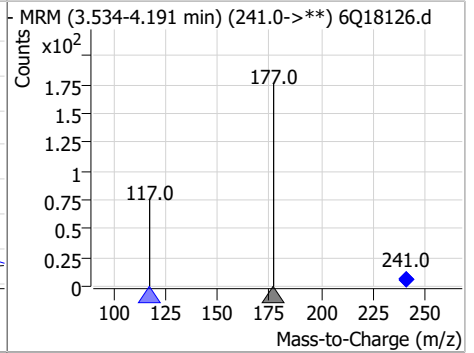
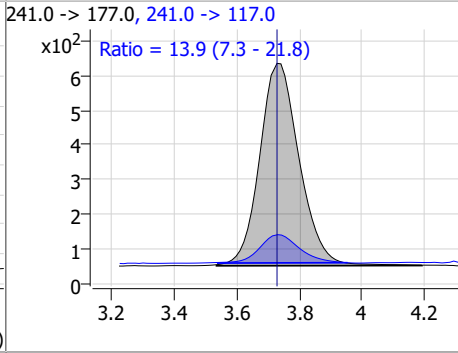
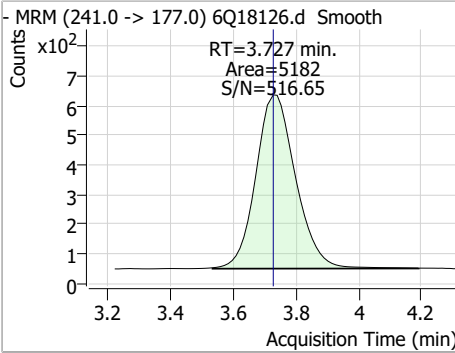


Perfluorinated Compounds by LC/MS/MS

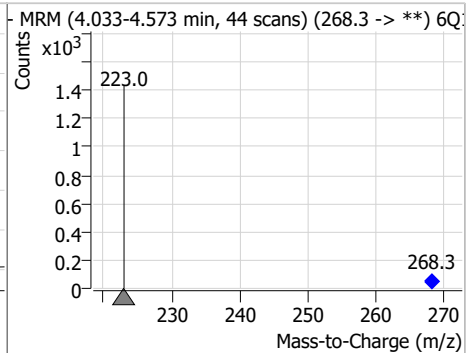
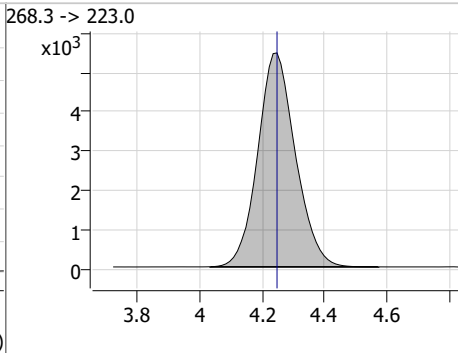
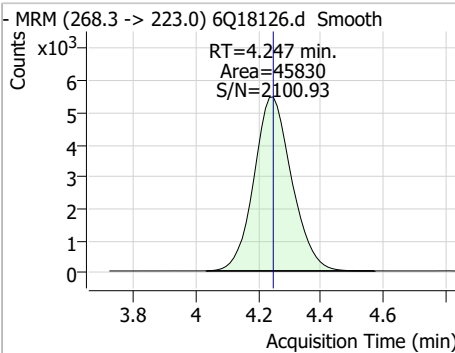


Perfluorinated Compounds by LC/MS/MS

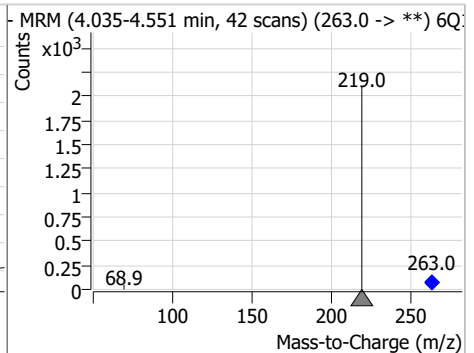
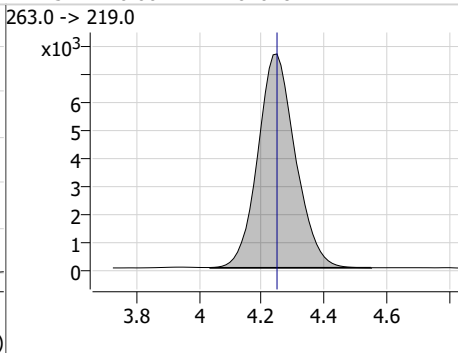
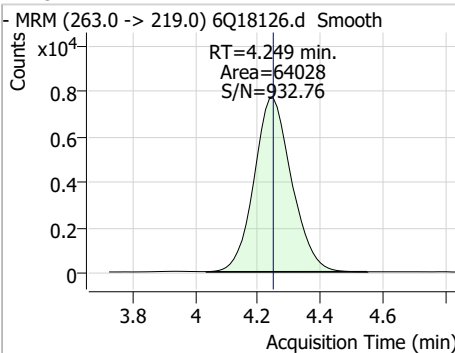
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	6.07	3.73	0.00	5182	241.0 -> 117.0	13.9	7.3	21.8



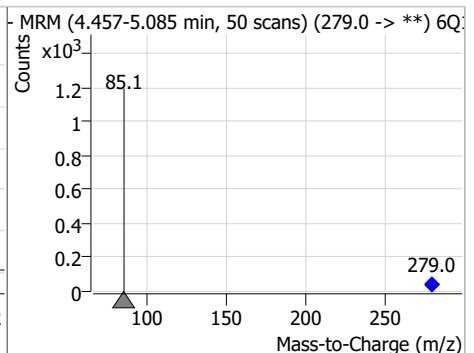
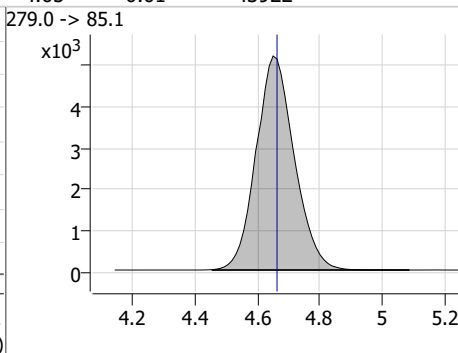
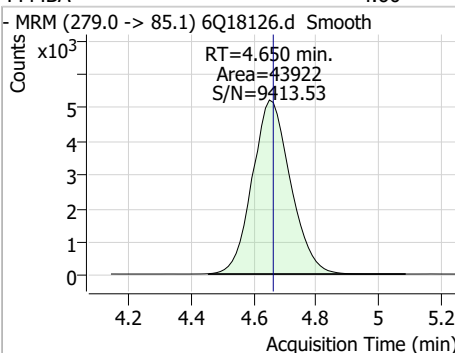
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.55	4.25	0.00	45830				



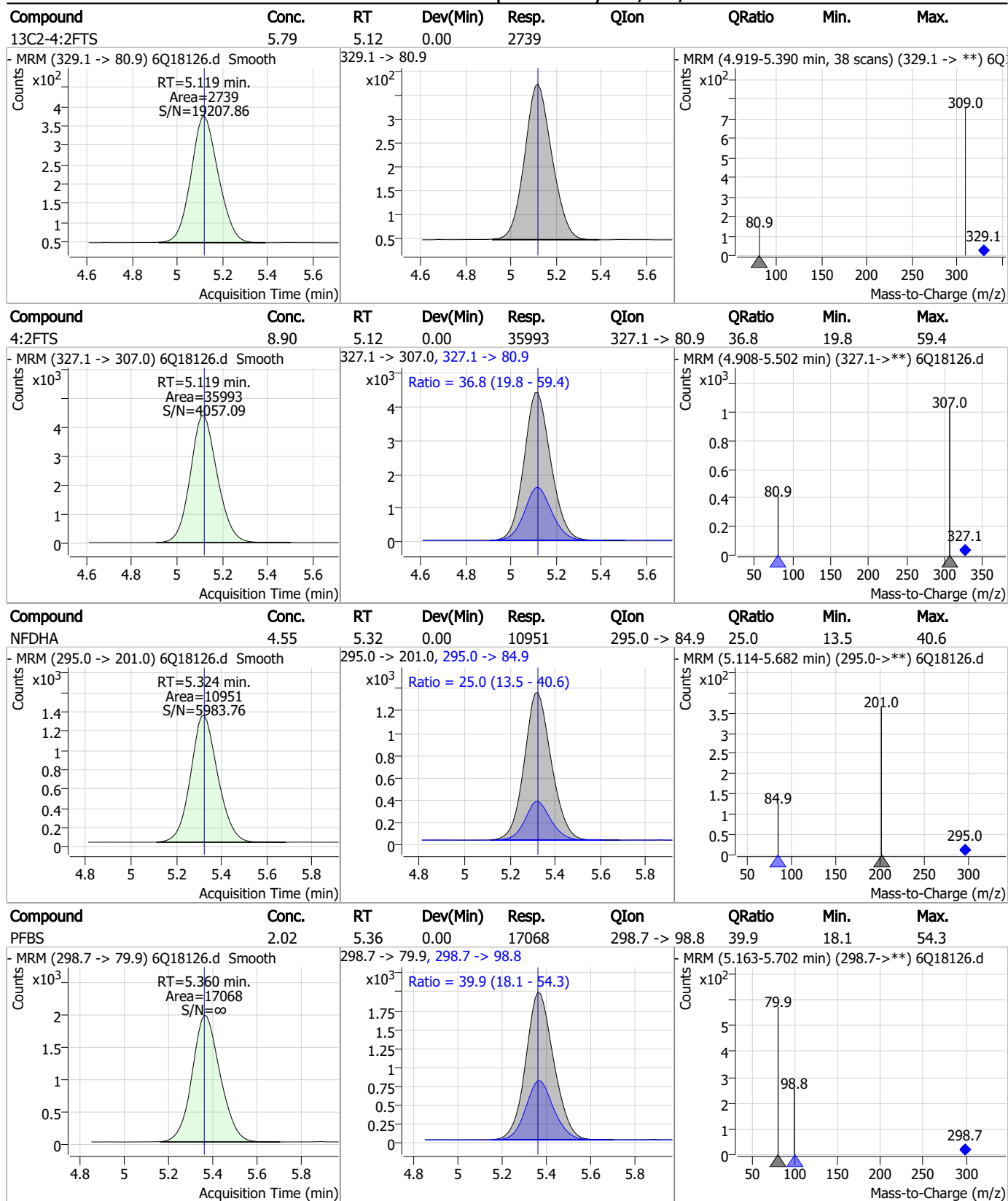
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.72	4.25	0.00	64028				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.60	4.65	-0.01	43922				

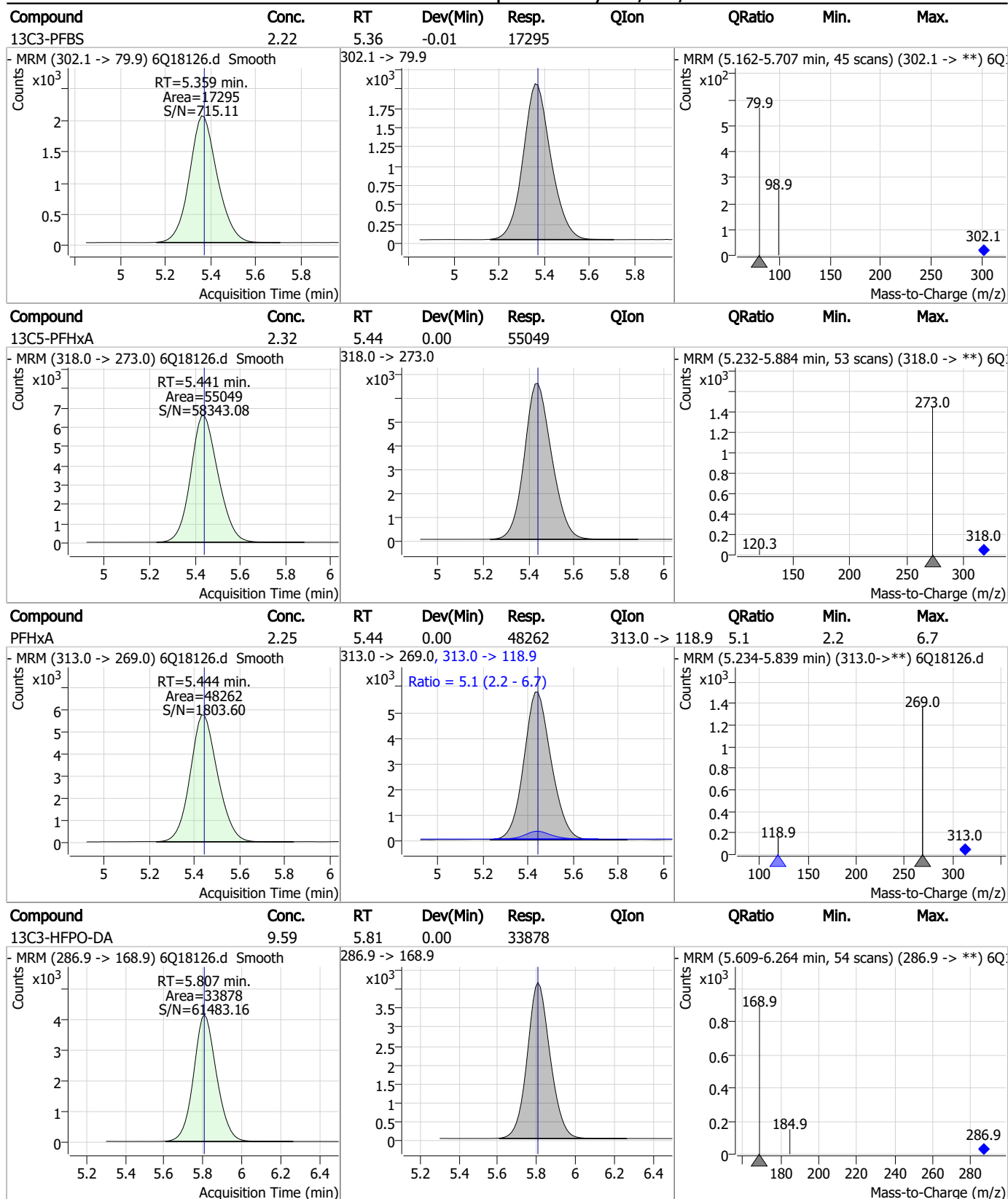


Perfluorinated Compounds by LC/MS/MS



7.4.2
7

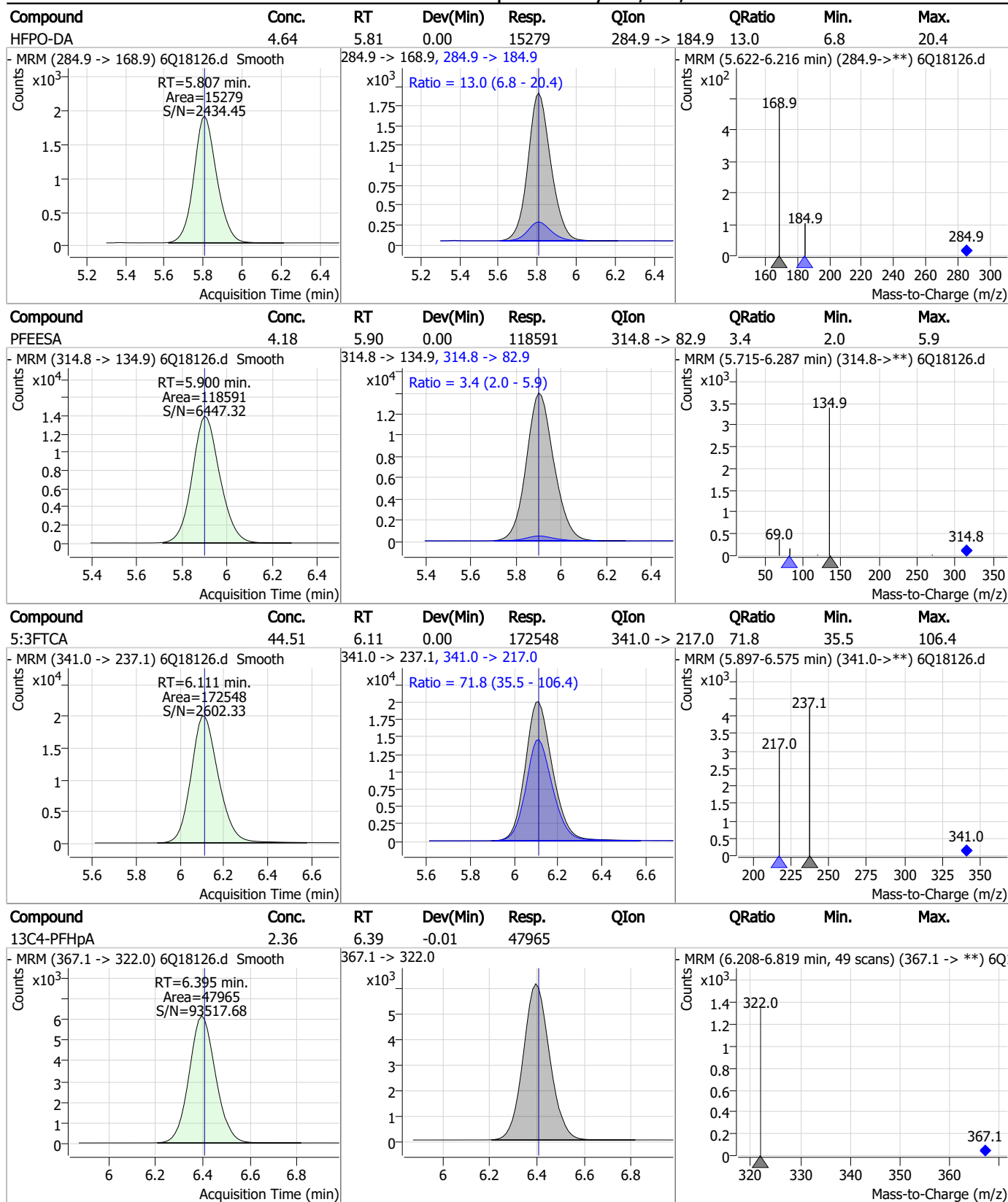
Perfluorinated Compounds by LC/MS/MS



7.4.2
7



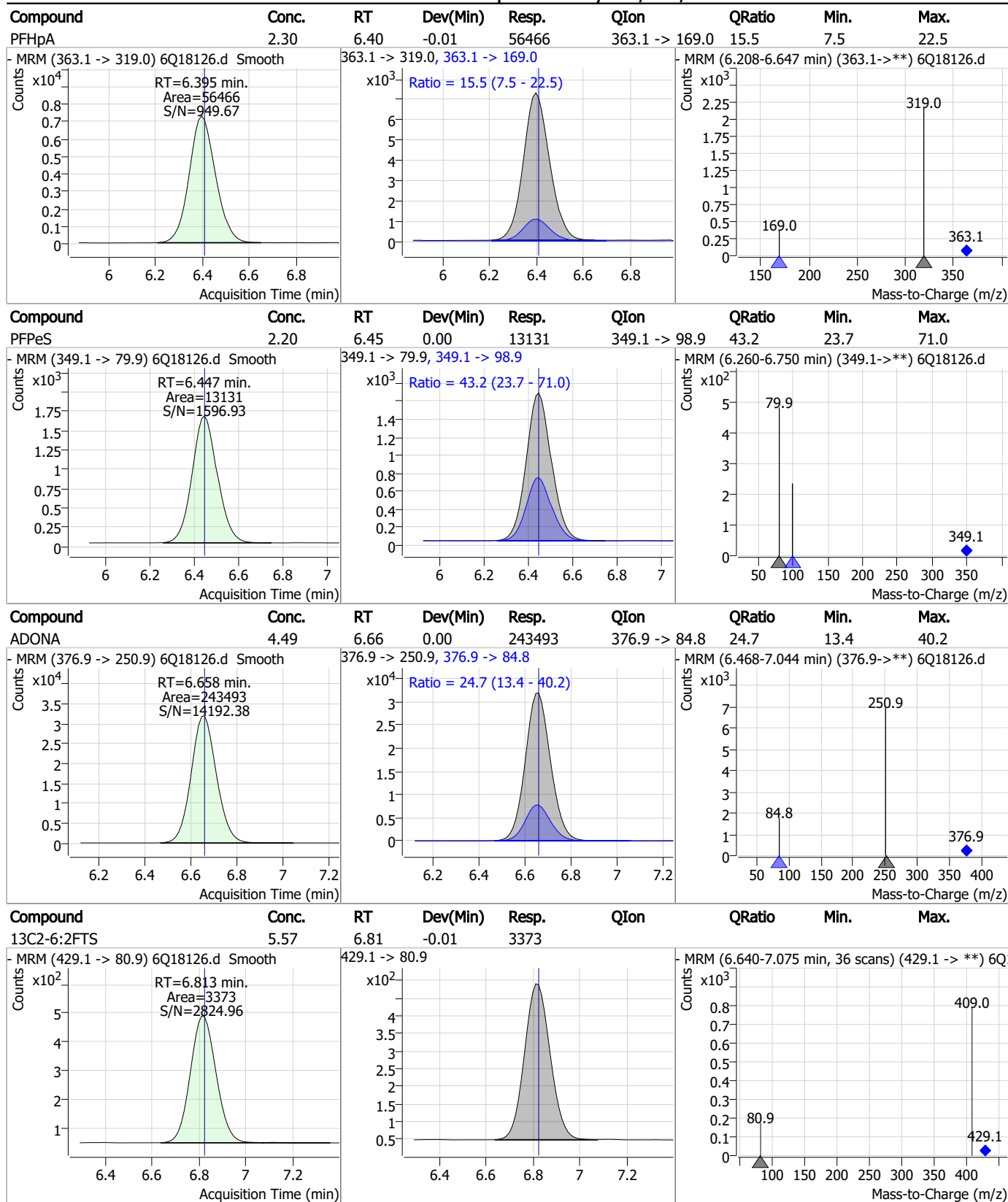
Perfluorinated Compounds by LC/MS/MS



7.4.2

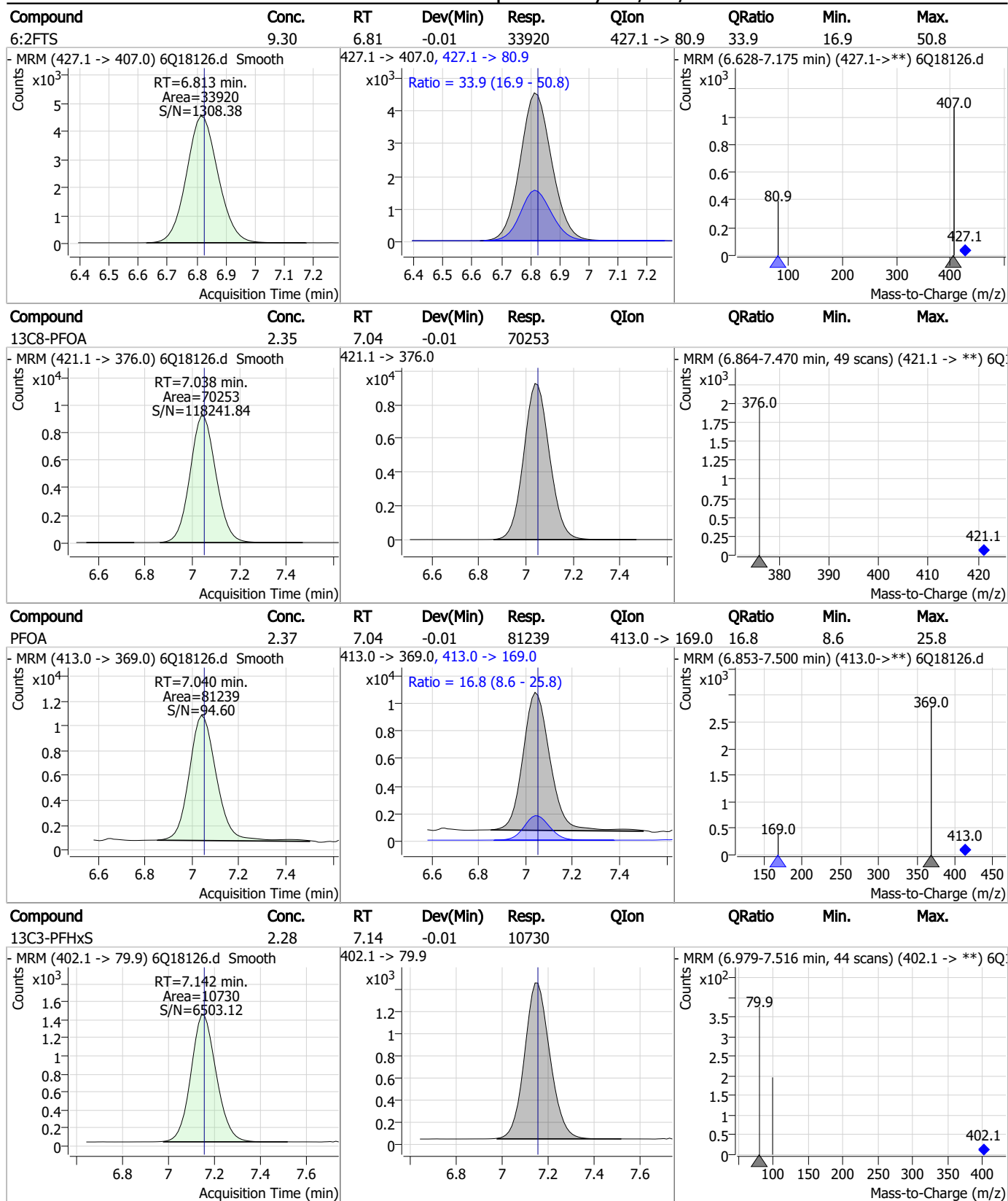
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Perfluorinated Compounds by LC/MS/MS



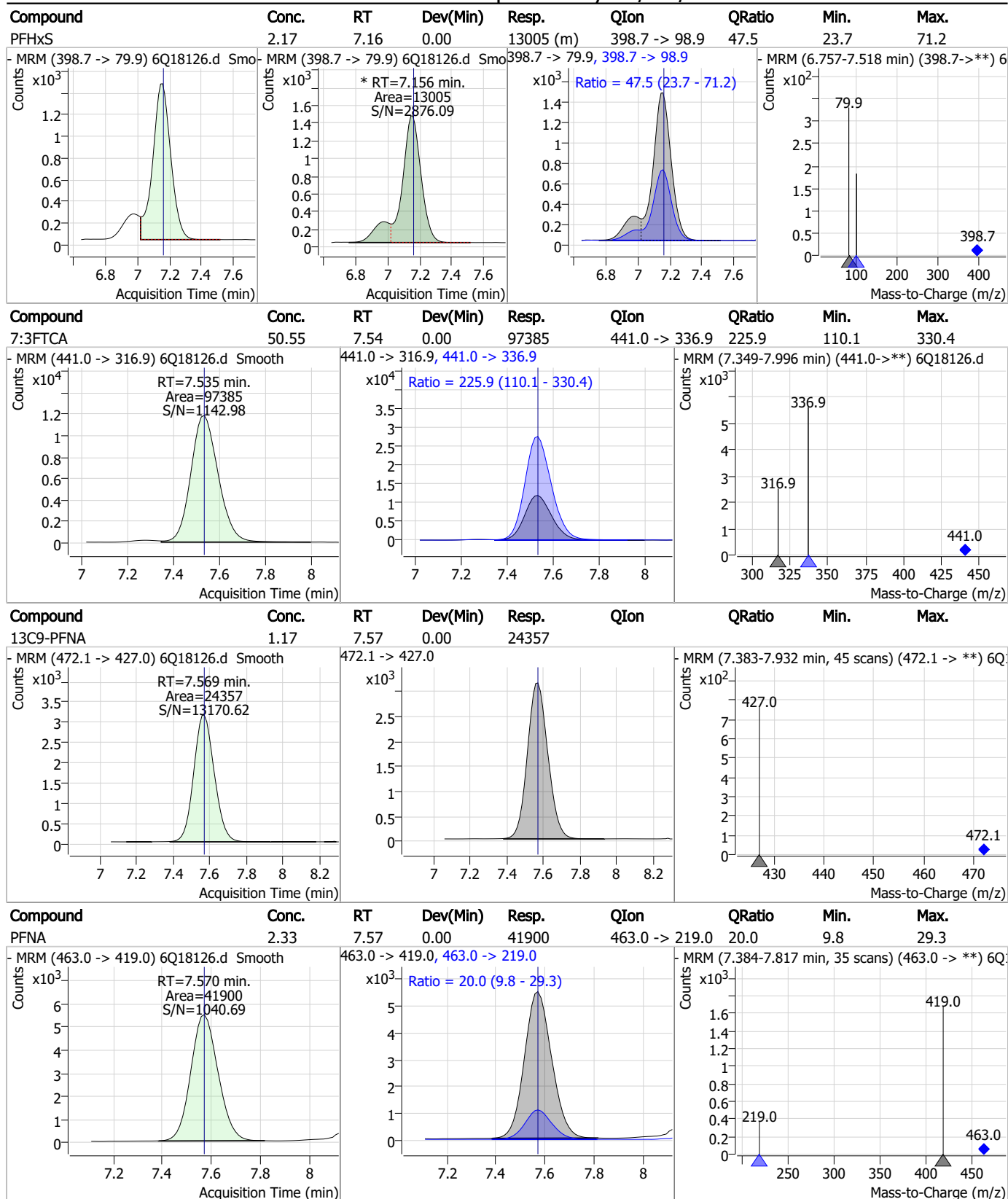
7.4.2
7

Perfluorinated Compounds by LC/MS/MS



7.4.2
7

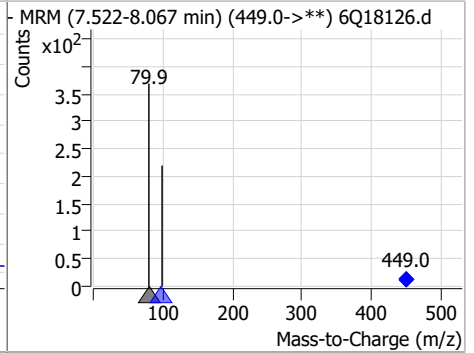
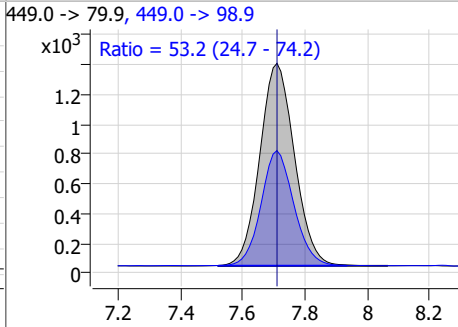
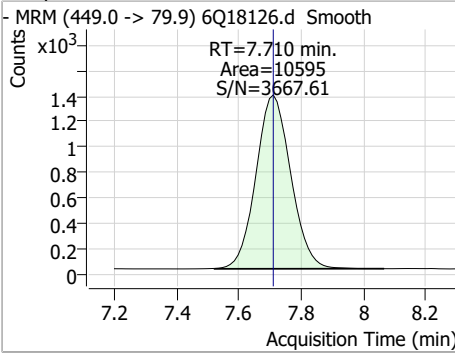
Perfluorinated Compounds by LC/MS/MS



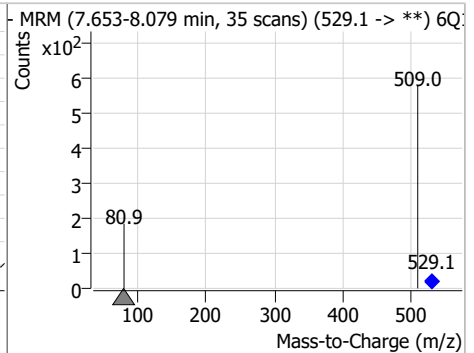
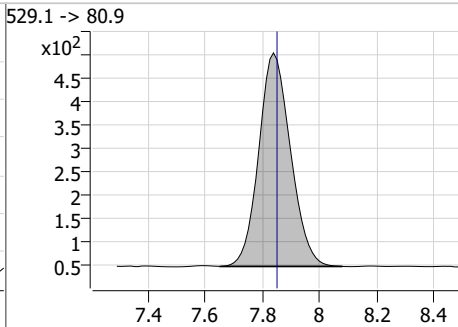
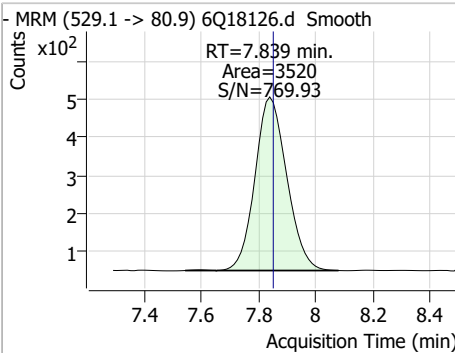
7.4.2
7

Perfluorinated Compounds by LC/MS/MS

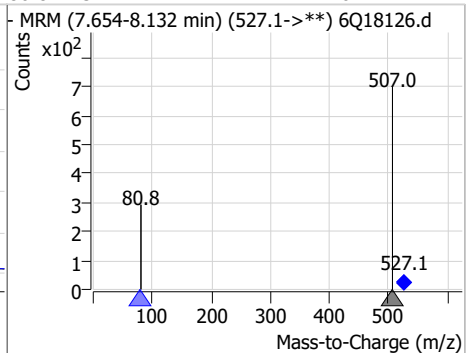
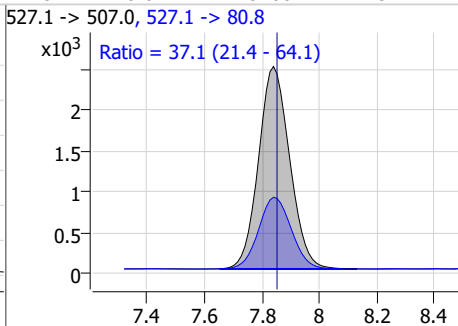
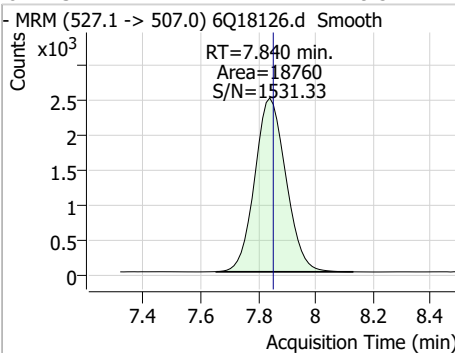
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.09	7.71	0.00	10595	449.0 -> 98.9	53.2	24.7	74.2



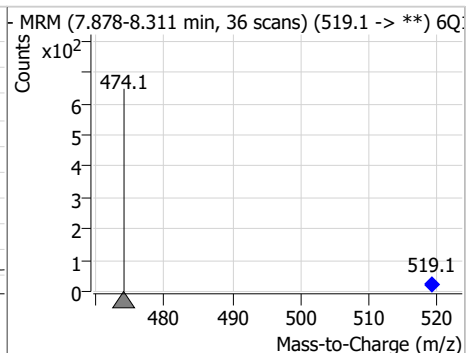
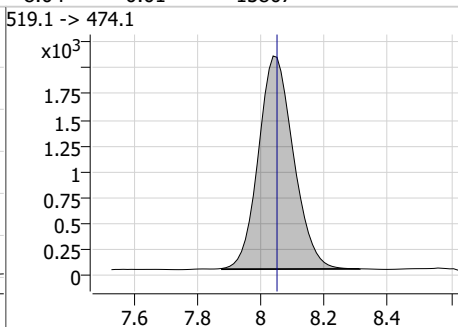
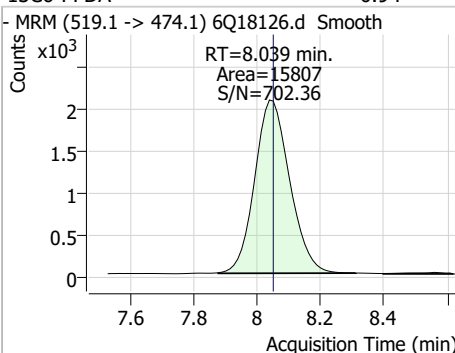
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.39	7.84	-0.01	3520	529.1 -> 80.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.32	7.84	-0.01	18760	527.1 -> 80.8	37.1	21.4	64.1



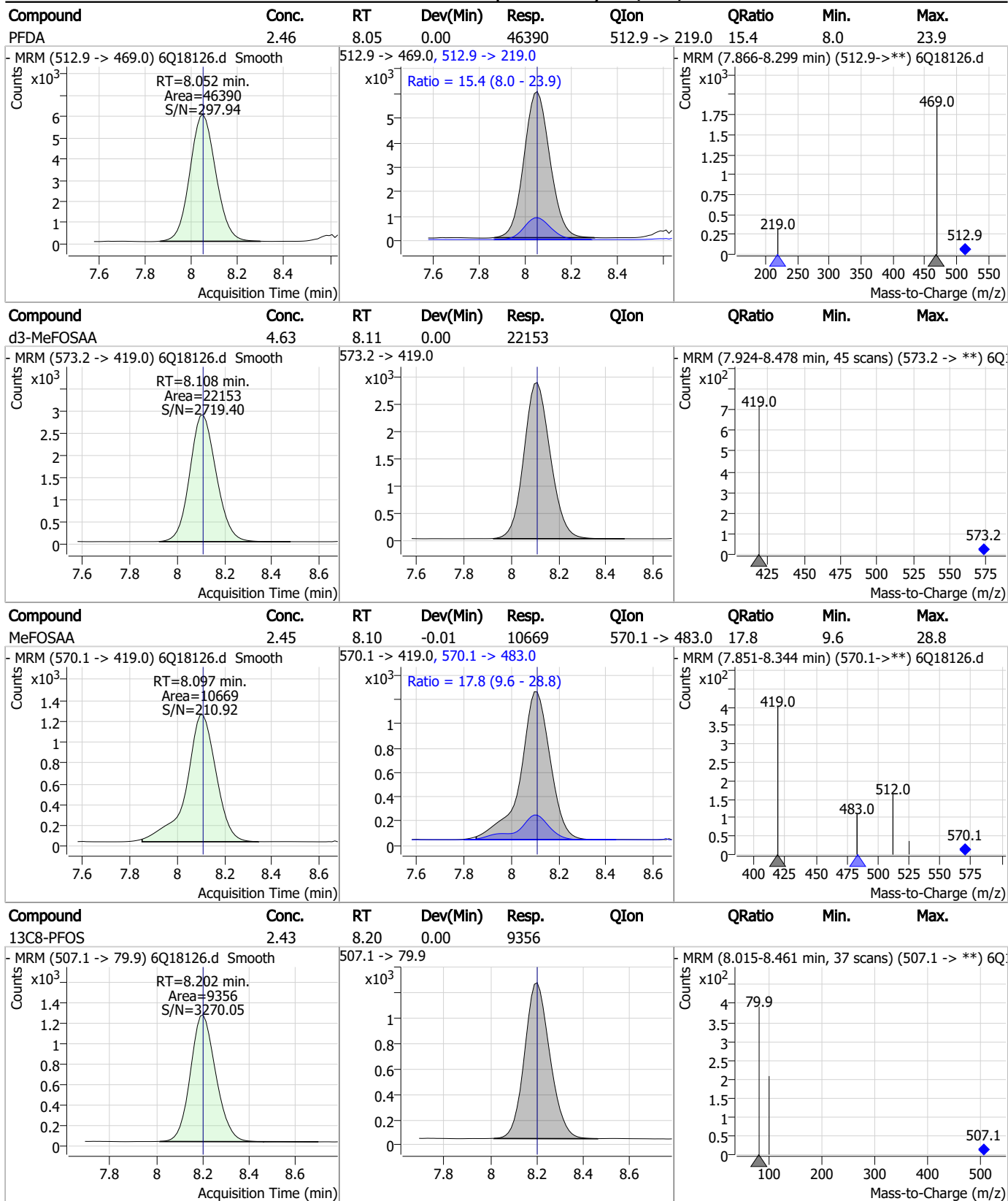
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	0.94	8.04	-0.01	15807	519.1 -> 474.1			



7.4.2

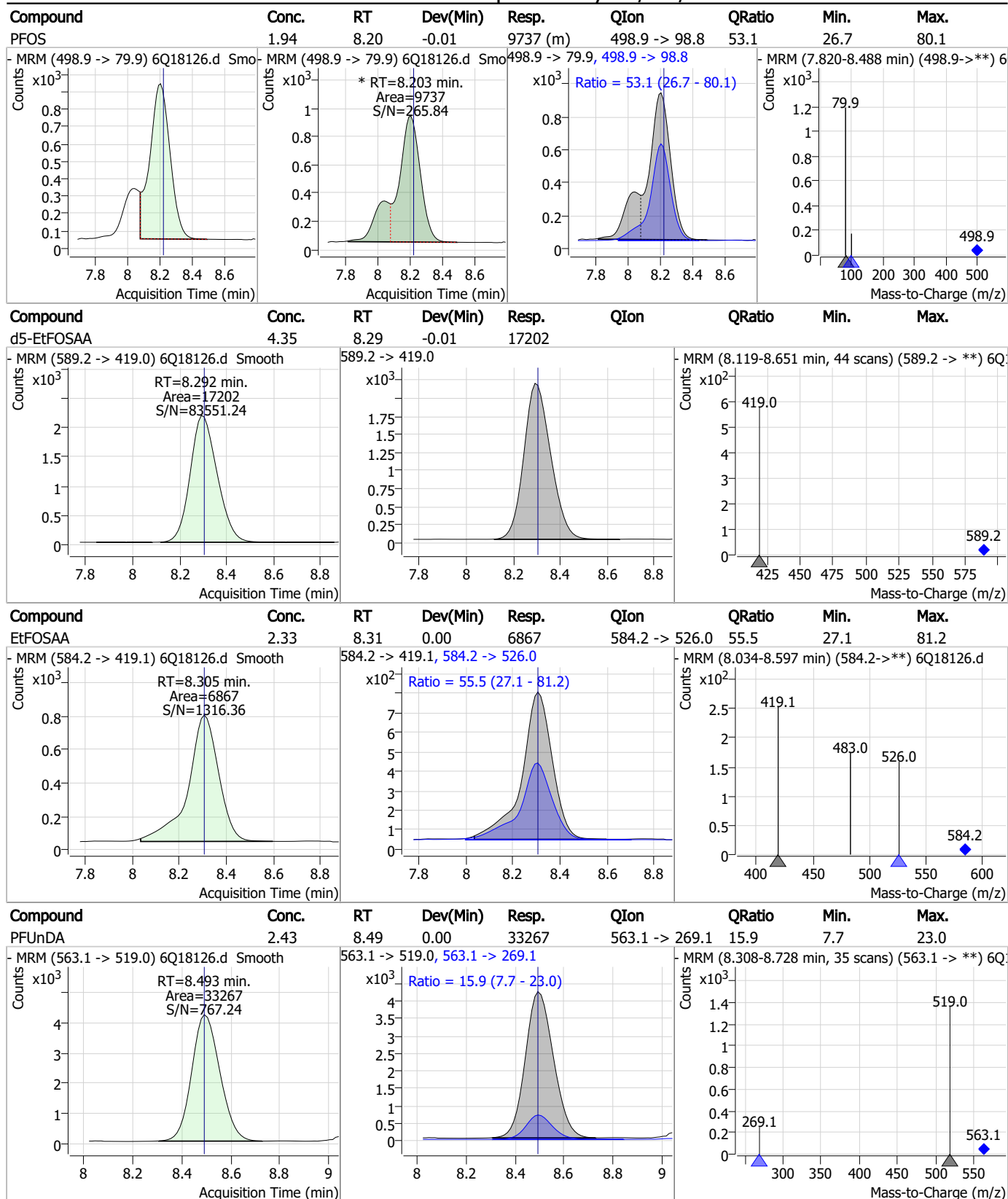
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Perfluorinated Compounds by LC/MS/MS



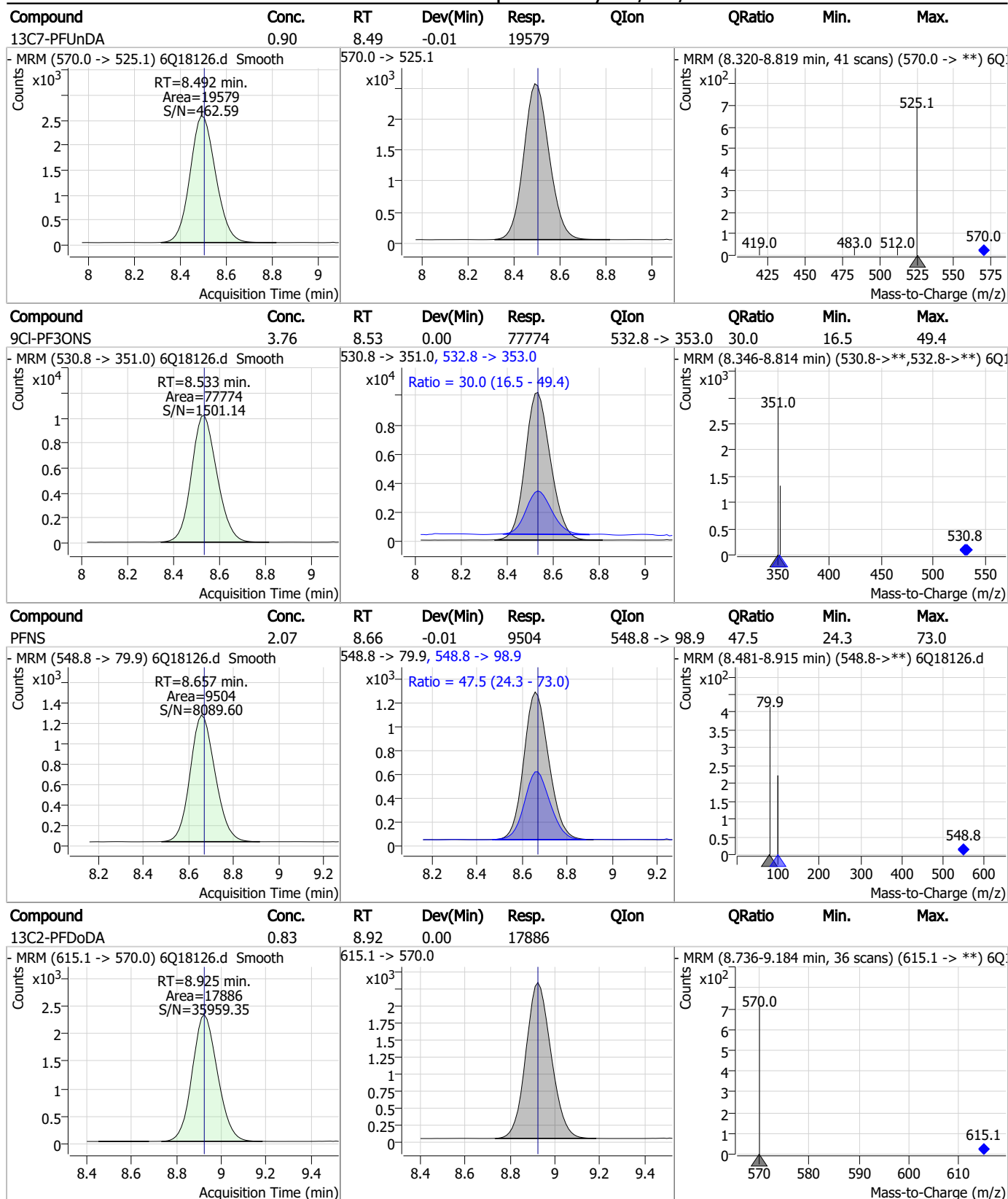
7.4.2
7

Perfluorinated Compounds by LC/MS/MS



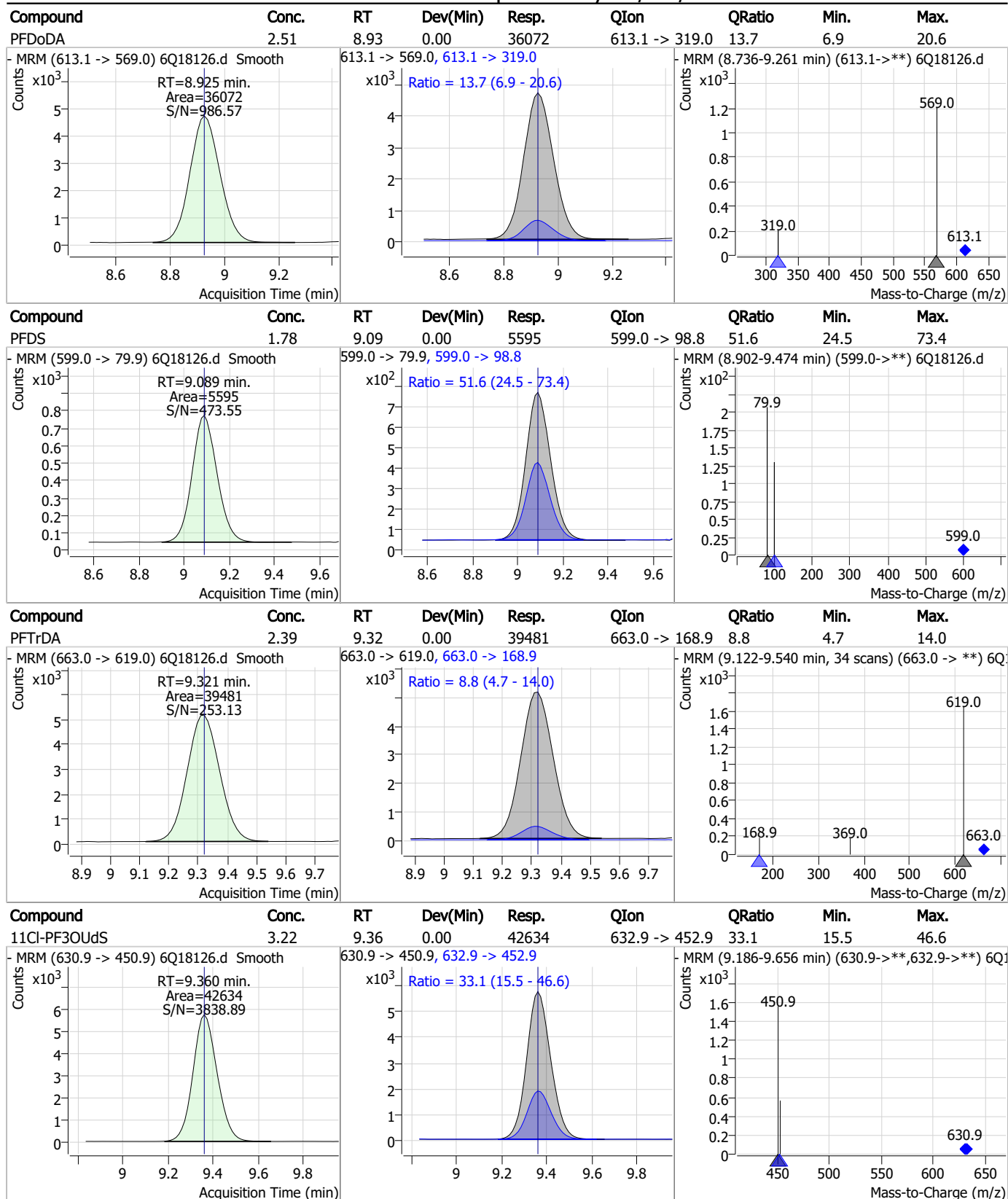
7.4.2
7

Perfluorinated Compounds by LC/MS/MS



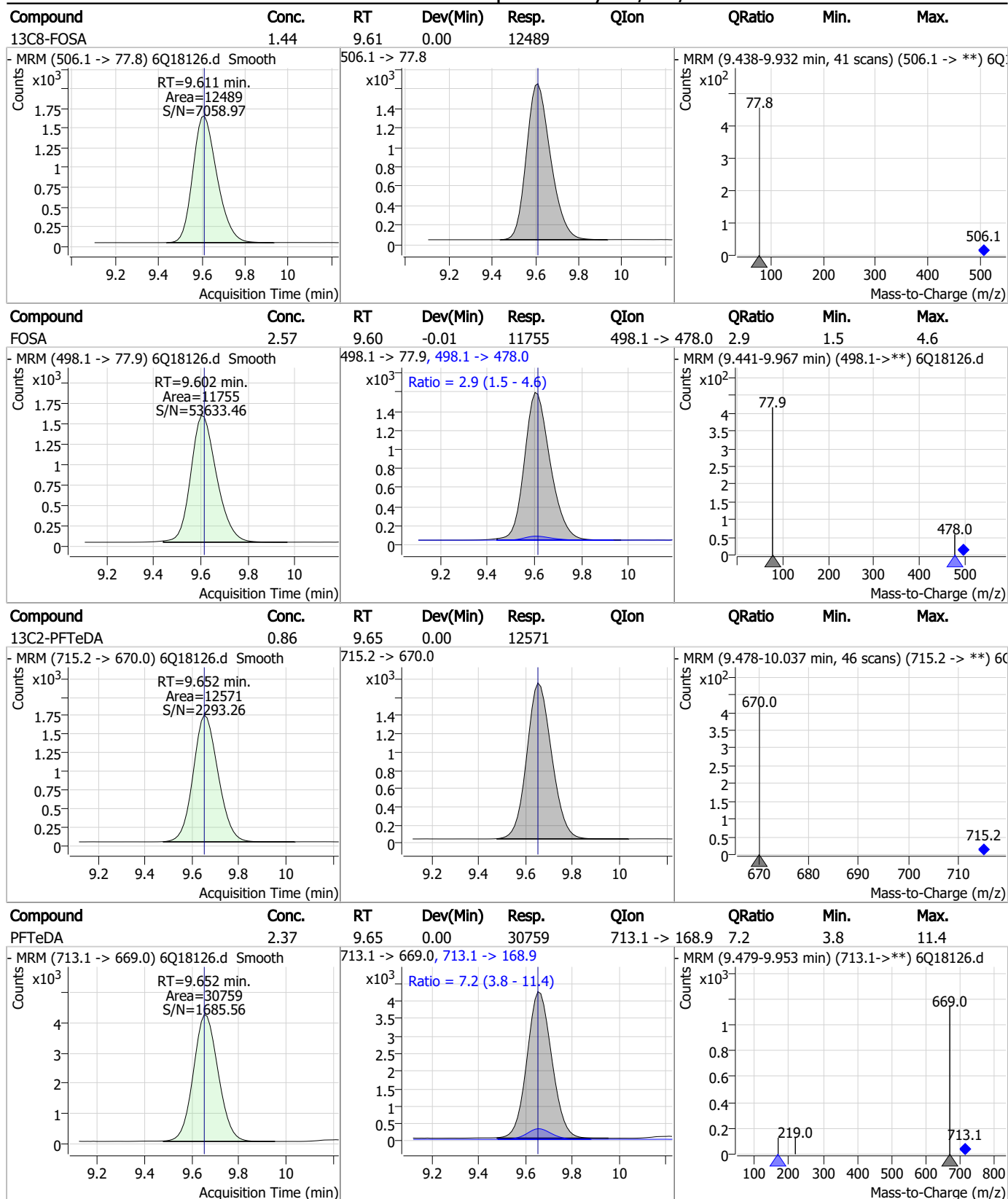
7.4.2
7

Perfluorinated Compounds by LC/MS/MS



7.4.2
7

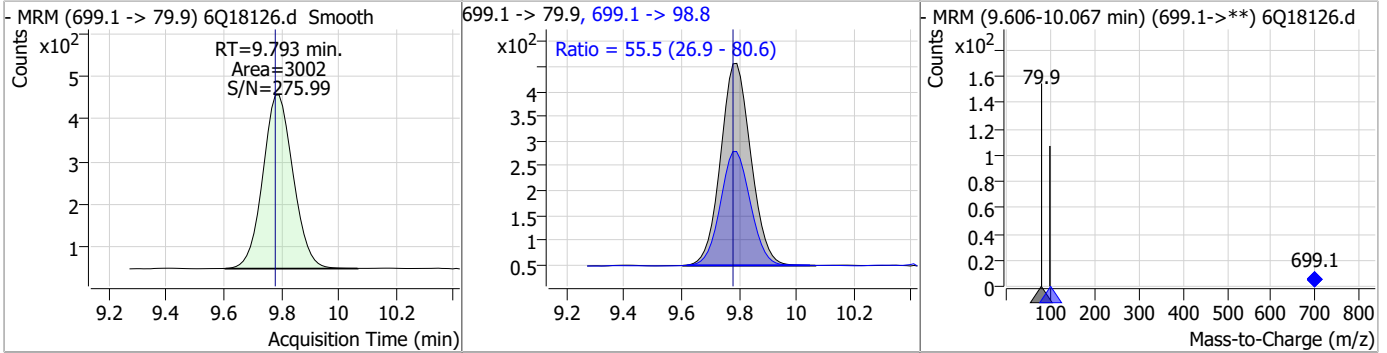
Perfluorinated Compounds by LC/MS/MS



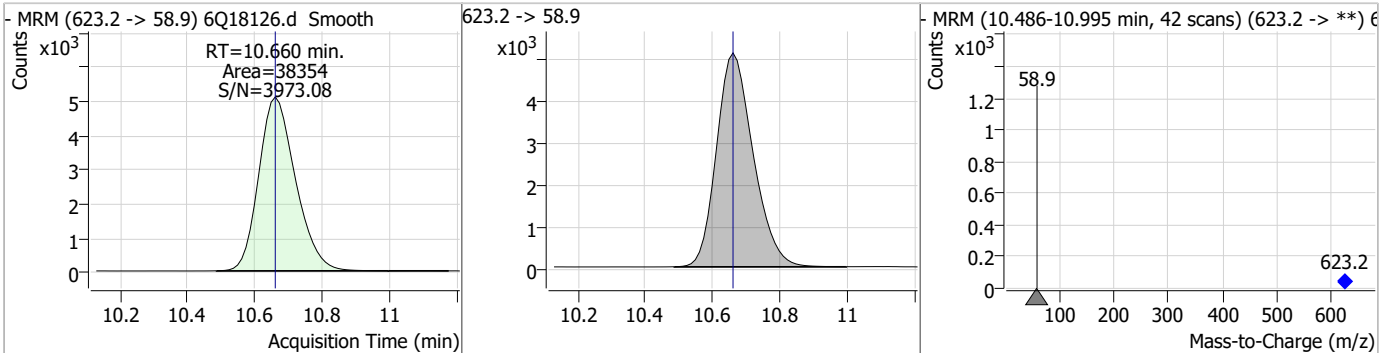
7.4.2
7

Perfluorinated Compounds by LC/MS/MS

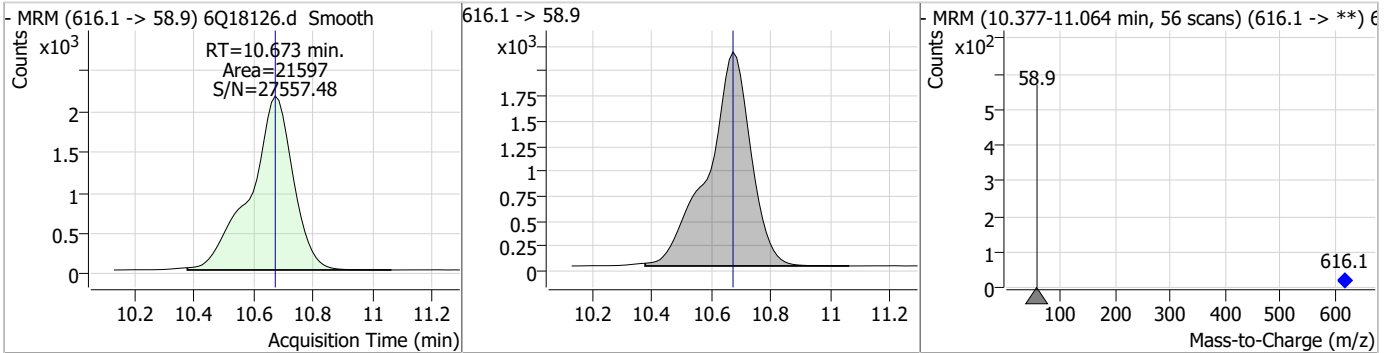
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	1.77	9.79	0.01	3002	699.1 -> 98.8	55.5	26.9	80.6



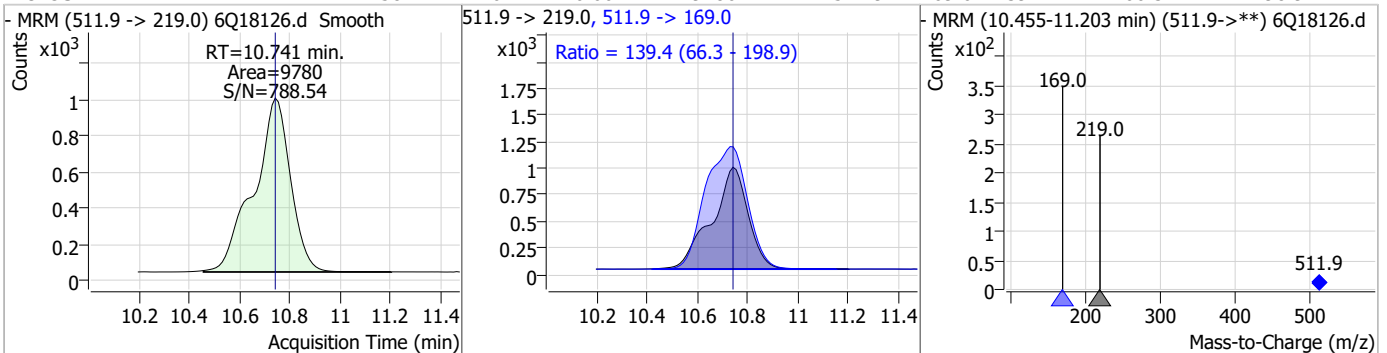
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	11.74	10.66	0.00	38354				



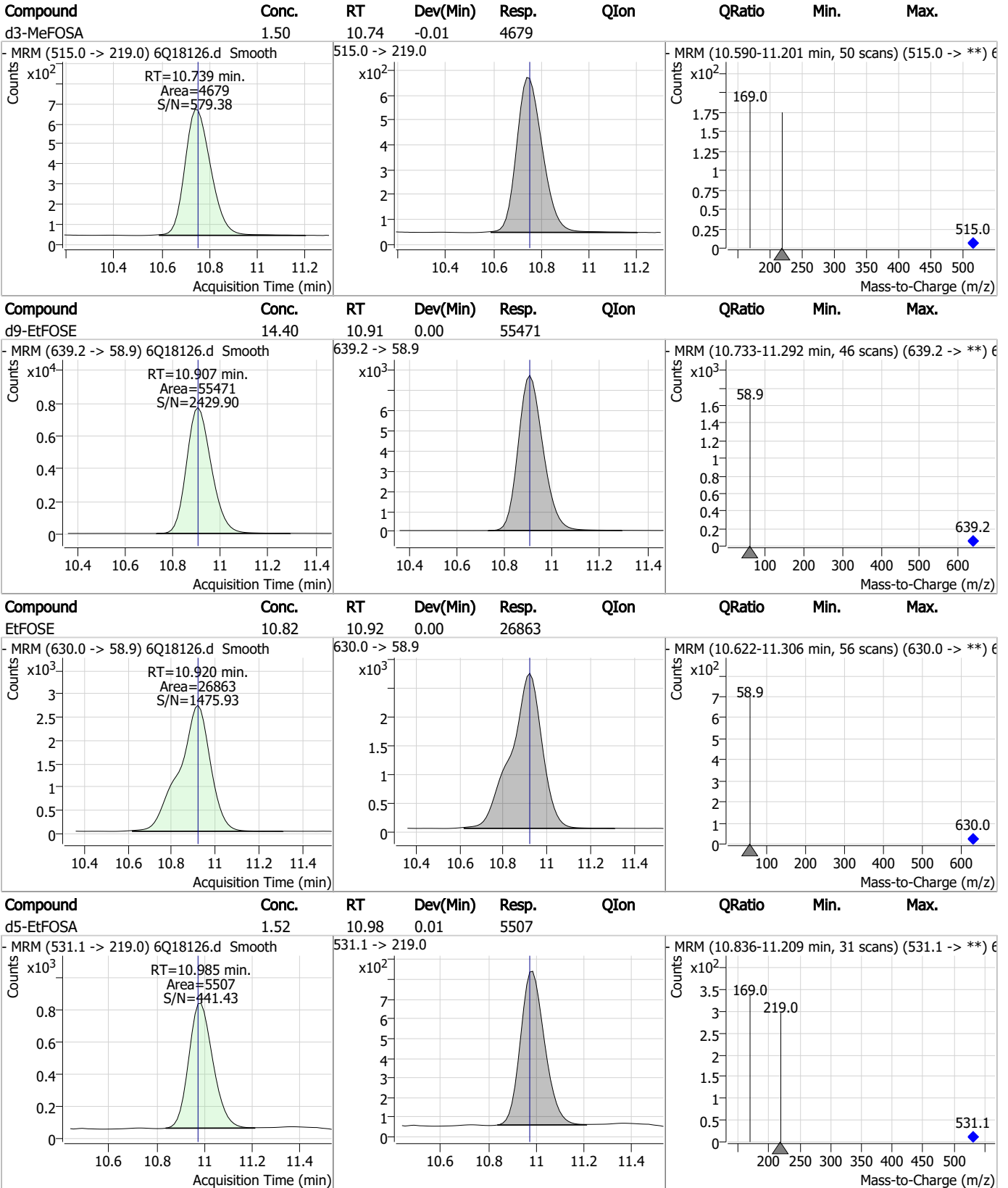
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.96	10.67	0.00	21597				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.58	10.74	0.00	9780	511.9 -> 169.0	139.4	66.3	198.9



Perfluorinated Compounds by LC/MS/MS

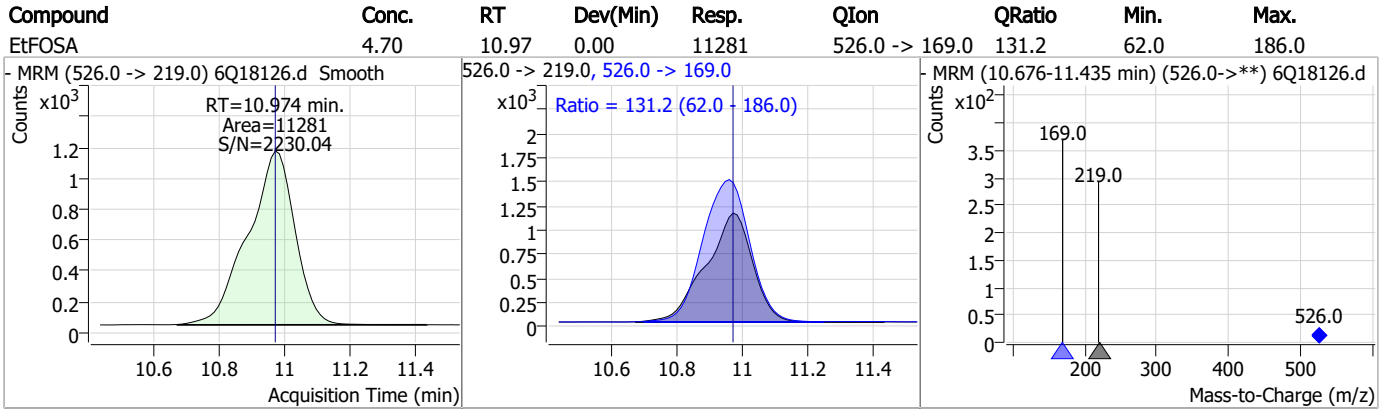


7.4.2

7



Perfluorinated Compounds by LC/MS/MS



7.4.2

7

Manual Integration Approval Summary

Sample Number: OP96921-MSD Method: EPA DRAFT 1633
Lab FileID: 6Q18126.D Analyst approved: 05/21/23 08:45 Mike Eger
Injection Time: 05/19/23 12:51 Supervisor approved: 05/23/23 10:19 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.4.2.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 05/22/23 12:01

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18041.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 4:07:05 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q272 TDCA.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

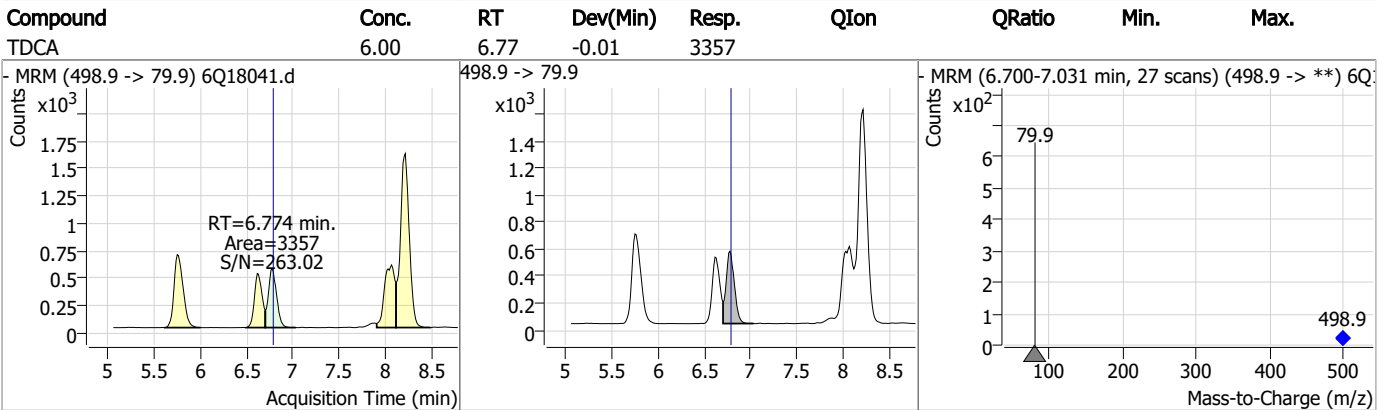
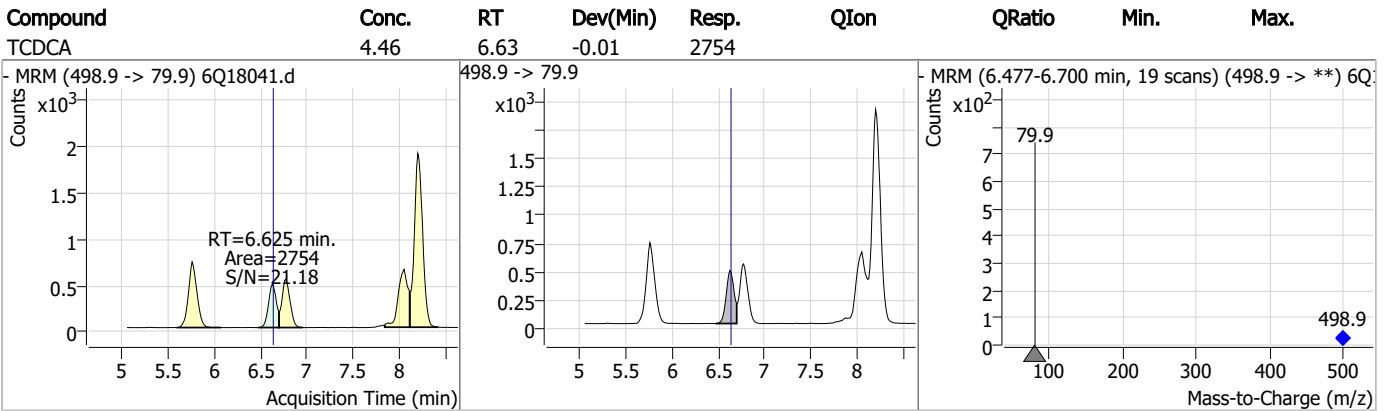
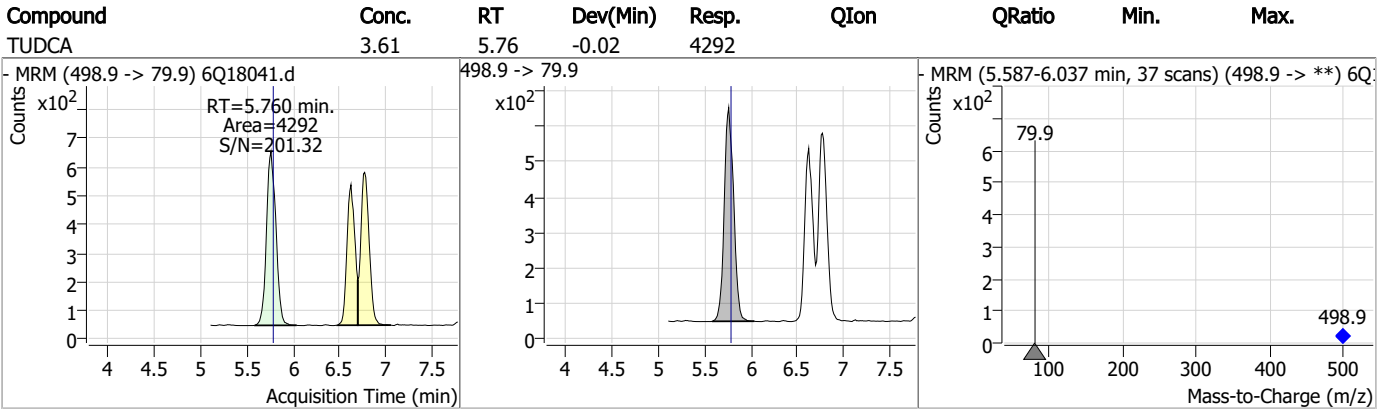
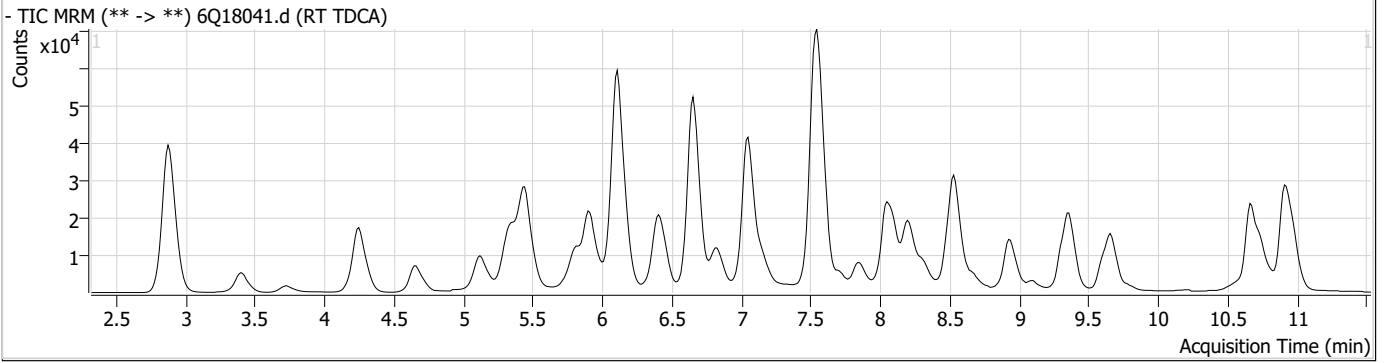
Compound	RT	Transition	Response	Conc. Units	Dev(Min)	QValue
Internal Standards						
M8-PFOS	8.214	507.1 -> 79.9	13397	2.50 µg/L	-0.012	
13C4-PFOS	8.215	502.8 -> 79.9	17058	2.50 µg/L	-0.012	
System Monitoring Compounds						
13C8-PFOS	8.214	507.1 -> 79.9	13397	1.99 µg/L	-0.012	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 79.7%			
Target Compounds						
PFOS	8.215	498.9 -> 79.9	14048	3.07 µg/L m		86
		498.9 -> 98.8	7678			
TCDCa	6.625	498.9 -> 79.9	2754	4.46 ng/ml		100
TDCA	6.774	498.9 -> 79.9	3357	6.00 ng/ml		100
TUDCA	5.760	498.9 -> 79.9	4292	3.61 ng/ml		100

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

7.5.1

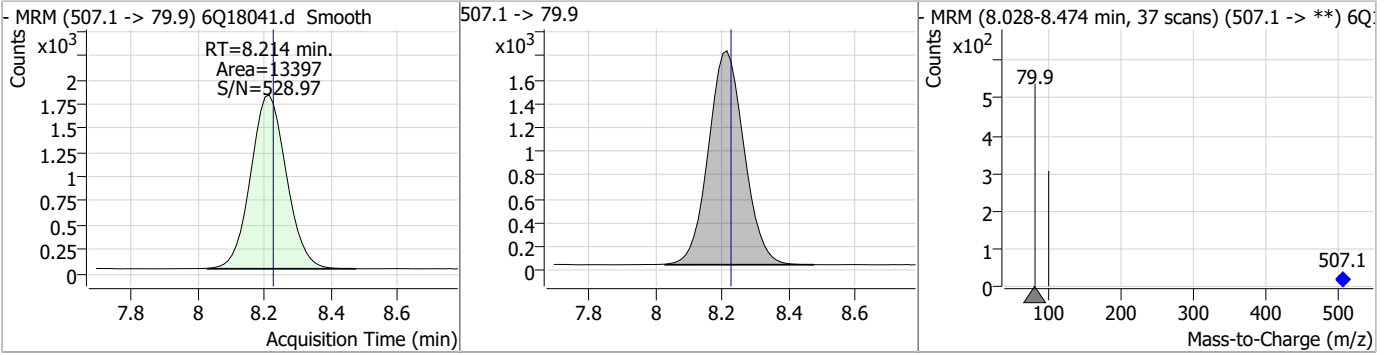
7

Perfluorinated Compounds by LC/MS/MS

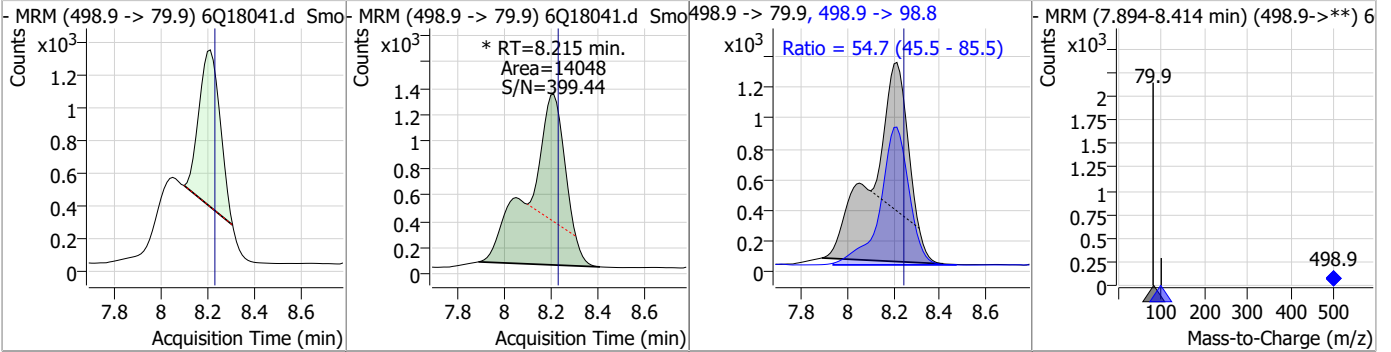


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	1.99	8.21	-0.01	13397				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.07	8.22	-0.02	14048 (m)	498.9 -> 98.8	54.7	45.5	85.5



Manual Integration Approval Summary

Sample Number: S6Q272-RT Method: EPA DRAFT 1633
Lab FileID: 6Q18041.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 16:07 Supervisor approved: 05/22/23 12:01 Norman Farmer

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

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18050.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 6:30:32 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	151018	10.00 µg/L	-0.012
M5-PFPeA	4.247	268.3 -> 223.0	46843	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	56103	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	50171	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	71185	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	25913	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	18183	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	21230	1.25 µg/L	0.000
M2-PFDoDA	8.925	615.1 -> 570.0	24089	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	15841	1.25 µg/L	0.012
M8-FOSA	9.611	506.1 -> 77.8	21569	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	17342	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11333	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	10209	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2169	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	2545	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	2736	5.00 µg/L	0.000
M3-MeFOSAA	8.108	573.2 -> 419.0	21677	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	33550	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	21127	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	82498	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	97240	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9068	2.50 µg/L	0.012
M3-MeFOSA	10.752	515.0 -> 219.0	7910	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	12646	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	62652	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	7915	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	71136	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	22556	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	26724	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	45054	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2169	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-6:2FTS	6.825	429.1 -> 80.9	2545	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C2-8:2FTS	7.852	529.1 -> 80.9	2736	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C2-PFDoDA	8.925	615.1 -> 570.0	24089	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.664	715.2 -> 670.0	15841	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C3-PFBS	5.359	302.1 -> 79.9	17342	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C3-PFHxS	7.155	402.1 -> 79.9	11333	2.68 µg/L	0.000

7.52
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 = 107.1%	
13C4-PFBA	2.876	216.8 -> 171.9	151018	10.10 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.395	367.1 -> 322.0	50171	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C5-PFHxA	5.441	318.0 -> 273.0	56103	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFPeA	4.247	268.3 -> 223.0	46843	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.051	519.1 -> 474.1	18183	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C7-PFUnDA	8.506	570.0 -> 525.1	21230	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 86.2%	
13C8-FOSA	9.611	506.1 -> 77.8	21569	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOA	7.051	421.1 -> 376.0	71185	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C8-PFOS	8.202	507.1 -> 79.9	10209	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C9-PFNA	7.569	472.1 -> 427.0	25913	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSAA	8.108	573.2 -> 419.0	21677	4.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	33550	10.31 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
d3-MeFOSA	10.752	515.0 -> 219.0	7910	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
d5-EtFOSAA	8.304	589.2 -> 419.0	21127	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d7-MeFOSE	10.660	623.2 -> 58.9	82498	25.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d9-EtFOSE	10.907	639.2 -> 58.9	97240	25.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d5-EtFOSA	10.984	531.1 -> 219.0	9068	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	143703	44.88 µg/L	99
		327.1 -> 80.9	55822		
6:2FTS	6.826	427.1 -> 407.0	137356	49.92 µg/L	100
		427.1 -> 80.9	46837		
8:2FTS	7.840	527.1 -> 507.0	74168	47.43 µg/L	96
		527.1 -> 80.8	33461		
EtFOSAA	8.305	584.2 -> 419.1	41038	11.33 µg/L	100
		584.2 -> 526.0	22185		
FOSA	9.602	498.1 -> 77.9	228991	28.95 µg/L	100
		498.1 -> 478.0	6818		
MeFOSAA	8.109	570.1 -> 419.0	55393	12.98 µg/L	99
		570.1 -> 483.0	10807		
PFBA	2.882	212.8 -> 168.9	269753	49.19 µg/L	100
PFBS	5.360	298.7 -> 79.9	91963	10.87 µg/L	92
		298.7 -> 98.8	37590		
PFDA	8.052	512.9 -> 469.0	287706	13.26 µg/L	94
		512.9 -> 219.0	39268		
PFDoDA	8.925	613.1 -> 569.0	233215	12.04 µg/L	100
		613.1 -> 319.0	31973		
PFDS	9.089	599.0 -> 79.9	37947	11.07 µg/L	97

7.5.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	17845			
PFHpA	6.396	363.1 -> 319.0	306953	11.96	µg/L	99
		363.1 -> 169.0	44349			
PFHpS	7.710	449.0 -> 79.9	60650	10.99	µg/L	95
		449.0 -> 98.9	27713			
PFHxA	5.432	313.0 -> 269.0	267687	12.25	µg/L	100
		313.0 -> 118.9	12304			
PFHxS	7.156	398.7 -> 79.9	69545	10.98	µg/L	m 96
		398.7 -> 98.9	31287			
PFNA	7.446	463.0 -> 419.0	532032	27.87	µg/L	m 97
		463.0 -> 219.0	110600			
PFNS	8.669	548.8 -> 79.9	56154	11.22	µg/L	91
		548.8 -> 98.9	30688			
PFOA	7.052	413.0 -> 369.0	906422	26.07	µg/L	m 99
		413.0 -> 169.0	158516			
PFOS	8.203	498.9 -> 79.9	54729	9.99	µg/L	m 100
		498.9 -> 98.8	29372			
PFPeA	4.249	263.0 -> 219.0	340833	24.57	µg/L	100
PFPeS	6.447	349.1 -> 79.9	70454	11.16	µg/L	96
		349.1 -> 98.9	31509			
PFTeDA	9.665	713.1 -> 669.0	208278	12.72	µg/L	98
		713.1 -> 168.9	14533			
PFTrDA	9.321	663.0 -> 619.0	274816	12.33	µg/L	98
		663.0 -> 168.9	23342			
PFUnDA	8.506	563.1 -> 519.0	216199	14.58	µg/L	98
		563.1 -> 269.1	31690			
11CI-PF3OUdS	9.360	630.9 -> 450.9	290943	22.17	µg/L	99
		632.9 -> 452.9	92152			
9CI-PF3ONS	8.533	530.8 -> 351.0	479835	23.40	µg/L	94
		532.8 -> 353.0	142189			
ADONA	6.658	376.9 -> 250.9	1232986	22.96	µg/L	99
		376.9 -> 84.8	323073			
HFPO-DA	5.807	284.9 -> 168.9	79583	24.40	µg/L	100
		284.9 -> 184.9	10781			
3:3FTCA	3.727	241.0 -> 177.0	53389	61.16	µg/L	97
		241.0 -> 117.0	7065			
5:3FTCA	6.111	341.0 -> 237.1	1165128	294.91	µg/L	99
		341.0 -> 217.0	819476			
7:3FTCA	7.535	441.0 -> 316.9	603873	307.57	µg/L	88
		441.0 -> 336.9	1215054			
EtFOSA	10.986	526.0 -> 219.0	169397	42.87	µg/L	98
		526.0 -> 169.0	205616			
EtFOSE	10.920	630.0 -> 58.9	335800	77.13	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	150127	41.63	µg/L	100
		511.9 -> 169.0	198604			
MeFOSE	10.673	616.1 -> 58.9	294650	75.86	µg/L	100
PFDoDS	9.793	699.1 -> 79.9	20612	11.14	µg/L	99
		699.1 -> 98.8	11174			
NFDHA	5.324	295.0 -> 201.0	59569	24.30	µg/L	97
		295.0 -> 84.9	15126			
PFMBA	4.650	279.0 -> 85.1	242769	24.89	µg/L	100
PFMPA	3.401	229.0 -> 84.9	179891	24.94	µg/L	100
PFEESA	5.912	314.8 -> 134.9	574342	19.86	µg/L	100
		314.8 -> 82.9	22089			

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

7.5.2
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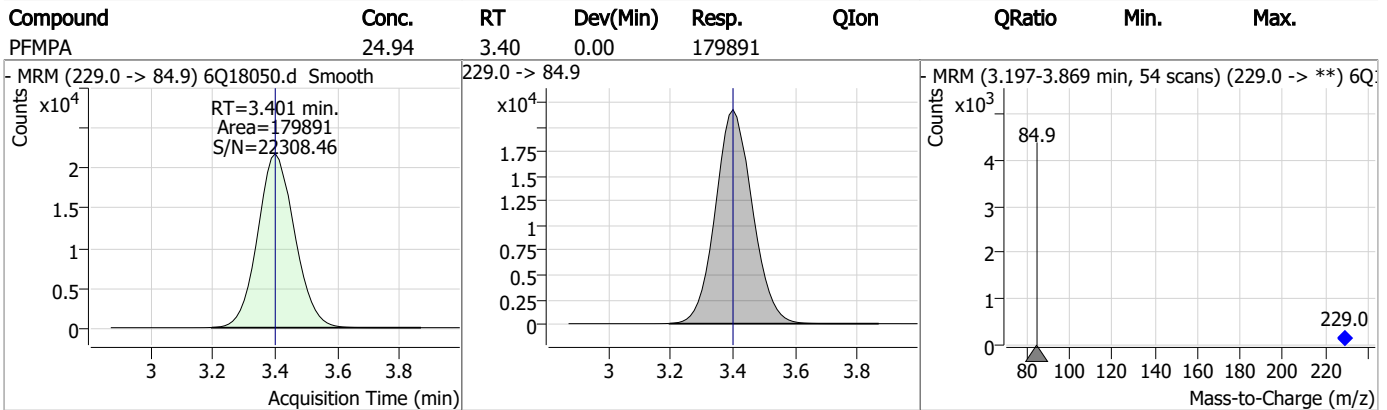
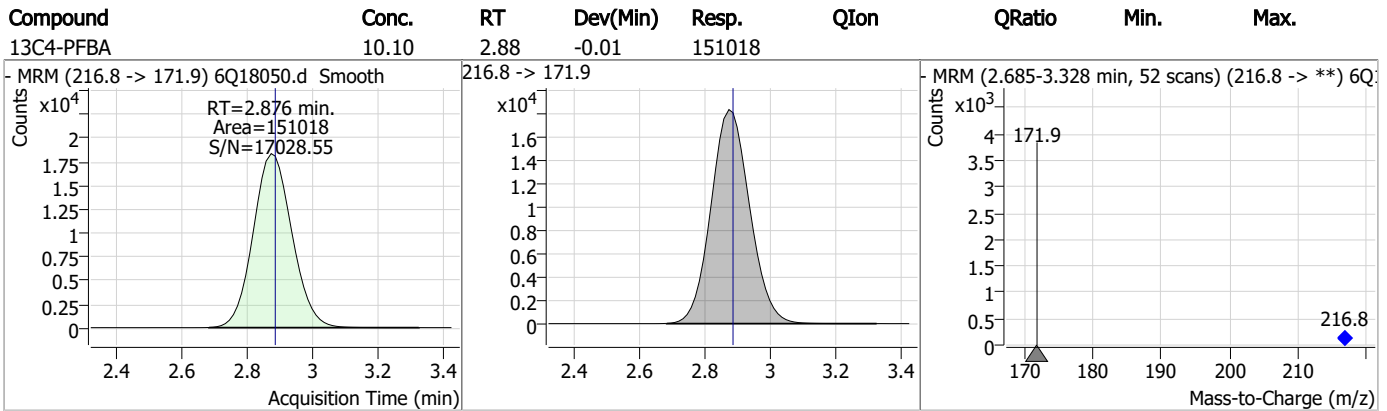
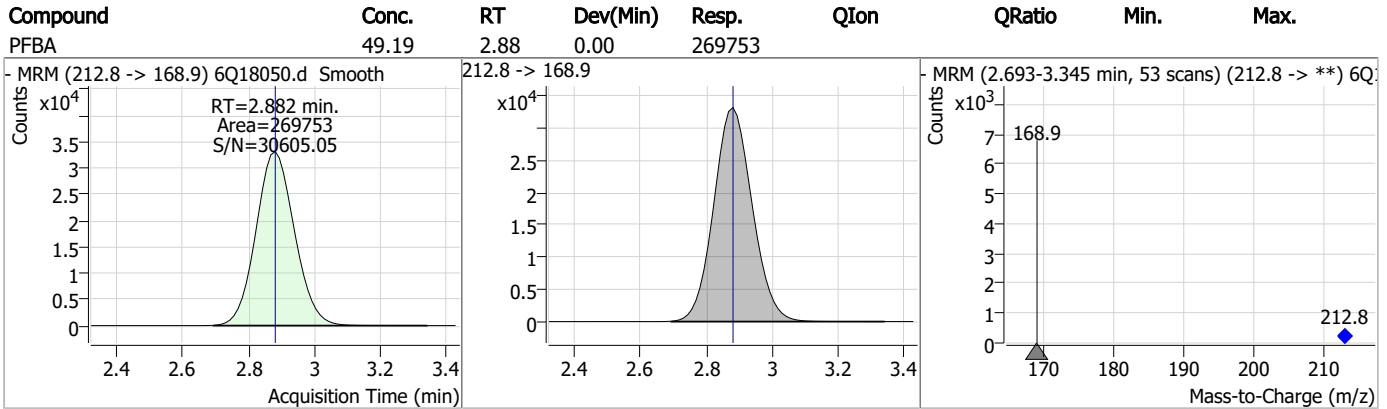
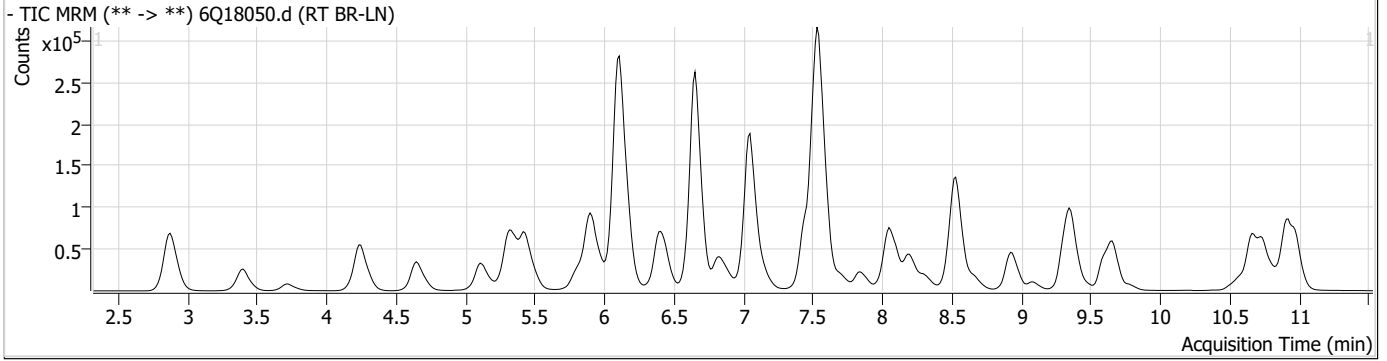
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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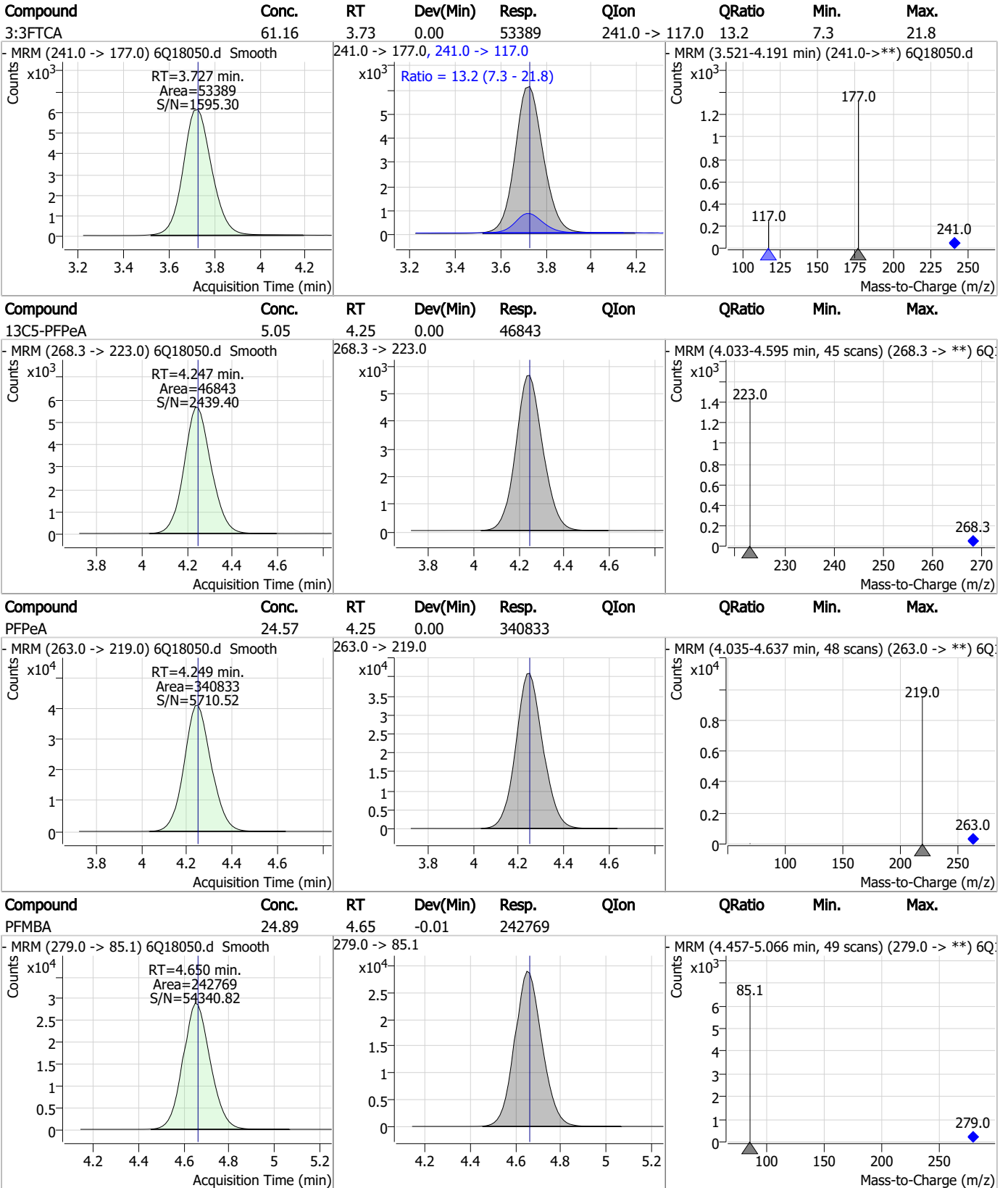
7.5.2

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Perfluorinated Compounds by LC/MS/MS



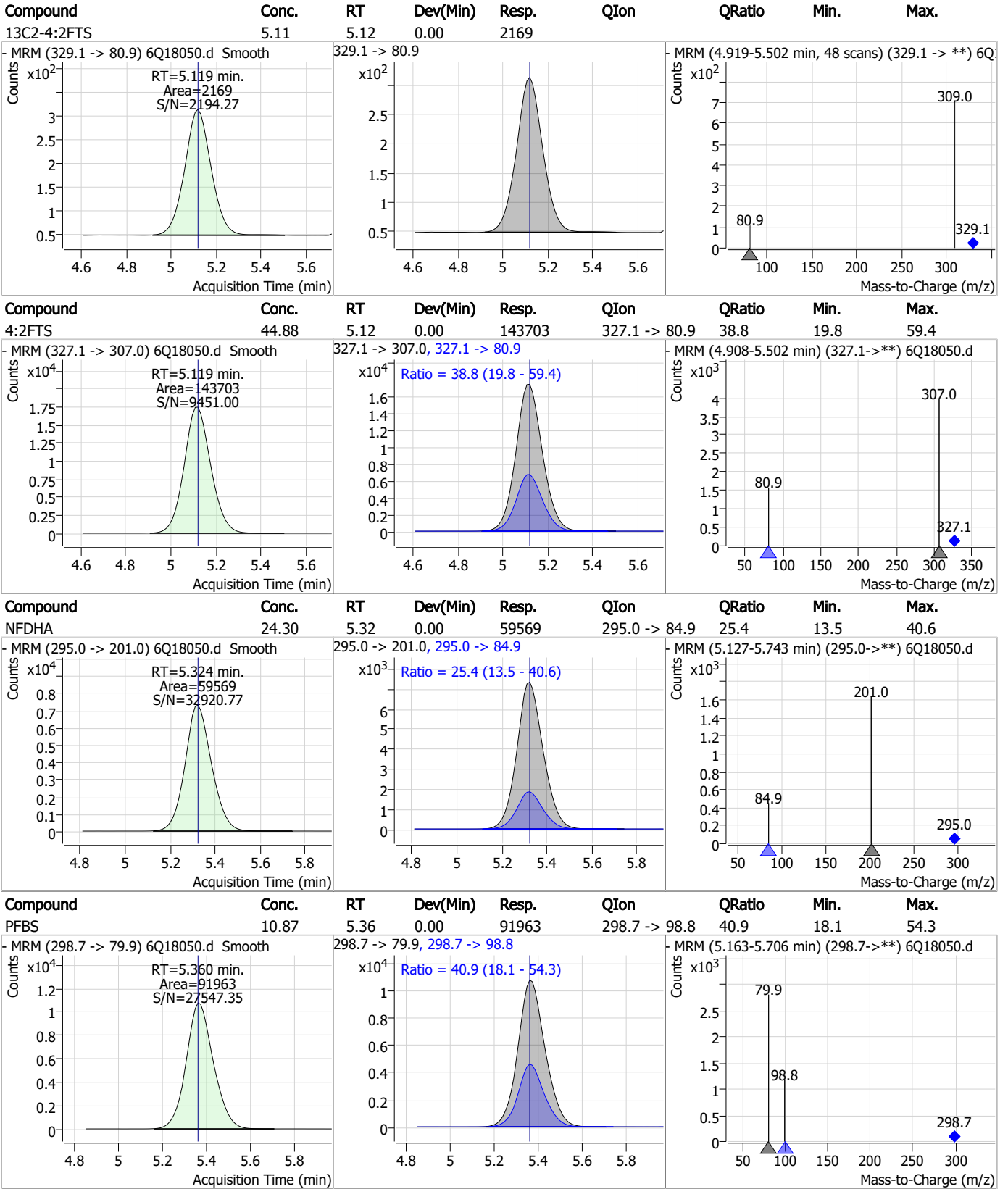
Perfluorinated Compounds by LC/MS/MS



7.5.2

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Perfluorinated Compounds by LC/MS/MS



7.5.2

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Perfluorinated Compounds by LC/MS/MS

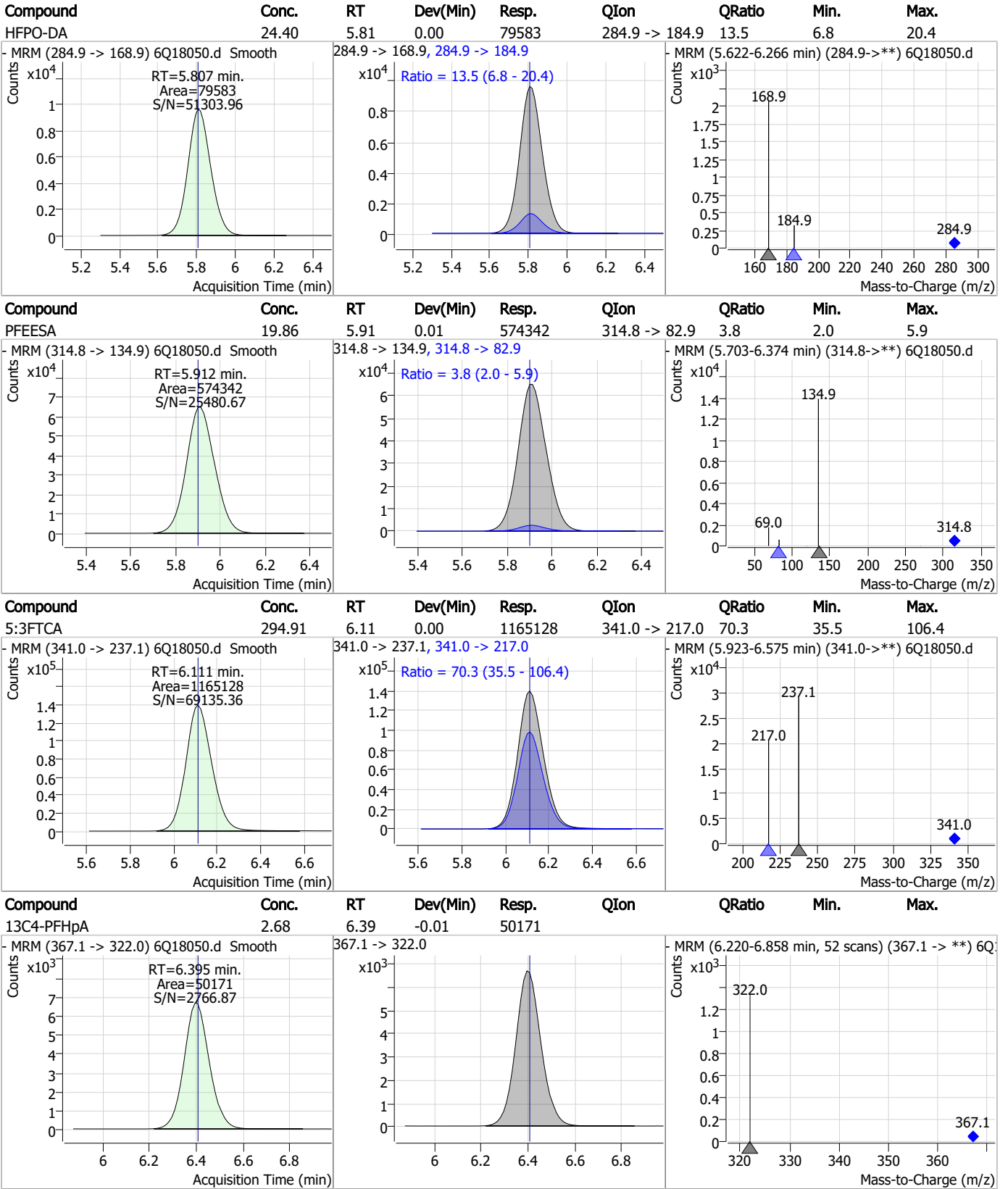
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.48	5.36	-0.01	17342				
13C5-PFHxA	2.57	5.44	0.00	56103				
PFHxA	12.25	5.43	-0.01	267687	313.0 -> 118.9	4.6	2.2	6.7
13C3-HFPO-DA	10.31	5.81	0.00	33550				

7.5.2

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Perfluorinated Compounds by LC/MS/MS

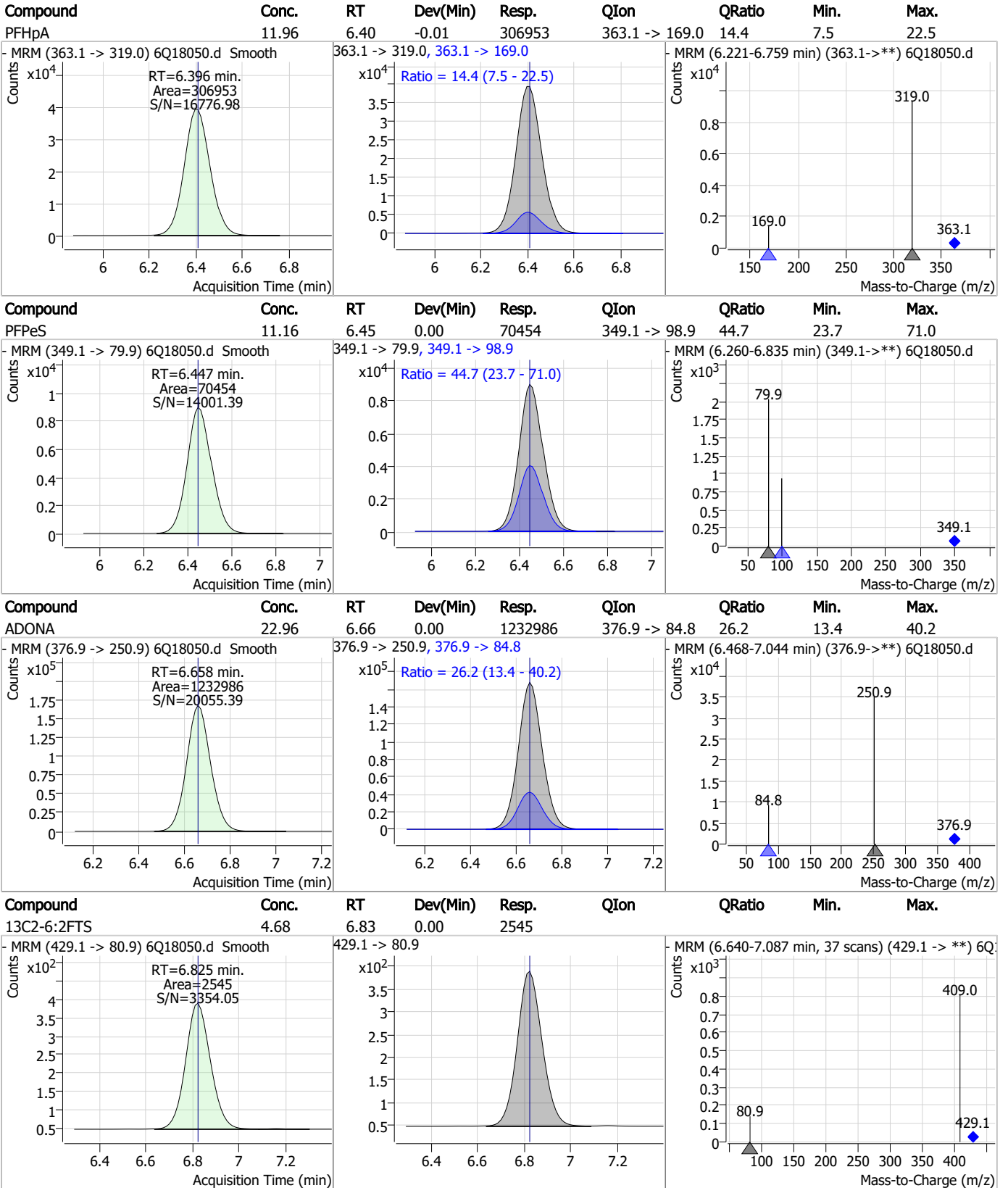


7.5.2

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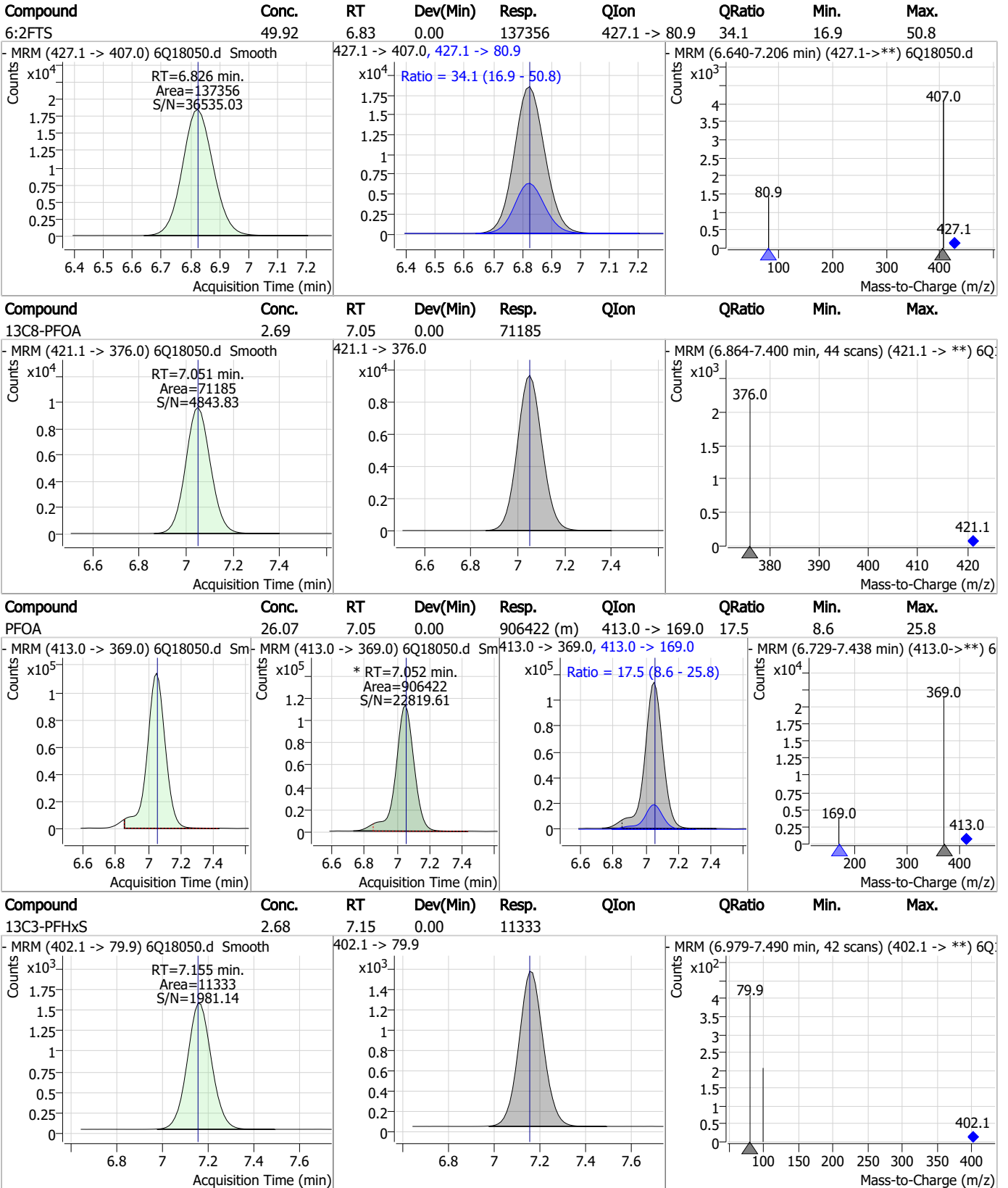
Perfluorinated Compounds by LC/MS/MS



7.5.2

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Perfluorinated Compounds by LC/MS/MS

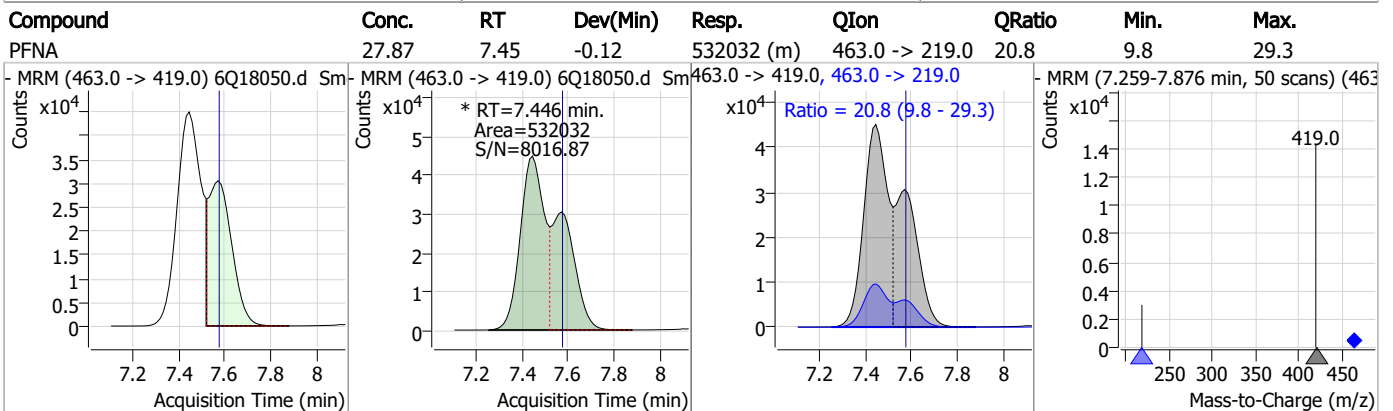
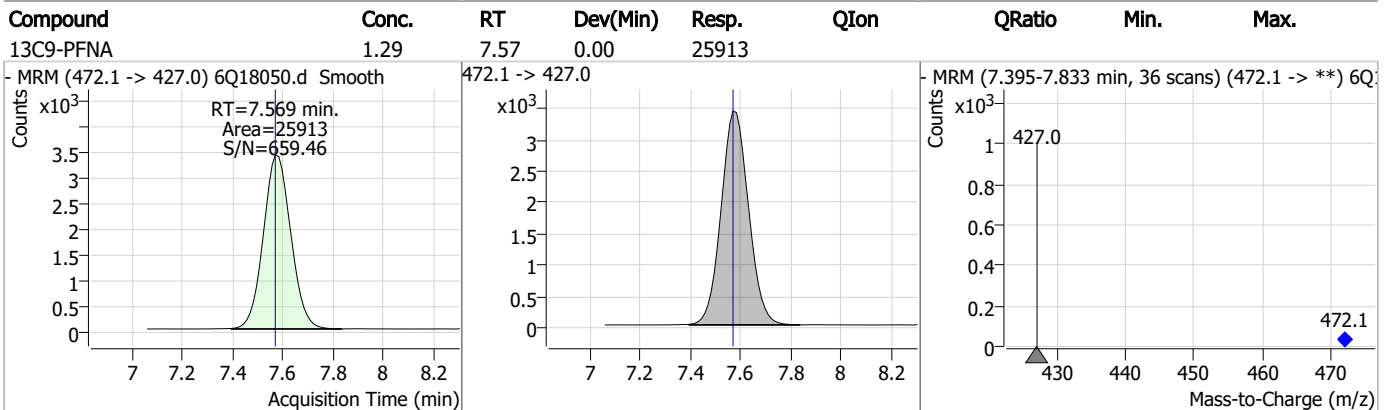
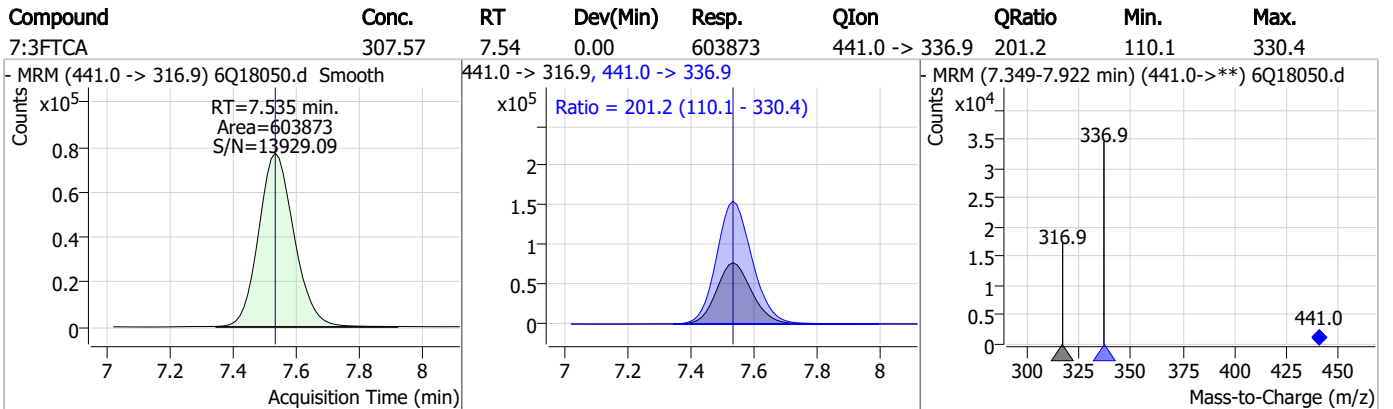
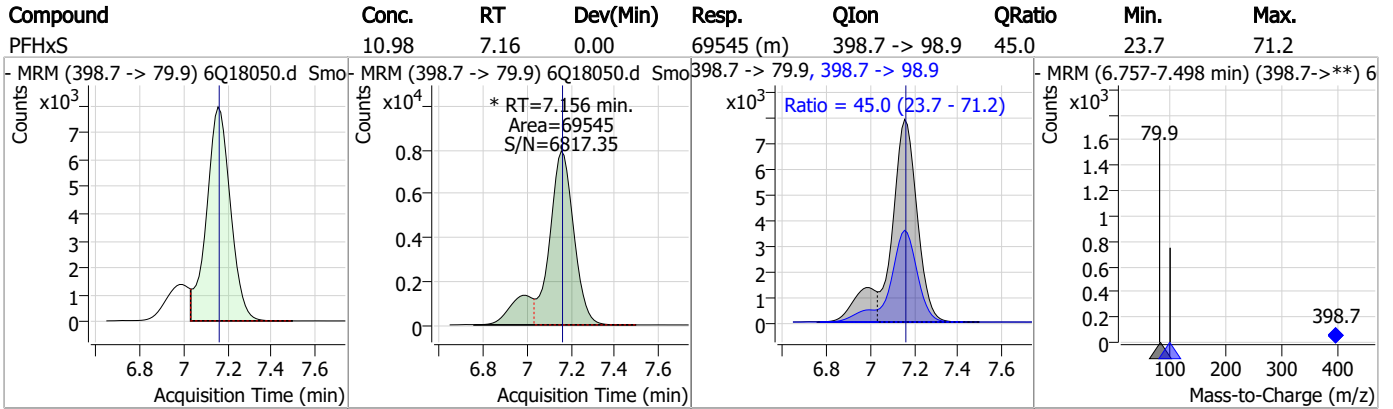


7.5.2

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Perfluorinated Compounds by LC/MS/MS



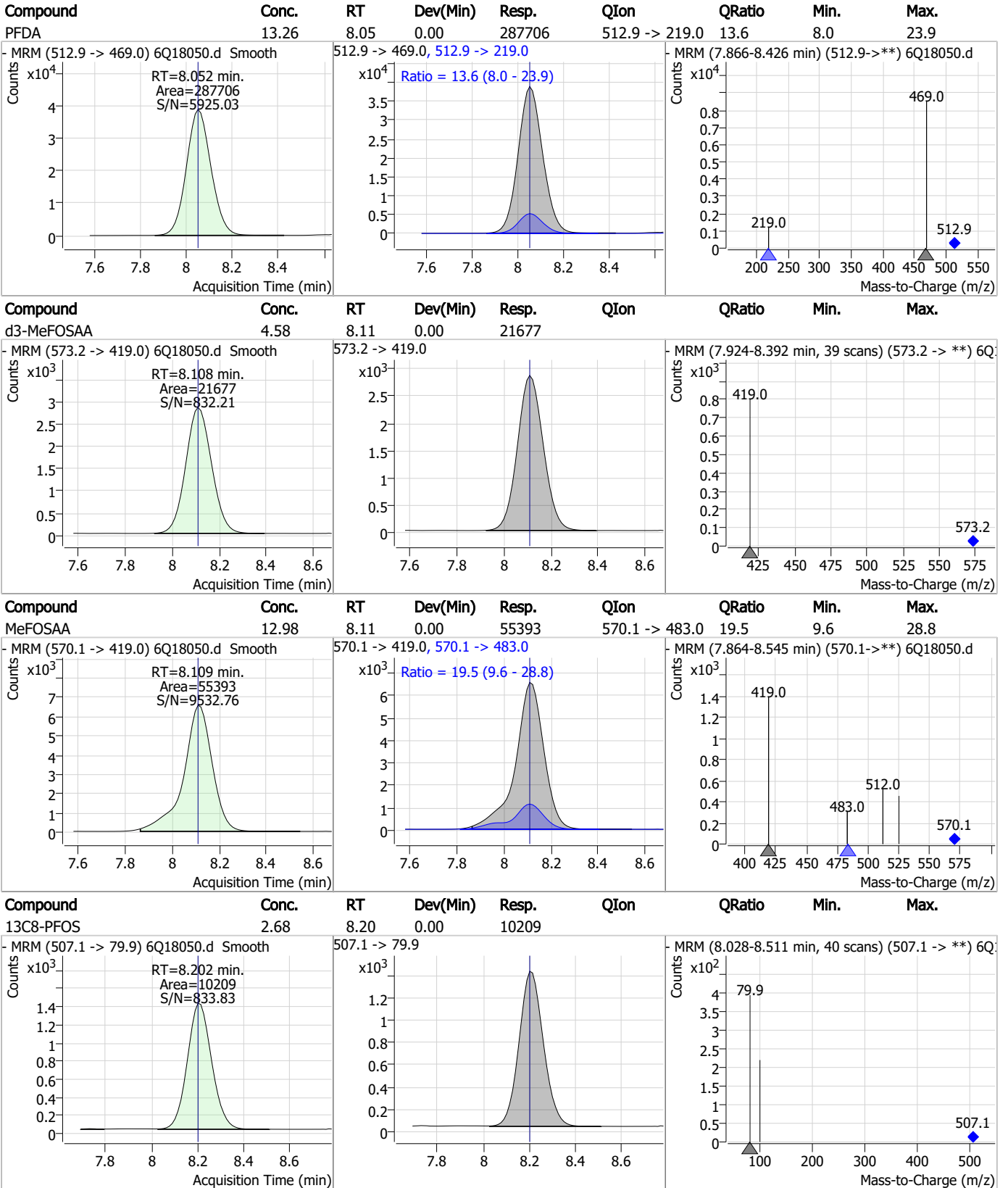
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	10.99	7.71	0.00	60650	449.0 -> 98.9	45.7	24.7	74.2
13C2-8:2FTS	4.67	7.85	0.00	2736	529.1 -> 80.9			
8:2FTS	47.43	7.84	-0.01	74168	527.1 -> 80.8	45.1	21.4	64.1
13C6-PFDA	1.18	8.05	0.00	18183	519.1 -> 474.1			

7.5.2

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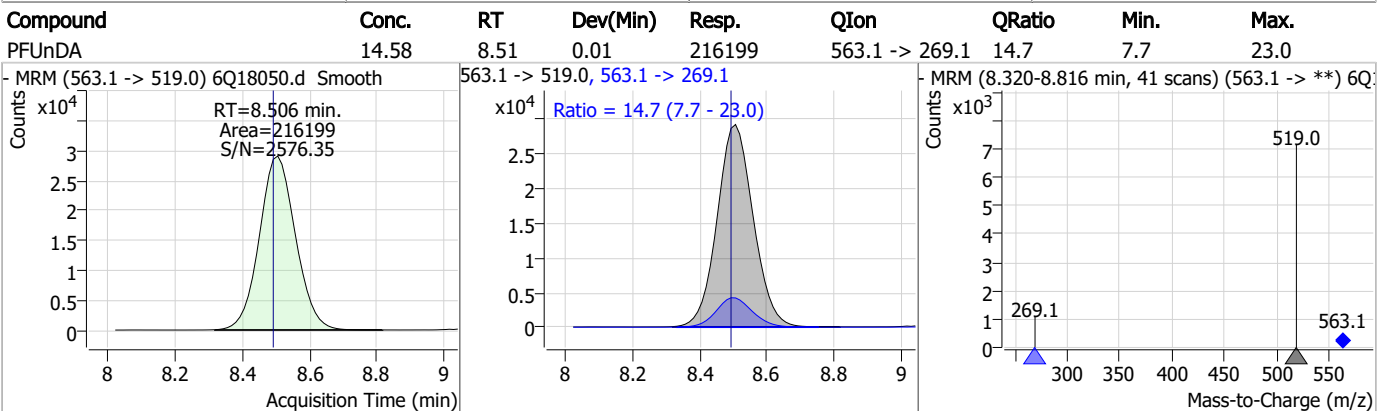
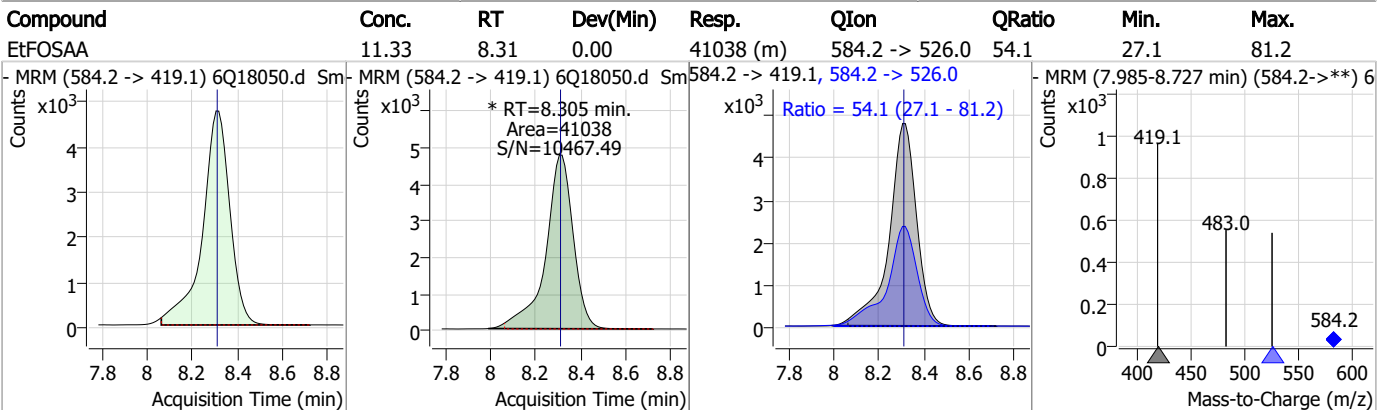
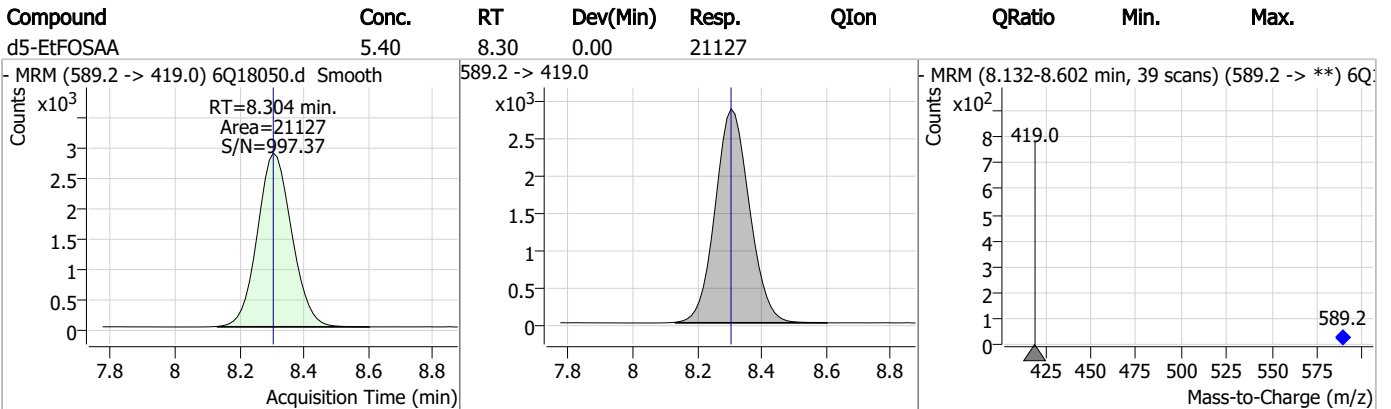
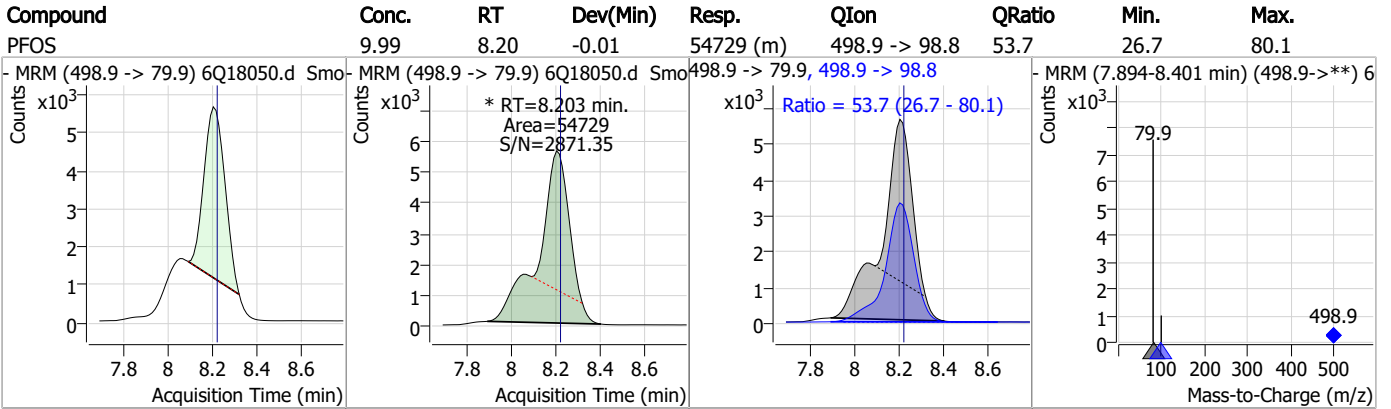
Perfluorinated Compounds by LC/MS/MS



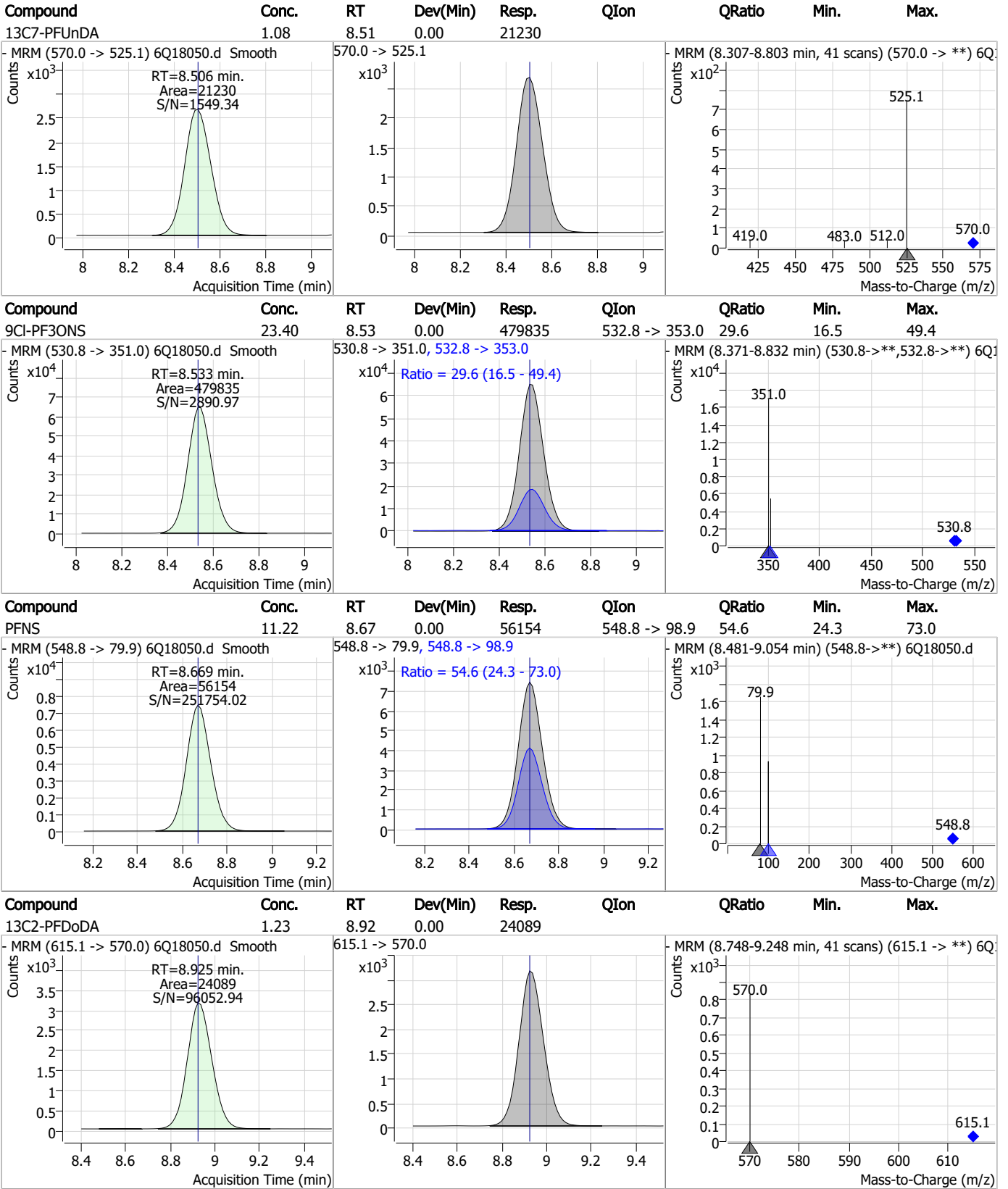
7.5.2

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.5.2

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	12.04	8.93	0.00	233215	613.1 -> 319.0	13.7	6.9	20.6
PFD5	11.07	9.09	0.00	37947	599.0 -> 98.8	47.0	24.5	73.4
PFTrDA	12.33	9.32	0.00	274816	663.0 -> 168.9	8.5	4.7	14.0
11Cl-PF3OUds	22.17	9.36	0.00	290943	632.9 -> 452.9	31.7	15.5	46.6

7.5.2

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Perfluorinated Compounds by LC/MS/MS

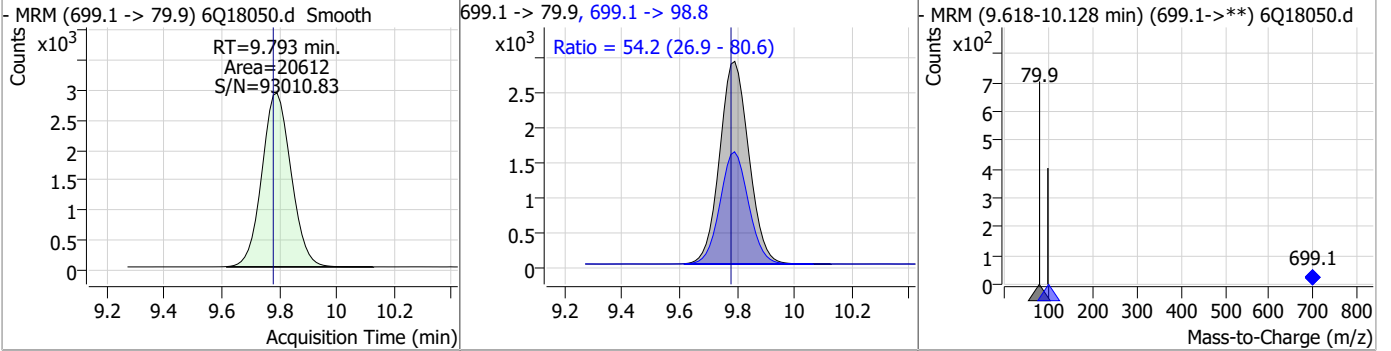
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	9.61	0.00	21569				
FOSA	28.95	9.60	-0.01	228991	498.1 -> 478.0	3.0	1.5	4.6
13C2-PFTeDA	1.19	9.66	0.01	15841				
PFTeDA	12.72	9.66	0.01	208278	713.1 -> 168.9	7.0	3.8	11.4

7.5.2

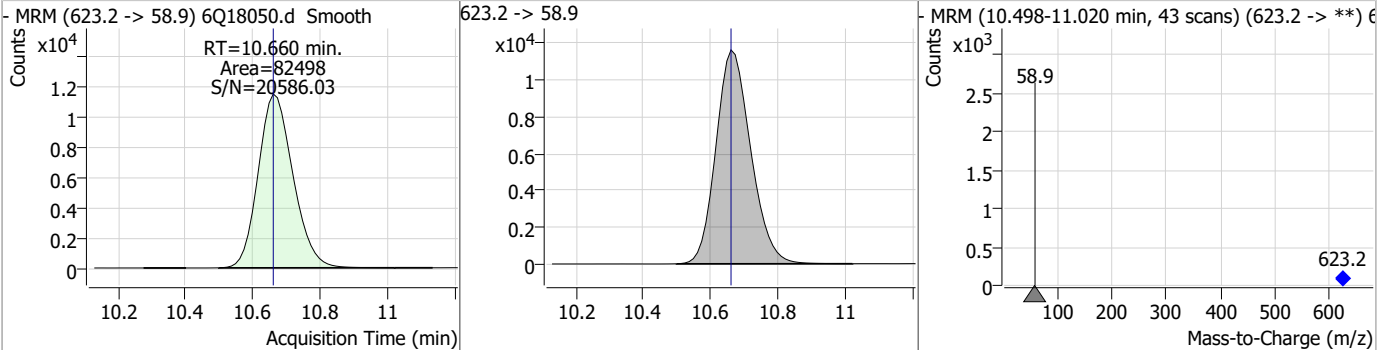
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Perfluorinated Compounds by LC/MS/MS

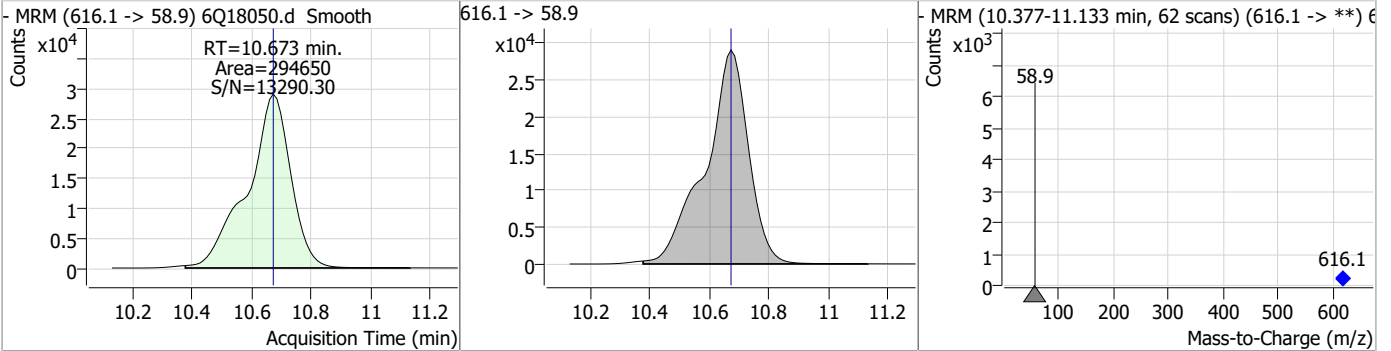
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	11.14	9.79	0.01	20612	699.1 -> 98.8	54.2	26.9	80.6



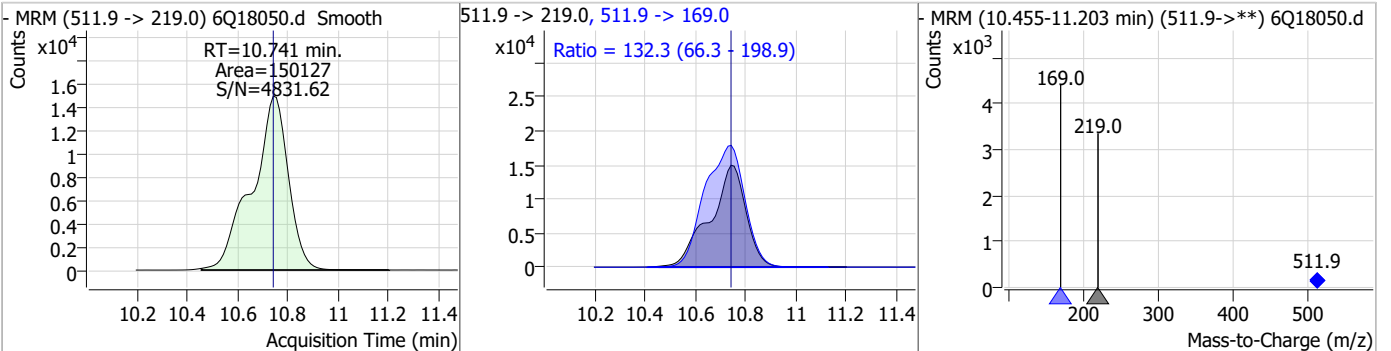
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.53	10.66	0.00	82498				



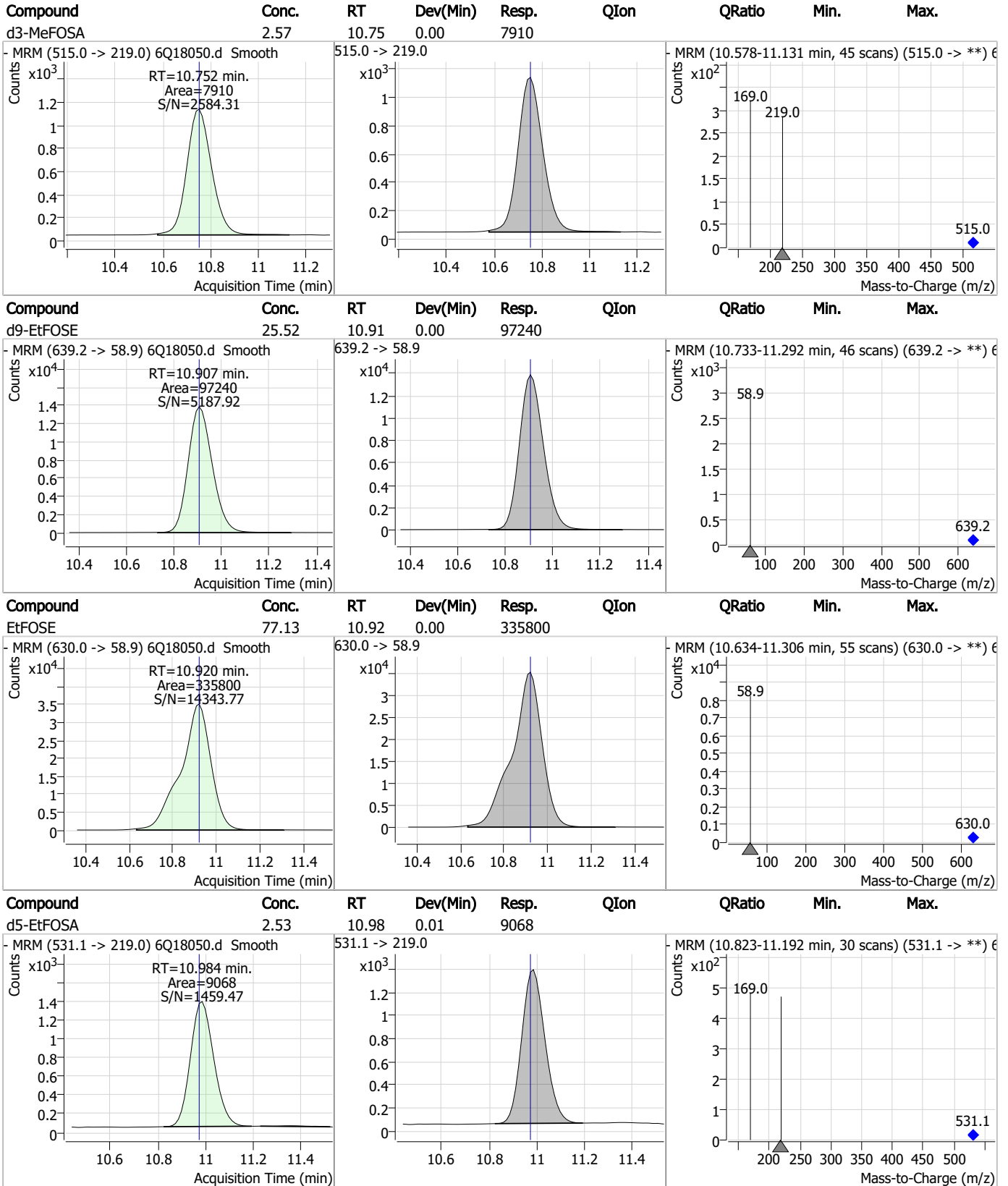
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	75.86	10.67	0.00	294650				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	41.63	10.74	0.00	150127	511.9 -> 169.0	132.3	66.3	198.9



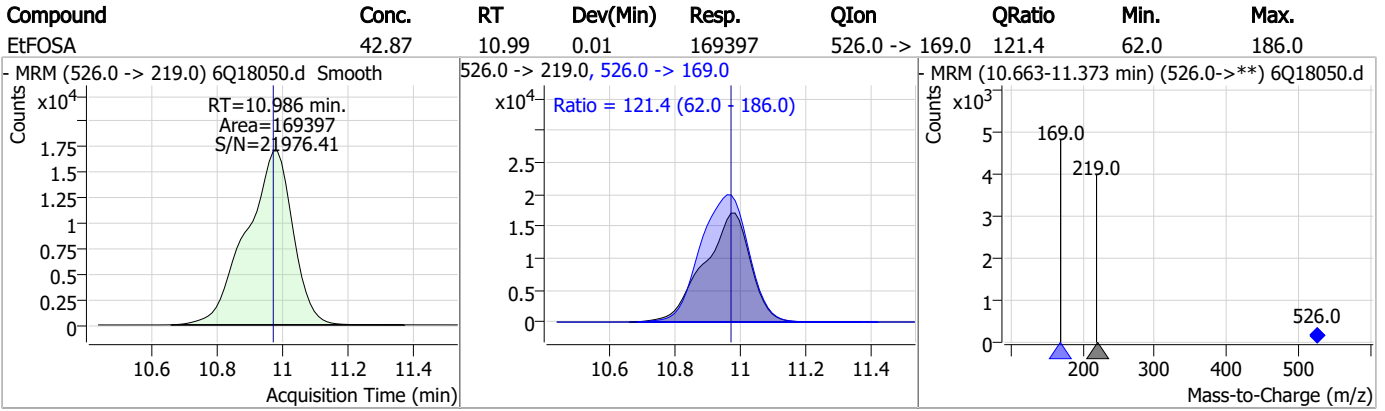
Perfluorinated Compounds by LC/MS/MS



7.5.2

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Perfluorinated Compounds by LC/MS/MS



7.5.2

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Manual Integration Approval Summary

Sample Number: S6Q272-RT Method: EPA DRAFT 1633
Lab FileID: 6Q18050.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 18:30 Supervisor approved: 05/22/23 12:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.05	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorononanoic acid	375-95-1		7.45	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak
EtFOSAA	2991-50-6		8.30	Split peak

7.5.2.1

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QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 15 May 2023 12:42:04
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.76E+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	112.93	-0.06	Pass	0.70	0.70	0.00	Pass	457530
302.00	301.90	-0.10	Pass	0.70	0.66	-0.04	Pass	1148940
601.98	601.92	-0.06	Pass	0.70	0.66	-0.04	Pass	2900300
1033.99	1033.89	-0.10	Pass	0.70	0.73	0.03	Pass	793621
1633.95	1633.77	-0.18	Pass	0.70	0.66	-0.04	Pass	819094
2233.91	2233.64	-0.27	Pass	0.70	0.65	-0.05	Pass	367230

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.03	0.03	Pass	0.70	0.71	0.01	Pass	119639
112.99	112.97	-0.02	Pass	0.70	0.78	0.08	Pass	366167
302.00	301.97	-0.03	Pass	0.70	0.63	-0.07	Pass	1102677
601.98	601.90	-0.08	Pass	0.70	0.75	0.05	Pass	2149528
1033.99	1033.84	-0.15	Pass	0.70	0.75	0.05	Pass	646330
1633.95	1633.76	-0.19	Pass	0.70	0.74	0.04	Pass	704145
2233.91	2233.64	-0.27	Pass	0.70	0.71	0.01	Pass	269333

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	1.33	0.13	Pass	492991
302.00	301.88	-0.12	Pass	1.20	1.55	0.35	Pass	1592938
601.98	601.94	-0.04	Pass	1.20	1.66	0.46	Pass	3946208
1033.99	1033.90	-0.09	Pass	1.20	1.53	0.33	Pass	1620542
1633.95	1633.68	-0.27	Pass	1.20	1.51	0.31	Pass	1723951
2233.91	2233.81	-0.10	Pass	1.20	1.62	0.42	Pass	842760

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	1.12	-0.08	Pass	165464
112.99	113.00	0.01	Pass	1.20	1.15	-0.05	Pass	628121
302.00	301.97	-0.03	Pass	1.20	1.18	-0.02	Pass	1319385
601.98	601.97	-0.01	Pass	1.20	1.30	0.10	Pass	3710015
1033.99	1033.91	-0.08	Pass	1.20	1.16	-0.04	Pass	1234989
1633.95	1633.90	-0.05	Pass	1.20	1.30	0.10	Pass	1184625
2233.91	2233.69	-0.22	Pass	1.20	1.04	-0.16	Pass	499012

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.09	0.10	Pass	2.50	2.35	-0.15	Pass	534313
302.00	301.91	-0.09	Pass	2.50	2.48	-0.02	Pass	1502959
601.98	601.92	-0.06	Pass	2.50	2.57	0.07	Pass	4588618
1033.99	1033.90	-0.09	Pass	2.50	2.28	-0.22	Pass	2213276
1633.95	1633.84	-0.11	Pass	2.50	2.02	-0.48	Pass	2722837
2233.91	2233.43	-0.48	Pass	2.50	1.87	-0.63	Pass	1447802

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.94	-0.06	Pass	2.50	2.40	-0.10	Pass	204229
112.99	112.93	-0.06	Pass	2.50	2.53	0.03	Pass	764102
302.00	301.93	-0.07	Pass	2.50	2.41	-0.09	Pass	1872486
601.98	601.93	-0.05	Pass	2.50	2.61	0.11	Pass	4878182
1033.99	1033.79	-0.20	Pass	2.50	2.34	-0.16	Pass	1973705
1633.95	1633.77	-0.18	Pass	2.50	2.37	-0.13	Pass	2605500
2233.91	2233.42	-0.49	Pass	2.50	2.14	-0.36	Pass	1334821

7.6.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18052.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 6:59:33 PM
 Sample Name : ic272-1
 Vial : P1-A2
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	159083	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	49575	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	58208	2.50 µg/L	0.000
M4-PFHpA	6.407	367.1 -> 322.0	50651	2.50 µg/L	0.000
M8-PFOA	7.051	421.1 -> 376.0	71866	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	25983	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	18774	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	26138	1.25 µg/L	0.000
M2-PFDoDA	8.925	615.1 -> 570.0	25071	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	16539	1.25 µg/L	0.012
M8-FOSA	9.611	506.1 -> 77.8	23525	2.50 µg/L	0.000
M3-PFBS	5.371	302.1 -> 79.9	18811	2.50 µg/L	0.000
M3-PFHxS	7.155	402.1 -> 79.9	11477	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9752	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2298	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	3014	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3215	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	25428	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	35357	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	20127	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	88323	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	98271	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9595	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7921	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	13192	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	66202	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8511	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	77346	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	21203	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	28879	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	47406	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2298	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3014	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3215	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFDoDA	8.925	615.1 -> 570.0	25071	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-PFTeDA	9.664	715.2 -> 670.0	16539	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C3-PFBS	5.371	302.1 -> 79.9	18811	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFHxS	7.155	402.1 -> 79.9	11477	2.52 µg/L	0.000

7.62
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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 = 100.8%	
13C4-PFBA	2.888	216.8 -> 171.9	159083	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.407	367.1 -> 322.0	50651	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFHxA	5.441	318.0 -> 273.0	58208	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFPeA	4.247	268.3 -> 223.0	49575	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C6-PFDA	8.051	519.1 -> 474.1	18774	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C7-PFUnDA	8.506	570.0 -> 525.1	26138	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C8-FOSA	9.611	506.1 -> 77.8	23525	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C8-PFOA	7.051	421.1 -> 376.0	71866	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.202	507.1 -> 79.9	9752	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C9-PFNA	7.569	472.1 -> 427.0	25983	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.8%	
d3-MeFOSAA	8.108	573.2 -> 419.0	25428	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	35357	10.32 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSA	10.752	515.0 -> 219.0	7921	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
d5-EtFOSAA	8.304	589.2 -> 419.0	20127	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d7-MeFOSE	10.660	623.2 -> 58.9	88323	26.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
d9-EtFOSE	10.907	639.2 -> 58.9	98271	24.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSA	10.972	531.1 -> 219.0	9595	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	2415	0.71 µg/L	97
		327.1 -> 80.9	1006		
6:2FTS	6.826	427.1 -> 407.0	2454	0.75 µg/L	99
		427.1 -> 80.9	817		
8:2FTS	7.840	527.1 -> 507.0	1313	0.71 µg/L	92
		527.1 -> 80.8	626		
EtFOSAA	8.318	584.2 -> 419.1	588	0.17 µg/L	80
		584.2 -> 526.0	405		
FOSA	9.614	498.1 -> 77.9	1599	0.19 µg/L	96
		498.1 -> 478.0	70		
MeFOSAA	8.109	570.1 -> 419.0	878	0.18 µg/L	99
		570.1 -> 483.0	166		
PFBA	2.882	212.8 -> 168.9	4370	0.76 µg/L	100
PFBS	5.372	298.7 -> 79.9	1618	0.18 µg/L	99
		298.7 -> 98.8	597		
PFDA	8.052	512.9 -> 469.0	4430	0.20 µg/L	93
		512.9 -> 219.0	585		
PFDODA	8.925	613.1 -> 569.0	3983	0.20 µg/L	98
		613.1 -> 319.0	516		
PFDS	9.089	599.0 -> 79.9	617	0.19 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	302			
PFHpA	6.408	363.1 -> 319.0	4682	0.18	µg/L	96
		363.1 -> 169.0	780			
PFHpS	7.710	449.0 -> 79.9	1026	0.19	µg/L	88
		449.0 -> 98.9	419			
PFHxA	5.444	313.0 -> 269.0	4476	0.20	µg/L	98
		313.0 -> 118.9	224			
PFHxS	7.156	398.7 -> 79.9	1169	0.18	µg/L	m 99
		398.7 -> 98.9	544			
PFNA	7.570	463.0 -> 419.0	3680	0.19	µg/L	99
		463.0 -> 219.0	730			
PFNS	8.669	548.8 -> 79.9	849	0.18	µg/L	89
		548.8 -> 98.9	476			
PFOA	7.052	413.0 -> 369.0	7368	0.21	µg/L	m 99
		413.0 -> 169.0	1242			
PFOS	8.203	498.9 -> 79.9	1115	0.21	µg/L	m 95
		498.9 -> 98.8	559			
PFPeA	4.249	263.0 -> 219.0	5714	0.39	µg/L	100
PFPeS	6.447	349.1 -> 79.9	1124	0.18	µg/L	98
		349.1 -> 98.9	544			
PFTeDA	9.665	713.1 -> 669.0	3354	0.20	µg/L	100
		713.1 -> 168.9	257			
PFTrDA	9.321	663.0 -> 619.0	4808	0.21	µg/L	97
		663.0 -> 168.9	398			
PFUnDA	8.506	563.1 -> 519.0	3165	0.17	µg/L	100
		563.1 -> 269.1	486			
11Cl-PF3OUdS	9.373	630.9 -> 450.9	4747	0.34	µg/L	99
		632.9 -> 452.9	1463			
9Cl-PF3ONS	8.533	530.8 -> 351.0	7194	0.33	µg/L	98
		532.8 -> 353.0	2440			
ADONA	6.658	376.9 -> 250.9	19899	0.35	µg/L	100
		376.9 -> 84.8	5382			
HFPO-DA	5.807	284.9 -> 168.9	1337	0.39	µg/L	100
		284.9 -> 184.9	183			
3:3FTCA	3.727	241.0 -> 177.0	933	1.01	µg/L	90
		241.0 -> 117.0	98			
5:3FTCA	6.111	341.0 -> 237.1	22380	5.46	µg/L	96
		341.0 -> 217.0	15048			
7:3FTCA	7.535	441.0 -> 316.9	9975	4.90	µg/L	98
		441.0 -> 336.9	21622			
EtFOSA	10.974	526.0 -> 219.0	1634	0.39	µg/L	98
		526.0 -> 169.0	2072			
EtFOSE	10.920	630.0 -> 58.9	4410	1.00	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	1364	0.38	µg/L	95
		511.9 -> 169.0	1890			
MeFOSE	10.673	616.1 -> 58.9	3846	0.92	µg/L	100
PFDoDS	9.793	699.1 -> 79.9	340	0.19	µg/L	98
		699.1 -> 98.8	178			
NFDHA	5.324	295.0 -> 201.0	1025	0.40	µg/L	98
		295.0 -> 84.9	265			
PFMBA	4.663	279.0 -> 85.1	3953	0.38	µg/L	100
PFMPA	3.401	229.0 -> 84.9	2908	0.38	µg/L	100
PFEESA	5.900	314.8 -> 134.9	10798	0.36	µg/L	97
		314.8 -> 82.9	298			

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

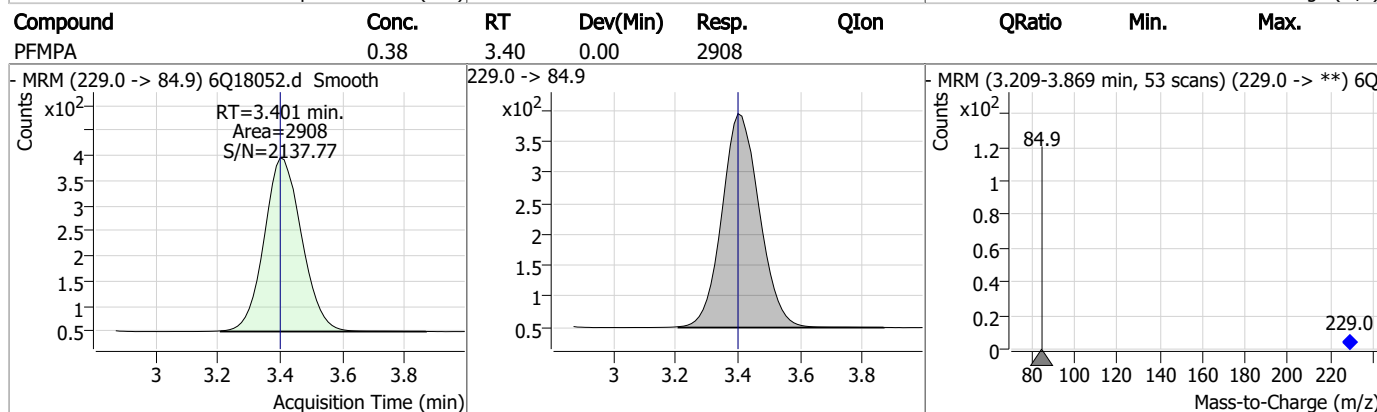
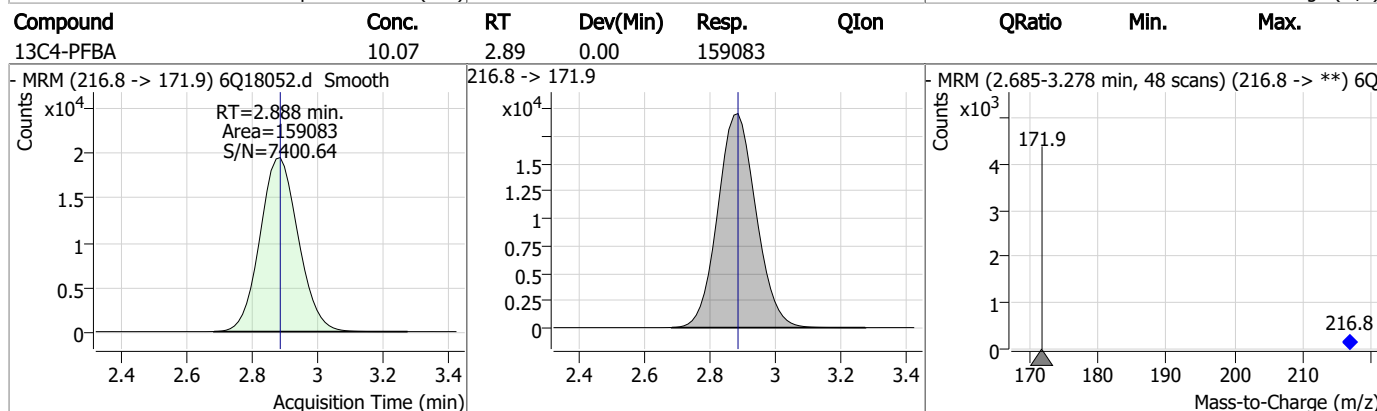
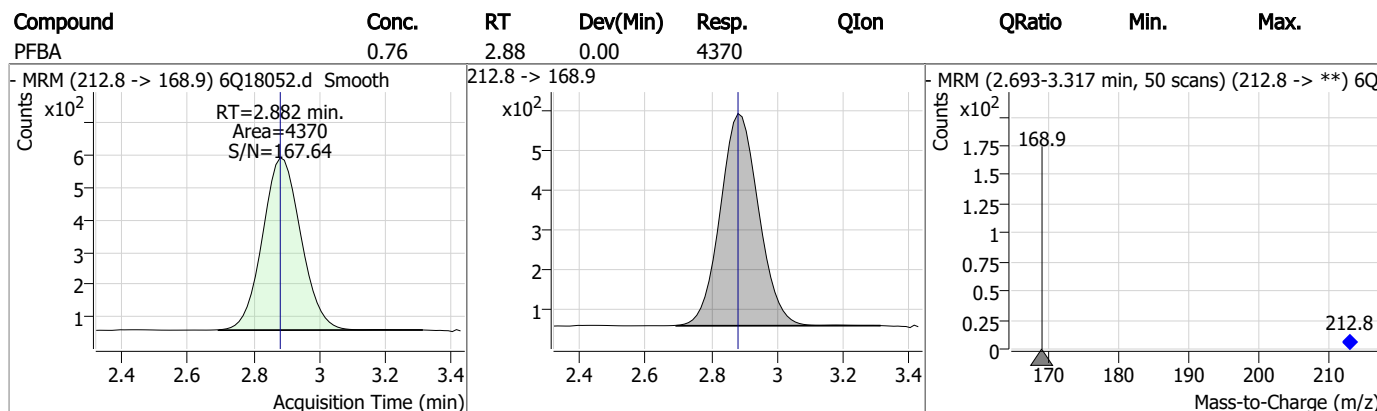
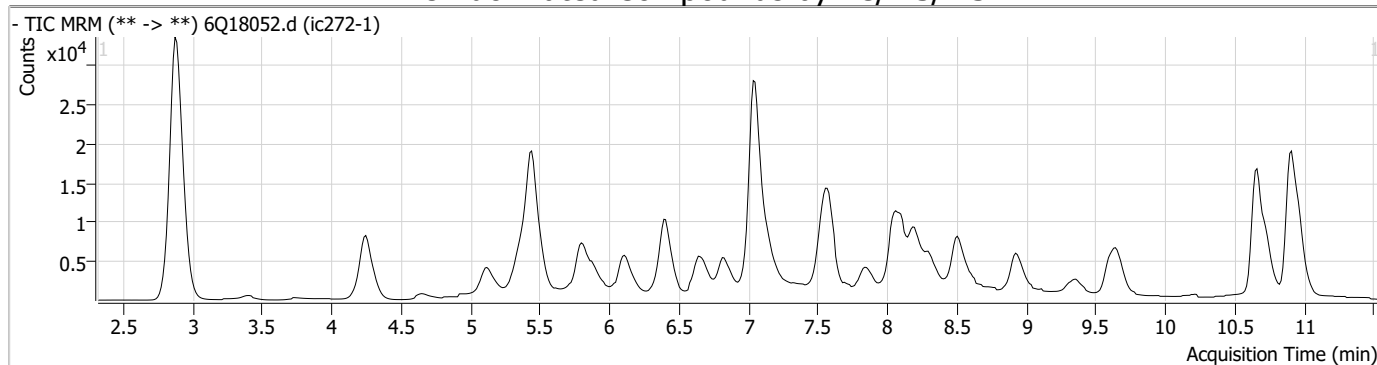
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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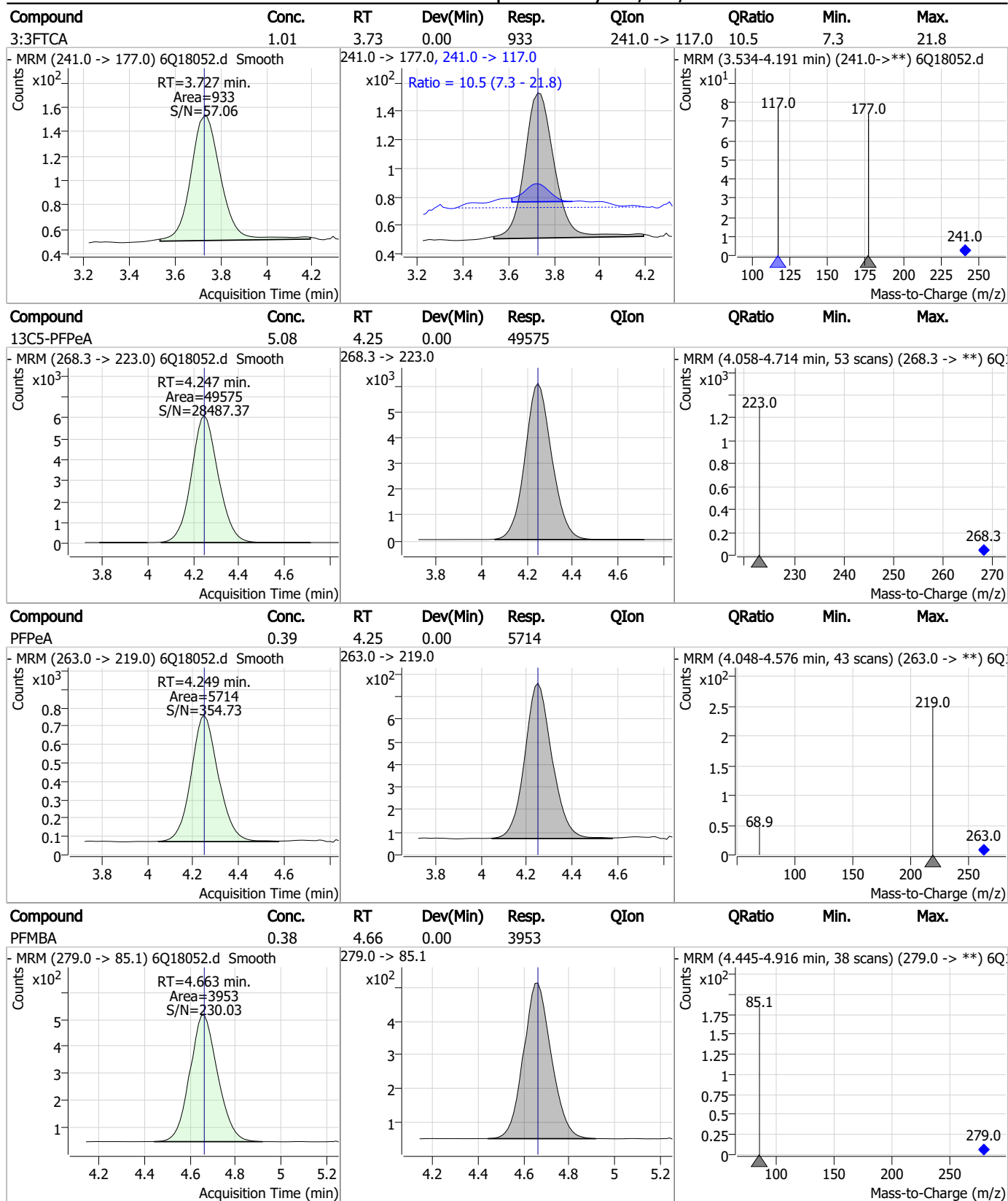
7.6.2
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Perfluorinated Compounds by LC/MS/MS

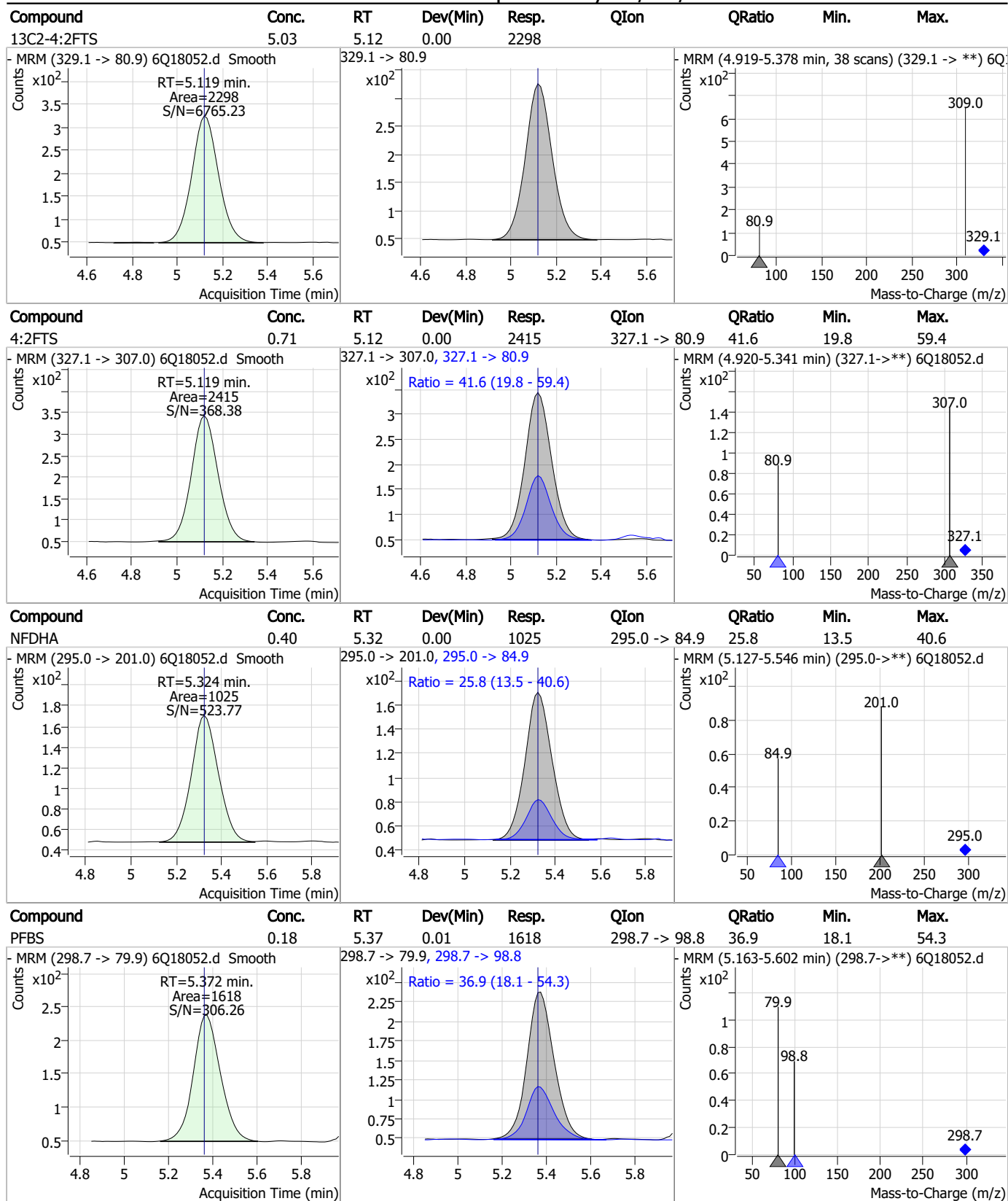


Perfluorinated Compounds by LC/MS/MS



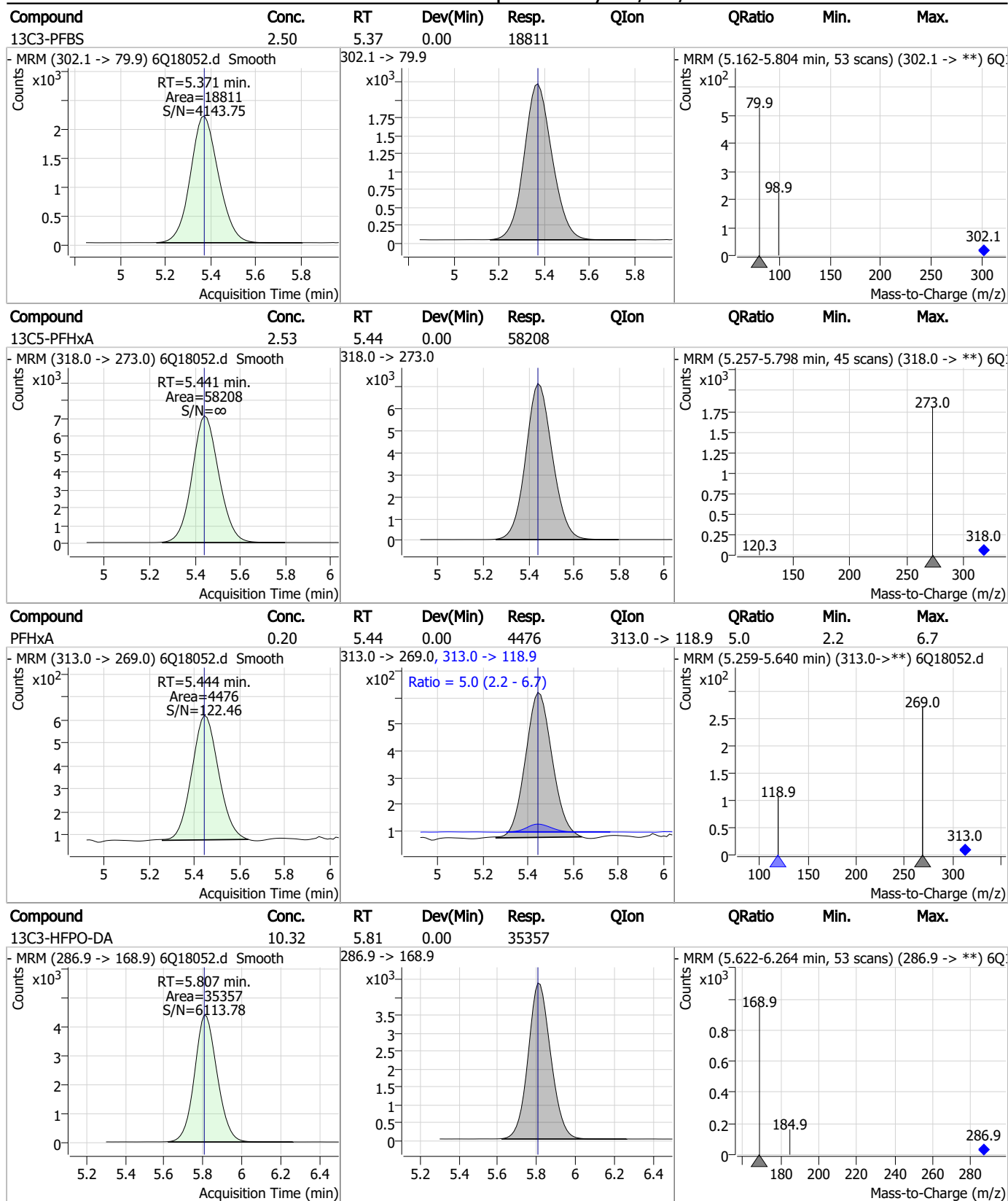
7.6.2
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Perfluorinated Compounds by LC/MS/MS



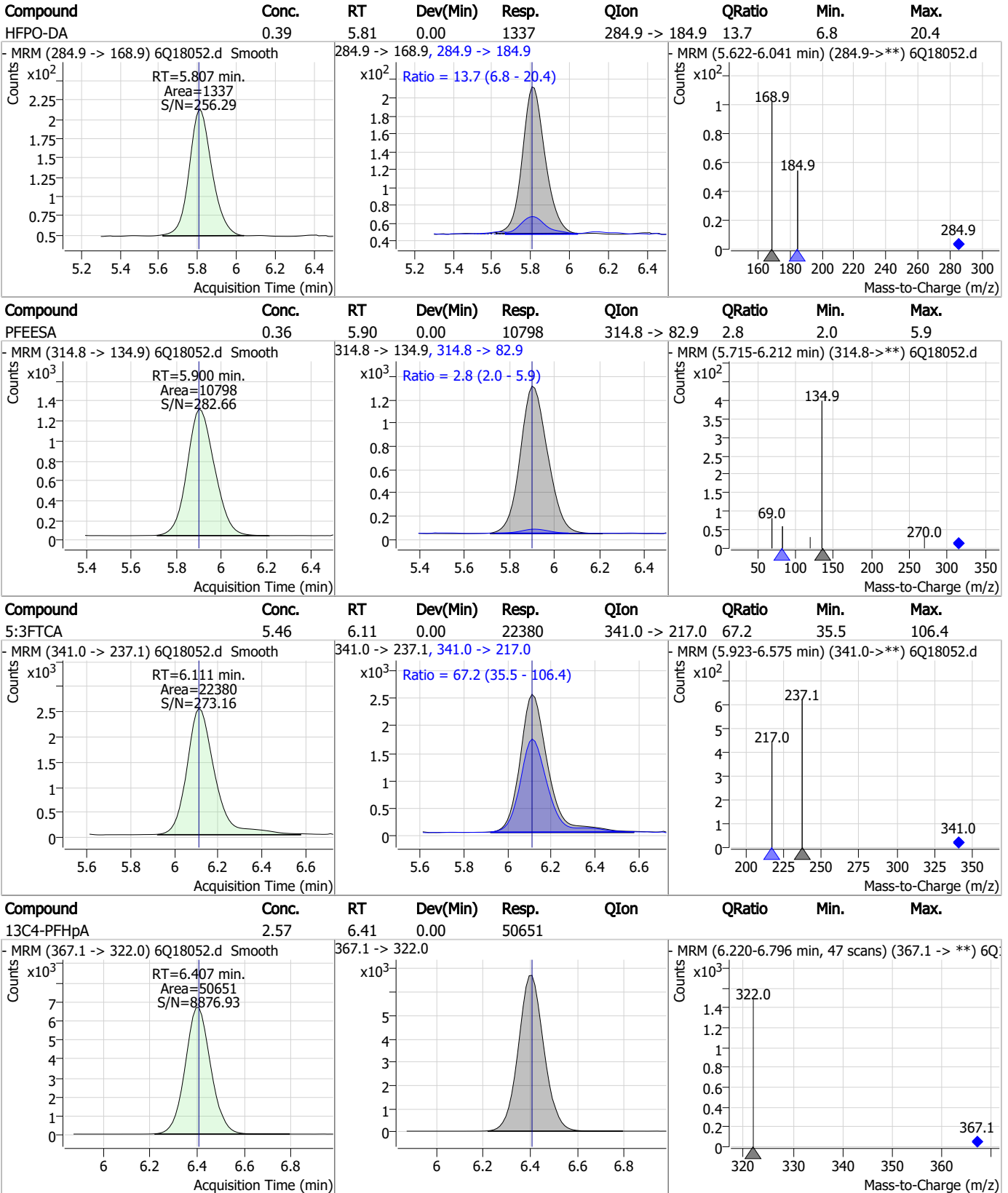
7.6.2
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Perfluorinated Compounds by LC/MS/MS



7.6.2
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Perfluorinated Compounds by LC/MS/MS

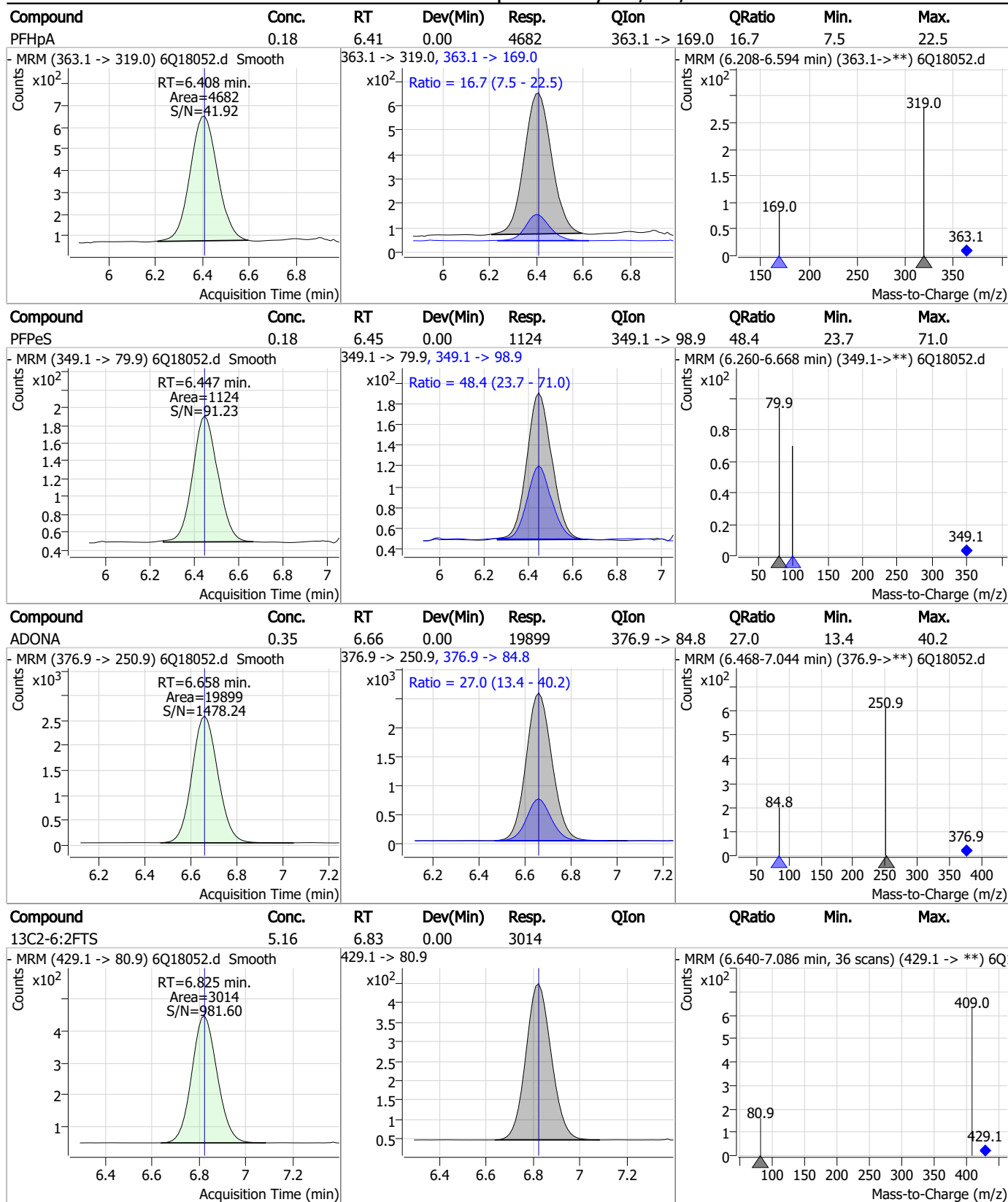


7.6.2

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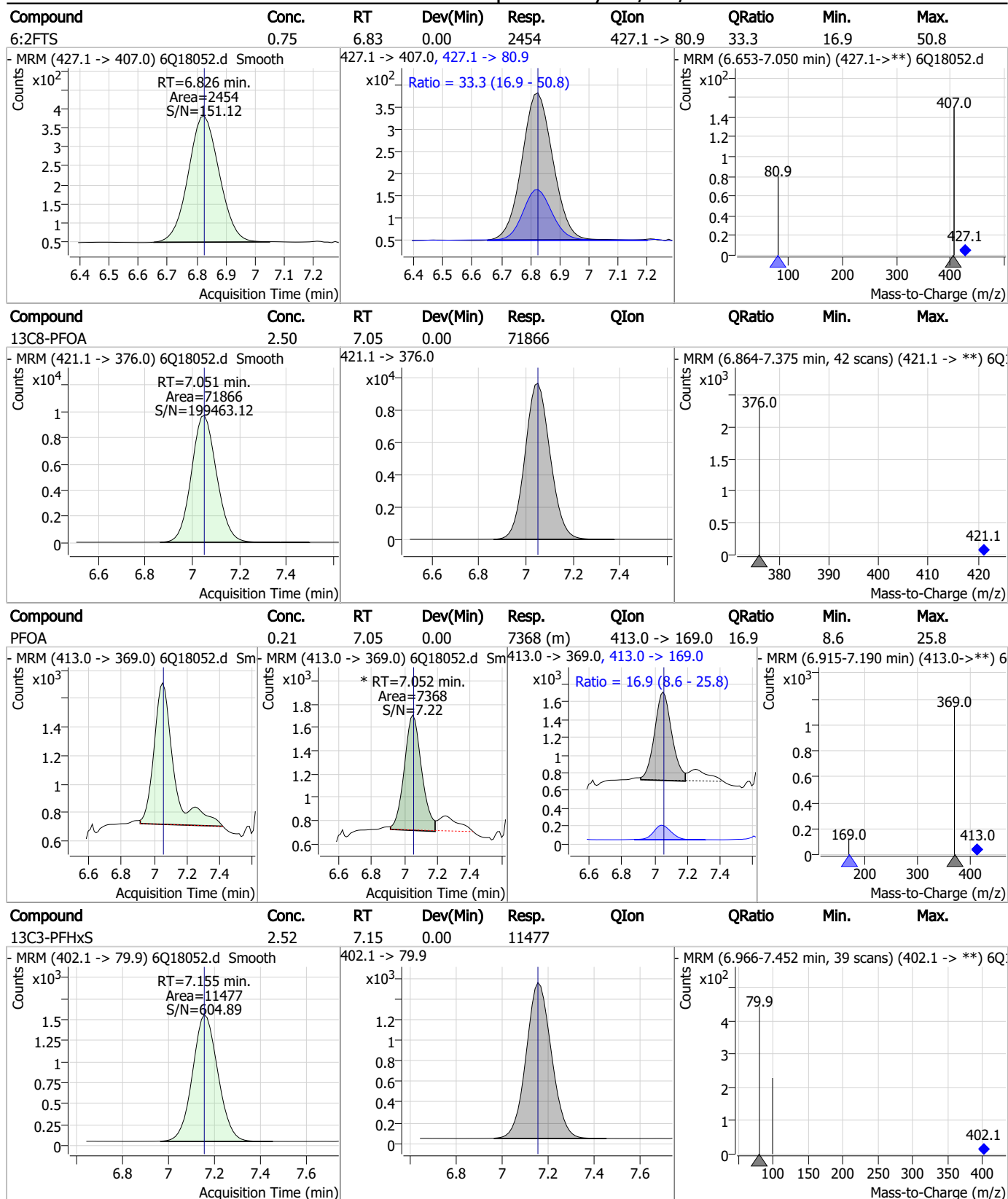


Perfluorinated Compounds by LC/MS/MS



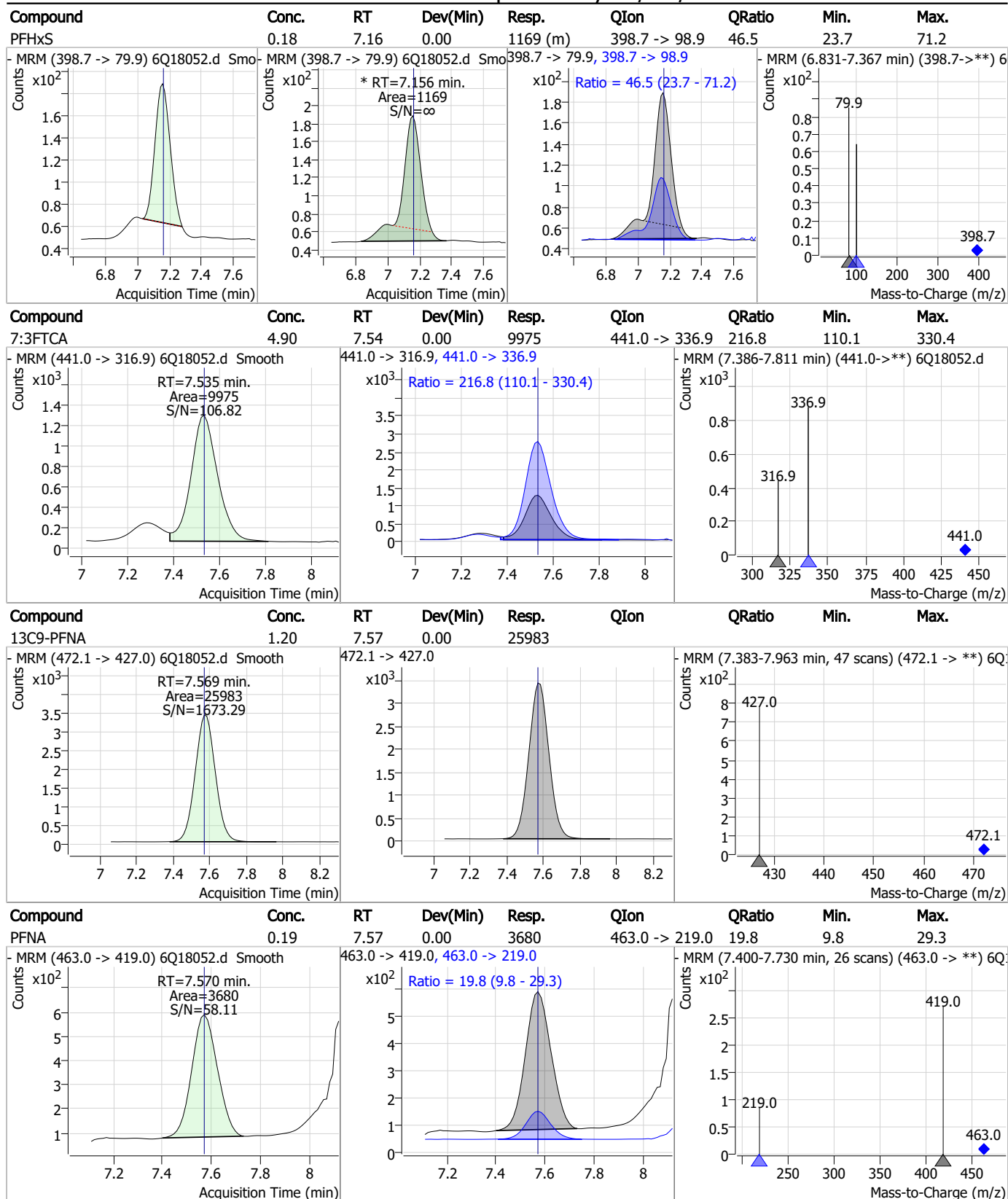
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Perfluorinated Compounds by LC/MS/MS



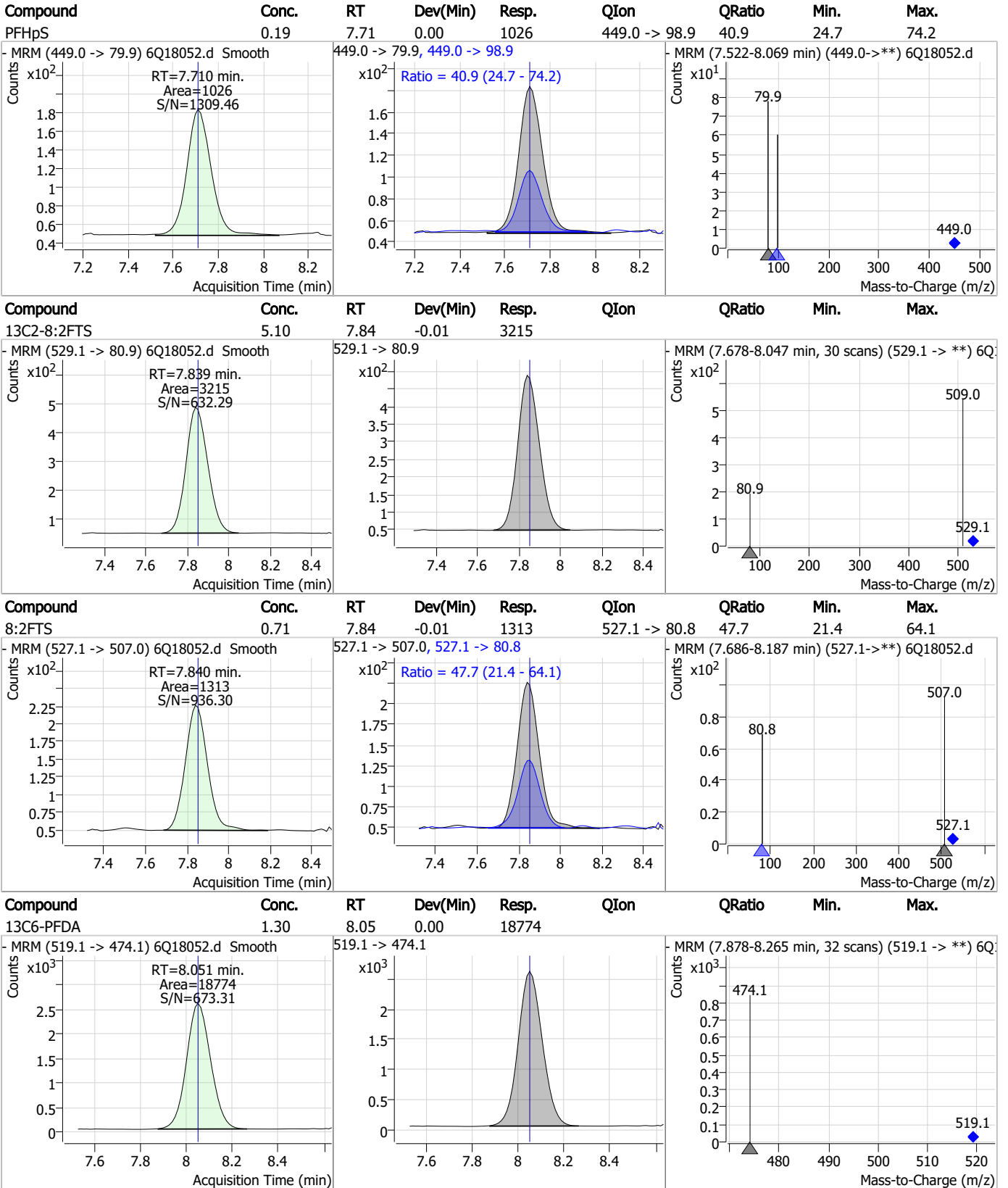
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Perfluorinated Compounds by LC/MS/MS



7.6.2
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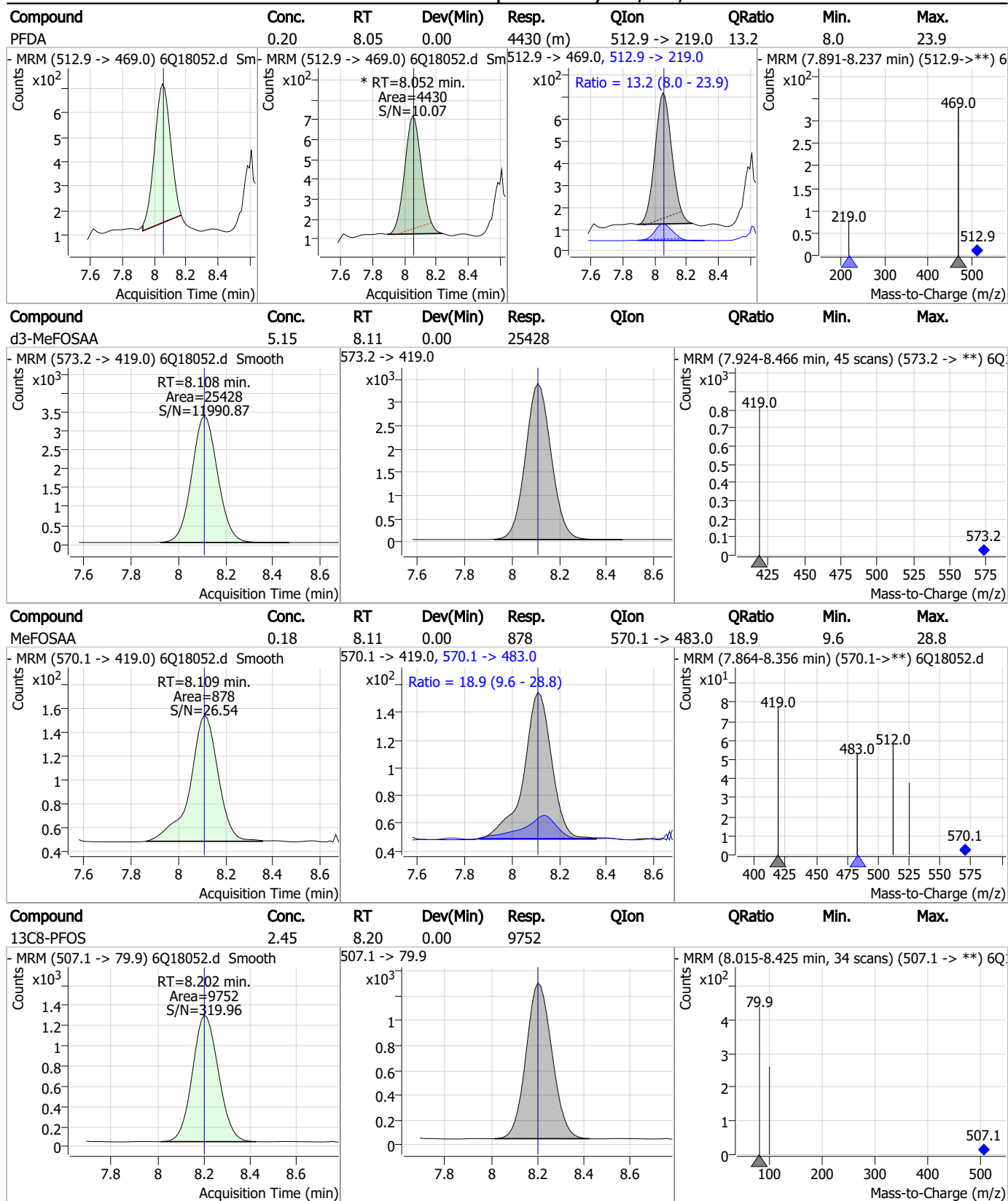
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7.6.2

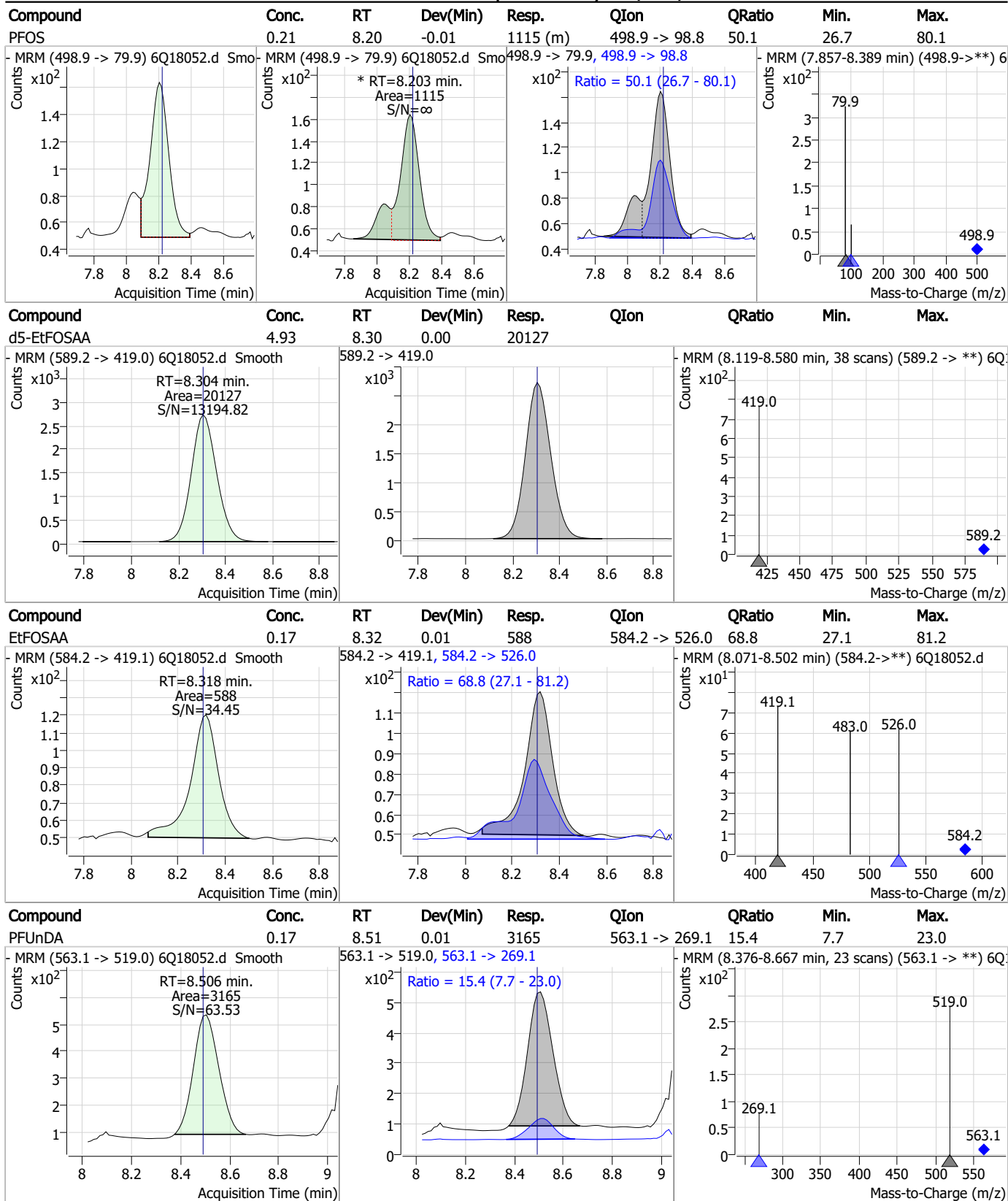
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Perfluorinated Compounds by LC/MS/MS



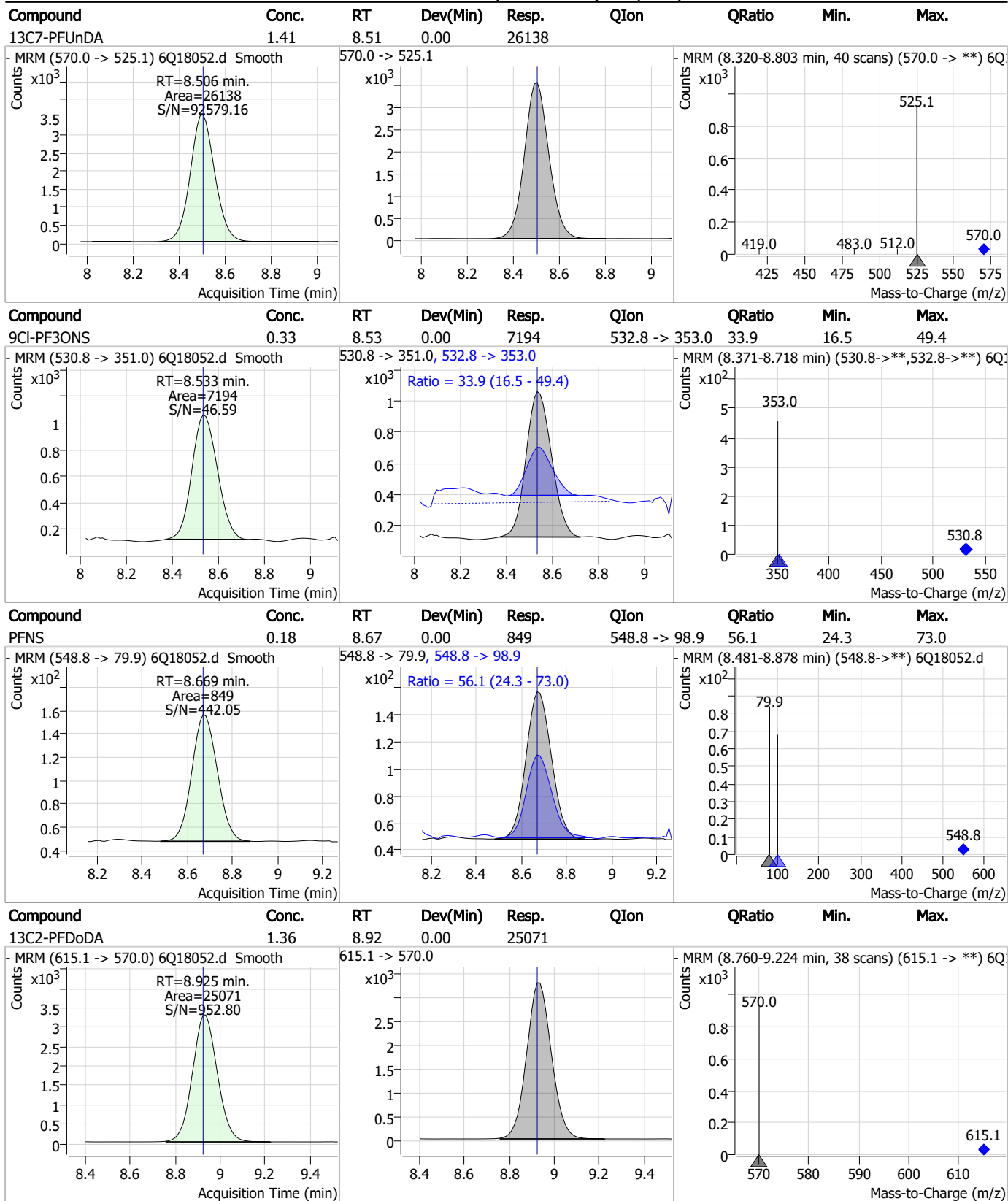
7.6.2
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Perfluorinated Compounds by LC/MS/MS



7.6.2
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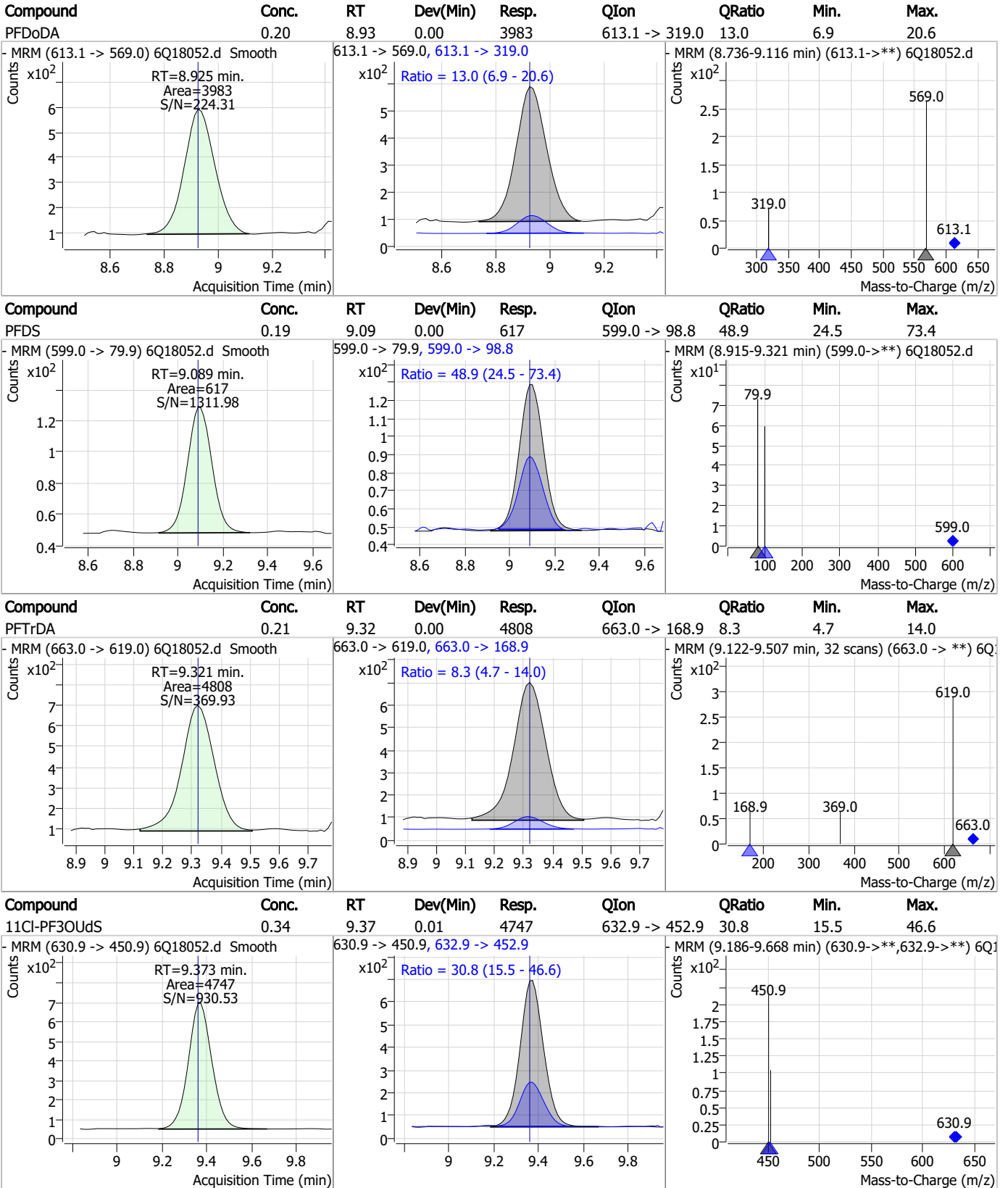
Perfluorinated Compounds by LC/MS/MS



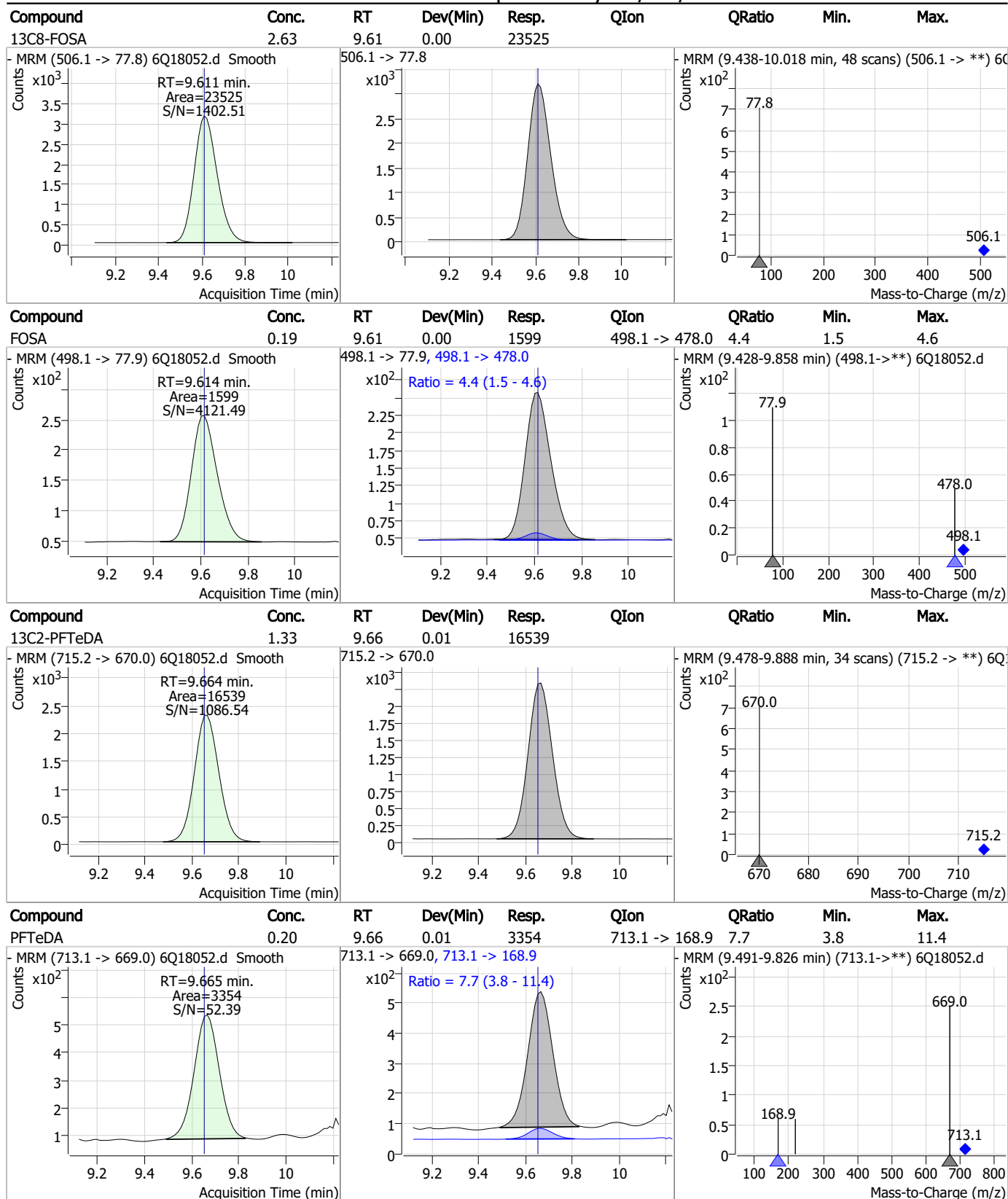
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Perfluorinated Compounds by LC/MS/MS

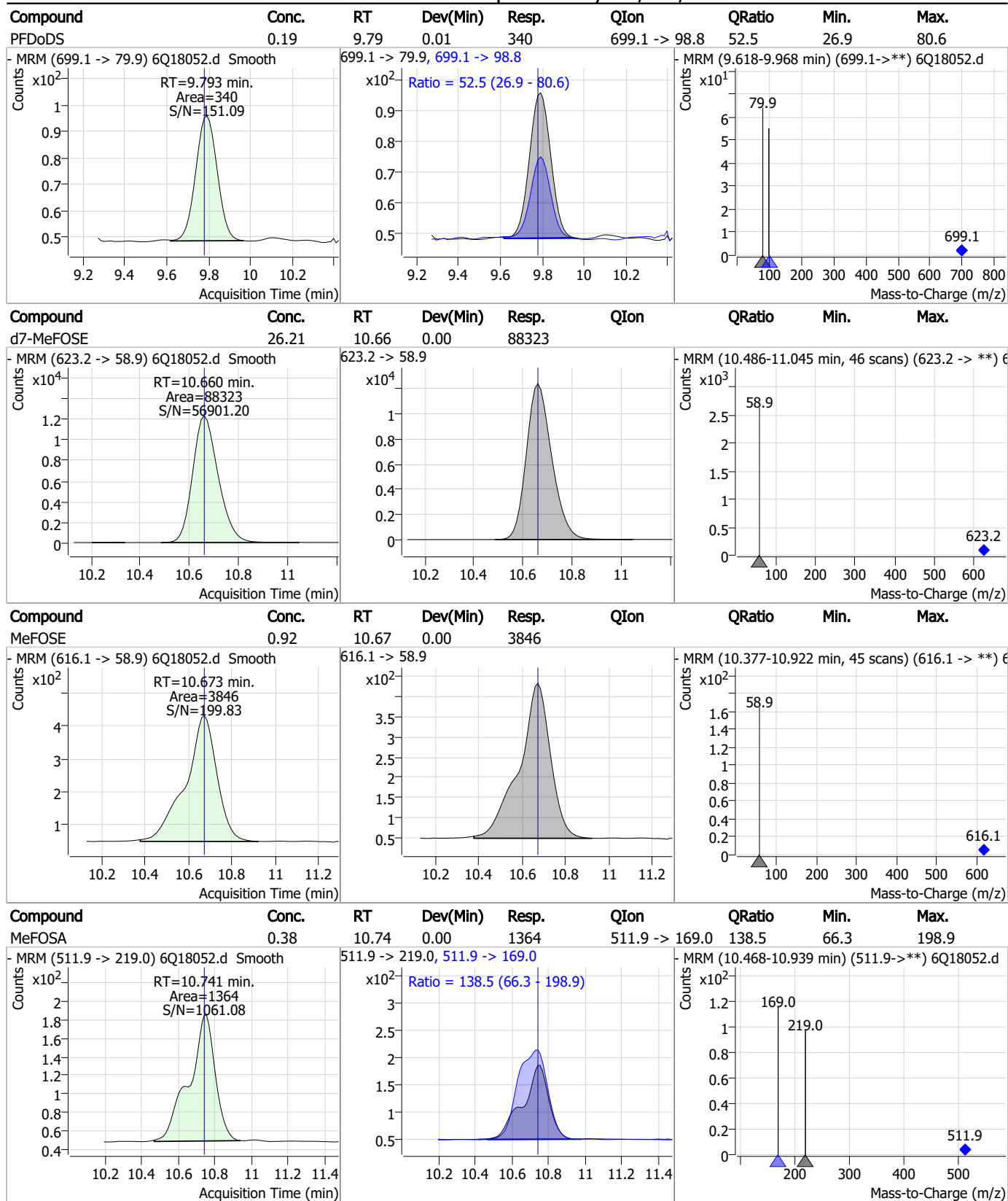


Perfluorinated Compounds by LC/MS/MS



7.6.2
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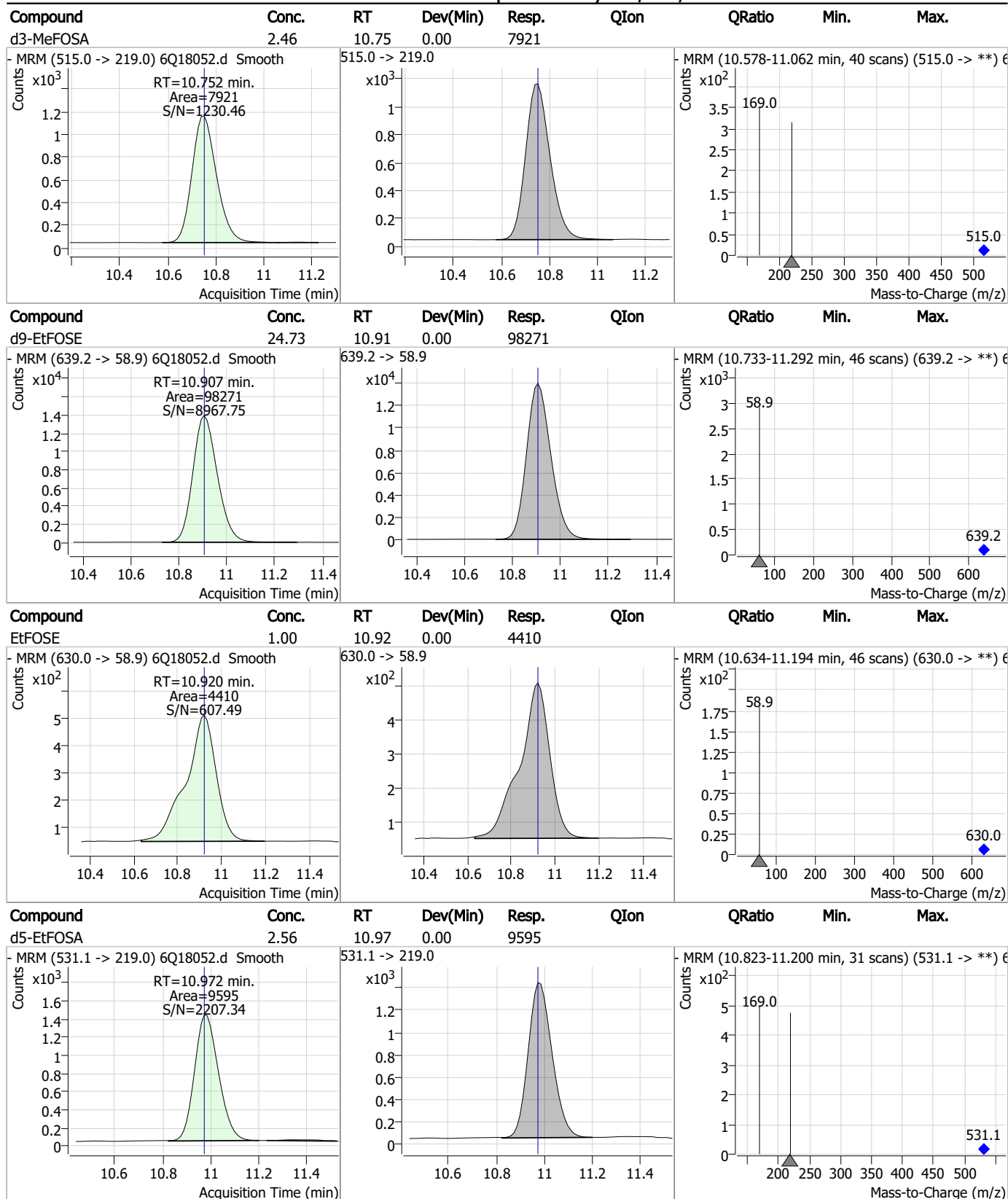
Perfluorinated Compounds by LC/MS/MS



7.6.2

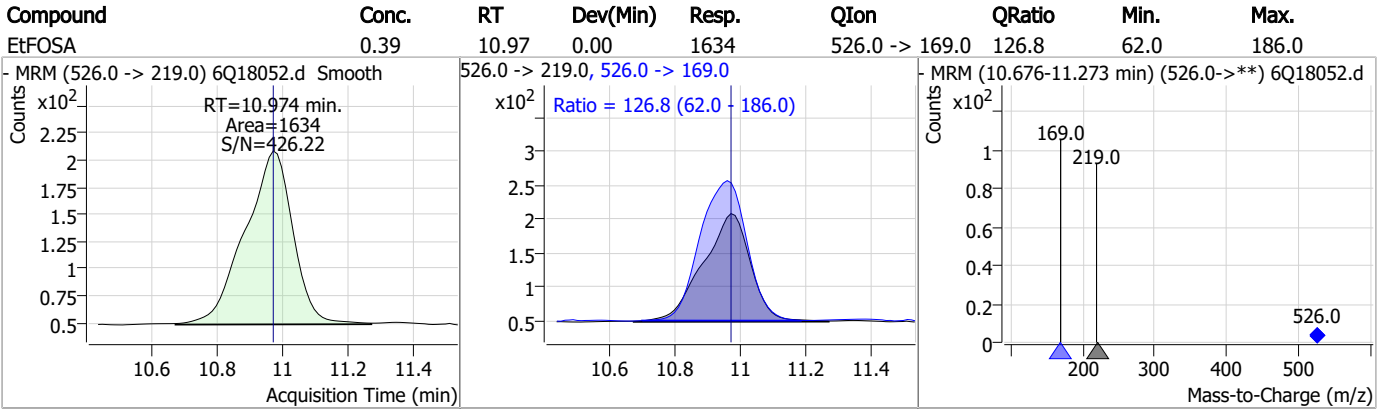
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Perfluorinated Compounds by LC/MS/MS



7.6.2
7

Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q272-IC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18052.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 18:59 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.05	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorodecanoic acid	335-76-2		8.05	Poor instrument integration
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.6.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18053.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 7:14:02 PM
 Sample Name : ic272-2
 Vial : P1-A3
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	159502	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	49693	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	56829	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	49521	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	74736	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	25840	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	18882	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	25739	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	24723	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	17772	1.25 µg/L	0.012
M8-FOSA	9.611	506.1 -> 77.8	22901	2.50 µg/L	0.000
M3-PFBS	5.371	302.1 -> 79.9	19651	2.50 µg/L	0.000
M3-PFHxS	7.155	402.1 -> 79.9	11569	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	10150	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2289	5.00 µg/L	0.000
M2-6:2FTS	6.813	429.1 -> 80.9	2923	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	3129	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	25326	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	34524	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	21975	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	86662	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	104359	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	9687	2.50 µg/L	0.012
M3-MeFOSA	10.752	515.0 -> 219.0	7933	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	13544	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	66812	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8621	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	81016	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	22920	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	29344	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	48952	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2289	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-6:2FTS	6.813	429.1 -> 80.9	2923	4.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3129	4.90 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFDoDA	8.925	615.1 -> 570.0	24723	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-PFTeDA	9.664	715.2 -> 670.0	17772	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFBS	5.371	302.1 -> 79.9	19651	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.155	402.1 -> 79.9	11569	2.51 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFBA	2.888	216.8 -> 171.9	159502	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.395	367.1 -> 322.0	49521	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C5-PFHxA	5.441	318.0 -> 273.0	56829	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C5-PFPeA	4.247	268.3 -> 223.0	49693	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C6-PFDA	8.051	519.1 -> 474.1	18882	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C7-PFUnDA	8.492	570.0 -> 525.1	25739	1.29 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-FOSA	9.611	506.1 -> 77.8	22901	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOA	7.038	421.1 -> 376.0	74736	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOS	8.202	507.1 -> 79.9	10150	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C9-PFNA	7.569	472.1 -> 427.0	25840	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.8%	
d3-MeFOSAA	8.108	573.2 -> 419.0	25326	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	34524	9.76 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d3-MeFOSA	10.752	515.0 -> 219.0	7933	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
d5-EtFOSAA	8.304	589.2 -> 419.0	21975	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d7-MeFOSE	10.660	623.2 -> 58.9	86662	25.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d9-EtFOSE	10.907	639.2 -> 58.9	104359	25.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d5-EtFOSA	10.985	531.1 -> 219.0	9687	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	4949	1.46 µg/L	100
		327.1 -> 80.9	1958		
6:2FTS	6.813	427.1 -> 407.0	4793	1.52 µg/L	96
		427.1 -> 80.9	1723		
8:2FTS	7.840	527.1 -> 507.0	2861	1.60 µg/L	96
		527.1 -> 80.8	1157		
EtFOSAA	8.305	584.2 -> 419.1	1393	0.37 µg/L	100
		584.2 -> 526.0	753		
FOSA	9.614	498.1 -> 77.9	3215	0.38 µg/L	99
		498.1 -> 478.0	85		
MeFOSAA	8.097	570.1 -> 419.0	2110	0.42 µg/L	88
		570.1 -> 483.0	293		
PFBA	2.882	212.8 -> 168.9	8834	1.53 µg/L	100
PFBS	5.360	298.7 -> 79.9	3357	0.35 µg/L	92
		298.7 -> 98.8	1052		
PFDA	8.052	512.9 -> 469.0	8561	0.38 µg/L	97
		512.9 -> 219.0	1474		
PFDODA	8.925	613.1 -> 569.0	8220	0.41 µg/L	99
		613.1 -> 319.0	1103		
PFDS	9.089	599.0 -> 79.9	1307	0.38 µg/L	92

7.6.3
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	564			
PFHpA	6.395	363.1 -> 319.0	10280	0.41	µg/L	99
		363.1 -> 169.0	1520			
PFHpS	7.710	449.0 -> 79.9	2078	0.38	µg/L	93
		449.0 -> 98.9	927			
PFHxA	5.444	313.0 -> 269.0	8857	0.40	µg/L	97
		313.0 -> 118.9	500			
PFHxS	7.156	398.7 -> 79.9	2293	0.35	µg/L	100
		398.7 -> 98.9	1093		m	
PFNA	7.570	463.0 -> 419.0	7403	0.39	µg/L	95
		463.0 -> 219.0	1611			
PFNS	8.669	548.8 -> 79.9	1716	0.34	µg/L	94
		548.8 -> 98.9	910			
PFOA	7.052	413.0 -> 369.0	13680	0.37	µg/L	97
		413.0 -> 169.0	2514			
PFOS	8.191	498.9 -> 79.9	2097	0.39	µg/L	90
		498.9 -> 98.8	972			
PFPeA	4.249	263.0 -> 219.0	11492	0.78	µg/L	100
PFPeS	6.447	349.1 -> 79.9	2341	0.36	µg/L	97
		349.1 -> 98.9	1063			
PFTeDA	9.652	713.1 -> 669.0	6767	0.37	µg/L	98
		713.1 -> 168.9	471			
PFTrDA	9.321	663.0 -> 619.0	9015	0.39	µg/L	99
		663.0 -> 168.9	808			
PFUnDA	8.493	563.1 -> 519.0	6674	0.37	µg/L	95
		563.1 -> 269.1	1153			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	10379	0.77	µg/L	95
		632.9 -> 452.9	2970			
9Cl-PF3ONS	8.533	530.8 -> 351.0	14730	0.70	µg/L	97
		532.8 -> 353.0	4579			
ADONA	6.658	376.9 -> 250.9	39135	0.71	µg/L	98
		376.9 -> 84.8	10893			
HFPO-DA	5.807	284.9 -> 168.9	2646	0.79	µg/L	100
		284.9 -> 184.9	362			
3:3FTCA	3.727	241.0 -> 177.0	1738	1.88	µg/L	99
		241.0 -> 117.0	248			
5:3FTCA	6.111	341.0 -> 237.1	39979	9.99	µg/L	93
		341.0 -> 217.0	30564			
7:3FTCA	7.535	441.0 -> 316.9	18832	9.47	µg/L	94
		441.0 -> 336.9	43387			
EtFOSA	10.974	526.0 -> 219.0	3280	0.78	µg/L	97
		526.0 -> 169.0	4184			
EtFOSE	10.920	630.0 -> 58.9	9005	1.93	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	2828	0.78	µg/L	95
		511.9 -> 169.0	3918			
MeFOSE	10.673	616.1 -> 58.9	8179	2.00	µg/L	100
PFDoDS	9.793	699.1 -> 79.9	743	0.40	µg/L	98
		699.1 -> 98.8	386			
NFDHA	5.324	295.0 -> 201.0	2111	0.85	µg/L	96
		295.0 -> 84.9	524			
PFMBA	4.663	279.0 -> 85.1	8066	0.78	µg/L	100
PFMPA	3.401	229.0 -> 84.9	5879	0.77	µg/L	100
PFEESA	5.900	314.8 -> 134.9	21095	0.72	µg/L	98
		314.8 -> 82.9	695			

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

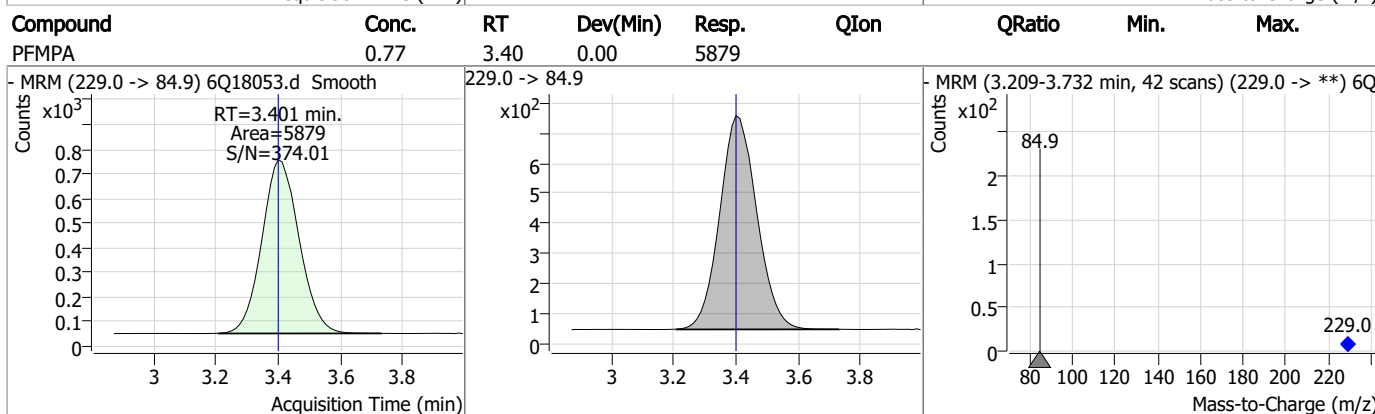
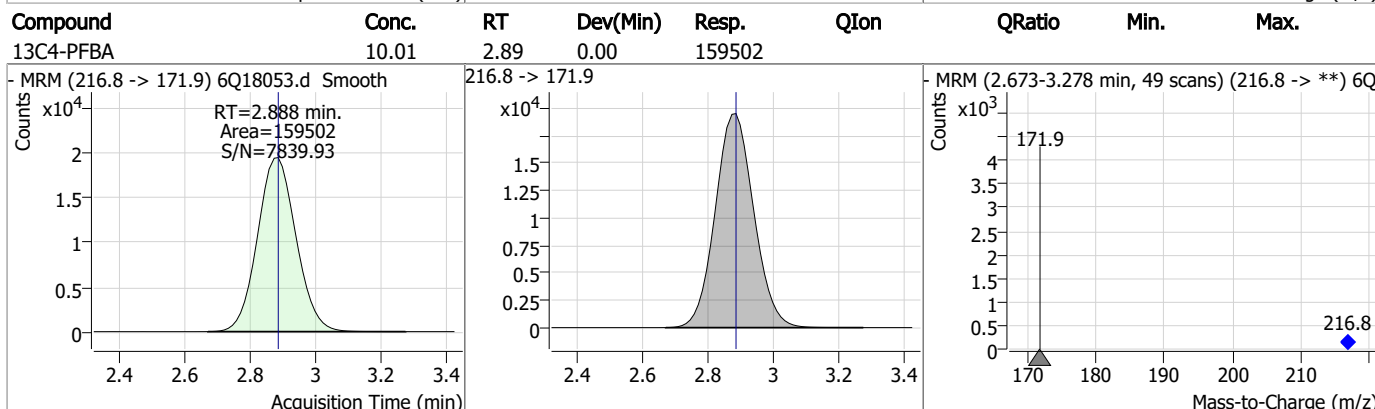
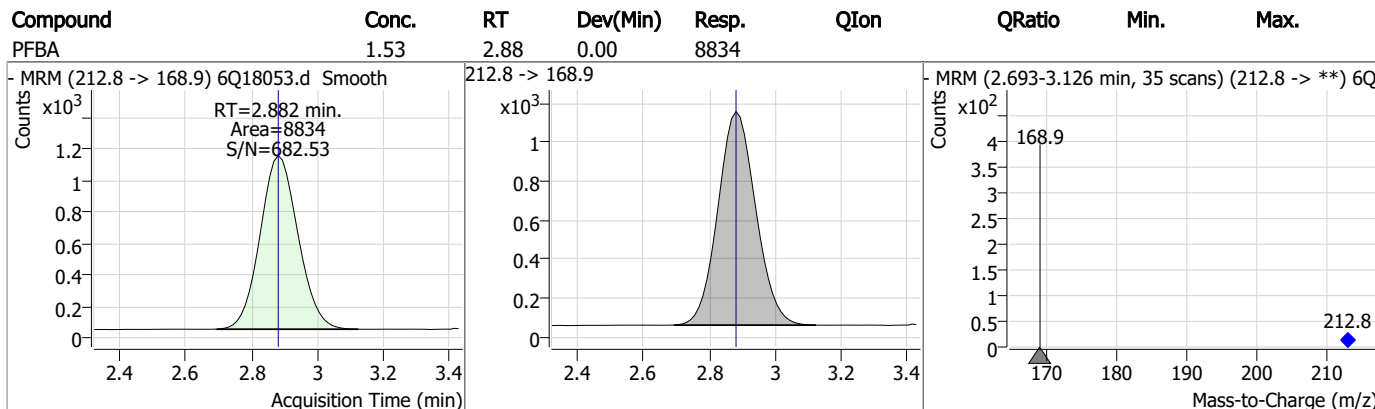
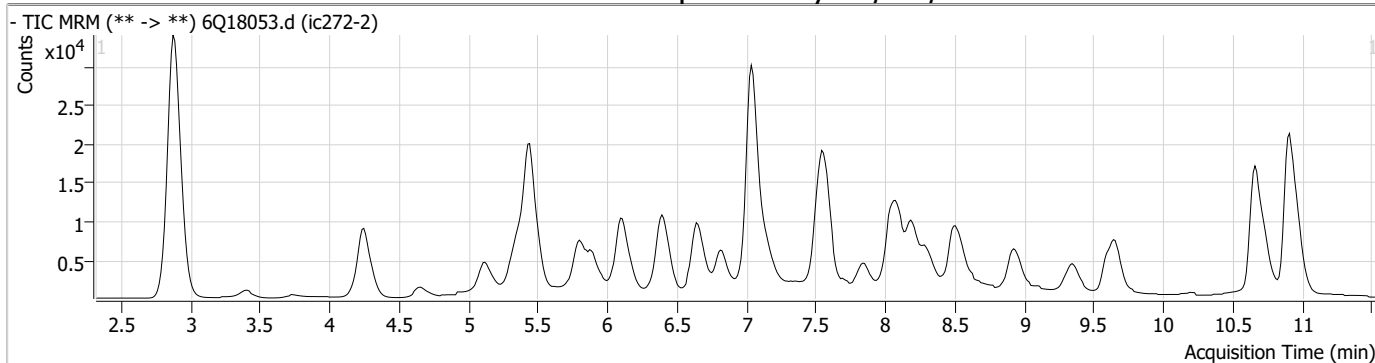
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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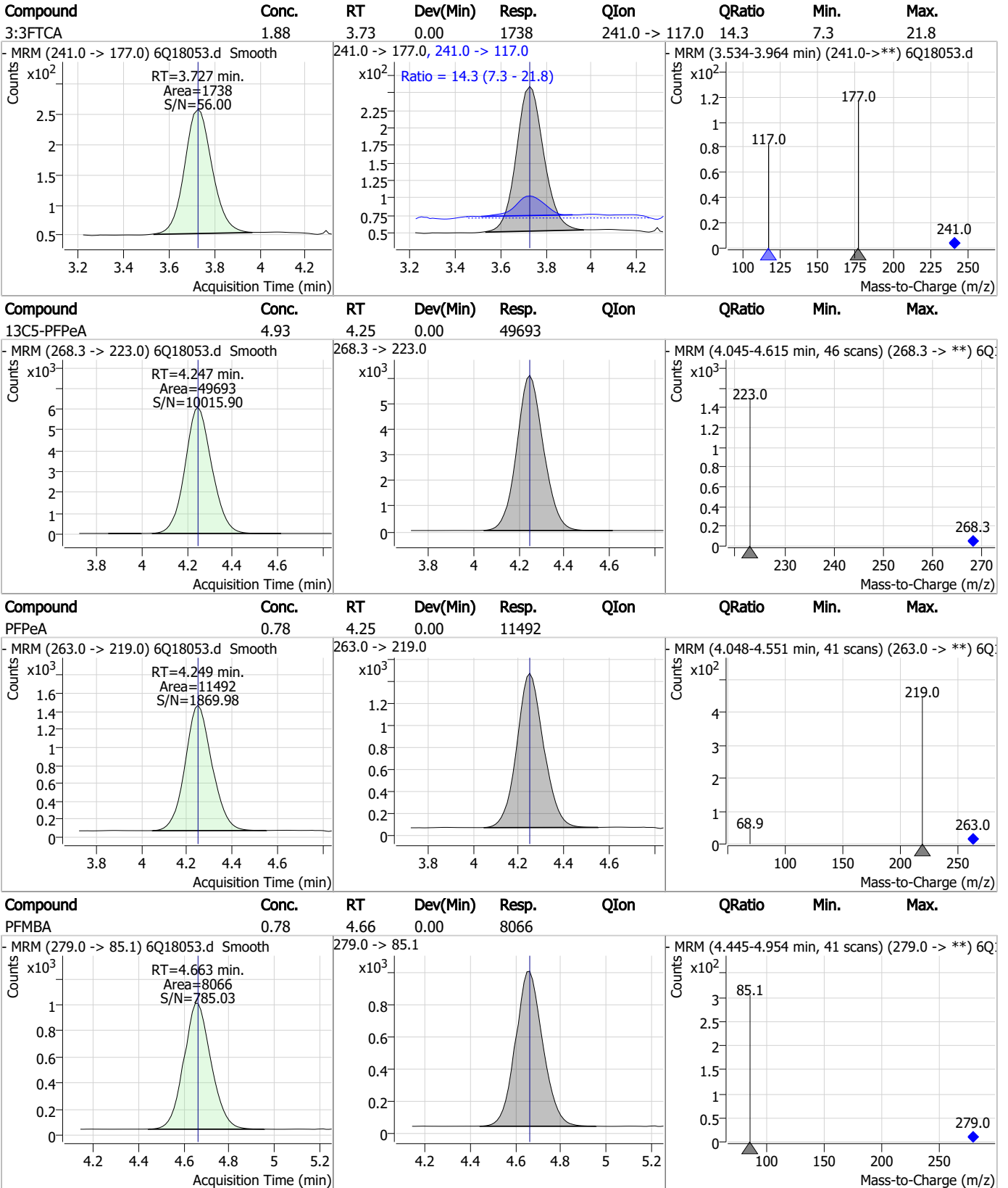
7.6.3

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Perfluorinated Compounds by LC/MS/MS



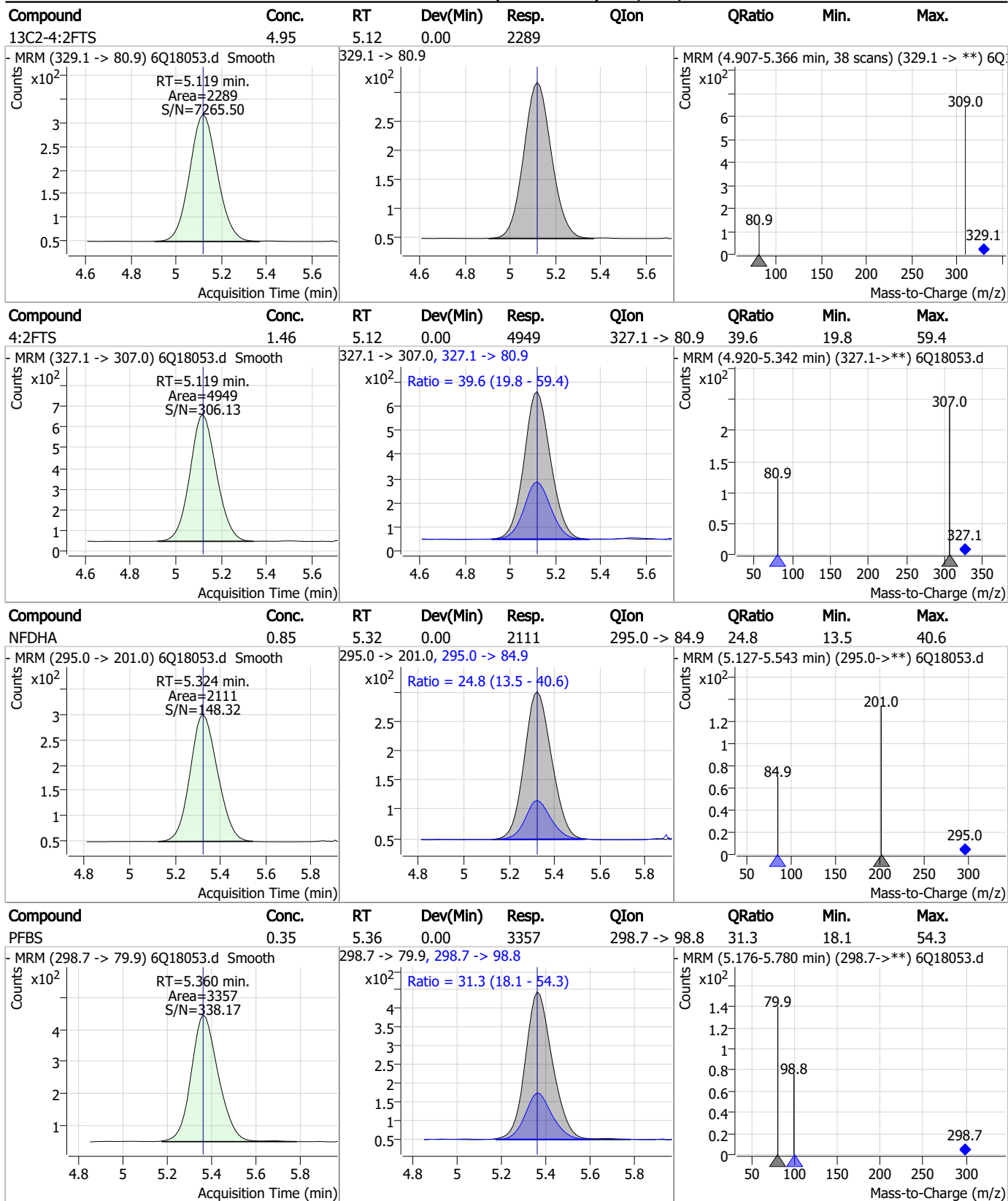
Perfluorinated Compounds by LC/MS/MS



7.6.3

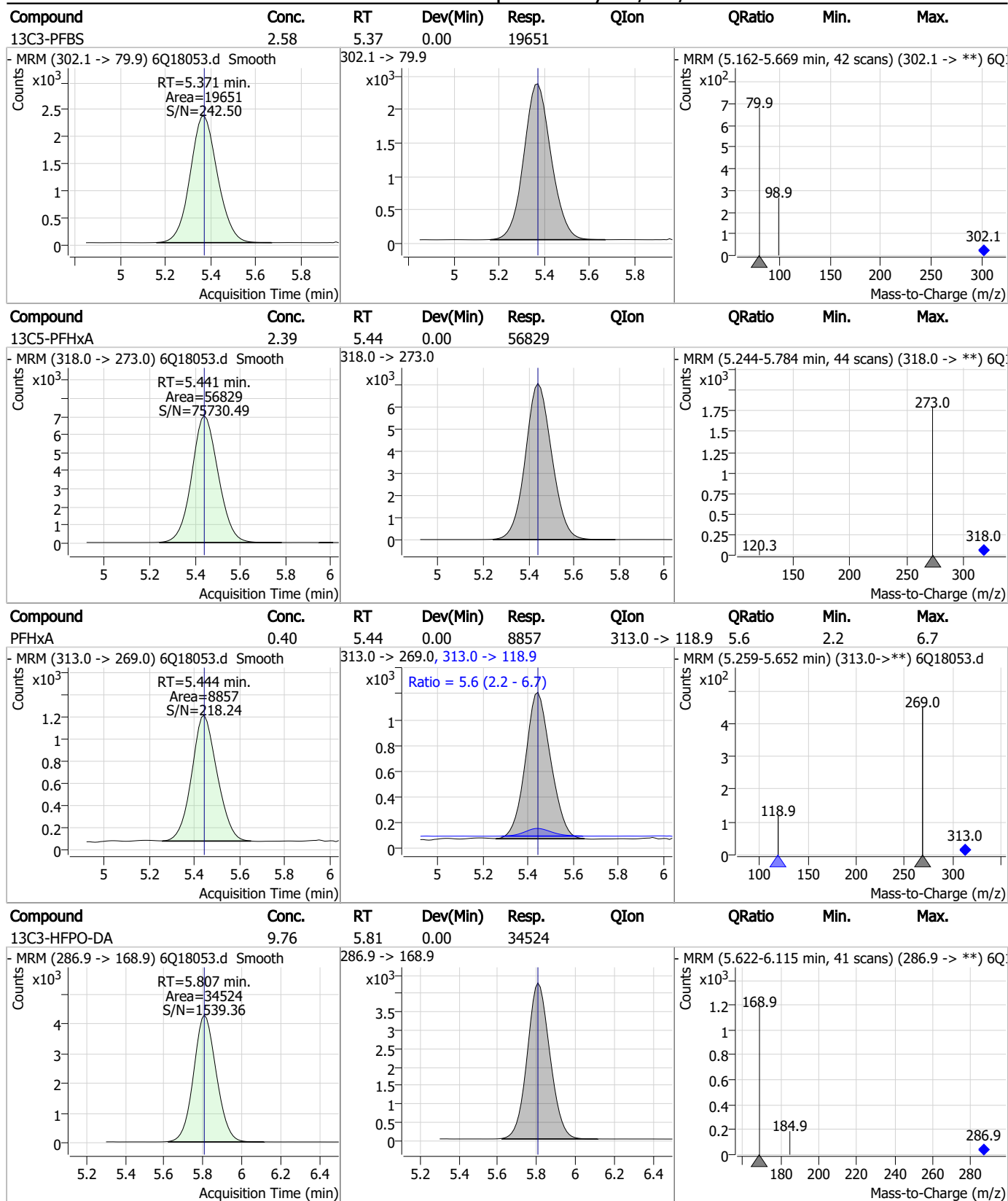
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Perfluorinated Compounds by LC/MS/MS



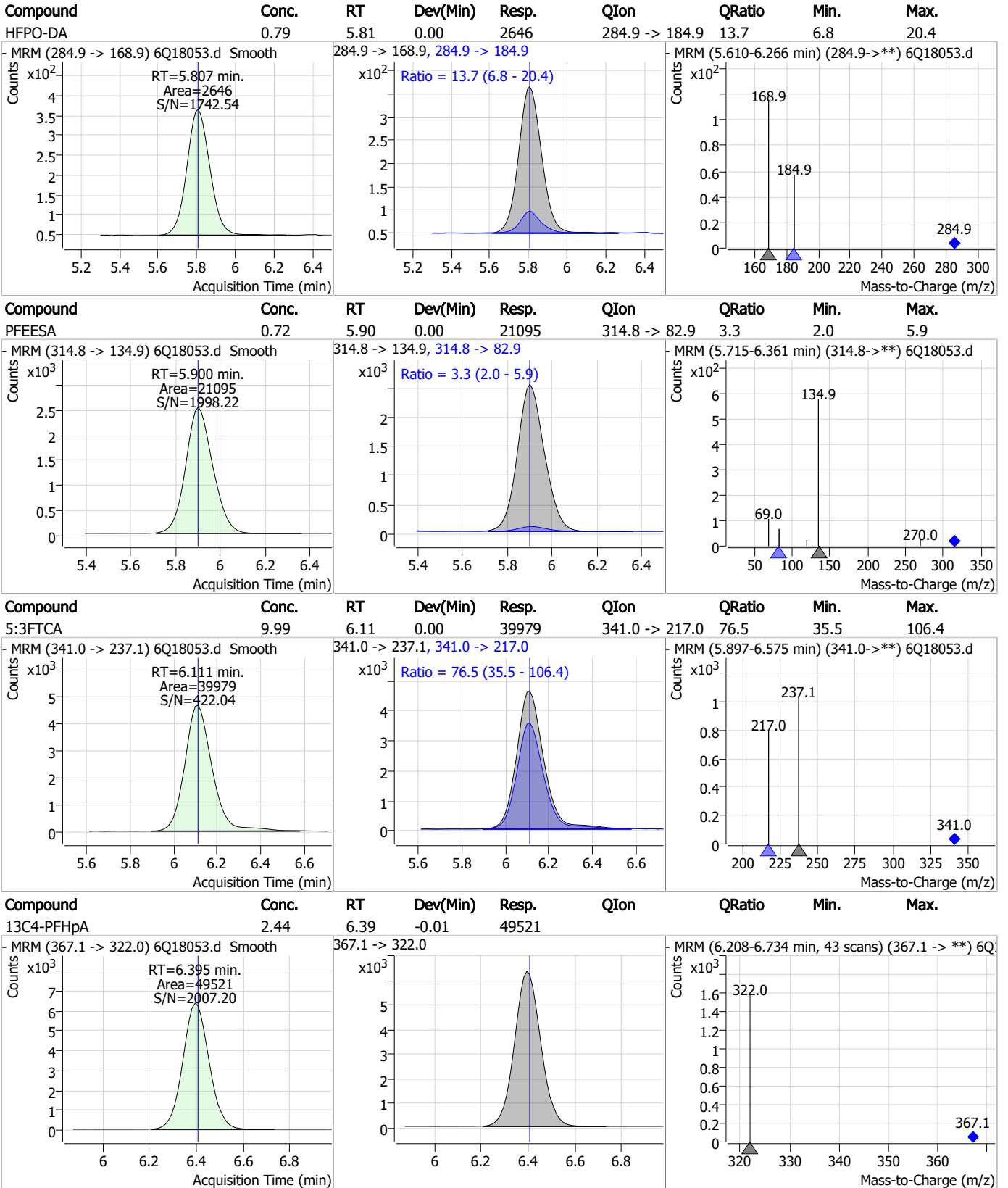
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Perfluorinated Compounds by LC/MS/MS



7.6.3
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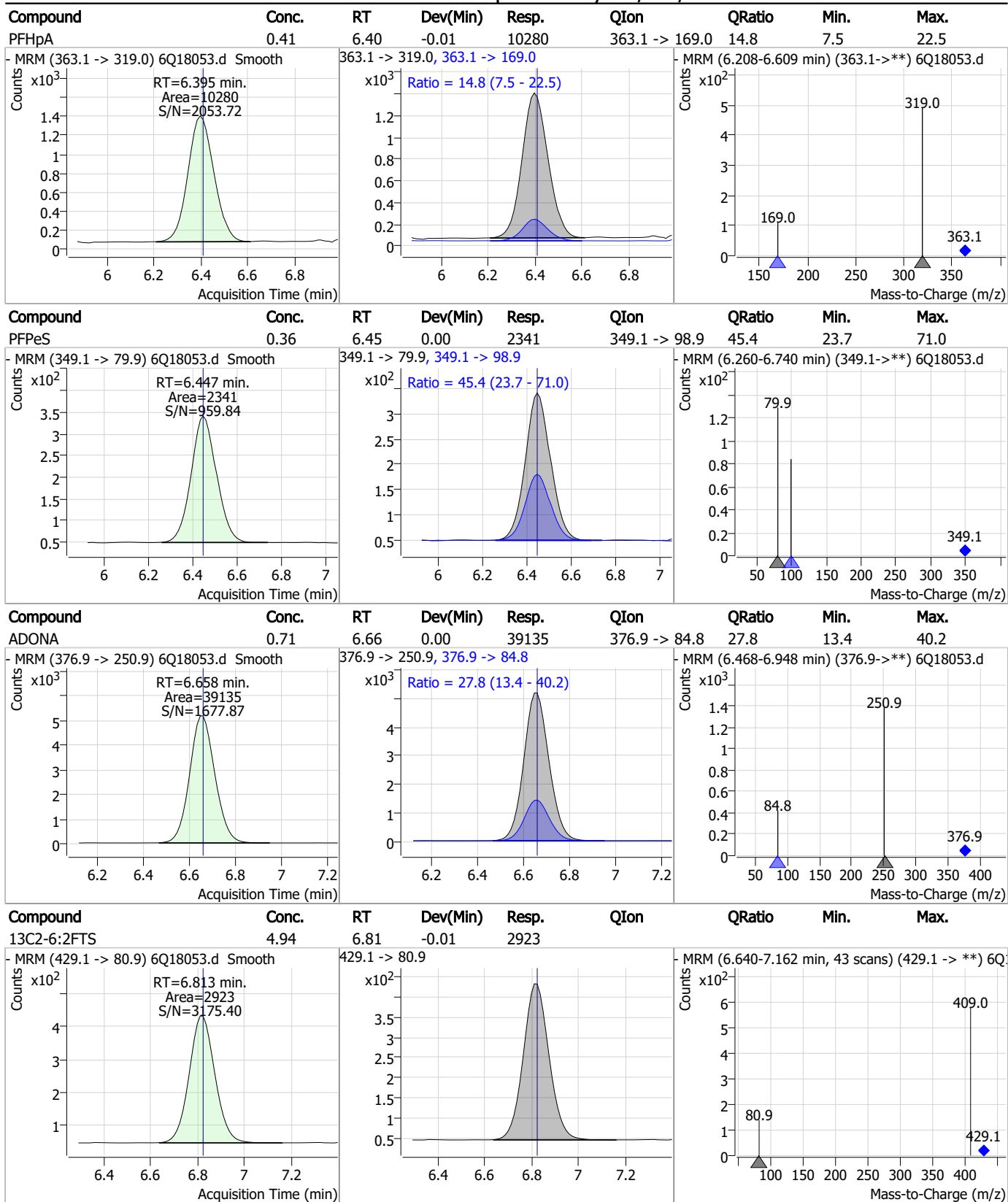
Perfluorinated Compounds by LC/MS/MS



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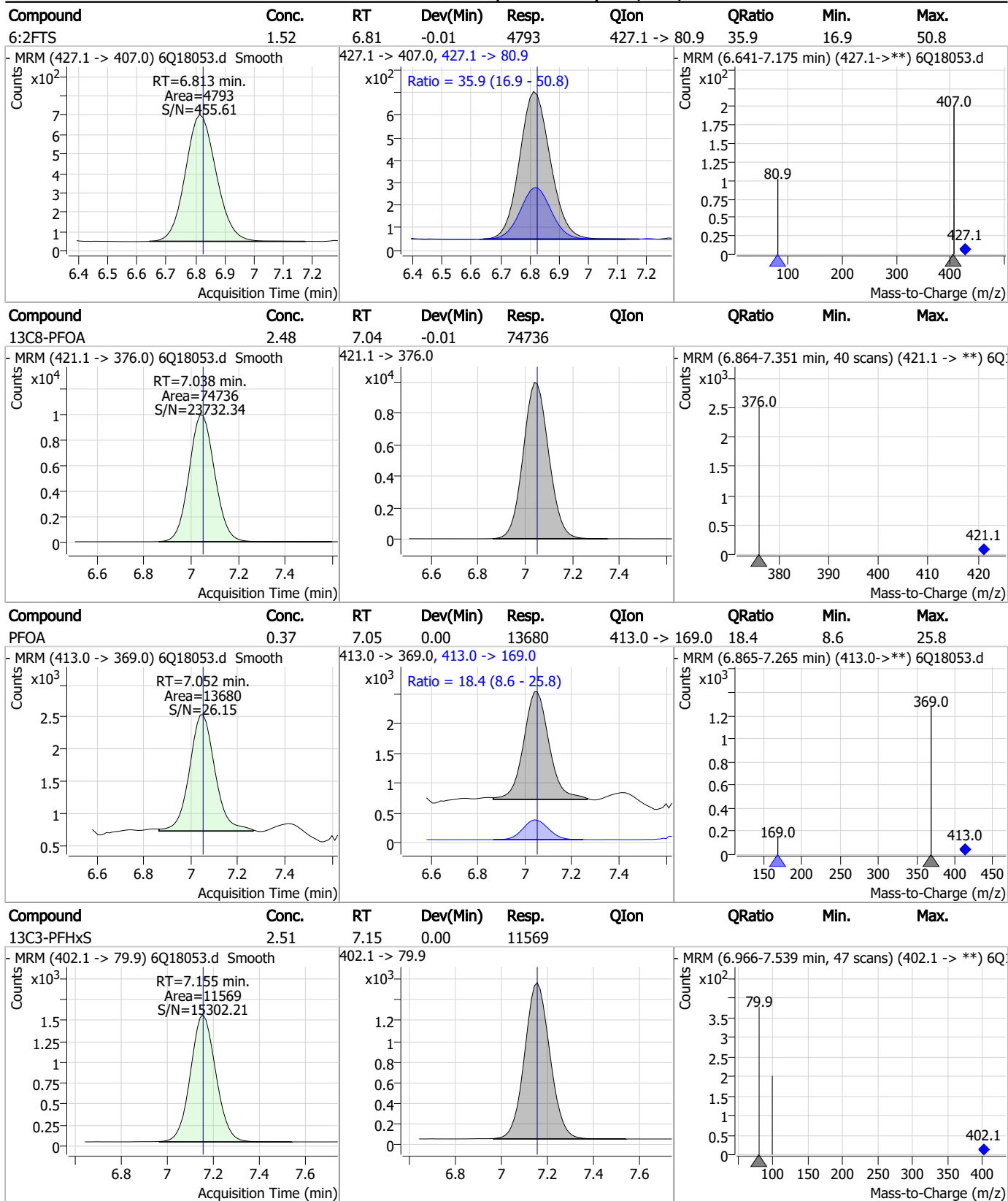
Perfluorinated Compounds by LC/MS/MS



7.6.3

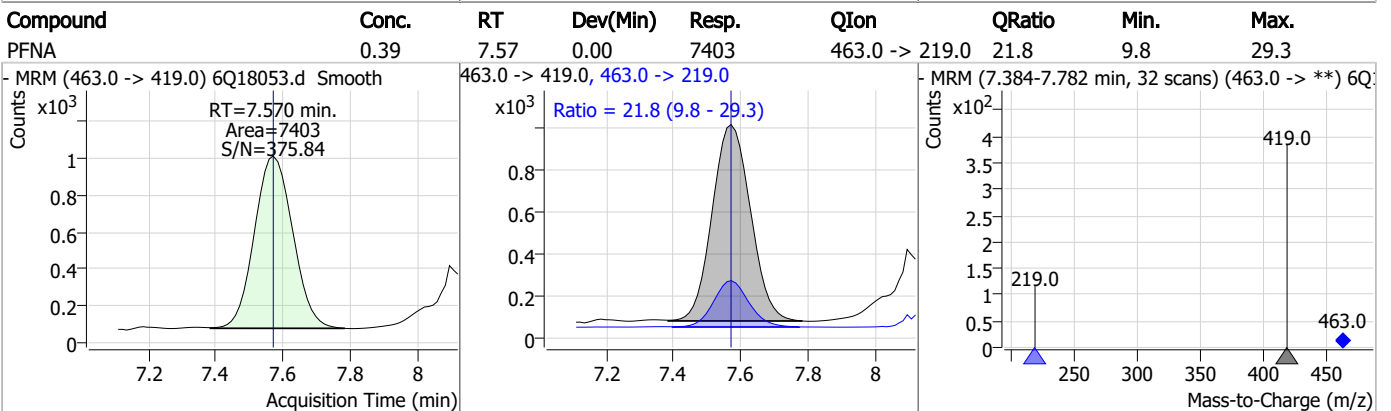
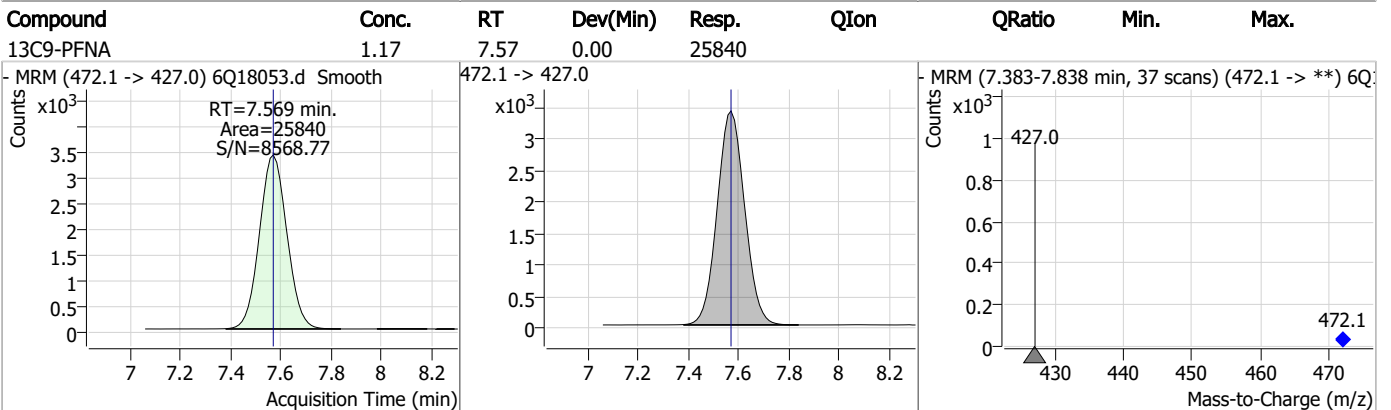
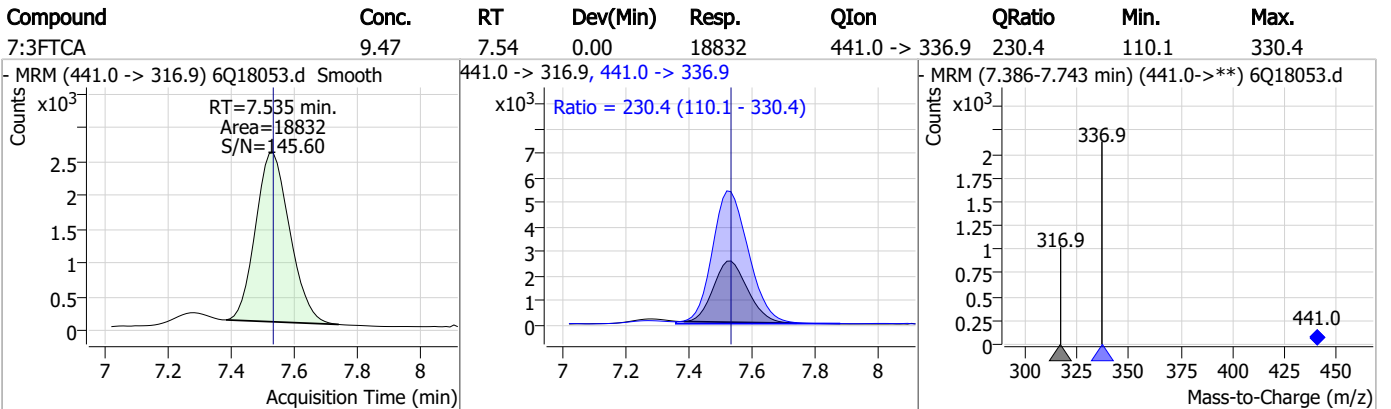
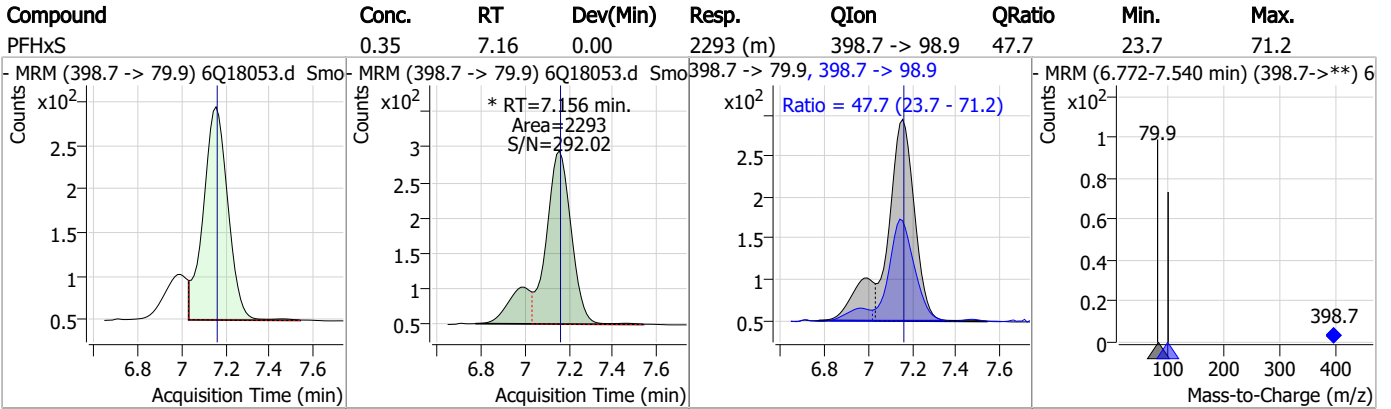
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Perfluorinated Compounds by LC/MS/MS



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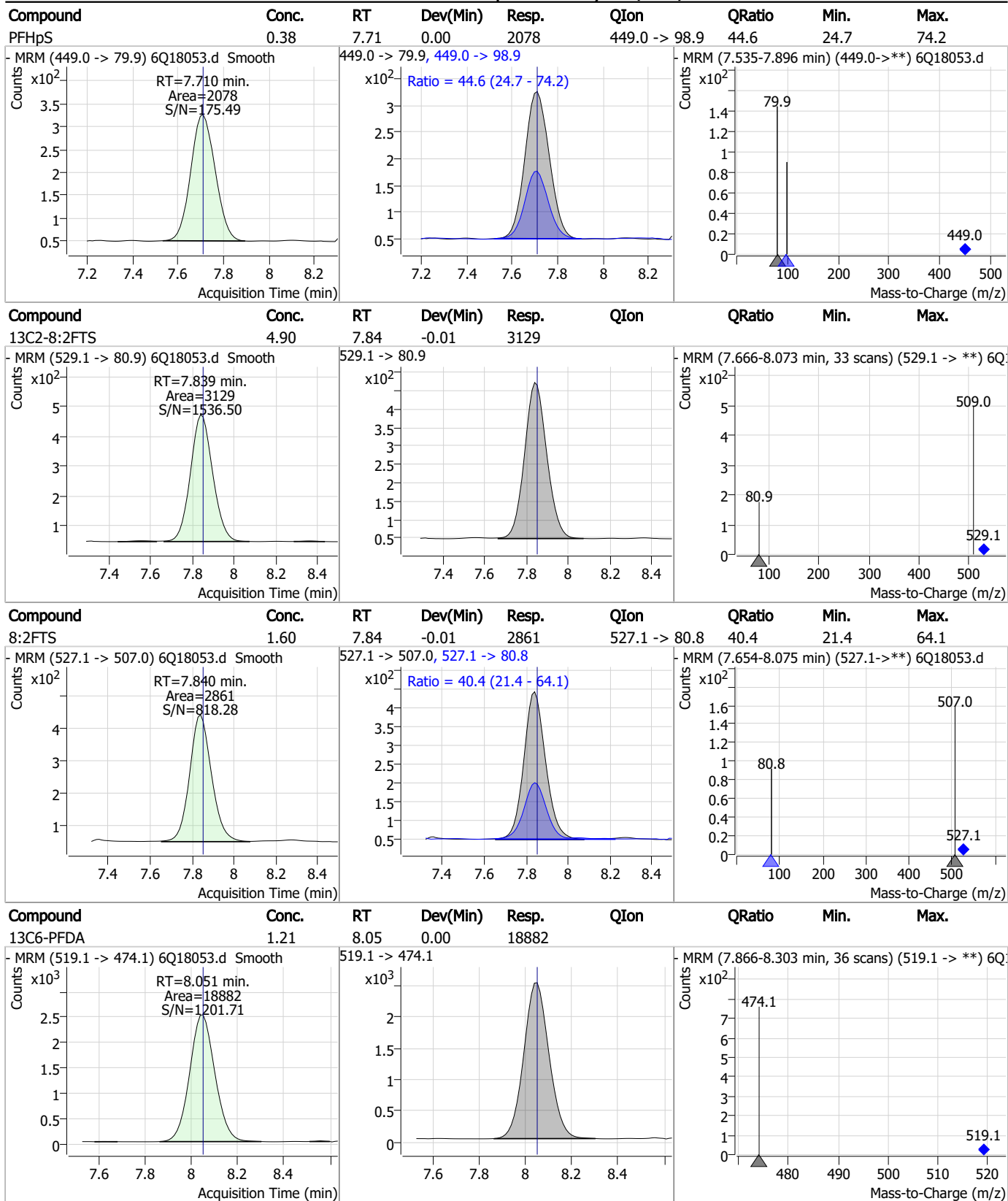
Perfluorinated Compounds by LC/MS/MS



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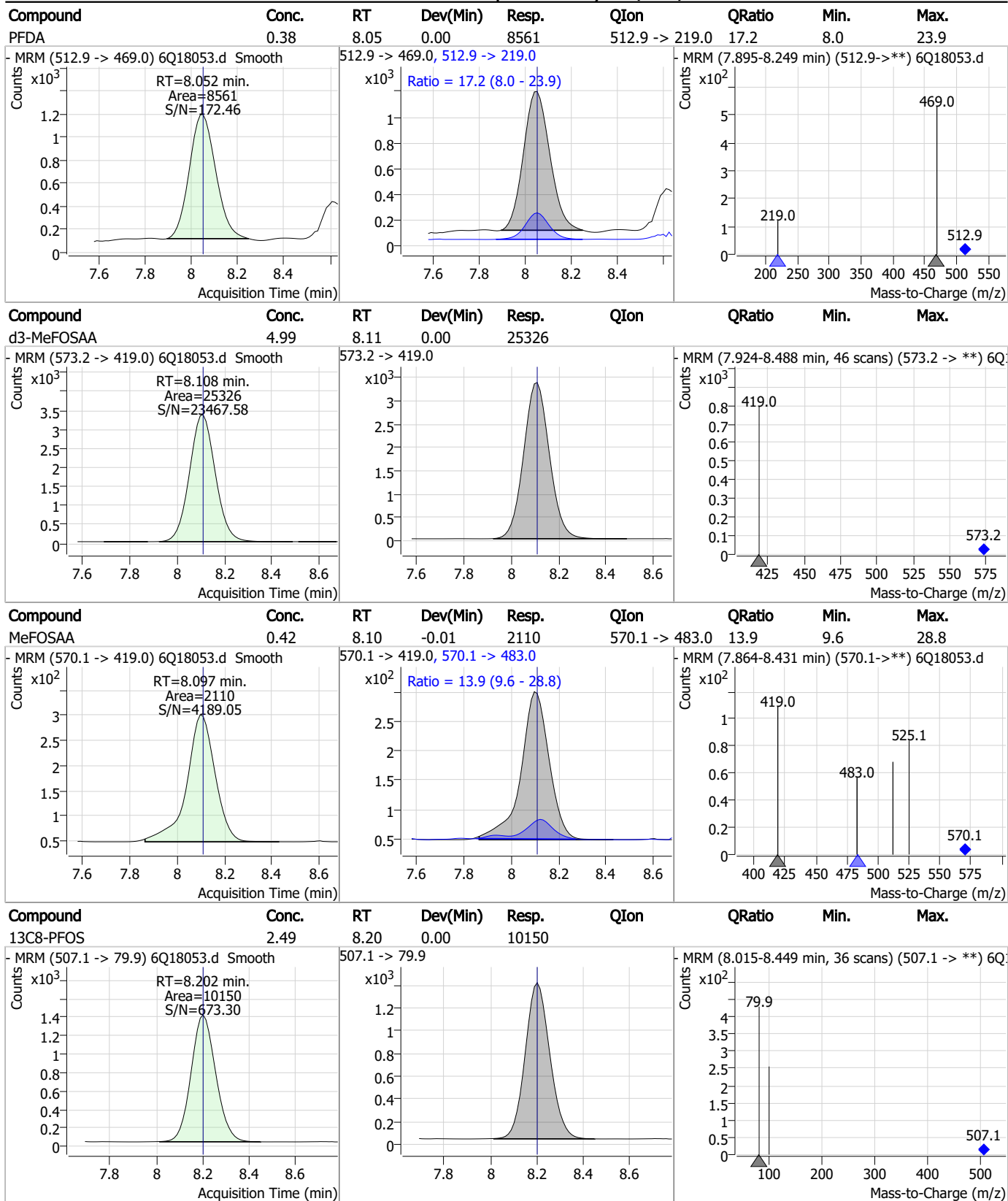
Perfluorinated Compounds by LC/MS/MS



7.6.3

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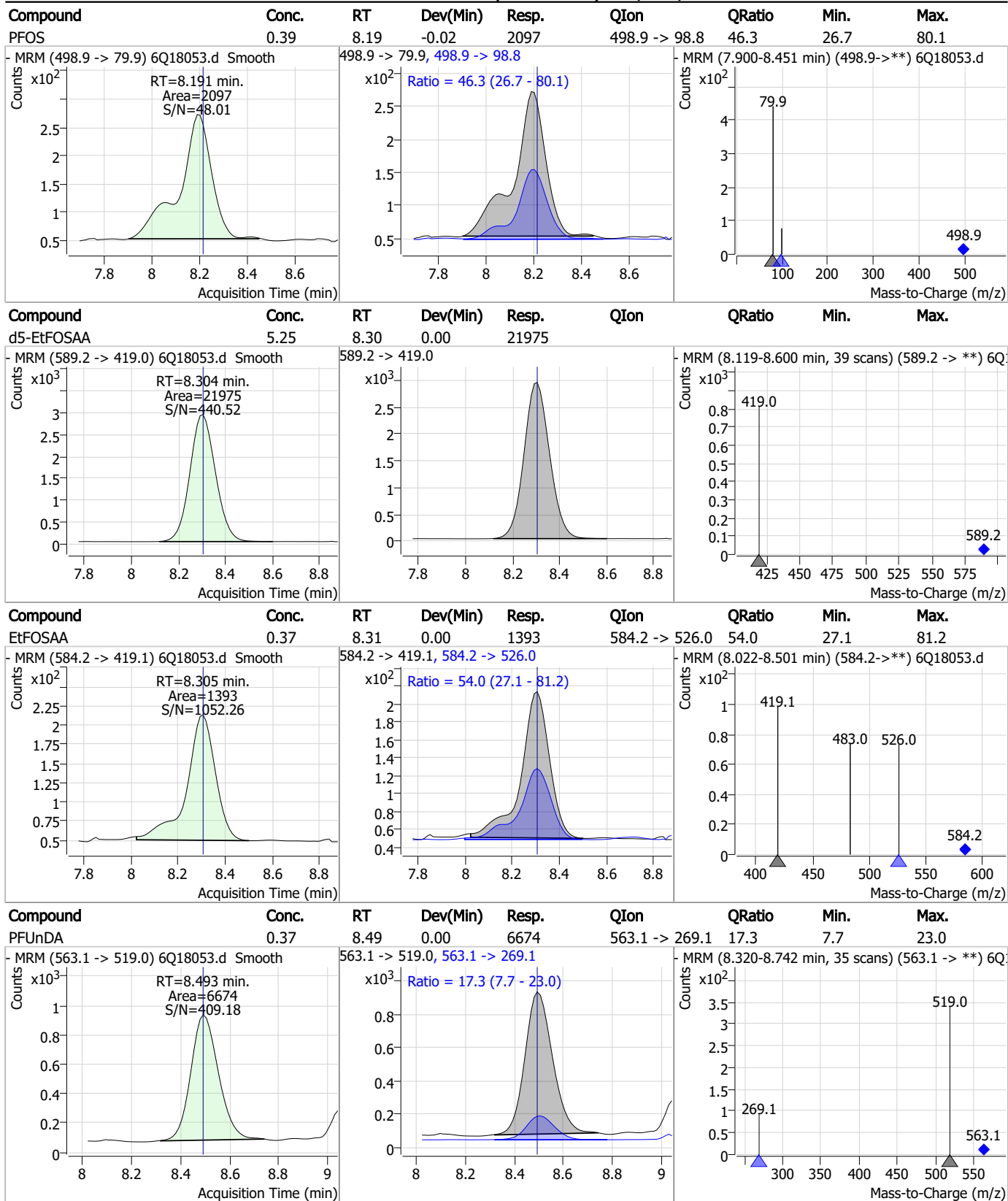
Perfluorinated Compounds by LC/MS/MS



7.6.3

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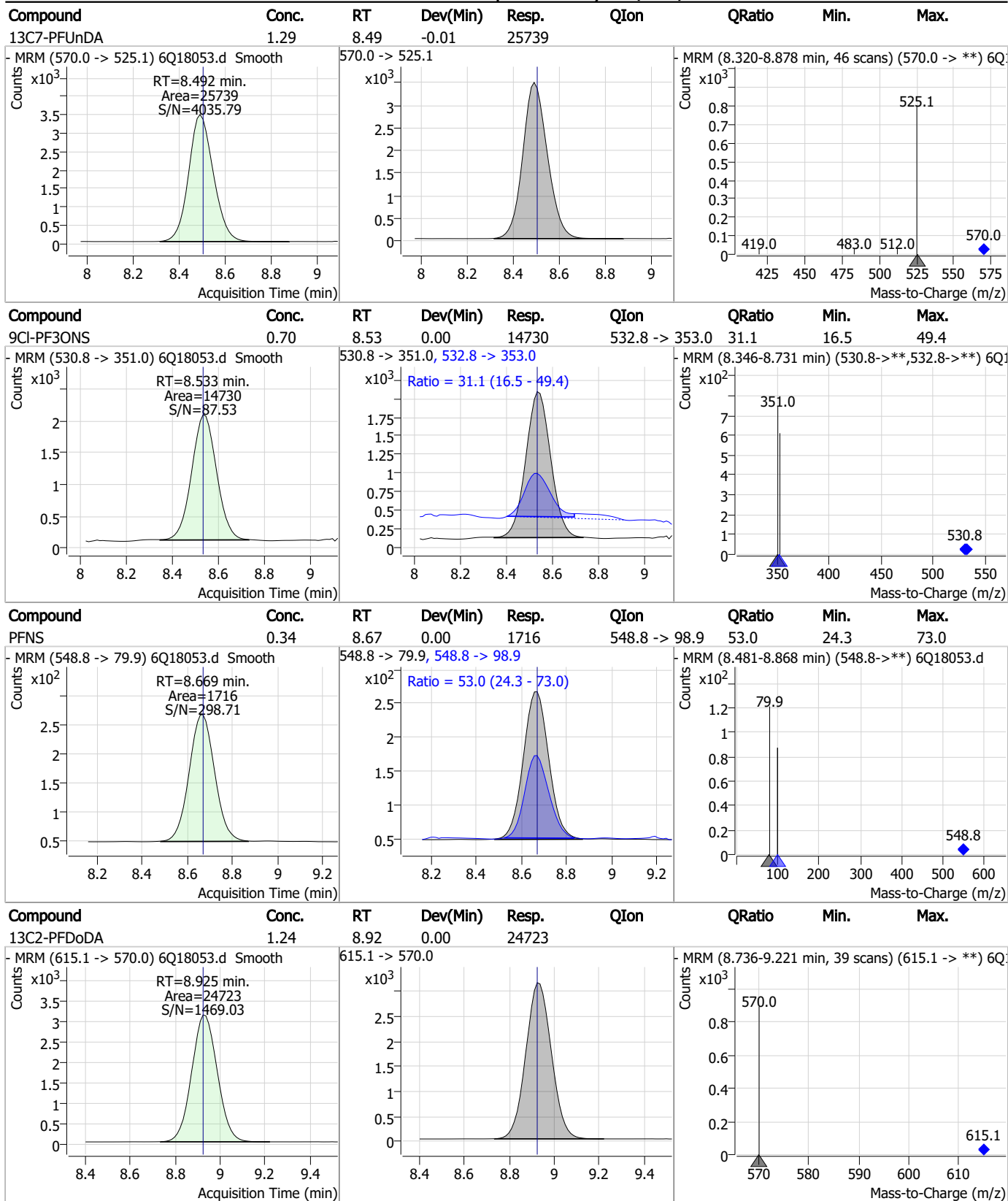
Perfluorinated Compounds by LC/MS/MS



7.6.3

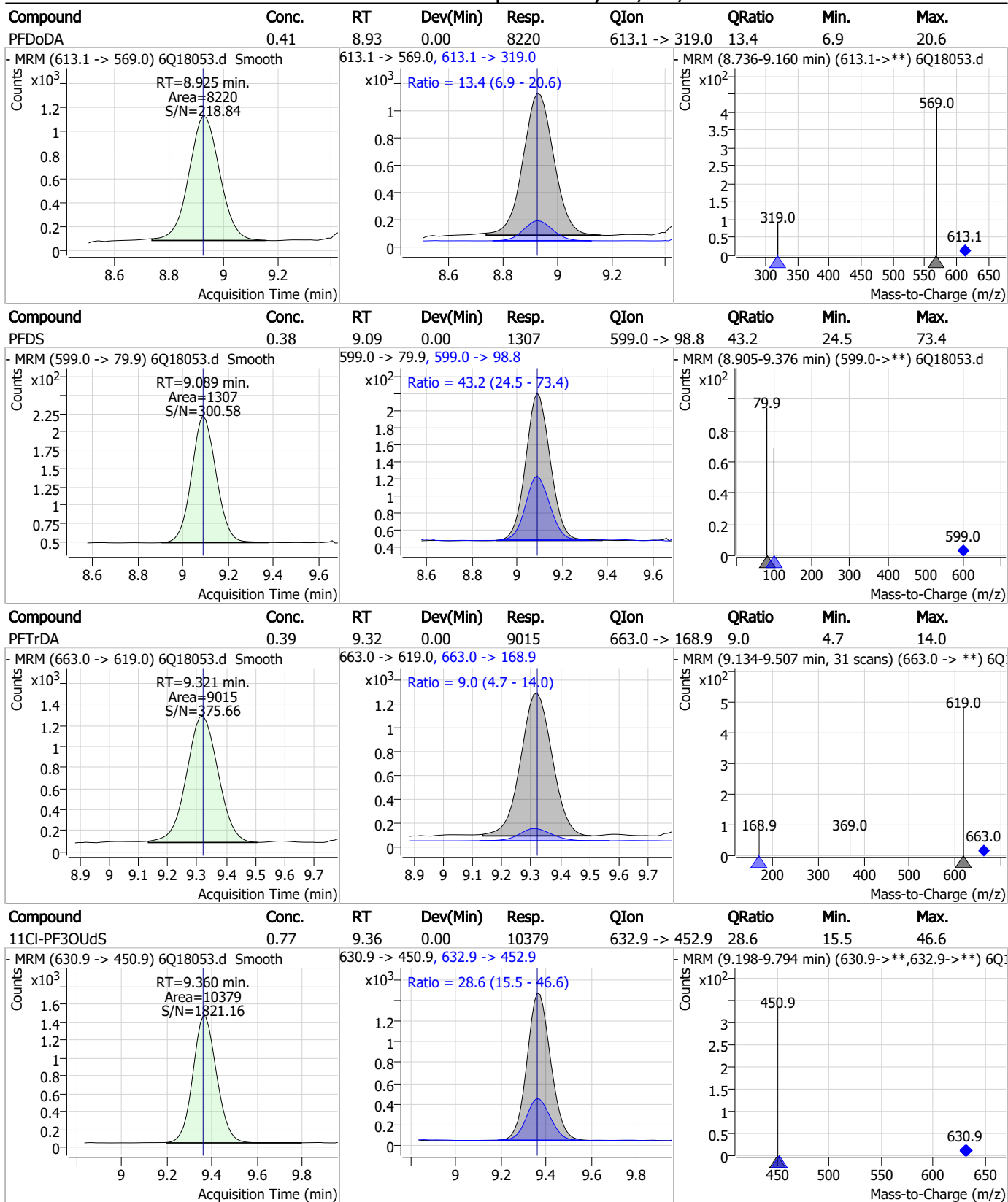
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Perfluorinated Compounds by LC/MS/MS



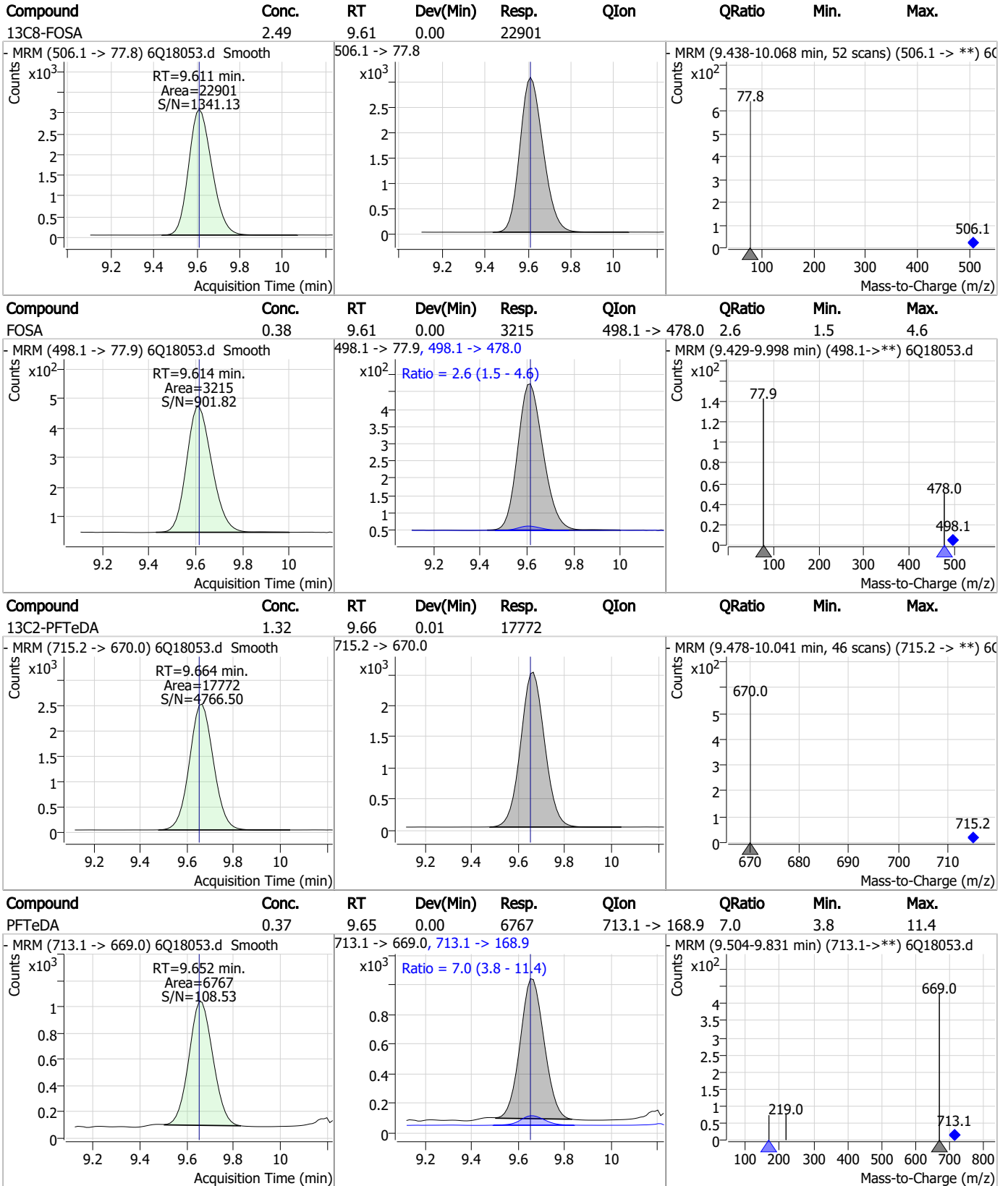
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

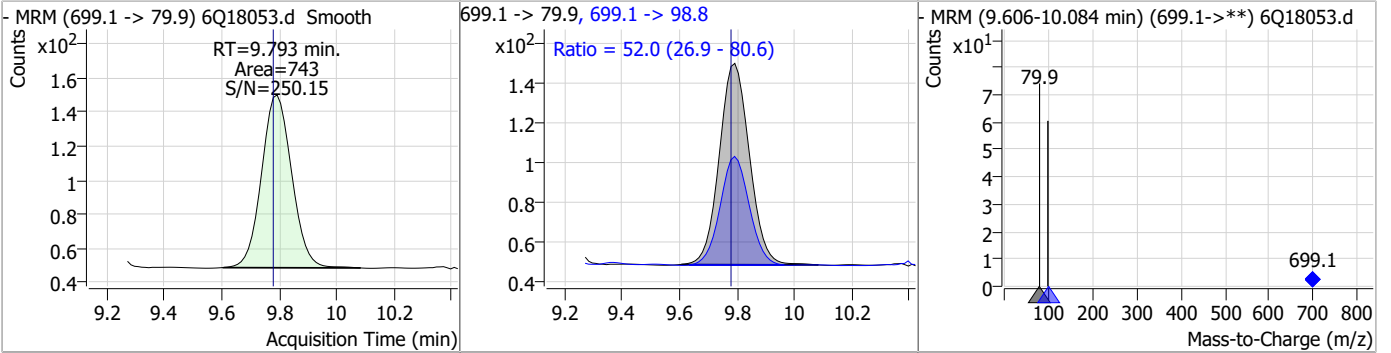


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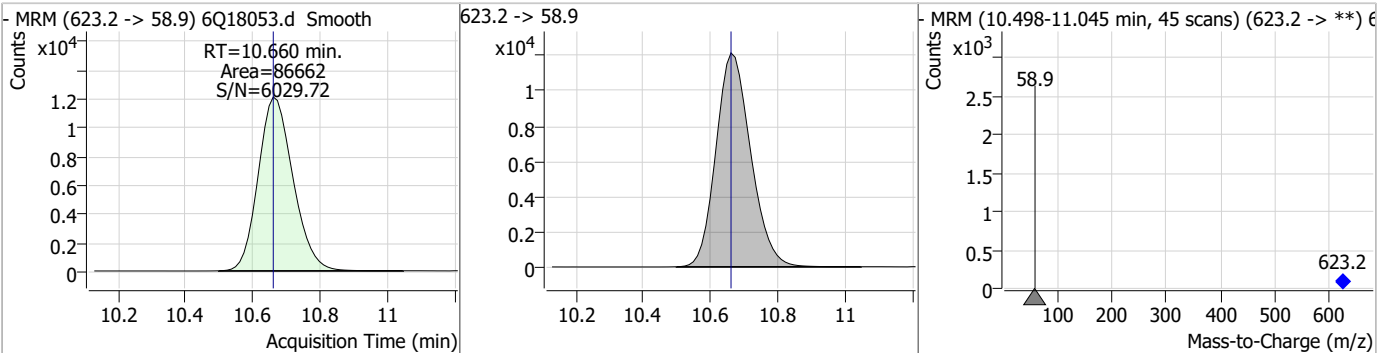
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Perfluorinated Compounds by LC/MS/MS

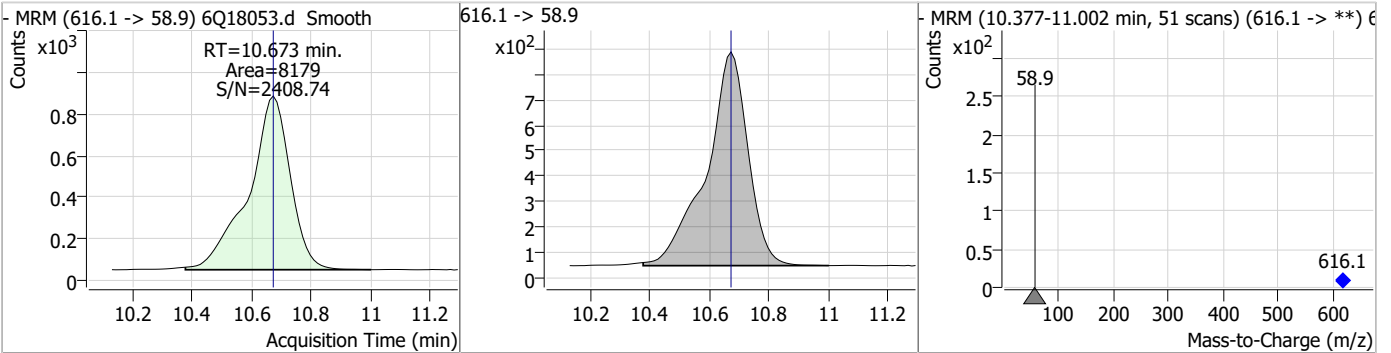
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.40	9.79	0.01	743	699.1 -> 98.8	52.0	26.9	80.6



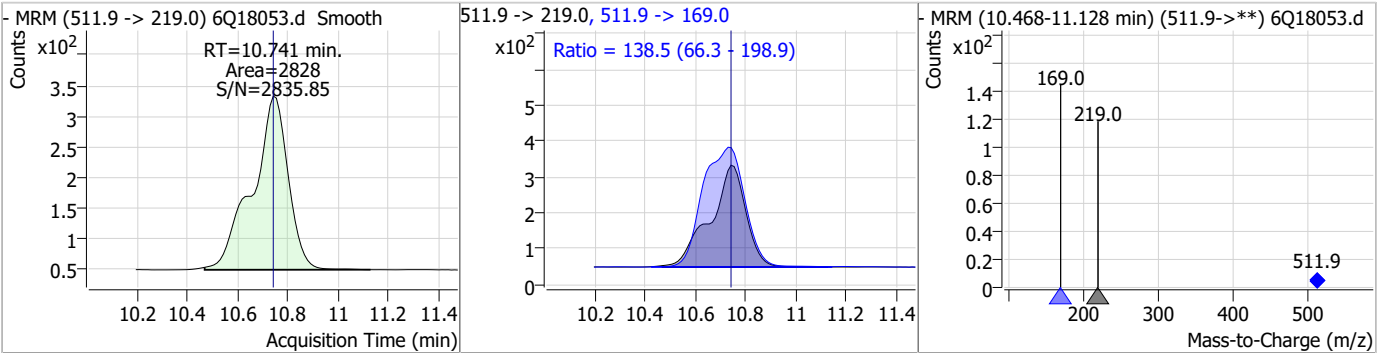
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.04	10.66	0.00	86662				



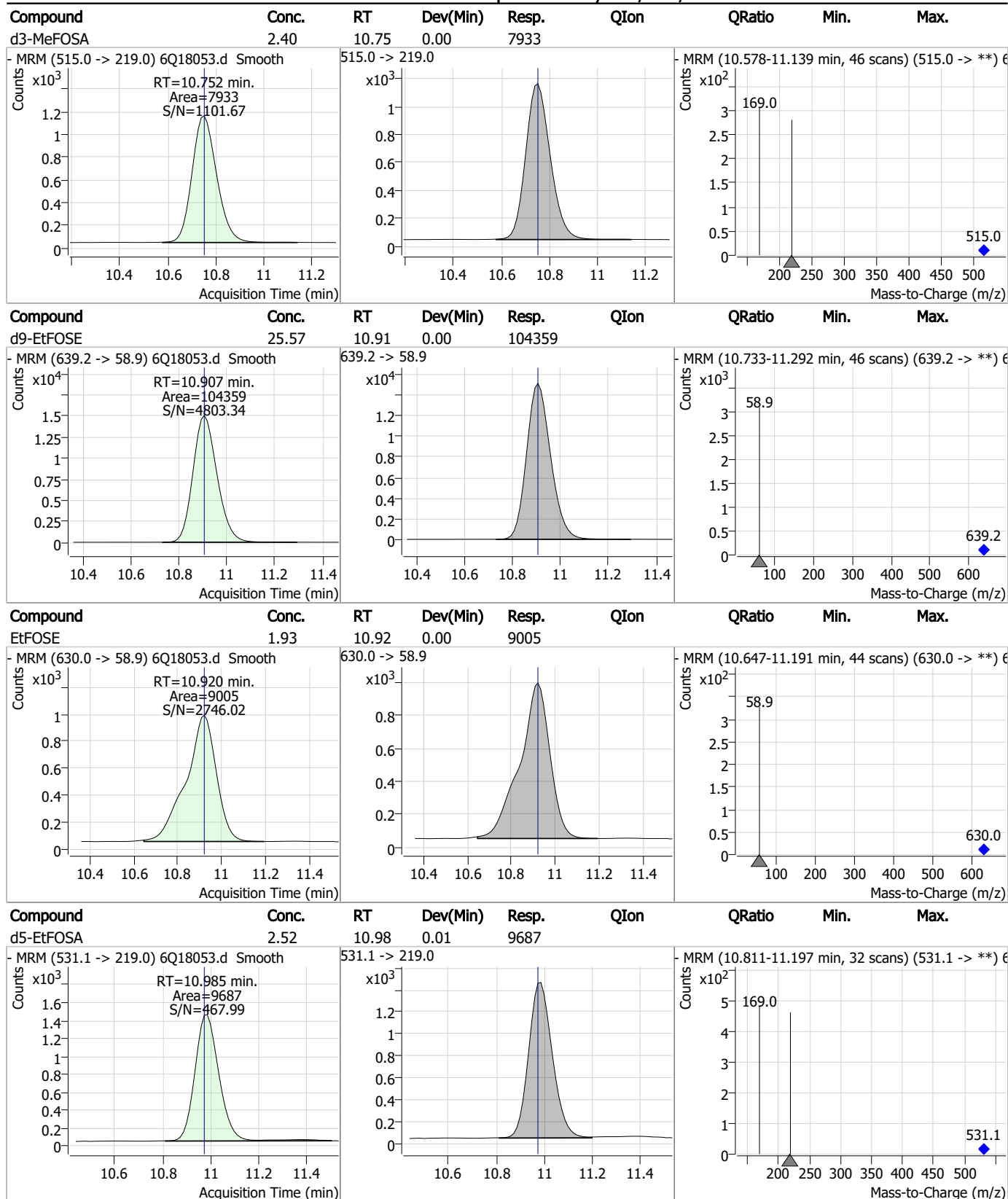
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	2.00	10.67	0.00	8179				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.78	10.74	0.00	2828	511.9 -> 169.0	138.5	66.3	198.9



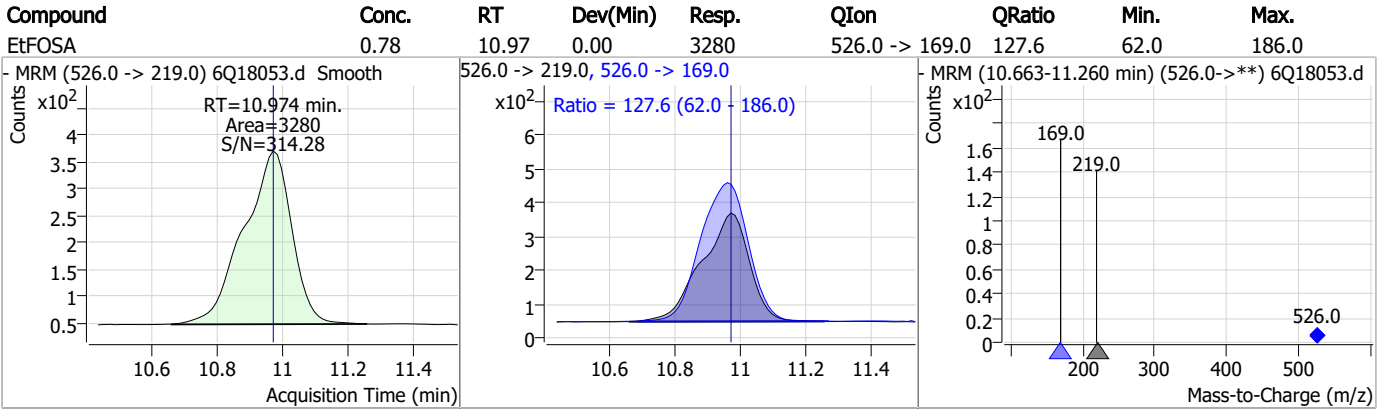
Perfluorinated Compounds by LC/MS/MS



7.6.3

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Perfluorinated Compounds by LC/MS/MS



7.6.3

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Manual Integration Approval Summary

Sample Number: S6Q272-IC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18053.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 19:14 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak

7.6.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18054.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 7:28:30 PM
 Sample Name : ic272-3
 Vial : P1-A4
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	157804	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	49283	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	58752	2.50 µg/L	0.000
M4-PFHpA	6.407	367.1 -> 322.0	49981	2.50 µg/L	0.000
M8-PFOA	7.051	421.1 -> 376.0	75569	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	26847	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	20290	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	25337	1.25 µg/L	0.000
M2-PFDoDA	8.925	615.1 -> 570.0	23954	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	17149	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	22884	2.50 µg/L	0.000
M3-PFBS	5.371	302.1 -> 79.9	18390	2.50 µg/L	0.000
M3-PFHxS	7.155	402.1 -> 79.9	11350	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9949	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2204	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	2866	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	2983	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	26081	5.00 µg/L	0.000
M3-HFPO-DA	5.819	286.9 -> 168.9	33224	10.00 µg/L	0.012
M5-EtFOSAA	8.304	589.2 -> 419.0	20773	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	90872	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	104456	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9337	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	7874	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	13408	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	65913	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8817	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	76099	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	23786	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	27290	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	46959	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2204	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-6:2FTS	6.825	429.1 -> 80.9	2866	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C2-8:2FTS	7.839	529.1 -> 80.9	2983	4.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.4%		
13C2-PFDoDA	8.925	615.1 -> 570.0	23954	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-PFTeDA	9.652	715.2 -> 670.0	17149	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFBS	5.371	302.1 -> 79.9	18390	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C3-PFHxS	7.155	402.1 -> 79.9	11350	2.41 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 = 96.3%		
13C4-PFBA	2.888	216.8 -> 171.9	157804	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C4-PFHpA	6.407	367.1 -> 322.0	49981	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C5-PFHxA	5.441	318.0 -> 273.0	58752	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C5-PFPeA	4.247	268.3 -> 223.0	49283	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C6-PFDA	8.051	519.1 -> 474.1	20290	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C7-PFUnDA	8.506	570.0 -> 525.1	25337	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C8-FOSA	9.611	506.1 -> 77.8	22884	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C8-PFOA	7.051	421.1 -> 376.0	75569	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C8-PFOS	8.202	507.1 -> 79.9	9949	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C9-PFNA	7.569	472.1 -> 427.0	26847	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.7%		
d3-MeFOSAA	8.108	573.2 -> 419.0	26081	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C3-HFPO-DA	5.819	286.9 -> 168.9	33224	9.79 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
d3-MeFOSA	10.739	515.0 -> 219.0	7874	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
d5-EtFOSAA	8.304	589.2 -> 419.0	20773	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
d7-MeFOSE	10.660	623.2 -> 58.9	90872	26.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
d9-EtFOSE	10.907	639.2 -> 58.9	104456	25.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.4%		
d5-EtFOSA	10.972	531.1 -> 219.0	9337	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	15924	4.90 µg/L	98
		327.1 -> 80.9	6089		
6:2FTS	6.826	427.1 -> 407.0	14822	4.78 µg/L	97
		427.1 -> 80.9	5317		
8:2FTS	7.840	527.1 -> 507.0	9002	5.28 µg/L	96
		527.1 -> 80.8	3587		
EtFOSAA	8.305	584.2 -> 419.1	4647	1.31 µg/L	99
		584.2 -> 526.0	2469		
FOSA	9.614	498.1 -> 77.9	10008	1.19 µg/L	99
		498.1 -> 478.0	319		
MeFOSAA	8.109	570.1 -> 419.0	6318	1.23 µg/L	99
		570.1 -> 483.0	1178		
PFBA	2.882	212.8 -> 168.9	27811	4.85 µg/L	100
PFBS	5.372	298.7 -> 79.9	10281	1.15 µg/L	99
		298.7 -> 98.8	3665		
PFDA	8.052	512.9 -> 469.0	28958	1.20 µg/L	99
		512.9 -> 219.0	4539		
PFDODA	8.925	613.1 -> 569.0	25249	1.31 µg/L	99
		613.1 -> 319.0	3407		
PFDS	9.089	599.0 -> 79.9	4105	1.23 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1930			
PFHpA	6.408	363.1 -> 319.0	29678	1.16	µg/L	95
		363.1 -> 169.0	5048			
PFHpS	7.710	449.0 -> 79.9	6350	1.18	µg/L	97
		449.0 -> 98.9	2994			
PFHxA	5.444	313.0 -> 269.0	26610	1.16	µg/L	98
		313.0 -> 118.9	1415			
PFHxS	7.156	398.7 -> 79.9	7100	1.12	µg/L	m 99
		398.7 -> 98.9	3344			
PFNA	7.570	463.0 -> 419.0	24253	1.23	µg/L	98
		463.0 -> 219.0	4527			
PFNS	8.669	548.8 -> 79.9	5886	1.21	µg/L	99
		548.8 -> 98.9	2905			
PFOA	7.052	413.0 -> 369.0	43443	1.18	µg/L	m 99
		413.0 -> 169.0	7242			
PFOS	8.203	498.9 -> 79.9	5937	1.11	µg/L	99
		498.9 -> 98.8	3137			
PFPeA	4.249	263.0 -> 219.0	35803	2.45	µg/L	100
PFPeS	6.447	349.1 -> 79.9	7189	1.14	µg/L	100
		349.1 -> 98.9	3408			
PFTeDA	9.652	713.1 -> 669.0	22449	1.27	µg/L	98
		713.1 -> 168.9	1584			
PFTrDA	9.321	663.0 -> 619.0	28209	1.27	µg/L	100
		663.0 -> 168.9	2628			
PFUnDA	8.493	563.1 -> 519.0	22040	1.25	µg/L	100
		563.1 -> 269.1	3399			
11CI-PF3OUdS	9.360	630.9 -> 450.9	30895	2.38	µg/L	99
		632.9 -> 452.9	9825			
9CI-PF3ONS	8.533	530.8 -> 351.0	49380	2.43	µg/L	96
		532.8 -> 353.0	15258			
ADONA	6.658	376.9 -> 250.9	131916	2.48	µg/L	97
		376.9 -> 84.8	33206			
HFPO-DA	5.820	284.9 -> 168.9	8507	2.63	µg/L	98
		284.9 -> 184.9	1074			
3:3FTCA	3.727	241.0 -> 177.0	5488	5.98	µg/L	99
		241.0 -> 117.0	811			
5:3FTCA	6.111	341.0 -> 237.1	122695	29.66	µg/L	98
		341.0 -> 217.0	89376			
7:3FTCA	7.535	441.0 -> 316.9	62562	30.43	µg/L	99
		441.0 -> 336.9	138563			
EtFOSA	10.974	526.0 -> 219.0	9698	2.38	µg/L	88
		526.0 -> 169.0	13352			
EtFOSE	10.920	630.0 -> 58.9	28347	6.06	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	9257	2.58	µg/L	97
		511.9 -> 169.0	12549			
MeFOSE	10.673	616.1 -> 58.9	24576	5.74	µg/L	100
PFDoDS	9.779	699.1 -> 79.9	2186	1.21	µg/L	97
		699.1 -> 98.8	1220			
NFDHA	5.324	295.0 -> 201.0	6339	2.47	µg/L	94
		295.0 -> 84.9	1508			
PFMBA	4.663	279.0 -> 85.1	25213	2.46	µg/L	100
PFMPA	3.401	229.0 -> 84.9	18309	2.41	µg/L	100
PFEESA	5.912	314.8 -> 134.9	65347	2.16	µg/L	99
		314.8 -> 82.9	2352			

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

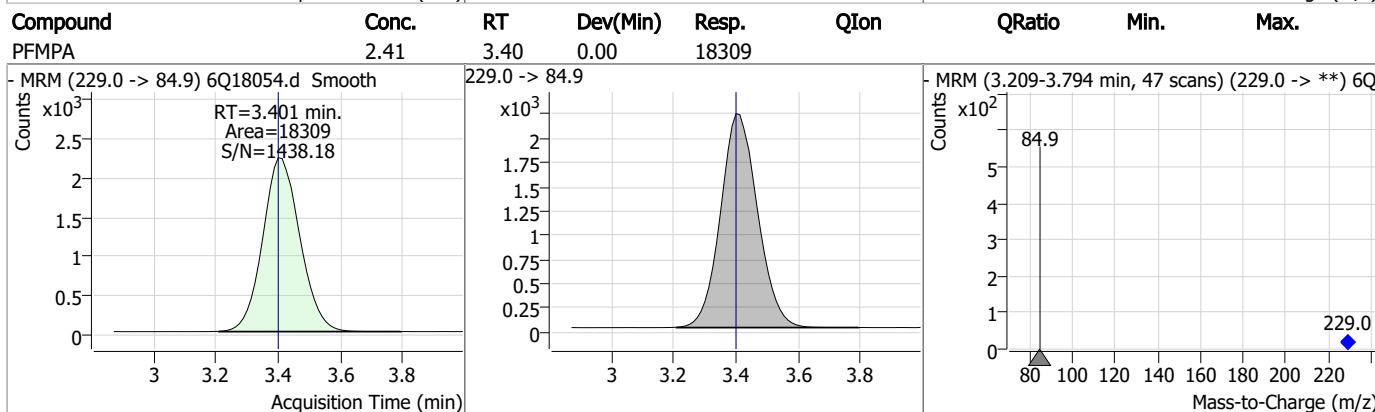
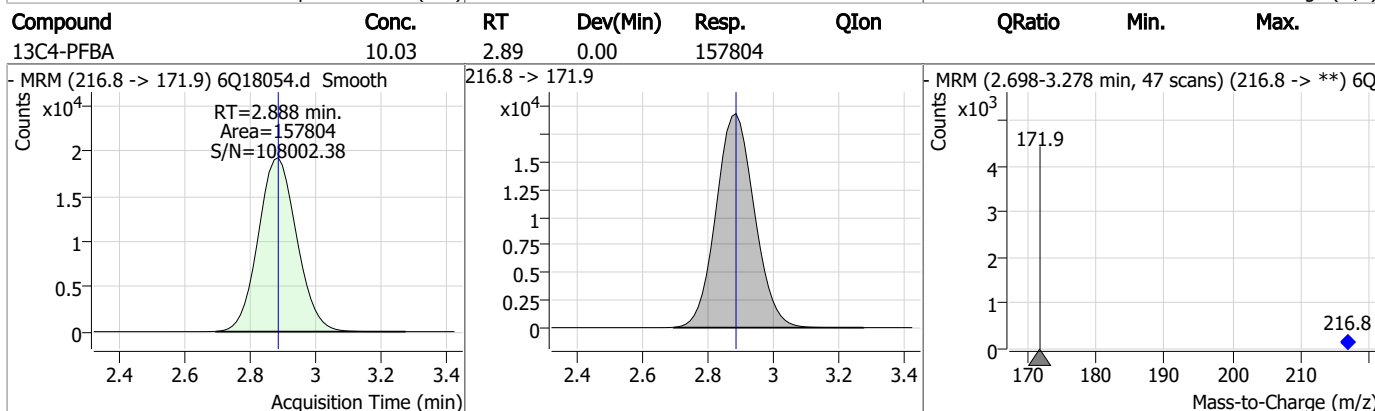
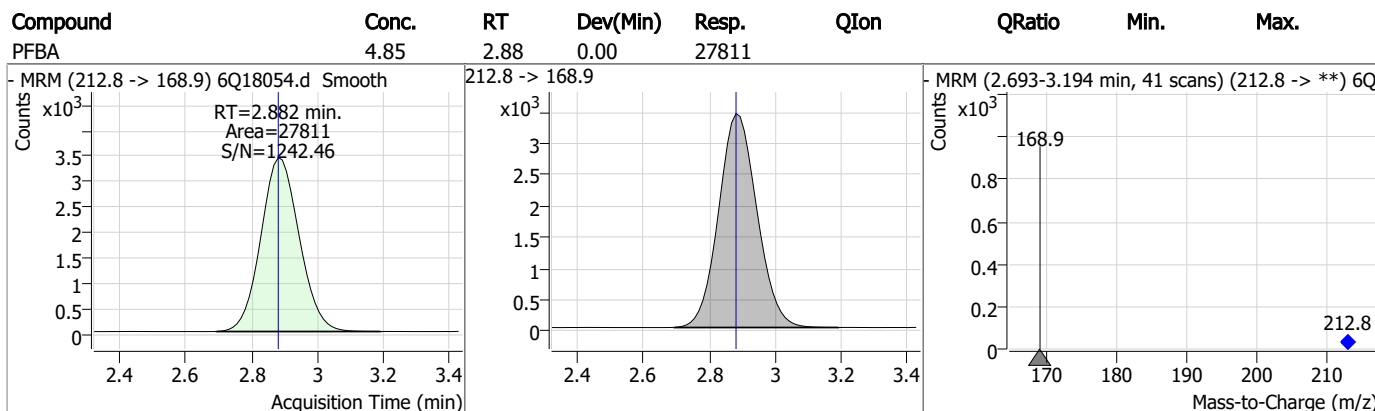
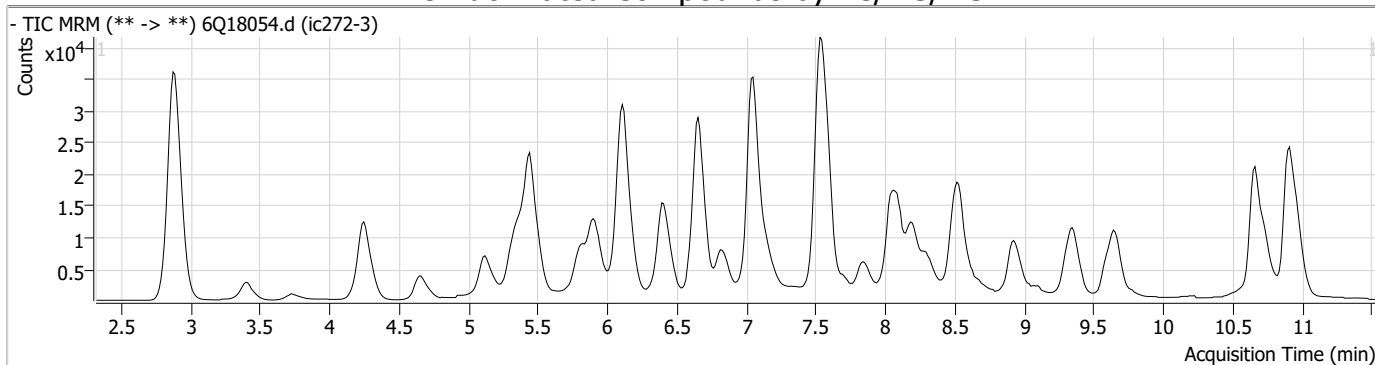
Perfluorinated Compounds by LC/MS/MS

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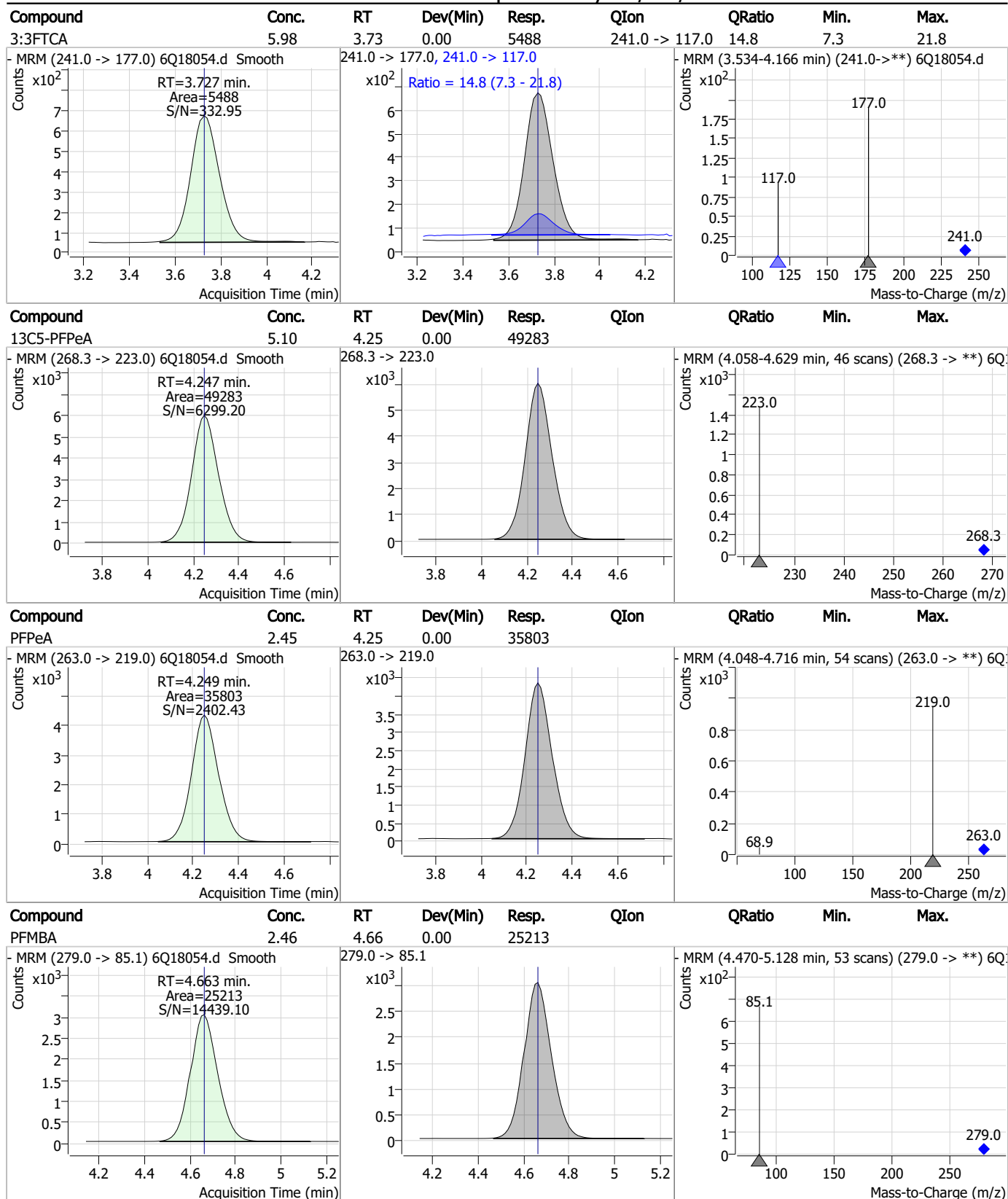
7.6.4

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Perfluorinated Compounds by LC/MS/MS



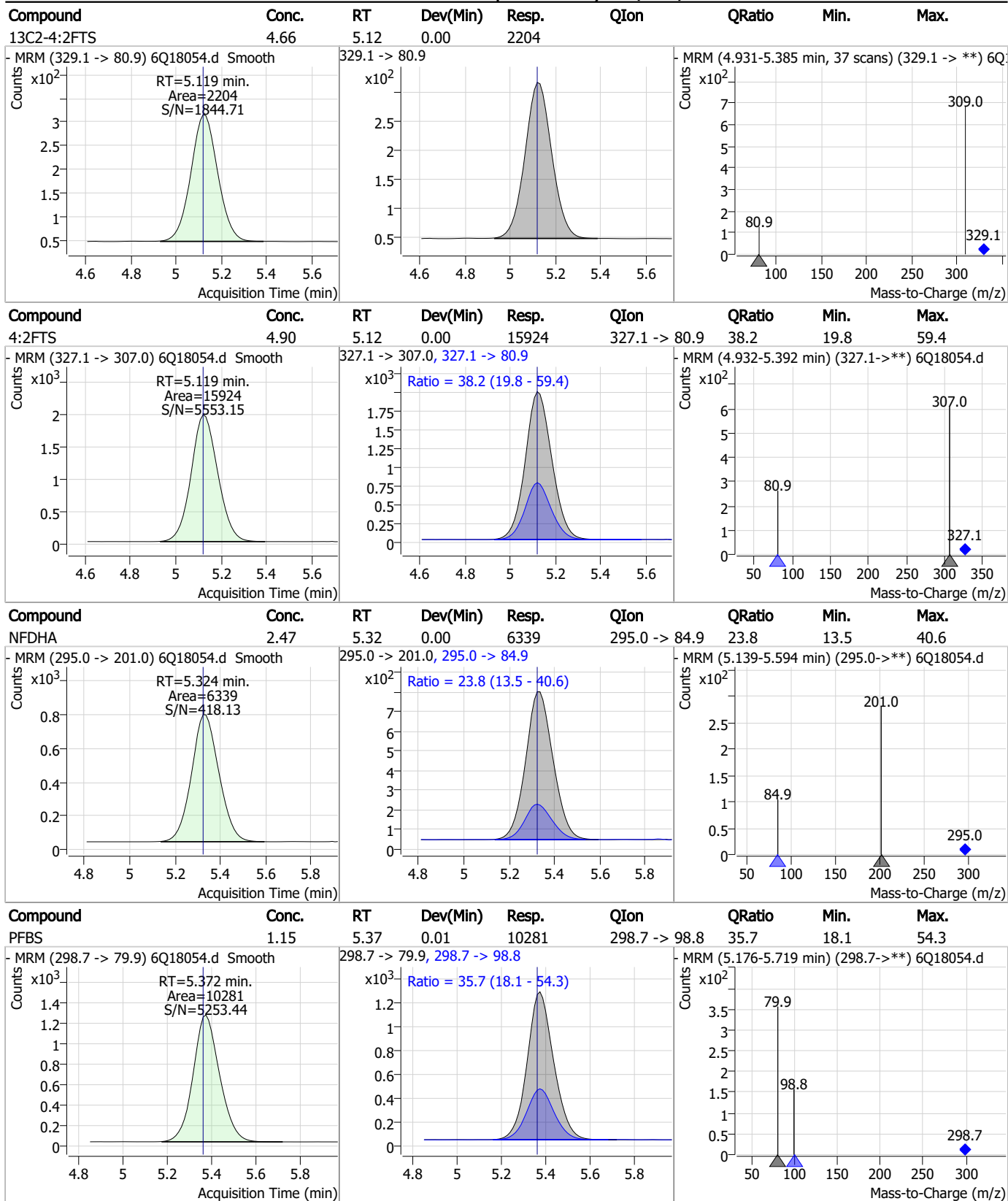
Perfluorinated Compounds by LC/MS/MS



7.6.4

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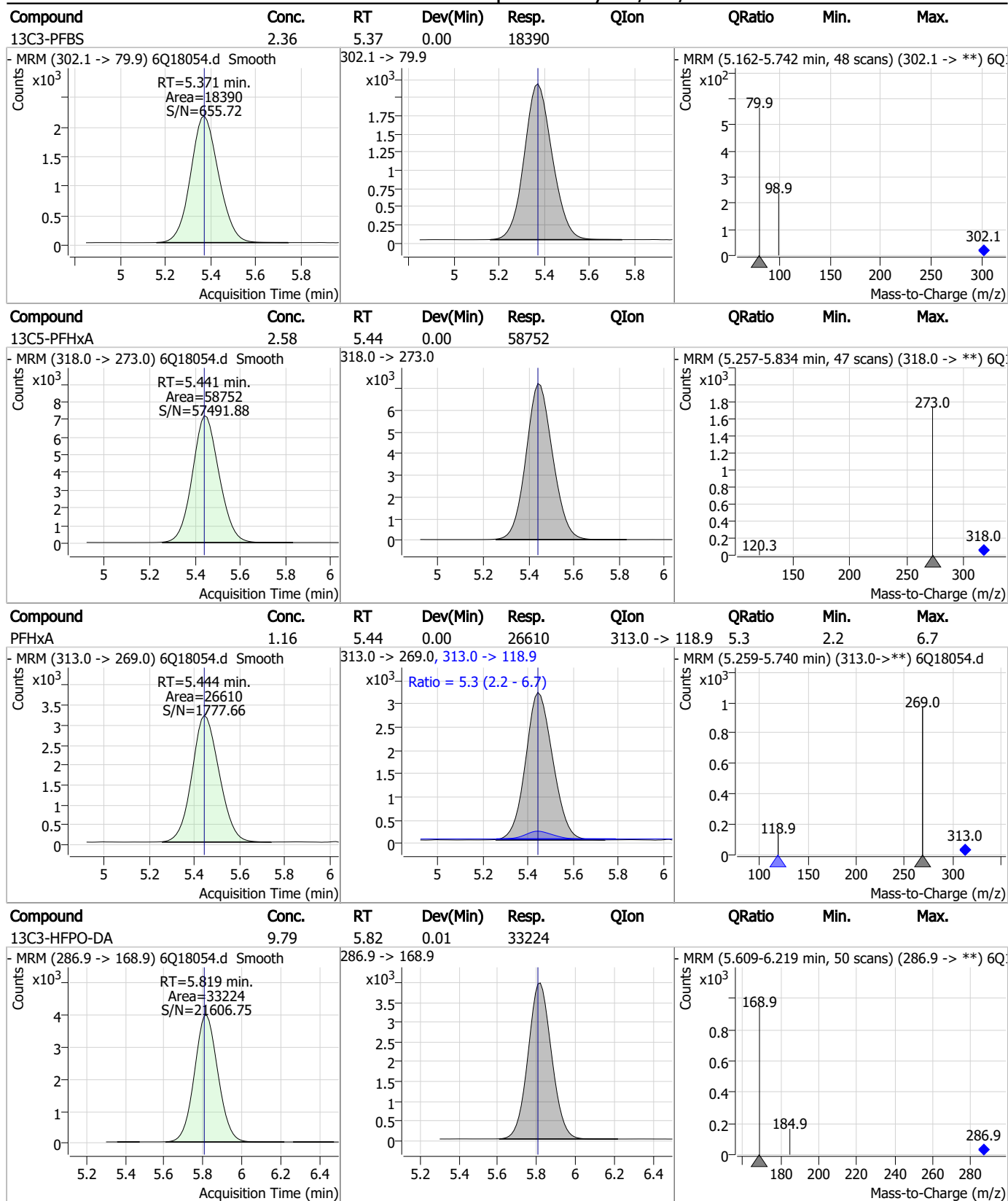
Perfluorinated Compounds by LC/MS/MS



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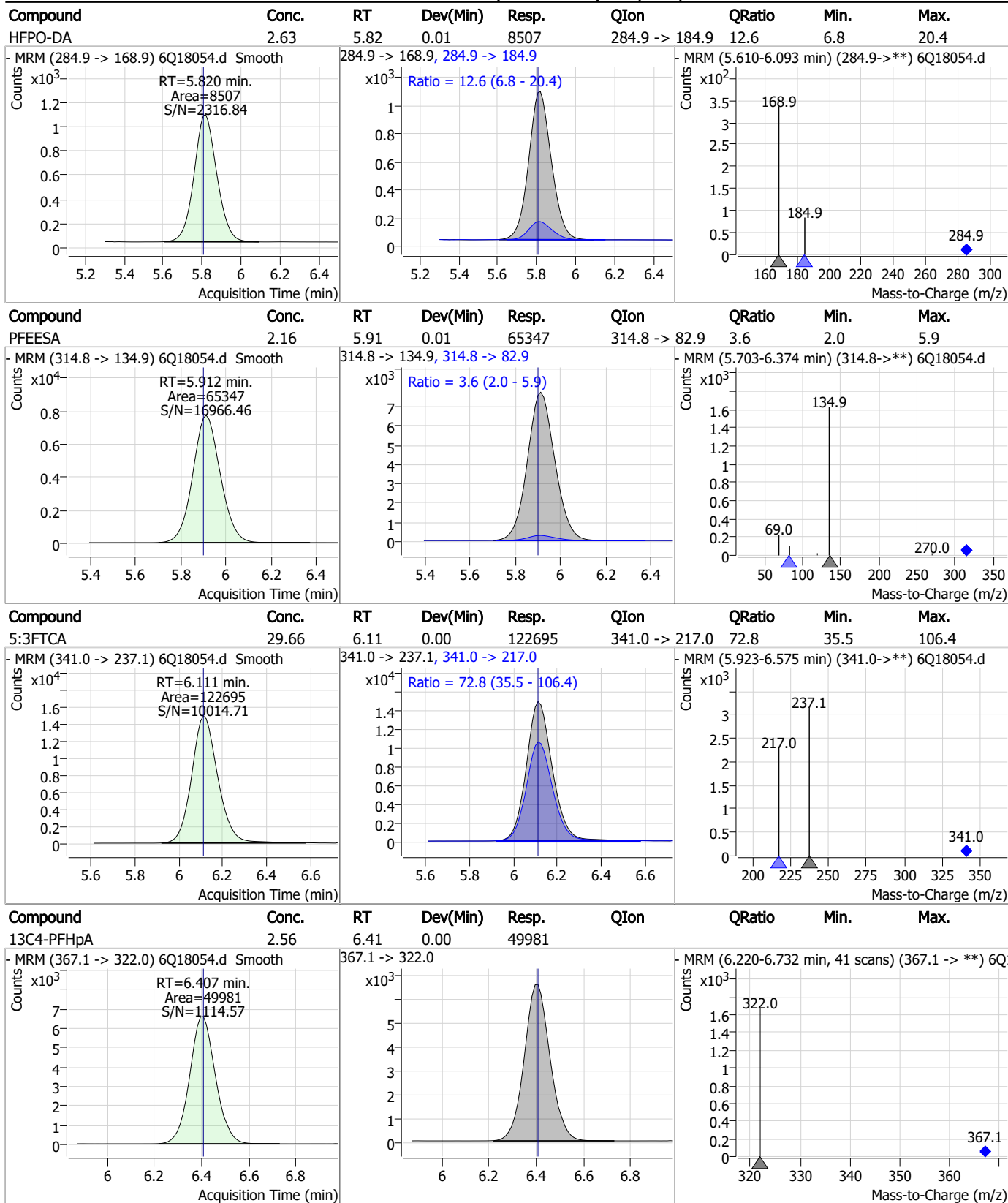
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Perfluorinated Compounds by LC/MS/MS



7.6.4
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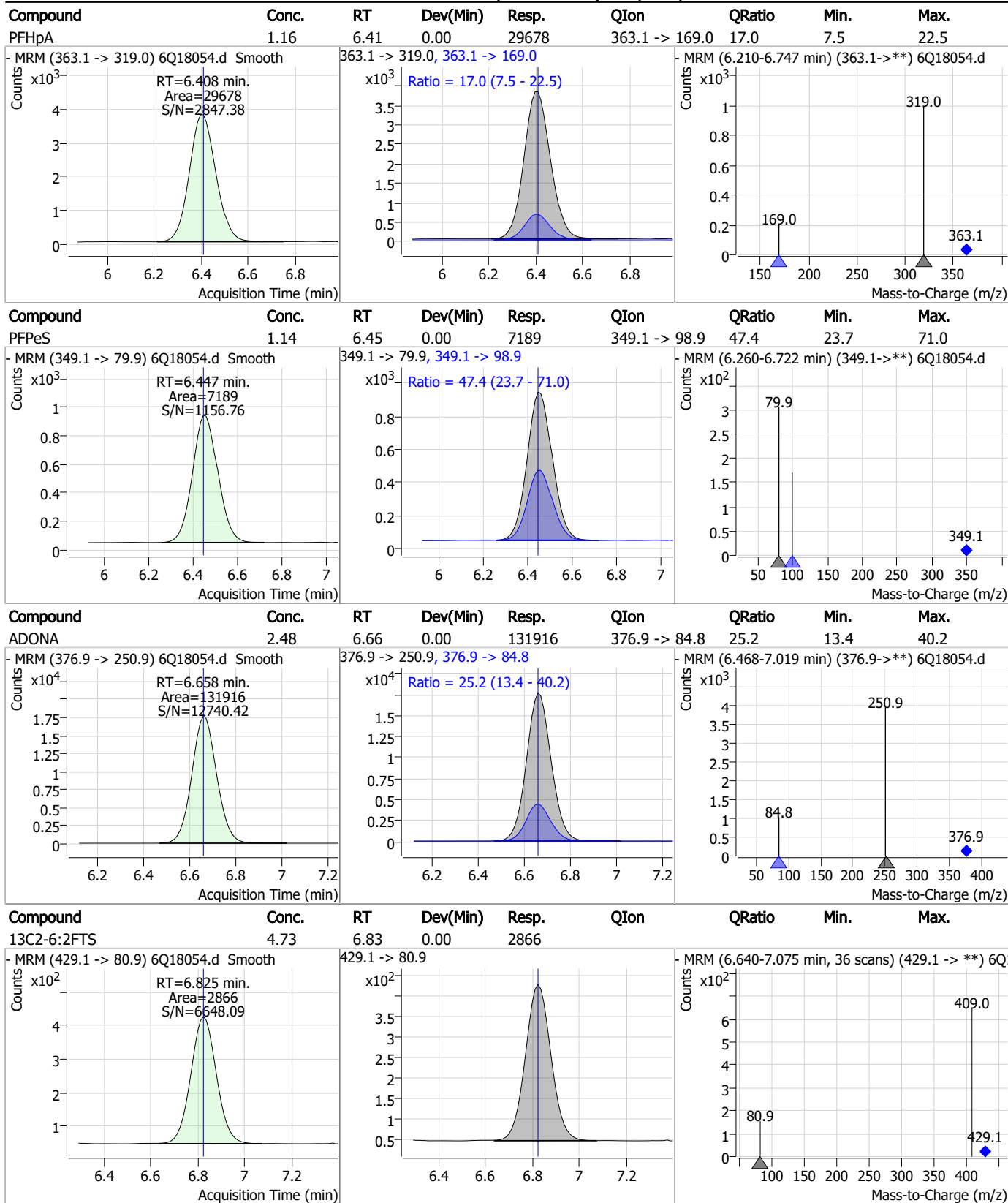
Perfluorinated Compounds by LC/MS/MS



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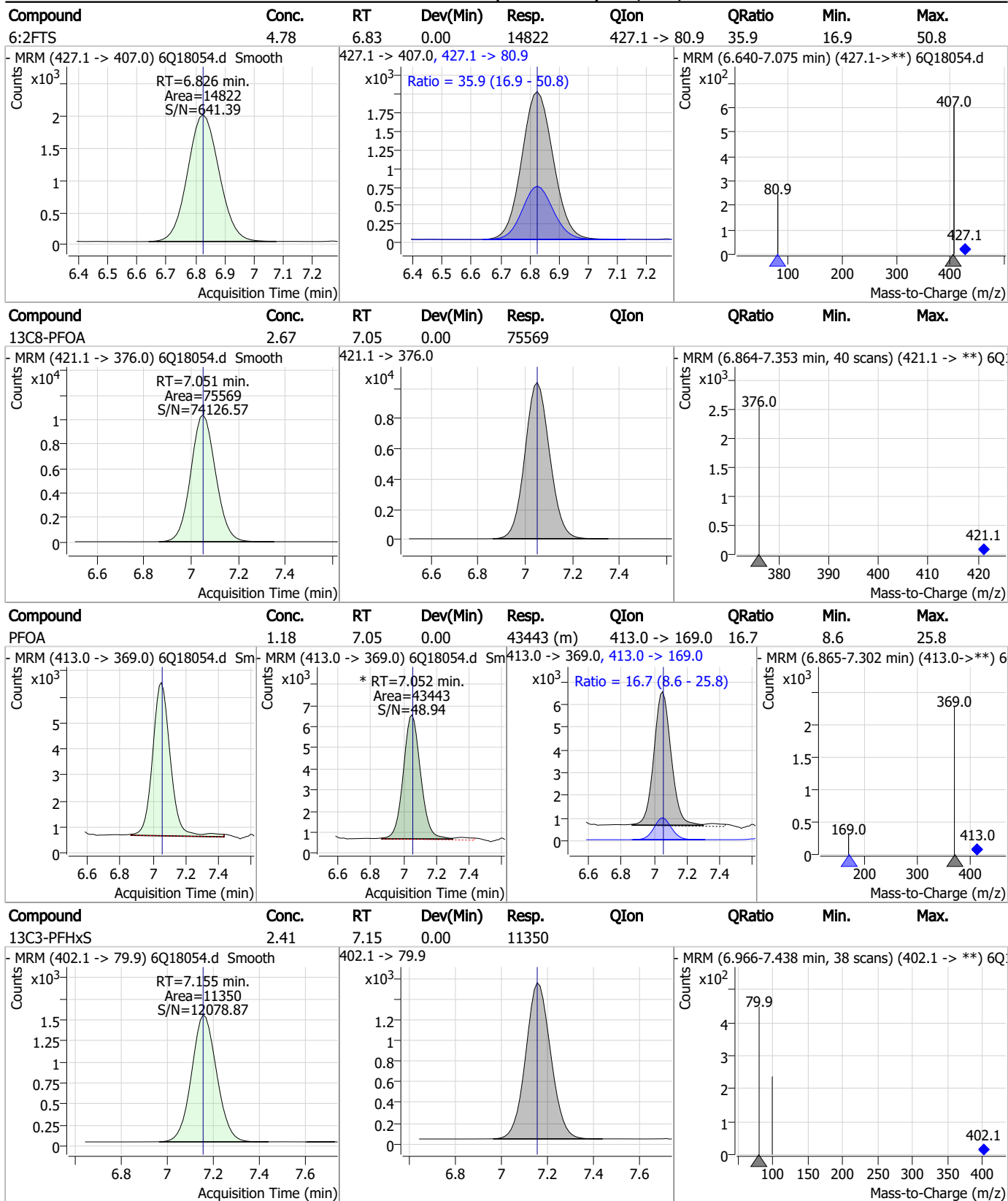
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Perfluorinated Compounds by LC/MS/MS



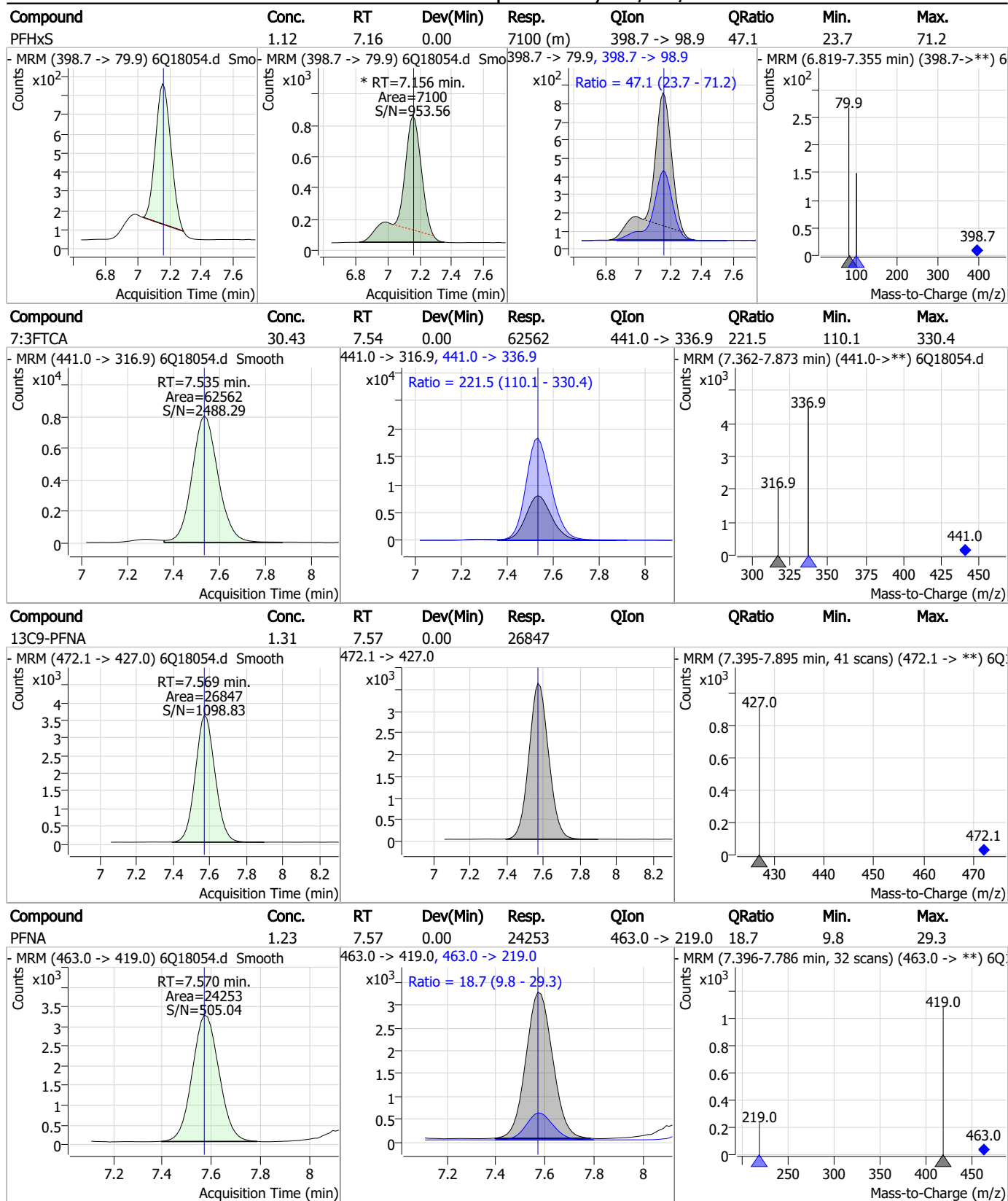
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Perfluorinated Compounds by LC/MS/MS



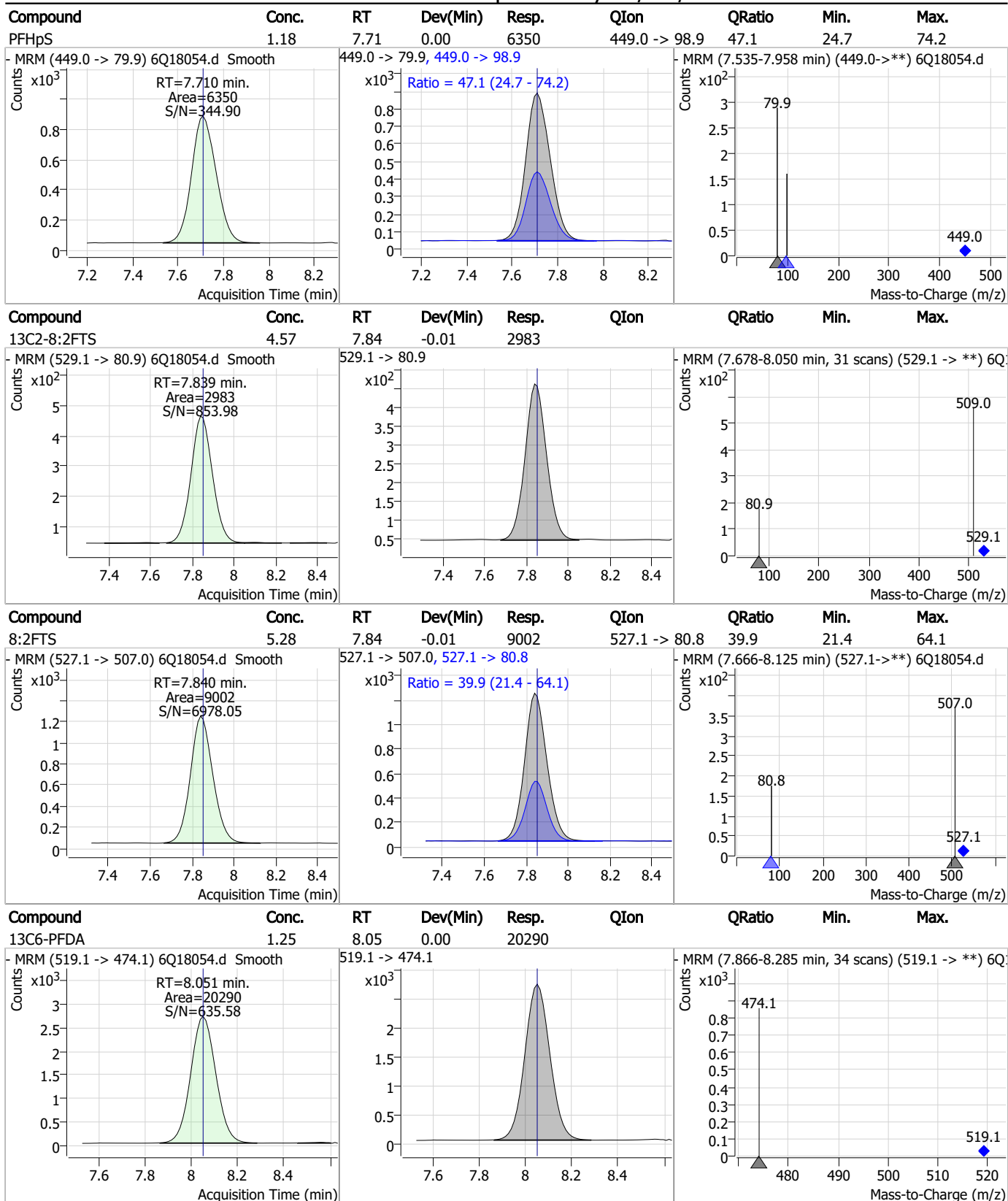
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Perfluorinated Compounds by LC/MS/MS



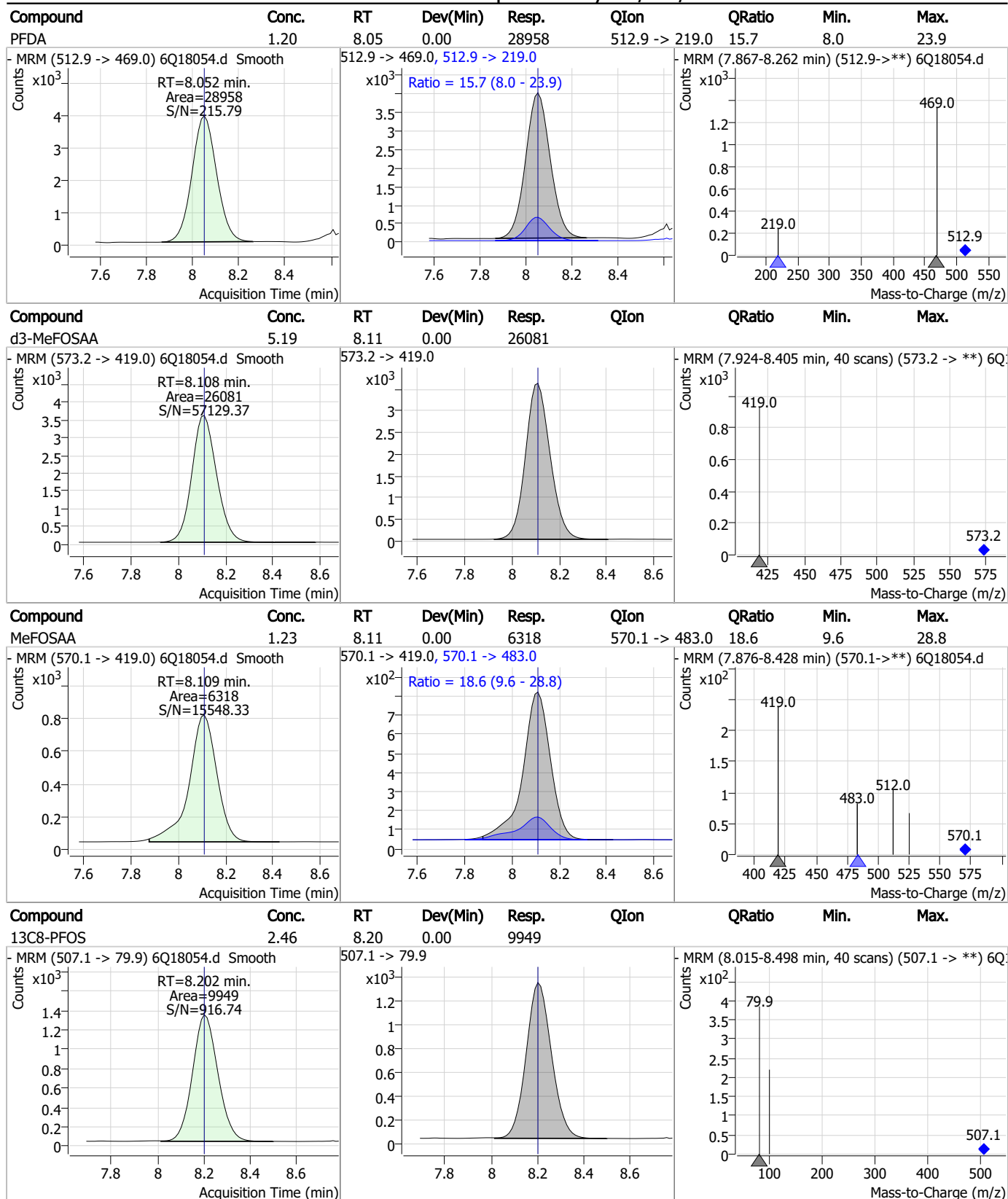
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Perfluorinated Compounds by LC/MS/MS



7.6.4
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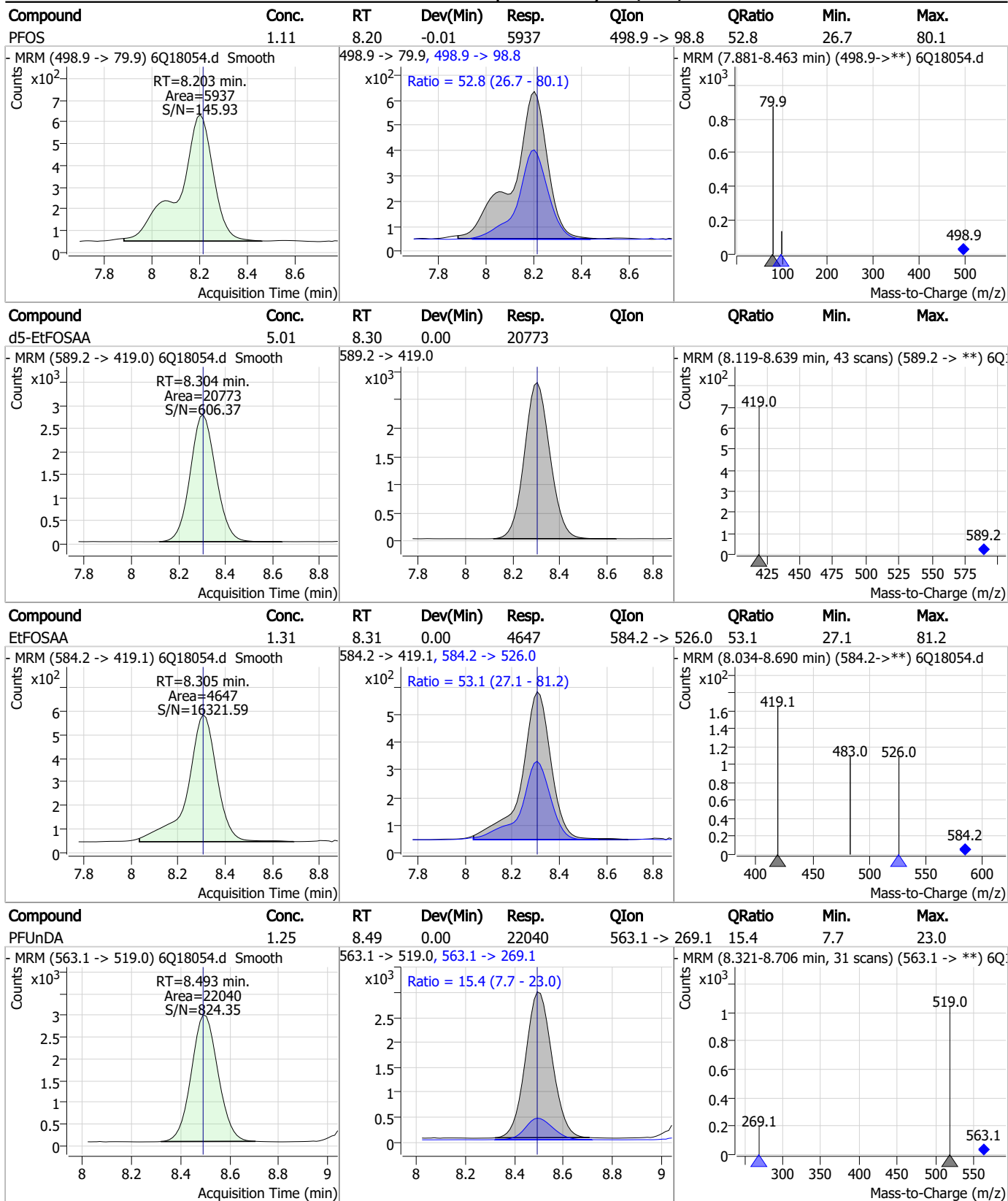
Perfluorinated Compounds by LC/MS/MS



7.6.4

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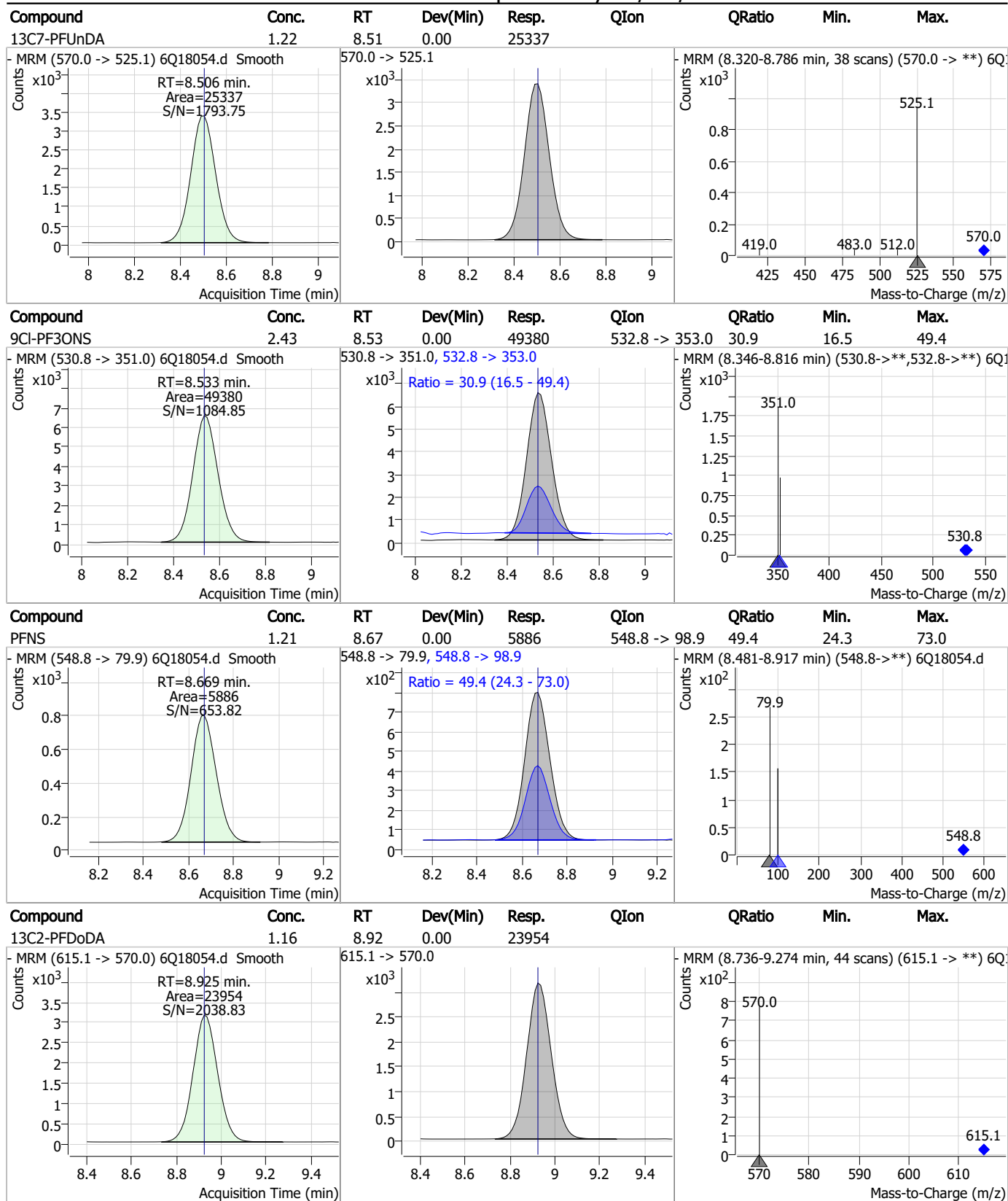
Perfluorinated Compounds by LC/MS/MS



7.6.4

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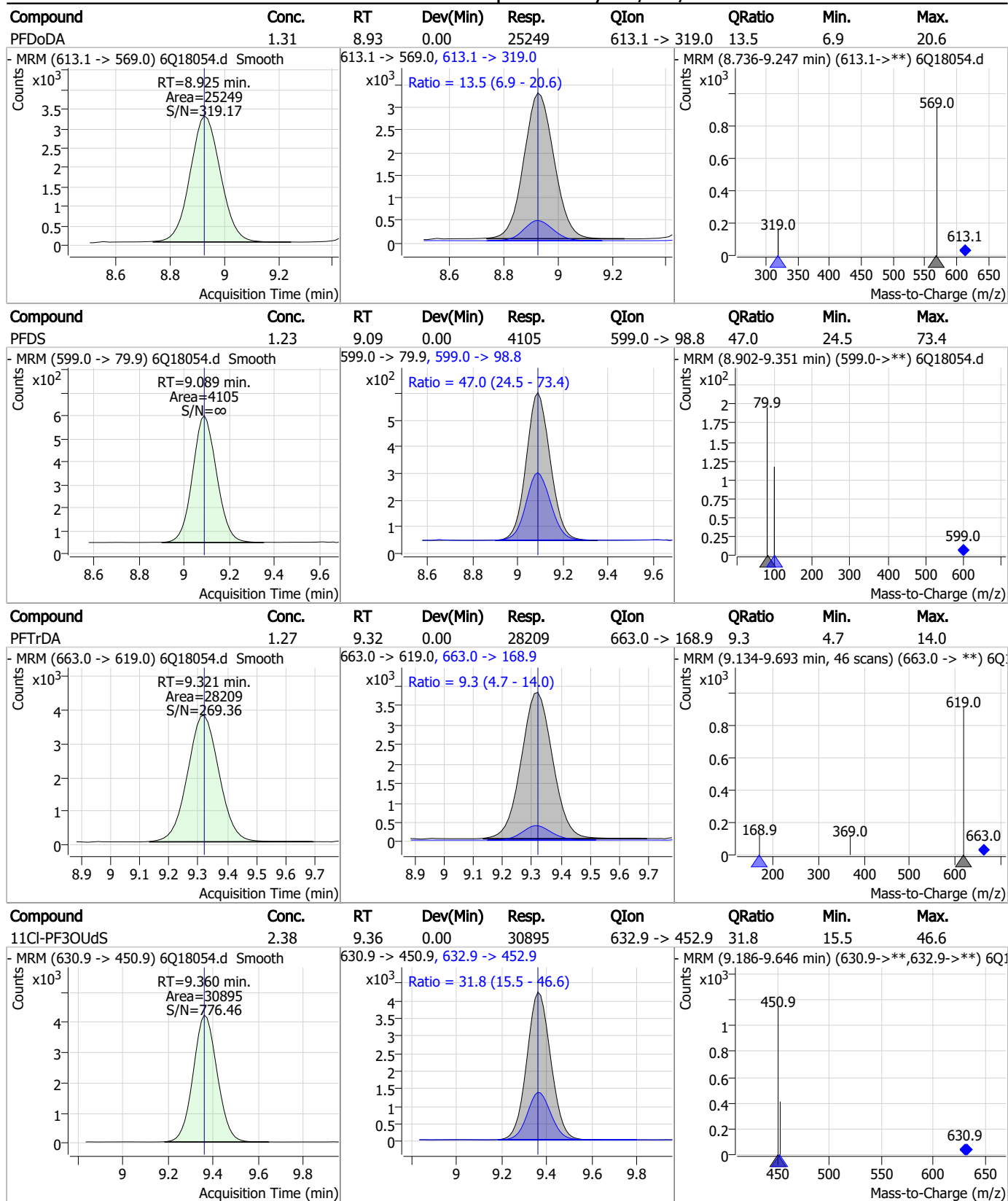
Perfluorinated Compounds by LC/MS/MS



7.6.4

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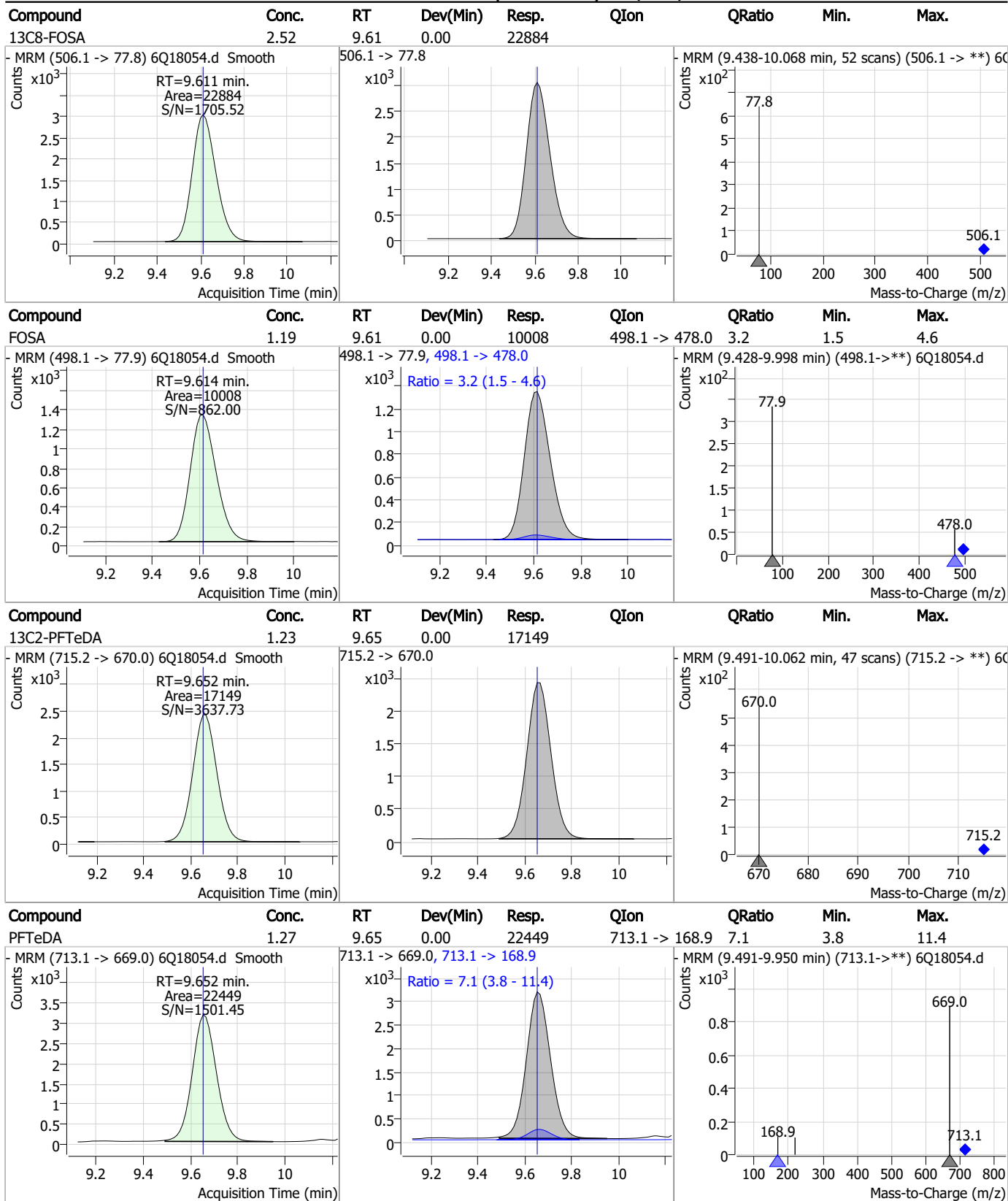
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS

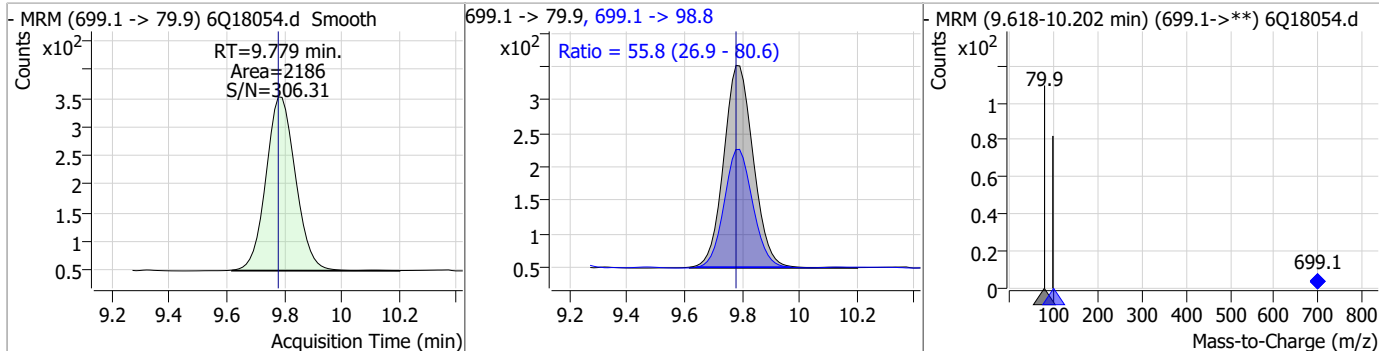


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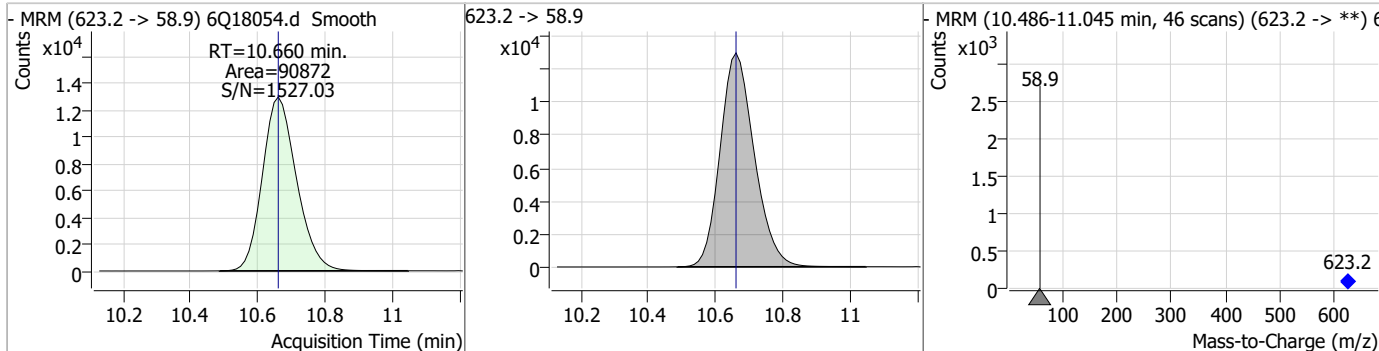
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Perfluorinated Compounds by LC/MS/MS

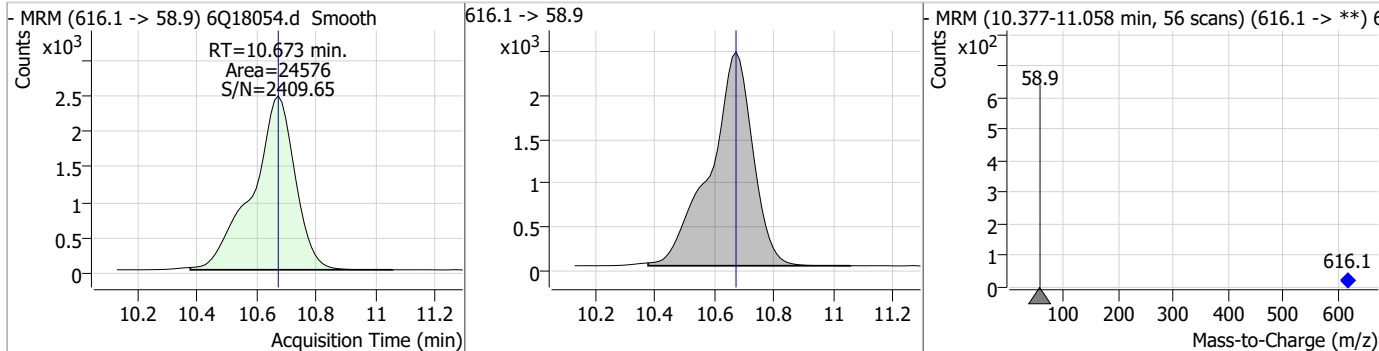
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	1.21	9.78	0.00	2186	699.1 -> 98.8	55.8	26.9	80.6



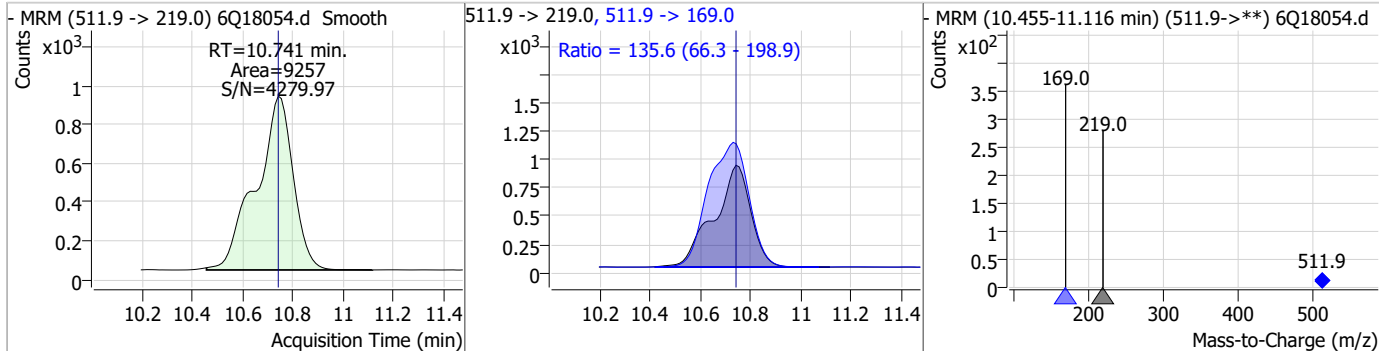
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.53	10.66	0.00	90872				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	5.74	10.67	0.00	24576				

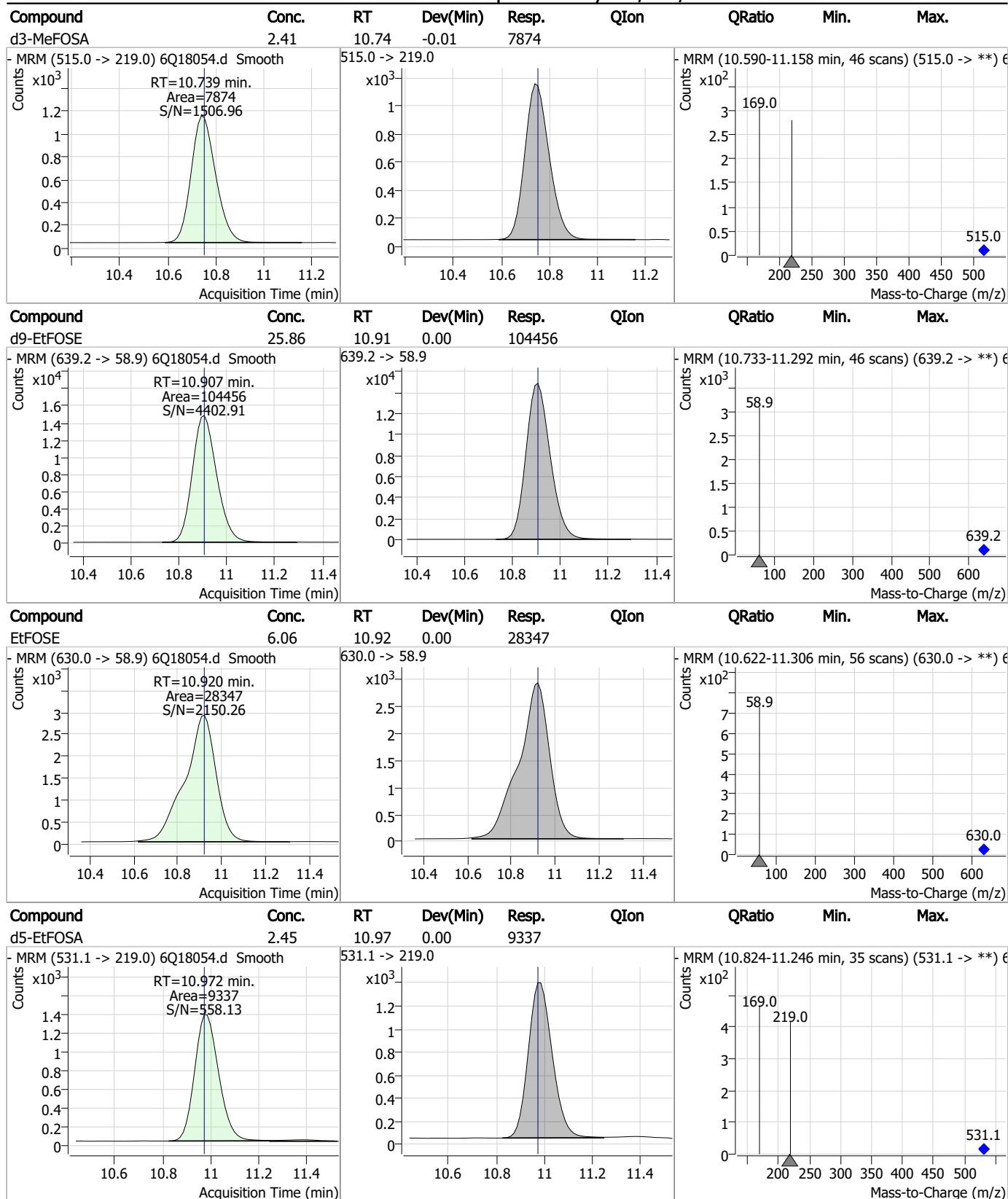


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.58	10.74	0.00	9257	511.9 -> 169.0	135.6	66.3	198.9



7.6.4
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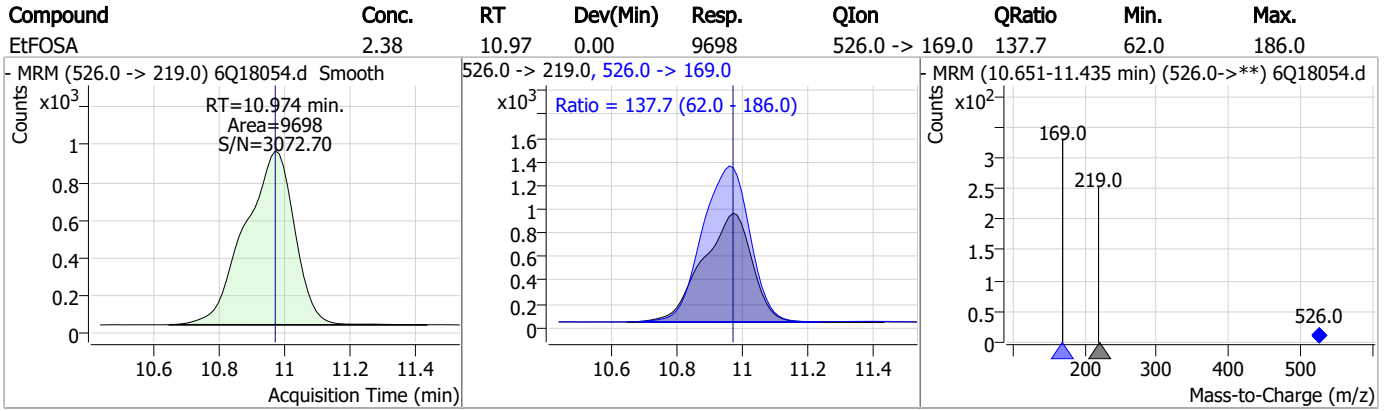
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S6Q272-IC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18054.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 19:28 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.05	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak

7.6.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18055.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 7:42:59 PM
 Sample Name : icc272-4
 Vial : P1-A5
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	158157	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	49568	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	59370	2.50 µg/L	0.000
M4-PFHpA	6.407	367.1 -> 322.0	50089	2.50 µg/L	0.000
M8-PFOA	7.051	421.1 -> 376.0	72677	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	27106	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	19683	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	26564	1.25 µg/L	0.000
M2-PFDoDA	8.925	615.1 -> 570.0	25039	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	15963	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	22545	2.50 µg/L	0.000
M3-PFBS	5.371	302.1 -> 79.9	19166	2.50 µg/L	0.000
M3-PFHxS	7.155	402.1 -> 79.9	11636	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	10478	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2270	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	2962	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	3460	5.00 µg/L	0.000
M3-MeFOSAA	8.108	573.2 -> 419.0	25981	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	34704	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	20857	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	82130	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	100294	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9278	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7946	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	13193	2.50 µg/L	0.000
13C3-PFBA	2.879	216.0 -> 172.0	66864	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8562	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	80993	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	22184	1.25 µg/L	0.000
13C5-PFNA	7.570	468.0 -> 423.0	26622	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	48343	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2270	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-6:2FTS	6.825	429.1 -> 80.9	2962	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-8:2FTS	7.852	529.1 -> 80.9	3460	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C2-PFDoDA	8.925	615.1 -> 570.0	25039	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-PFTeDA	9.652	715.2 -> 670.0	15963	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFBS	5.371	302.1 -> 79.9	19166	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-PFHxS	7.155	402.1 -> 79.9	11636	2.54 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFBA	2.888	216.8 -> 171.9	158157	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.407	367.1 -> 322.0	50089	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C5-PFHxA	5.441	318.0 -> 273.0	59370	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFPeA	4.247	268.3 -> 223.0	49568	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C6-PFDA	8.051	519.1 -> 474.1	19683	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C7-PFUnDA	8.506	570.0 -> 525.1	26564	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C8-FOSA	9.611	506.1 -> 77.8	22545	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-PFOA	7.051	421.1 -> 376.0	72677	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-PFOS	8.202	507.1 -> 79.9	10478	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C9-PFNA	7.569	472.1 -> 427.0	27106	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.4%	
d3-MeFOSAA	8.108	573.2 -> 419.0	25981	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	34704	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	7946	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSAA	8.304	589.2 -> 419.0	20857	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d7-MeFOSE	10.660	623.2 -> 58.9	82130	24.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	100294	25.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d5-EtFOSA	10.972	531.1 -> 219.0	9278	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	31197	9.31 µg/L	100
		327.1 -> 80.9	12356		
6:2FTS	6.826	427.1 -> 407.0	29871	9.33 µg/L	100
		427.1 -> 80.9	10113		
8:2FTS	7.852	527.1 -> 507.0	17191	8.69 µg/L	100
		527.1 -> 80.8	7344		
EtFOSAA	8.305	584.2 -> 419.1	8778	2.46 µg/L	100
		584.2 -> 526.0	4754		
FOSA	9.614	498.1 -> 77.9	19911	2.41 µg/L	100
		498.1 -> 478.0	607		
MeFOSAA	8.109	570.1 -> 419.0	11709	2.29 µg/L	100
		570.1 -> 483.0	2252		
PFBA	2.882	212.8 -> 168.9	56035	9.76 µg/L	100
PFBS	5.360	298.7 -> 79.9	20138	2.15 µg/L	100
		298.7 -> 98.8	7284		
PFDA	8.052	512.9 -> 469.0	56574	2.41 µg/L	100
		512.9 -> 219.0	9027		
PFDODA	8.925	613.1 -> 569.0	48219	2.40 µg/L	100
		613.1 -> 319.0	6617		
PFDS	9.089	599.0 -> 79.9	7754	2.20 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3792			
PFHpA	6.408	363.1 -> 319.0	62516	2.44	µg/L	100
		363.1 -> 169.0	9397			
PFHpS	7.710	449.0 -> 79.9	12875	2.27	µg/L	100
		449.0 -> 98.9	6367			
PFHxA	5.444	313.0 -> 269.0	54420	2.35	µg/L	100
		313.0 -> 118.9	2448			
PFHxS	7.156	398.7 -> 79.9	13942	2.14	µg/L	m 100
		398.7 -> 98.9	6620			
PFNA	7.570	463.0 -> 419.0	45136	2.26	µg/L	100
		463.0 -> 219.0	8802			
PFNS	8.669	548.8 -> 79.9	12378	2.41	µg/L	100
		548.8 -> 98.9	6022			
PFOA	7.052	413.0 -> 369.0	86598	2.44	µg/L	m 100
		413.0 -> 169.0	14915			
PFOS	8.215	498.9 -> 79.9	11611	2.07	µg/L	100
		498.9 -> 98.8	6203			
PFPeA	4.249	263.0 -> 219.0	70142	4.78	µg/L	100
PFPeS	6.447	349.1 -> 79.9	14234	2.20	µg/L	100
		349.1 -> 98.9	6733			
PFTeDA	9.652	713.1 -> 669.0	40032	2.43	µg/L	100
		713.1 -> 168.9	3051			
PFTrDA	9.321	663.0 -> 619.0	55288	2.39	µg/L	100
		663.0 -> 168.9	5146			
PFUnDA	8.493	563.1 -> 519.0	43643	2.35	µg/L	100
		563.1 -> 269.1	6690			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	61512	4.53	µg/L	100
		632.9 -> 452.9	19115			
9Cl-PF3ONS	8.533	530.8 -> 351.0	94403	4.45	µg/L	100
		532.8 -> 353.0	31103			
ADONA	6.658	376.9 -> 250.9	247439	4.45	µg/L	100
		376.9 -> 84.8	66326			
HFPO-DA	5.807	284.9 -> 168.9	15717	4.66	µg/L	100
		284.9 -> 184.9	2142			
3:3FTCA	3.727	241.0 -> 177.0	10961	11.86	µg/L	100
		241.0 -> 117.0	1591			
5:3FTCA	6.111	341.0 -> 237.1	243478	58.24	µg/L	100
		341.0 -> 217.0	172654			
7:3FTCA	7.535	441.0 -> 316.9	123170	59.28	µg/L	100
		441.0 -> 336.9	271317			
EtFOSA	10.974	526.0 -> 219.0	20441	5.06	µg/L	100
		526.0 -> 169.0	25344			
EtFOSE	10.920	630.0 -> 58.9	54829	12.21	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	17811	4.92	µg/L	100
		511.9 -> 169.0	23616			
MeFOSE	10.673	616.1 -> 58.9	50916	13.17	µg/L	100
PFDoDS	9.779	699.1 -> 79.9	4374	2.30	µg/L	100
		699.1 -> 98.8	2349			
NFDHA	5.324	295.0 -> 201.0	11972	4.62	µg/L	100
		295.0 -> 84.9	3244			
PFMBA	4.663	279.0 -> 85.1	49488	4.79	µg/L	100
PFMPA	3.401	229.0 -> 84.9	36546	4.79	µg/L	100
PFEESA	5.900	314.8 -> 134.9	119175	3.89	µg/L	100
		314.8 -> 82.9	4693			

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

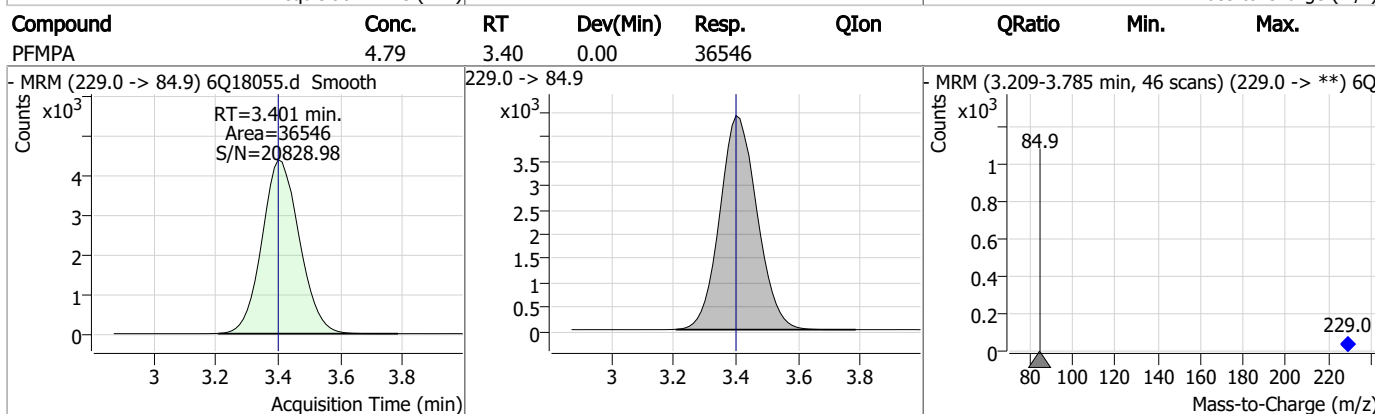
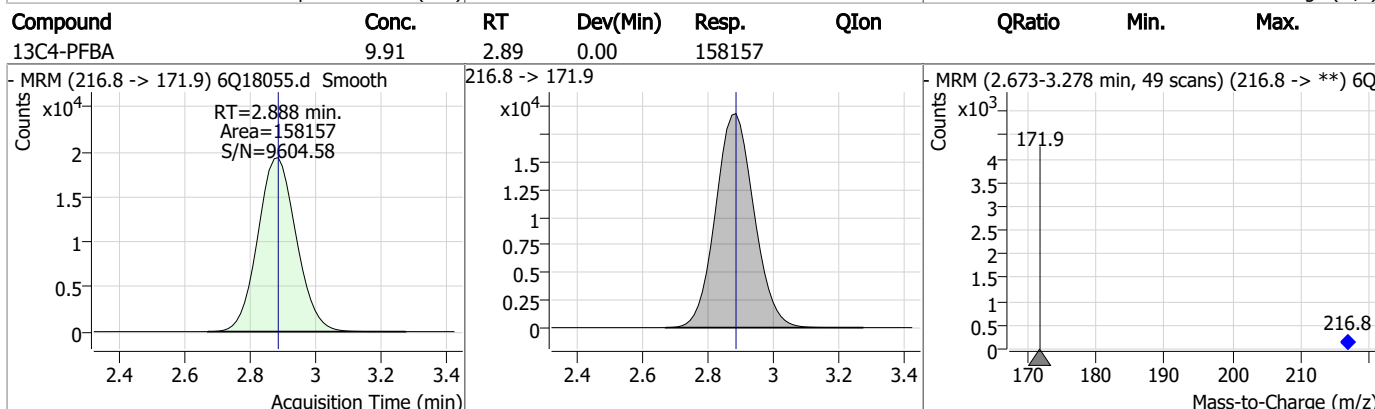
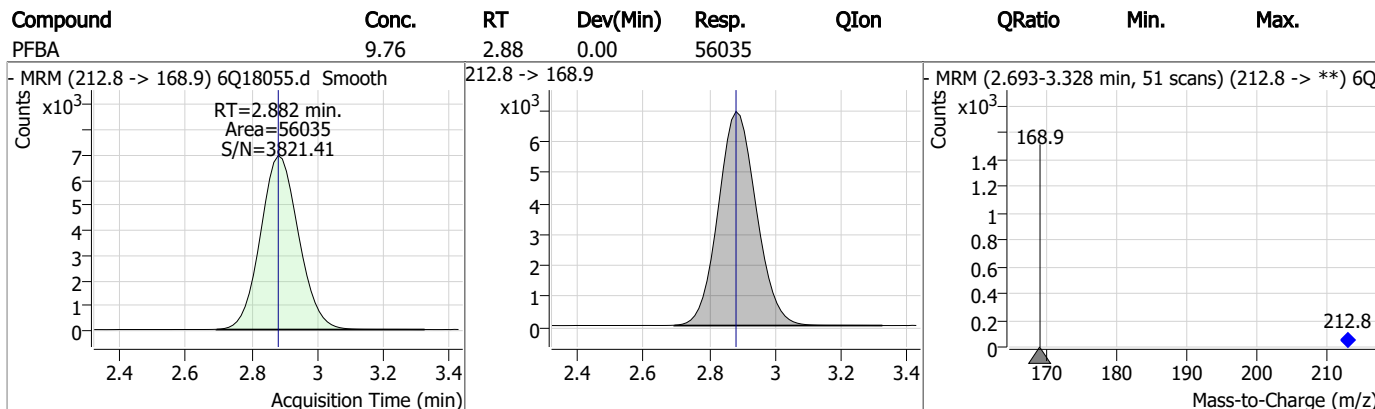
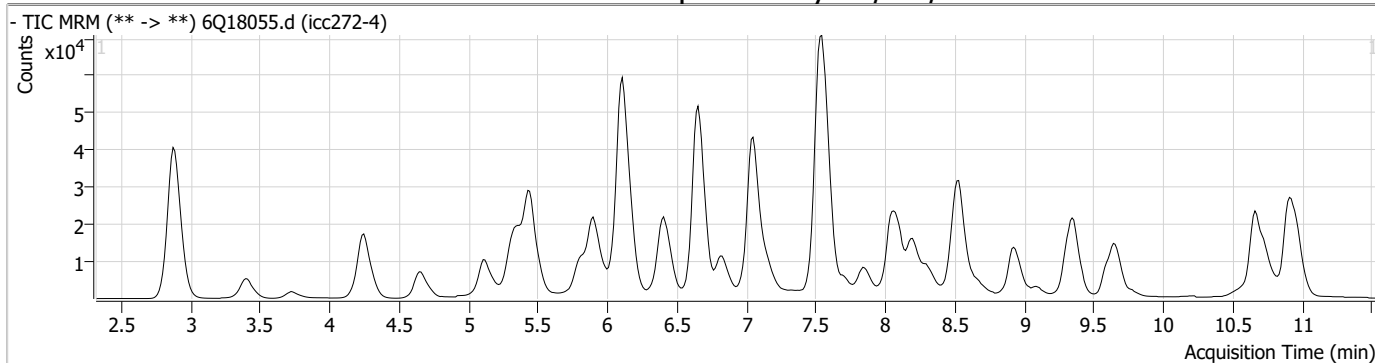
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.5
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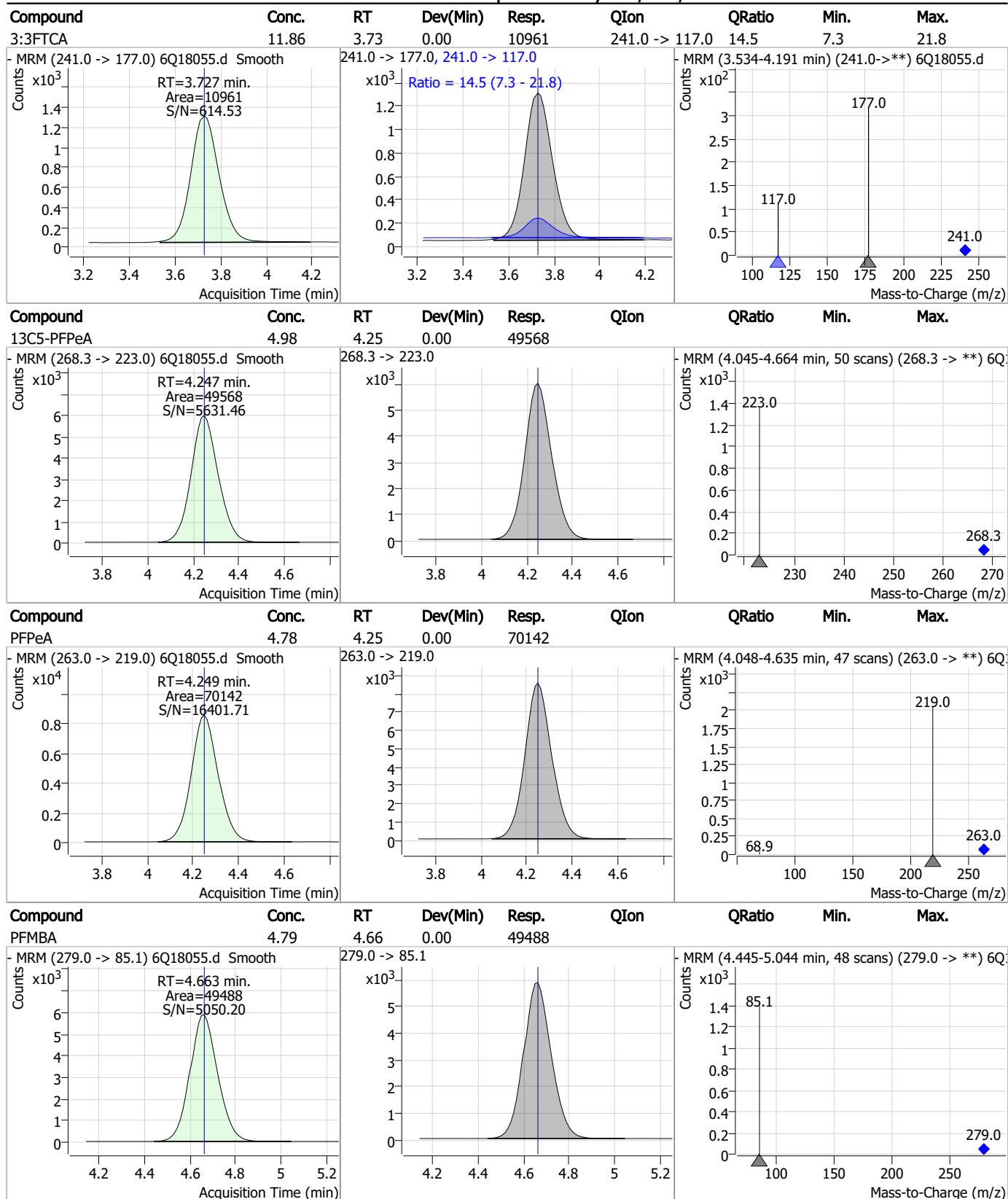


Perfluorinated Compounds by LC/MS/MS



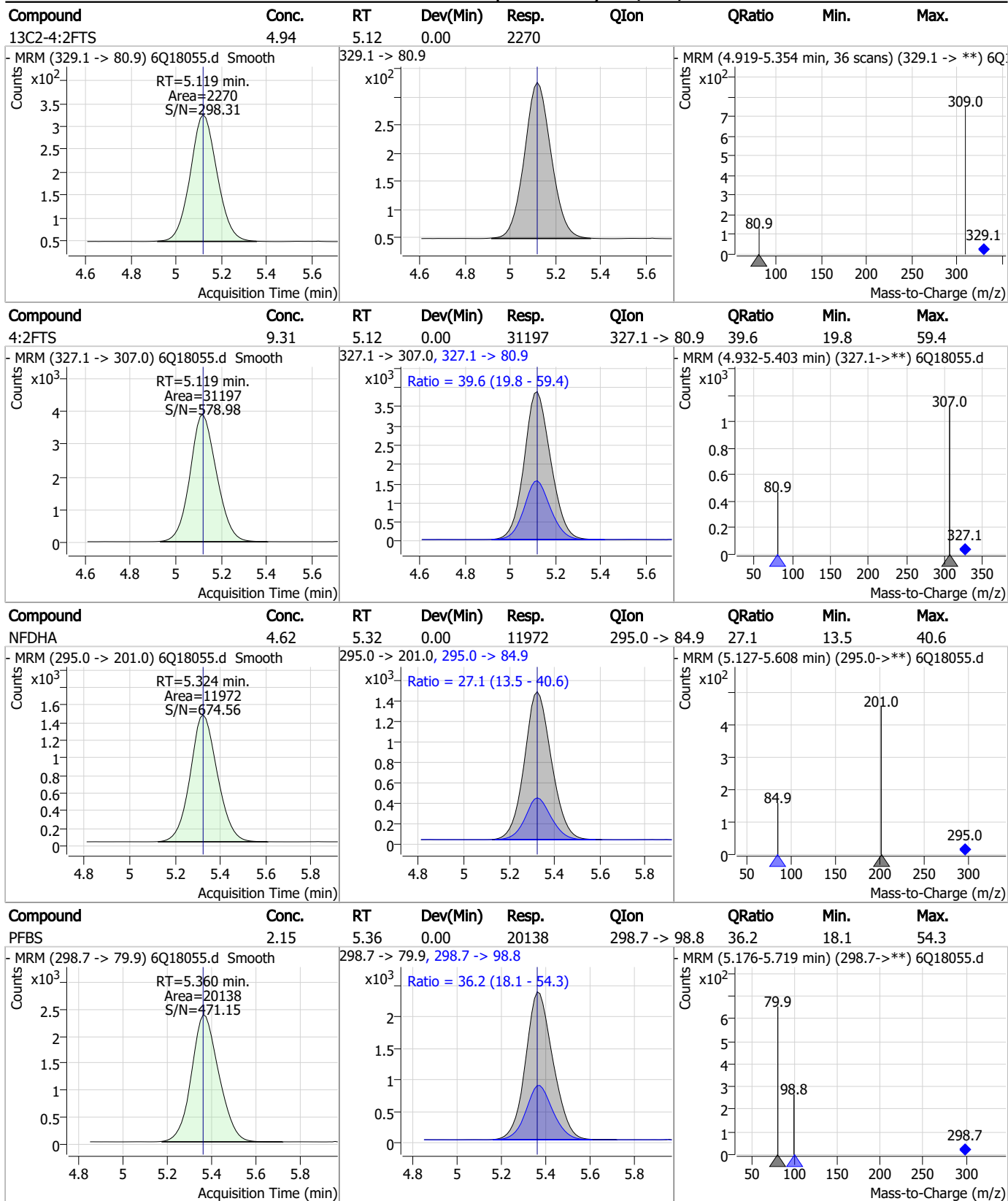
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Perfluorinated Compounds by LC/MS/MS



7.6.5
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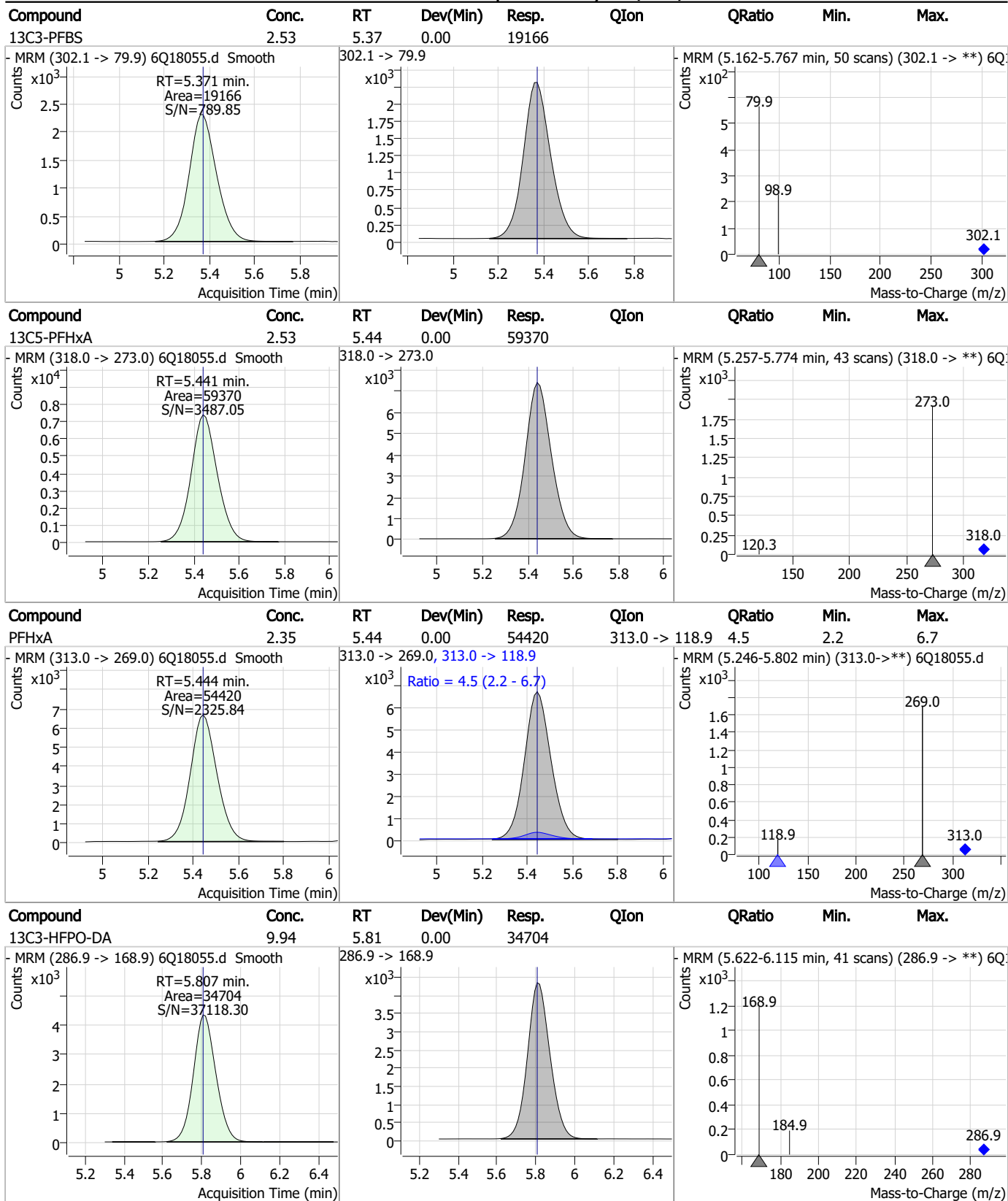
Perfluorinated Compounds by LC/MS/MS



7.6.5

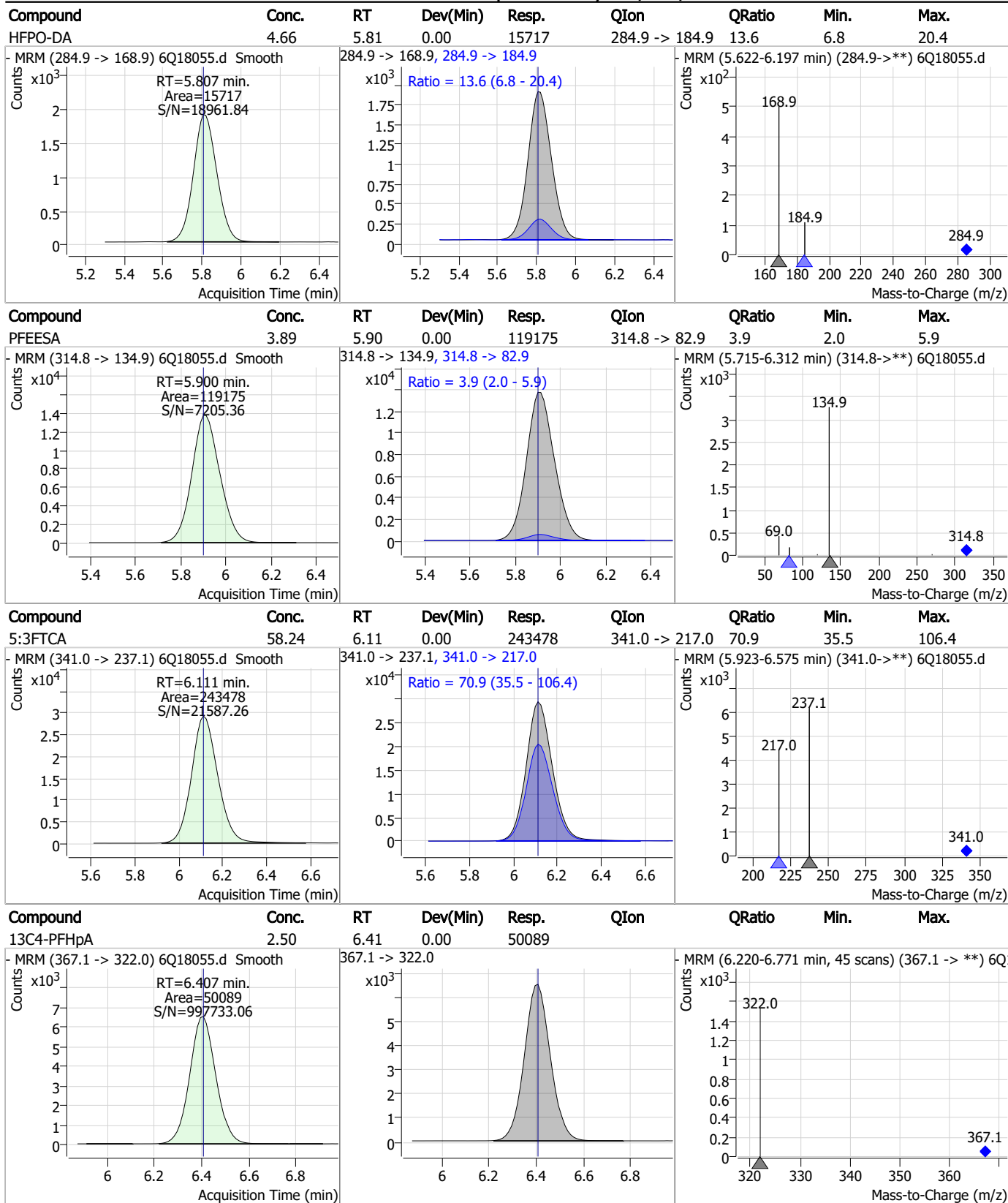
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Perfluorinated Compounds by LC/MS/MS



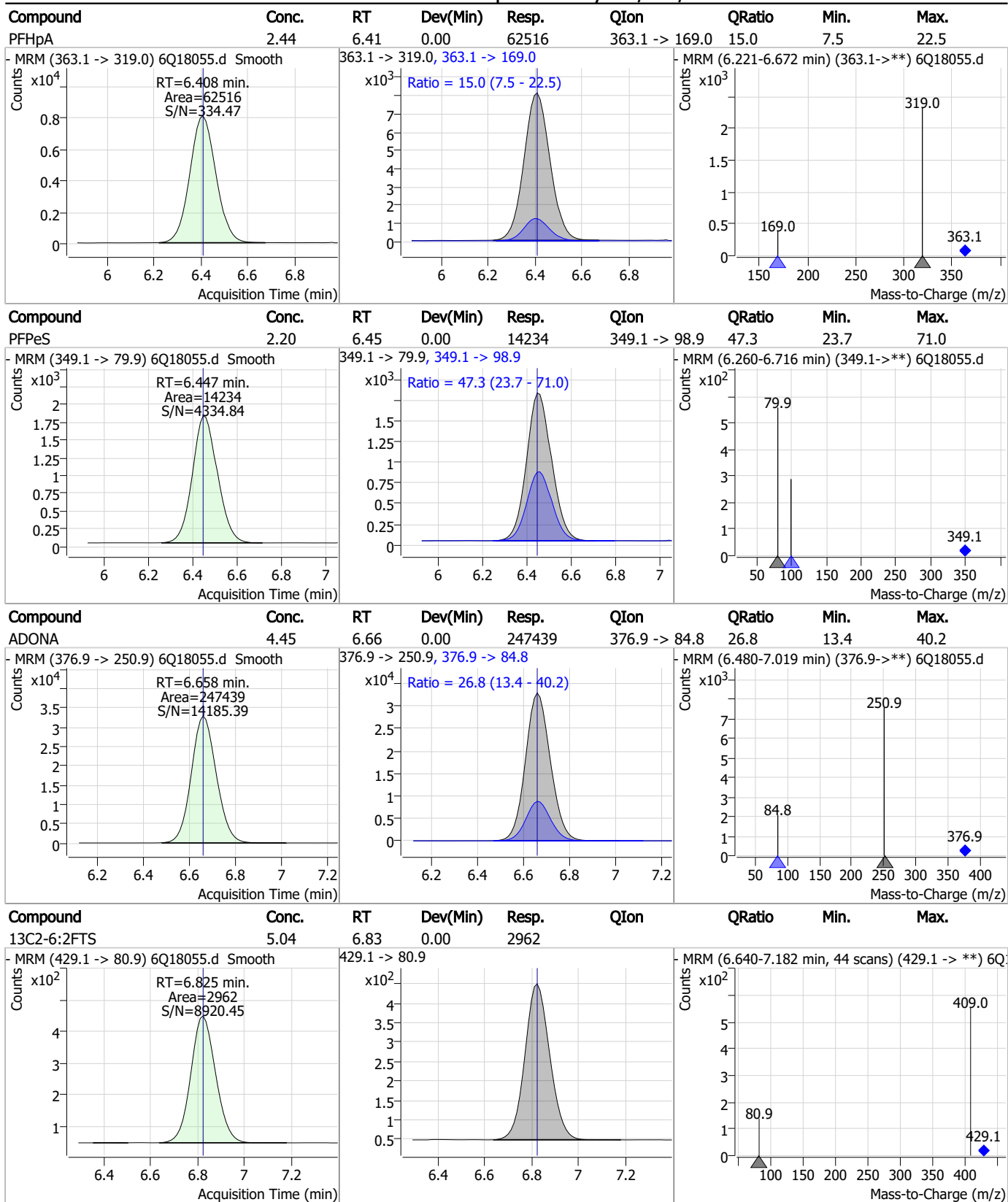
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Perfluorinated Compounds by LC/MS/MS



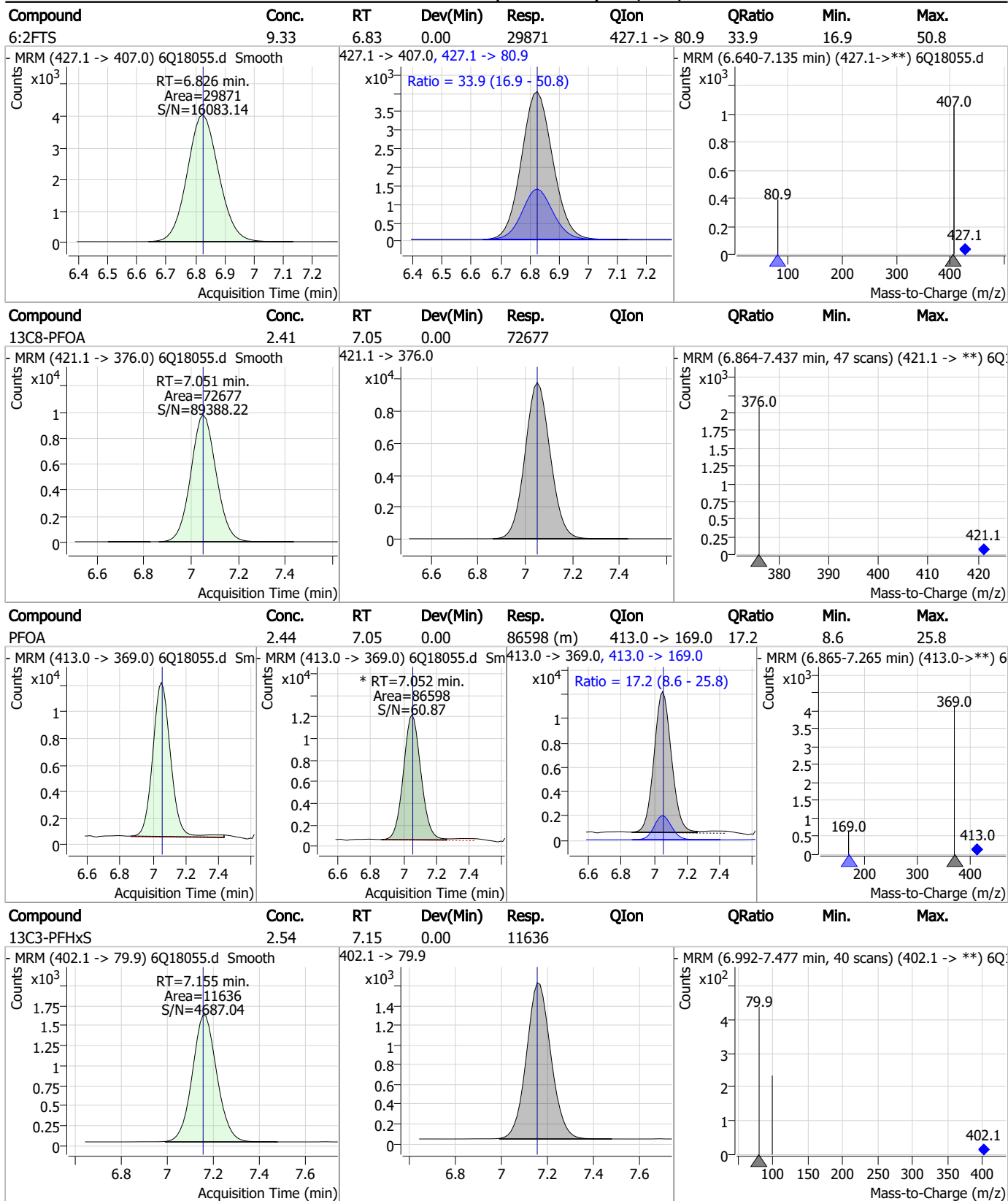
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Perfluorinated Compounds by LC/MS/MS



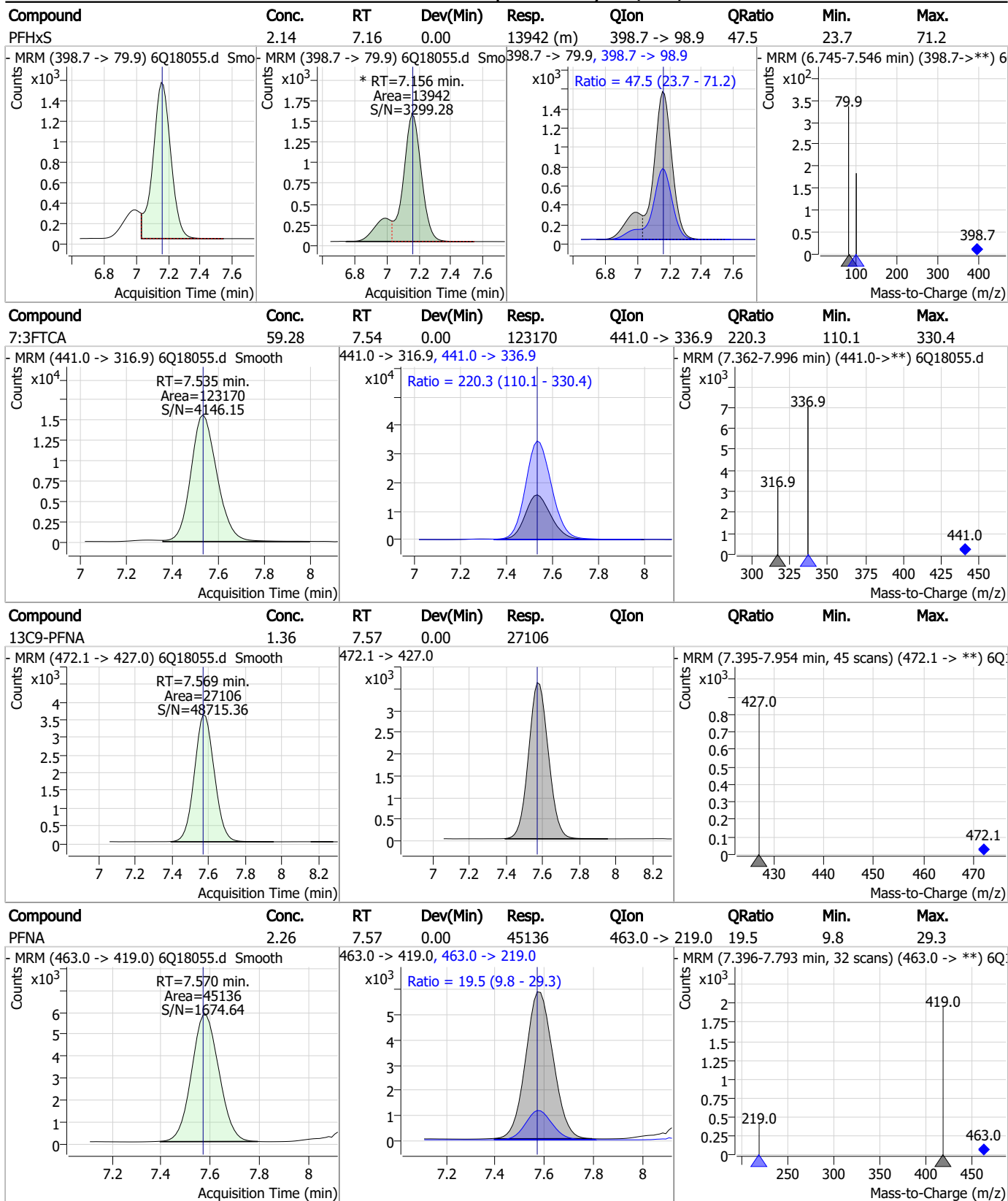
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Perfluorinated Compounds by LC/MS/MS



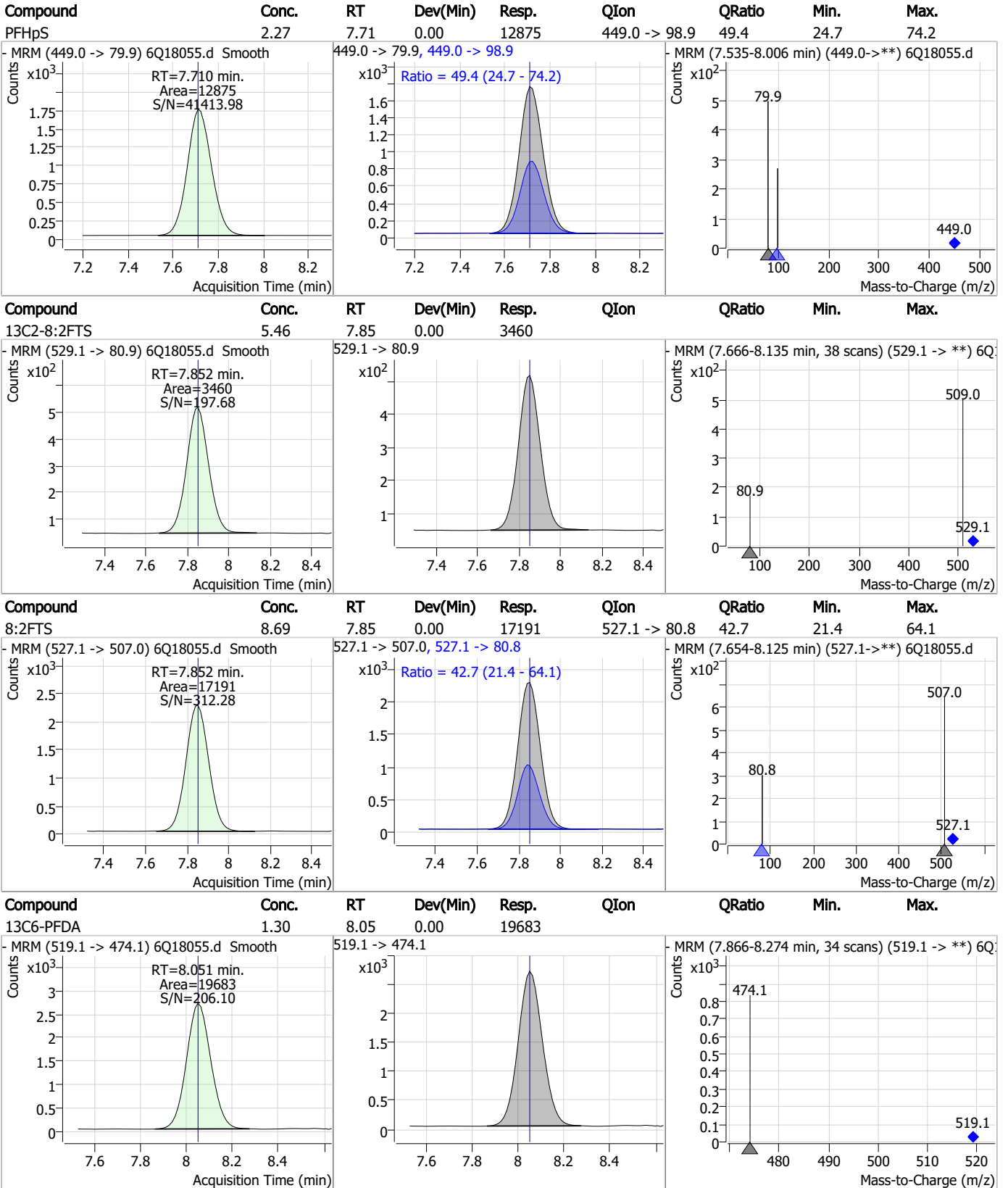
7.6.5
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Perfluorinated Compounds by LC/MS/MS



7.6.5
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Perfluorinated Compounds by LC/MS/MS

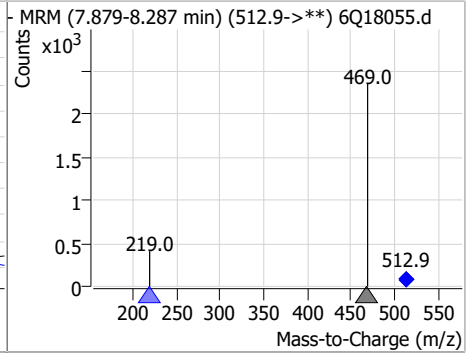
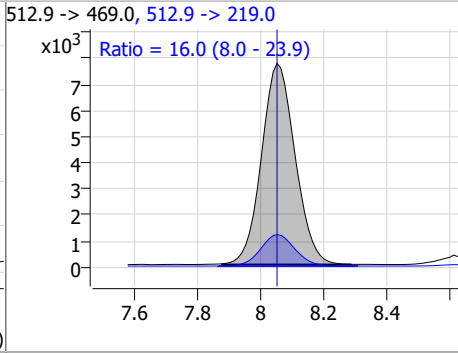
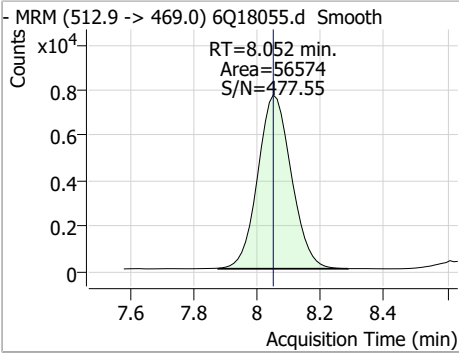


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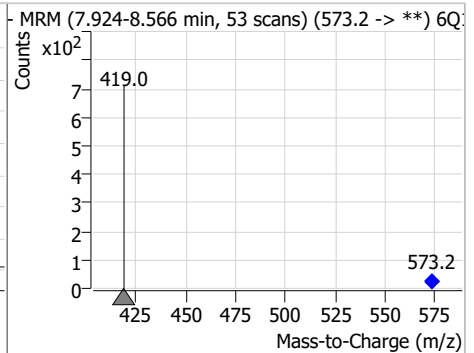
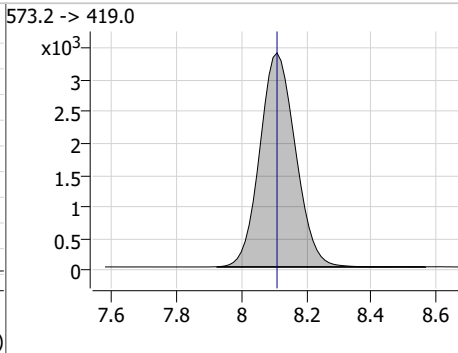
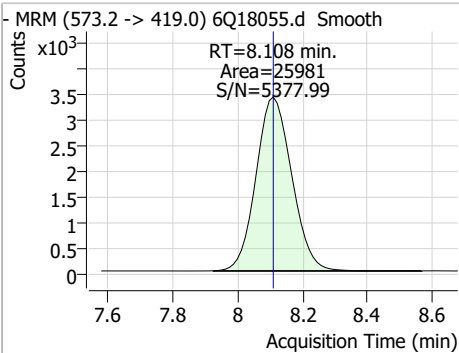
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Perfluorinated Compounds by LC/MS/MS

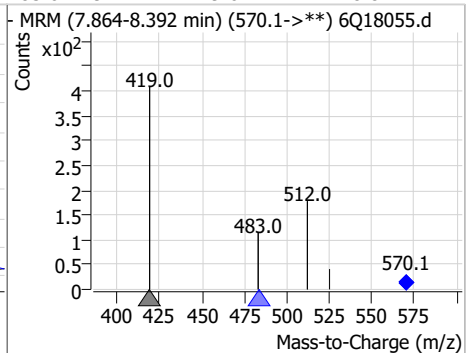
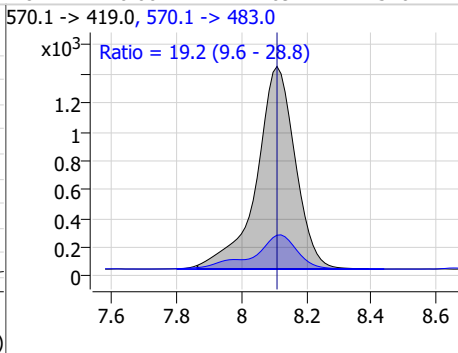
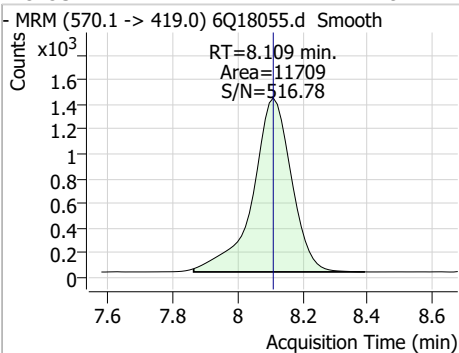
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.41	8.05	0.00	56574	512.9 -> 219.0	16.0	8.0	23.9



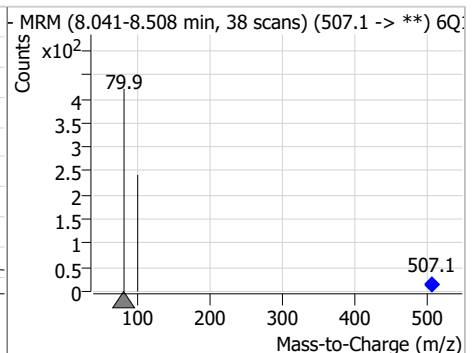
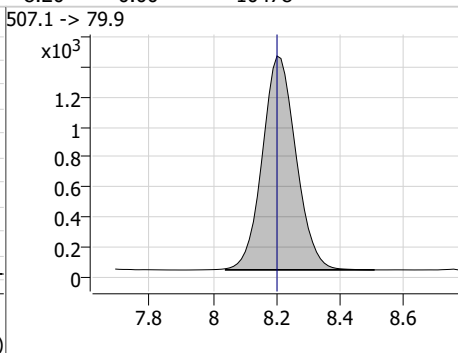
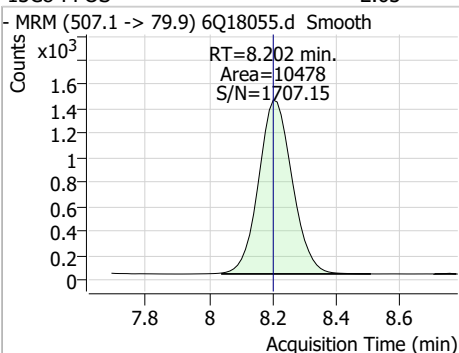
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.26	8.11	0.00	25981				



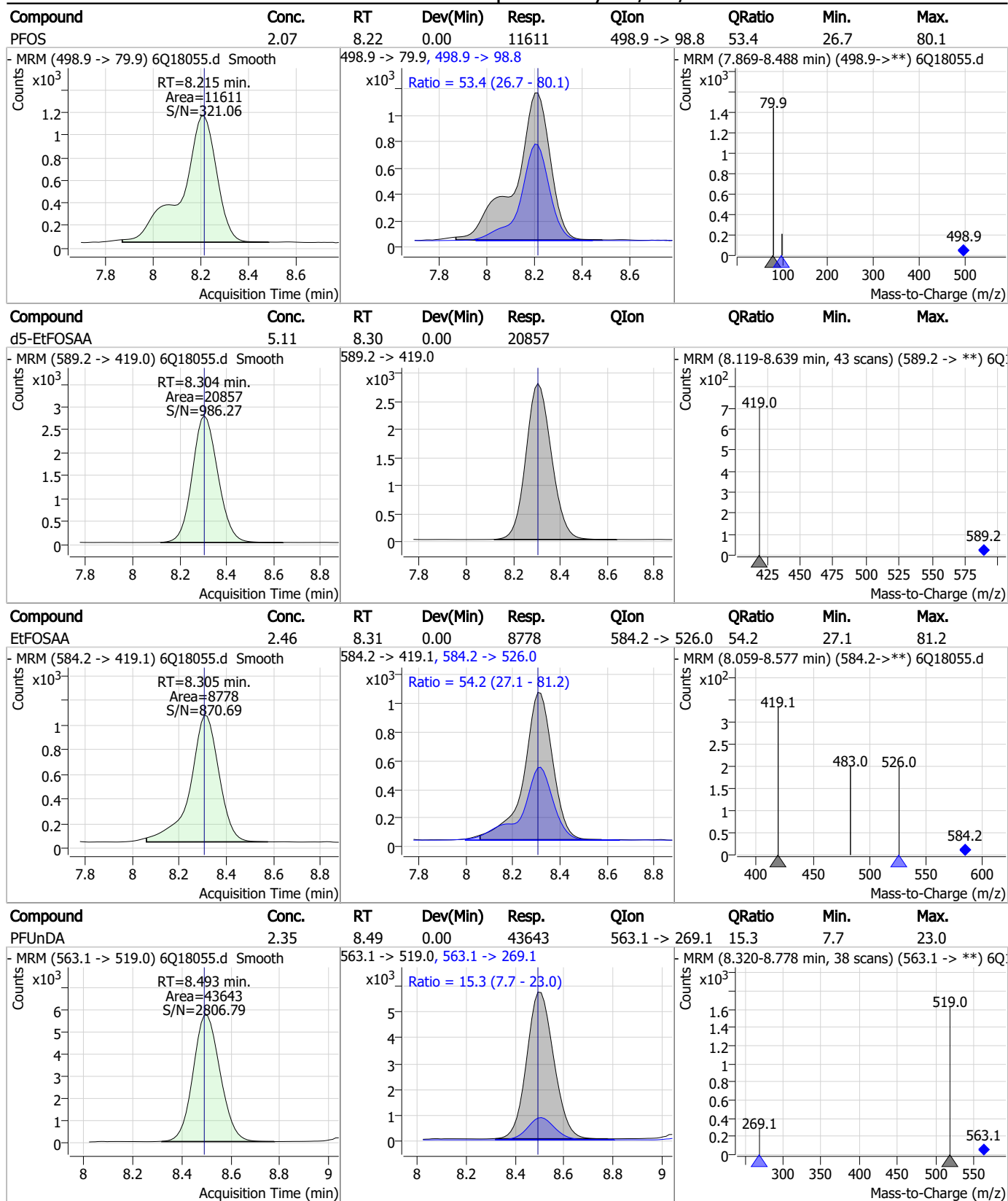
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.29	8.11	0.00	11709	570.1 -> 483.0	19.2	9.6	28.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.63	8.20	0.00	10478				



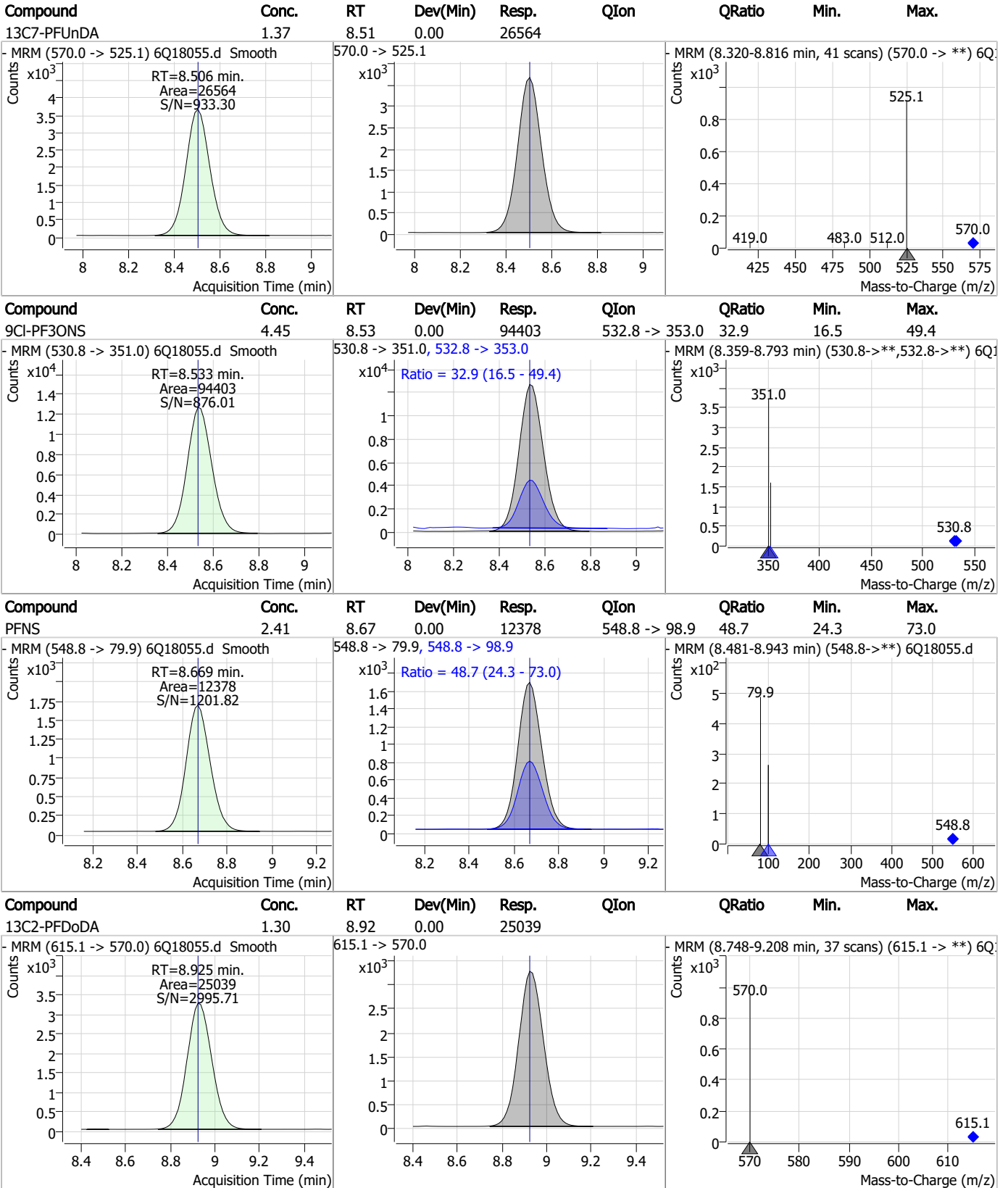
Perfluorinated Compounds by LC/MS/MS



7.6.5

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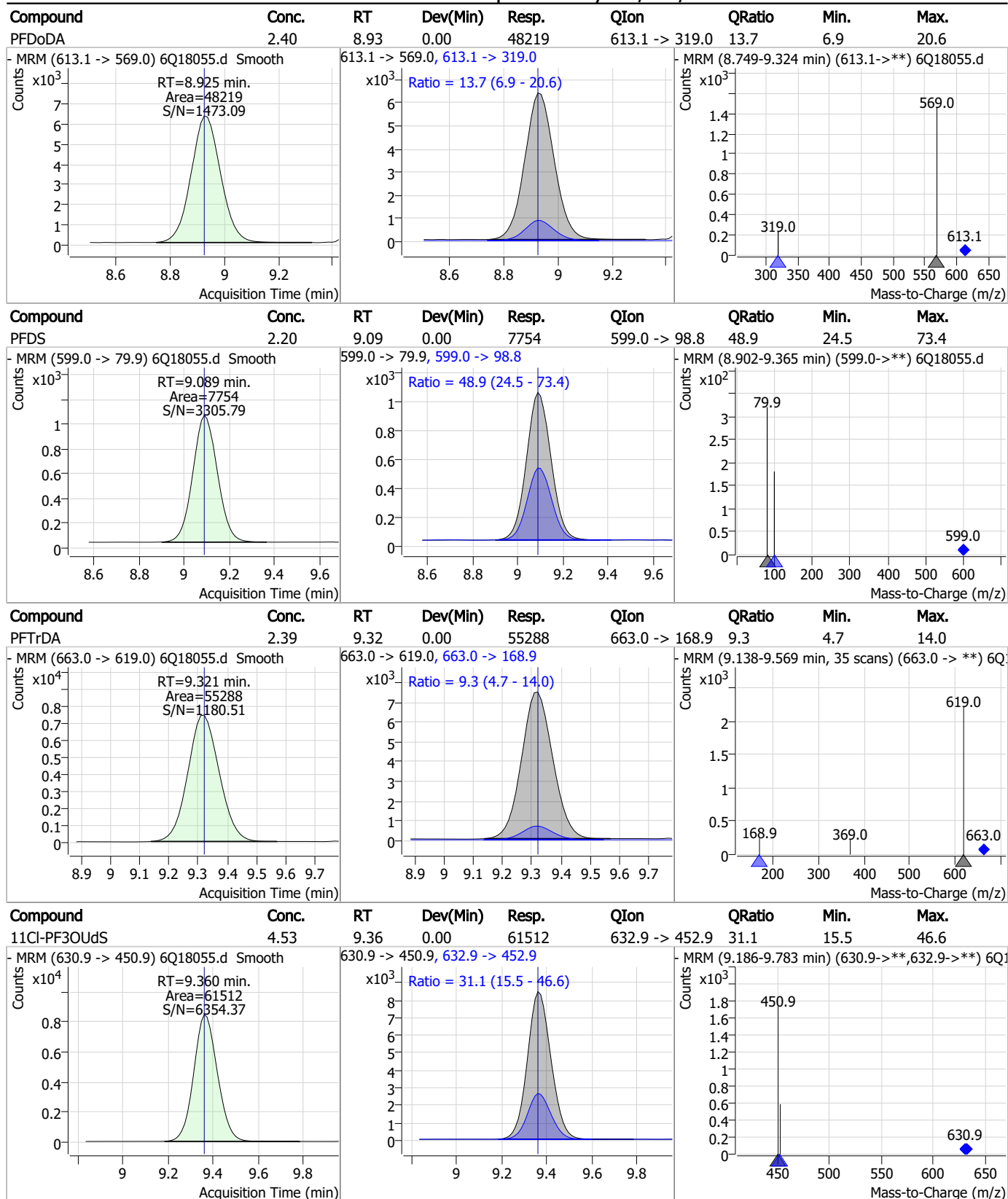
Perfluorinated Compounds by LC/MS/MS



7.6.5

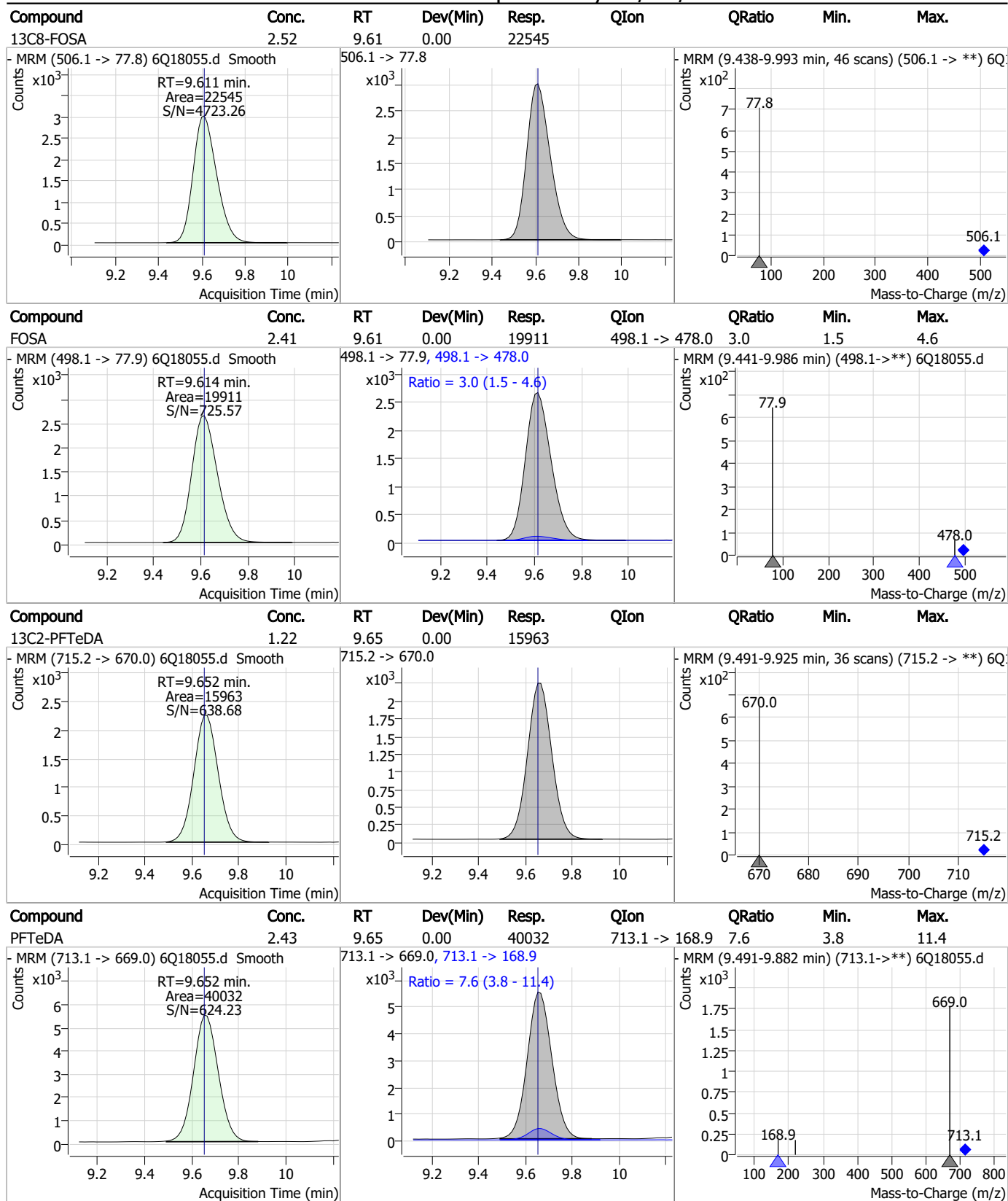
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Perfluorinated Compounds by LC/MS/MS



7.6.5
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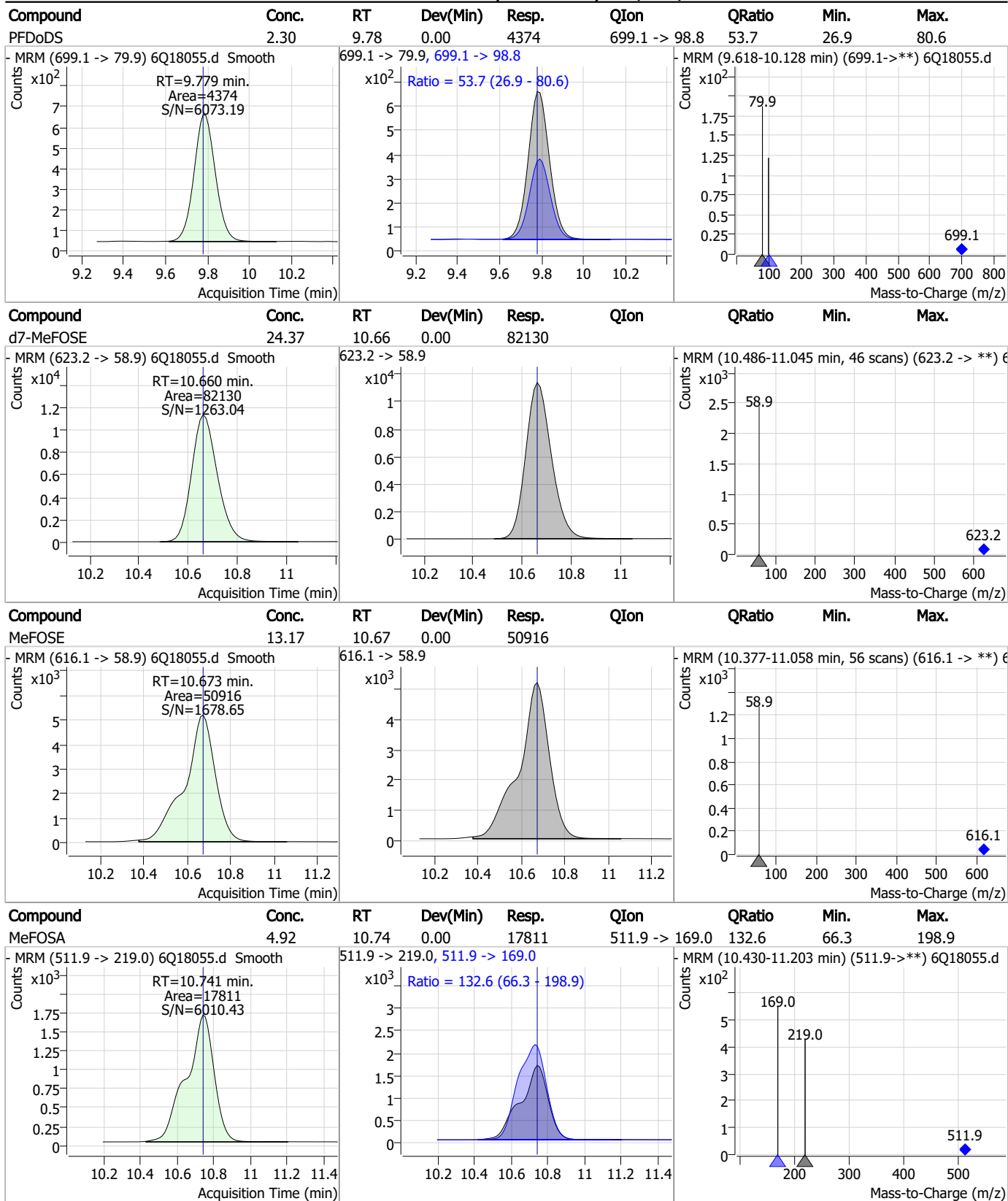
Perfluorinated Compounds by LC/MS/MS



7.6.5

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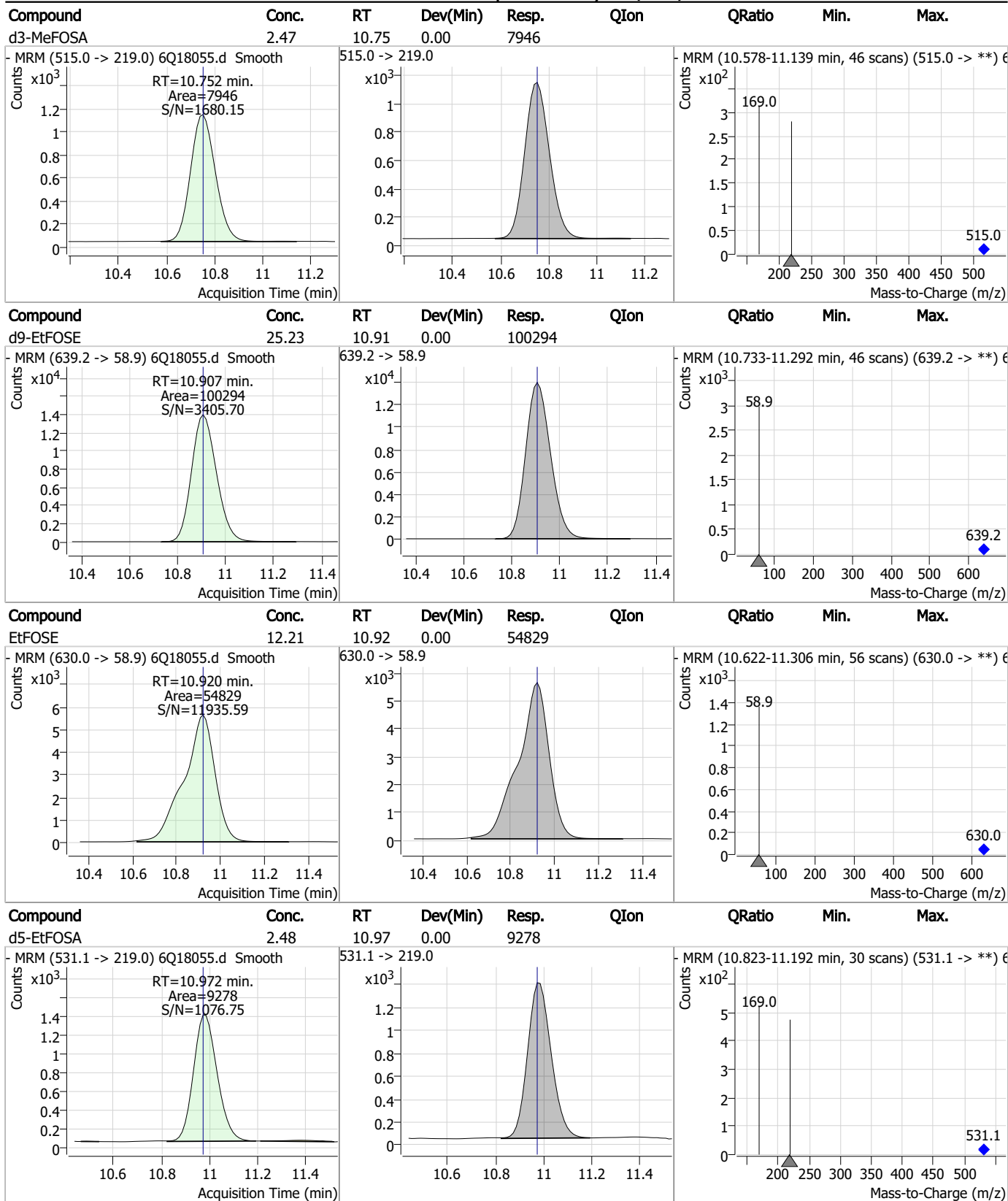
Perfluorinated Compounds by LC/MS/MS



7.6.5

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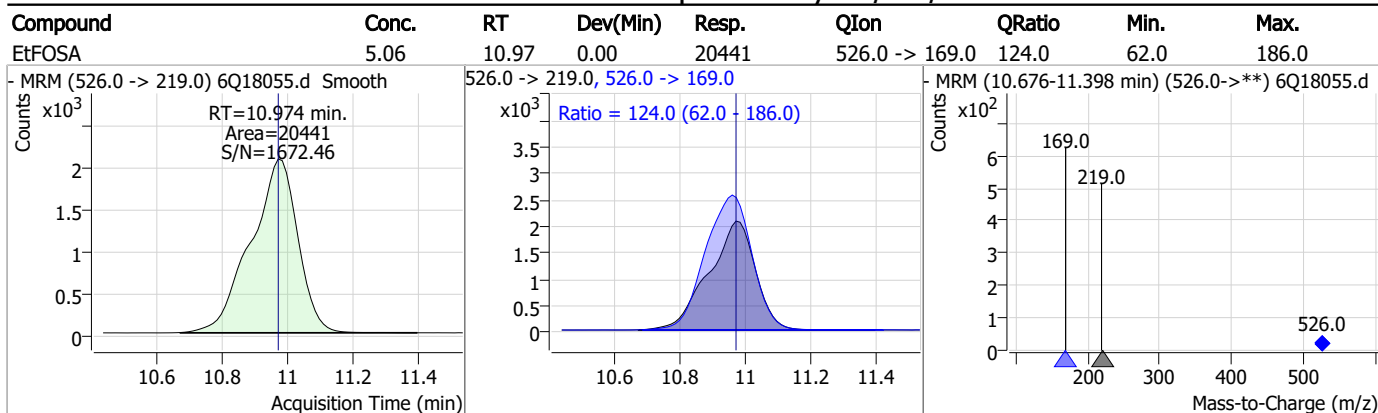
Perfluorinated Compounds by LC/MS/MS



7.6.5

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Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Manual Integration Approval Summary

Sample Number: S6Q272-ICC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18055.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 19:42 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.05	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak

7.6.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 05/22/23 12:09

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18056.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 7:57:28 PM
 Sample Name : ic272-5
 Vial : P1-A6
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	152154	10.00 µg/L	-0.012
M5-PFPeA	4.247	268.3 -> 223.0	47772	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	55314	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	45753	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	71172	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	23635	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	19213	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	24361	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	24199	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	17171	1.25 µg/L	0.012
M8-FOSA	9.611	506.1 -> 77.8	21328	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	17775	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	10918	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9825	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2125	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	2895	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	2835	5.00 µg/L	-0.012
M3-MeFOSAA	8.096	573.2 -> 419.0	24707	5.00 µg/L	-0.012
M3-HFPO-DA	5.807	286.9 -> 168.9	32238	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	20218	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	83528	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	102482	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9118	2.50 µg/L	0.012
M3-MeFOSA	10.752	515.0 -> 219.0	7885	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	12449	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	63582	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8217	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	72829	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	23181	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	25560	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	44899	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2125	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-6:2FTS	6.825	429.1 -> 80.9	2895	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-8:2FTS	7.839	529.1 -> 80.9	2835	4.66 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-PFDoDA	8.925	615.1 -> 570.0	24199	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-PFTeDA	9.664	715.2 -> 670.0	17171	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C3-PFBS	5.359	302.1 -> 79.9	17775	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFHxS	7.155	402.1 -> 79.9	10918	2.48 µg/L	0.000

7.6.6
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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 = 99.4%	
13C4-PFBA	2.876	216.8 -> 171.9	152154	10.03 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.395	367.1 -> 322.0	45753	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFHxA	5.441	318.0 -> 273.0	55314	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFPeA	4.247	268.3 -> 223.0	47772	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C6-PFDA	8.051	519.1 -> 474.1	19213	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C7-PFUnDA	8.492	570.0 -> 525.1	24361	1.20 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C8-FOSA	9.611	506.1 -> 77.8	21328	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOA	7.051	421.1 -> 376.0	71172	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C8-PFOS	8.202	507.1 -> 79.9	9825	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C9-PFNA	7.569	472.1 -> 427.0	23635	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
d3-MeFOSAA	8.096	573.2 -> 419.0	24707	5.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	32238	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	7885	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSAA	8.304	589.2 -> 419.0	20218	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d7-MeFOSE	10.660	623.2 -> 58.9	83528	26.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	102482	27.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	9118	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	67985	21.68 µg/L	95
		327.1 -> 80.9	24702		
6:2FTS	6.826	427.1 -> 407.0	64033	20.46 µg/L	95
		427.1 -> 80.9	20013		
8:2FTS	7.840	527.1 -> 507.0	35430	21.86 µg/L	96
		527.1 -> 80.8	14211		
EtFOSAA	8.305	584.2 -> 419.1	18543	5.35 µg/L	99
		584.2 -> 526.0	9882		
FOSA	9.614	498.1 -> 77.9	42009	5.37 µg/L	100
		498.1 -> 478.0	1277		
MeFOSAA	8.109	570.1 -> 419.0	24535	5.04 µg/L	98
		570.1 -> 483.0	4971		
PFBA	2.882	212.8 -> 168.9	117926	21.34 µg/L	100
PFBS	5.360	298.7 -> 79.9	41491	4.78 µg/L	96
		298.7 -> 98.8	15945		
PFDA	8.052	512.9 -> 469.0	120093	5.24 µg/L	98
		512.9 -> 219.0	18357		
PFDoDA	8.925	613.1 -> 569.0	105798	5.44 µg/L	98
		613.1 -> 319.0	13670		
PFDS	9.089	599.0 -> 79.9	16708	5.06 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	7966			
PFHpA	6.395	363.1 -> 319.0	133650	5.71	µg/L	100
		363.1 -> 169.0	20175			
PFHpS	7.710	449.0 -> 79.9	27314	5.14	µg/L	93
		449.0 -> 98.9	12128			
PFHxA	5.444	313.0 -> 269.0	114449	5.31	µg/L	99
		313.0 -> 118.9	5467			
PFHxS	7.156	398.7 -> 79.9	29995	4.92	µg/L	m 98
		398.7 -> 98.9	13920			
PFNA	7.570	463.0 -> 419.0	95407	5.48	µg/L	99
		463.0 -> 219.0	19214			
PFNS	8.669	548.8 -> 79.9	24401	5.06	µg/L	93
		548.8 -> 98.9	13073			
PFOA	7.052	413.0 -> 369.0	182861	5.26	µg/L	m 99
		413.0 -> 169.0	30977			
PFOS	8.203	498.9 -> 79.9	25636	4.86	µg/L	m 91
		498.9 -> 98.8	11997			
PFPeA	4.249	263.0 -> 219.0	147059	10.39	µg/L	100
PFPeS	6.447	349.1 -> 79.9	31085	5.11	µg/L	93
		349.1 -> 98.9	13253			
PFTeDA	9.665	713.1 -> 669.0	90405	5.09	µg/L	99
		713.1 -> 168.9	6596			
PFTrDA	9.321	663.0 -> 619.0	119836	5.35	µg/L	98
		663.0 -> 168.9	10216			
PFUnDA	8.493	563.1 -> 519.0	93049	5.47	µg/L	97
		563.1 -> 269.1	12974			
11CI-PF3OUdS	9.373	630.9 -> 450.9	128526	10.19	µg/L	97
		632.9 -> 452.9	37838			
9CI-PF3ONS	8.533	530.8 -> 351.0	204473	10.38	µg/L	99
		532.8 -> 353.0	66293			
ADONA	6.658	376.9 -> 250.9	544485	10.55	µg/L	100
		376.9 -> 84.8	146234			
HFPO-DA	5.807	284.9 -> 168.9	33346	10.64	µg/L	98
		284.9 -> 184.9	4739			
3:3FTCA	3.727	241.0 -> 177.0	23011	25.85	µg/L	98
		241.0 -> 117.0	3136			
5:3FTCA	6.111	341.0 -> 237.1	498704	128.03	µg/L	97
		341.0 -> 217.0	364486			
7:3FTCA	7.535	441.0 -> 316.9	272556	140.80	µg/L	91
		441.0 -> 336.9	562796			
EtFOSA	10.974	526.0 -> 219.0	42043	10.58	µg/L	96
		526.0 -> 169.0	53947			
EtFOSE	10.920	630.0 -> 58.9	114062	24.86	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	38827	10.80	µg/L	99
		511.9 -> 169.0	51898			
MeFOSE	10.673	616.1 -> 58.9	103134	26.23	µg/L	100
PFDoDS	9.793	699.1 -> 79.9	8685	4.88	µg/L	98
		699.1 -> 98.8	4808			
NFDHA	5.324	295.0 -> 201.0	25220	10.44	µg/L	99
		295.0 -> 84.9	6664			
PFMBA	4.650	279.0 -> 85.1	102755	10.33	µg/L	100
PFMPA	3.401	229.0 -> 84.9	78303	10.65	µg/L	100
PFEESA	5.900	314.8 -> 134.9	269700	9.46	µg/L	99
		314.8 -> 82.9	9387			

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

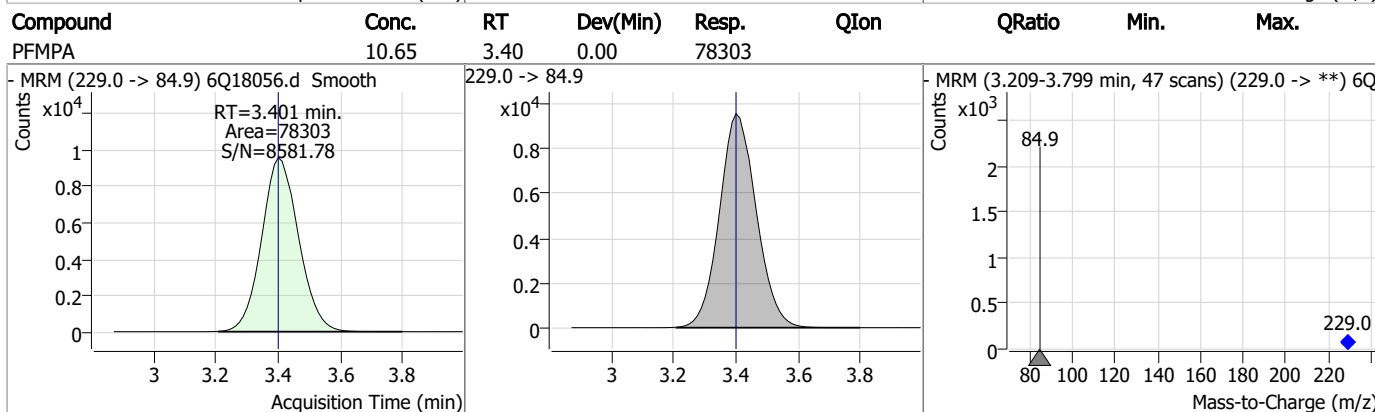
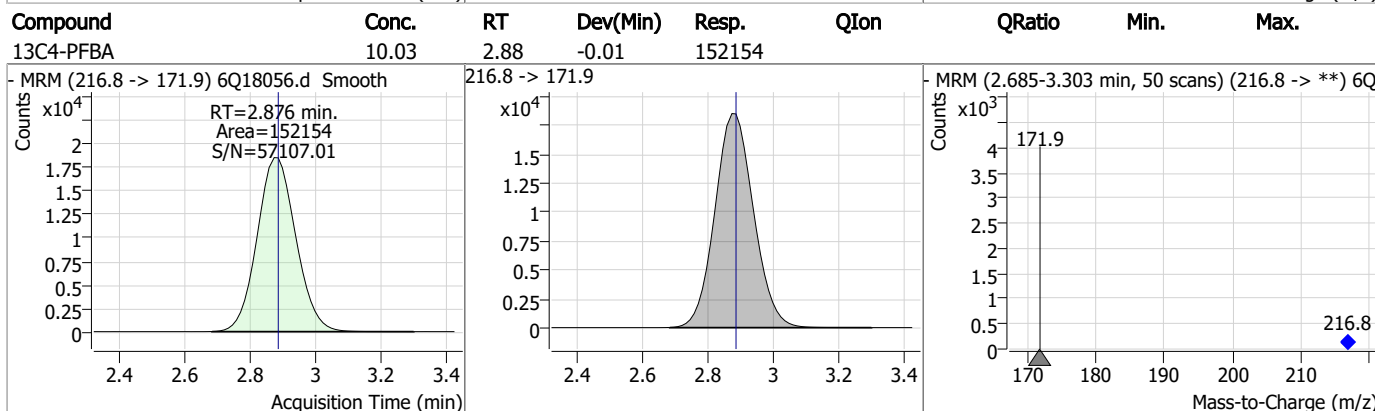
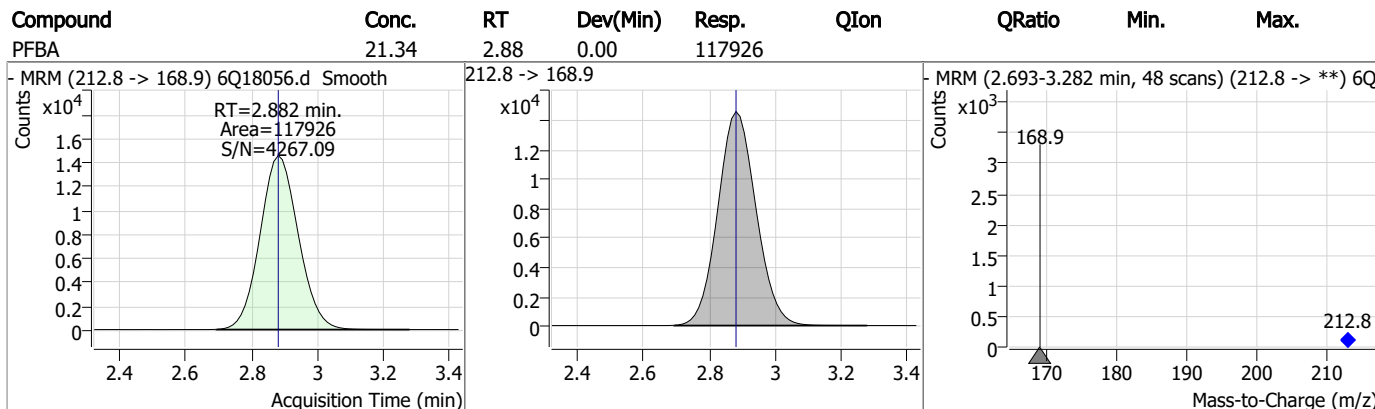
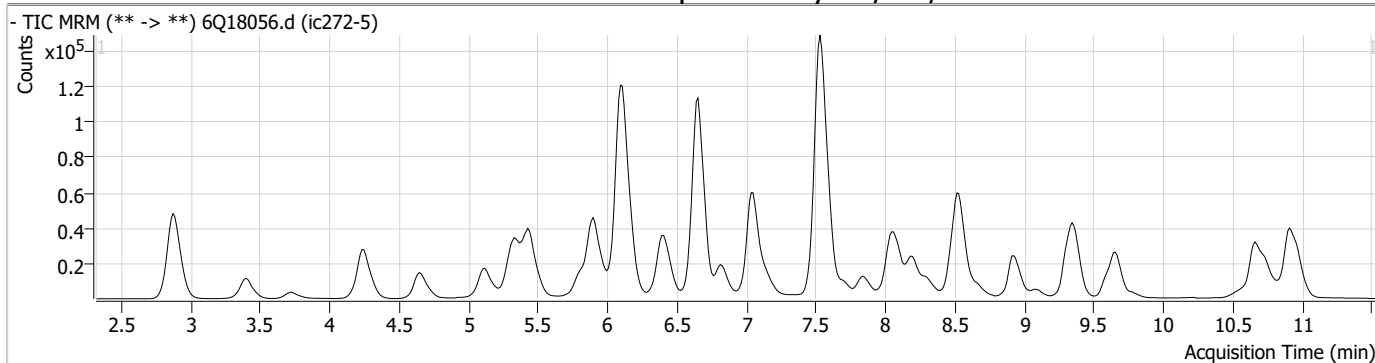
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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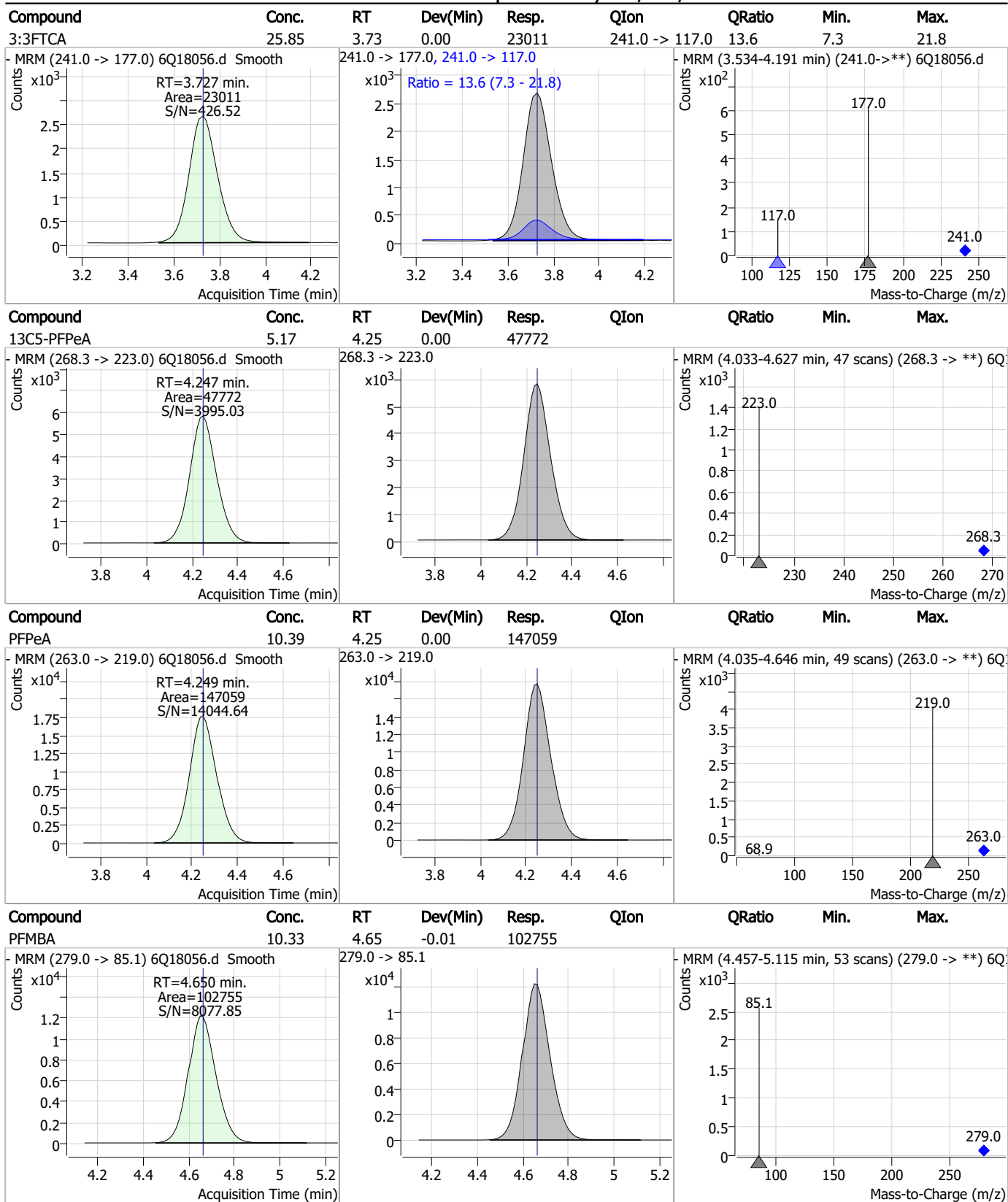
7.6.6
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Perfluorinated Compounds by LC/MS/MS



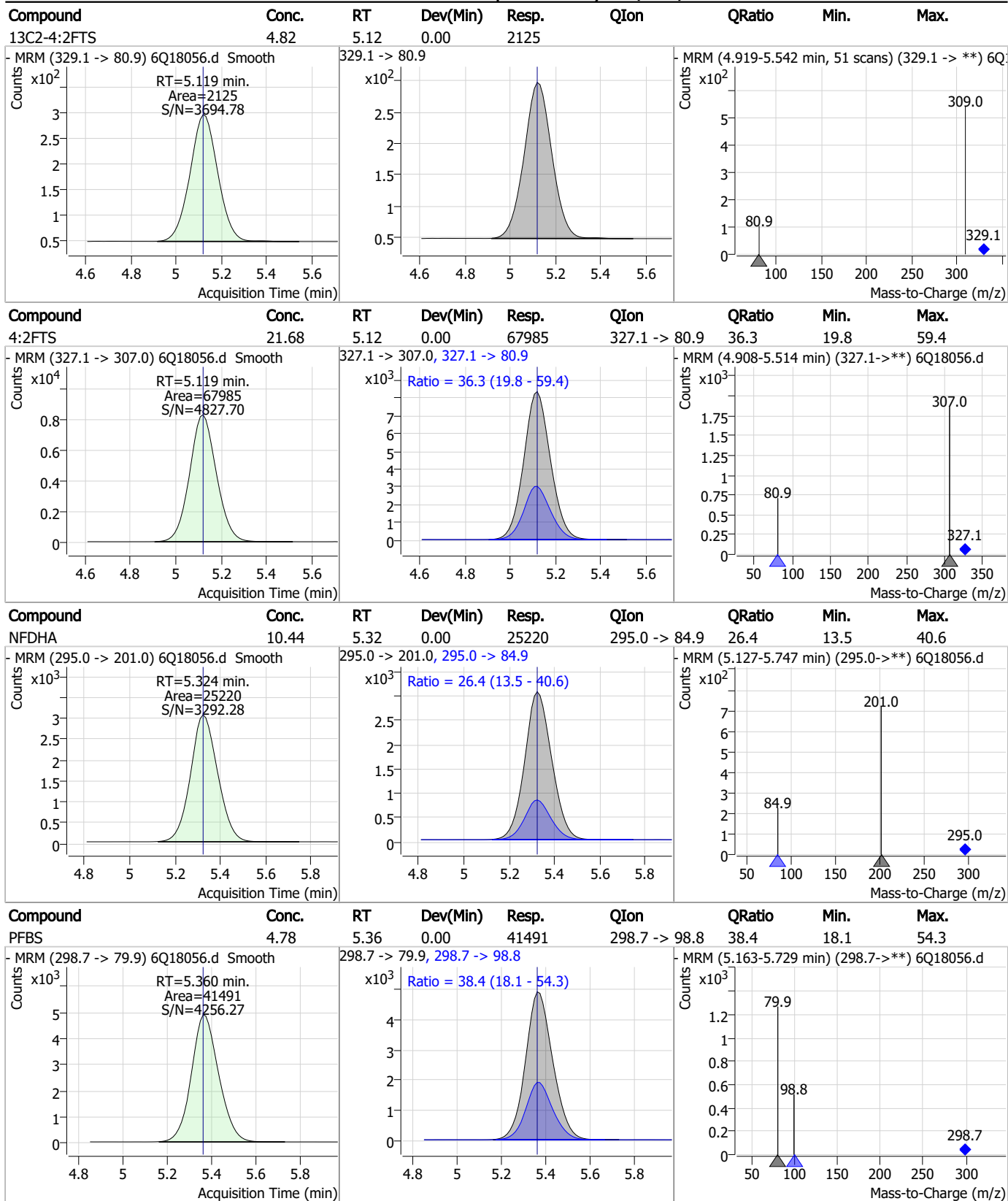
Perfluorinated Compounds by LC/MS/MS



7.6.6

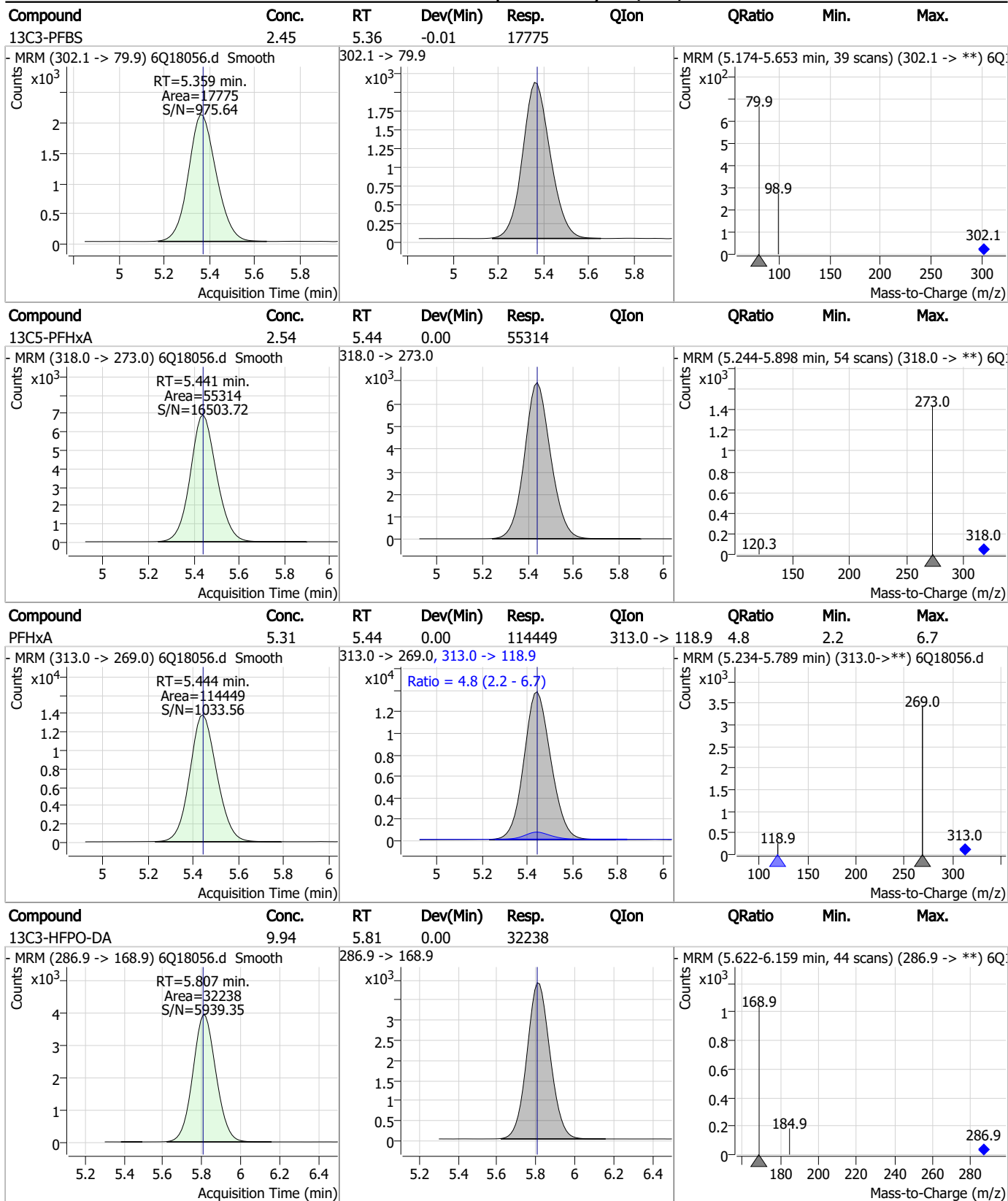
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Perfluorinated Compounds by LC/MS/MS



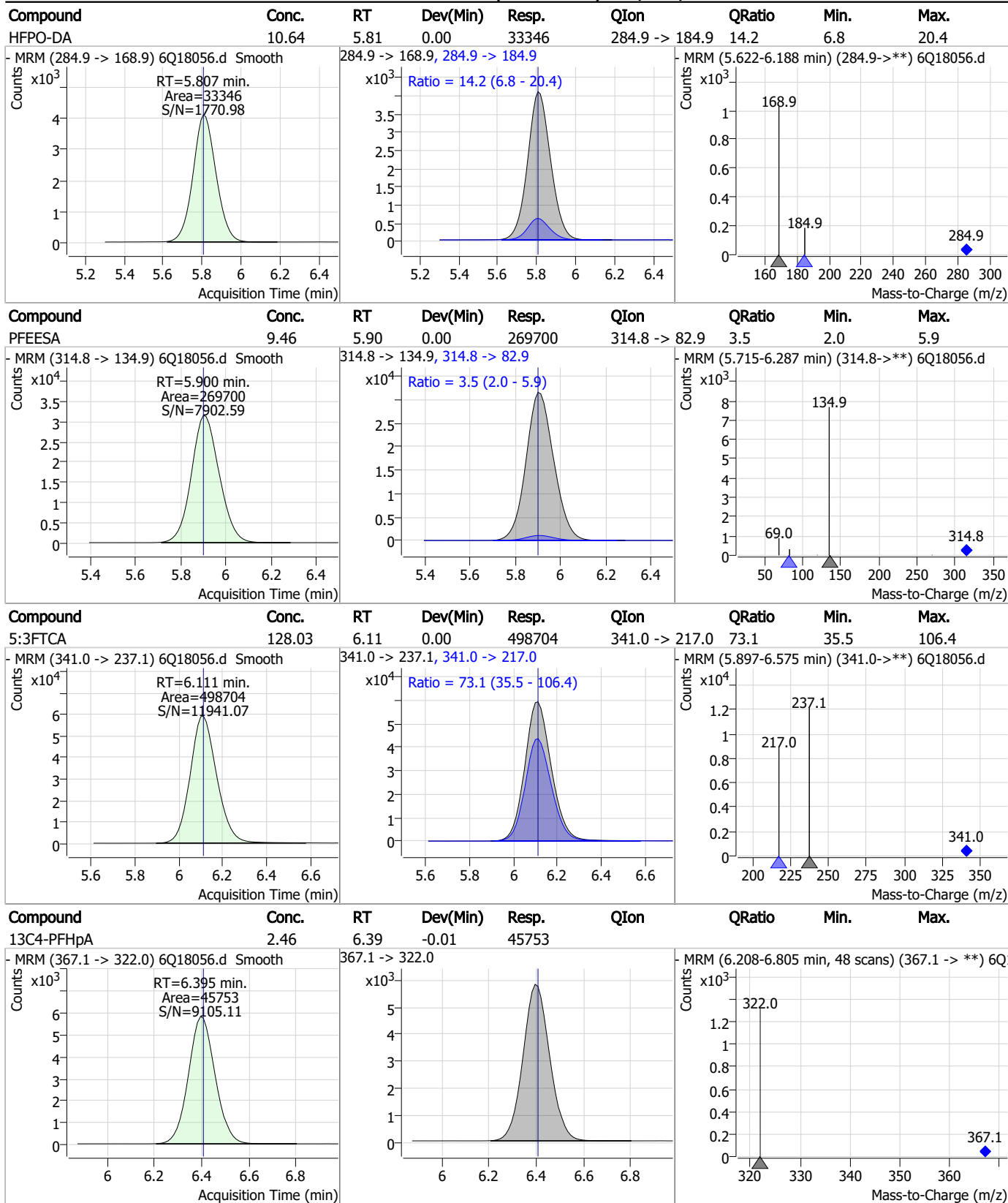
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Perfluorinated Compounds by LC/MS/MS



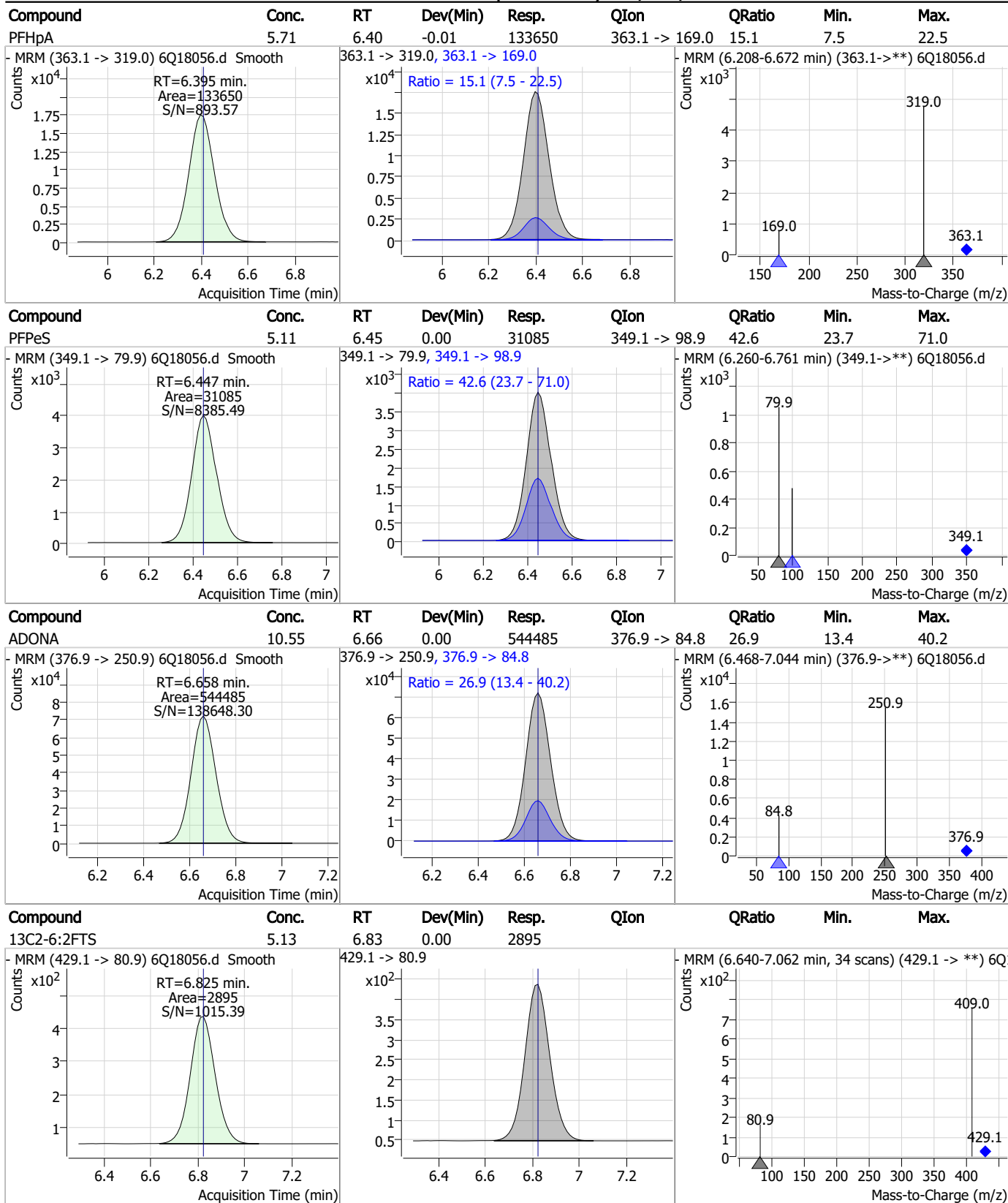
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Perfluorinated Compounds by LC/MS/MS



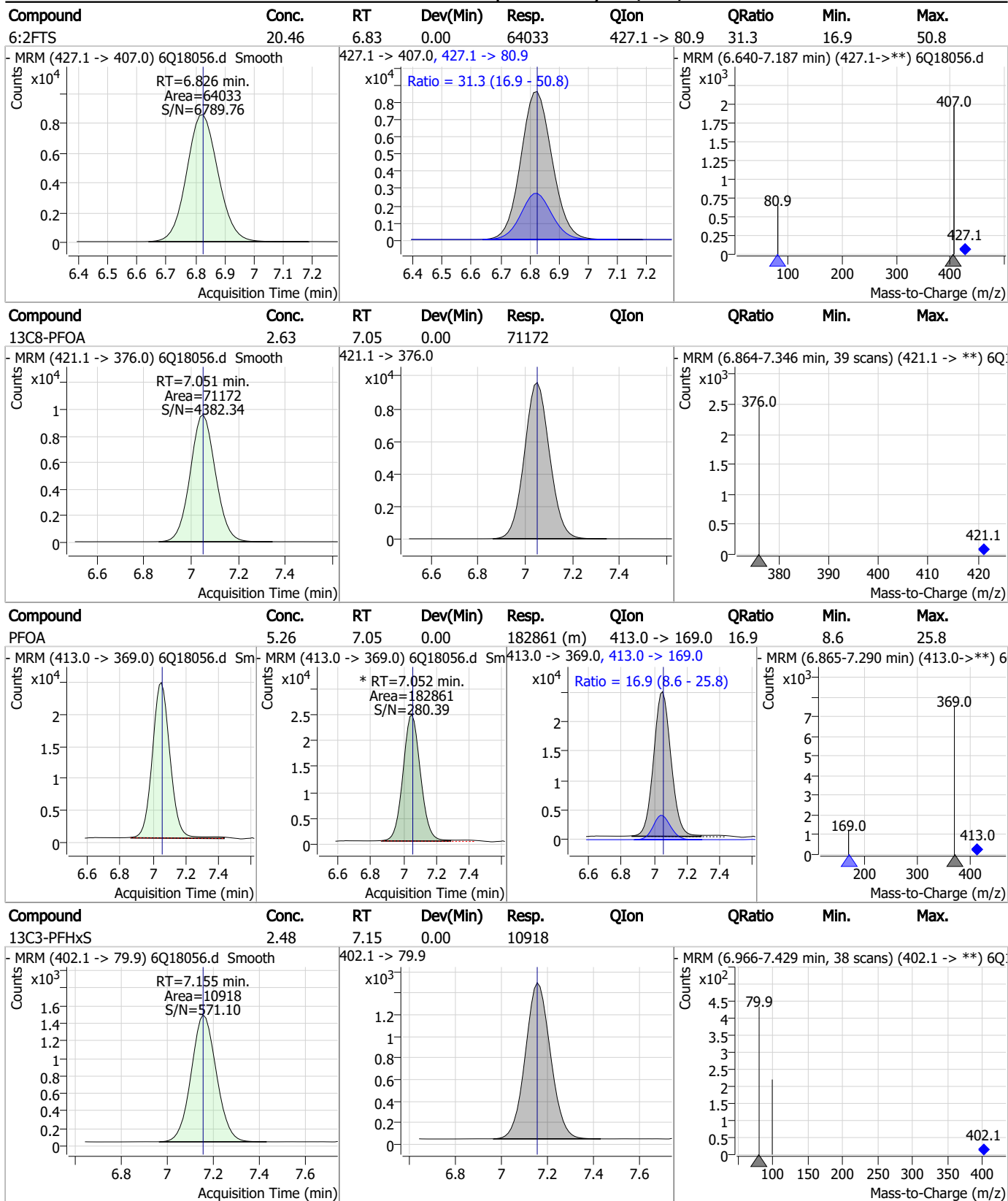
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Perfluorinated Compounds by LC/MS/MS



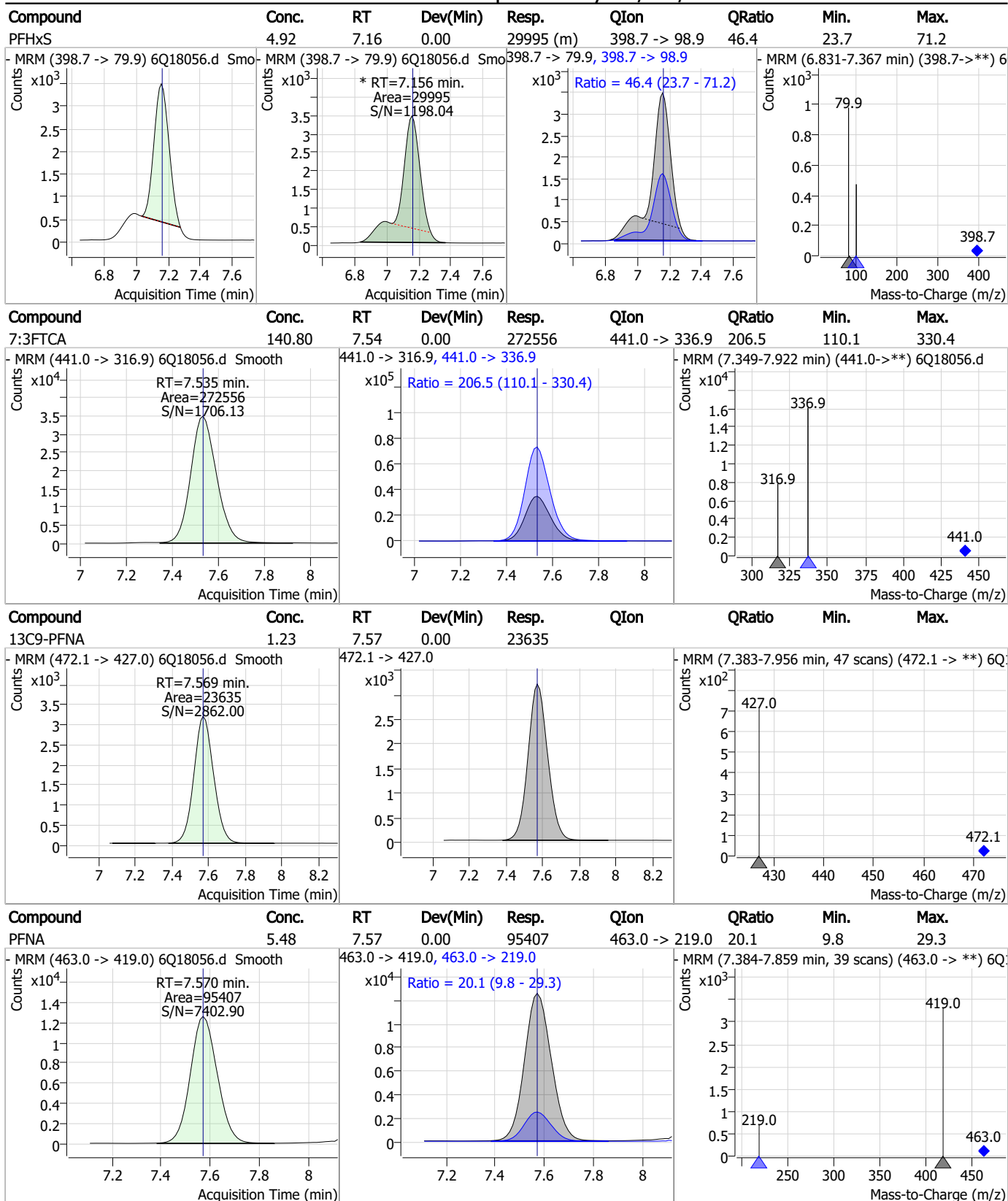
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Perfluorinated Compounds by LC/MS/MS



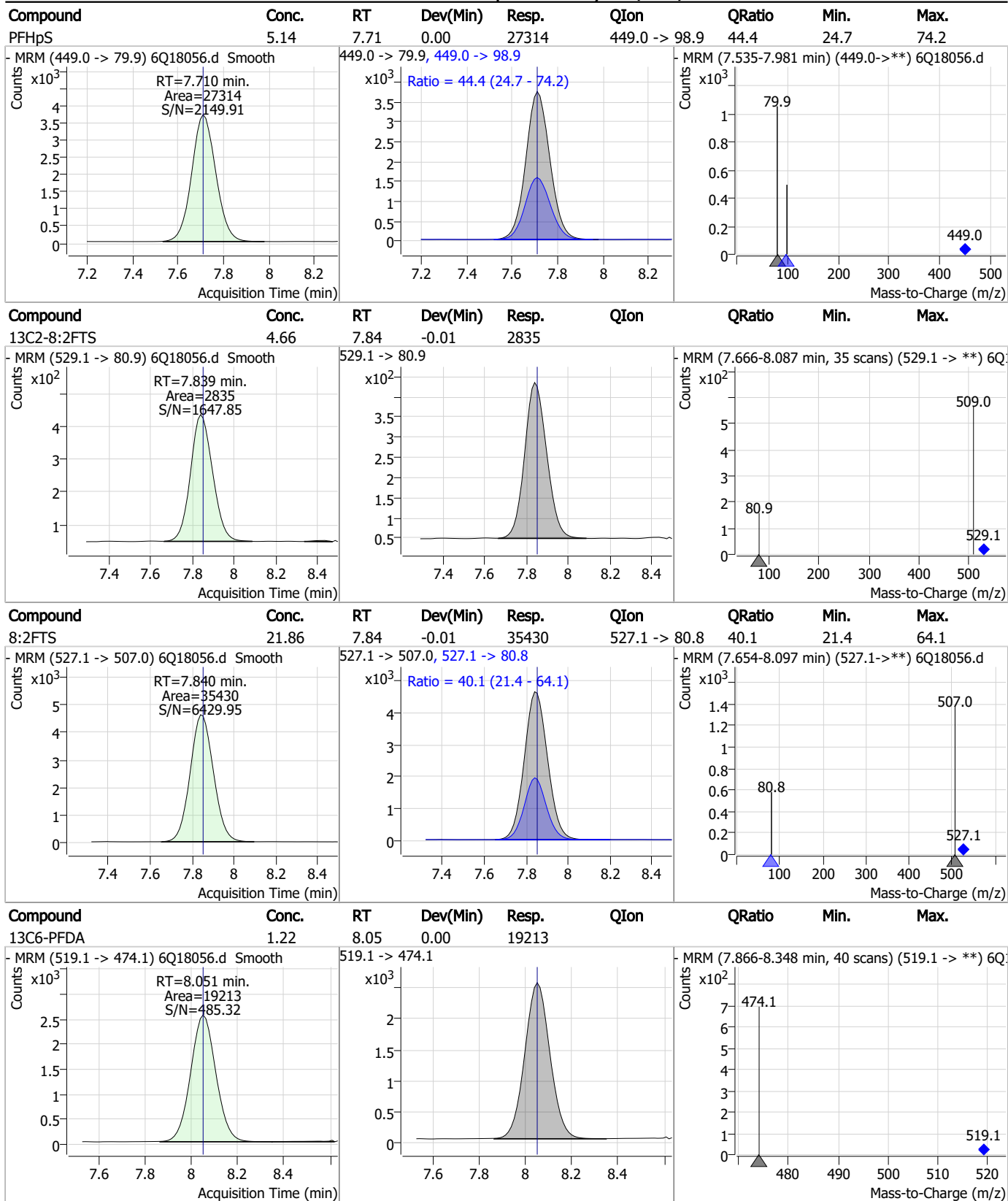
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Perfluorinated Compounds by LC/MS/MS



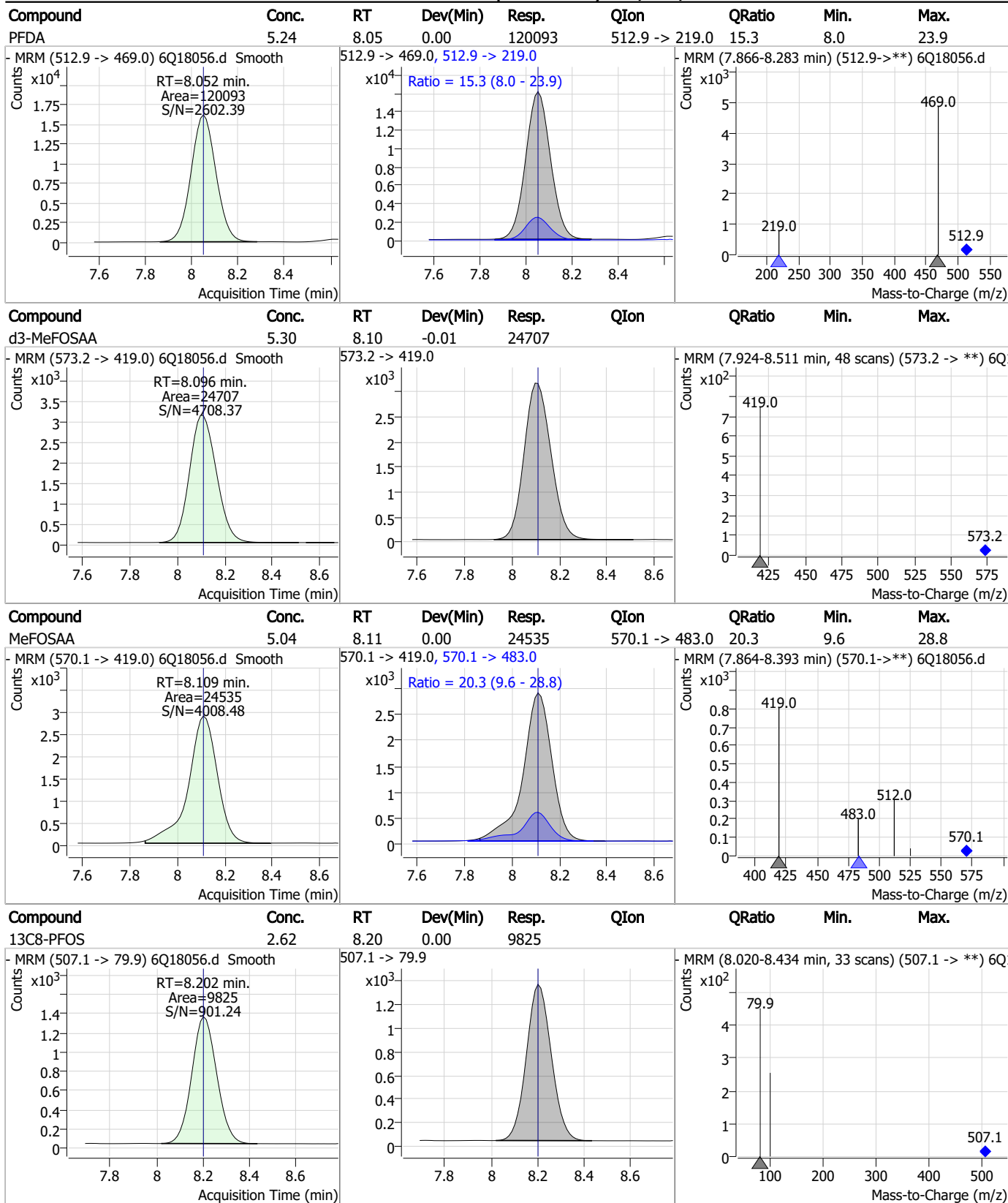
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Perfluorinated Compounds by LC/MS/MS



7.6.6
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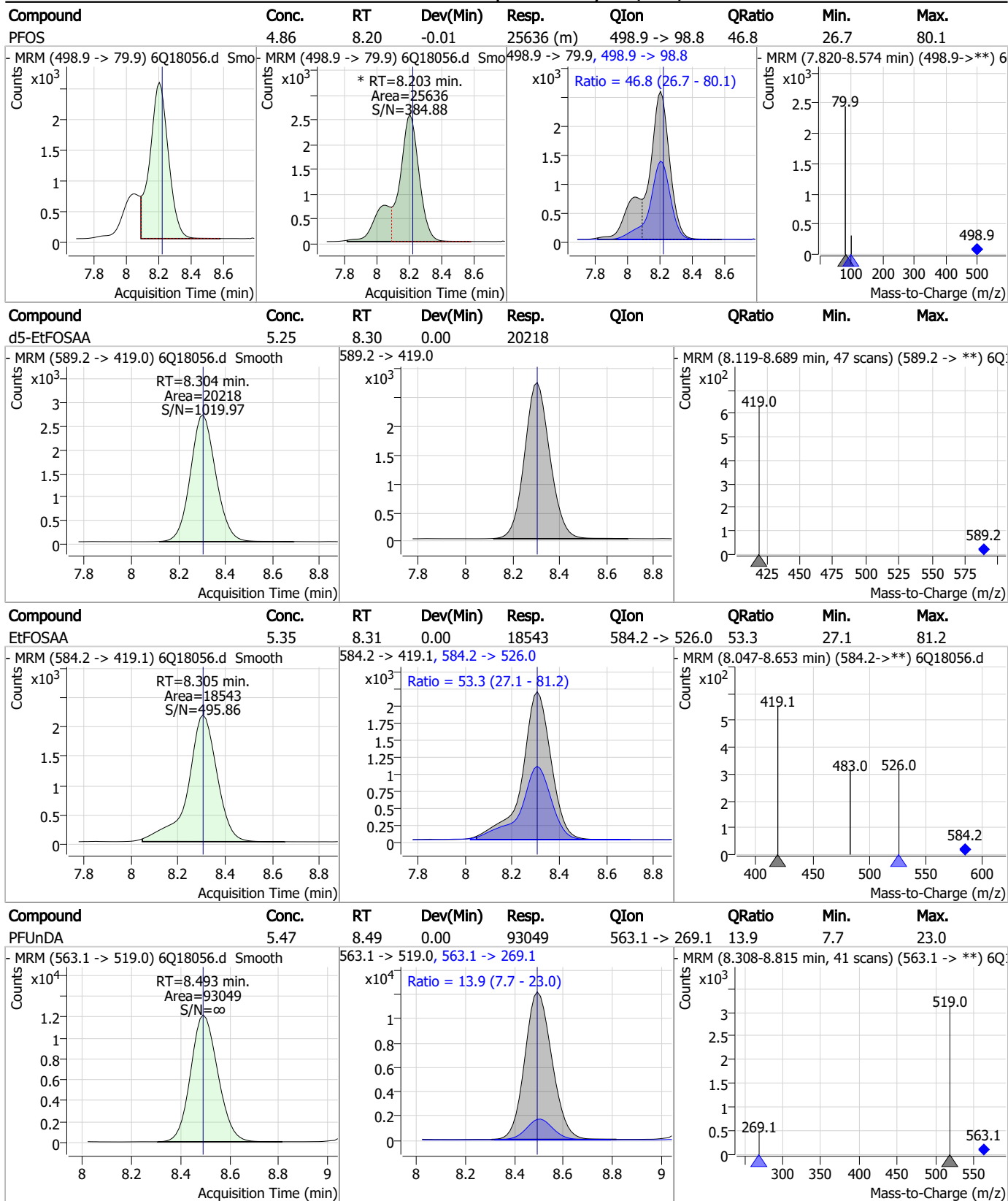
Perfluorinated Compounds by LC/MS/MS



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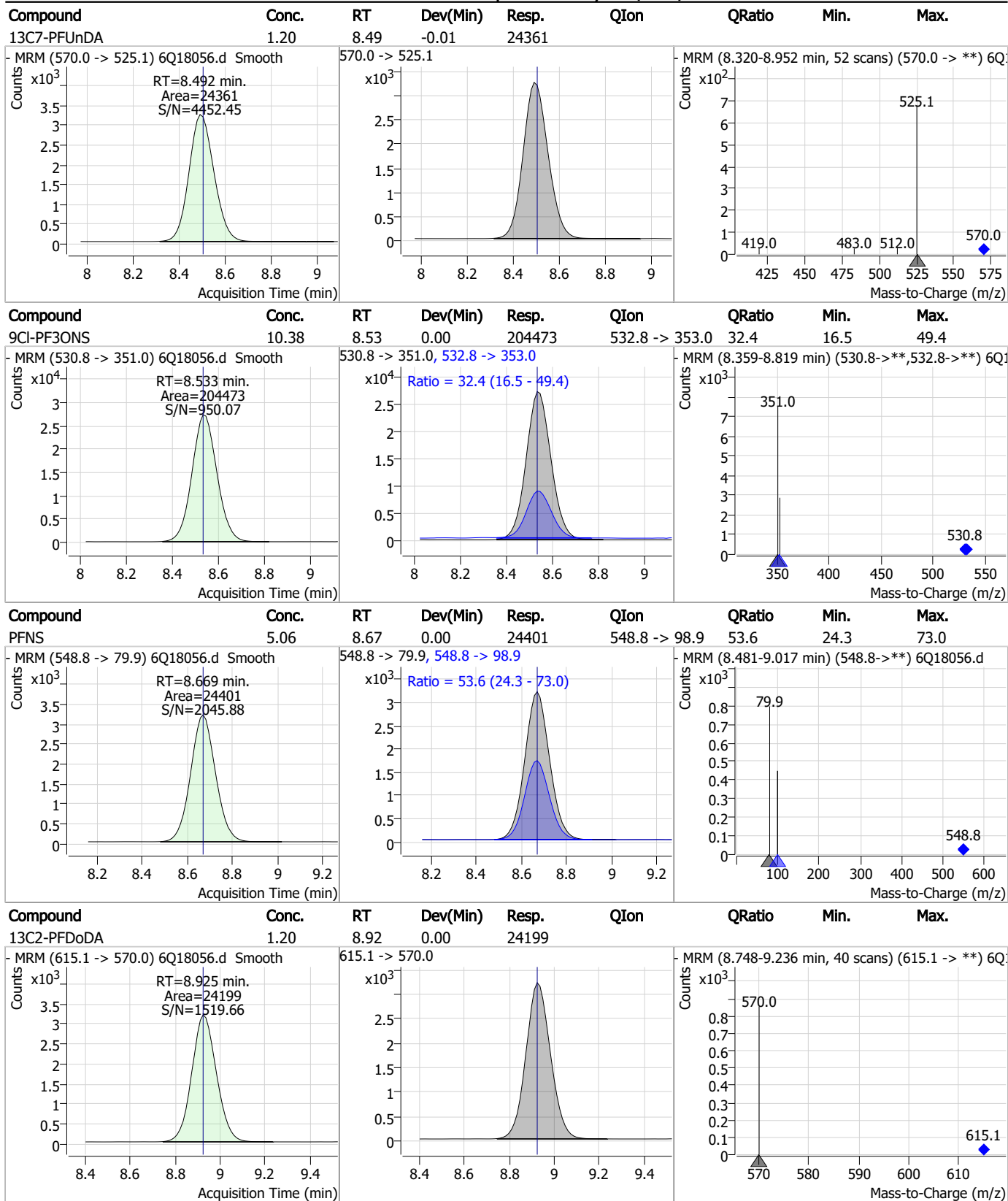
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Perfluorinated Compounds by LC/MS/MS



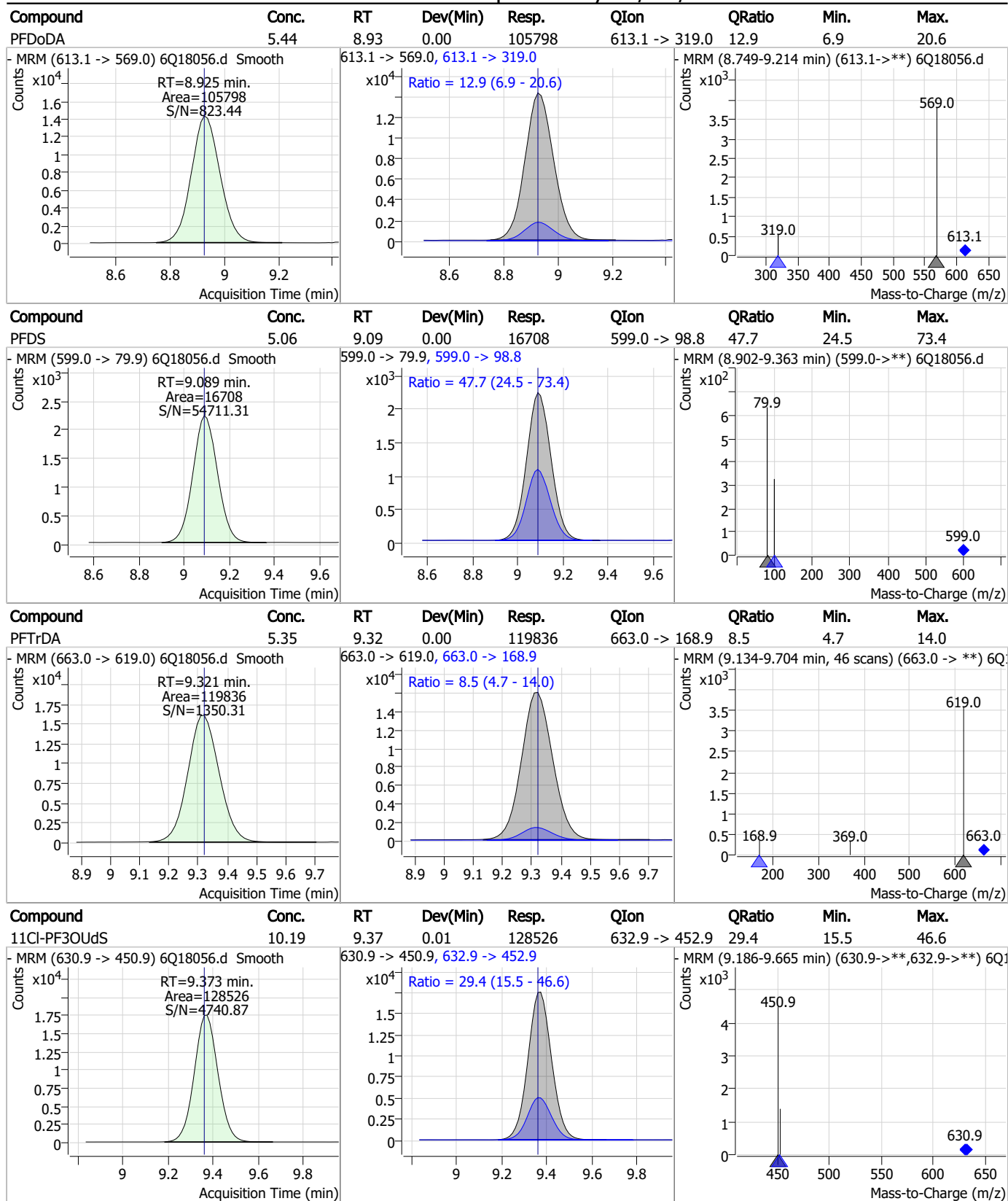
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Perfluorinated Compounds by LC/MS/MS



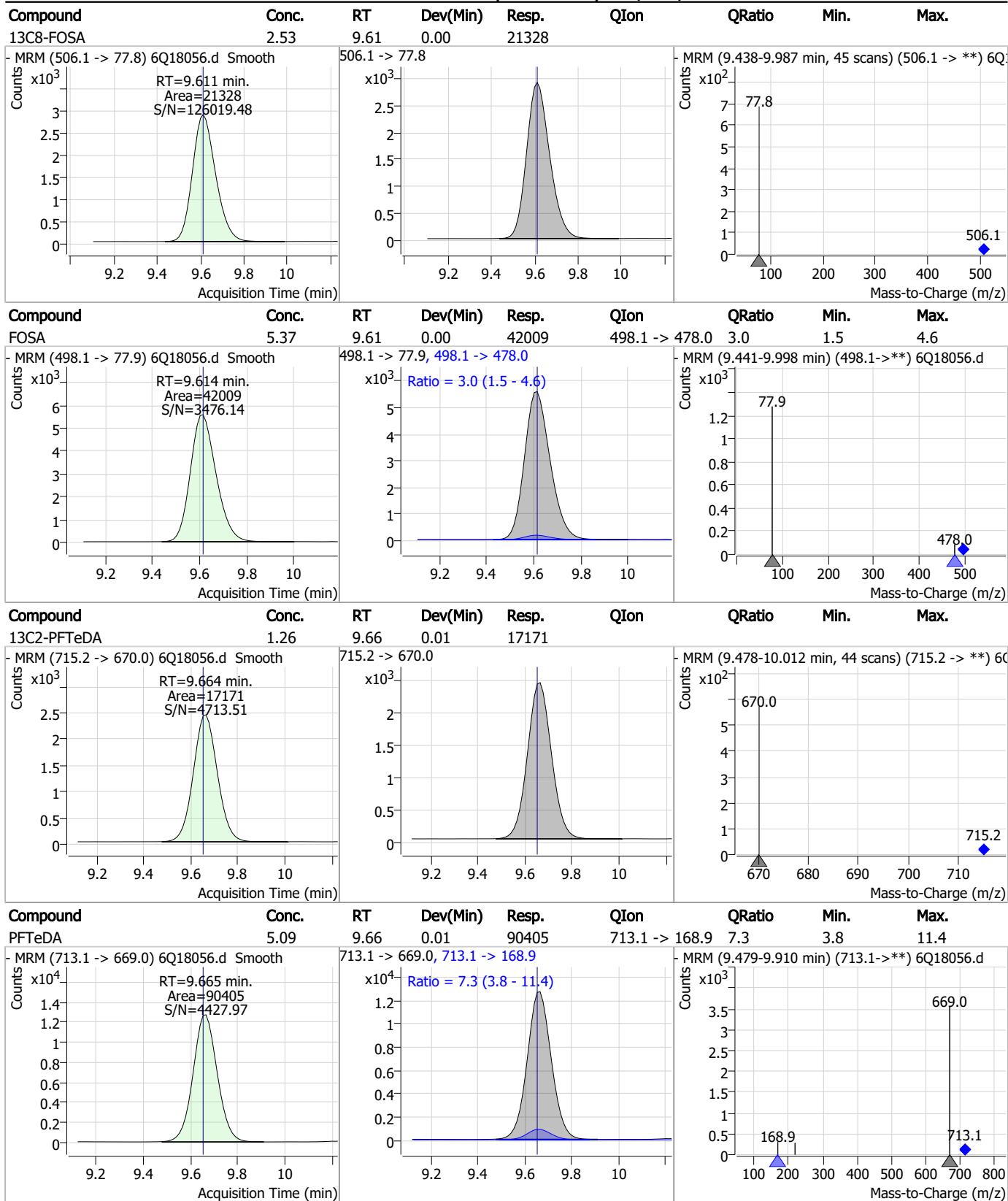
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Perfluorinated Compounds by LC/MS/MS



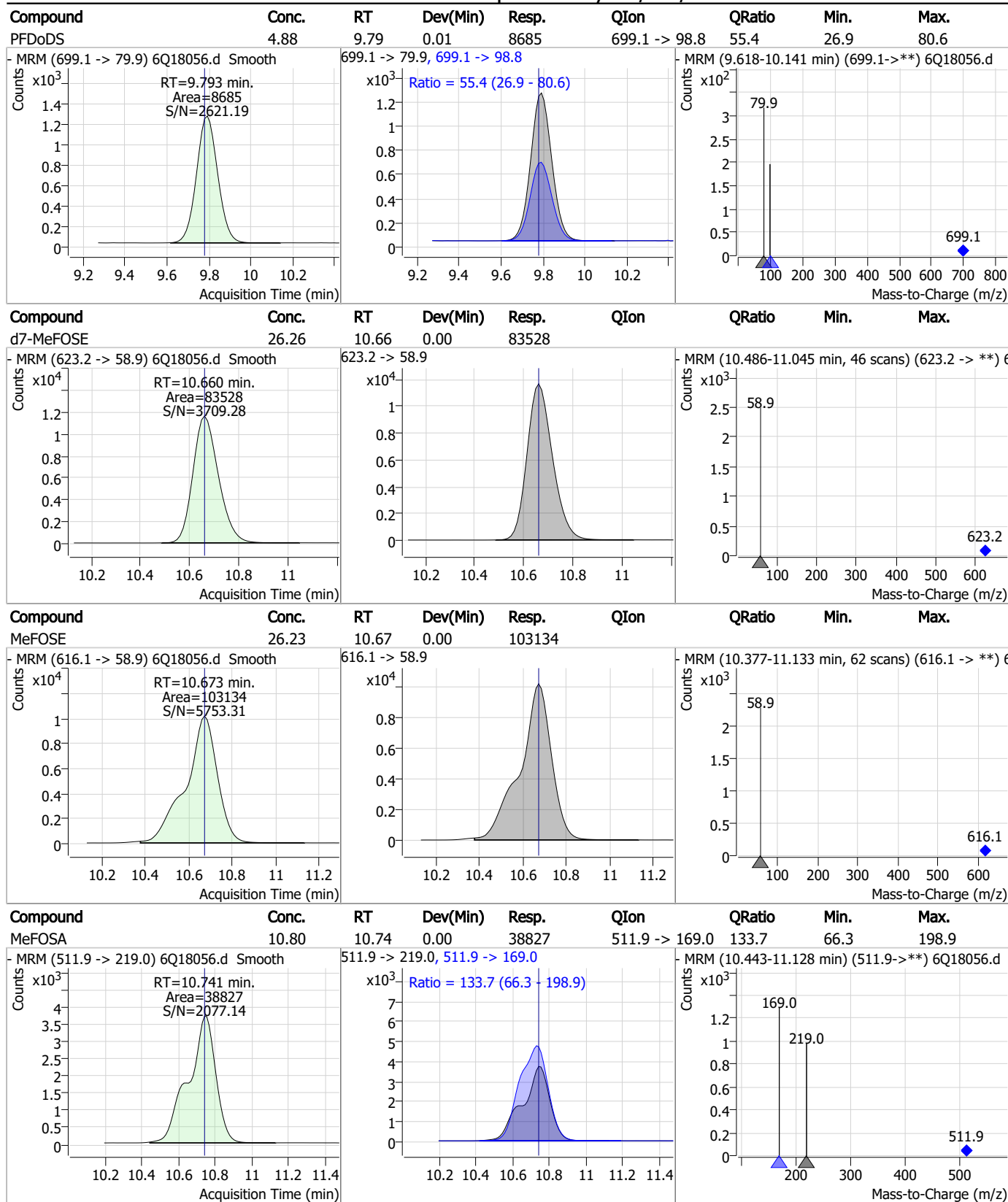
7.6.6
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Perfluorinated Compounds by LC/MS/MS



7.6.6
7

Perfluorinated Compounds by LC/MS/MS



7.6.6

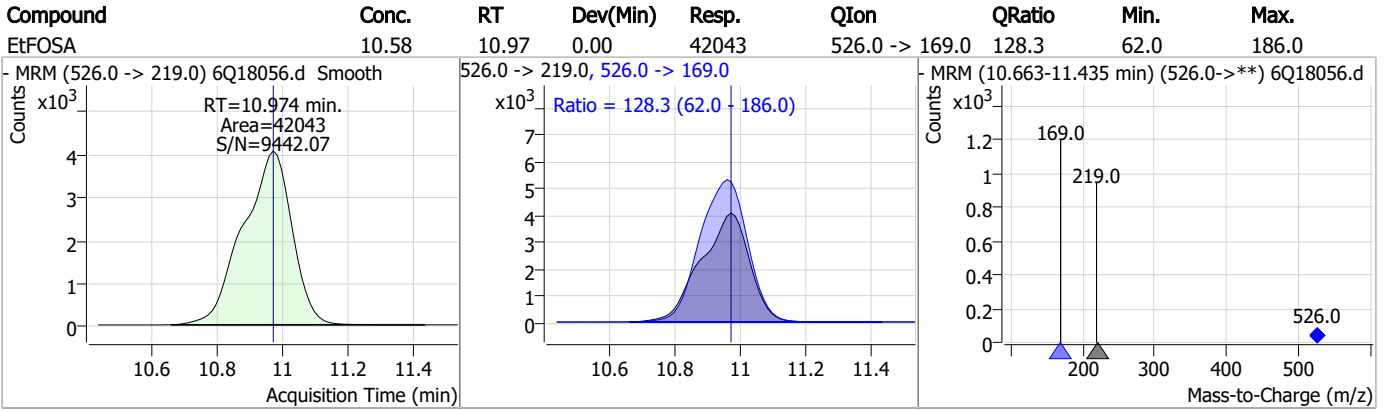
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.60	10.75	0.00	7885				
- MRM (515.0 -> 219.0) 6Q18056.d Smooth			515.0 -> 219.0		- MRM (10.578-11.139 min, 46 scans) (515.0 -> **) €			
d9-EtFOSE	27.32	10.91	0.00	102482				
- MRM (639.2 -> 58.9) 6Q18056.d Smooth			639.2 -> 58.9		- MRM (10.733-11.292 min, 46 scans) (639.2 -> **) €			
EtFOSE	24.86	10.92	0.00	114062				
- MRM (630.0 -> 58.9) 6Q18056.d Smooth			630.0 -> 58.9		- MRM (10.622-11.281 min, 54 scans) (630.0 -> **) €			
d5-EtFOSA	2.58	10.98	0.01	9118				
- MRM (531.1 -> 219.0) 6Q18056.d Smooth			531.1 -> 219.0		- MRM (10.823-11.262 min, 36 scans) (531.1 -> **) €			

7.6.6
7

Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Manual Integration Approval Summary

Sample Number: S6Q272-IC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18056.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 19:57 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.05	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.6.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18057.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 8:11:57 PM
 Sample Name : ic272-6
 Vial : P1-A7
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	142419	10.00 µg/L	-0.012
M5-PFPeA	4.235	268.3 -> 223.0	44789	5.00 µg/L	-0.012
M5-PFHxA	5.441	318.0 -> 273.0	55359	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	46970	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	68995	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	23048	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	18425	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	21619	1.25 µg/L	0.000
M2-PFDoDA	8.925	615.1 -> 570.0	22455	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	15452	1.25 µg/L	0.012
M8-FOSA	9.611	506.1 -> 77.8	21270	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	18026	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	10569	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	9123	2.50 µg/L	0.012
M2-4:2FTS	5.106	329.1 -> 80.9	2174	5.00 µg/L	-0.012
M2-6:2FTS	6.825	429.1 -> 80.9	2544	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	2802	5.00 µg/L	0.000
M3-MeFOSAA	8.108	573.2 -> 419.0	23108	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	32025	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	17903	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	80256	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	97359	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	8691	2.50 µg/L	0.012
M3-MeFOSA	10.739	515.0 -> 219.0	7539	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	13163	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	59784	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	7742	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	73276	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	21022	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	25980	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	44084	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.106	329.1 -> 80.9	2174	5.23 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-6:2FTS	6.825	429.1 -> 80.9	2544	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-8:2FTS	7.852	529.1 -> 80.9	2802	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-PFDoDA	8.925	615.1 -> 570.0	22455	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.664	715.2 -> 670.0	15452	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFBS	5.359	302.1 -> 79.9	18026	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C3-PFHxS	7.155	402.1 -> 79.9	10569	2.55 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 = 102.1%	
13C4-PFBA	2.876	216.8 -> 171.9	142419	9.99 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.395	367.1 -> 322.0	46970	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFHxA	5.441	318.0 -> 273.0	55359	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFPeA	4.235	268.3 -> 223.0	44789	4.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C6-PFDA	8.051	519.1 -> 474.1	18425	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C7-PFUnDA	8.506	570.0 -> 525.1	21619	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-FOSA	9.611	506.1 -> 77.8	21270	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C8-PFOA	7.051	421.1 -> 376.0	68995	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOS	8.214	507.1 -> 79.9	9123	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C9-PFNA	7.569	472.1 -> 427.0	23048	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.5%	
d3-MeFOSAA	8.108	573.2 -> 419.0	23108	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	32025	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSA	10.739	515.0 -> 219.0	7539	2.35 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
d5-EtFOSAA	8.304	589.2 -> 419.0	17903	4.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
d7-MeFOSE	10.660	623.2 -> 58.9	80256	23.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	97359	24.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d5-EtFOSA	10.985	531.1 -> 219.0	8691	2.33 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
Target Compounds					QValue
4:2FTS	5.107	327.1 -> 307.0	155205	48.37 µg/L	98
		327.1 -> 80.9	59577		
6:2FTS	6.826	427.1 -> 407.0	142126	51.68 µg/L	100
		427.1 -> 80.9	48286		
8:2FTS	7.840	527.1 -> 507.0	80740	50.41 µg/L	95
		527.1 -> 80.8	32143		
EtFOSAA	8.305	584.2 -> 419.1	42667	13.91 µg/L	99
		584.2 -> 526.0	23314		
FOSA	9.614	498.1 -> 77.9	98231	12.59 µg/L	100
		498.1 -> 478.0	2917		
MeFOSAA	8.109	570.1 -> 419.0	58462	12.85 µg/L	100
		570.1 -> 483.0	11219		
PFBA	2.882	212.8 -> 168.9	273839	52.95 µg/L	100
PFBS	5.360	298.7 -> 79.9	95188	10.82 µg/L	97
		298.7 -> 98.8	36218		
PFDA	8.052	512.9 -> 469.0	283676	12.91 µg/L	96
		512.9 -> 219.0	40092		
PFDoDA	8.925	613.1 -> 569.0	242442	13.43 µg/L	99
		613.1 -> 319.0	31796		
PFDS	9.089	599.0 -> 79.9	39056	12.75 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	19315			
PFHpA	6.396	363.1 -> 319.0	290875	12.11	µg/L	99
		363.1 -> 169.0	45215			
PFHpS	7.710	449.0 -> 79.9	55700	11.29	µg/L	89
		449.0 -> 98.9	31602			
PFHxA	5.444	313.0 -> 269.0	266726	12.37	µg/L	100
		313.0 -> 118.9	12254			
PFHxS	7.156	398.7 -> 79.9	67251	11.39	µg/L	m 98
		398.7 -> 98.9	33067			
PFNA	7.570	463.0 -> 419.0	224073	13.20	µg/L	100
		463.0 -> 219.0	43209			
PFNS	8.669	548.8 -> 79.9	60514	13.53	µg/L	99
		548.8 -> 98.9	30032			
PFOA	7.052	413.0 -> 369.0	427793	12.69	µg/L	m 98
		413.0 -> 169.0	69414			
PFOS	8.203	498.9 -> 79.9	56132	11.47	µg/L	98
		498.9 -> 98.8	29324			
PFPeA	4.237	263.0 -> 219.0	346095	26.09	µg/L	100
PFPeS	6.447	349.1 -> 79.9	72019	12.23	µg/L	95
		349.1 -> 98.9	31733			
PFTeDA	9.652	713.1 -> 669.0	215734	13.51	µg/L	98
		713.1 -> 168.9	15108			
PFTrDA	9.321	663.0 -> 619.0	275524	13.26	µg/L	99
		663.0 -> 168.9	24663			
PFUnDA	8.493	563.1 -> 519.0	216405	14.33	µg/L	100
		563.1 -> 269.1	33134			
11CI-PF3OUdS	9.360	630.9 -> 450.9	297160	23.72	µg/L	100
		632.9 -> 452.9	91695			
9CI-PF3ONS	8.533	530.8 -> 351.0	470845	24.06	µg/L	99
		532.8 -> 353.0	157488			
ADONA	6.658	376.9 -> 250.9	1230938	24.02	µg/L	99
		376.9 -> 84.8	324402			
HFPO-DA	5.807	284.9 -> 168.9	78527	25.22	µg/L	100
		284.9 -> 184.9	10767			
3:3FTCA	3.727	241.0 -> 177.0	53819	64.48	µg/L	97
		241.0 -> 117.0	7055			
5:3FTCA	6.111	341.0 -> 237.1	1143353	293.29	µg/L	96
		341.0 -> 217.0	844458			
7:3FTCA	7.535	441.0 -> 316.9	588411	303.72	µg/L	100
		441.0 -> 336.9	1292434			
EtFOSA	10.974	526.0 -> 219.0	94639	24.99	µg/L	91
		526.0 -> 169.0	127273			
EtFOSE	10.920	630.0 -> 58.9	266034	61.03	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	89717	26.10	µg/L	99
		511.9 -> 169.0	117812			
MeFOSE	10.673	616.1 -> 58.9	239180	63.30	µg/L	100
PFDoDS	9.779	699.1 -> 79.9	21027	12.72	µg/L	99
		699.1 -> 98.8	11079			
NFDHA	5.324	295.0 -> 201.0	59411	24.56	µg/L	97
		295.0 -> 84.9	15157			
PFMBA	4.650	279.0 -> 85.1	241558	25.90	µg/L	100
PFMPA	3.401	229.0 -> 84.9	182852	26.52	µg/L	100
PFEESA	5.900	314.8 -> 134.9	645394	22.62	µg/L	99
		314.8 -> 82.9	22925			

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

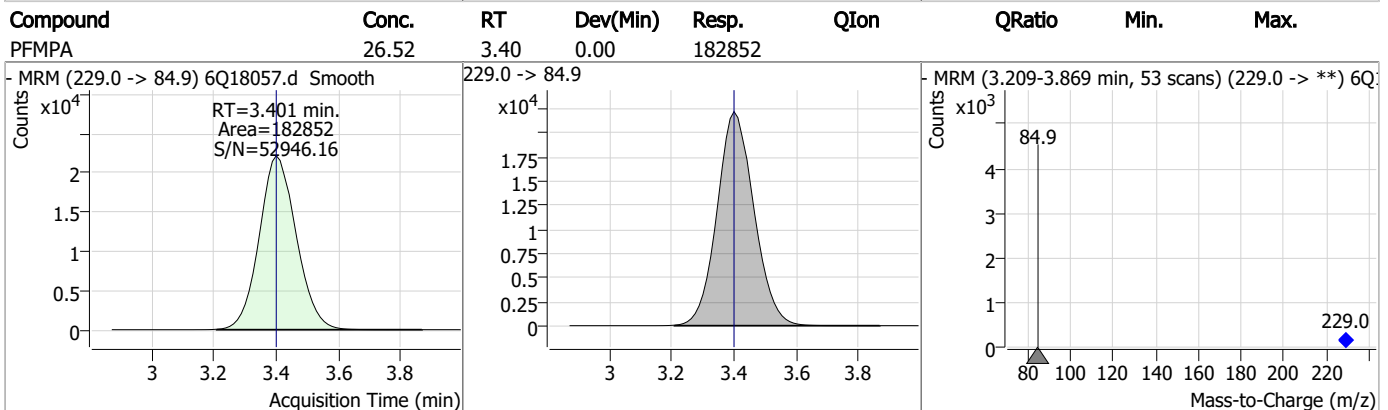
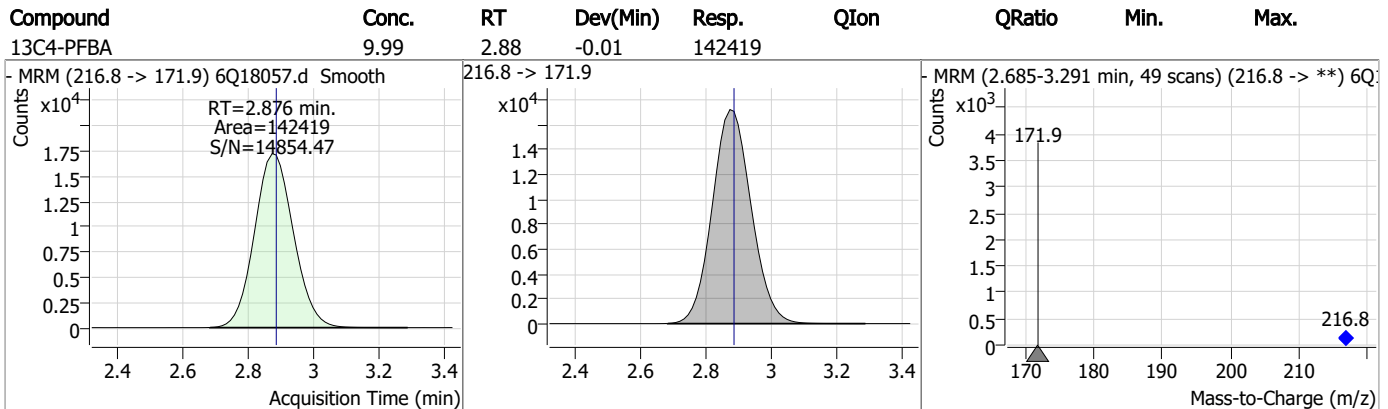
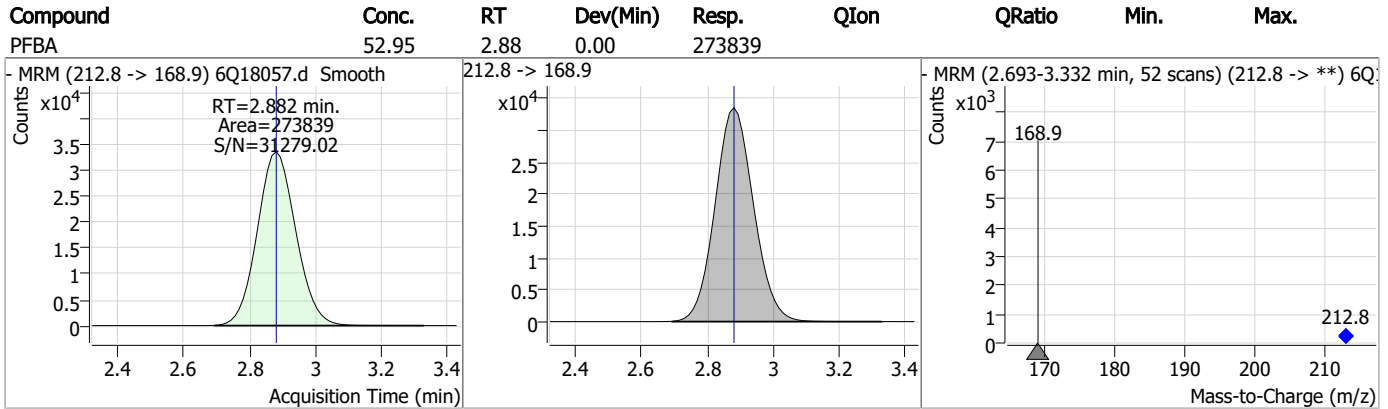
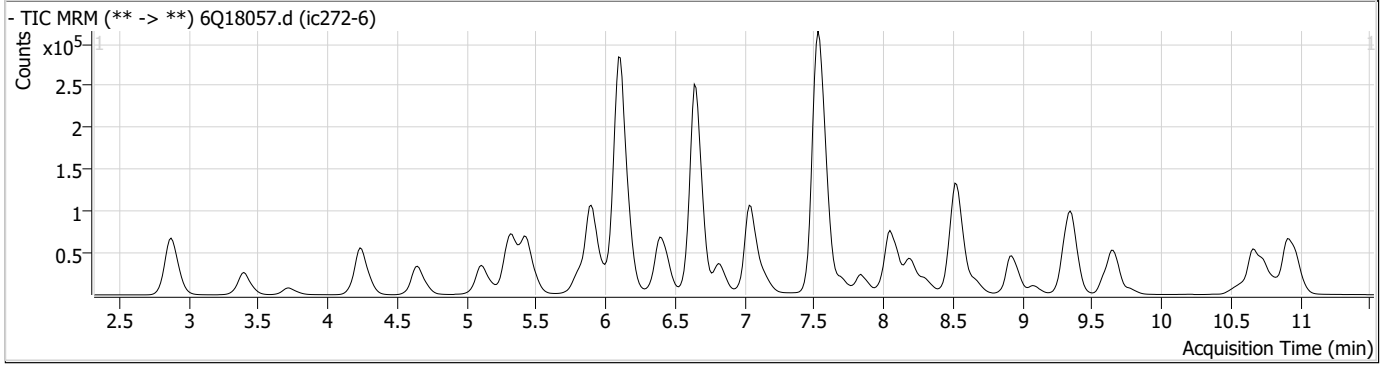
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.7

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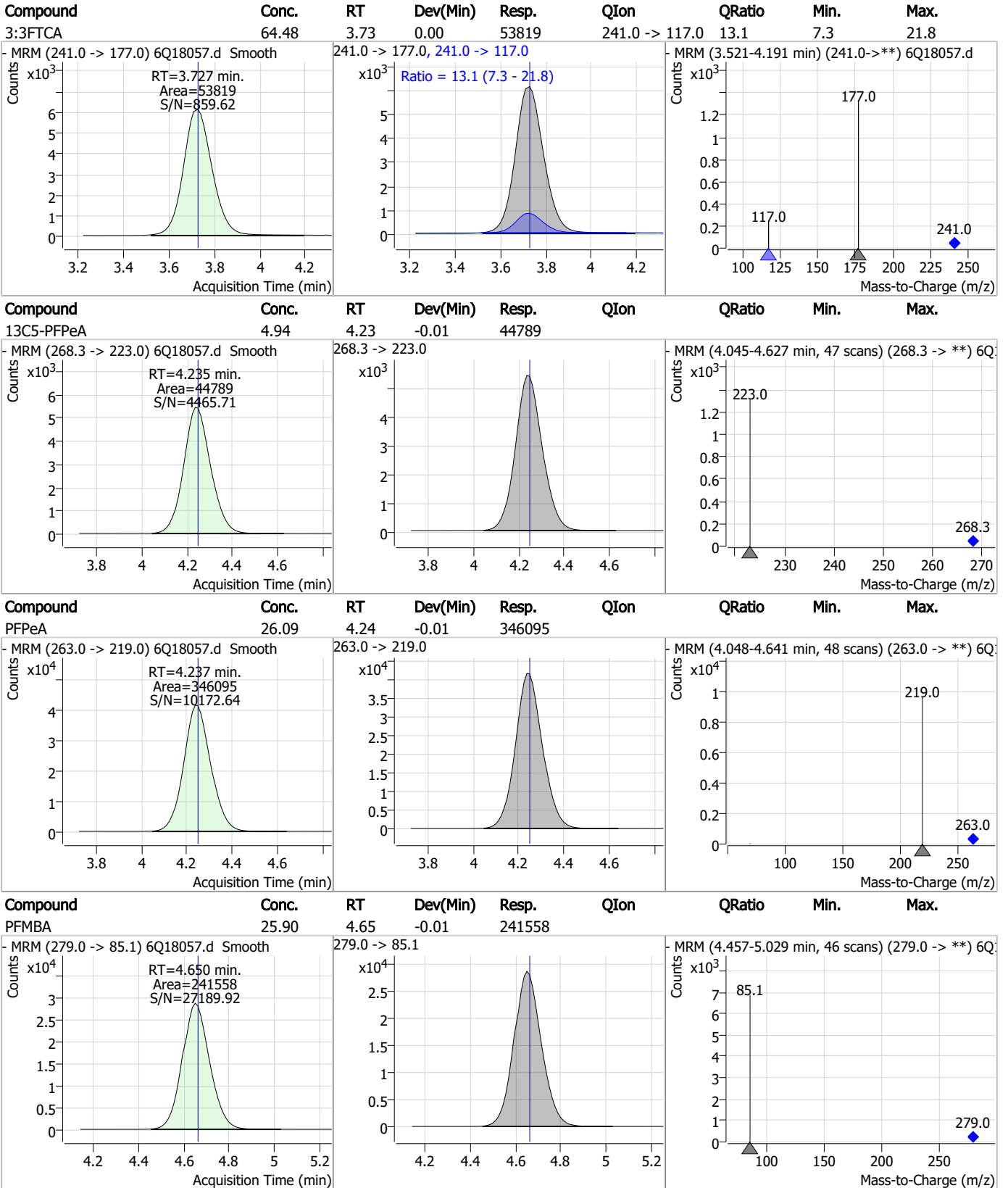
Perfluorinated Compounds by LC/MS/MS



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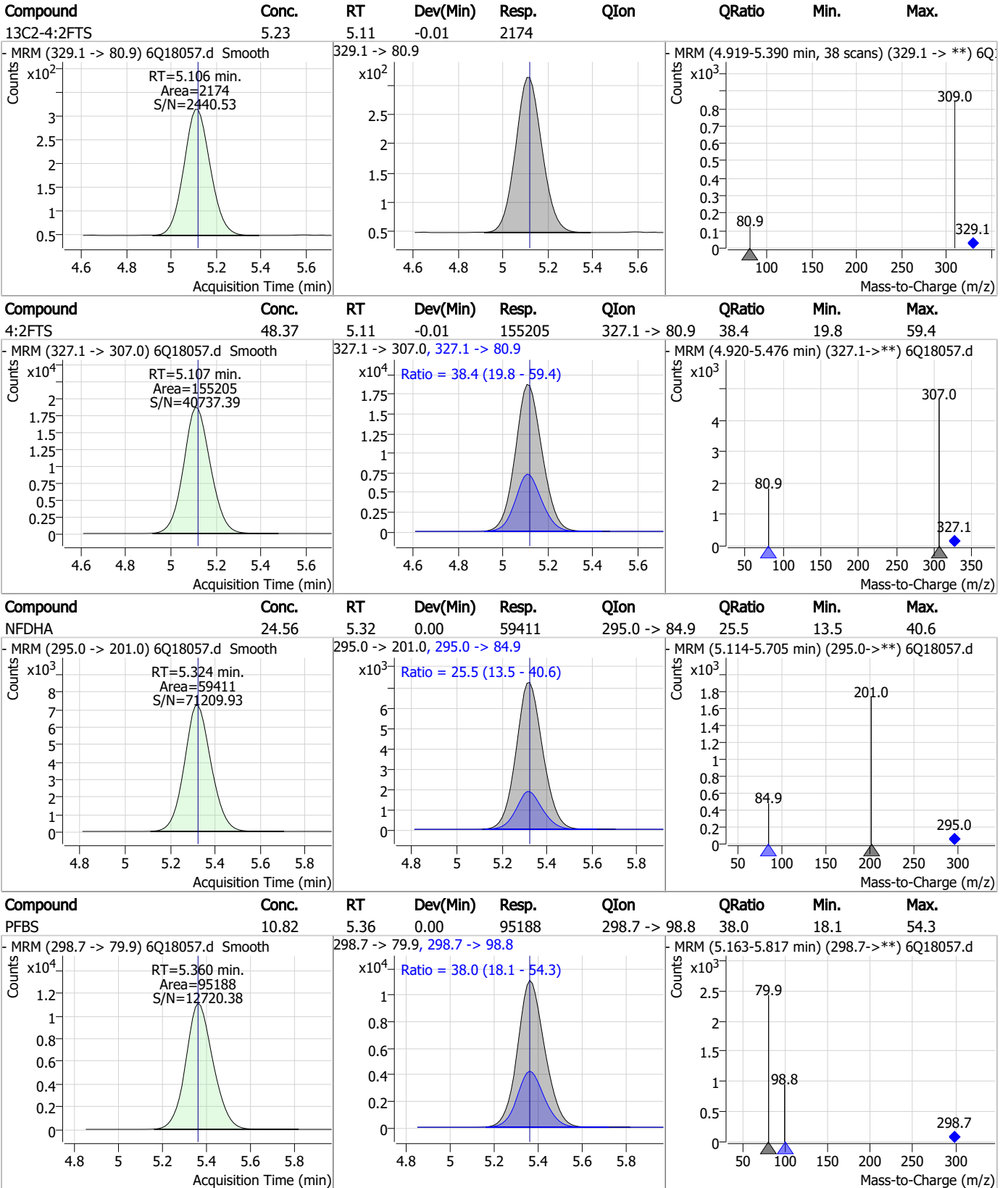
Perfluorinated Compounds by LC/MS/MS



7.6.7

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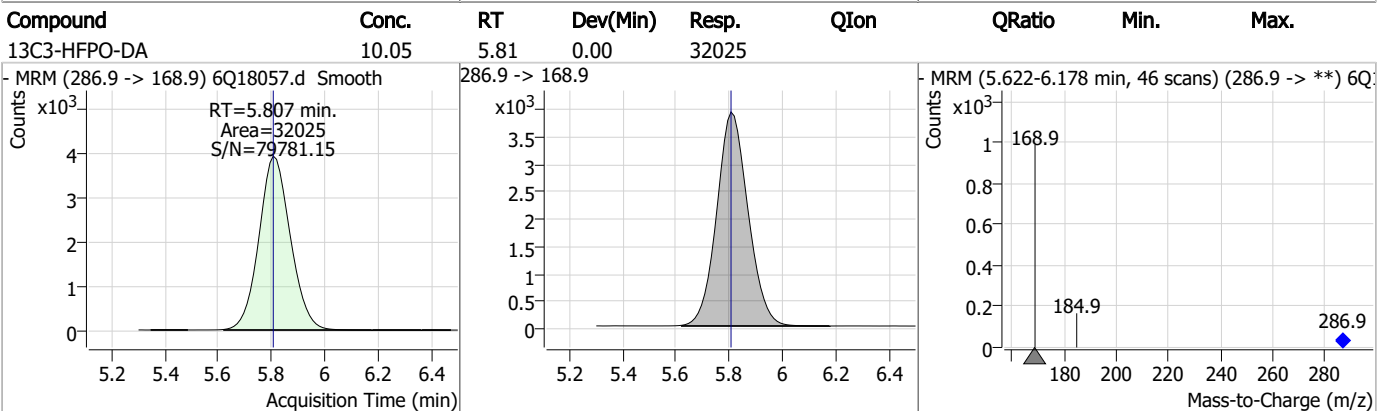
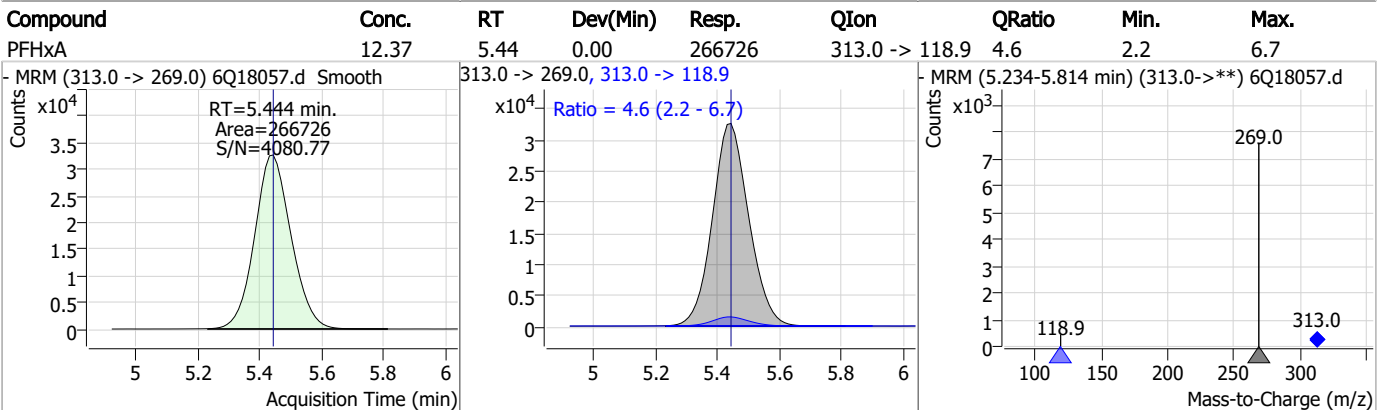
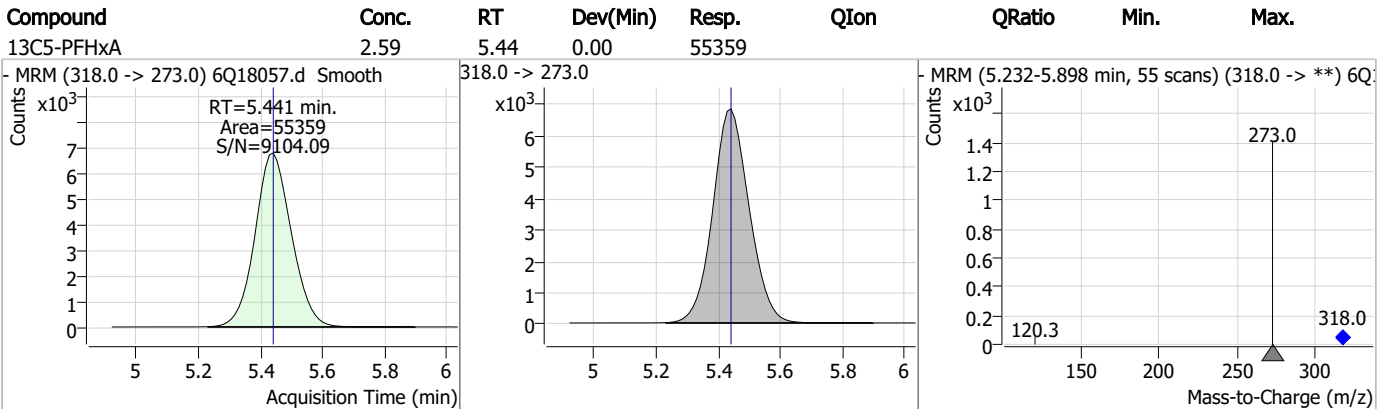
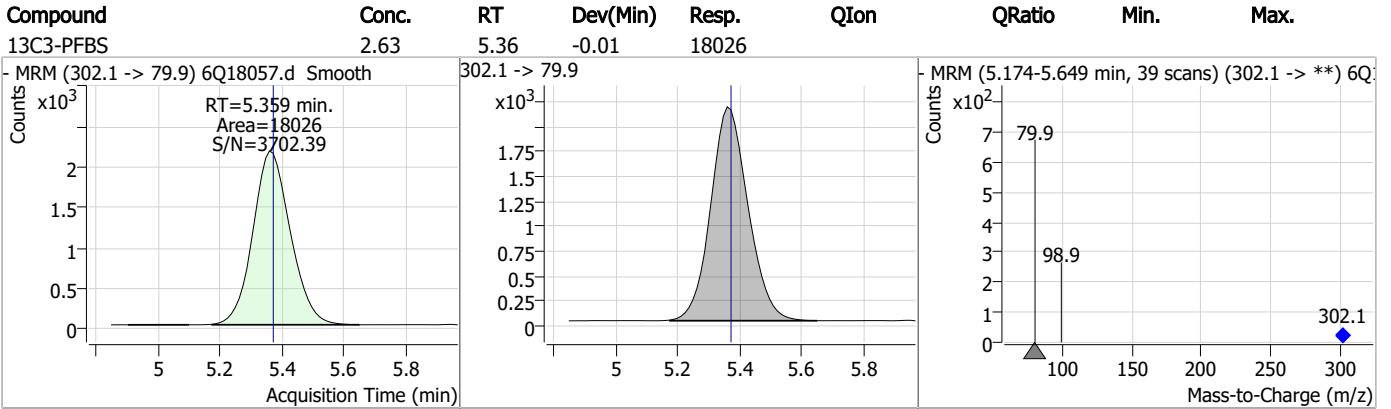
Perfluorinated Compounds by LC/MS/MS



7.67

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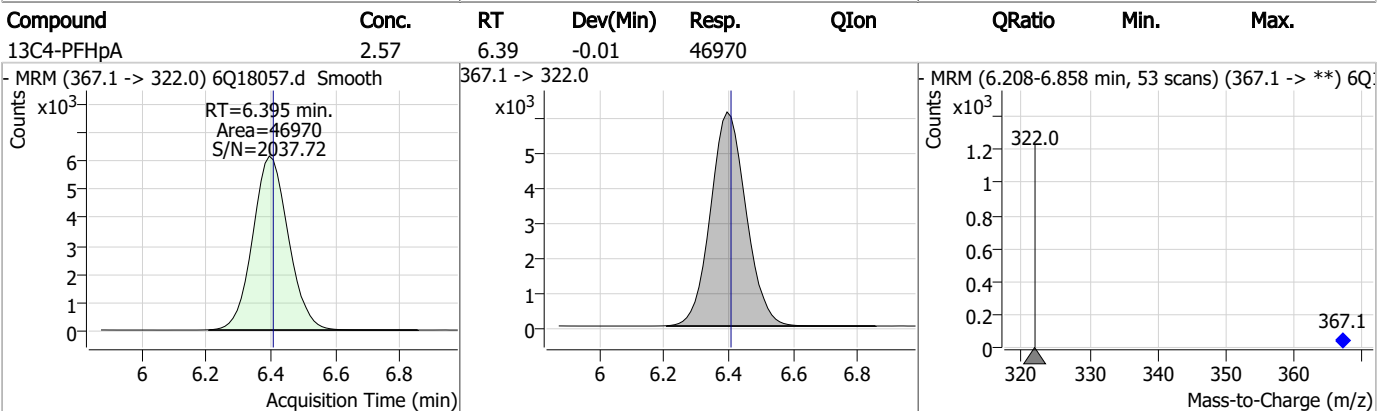
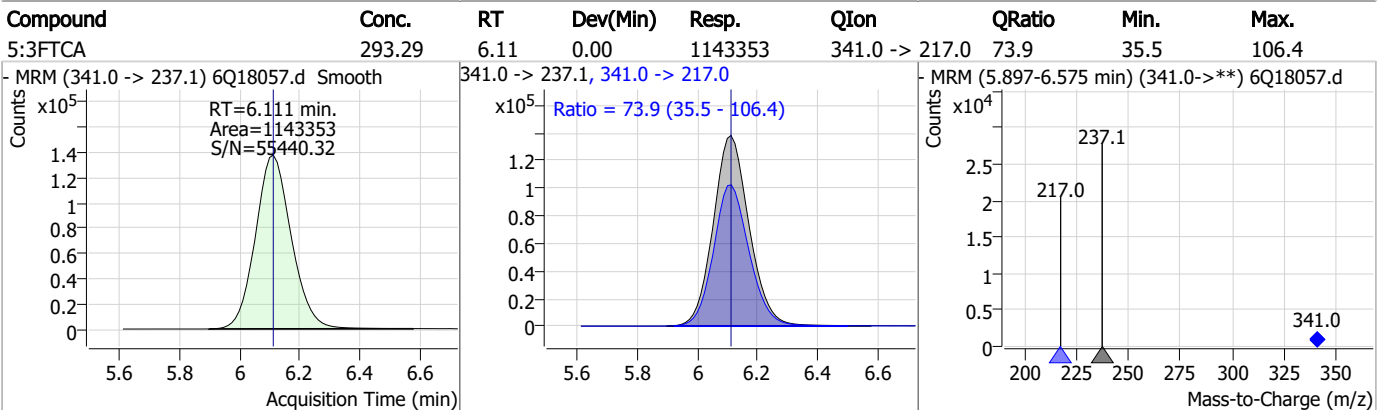
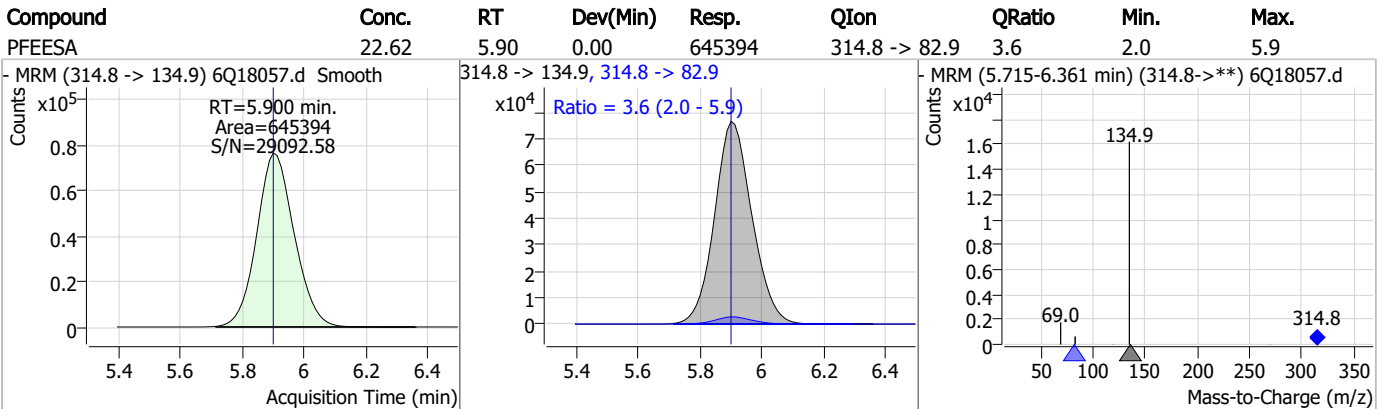
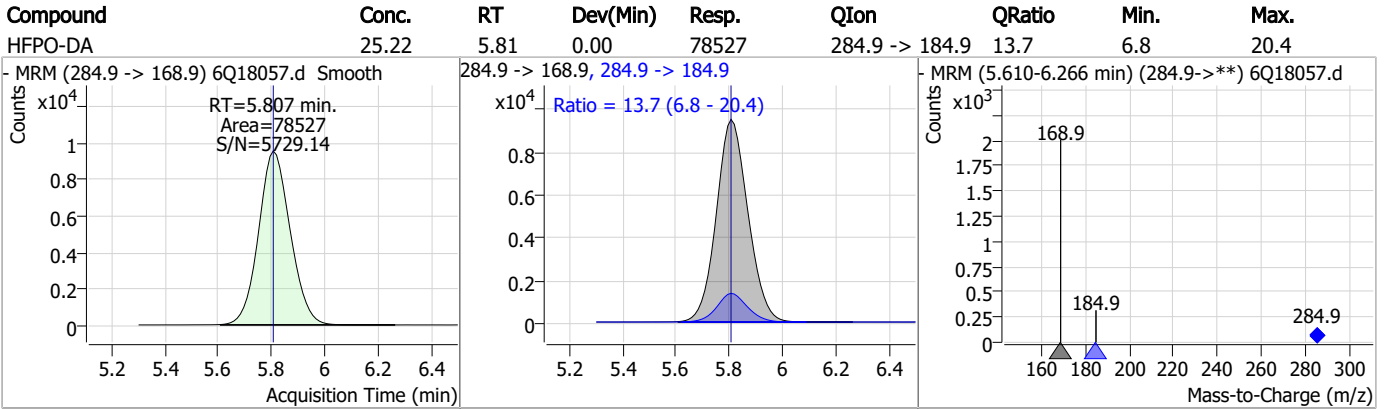
Perfluorinated Compounds by LC/MS/MS



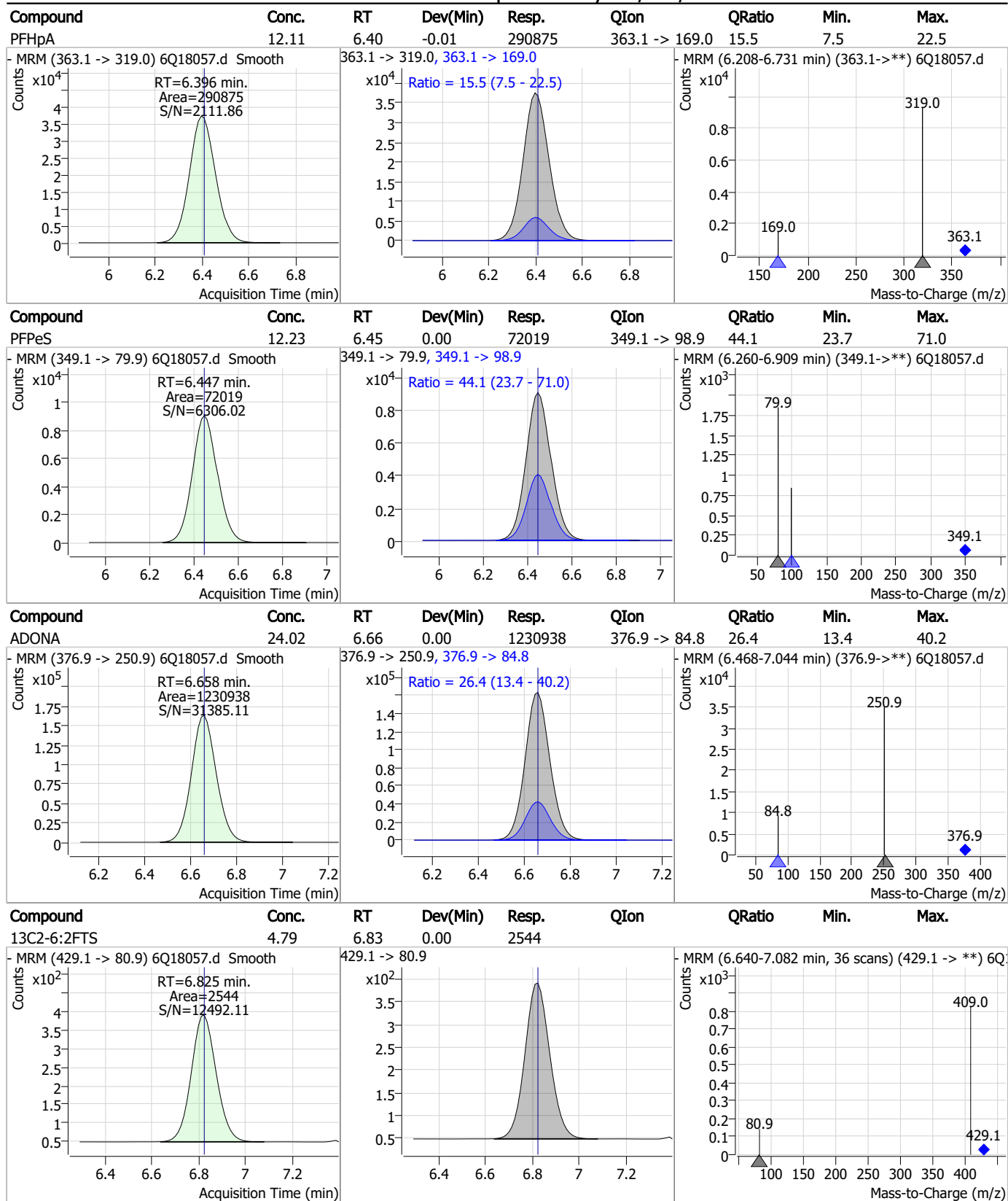
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Perfluorinated Compounds by LC/MS/MS

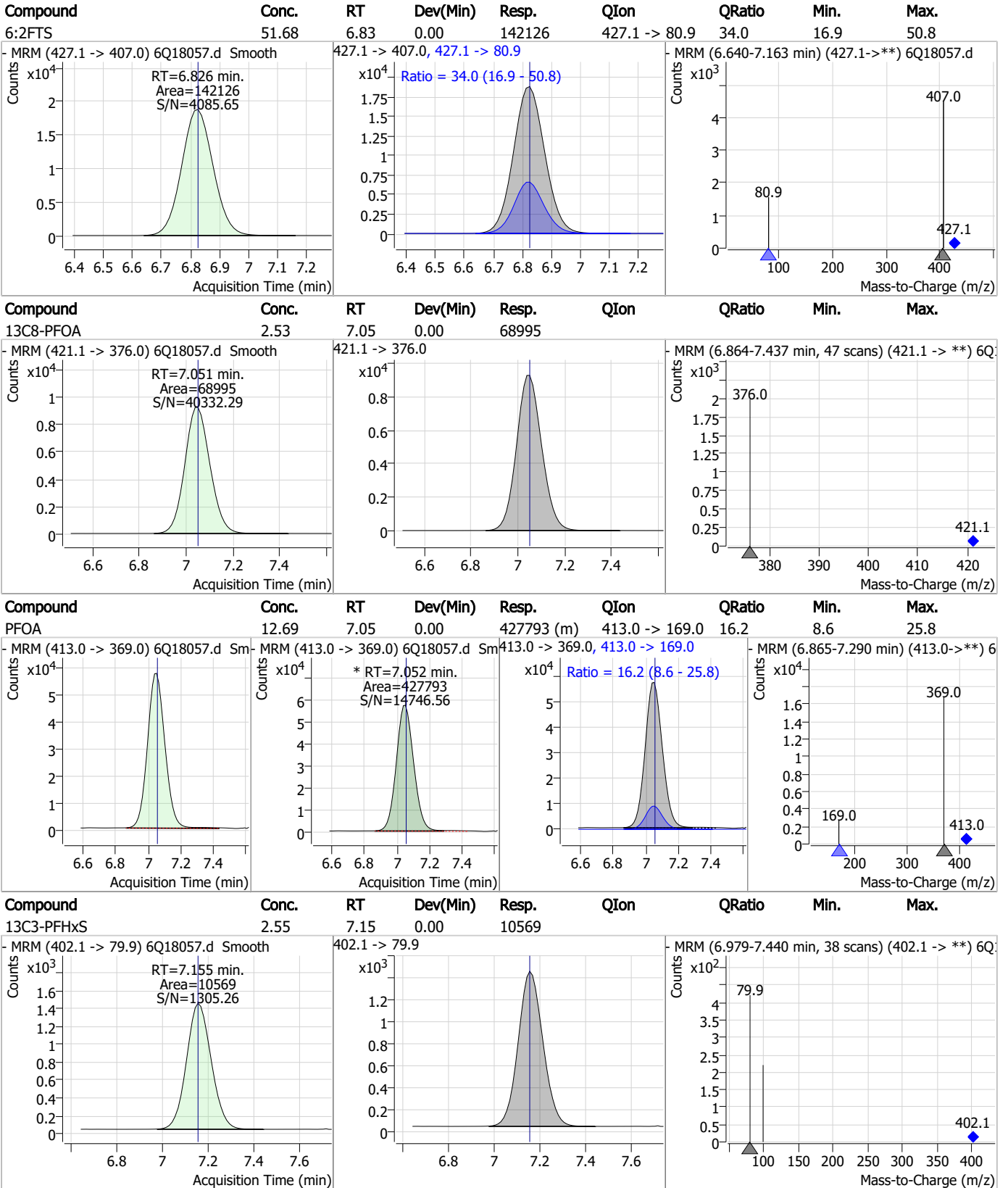


Perfluorinated Compounds by LC/MS/MS



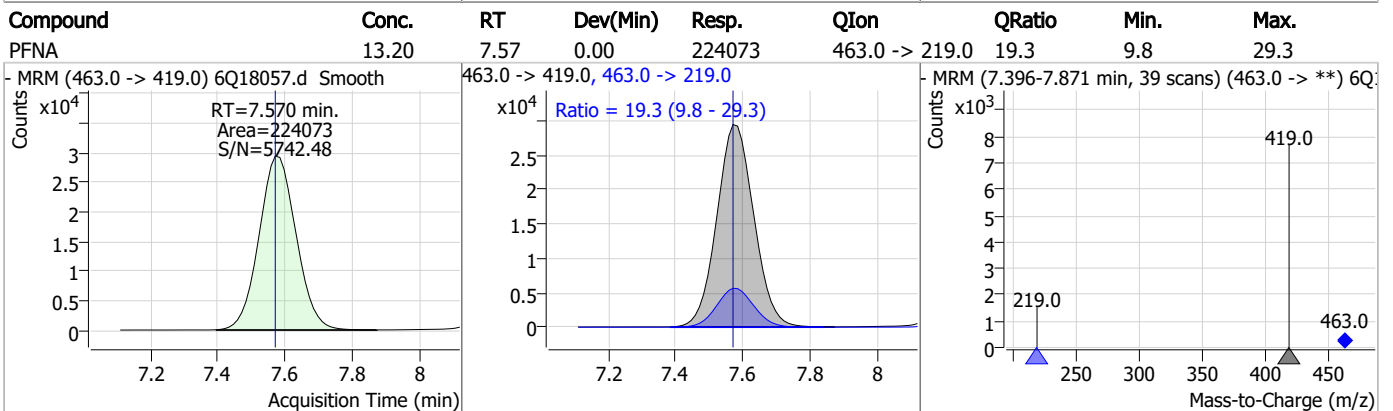
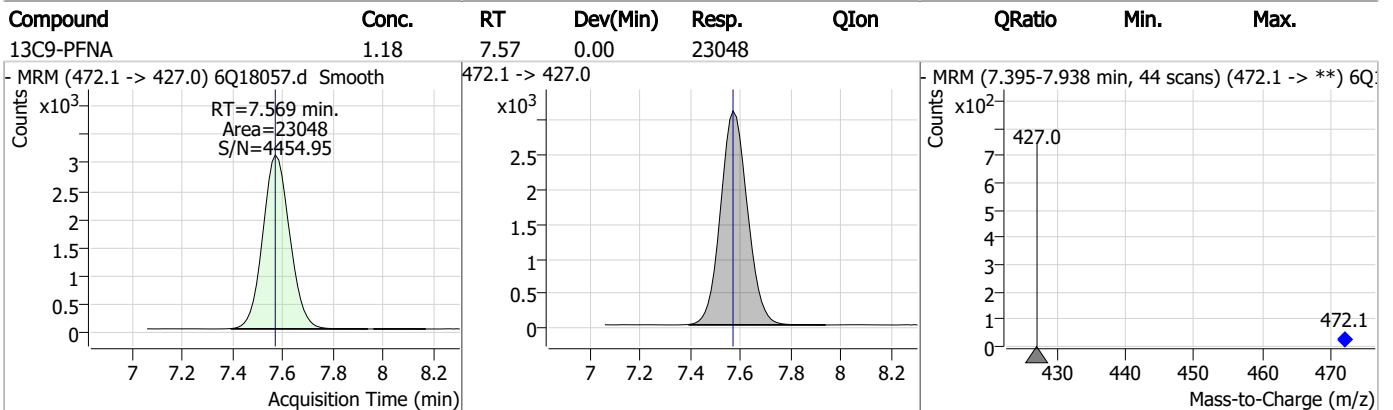
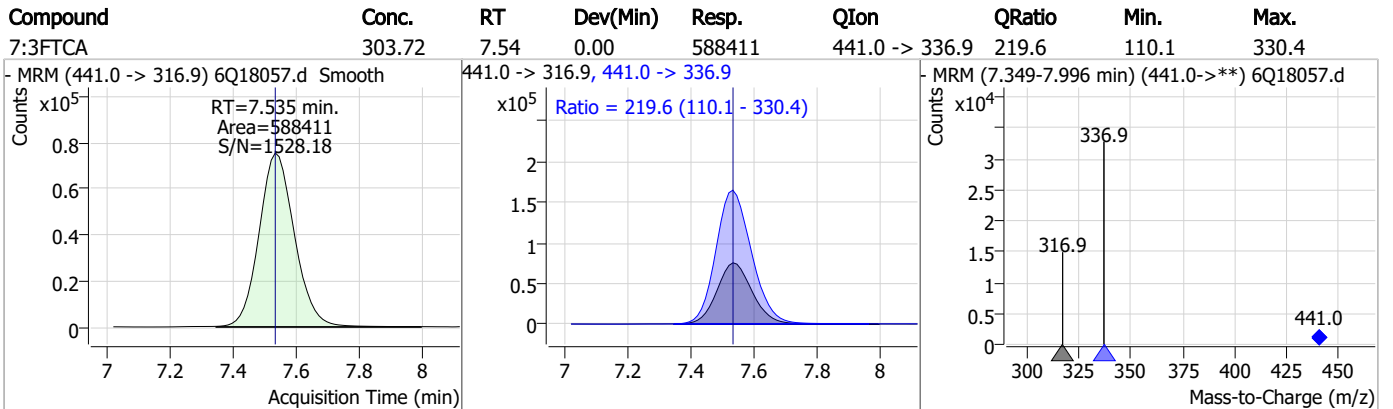
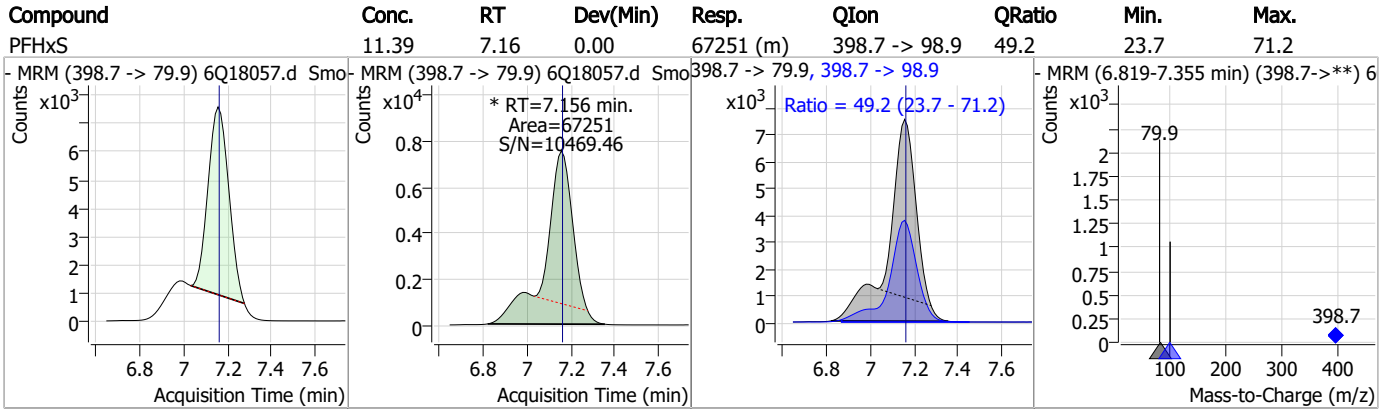
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Perfluorinated Compounds by LC/MS/MS

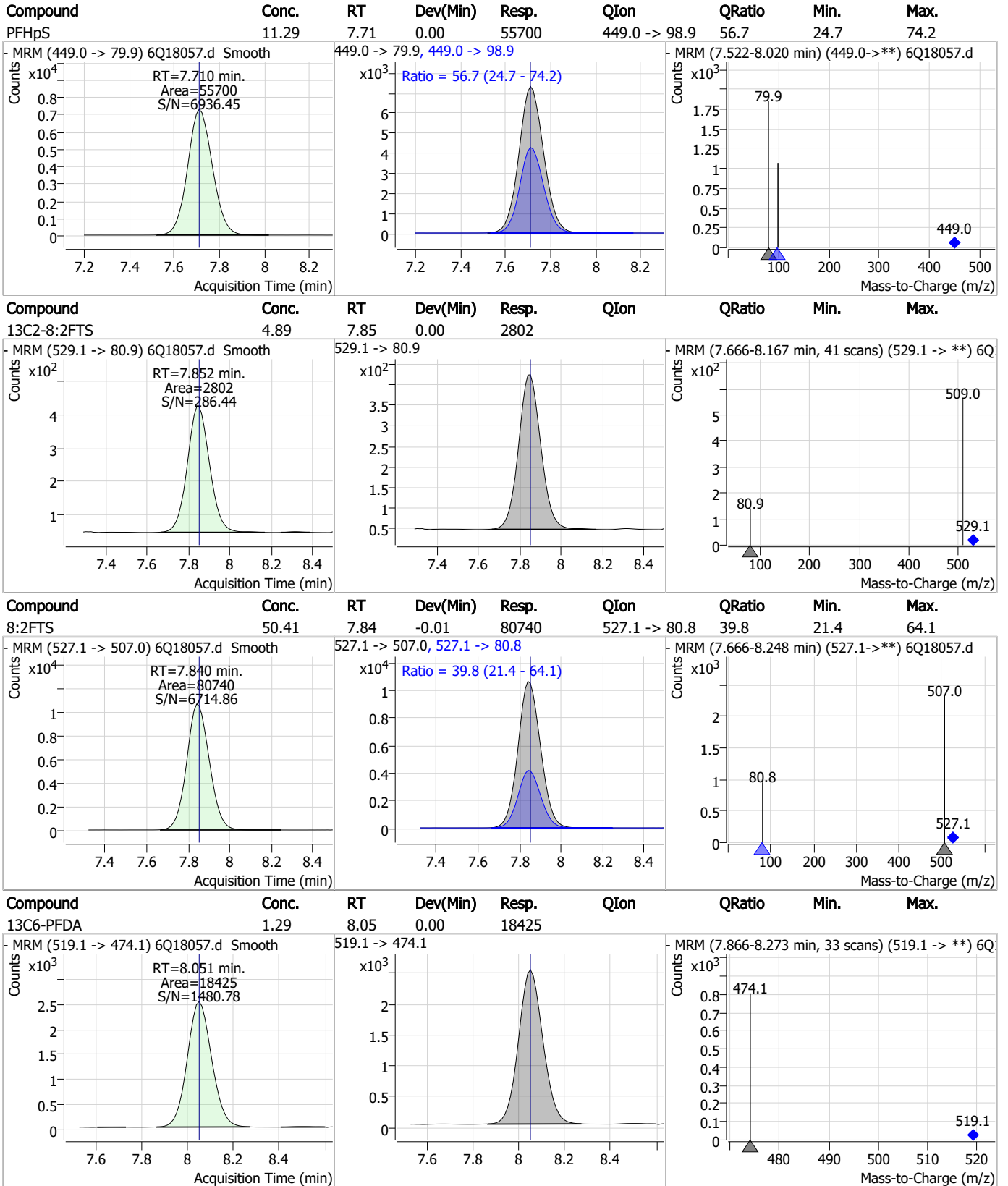


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Perfluorinated Compounds by LC/MS/MS



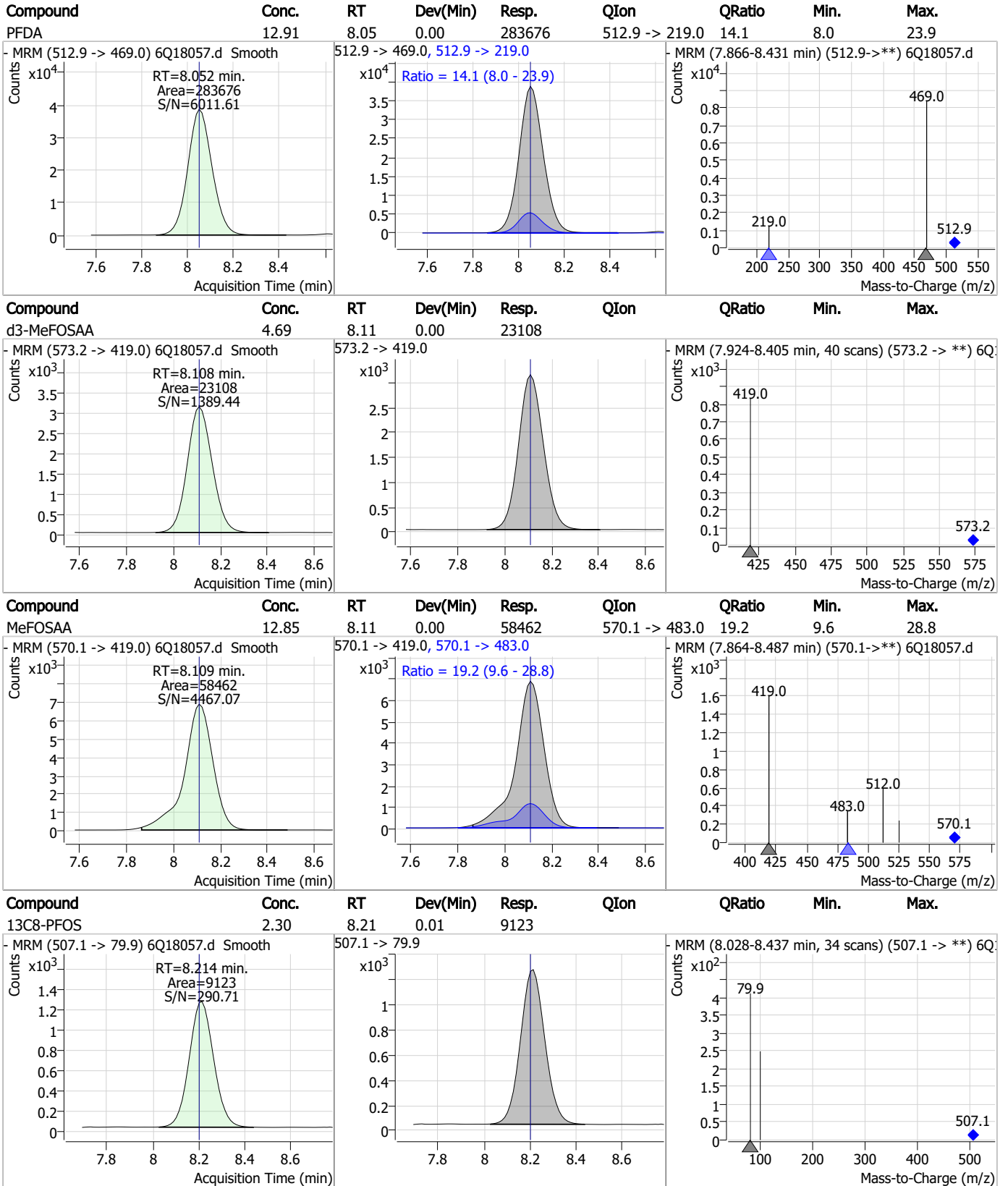
Perfluorinated Compounds by LC/MS/MS



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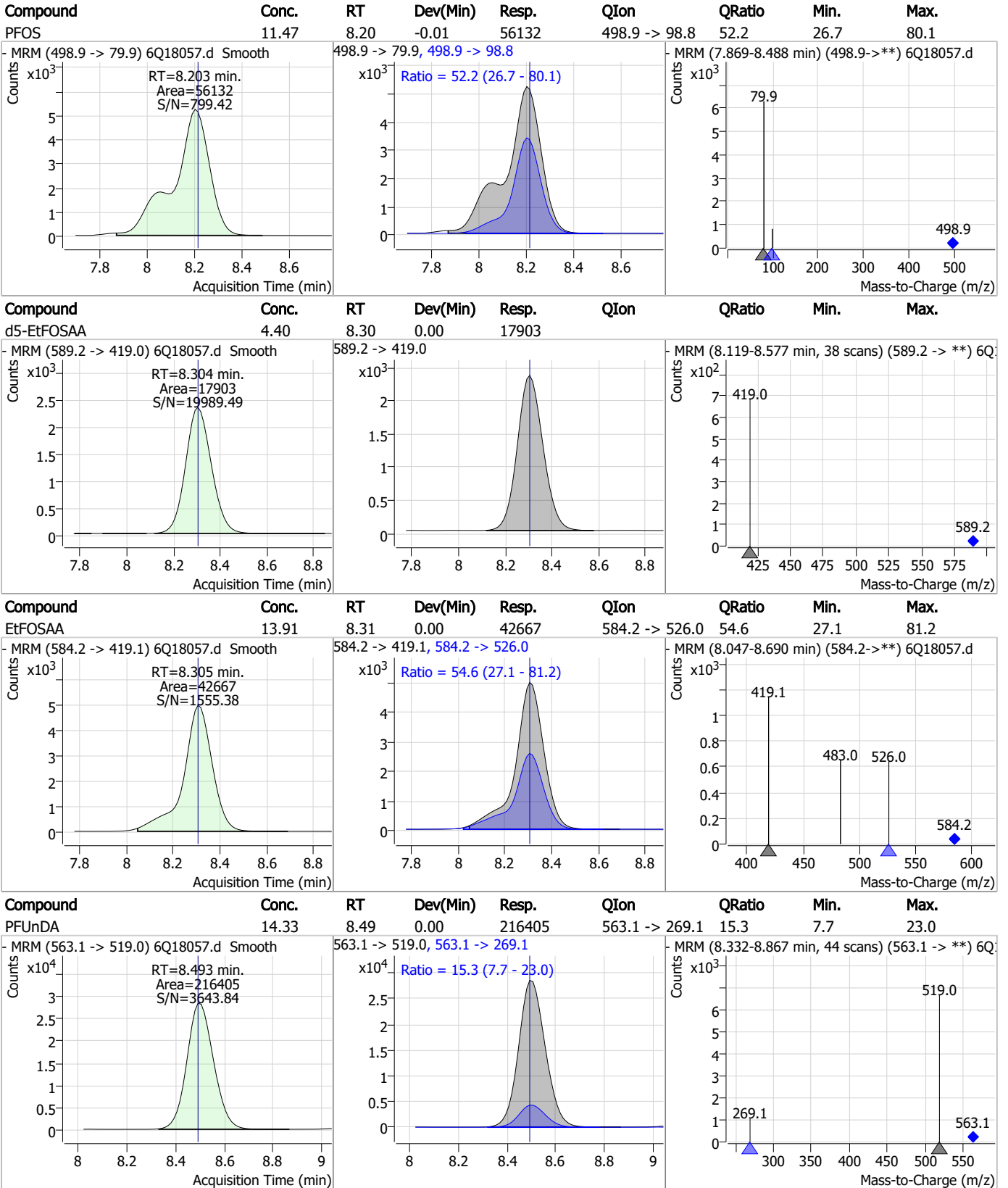
Perfluorinated Compounds by LC/MS/MS



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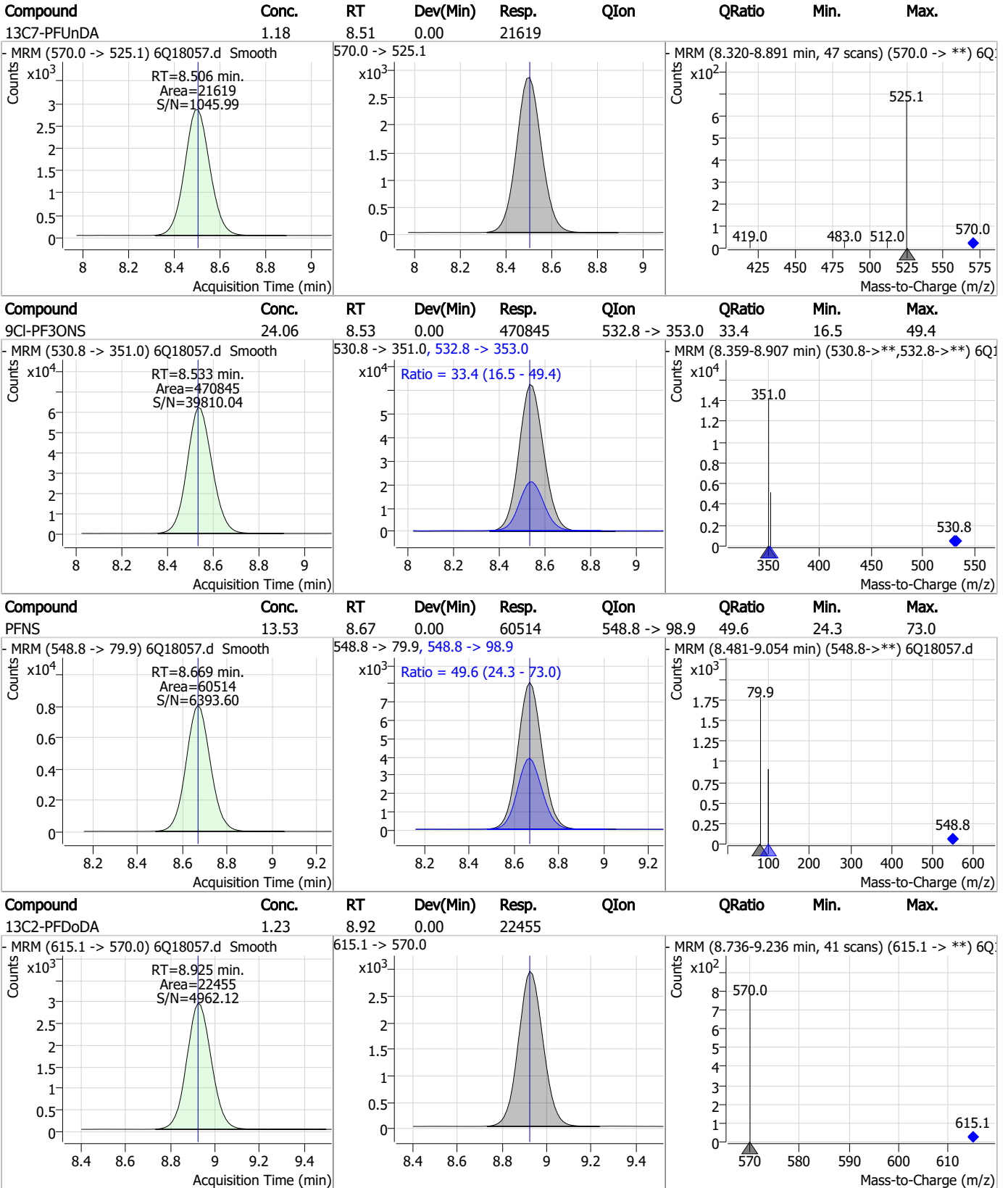
Perfluorinated Compounds by LC/MS/MS



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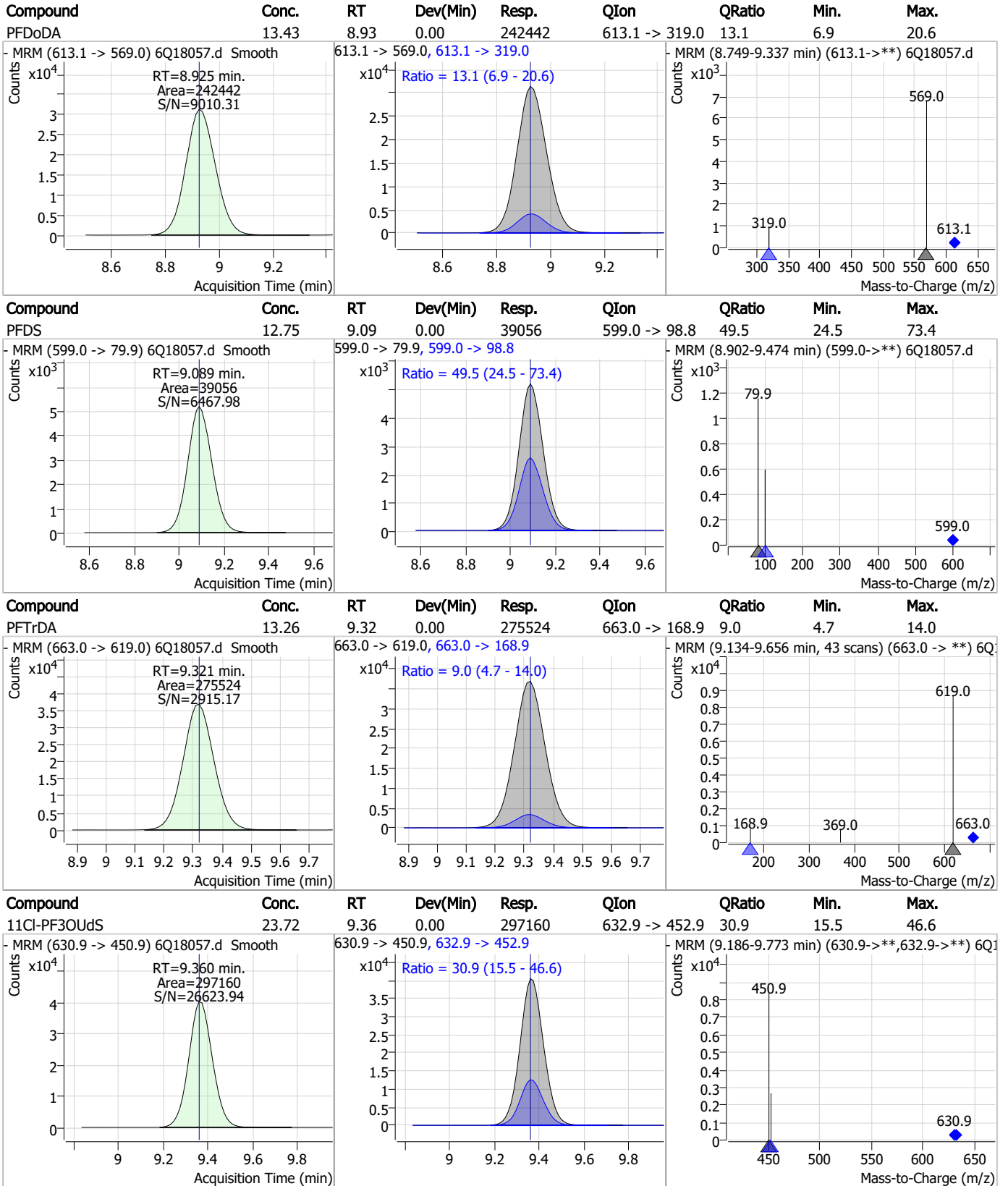
Perfluorinated Compounds by LC/MS/MS



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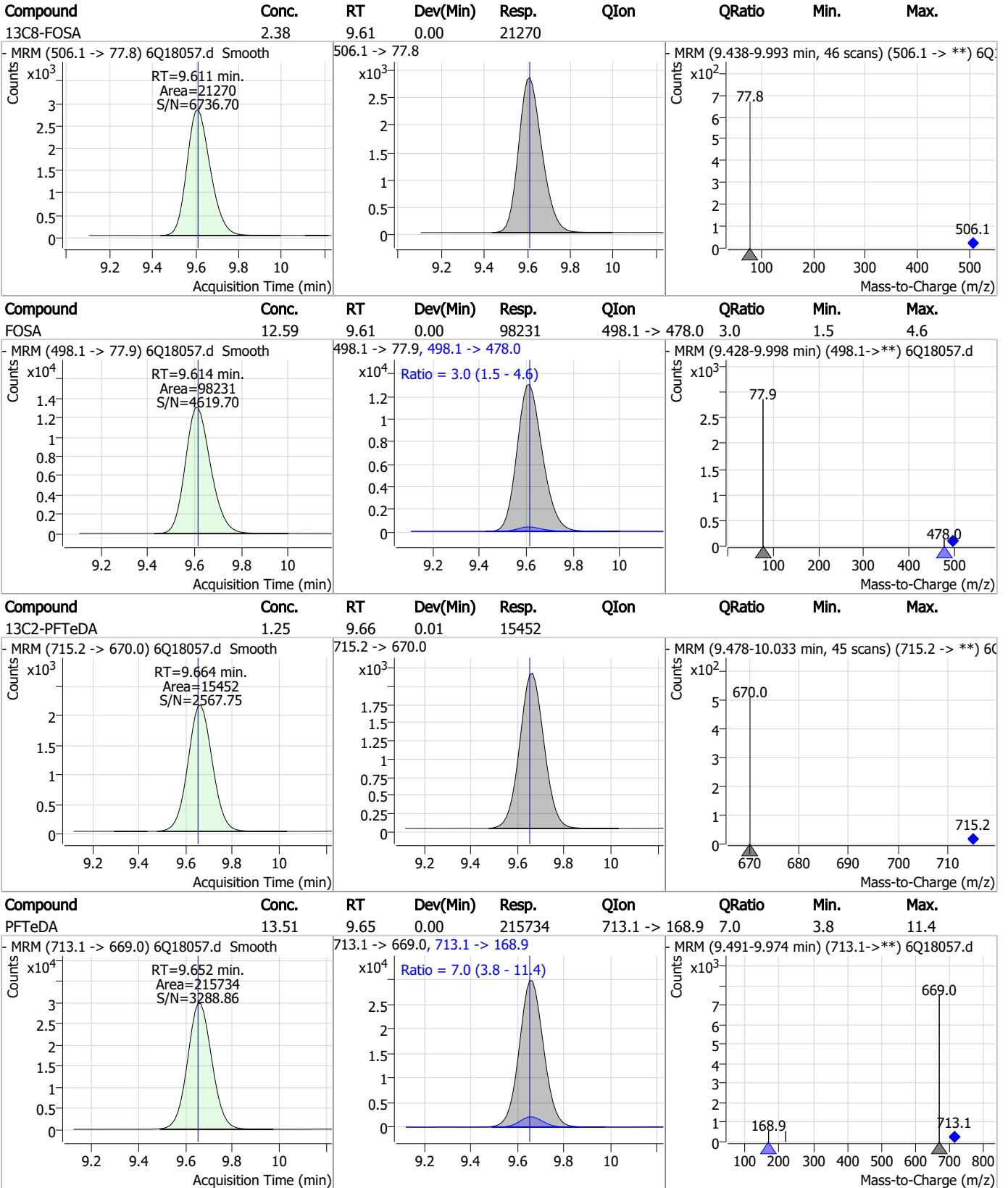
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Perfluorinated Compounds by LC/MS/MS



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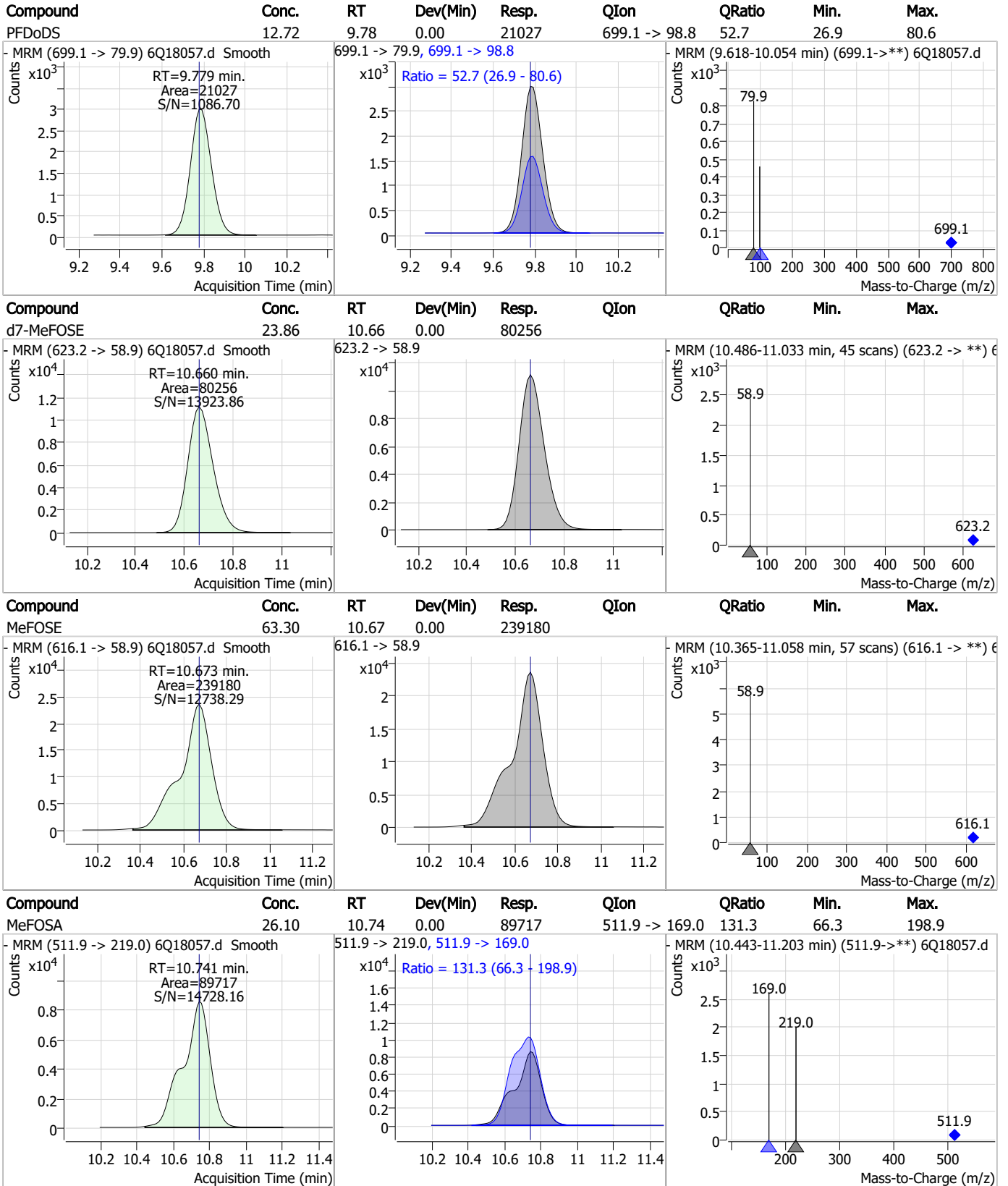
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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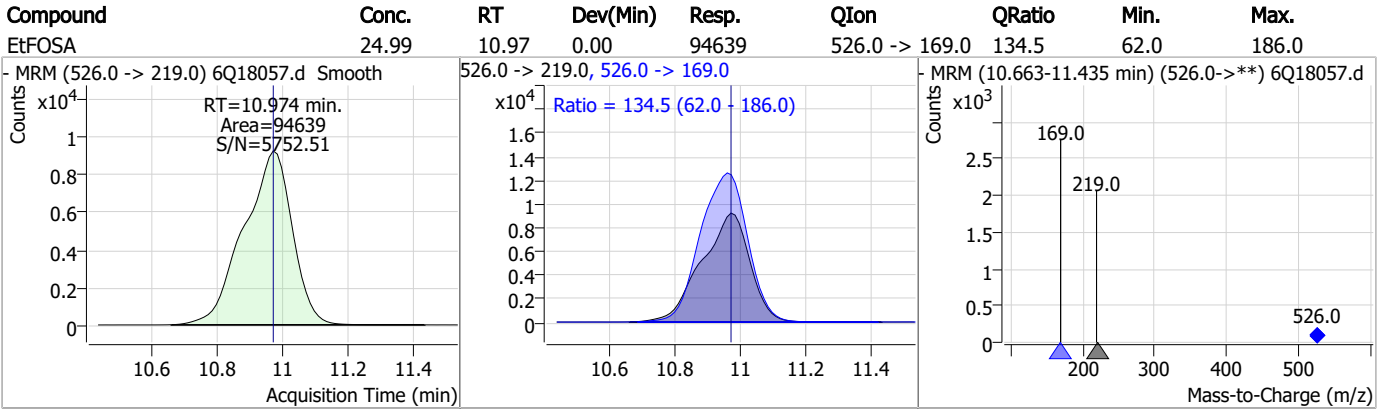
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	10.74	-0.01	7539				
d9-EtFOSE	24.55	10.91	0.00	97359				
EtFOSE	61.03	10.92	0.00	266034				
d5-EtFOSA	2.33	10.98	0.01	8691				

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Perfluorinated Compounds by LC/MS/MS



7.6.7

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Manual Integration Approval Summary

Sample Number: S6Q272-IC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18057.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 20:11 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.05	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak

7.6.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 05/22/23 12:09

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18058.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 8:26:26 PM
 Sample Name : ic272-7
 Vial : P1-A8
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	137428	10.00 µg/L	-0.012
M5-PFPeA	4.247	268.3 -> 223.0	43654	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	51711	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	43746	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	66899	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	24054	1.25 µg/L	0.000
M6-PFDA	8.039	519.1 -> 474.1	17224	1.25 µg/L	-0.012
M7-PFUnDA	8.492	570.0 -> 525.1	23640	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	23438	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	14926	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	20526	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	16750	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	10105	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9477	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2154	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	2725	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3024	5.00 µg/L	-0.012
M3-MeFOSAA	8.096	573.2 -> 419.0	22498	5.00 µg/L	-0.012
M3-HFPO-DA	5.807	286.9 -> 168.9	31063	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	19056	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	76494	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	88772	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	9163	2.50 µg/L	0.012
M3-MeFOSA	10.739	515.0 -> 219.0	7554	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	12179	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	57609	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	7777	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	73389	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	21815	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	24398	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	42303	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2154	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-6:2FTS	6.825	429.1 -> 80.9	2725	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3024	5.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-PFDoDA	8.925	615.1 -> 570.0	23438	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C2-PFTeDA	9.652	715.2 -> 670.0	14926	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C3-PFBS	5.359	302.1 -> 79.9	16750	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFHxS	7.155	402.1 -> 79.9	10105	2.43 µg/L	0.000

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 = 97.2%		
13C4-PFBA	2.876	216.8 -> 171.9	137428	10.00 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C4-PFHpA	6.395	367.1 -> 322.0	43746	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C5-PFHxA	5.441	318.0 -> 273.0	51711	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C5-PFPeA	4.247	268.3 -> 223.0	43654	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C6-PFDA	8.039	519.1 -> 474.1	17224	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C7-PFUnDA	8.492	570.0 -> 525.1	23640	1.24 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C8-FOSA	9.611	506.1 -> 77.8	20526	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C8-PFOA	7.051	421.1 -> 376.0	66899	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C8-PFOS	8.202	507.1 -> 79.9	9477	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C9-PFNA	7.569	472.1 -> 427.0	24054	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
d3-MeFOSAA	8.096	573.2 -> 419.0	22498	4.93 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-HFPO-DA	5.807	286.9 -> 168.9	31063	10.16 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
d3-MeFOSA	10.739	515.0 -> 219.0	7554	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
d5-EtFOSAA	8.304	589.2 -> 419.0	19056	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
d7-MeFOSE	10.660	623.2 -> 58.9	76494	24.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.3%		
d9-EtFOSE	10.907	639.2 -> 58.9	88772	24.19 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
d5-EtFOSA	10.985	531.1 -> 219.0	9163	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.0%		
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	297145	93.48 µg/L	96
		327.1 -> 80.9	109747		
6:2FTS	6.826	427.1 -> 407.0	268624	91.19 µg/L	96
		427.1 -> 80.9	84636		
8:2FTS	7.840	527.1 -> 507.0	153203	88.63 µg/L	96
		527.1 -> 80.8	61689		
EtFOSAA	8.305	584.2 -> 419.1	86159	26.38 µg/L	96
		584.2 -> 526.0	44366		
FOSA	9.602	498.1 -> 77.9	202525	26.91 µg/L	100
		498.1 -> 478.0	5767		
MeFOSAA	8.109	570.1 -> 419.0	113654	25.66 µg/L	99
		570.1 -> 483.0	22132		
PFBA	2.882	212.8 -> 168.9	514054	103.00 µg/L	100
PFBS	5.360	298.7 -> 79.9	185063	22.64 µg/L	96
		298.7 -> 98.8	71631		
PFDA	8.052	512.9 -> 469.0	565693	27.53 µg/L	100
		512.9 -> 219.0	89940		
PFDoDA	8.925	613.1 -> 569.0	444625	23.60 µg/L	98
		613.1 -> 319.0	63894		
PFDS	9.089	599.0 -> 79.9	76267	23.97 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	36386			
PFHpA	6.395	363.1 -> 319.0	588796	26.31	µg/L	99
		363.1 -> 169.0	90371			
PFHpS	7.710	449.0 -> 79.9	119773	23.37	µg/L	95
		449.0 -> 98.9	63533			
PFHxA	5.444	313.0 -> 269.0	528758	26.24	µg/L	100
		313.0 -> 118.9	24644			
PFHxS	7.156	398.7 -> 79.9	133888	23.71	µg/L	m 100
		398.7 -> 98.9	64033			
PFNA	7.570	463.0 -> 419.0	447330	25.24	µg/L	98
		463.0 -> 219.0	90975			
PFNS	8.669	548.8 -> 79.9	112554	24.22	µg/L	93
		548.8 -> 98.9	60113			
PFOA	7.040	413.0 -> 369.0	819961	25.09	µg/L	99
		413.0 -> 169.0	144428			
PFOS	8.203	498.9 -> 79.9	112980	22.22	µg/L	m 97
		498.9 -> 98.8	57998			
PFPeA	4.249	263.0 -> 219.0	674976	52.21	µg/L	100
PFPeS	6.447	349.1 -> 79.9	138834	24.66	µg/L	96
		349.1 -> 98.9	61899			
PFTeDA	9.652	713.1 -> 669.0	413513	26.80	µg/L	99
		713.1 -> 168.9	29973			
PFTrDA	9.309	663.0 -> 619.0	518221	23.89	µg/L	99
		663.0 -> 168.9	49671			
PFUnDA	8.493	563.1 -> 519.0	413279	25.03	µg/L	100
		563.1 -> 269.1	62413			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	601677	49.51	µg/L	100
		632.9 -> 452.9	187767			
9Cl-PF3ONS	8.533	530.8 -> 351.0	931546	49.07	µg/L	99
		532.8 -> 353.0	299279			
ADONA	6.658	376.9 -> 250.9	2476207	49.81	µg/L	98
		376.9 -> 84.8	641413			
HFPO-DA	5.820	284.9 -> 168.9	152981	50.66	µg/L	100
		284.9 -> 184.9	21067			
3:3FTCA	3.727	241.0 -> 177.0	105953	130.23	µg/L	96
		241.0 -> 117.0	13732			
5:3FTCA	6.111	341.0 -> 237.1	2320042	637.11	µg/L	100
		341.0 -> 217.0	1646648			
7:3FTCA	7.535	441.0 -> 316.9	1175138	649.35	µg/L	96
		441.0 -> 336.9	2522281			
EtFOSA	10.974	526.0 -> 219.0	195945	49.07	µg/L	98
		526.0 -> 169.0	247457			
EtFOSE	10.920	630.0 -> 58.9	524319	131.92	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	179752	52.20	µg/L	98
		511.9 -> 169.0	241846			
MeFOSE	10.673	616.1 -> 58.9	465728	129.32	µg/L	100
PFDoDS	9.779	699.1 -> 79.9	40318	23.47	µg/L	95
		699.1 -> 98.8	23050			
NFDHA	5.324	295.0 -> 201.0	117112	51.83	µg/L	96
		295.0 -> 84.9	29464			
PFMBA	4.650	279.0 -> 85.1	478388	52.63	µg/L	100
PFMPA	3.401	229.0 -> 84.9	348976	51.93	µg/L	100
PFEESA	5.912	314.8 -> 134.9	1230822	46.18	µg/L	99
		314.8 -> 82.9	42750			

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

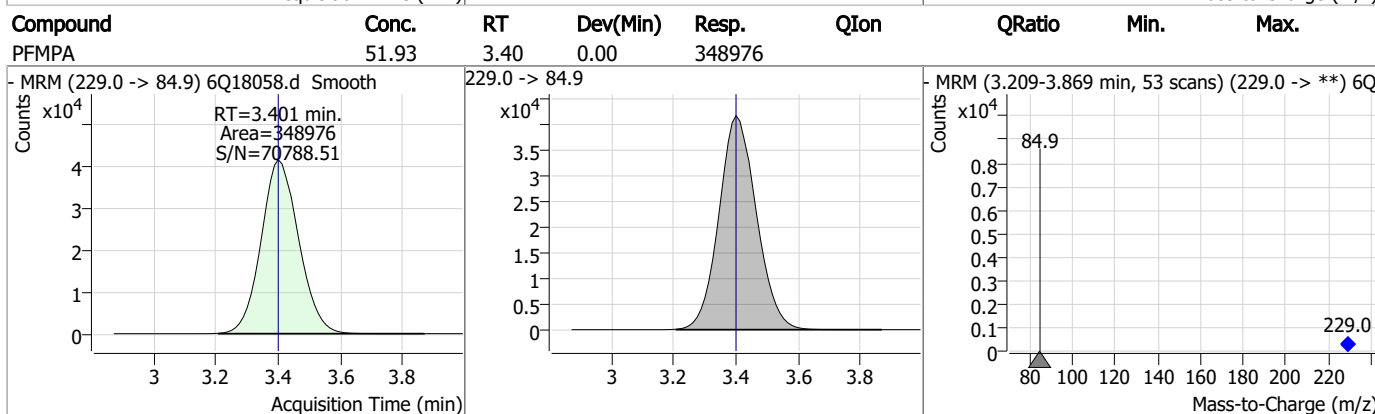
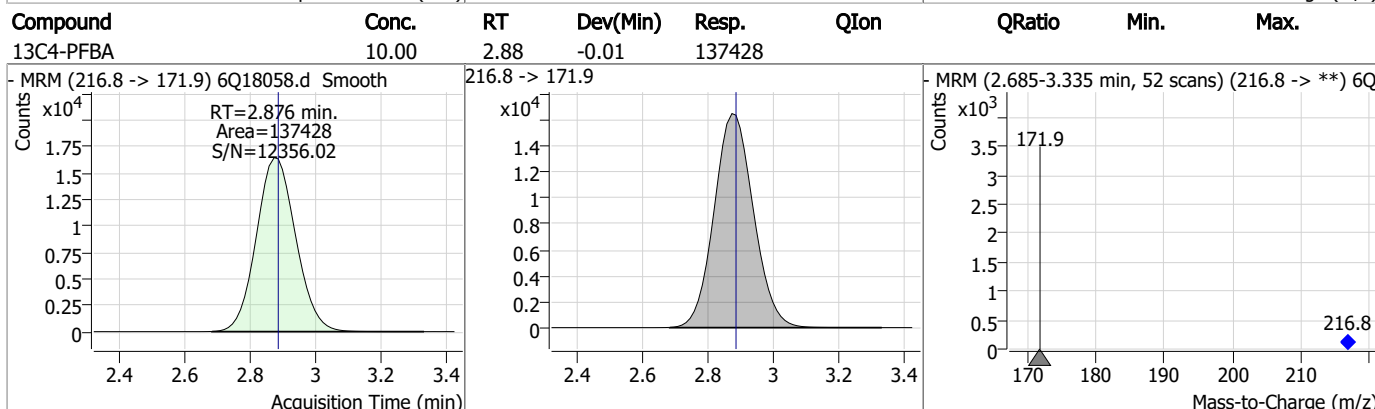
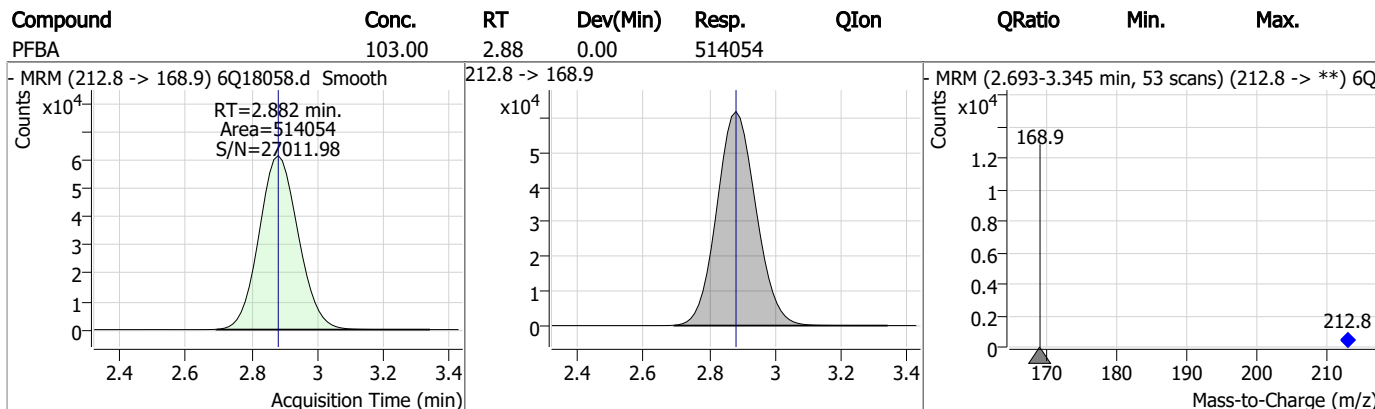
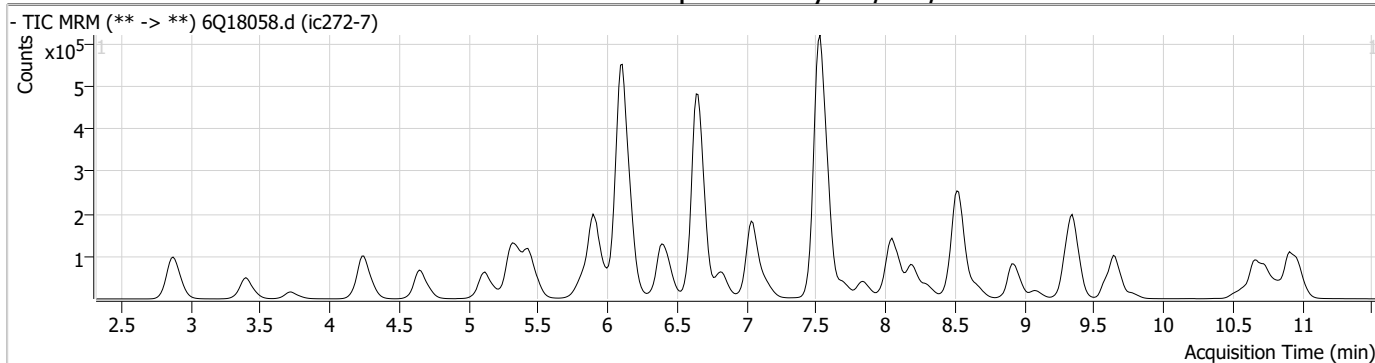
Perfluorinated Compounds by LC/MS/MS

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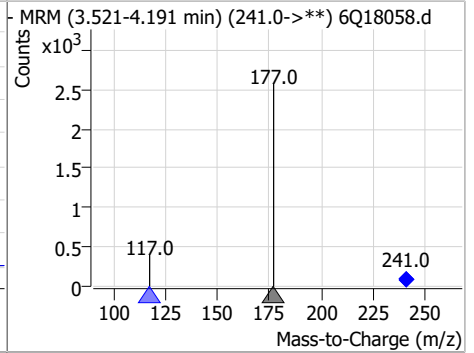
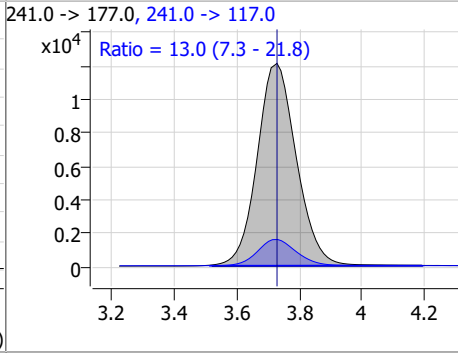
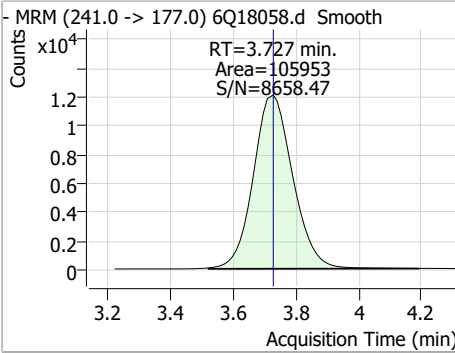


Perfluorinated Compounds by LC/MS/MS

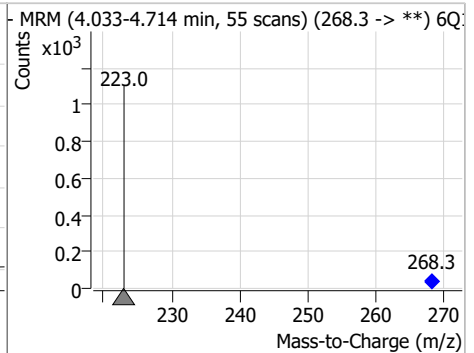
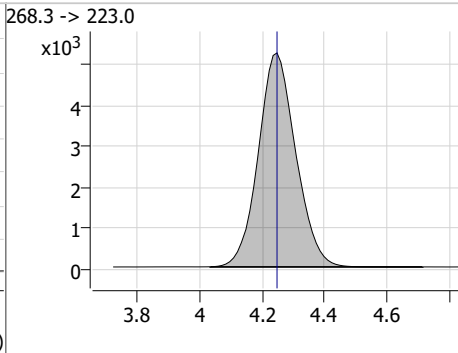
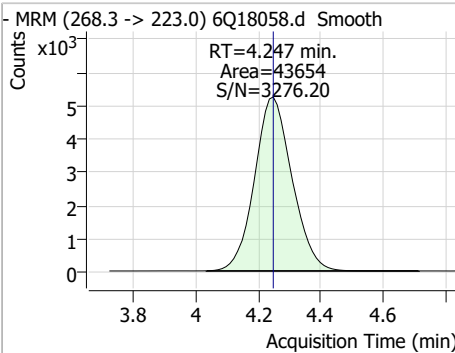


Perfluorinated Compounds by LC/MS/MS

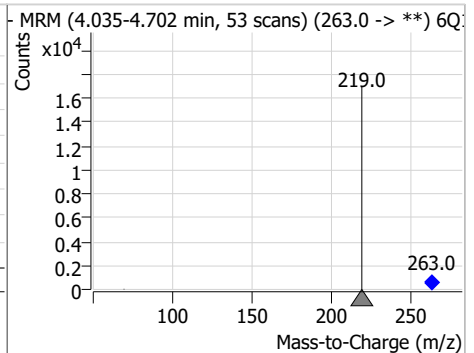
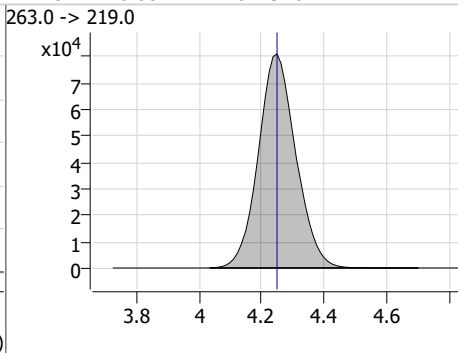
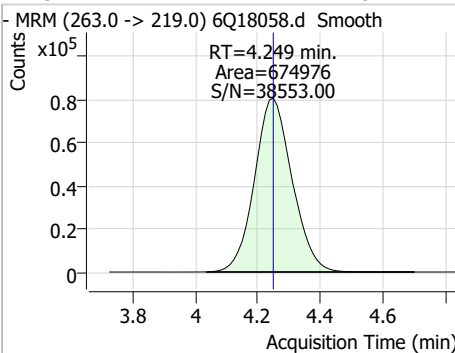
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	130.23	3.73	0.00	105953	241.0 -> 117.0	13.0	7.3	21.8



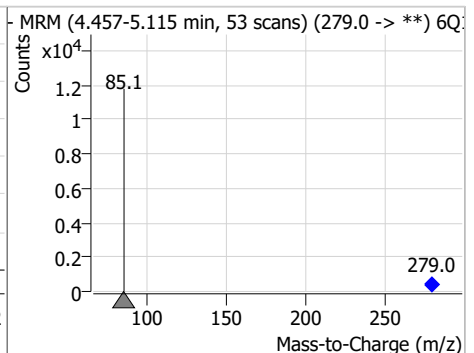
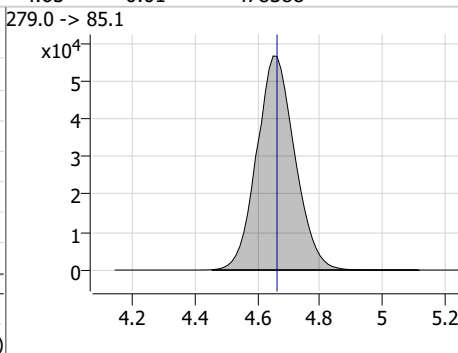
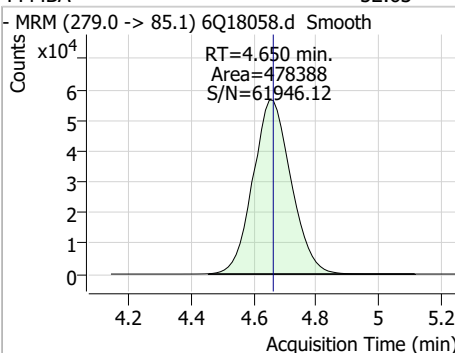
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.01	4.25	0.00	43654				



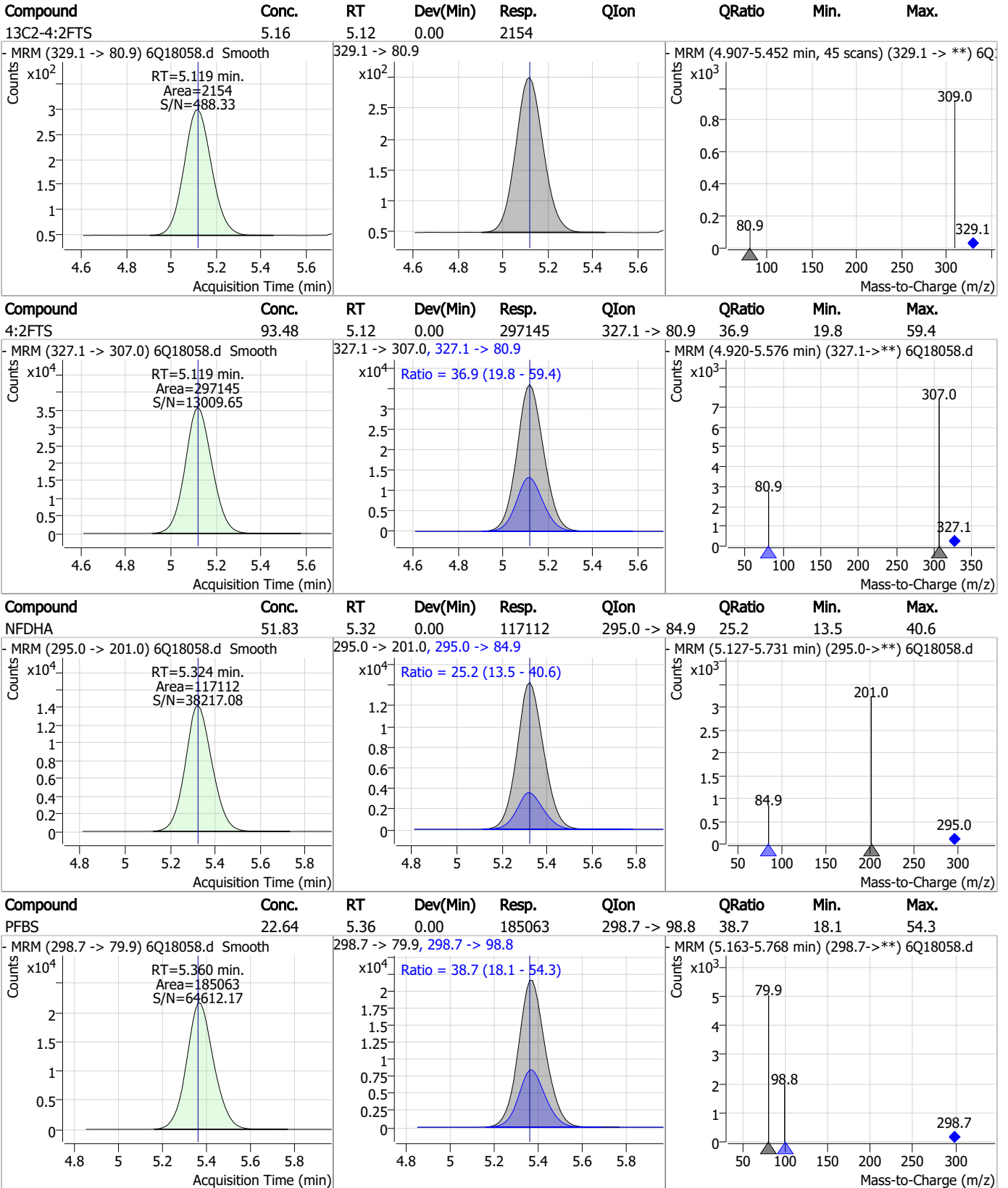
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	52.21	4.25	0.00	674976				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	52.63	4.65	-0.01	478388				



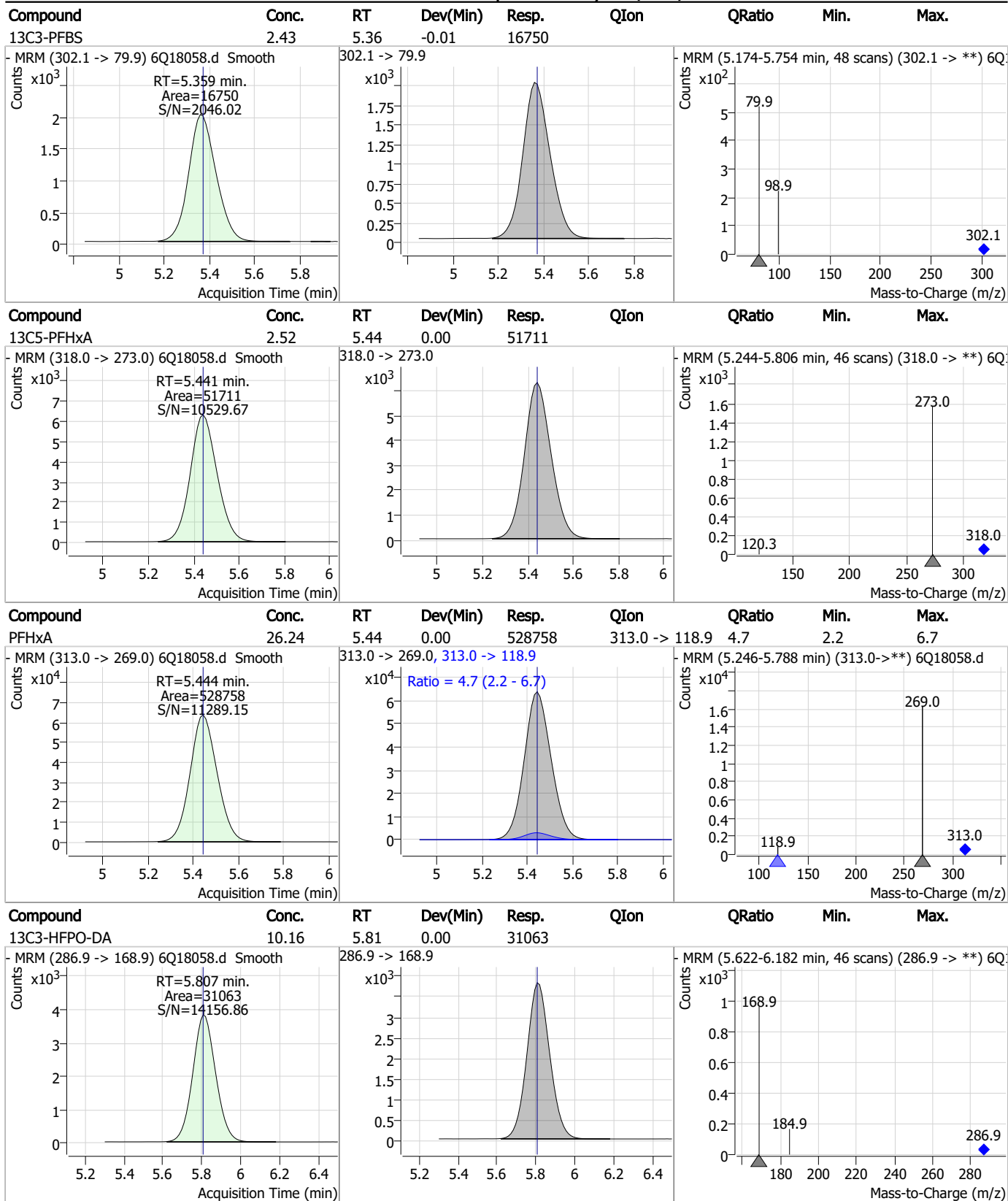
Perfluorinated Compounds by LC/MS/MS



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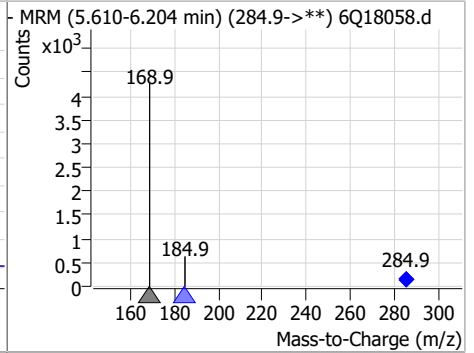
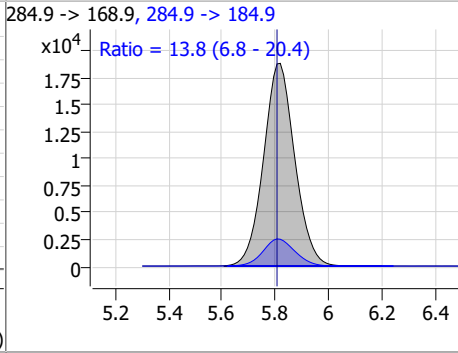
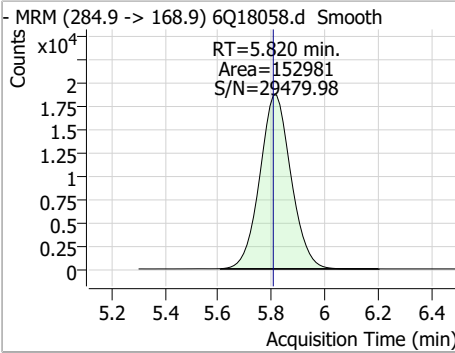
Perfluorinated Compounds by LC/MS/MS



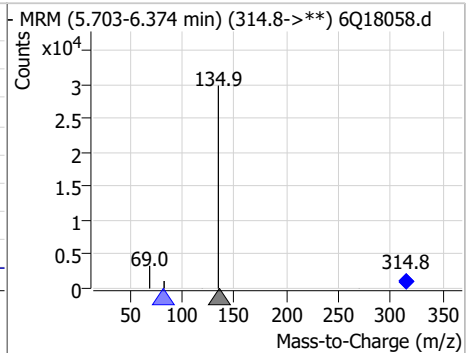
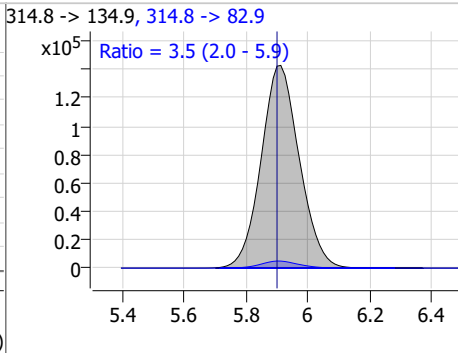
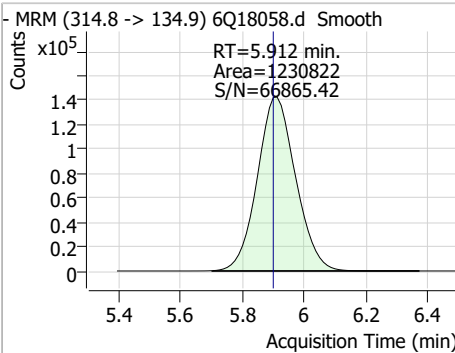
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Perfluorinated Compounds by LC/MS/MS

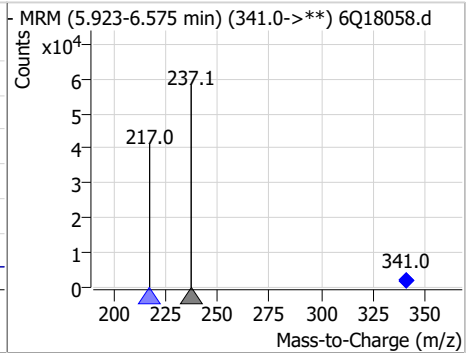
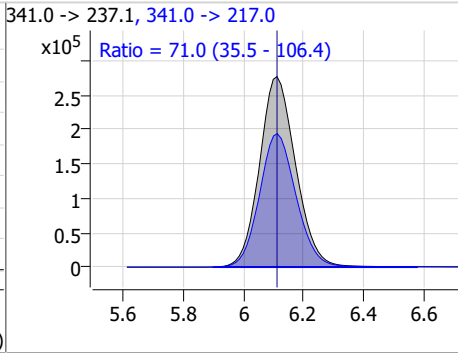
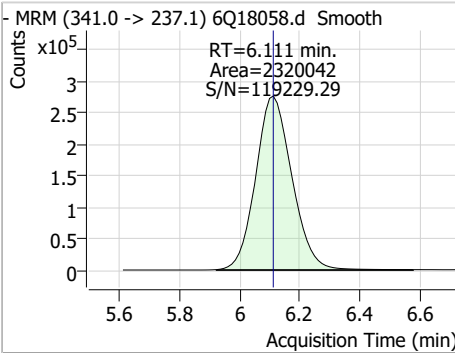
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.66	5.82	0.01	152981	284.9 -> 184.9	13.8	6.8	20.4



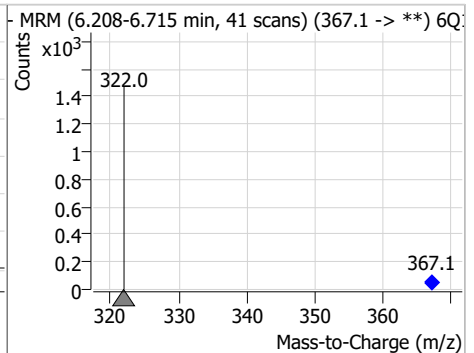
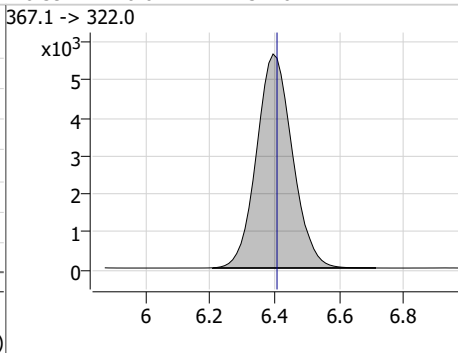
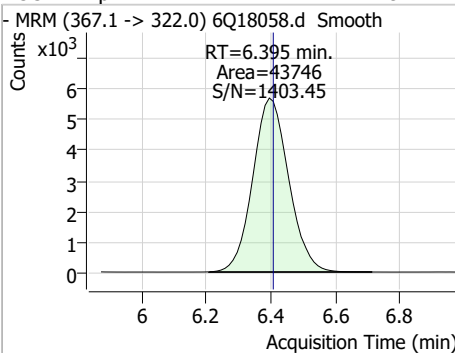
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	46.18	5.91	0.01	1230822	314.8 -> 82.9	3.5	2.0	5.9



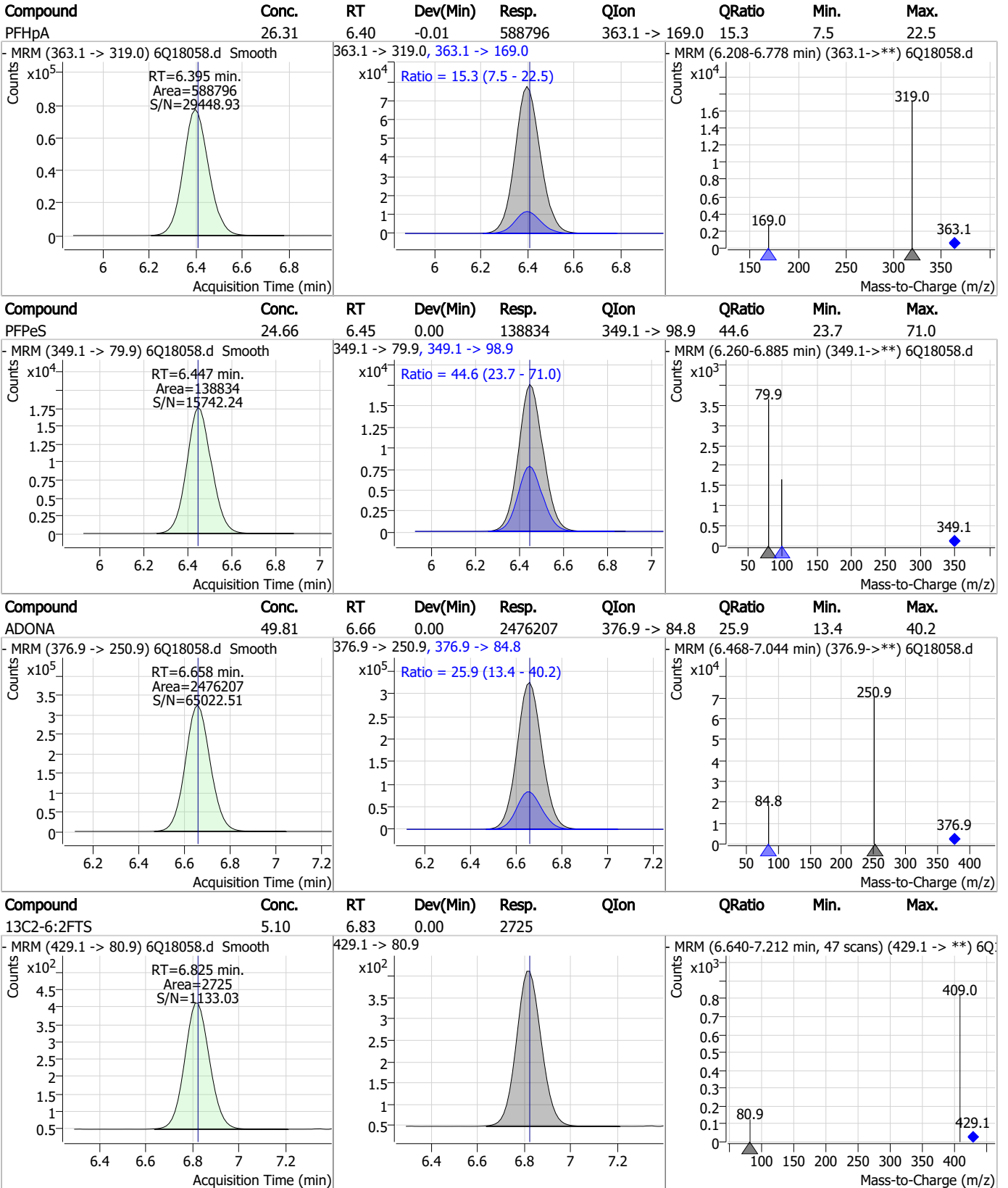
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	637.11	6.11	0.00	2320042	341.0 -> 217.0	71.0	35.5	106.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.39	-0.01	43746	367.1 -> 322.0			



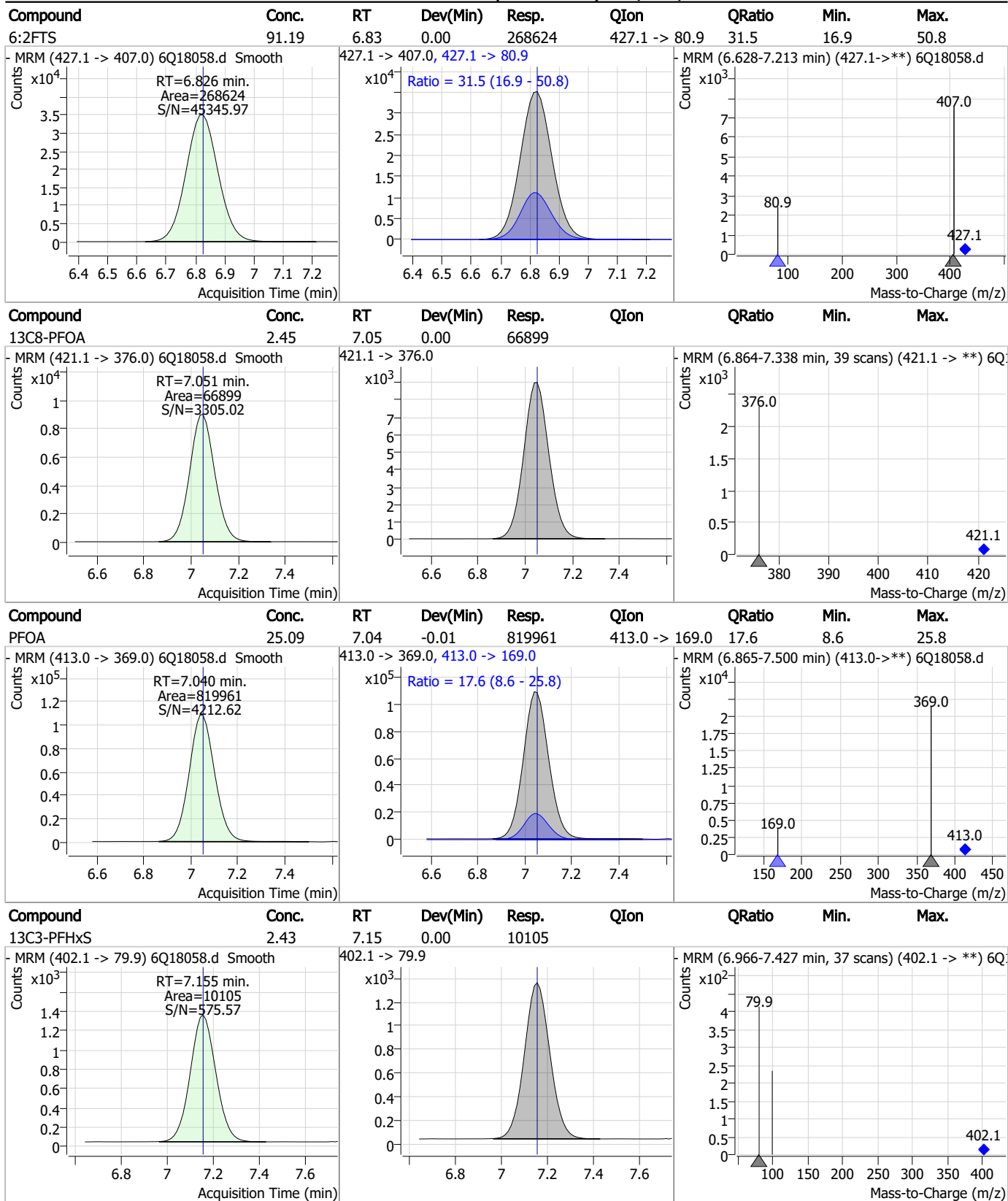
Perfluorinated Compounds by LC/MS/MS



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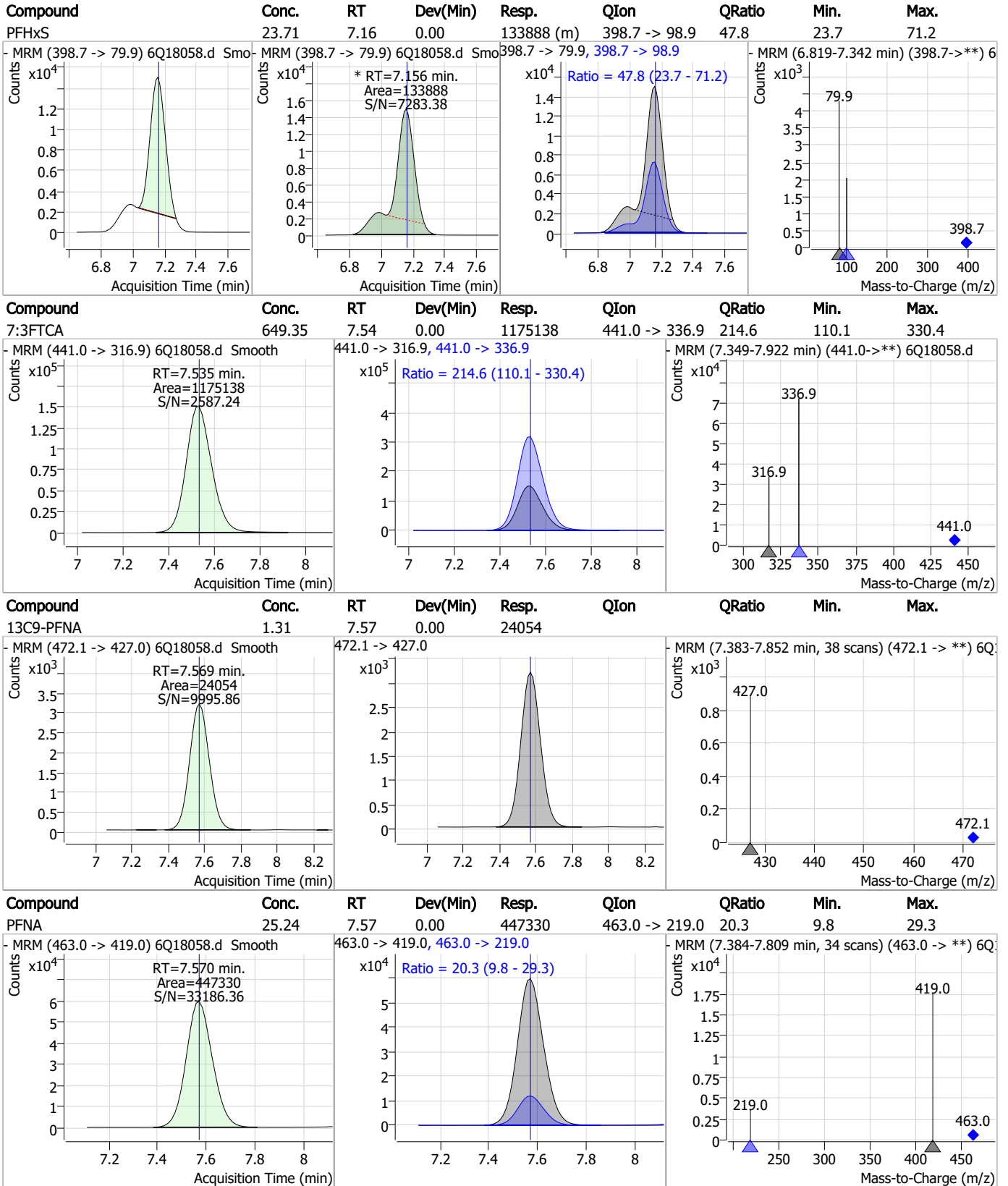
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Perfluorinated Compounds by LC/MS/MS



7.6.8

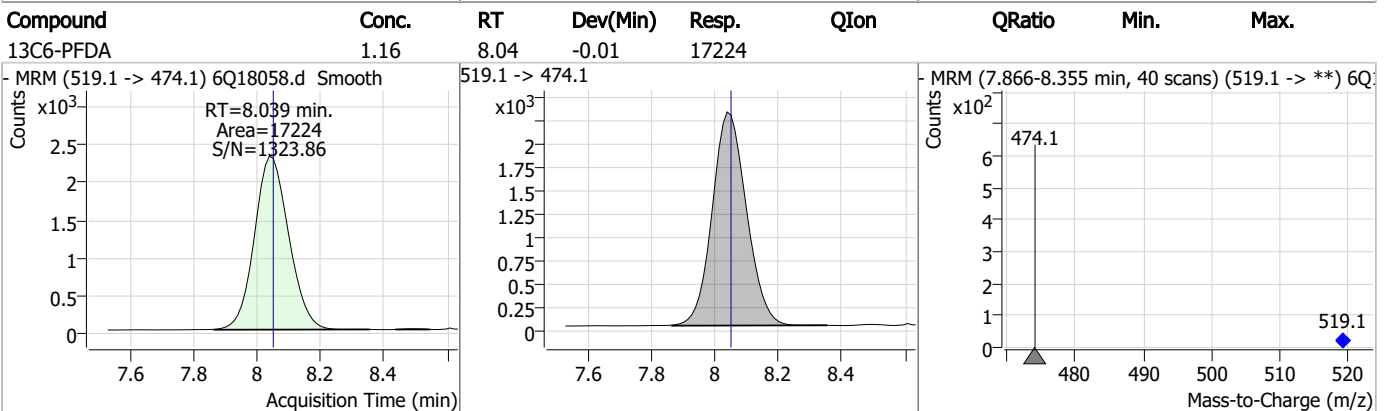
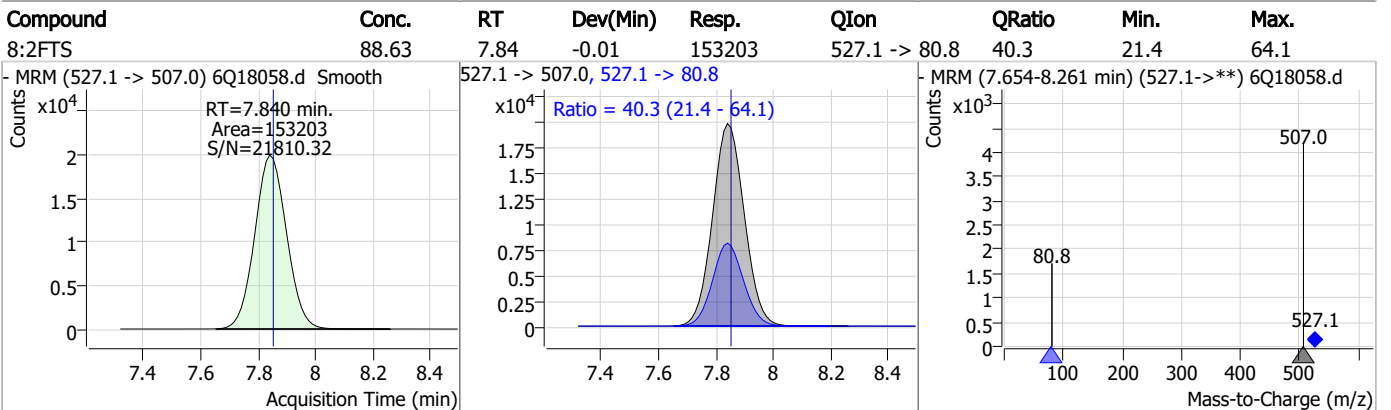
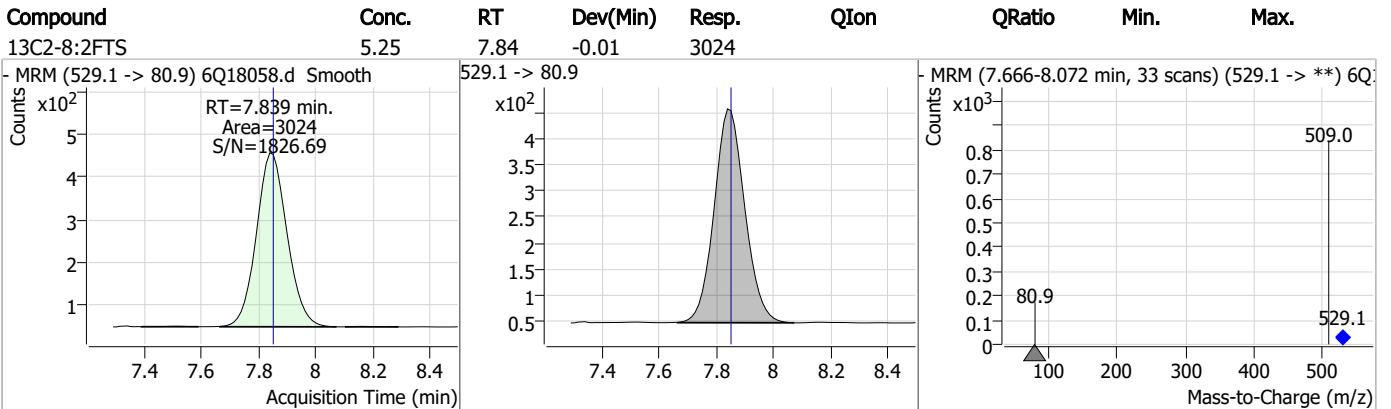
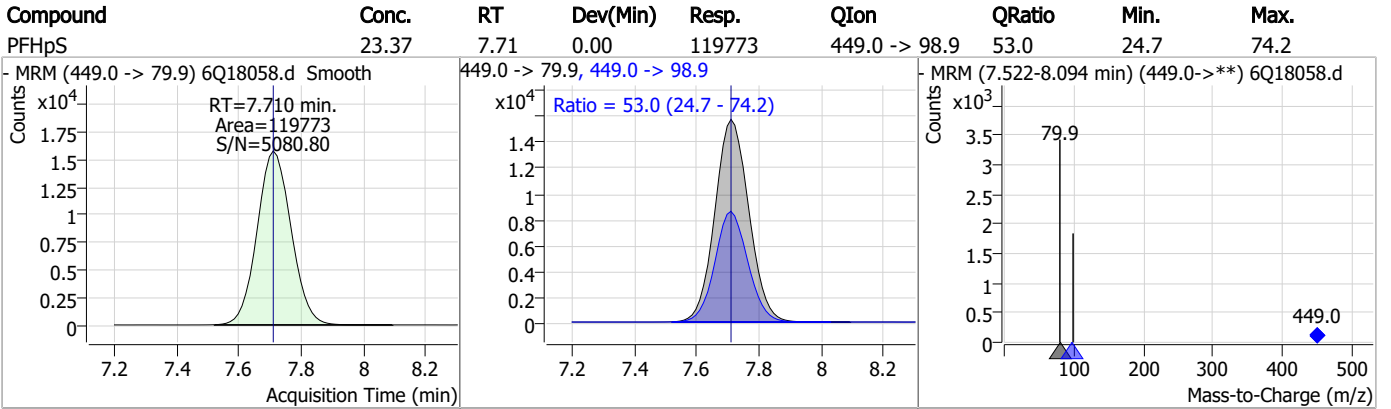
Perfluorinated Compounds by LC/MS/MS



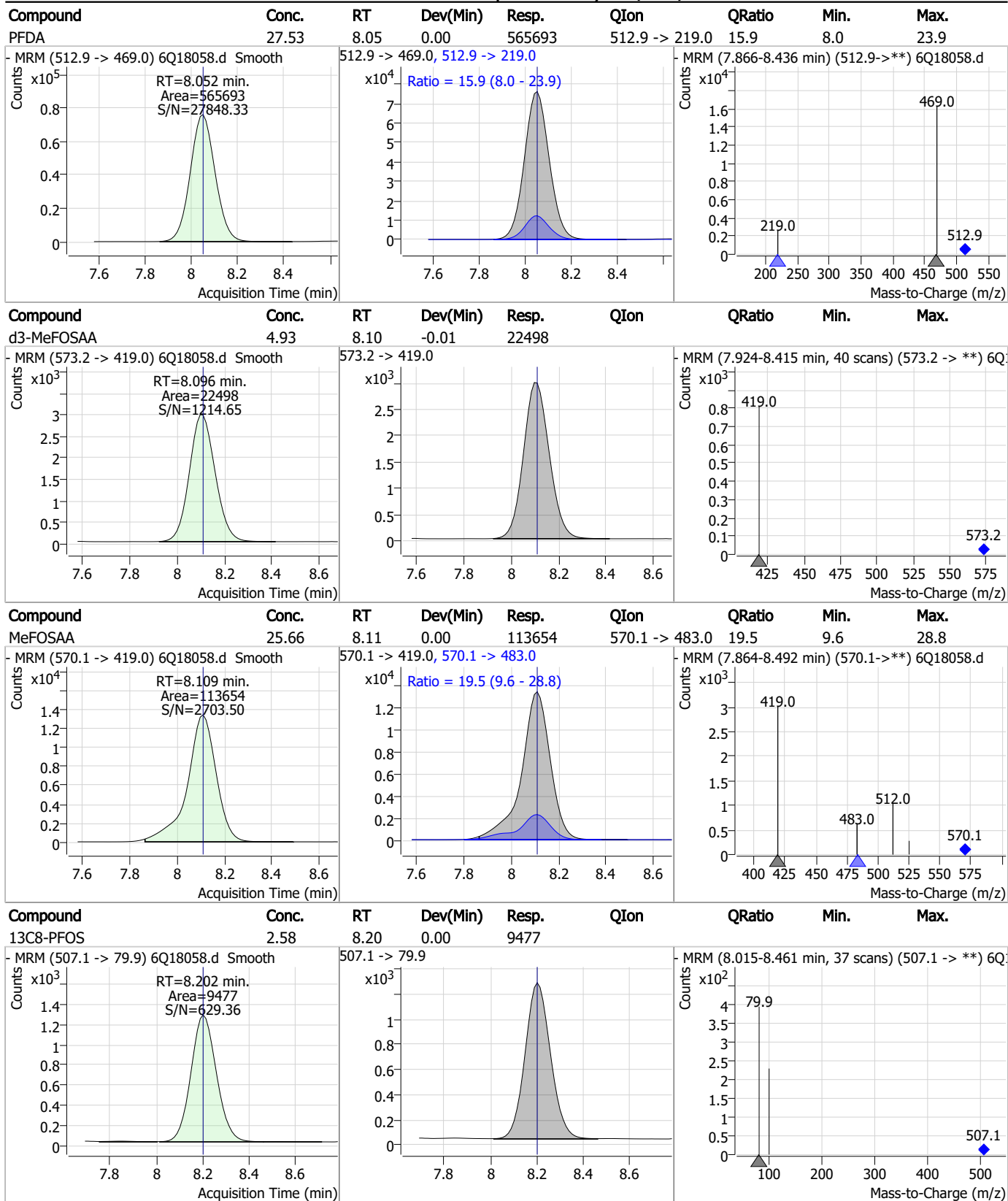
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Perfluorinated Compounds by LC/MS/MS

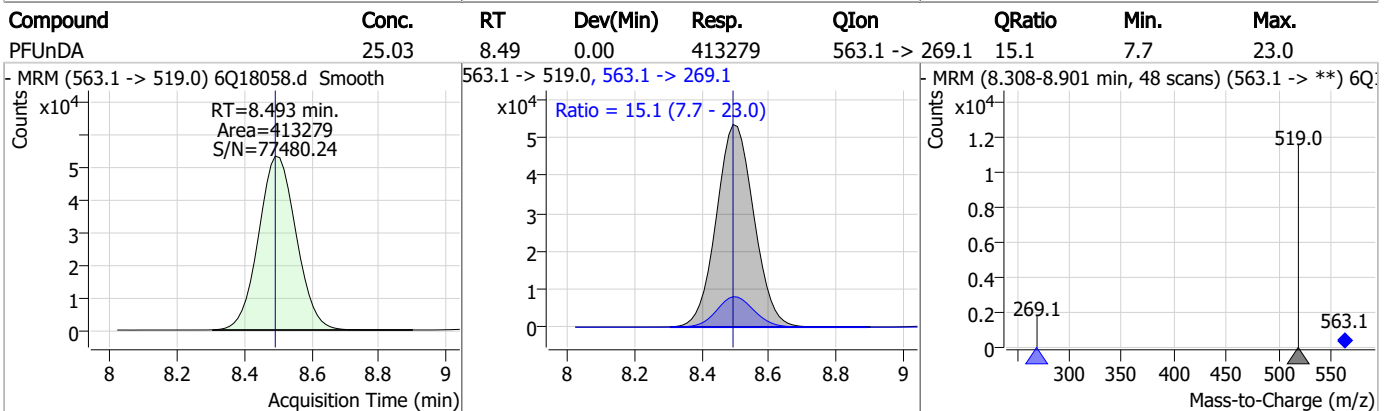
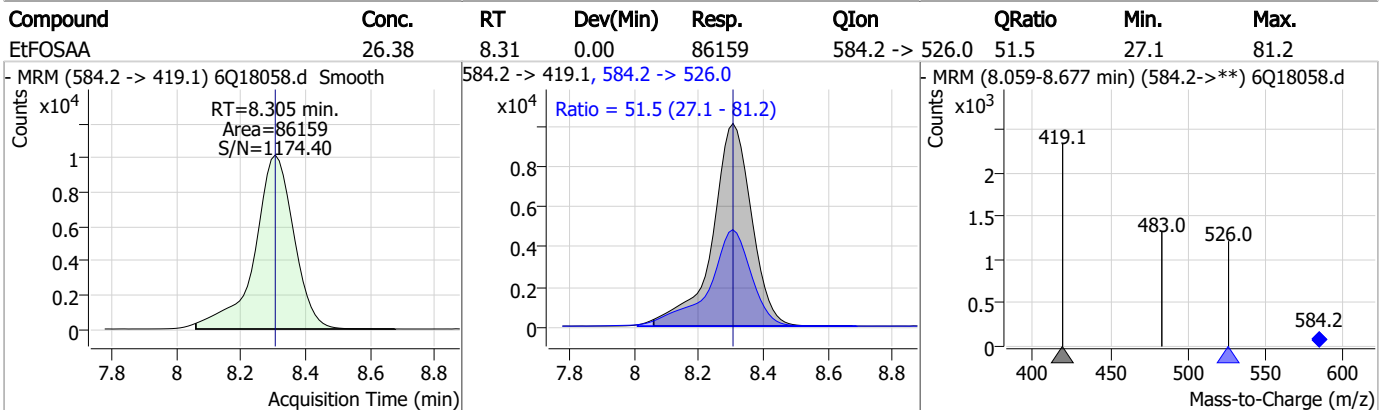
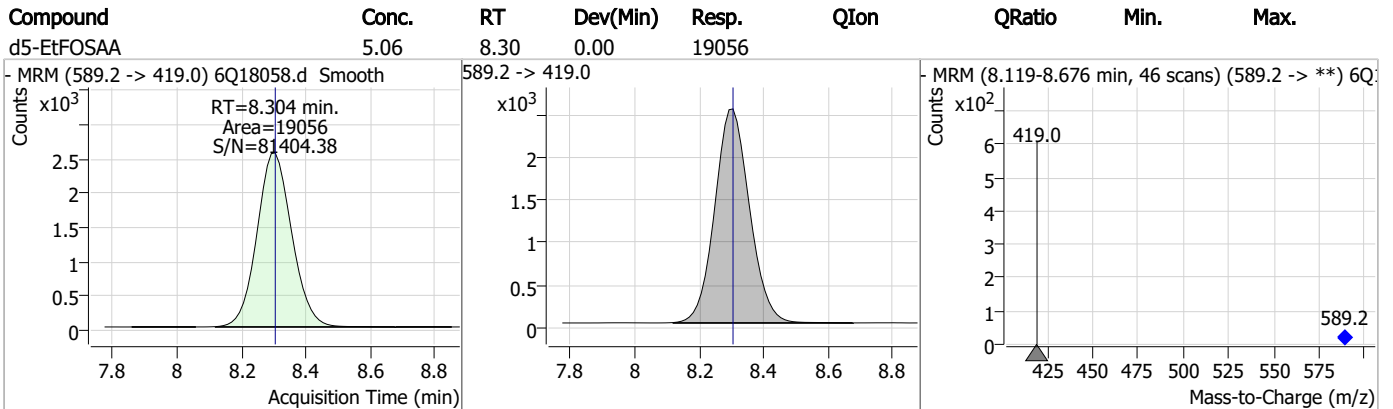
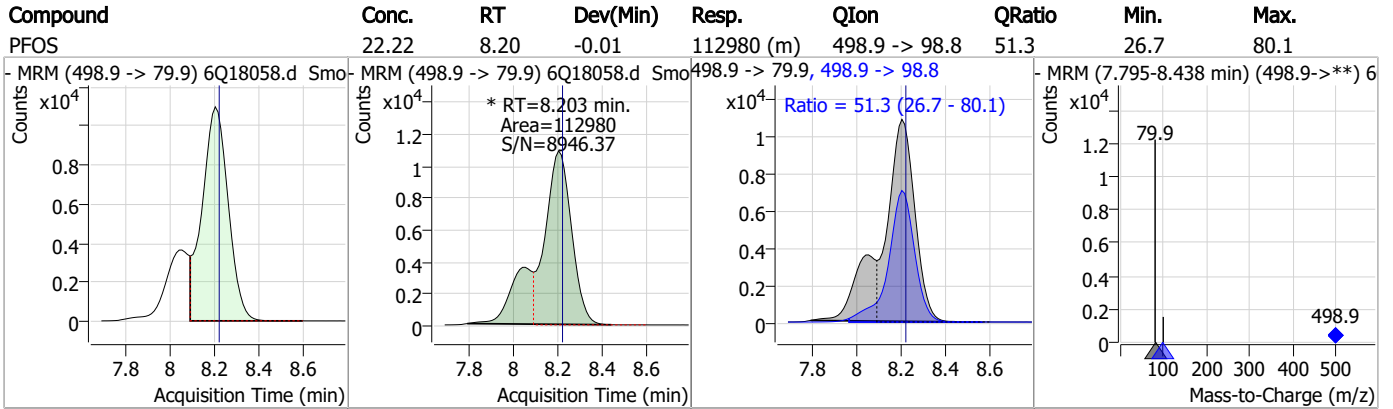


Perfluorinated Compounds by LC/MS/MS



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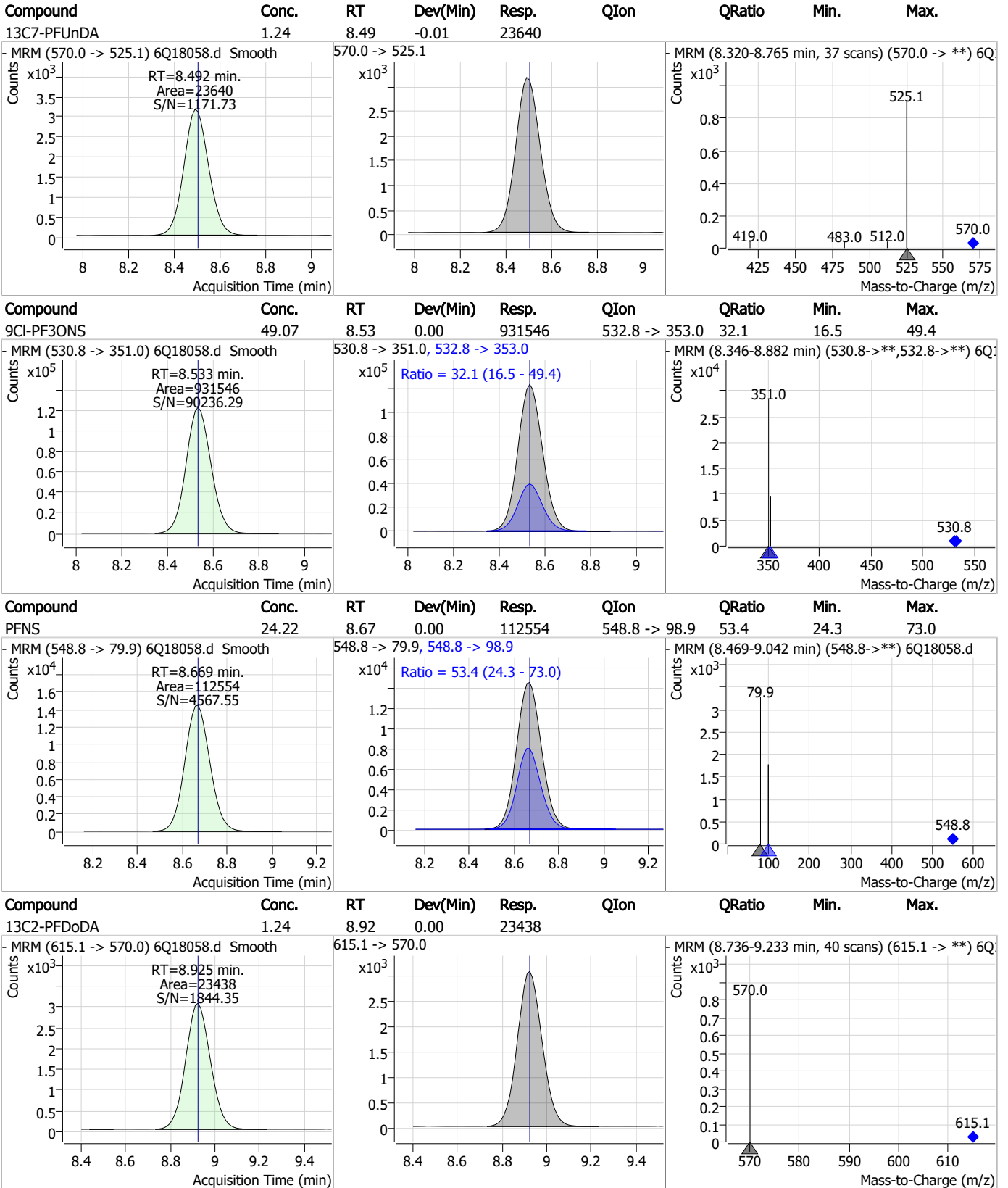
Perfluorinated Compounds by LC/MS/MS



7.6.8

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Perfluorinated Compounds by LC/MS/MS

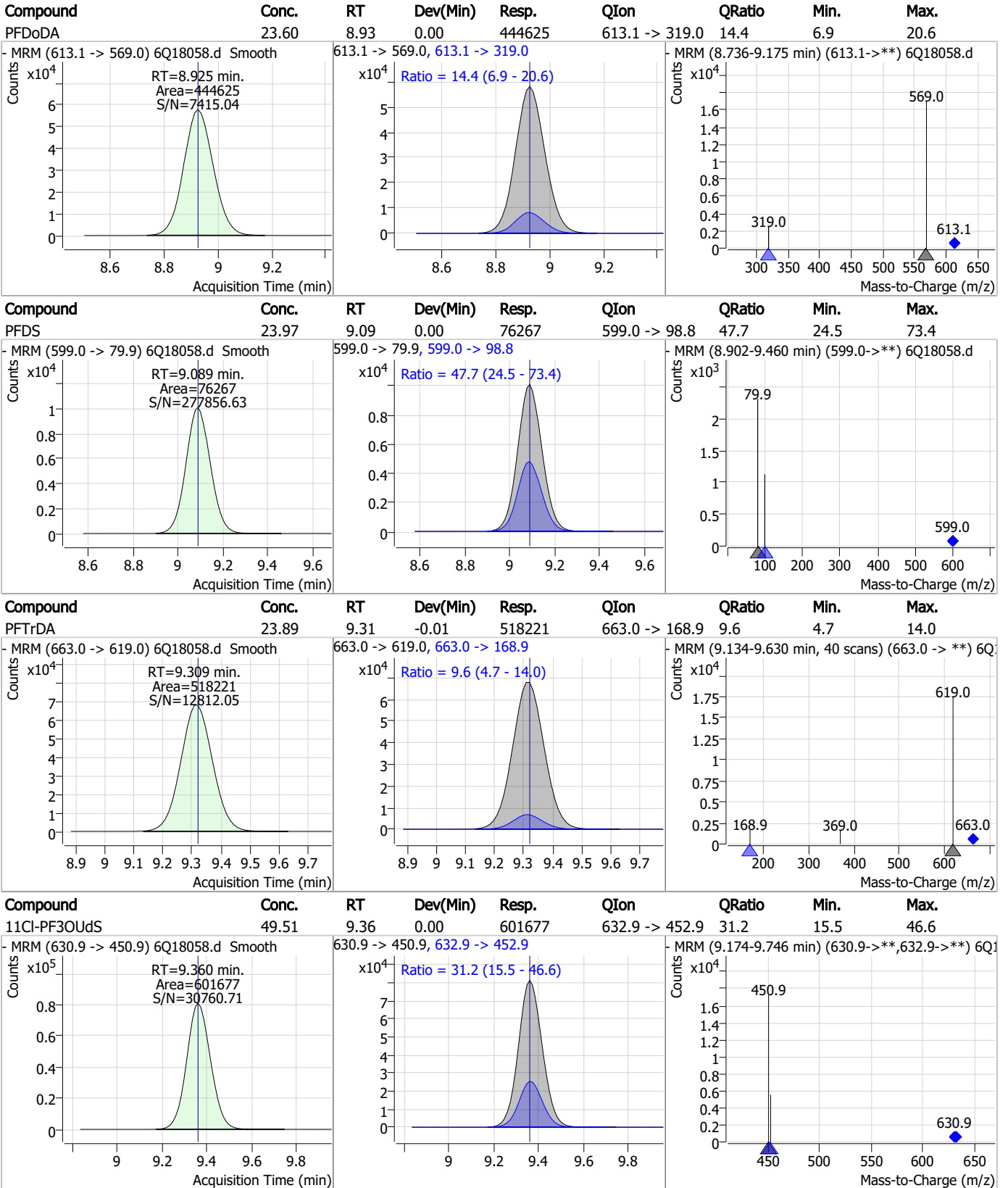


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Perfluorinated Compounds by LC/MS/MS

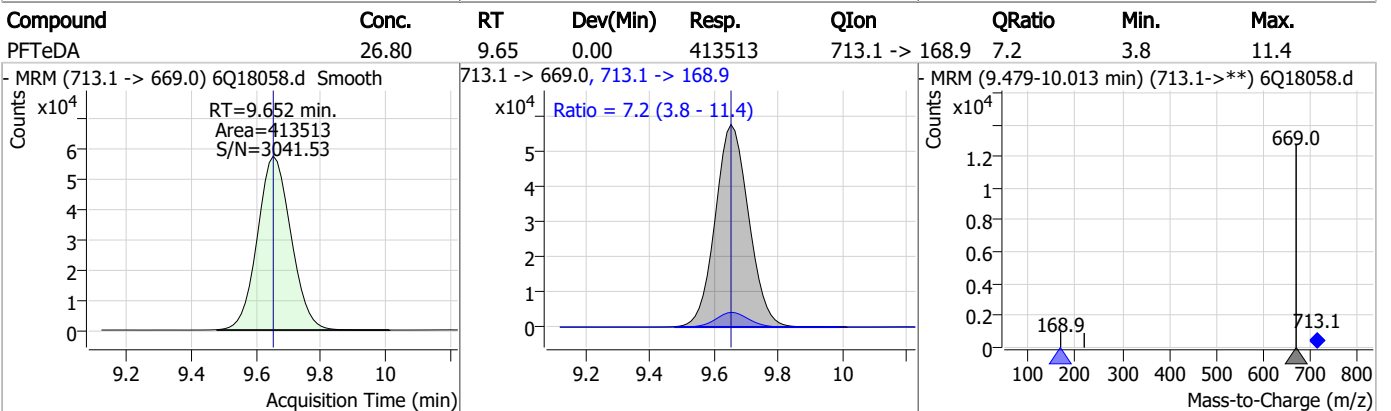
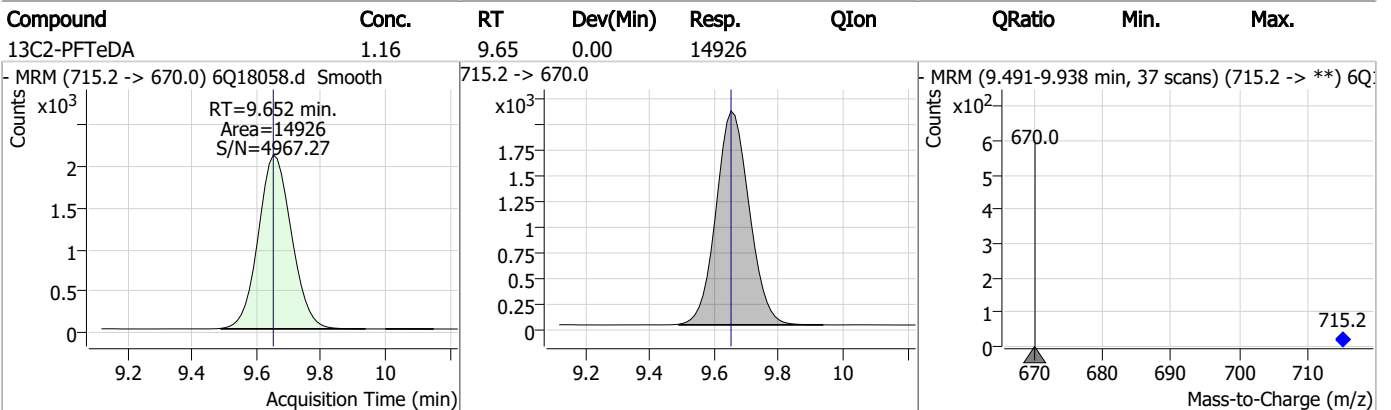
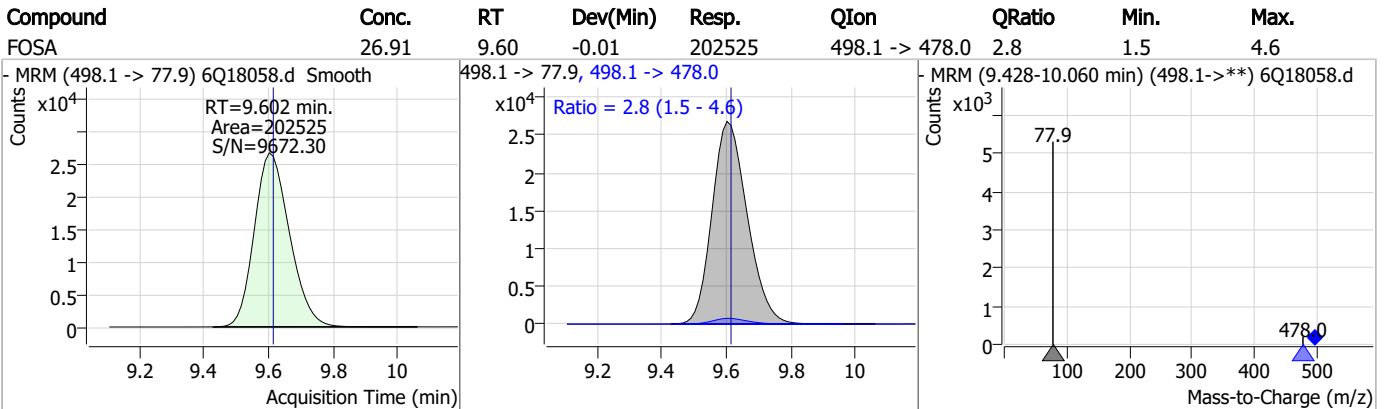
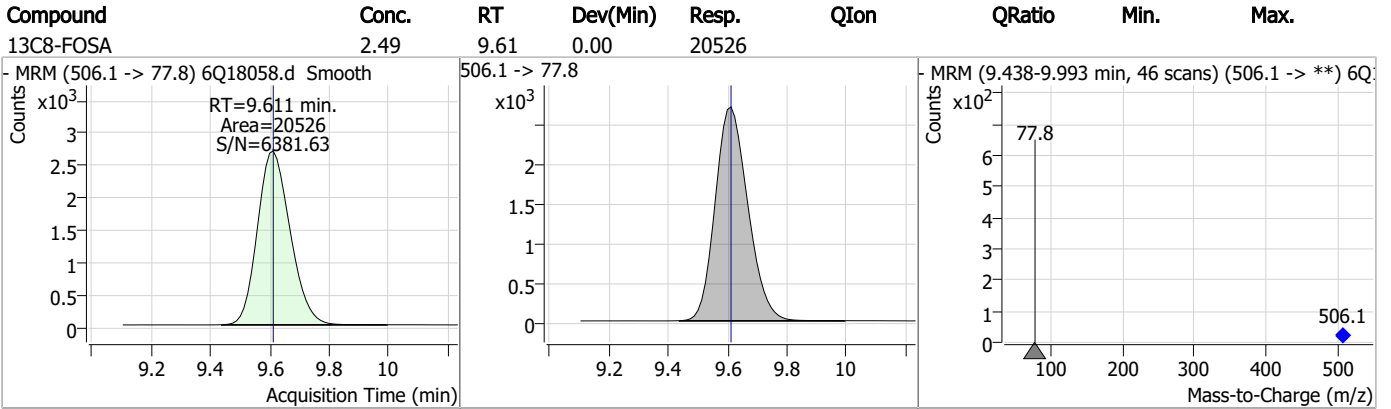


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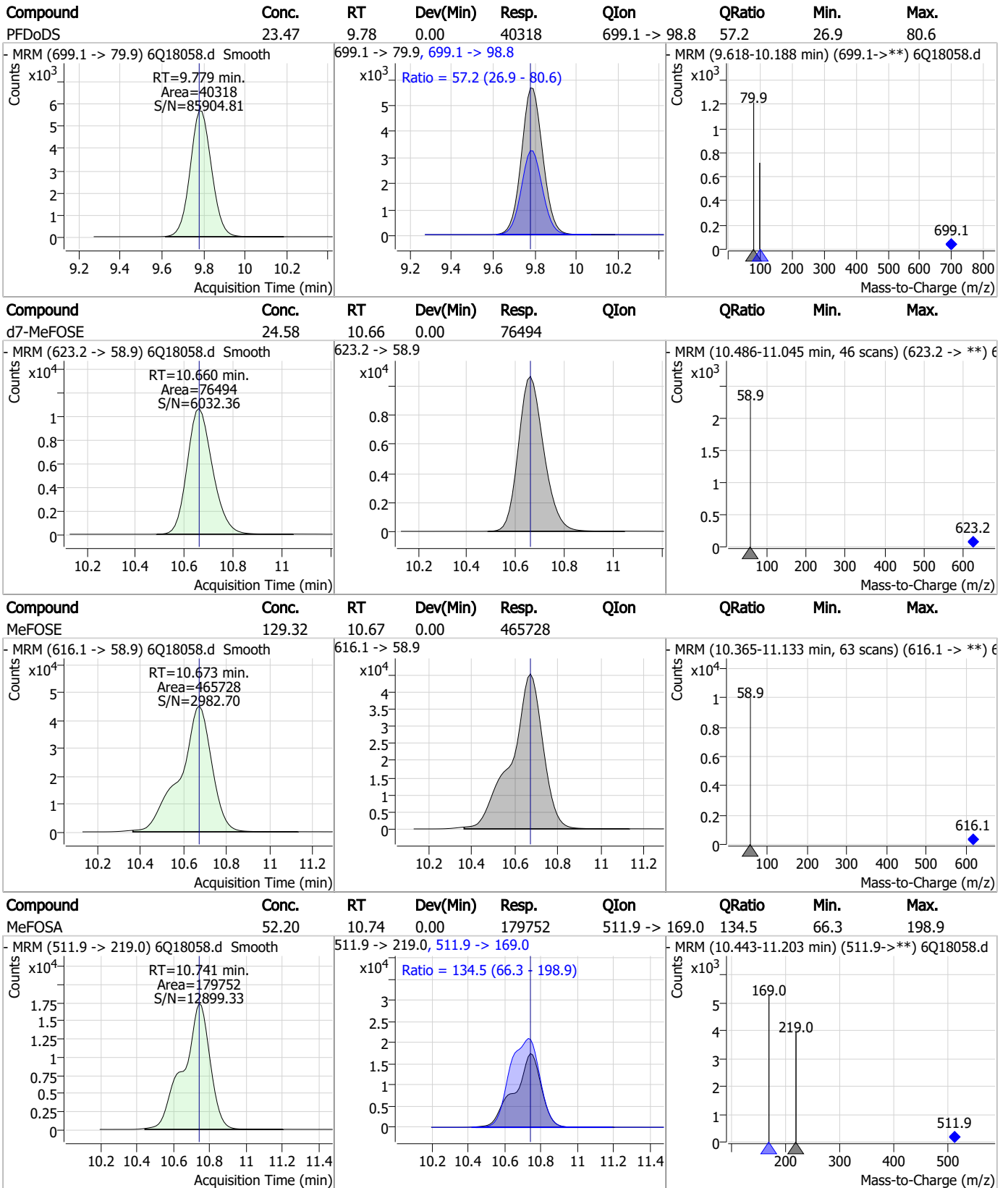
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Perfluorinated Compounds by LC/MS/MS



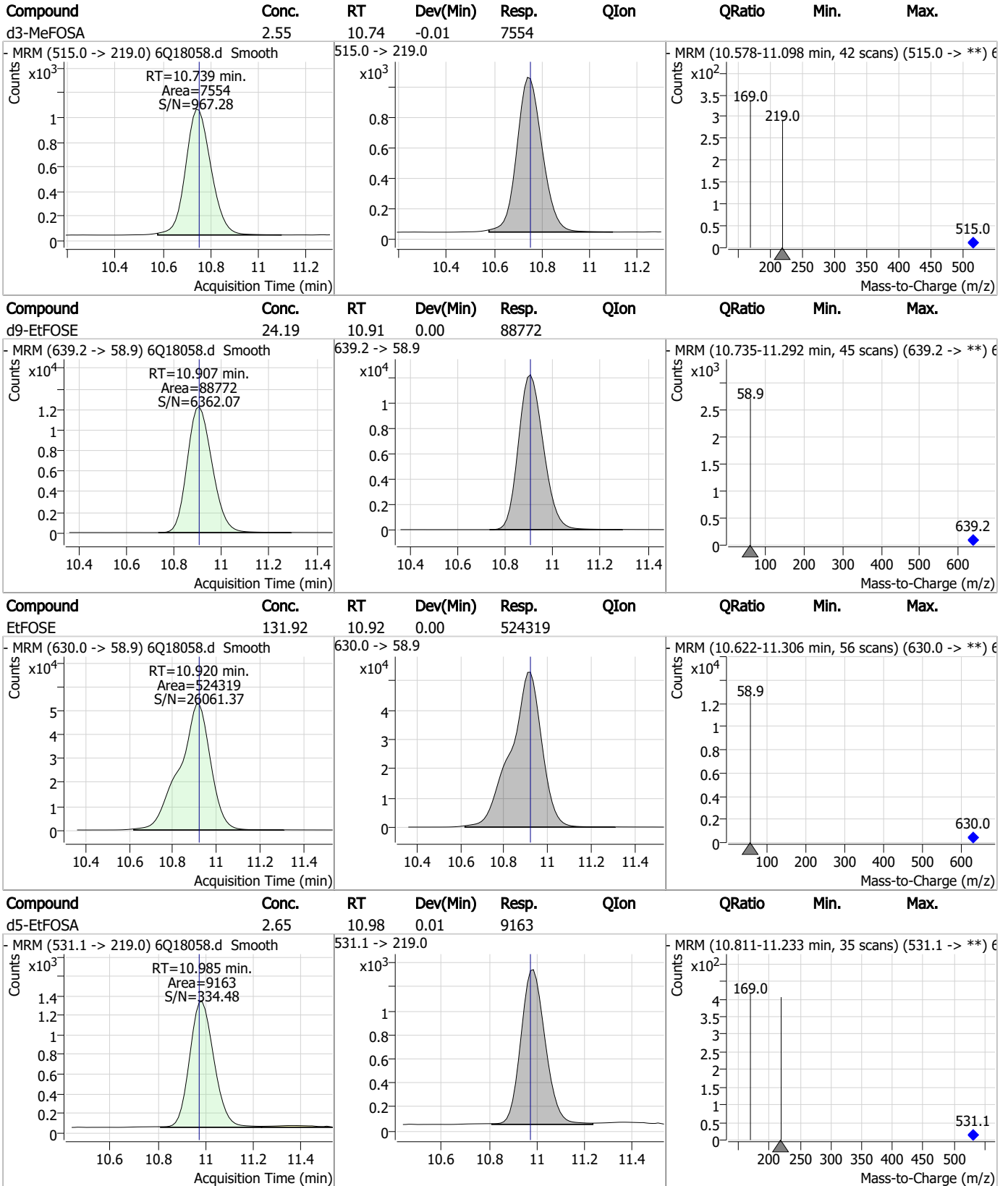
Perfluorinated Compounds by LC/MS/MS



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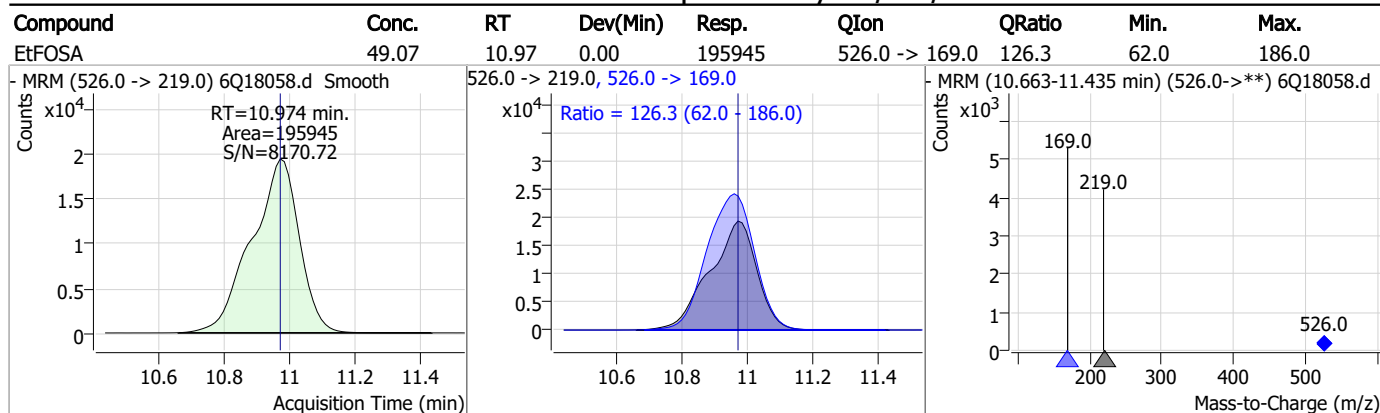
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q272-IC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18058.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 20:26 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.6.8.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18059.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 8:40:55 PM
 Sample Name : ic272-8
 Vial : P1-A9
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	126313	10.00 µg/L	-0.012
M5-PFPeA	4.235	268.3 -> 223.0	43042	5.00 µg/L	-0.012
M5-PFHxA	5.441	318.0 -> 273.0	48975	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	43838	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	61864	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	22749	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	19161	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	21038	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	23999	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	16114	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	20097	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	16420	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	10055	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9070	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2058	5.00 µg/L	0.000
M2-6:2FTS	6.813	429.1 -> 80.9	2580	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	2824	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	20475	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	31739	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	18782	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	72035	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	82726	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	8389	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	8172	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	12180	2.50 µg/L	-0.012
13C3-PFBA	2.864	216.0 -> 172.0	53170	5.00 µg/L	-0.015
18O2-PFHxS	7.154	403.0 -> 83.9	7352	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	71662	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	22118	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	24361	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	43768	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2058	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-6:2FTS	6.813	429.1 -> 80.9	2580	5.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-8:2FTS	7.839	529.1 -> 80.9	2824	5.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-PFDoDA	8.925	615.1 -> 570.0	23999	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.652	715.2 -> 670.0	16114	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFBS	5.359	302.1 -> 79.9	16420	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.155	402.1 -> 79.9	10055	2.56 µg/L	0.000

7.6.9
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C4-PFBA	2.876	216.8 -> 171.9	126313	9.96 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFHpA	6.395	367.1 -> 322.0	43838	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C5-PFHxA	5.441	318.0 -> 273.0	48975	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C5-PFPeA	4.235	268.3 -> 223.0	43042	4.78 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C6-PFDA	8.051	519.1 -> 474.1	19161	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C7-PFUnDA	8.492	570.0 -> 525.1	21038	1.09 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.1%	
13C8-FOSA	9.611	506.1 -> 77.8	20097	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C8-PFOA	7.051	421.1 -> 376.0	61864	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C8-PFOS	8.202	507.1 -> 79.9	9070	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C9-PFNA	7.569	472.1 -> 427.0	22749	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSAA	8.108	573.2 -> 419.0	20475	4.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.8%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	31739	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d3-MeFOSA	10.739	515.0 -> 219.0	8172	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
d5-EtFOSAA	8.304	589.2 -> 419.0	18782	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d7-MeFOSE	10.660	623.2 -> 58.9	72035	23.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
d9-EtFOSE	10.907	639.2 -> 58.9	82726	22.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.2%	
d5-EtFOSA	10.972	531.1 -> 219.0	8389	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	606252	199.61 µg/L	99
		327.1 -> 80.9	242273		
6:2FTS	6.826	427.1 -> 407.0	594595	213.14 µg/L	96
		427.1 -> 80.9	188984		
8:2FTS	7.840	527.1 -> 507.0	353063	218.68 µg/L	90
		527.1 -> 80.8	127421		
EtFOSAA	8.305	584.2 -> 419.1	192633	59.85 µg/L	98
		584.2 -> 526.0	107640		
FOSA	9.602	498.1 -> 77.9	479423	65.05 µg/L	99
		498.1 -> 478.0	13411		
MeFOSAA	8.109	570.1 -> 419.0	277872	68.92 µg/L	96
		570.1 -> 483.0	48316		
PFBA	2.868	212.8 -> 168.9	1145443	249.72 µg/L	100
PFBS	5.360	298.7 -> 79.9	416288	51.96 µg/L	93
		298.7 -> 98.8	168320		
PFDA	8.052	512.9 -> 469.0	1369491	59.91 µg/L	96
		512.9 -> 219.0	198086		
PFDoDA	8.925	613.1 -> 569.0	1042551	54.04 µg/L	98
		613.1 -> 319.0	152979		
PFDS	9.089	599.0 -> 79.9	183176	60.15 µg/L	99

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7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	88830			
PFHpA	6.395	363.1 -> 319.0	1420551	63.35	µg/L	99
		363.1 -> 169.0	216141			
PFHpS	7.710	449.0 -> 79.9	302486	61.68	µg/L	98
		449.0 -> 98.9	144924			
PFHxA	5.444	313.0 -> 269.0	1241214	65.05	µg/L	100
		313.0 -> 118.9	56606			
PFHxS	7.156	398.7 -> 79.9	323161	57.51	µg/L	m 100
		398.7 -> 98.9	154239			
PFNA	7.570	463.0 -> 419.0	1069213	63.79	µg/L	97
		463.0 -> 219.0	194520			
PFNS	8.669	548.8 -> 79.9	264773	59.53	µg/L	94
		548.8 -> 98.9	139235			
PFOA	7.052	413.0 -> 369.0	1937796	64.12	µg/L	98
		413.0 -> 169.0	320318			
PFOS	8.203	498.9 -> 79.9	274150	56.35	µg/L	m 99
		498.9 -> 98.8	143741			
PFPeA	4.237	263.0 -> 219.0	1573342	123.42	µg/L	100
PFPeS	6.447	349.1 -> 79.9	337331	60.23	µg/L	94
		349.1 -> 98.9	145343			
PFTeDA	9.652	713.1 -> 669.0	982275	58.97	µg/L	98
		713.1 -> 168.9	69393			
PFTrDA	9.309	663.0 -> 619.0	1276512	57.48	µg/L	98
		663.0 -> 168.9	109797			
PFUnDA	8.493	563.1 -> 519.0	943359	64.19	µg/L	98
		563.1 -> 269.1	152711			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	1438250	115.83	µg/L	99
		632.9 -> 452.9	441937			
9Cl-PF3ONS	8.533	530.8 -> 351.0	2221306	114.51	µg/L	95
		532.8 -> 353.0	667411			
ADONA	6.658	376.9 -> 250.9	5717256	112.55	µg/L	99
		376.9 -> 84.8	1560686			
HFPO-DA	5.807	284.9 -> 168.9	374487	121.37	µg/L	100
		284.9 -> 184.9	51566			
3:3FTCA	3.709	241.0 -> 177.0	257719	321.28	µg/L	96
		241.0 -> 117.0	32900			
5:3FTCA	6.111	341.0 -> 237.1	5533122	1604.38	µg/L	98
		341.0 -> 217.0	3816409			
7:3FTCA	7.535	441.0 -> 316.9	2665776	1555.36	µg/L	96
		441.0 -> 336.9	5703803			
EtFOSA	10.974	526.0 -> 219.0	478898	131.00	µg/L	99
		526.0 -> 169.0	589965			
EtFOSE	10.920	630.0 -> 58.9	1228325	331.64	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	416898	111.90	µg/L	95
		511.9 -> 169.0	575492			
MeFOSE	10.673	616.1 -> 58.9	1064049	313.74	µg/L	100
PFDoDS	9.779	699.1 -> 79.9	99436	60.49	µg/L	100
		699.1 -> 98.8	53634			
NFDHA	5.324	295.0 -> 201.0	255721	119.51	µg/L	99
		295.0 -> 84.9	67410			
PFMBA	4.650	279.0 -> 85.1	1126168	125.65	µg/L	100
PFMPA	3.401	229.0 -> 84.9	828438	125.02	µg/L	100
PFEESA	5.912	314.8 -> 134.9	2849574	112.89	µg/L	99
		314.8 -> 82.9	105497			

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

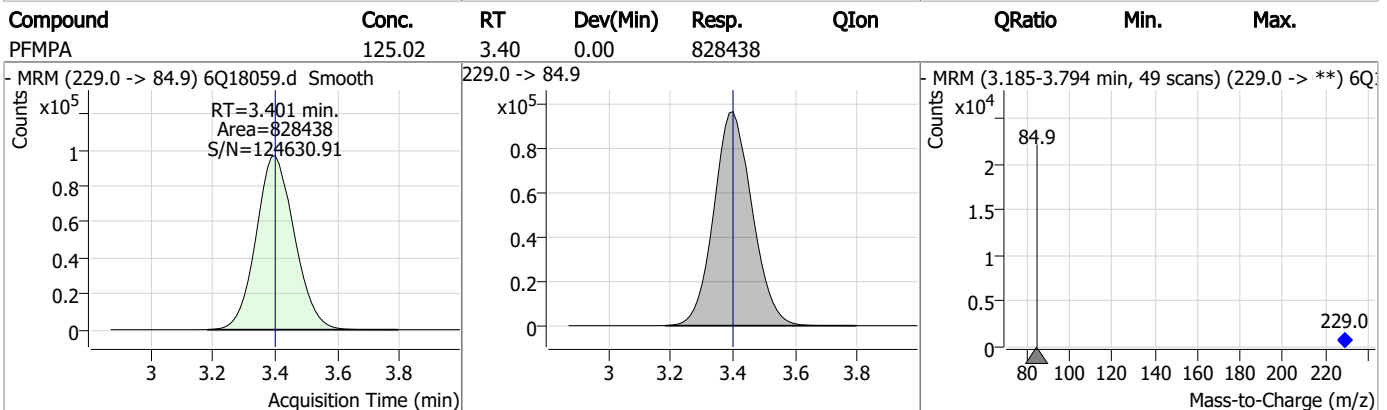
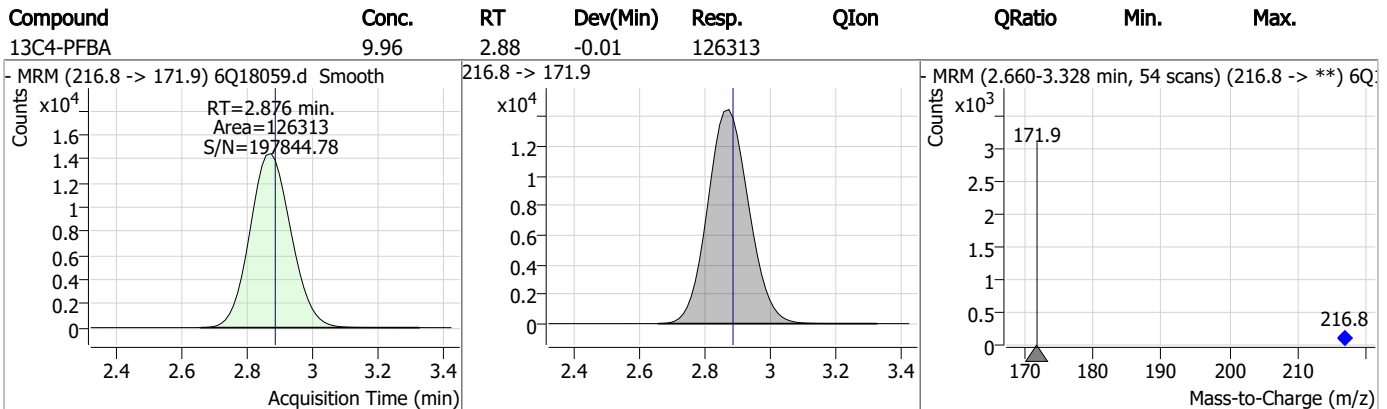
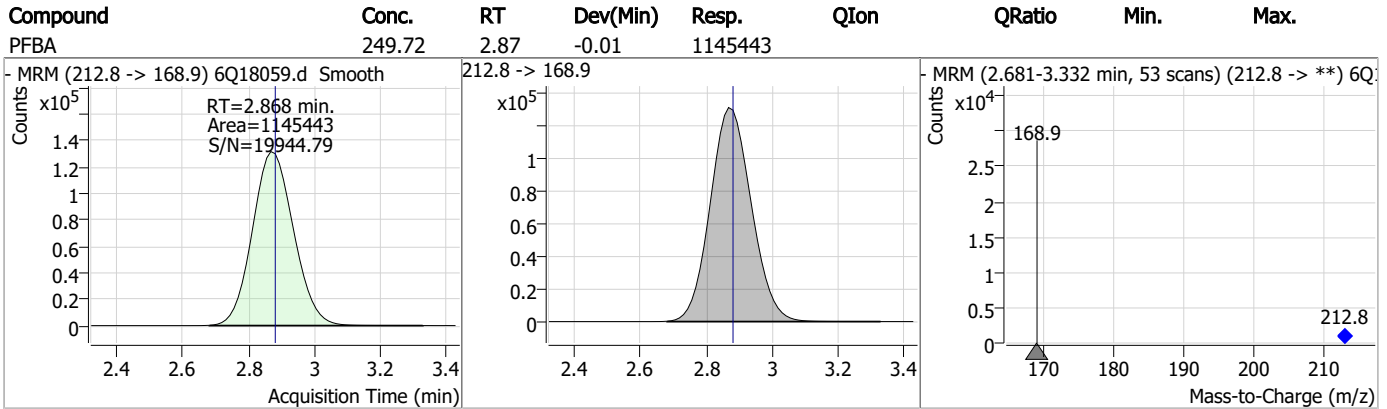
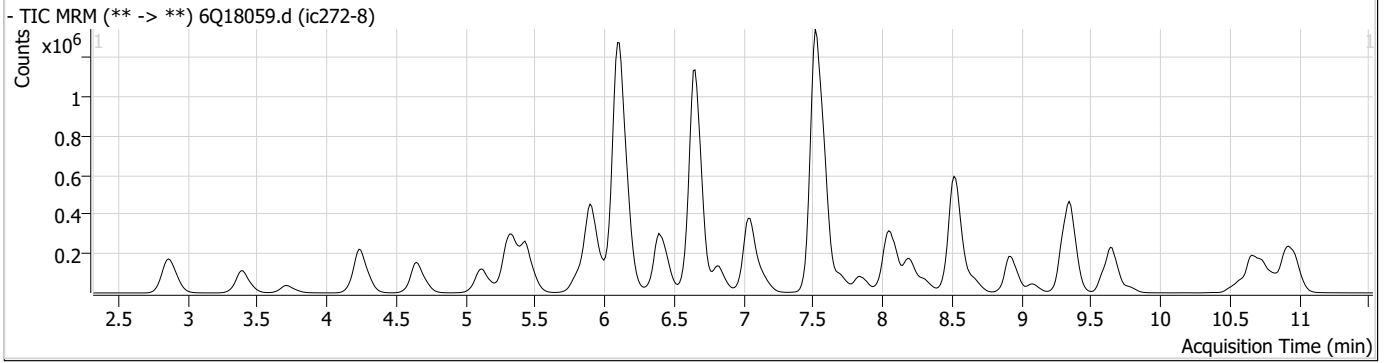
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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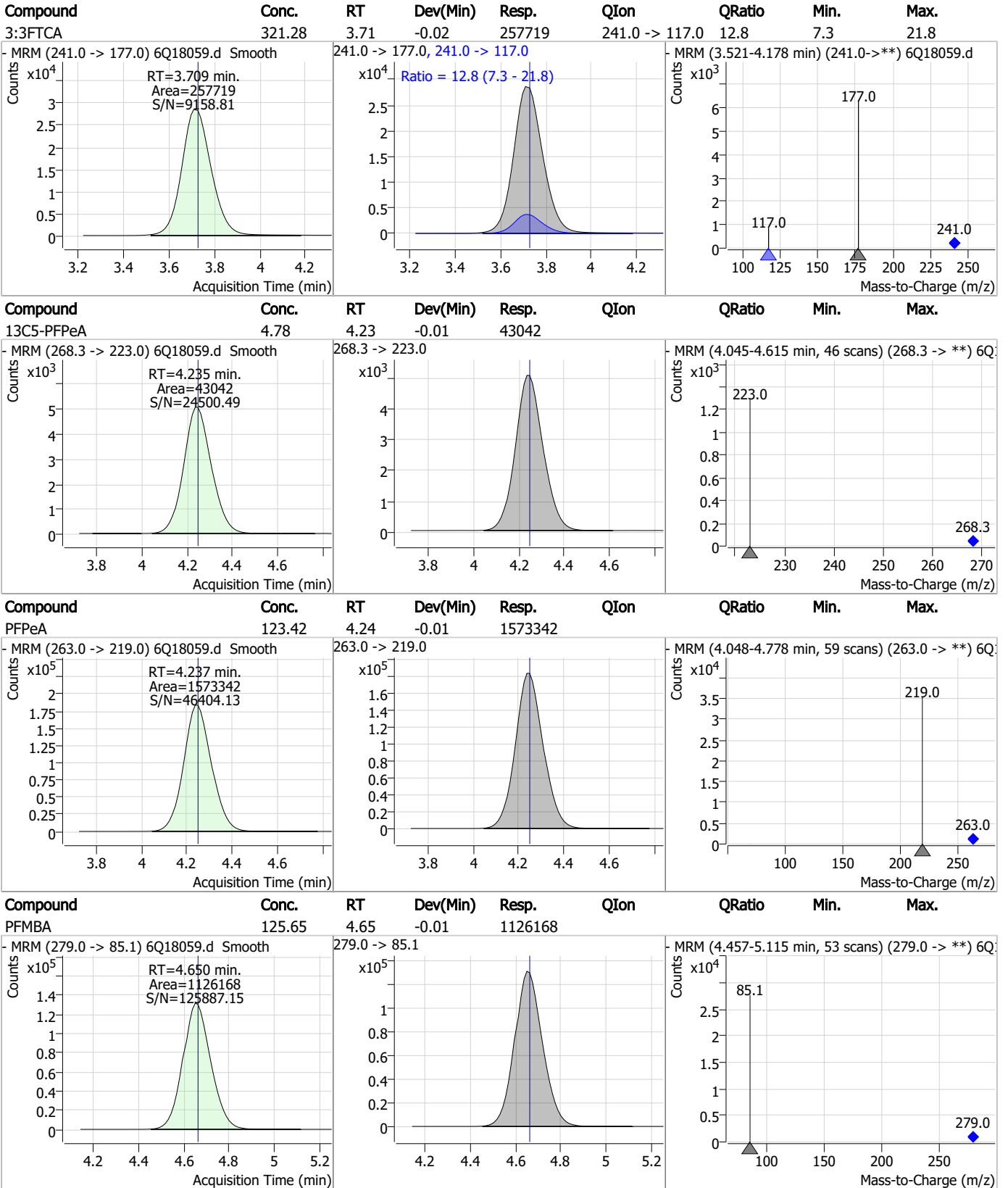
7.6.9

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Perfluorinated Compounds by LC/MS/MS



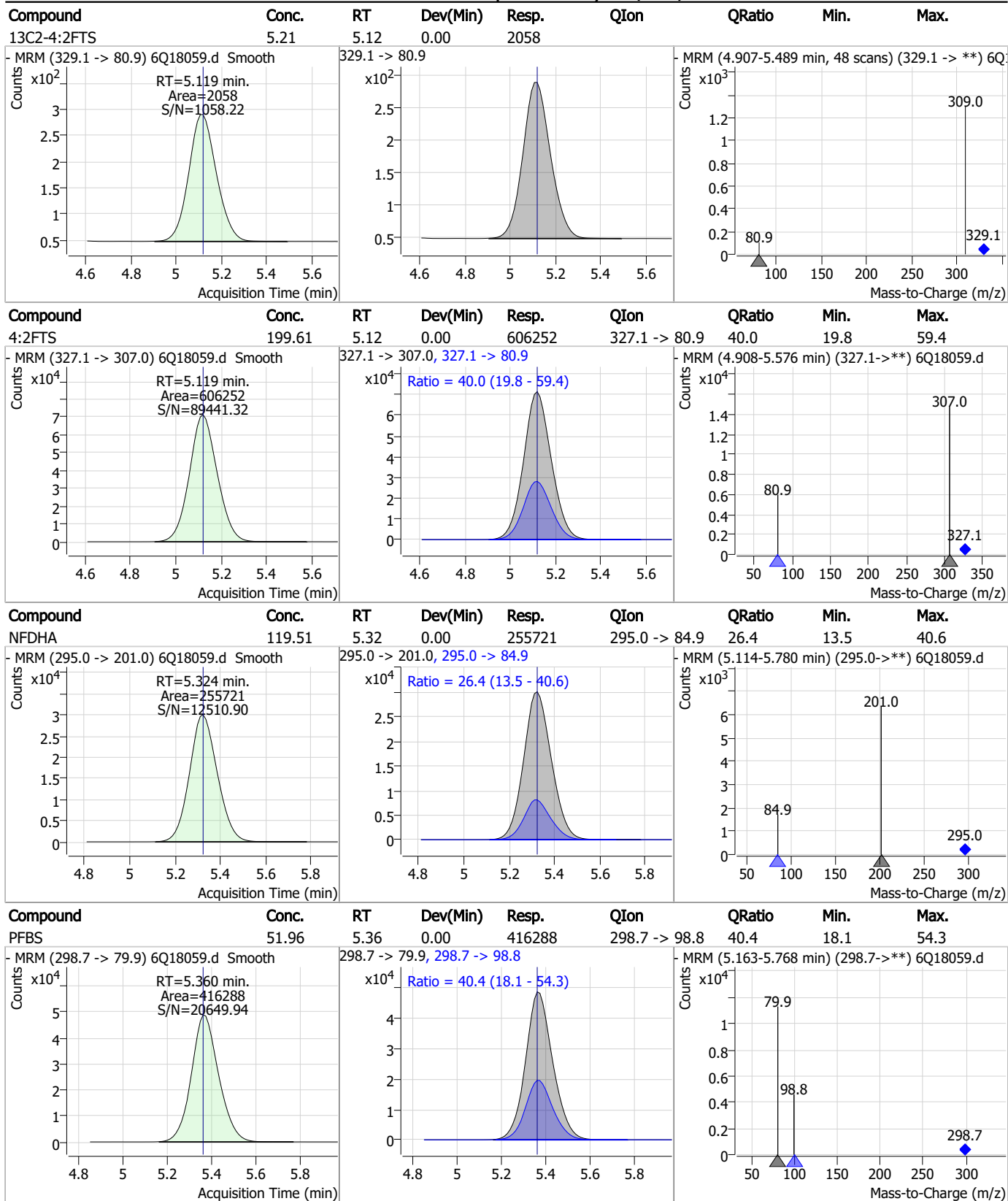
Perfluorinated Compounds by LC/MS/MS



7.6.9

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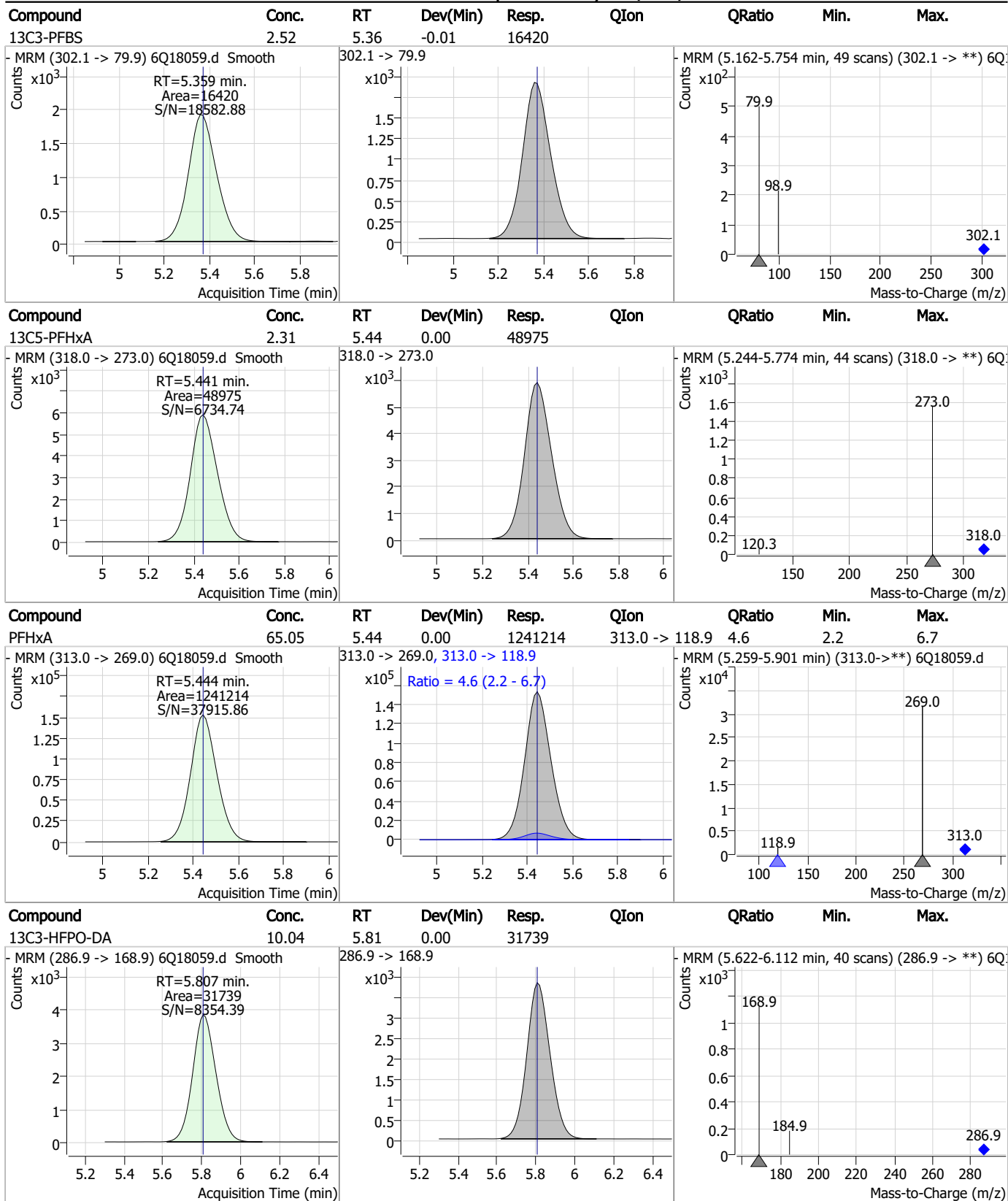
Perfluorinated Compounds by LC/MS/MS



7.6.9
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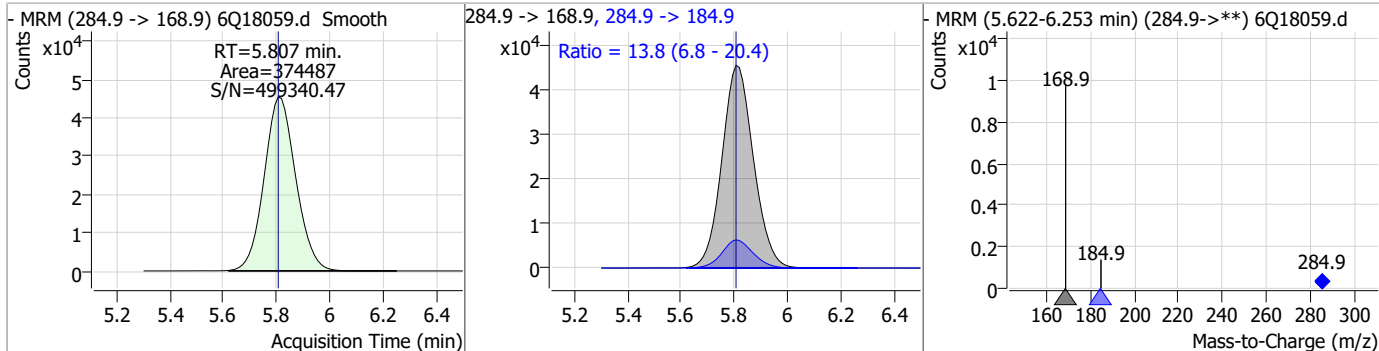
Perfluorinated Compounds by LC/MS/MS



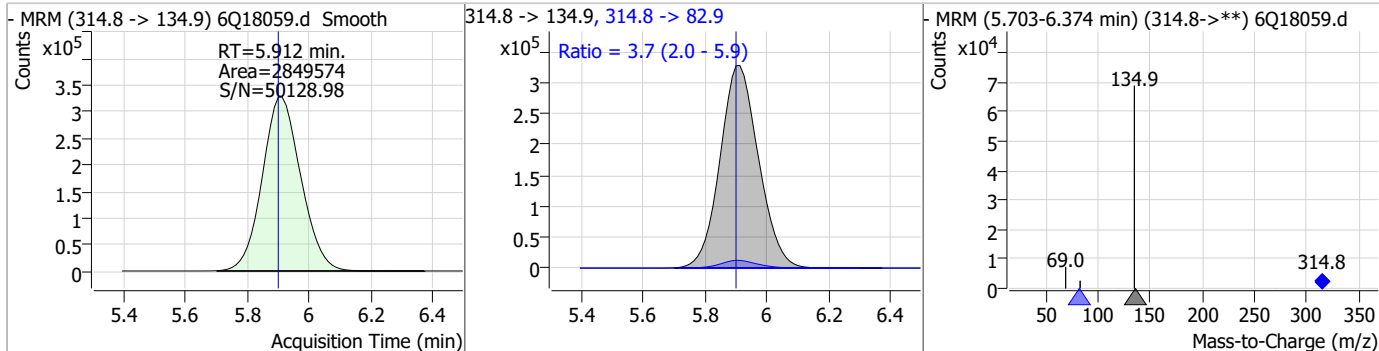
7.6.9
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Perfluorinated Compounds by LC/MS/MS

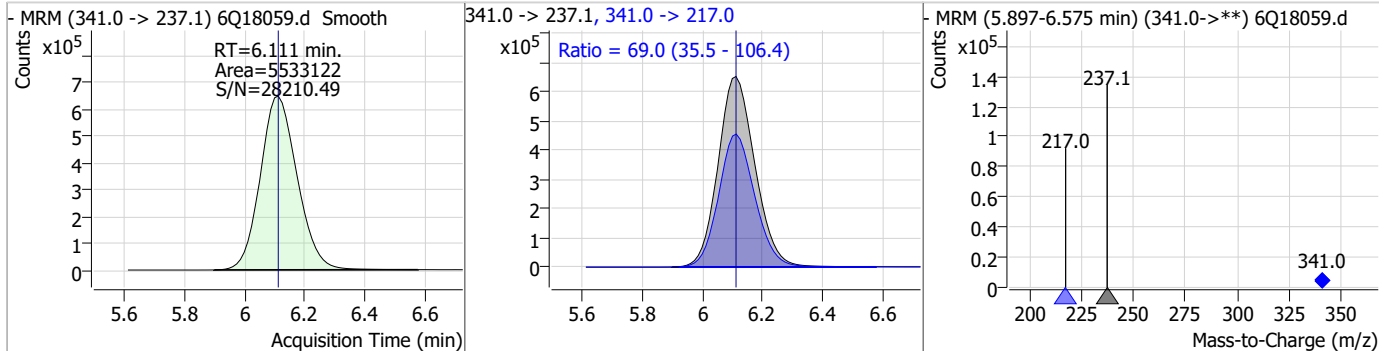
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	121.37	5.81	0.00	374487	284.9 -> 184.9	13.8	6.8	20.4



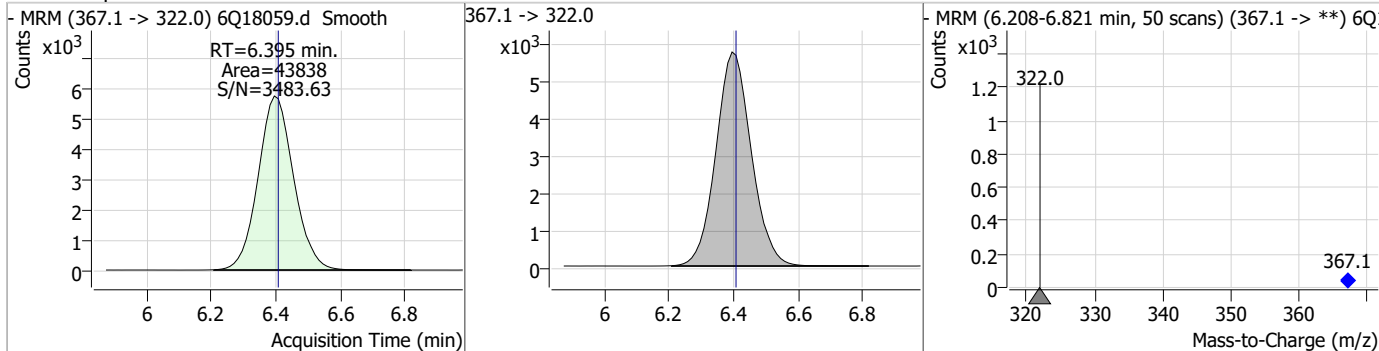
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	112.89	5.91	0.01	2849574	314.8 -> 82.9	3.7	2.0	5.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1604.38	6.11	0.00	5533122	341.0 -> 217.0	69.0	35.5	106.4

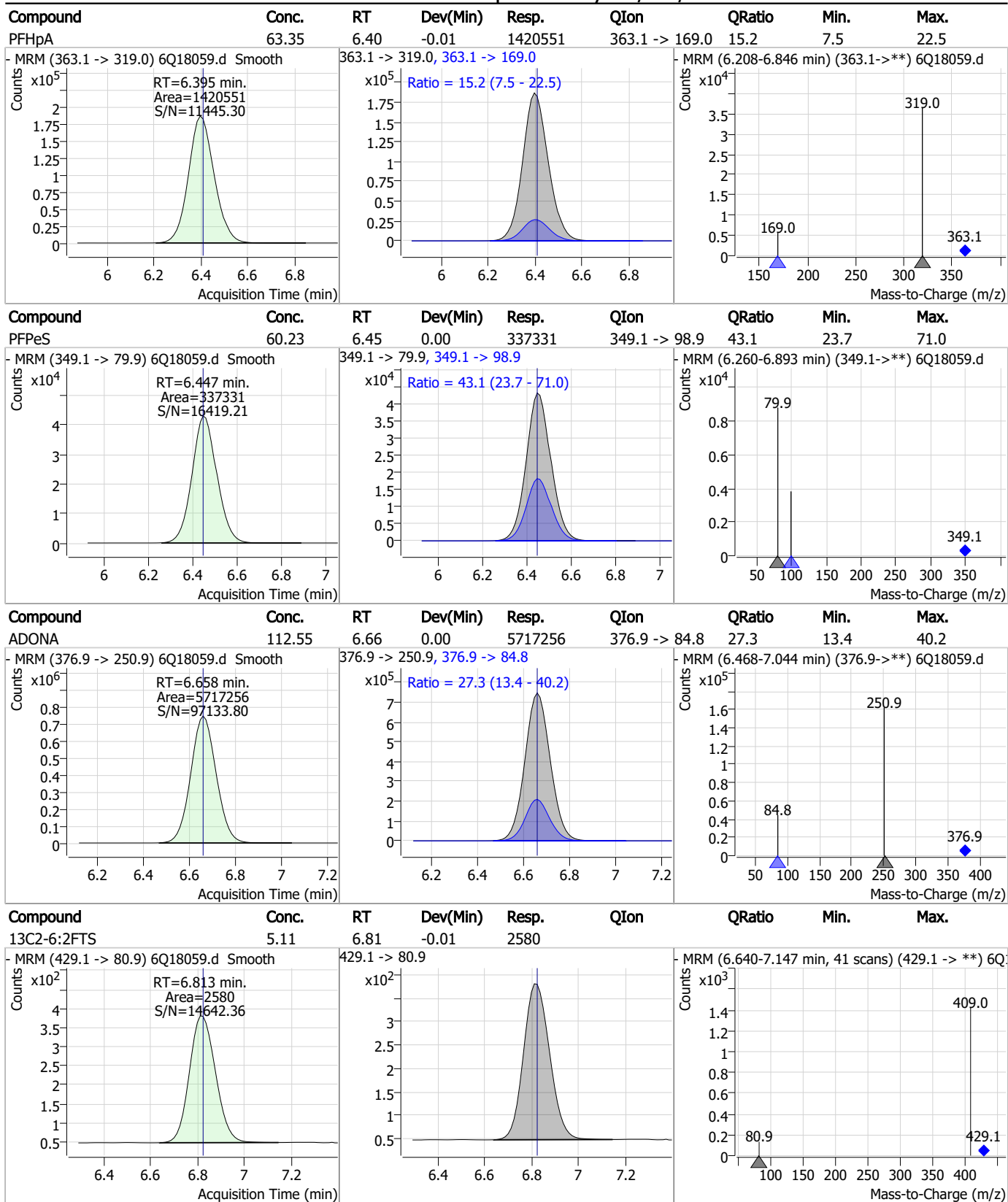


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.41	6.39	-0.01	43838	367.1 -> 322.0	-	-	-



7.6.9
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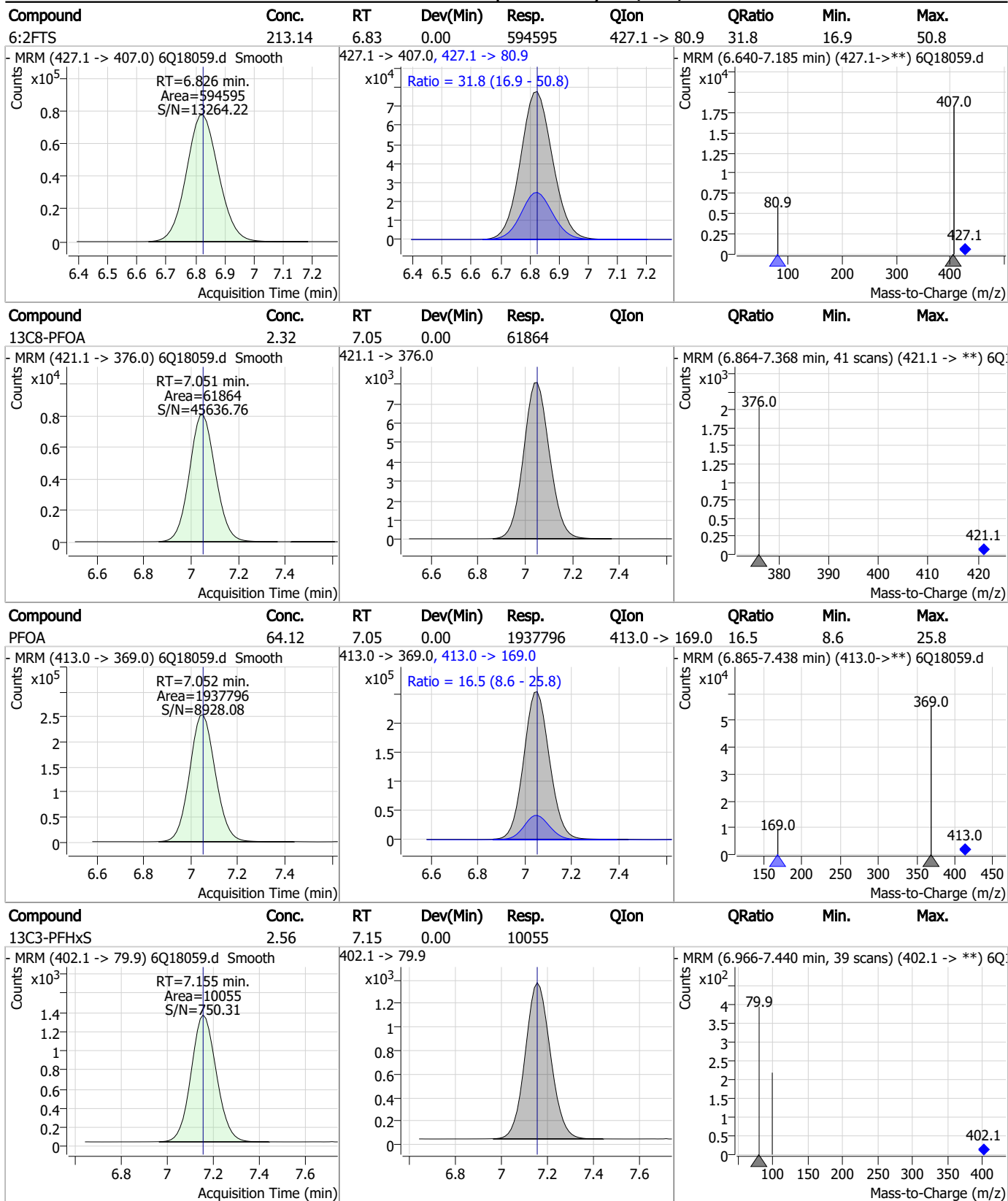
Perfluorinated Compounds by LC/MS/MS



7.6.9
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Perfluorinated Compounds by LC/MS/MS

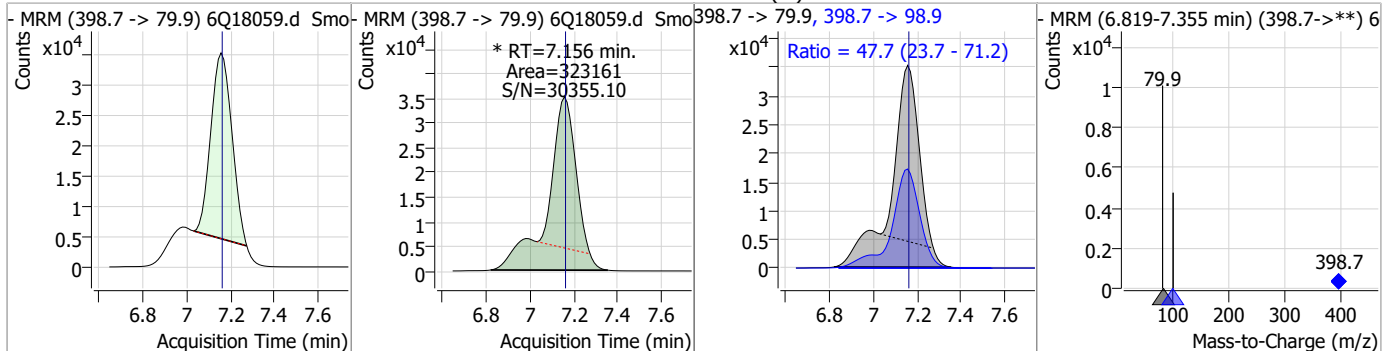


7.6.9
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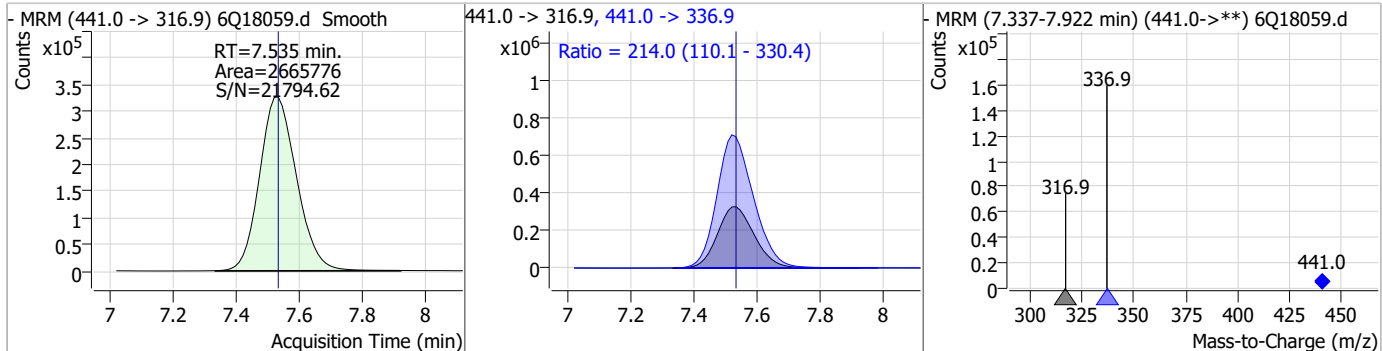


Perfluorinated Compounds by LC/MS/MS

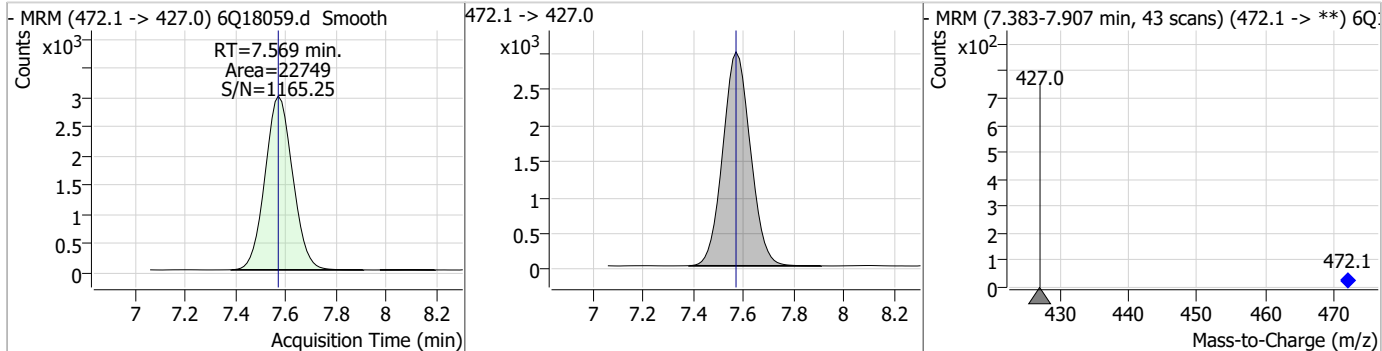
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	57.51	7.16	0.00	323161 (m)	398.7 -> 98.9	47.7	23.7	71.2



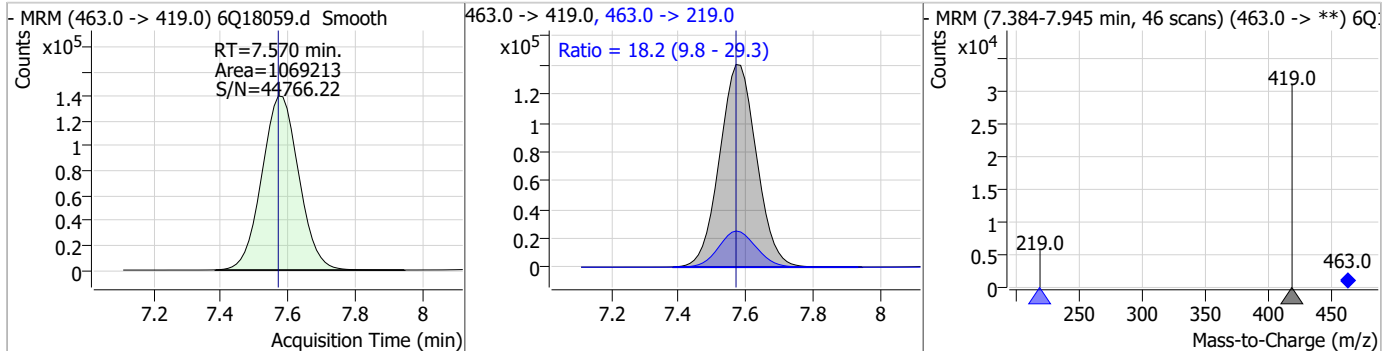
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	1555.36	7.54	0.00	2665776	441.0 -> 336.9	214.0	110.1	330.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.24	7.57	0.00	22749	472.1 -> 427.0			

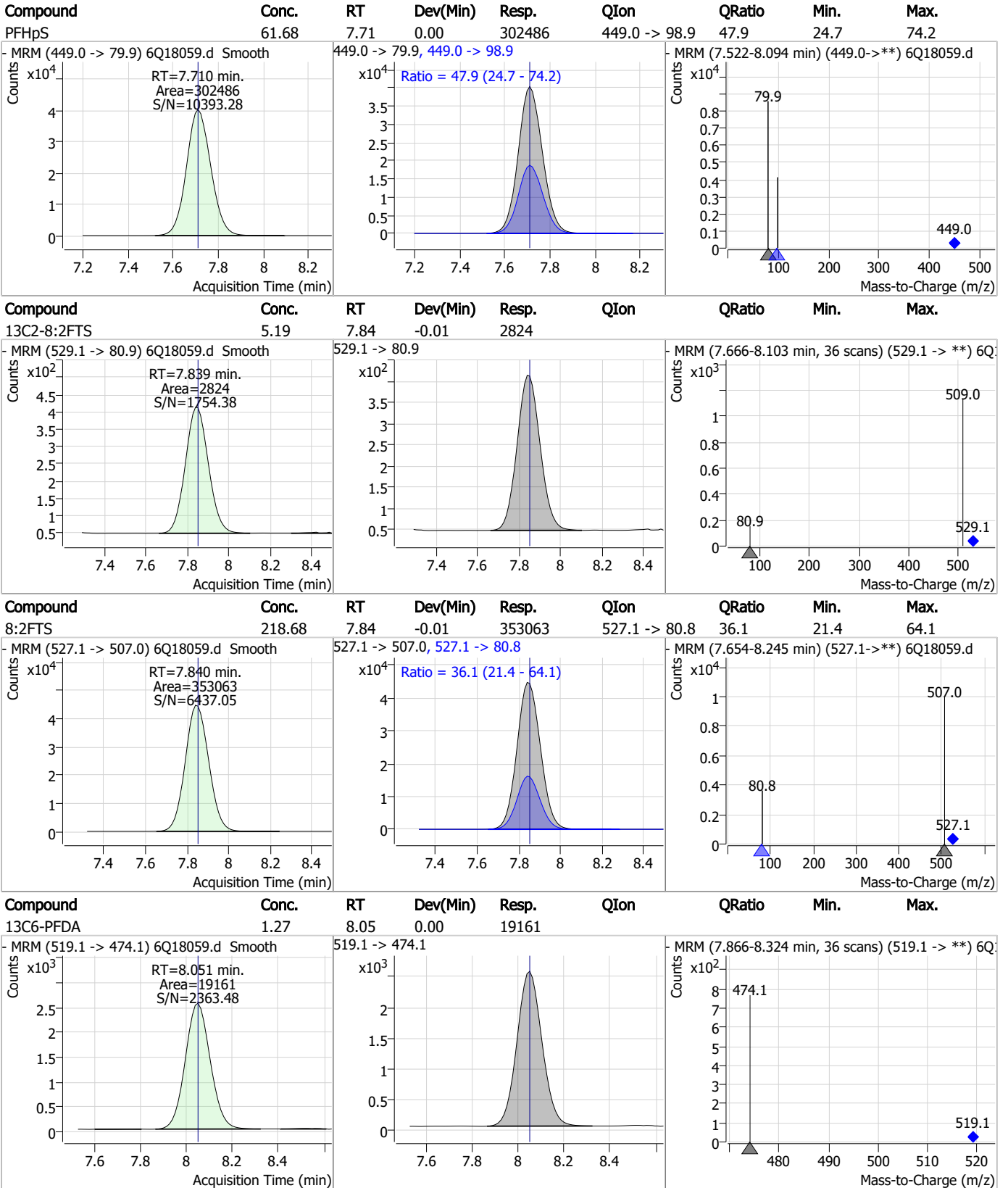


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	63.79	7.57	0.00	1069213	463.0 -> 219.0	18.2	9.8	29.3



7.6.9 7

Perfluorinated Compounds by LC/MS/MS

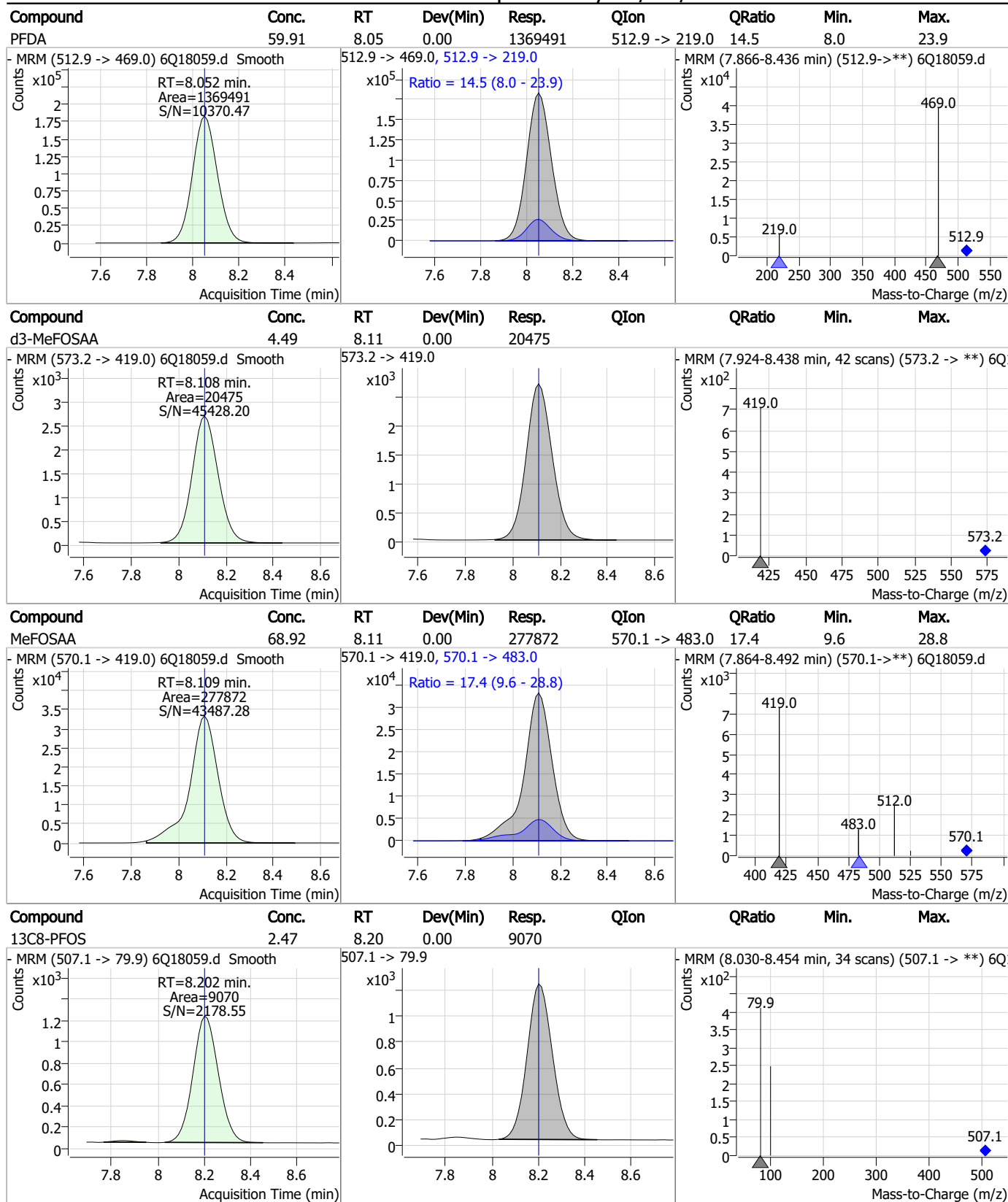


7.6.9

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Perfluorinated Compounds by LC/MS/MS

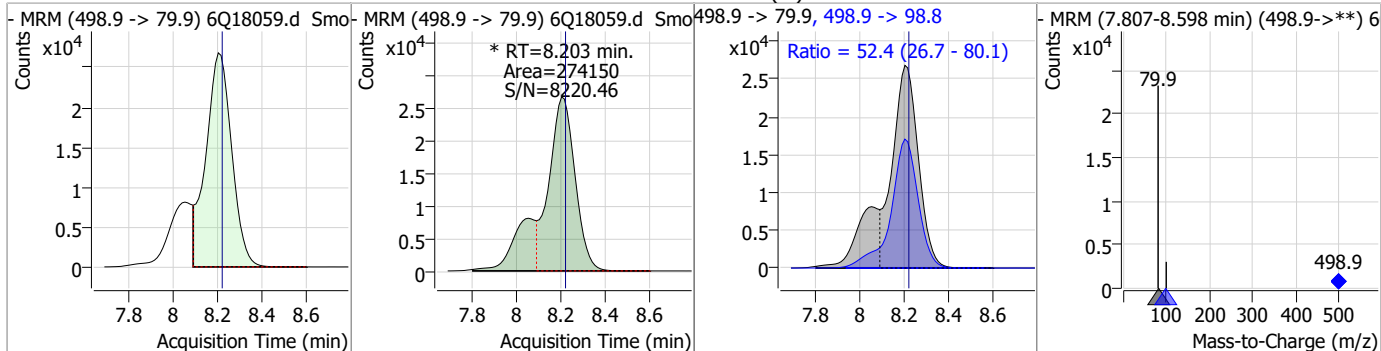


7.6.9

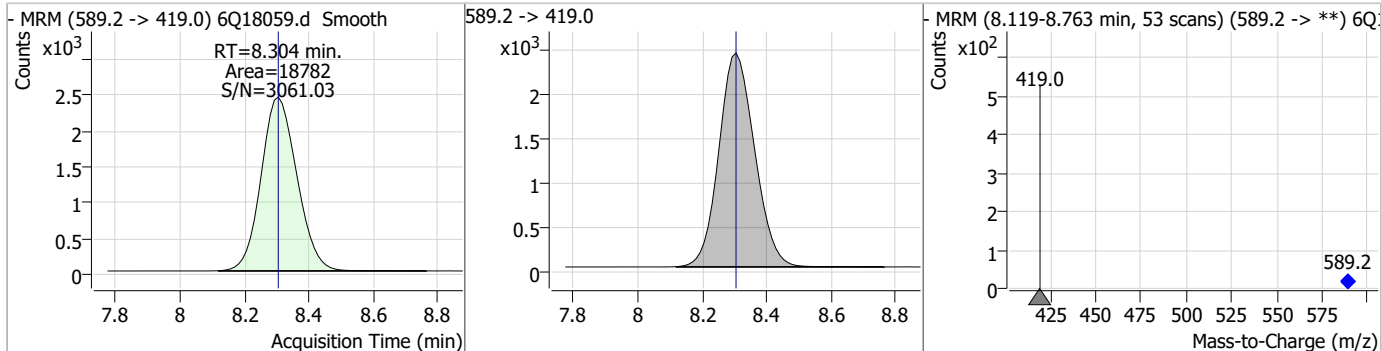
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Perfluorinated Compounds by LC/MS/MS

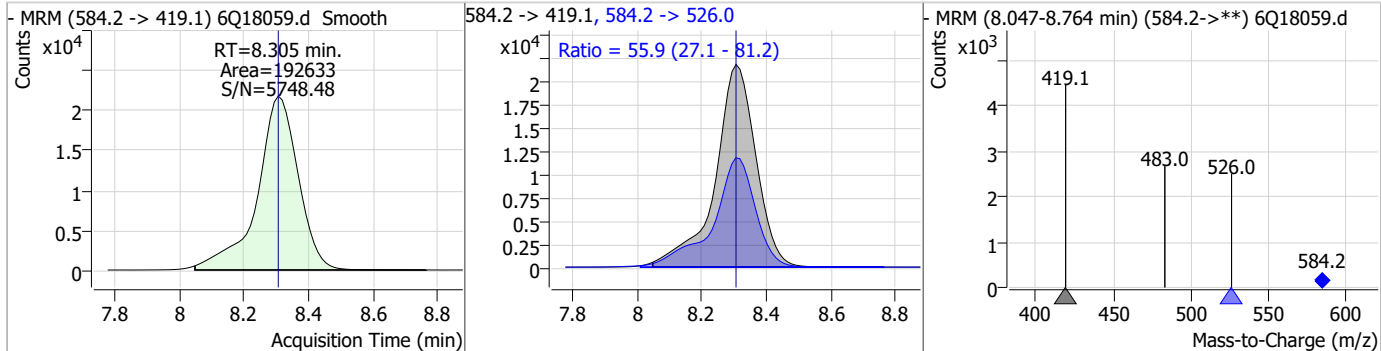
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	56.35	8.20	-0.01	274150 (m)	498.9 -> 98.8	52.4	26.7	80.1



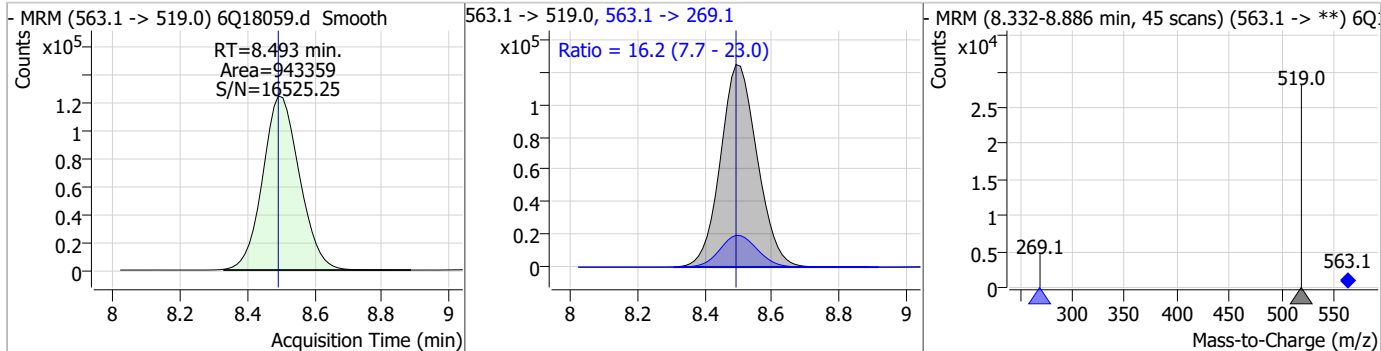
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.99	8.30	0.00	18782				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	59.85	8.31	0.00	192633	584.2 -> 526.0	55.9	27.1	81.2

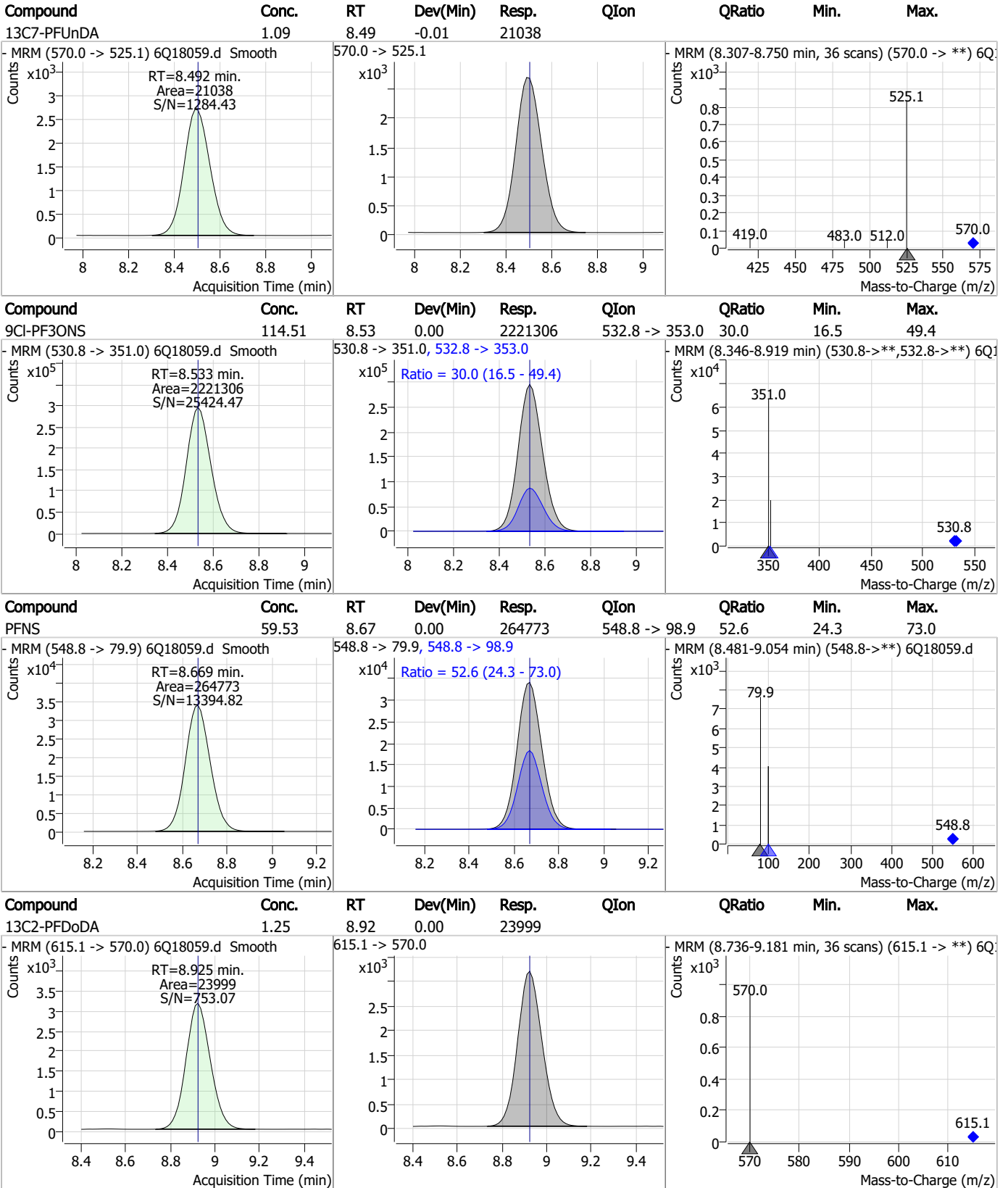


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	64.19	8.49	0.00	943359	563.1 -> 269.1	16.2	7.7	23.0



7.6.9
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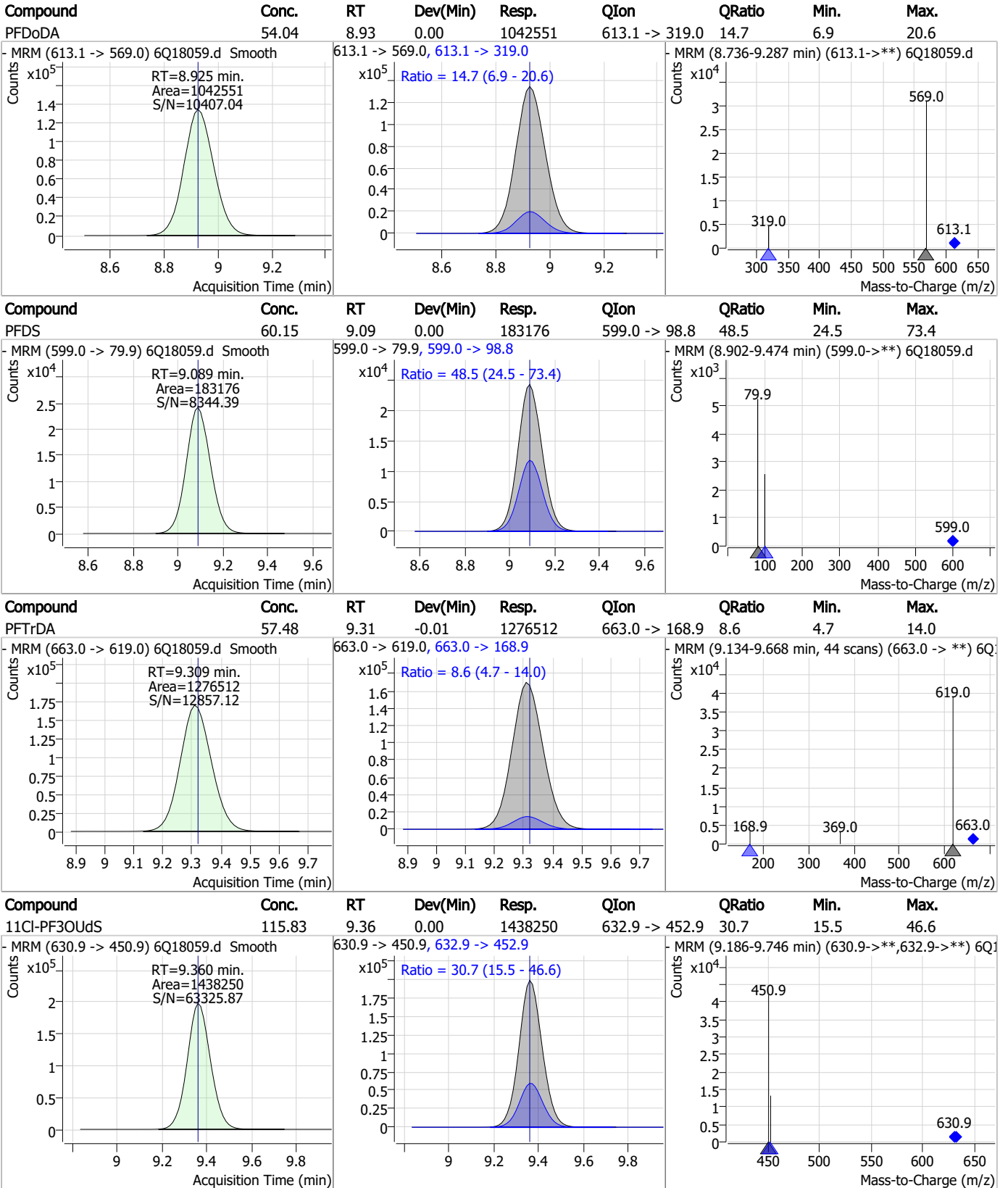
Perfluorinated Compounds by LC/MS/MS



7.6.9

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Perfluorinated Compounds by LC/MS/MS

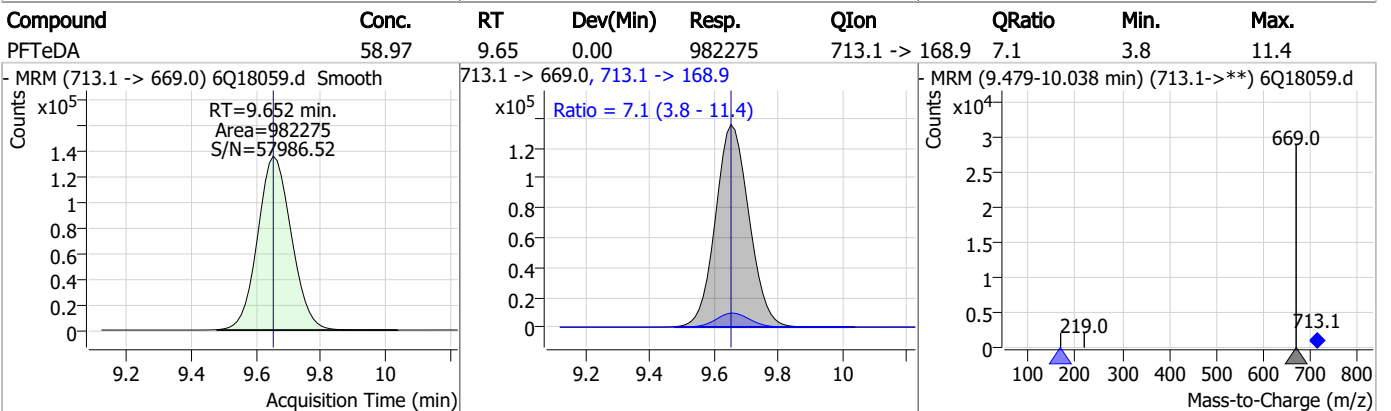
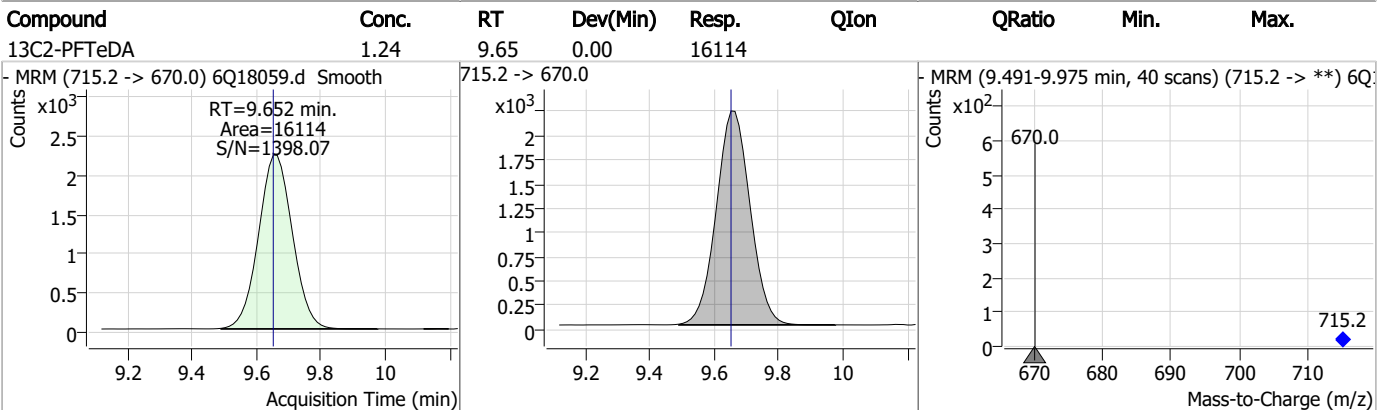
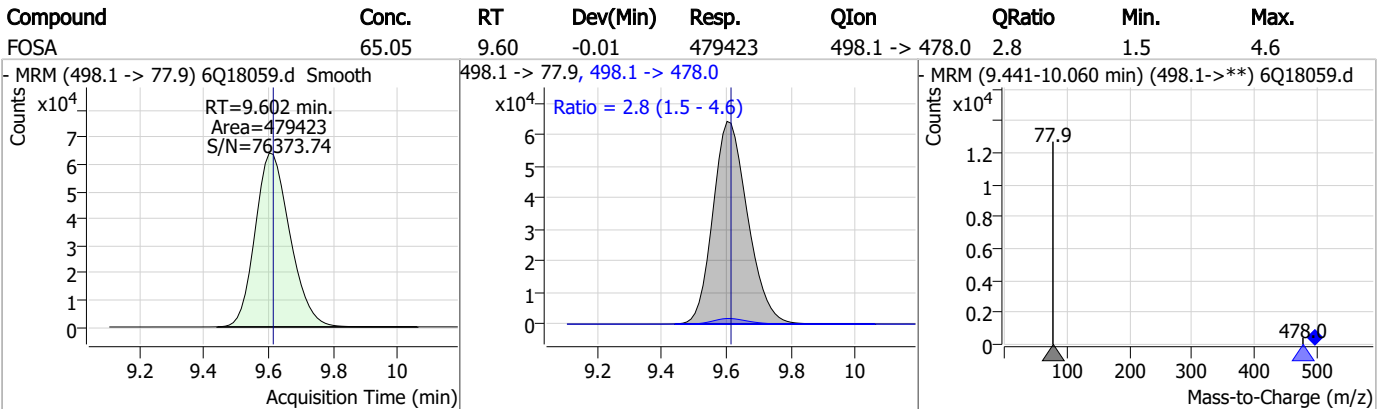
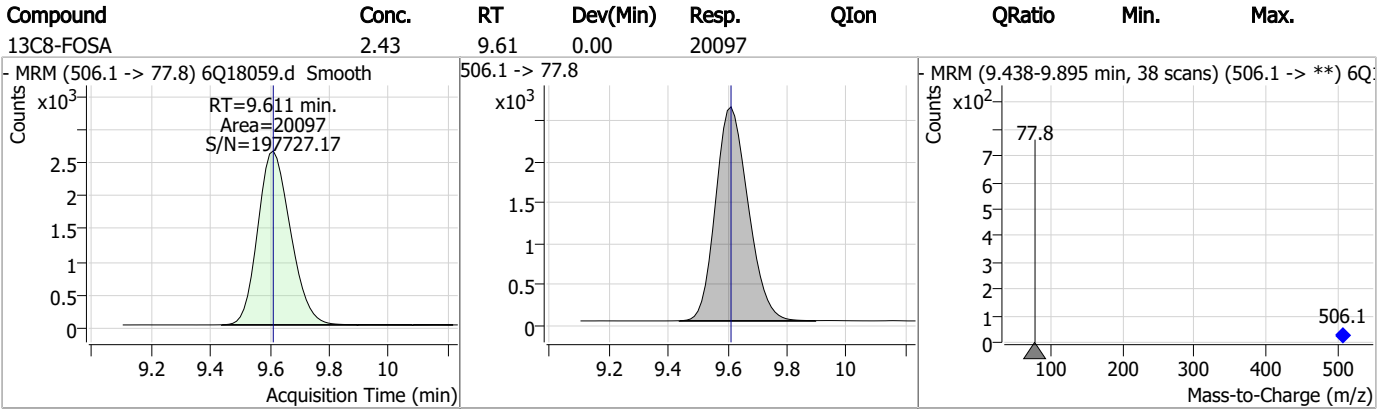


7.6.9

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Perfluorinated Compounds by LC/MS/MS



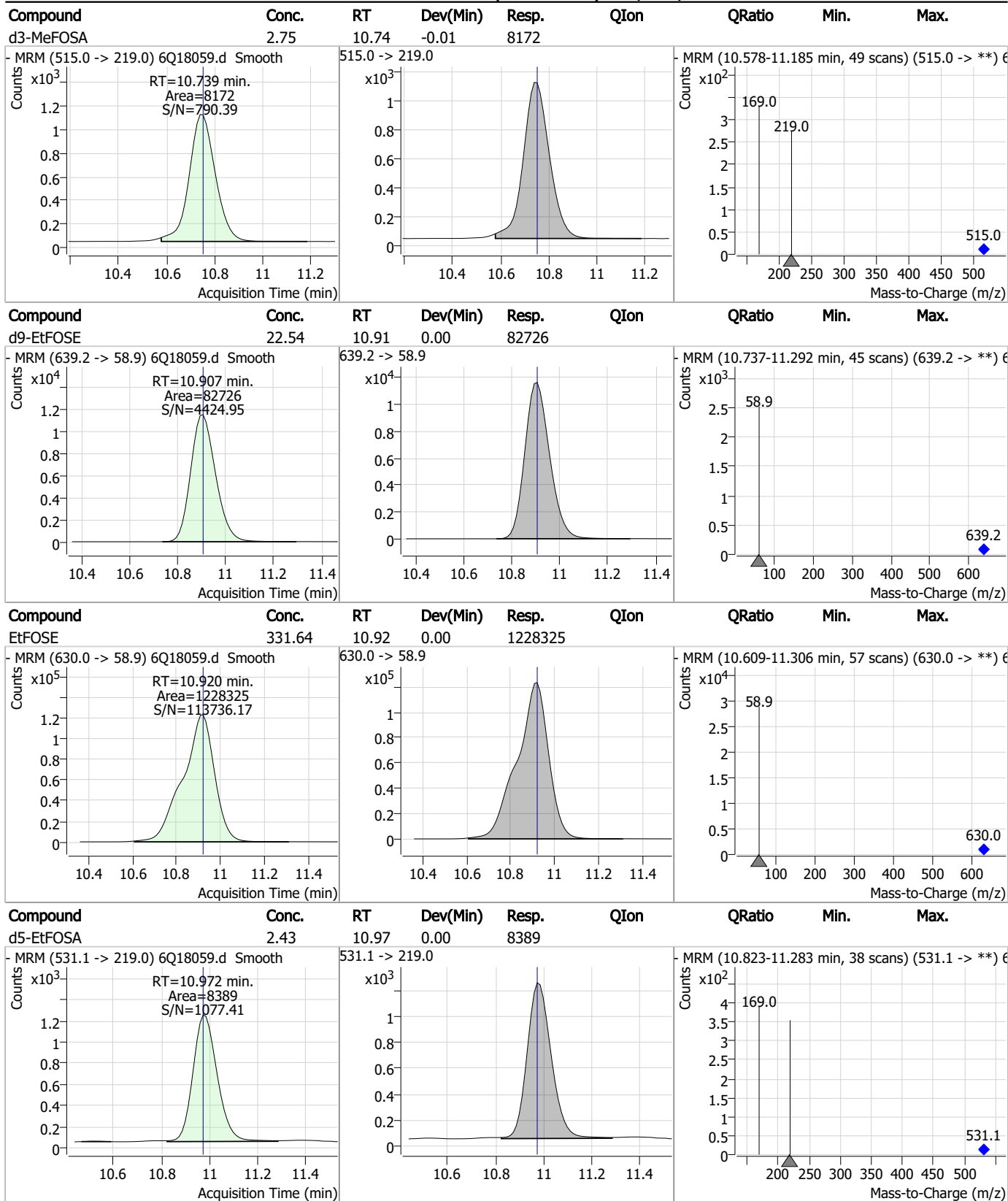
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	60.49	9.78	0.00	99436	699.1 -> 98.8	53.9	26.9	80.6
d7-MeFOSE	23.15	10.66	0.00	72035	623.2 -> 58.9	-	-	-
MeFOSE	313.74	10.67	0.00	1064049	616.1 -> 58.9	-	-	-
MeFOSA	111.90	10.74	0.00	416898	511.9 -> 219.0	138.0	66.3	198.9

7.6.9
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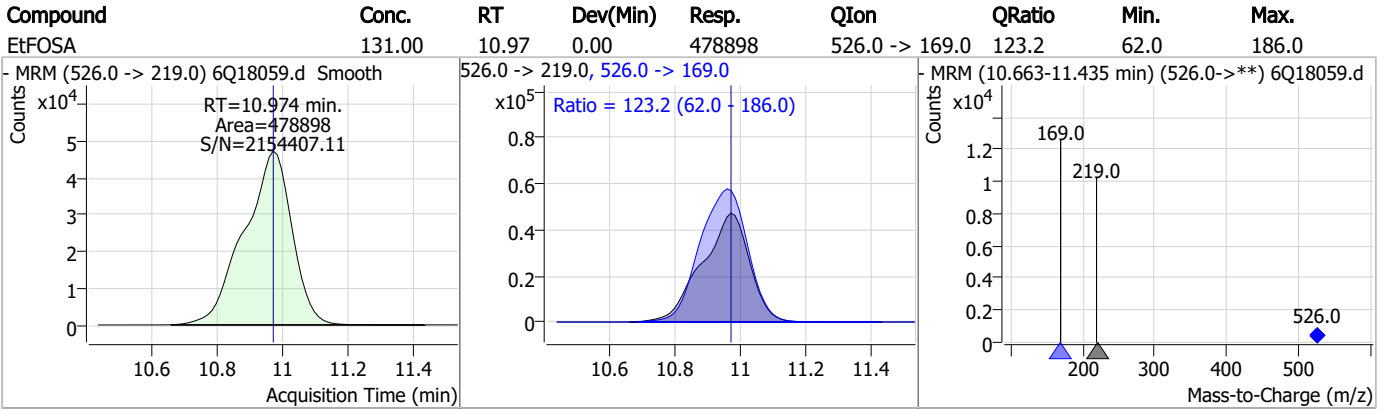


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.6.9

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Manual Integration Approval Summary

Sample Number: S6Q272-IC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18059.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 20:40 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.6.9.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18061.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 9:09:54 PM
 Sample Name : icv272-4
 Vial : P1-B1
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.835	216.8 -> 171.9	154800	10.00 µg/L	-0.053
M5-PFPeA	4.222	268.3 -> 223.0	48331	5.00 µg/L	-0.025
M5-PFHxA	5.429	318.0 -> 273.0	56451	2.50 µg/L	-0.012
M4-PFHpA	6.395	367.1 -> 322.0	48984	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	72450	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	25880	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	19655	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	23039	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	24543	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	16829	1.25 µg/L	0.012
M8-FOSA	9.611	506.1 -> 77.8	22418	2.50 µg/L	0.000
M3-PFBS	5.347	302.1 -> 79.9	18502	2.50 µg/L	-0.025
M3-PFHxS	7.155	402.1 -> 79.9	11372	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9963	2.50 µg/L	0.000
M2-4:2FTS	5.106	329.1 -> 80.9	2522	5.00 µg/L	-0.012
M2-6:2FTS	6.825	429.1 -> 80.9	2972	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	2971	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	26161	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	33891	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	20215	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	82991	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	96196	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9866	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	8058	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	13015	2.50 µg/L	-0.012
13C3-PFBA	2.839	216.0 -> 172.0	63898	5.00 µg/L	-0.040
18O2-PFHxS	7.154	403.0 -> 83.9	8437	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	78040	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	20919	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	26290	1.25 µg/L	0.000
13C2-PFHxA	5.430	315.1 -> 270.0	46350	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.106	329.1 -> 80.9	2522	5.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.4%		
13C2-6:2FTS	6.825	429.1 -> 80.9	2972	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-8:2FTS	7.839	529.1 -> 80.9	2971	4.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFDoDA	8.925	615.1 -> 570.0	24543	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C2-PFTeDA	9.664	715.2 -> 670.0	16829	1.37 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C3-PFBS	5.347	302.1 -> 79.9	18502	2.48 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFHxS	7.155	402.1 -> 79.9	11372	2.52 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C4-PFBA	2.835	216.8 -> 171.9	154800	10.15 µg/L	-0.053
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.395	367.1 -> 322.0	48984	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.429	318.0 -> 273.0	56451	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.222	268.3 -> 223.0	48331	5.07 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.051	519.1 -> 474.1	19655	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C7-PFUnDA	8.492	570.0 -> 525.1	23039	1.26 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-FOSA	9.611	506.1 -> 77.8	22418	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOA	7.038	421.1 -> 376.0	72450	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-PFOS	8.202	507.1 -> 79.9	9963	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C9-PFNA	7.569	472.1 -> 427.0	25880	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
d3-MeFOSAA	8.108	573.2 -> 419.0	26161	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	33891	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d3-MeFOSA	10.752	515.0 -> 219.0	8058	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
d5-EtFOSAA	8.304	589.2 -> 419.0	20215	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d7-MeFOSE	10.660	623.2 -> 58.9	82991	24.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d9-EtFOSE	10.907	639.2 -> 58.9	96196	24.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d5-EtFOSA	10.972	531.1 -> 219.0	9866	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.8%	
Target Compounds					QValue
4:2FTS	5.107	327.1 -> 307.0	29957	8.05 µg/L	99
		327.1 -> 80.9	11731		
6:2FTS	6.813	427.1 -> 407.0	26568	8.27 µg/L	95
		427.1 -> 80.9	9695		
8:2FTS	7.840	527.1 -> 507.0	15620	9.20 µg/L	98
		527.1 -> 80.8	6865		
EtFOSAA	8.305	584.2 -> 419.1	7791	2.25 µg/L	97
		584.2 -> 526.0	4377		
FOSA	9.614	498.1 -> 77.9	18274	2.22 µg/L	99
		498.1 -> 478.0	513		
MeFOSAA	8.109	570.1 -> 419.0	10682	2.07 µg/L	97
		570.1 -> 483.0	2220		
PFBA	2.831	212.8 -> 168.9	48609	8.65 µg/L	100
PFBS	5.360	298.7 -> 79.9	18079	2.00 µg/L	97
		298.7 -> 98.8	6817		
PFDA	8.052	512.9 -> 469.0	48899	2.09 µg/L	99
		512.9 -> 219.0	7591		
PFDODA	8.925	613.1 -> 569.0	41748	2.12 µg/L	100
		613.1 -> 319.0	5668		
PFDS	9.089	599.0 -> 79.9	7242	2.16 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	6.395	599.0 -> 98.8	3806	2.14 µg/L	98
		363.1 -> 319.0	53741		
PFHpS	7.710	363.1 -> 169.0	8471	2.14 µg/L	95
		449.0 -> 79.9	11547		
PFHxA	5.432	449.0 -> 98.9	5276	2.37 µg/L	100
		313.0 -> 269.0	52231		
PFHxS	7.156	313.0 -> 118.9	2352	1.97 µg/L	97
		398.7 -> 79.9	12503		
PFNA	7.570	398.7 -> 98.9	5709	2.21 µg/L	99
		463.0 -> 419.0	42111		
PFNS	8.669	463.0 -> 219.0	8406	2.11 µg/L	92
		548.8 -> 79.9	10302		
PFOA	7.040	548.8 -> 98.9	5545	2.19 µg/L	100
		413.0 -> 369.0	77386		
PFOS	8.203	413.0 -> 169.0	13402	1.95 µg/L	98
		498.9 -> 79.9	10406		
PFPeA	4.224	498.9 -> 98.8	5427	4.40 µg/L	100
		263.0 -> 219.0	62927		
PFPeS	6.447	349.1 -> 79.9	12906	2.04 µg/L	100
		349.1 -> 98.9	6068		
PFTeDA	9.652	713.1 -> 669.0	36601	2.10 µg/L	99
		713.1 -> 168.9	2675		
PFTrDA	9.321	663.0 -> 619.0	51178	2.25 µg/L	98
		663.0 -> 168.9	4456		
PFUnDA	8.493	563.1 -> 519.0	37604	2.34 µg/L	99
		563.1 -> 269.1	5922		
11CI-PF3OUdS	9.360	630.9 -> 450.9	49806	3.76 µg/L	95
		632.9 -> 452.9	16748		
9CI-PF3ONS	8.533	530.8 -> 351.0	81385	3.93 µg/L	100
		532.8 -> 353.0	26655		
ADONA	6.658	376.9 -> 250.9	228729	4.22 µg/L	98
		376.9 -> 84.8	59152		
HFPO-DA	5.807	284.9 -> 168.9	14727	4.47 µg/L	97
		284.9 -> 184.9	1844		
3:3FTCA	3.671	241.0 -> 177.0	10001	11.10 µg/L	99
		241.0 -> 117.0	1420		
5:3FTCA	6.099	341.0 -> 237.1	213471	53.70 µg/L	97
		341.0 -> 217.0	156779		
7:3FTCA	7.523	441.0 -> 316.9	107593	54.46 µg/L	100
		441.0 -> 336.9	237024		
EtFOSA	10.974	526.0 -> 219.0	17256	4.01 µg/L	92
		526.0 -> 169.0	22923		
EtFOSE	10.920	630.0 -> 58.9	47728	11.08 µg/L	100
		511.9 -> 219.0	15921		
MeFOSA	10.741	511.9 -> 169.0	21888	4.33 µg/L	96
		616.1 -> 58.9	40552		
MeFOSE	10.673	699.1 -> 79.9	3627	10.38 µg/L	100
		699.1 -> 98.8	2125		
PFDoDS	9.793	295.0 -> 201.0	10521	2.01 µg/L	93
		295.0 -> 84.9	2560		
NFDHA	5.311	279.0 -> 85.1	42117	4.27 µg/L	95
		229.0 -> 84.9	31523		
PFMBA	4.638	314.8 -> 134.9	111100	4.18 µg/L	100
		314.8 -> 82.9	3899		
PFMPA	3.376			4.24 µg/L	100
PFEESA	5.900			3.82 µg/L	99

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



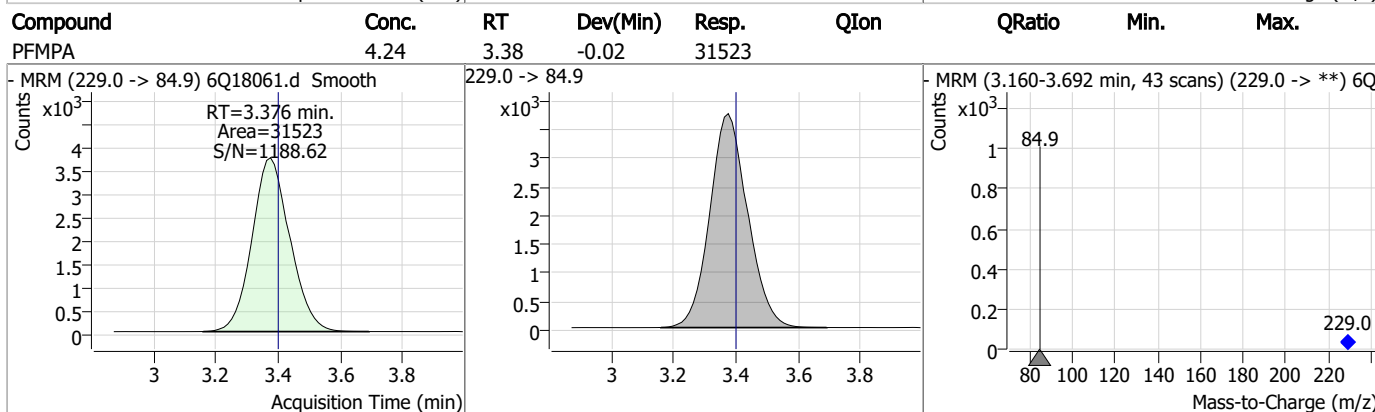
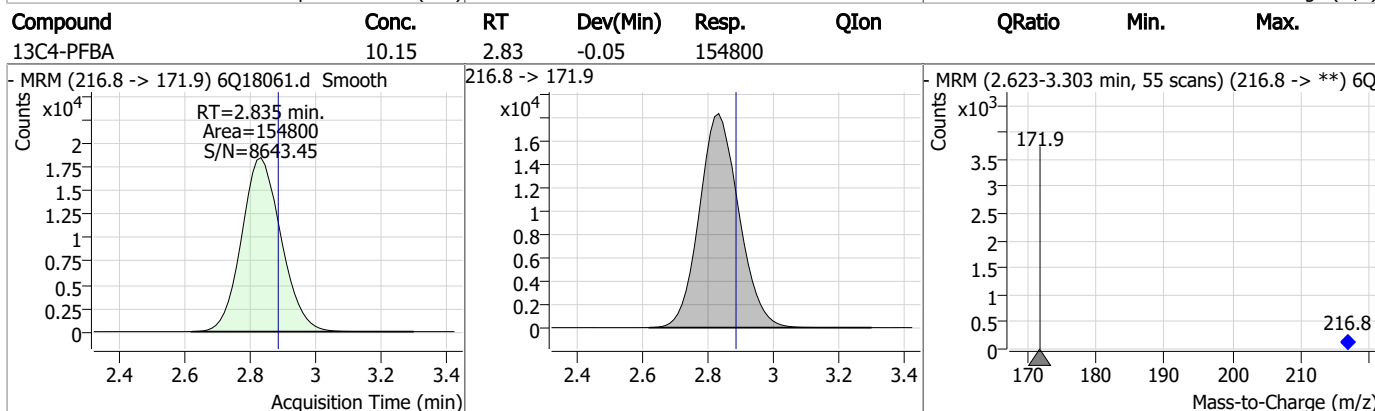
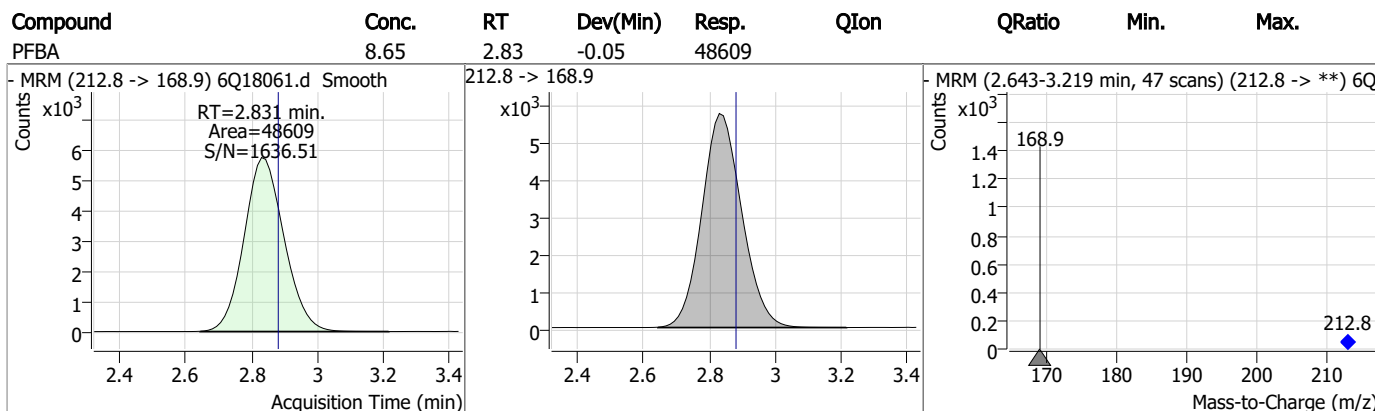
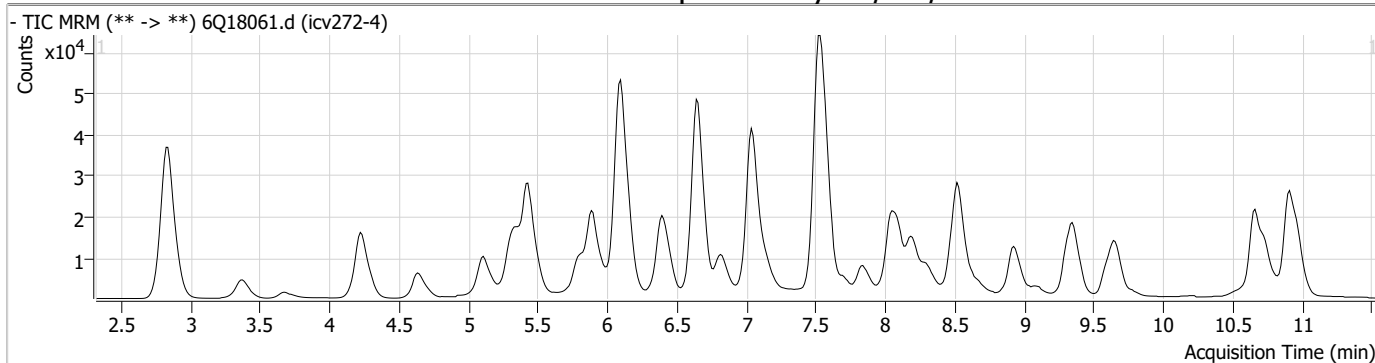
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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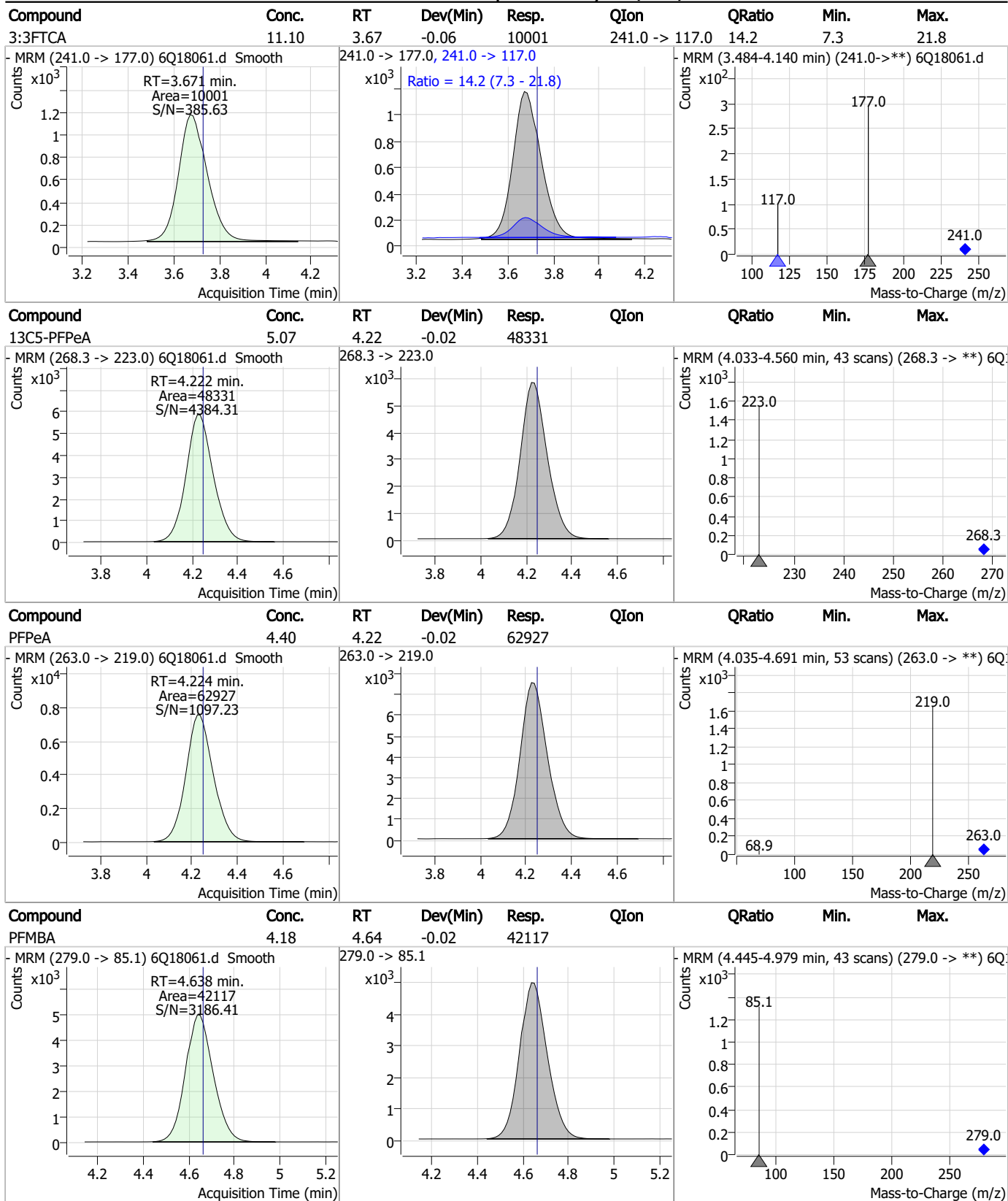
7.6.10

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Perfluorinated Compounds by LC/MS/MS

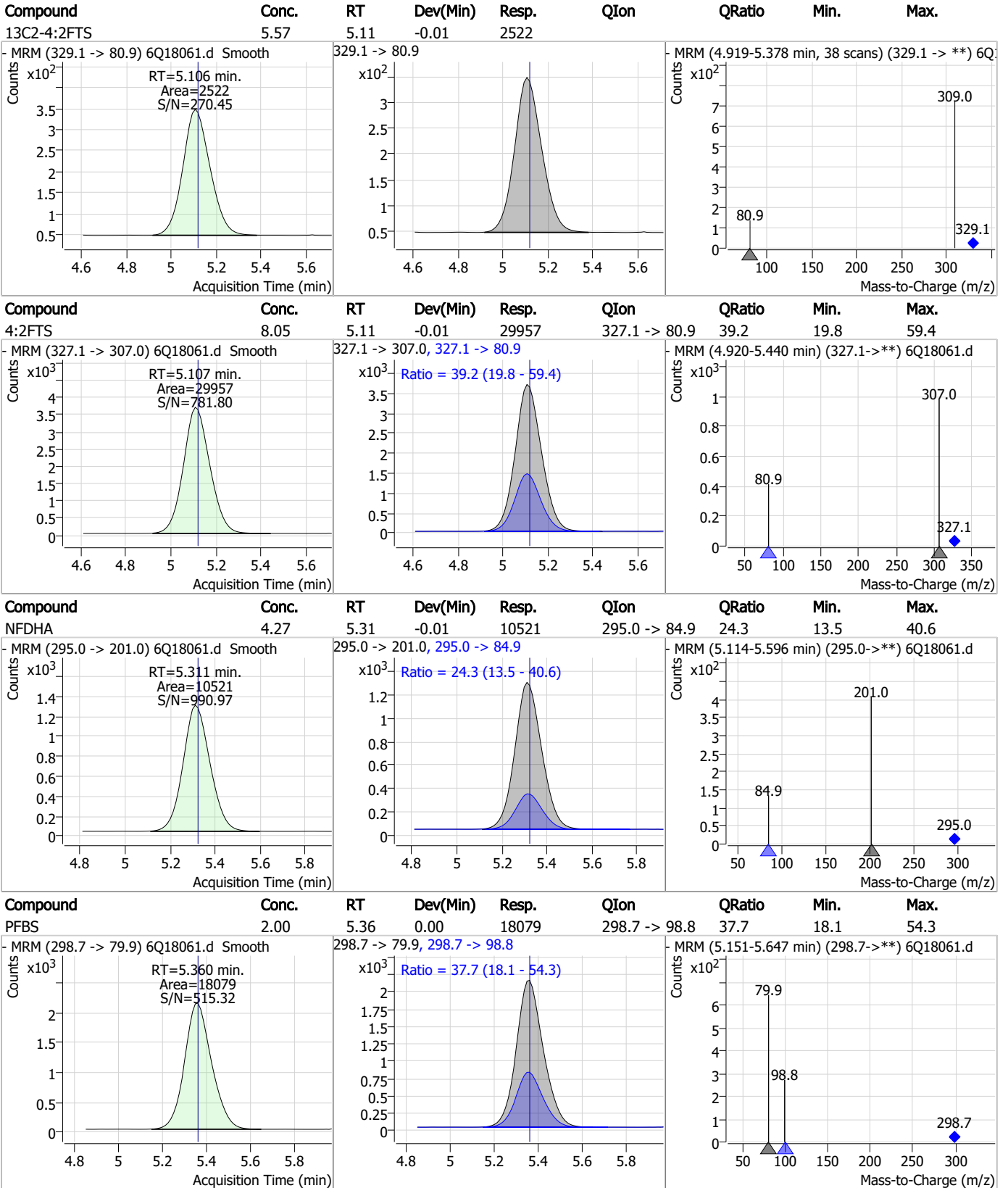


Perfluorinated Compounds by LC/MS/MS



7.6.10 7

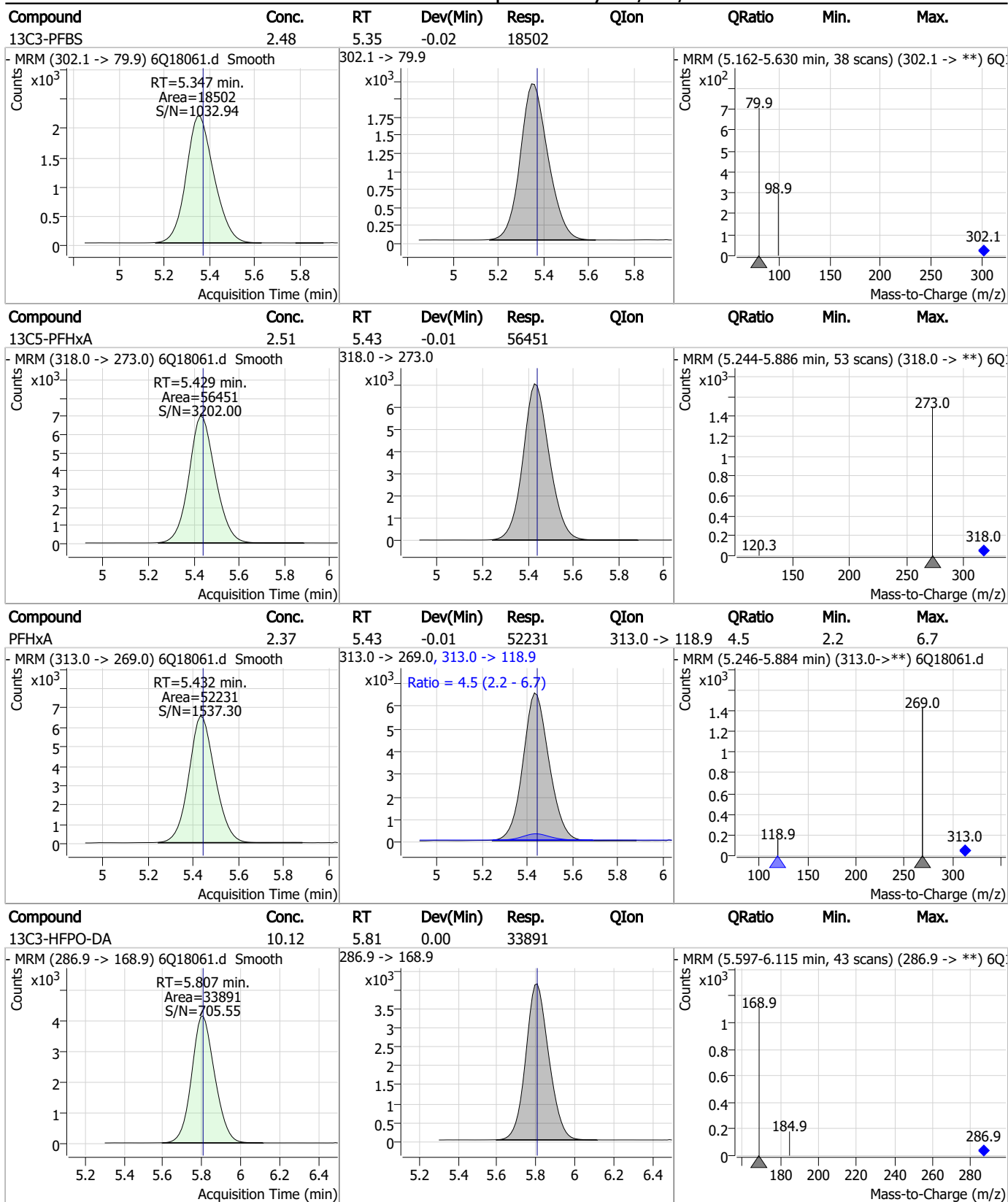
Perfluorinated Compounds by LC/MS/MS



7.6.10 7



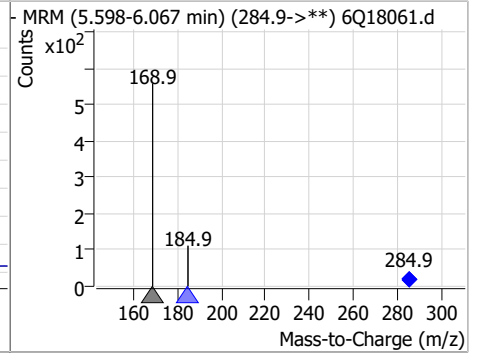
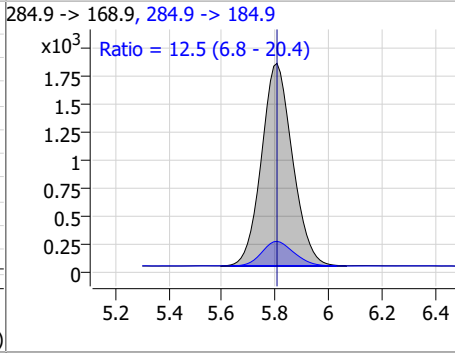
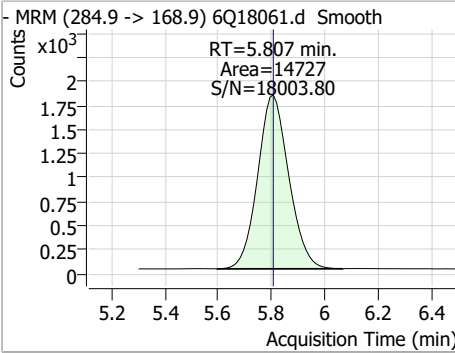
Perfluorinated Compounds by LC/MS/MS



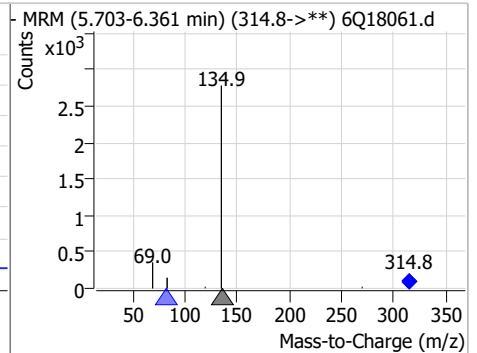
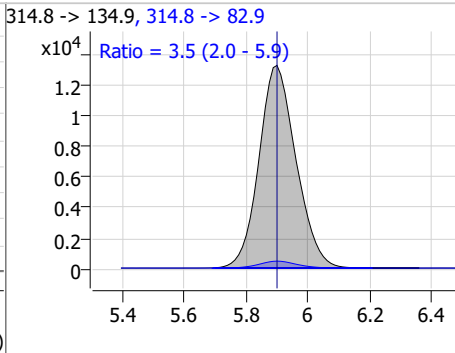
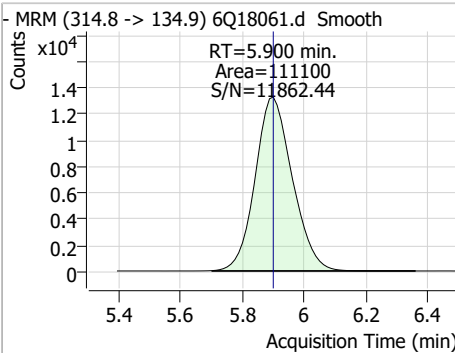
7.6.10 7

Perfluorinated Compounds by LC/MS/MS

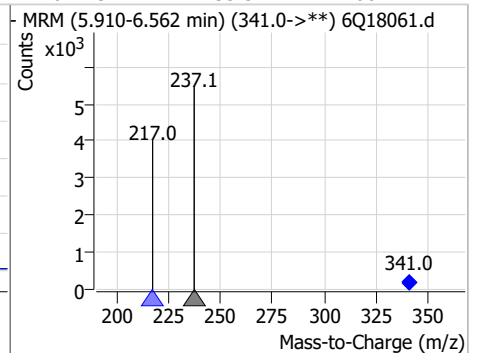
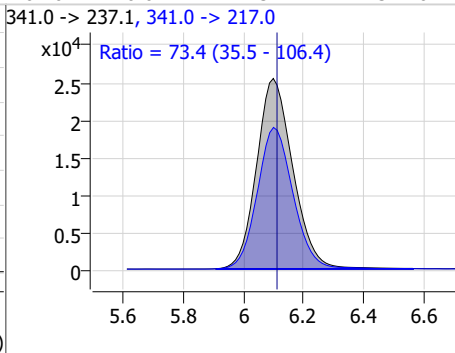
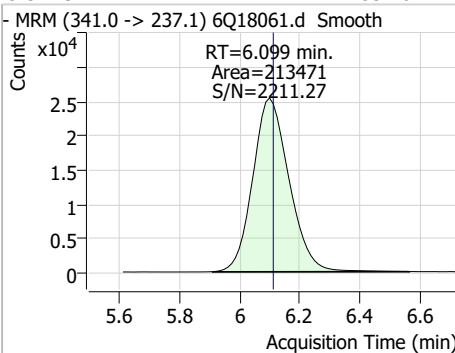
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.47	5.81	0.00	14727	284.9 -> 184.9	12.5	6.8	20.4



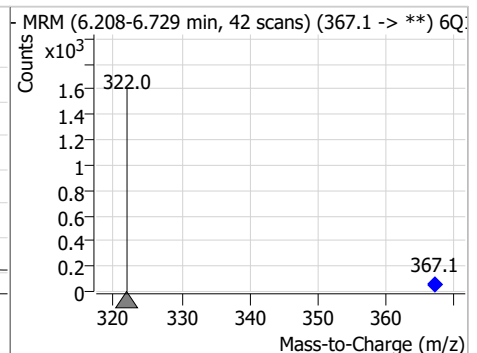
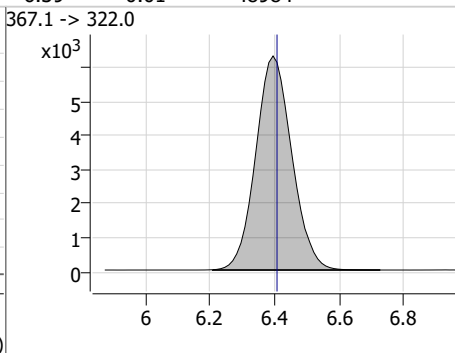
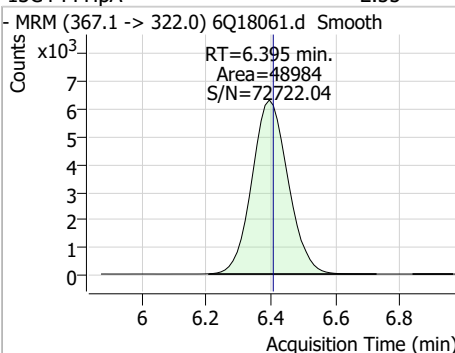
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	3.82	5.90	0.00	111100	314.8 -> 82.9	3.5	2.0	5.9



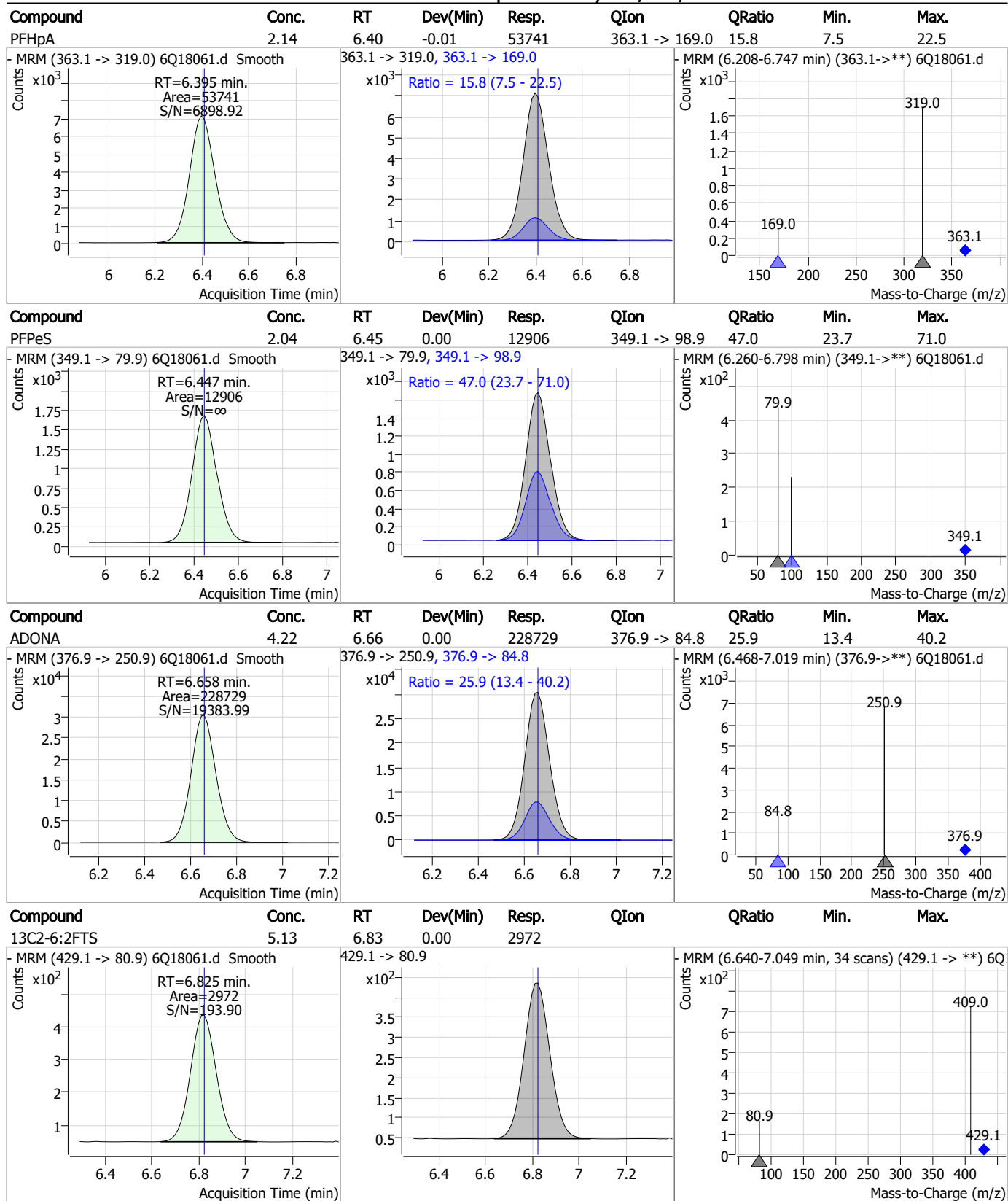
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	53.70	6.10	-0.01	213471	341.0 -> 217.0	73.4	35.5	106.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.55	6.39	-0.01	48984	367.1 -> 322.0			

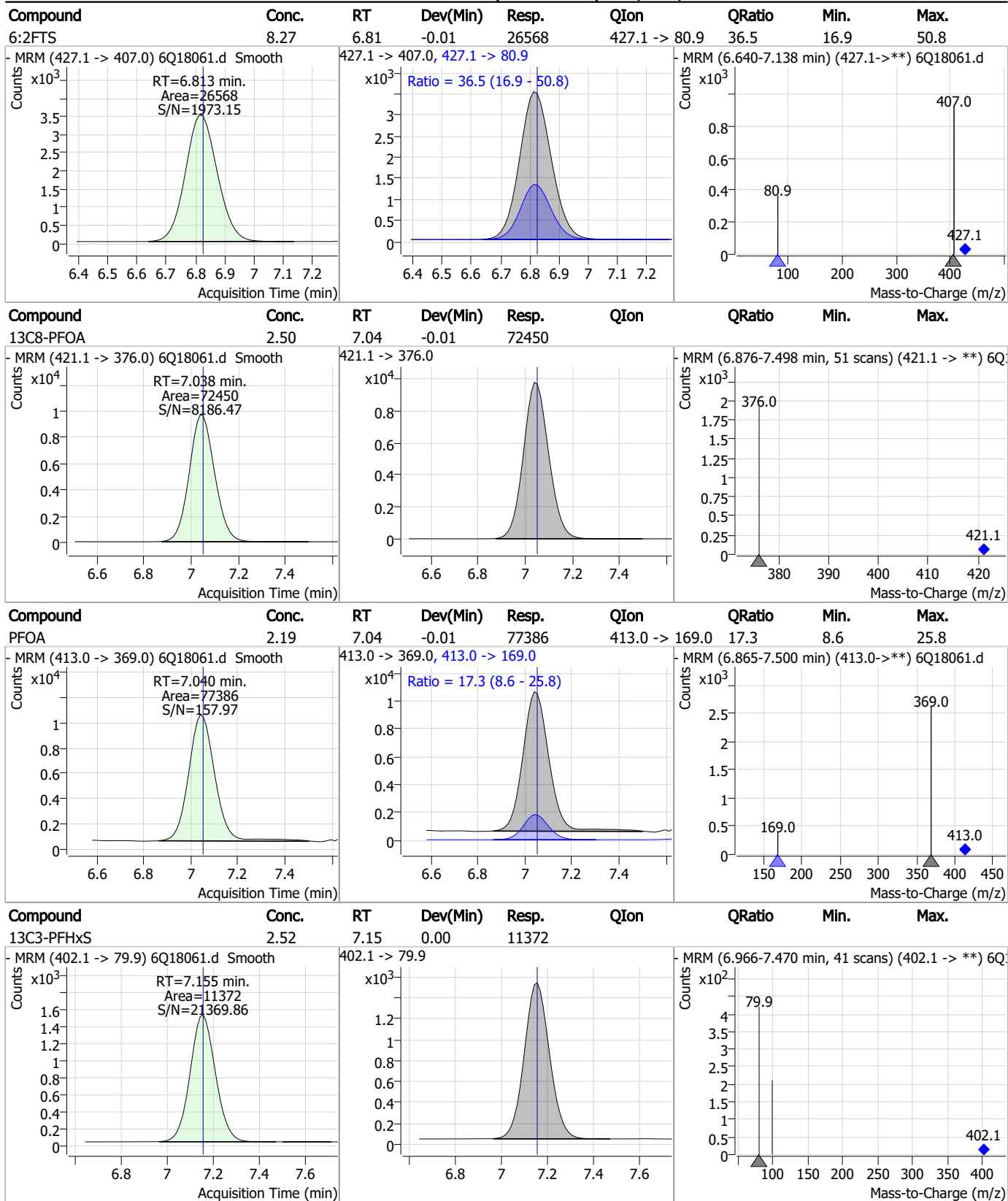


Perfluorinated Compounds by LC/MS/MS



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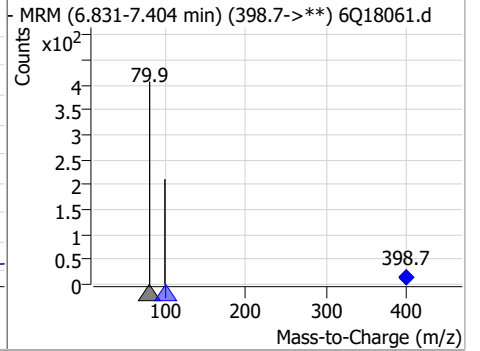
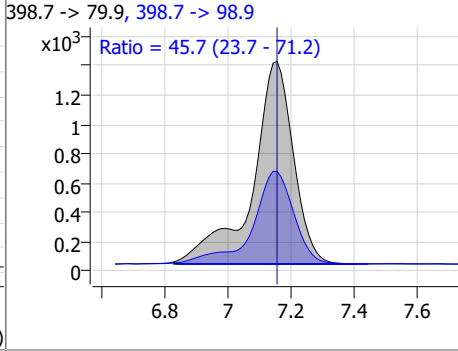
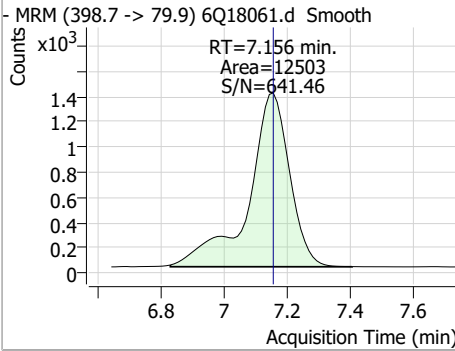
Perfluorinated Compounds by LC/MS/MS



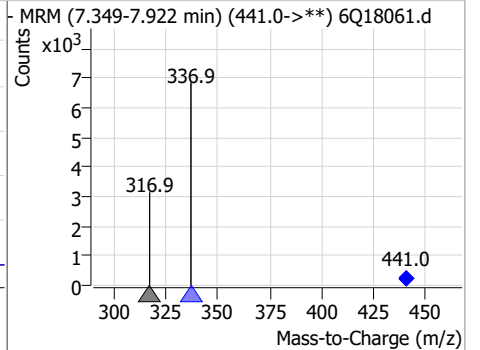
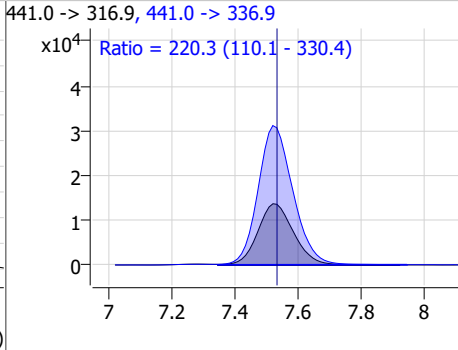
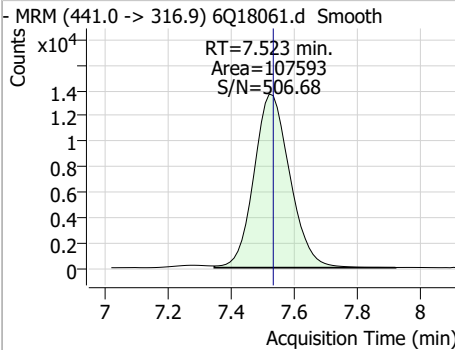
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Perfluorinated Compounds by LC/MS/MS

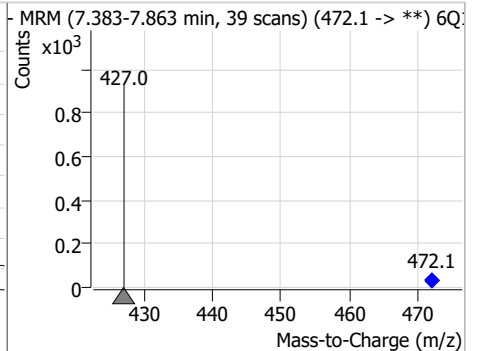
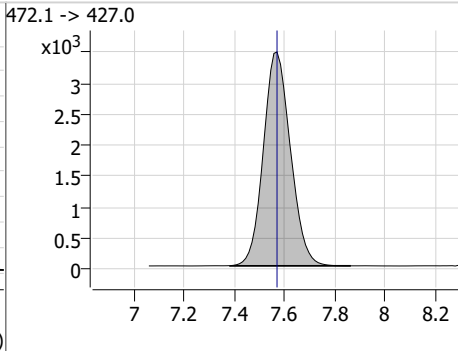
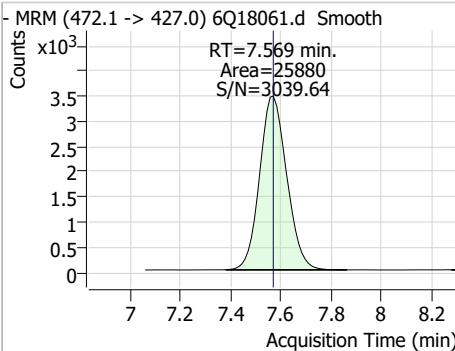
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.97	7.16	0.00	12503	398.7 -> 98.9	45.7	23.7	71.2



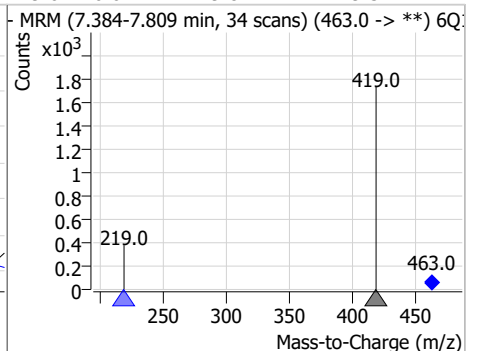
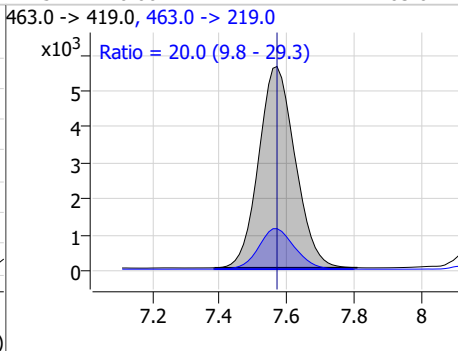
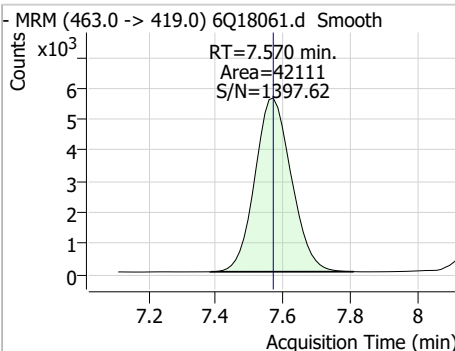
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	54.46	7.52	-0.01	107593	441.0 -> 336.9	220.3	110.1	330.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.31	7.57	0.00	25880	472.1 -> 427.0			



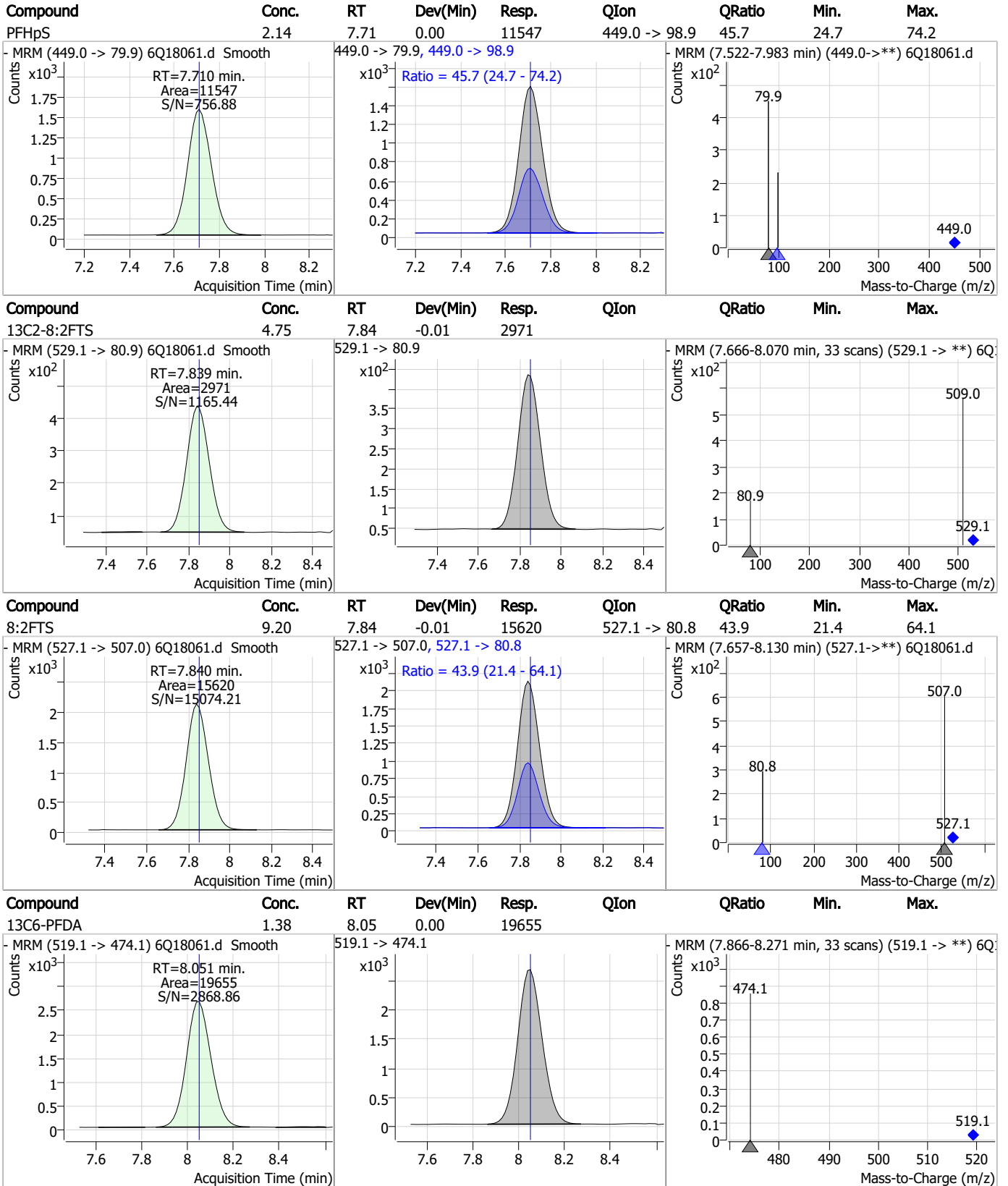
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.21	7.57	0.00	42111	463.0 -> 219.0	20.0	9.8	29.3



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Perfluorinated Compounds by LC/MS/MS

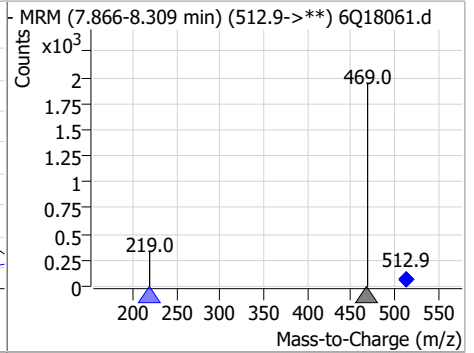
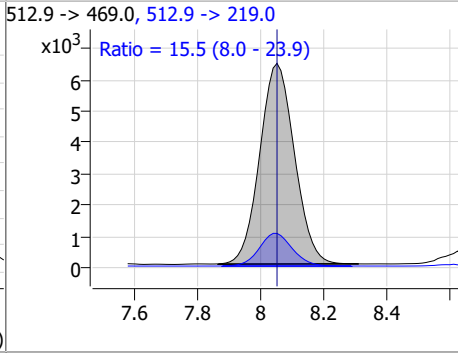
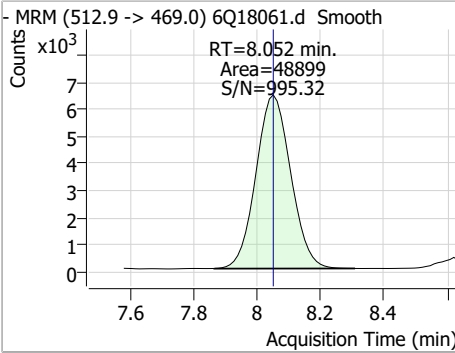


7.6-10 7

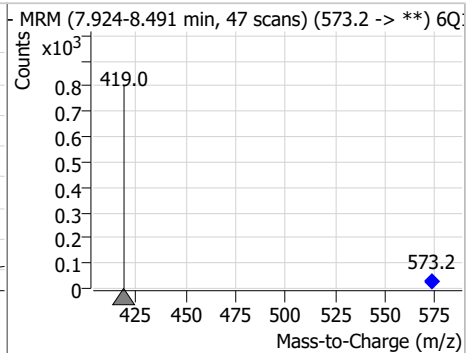
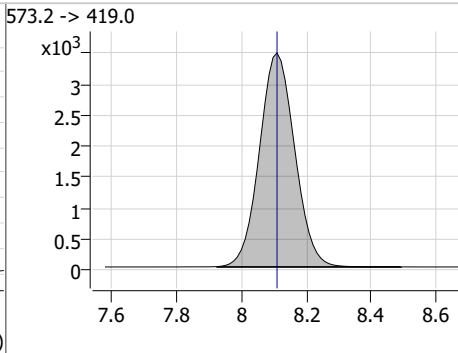
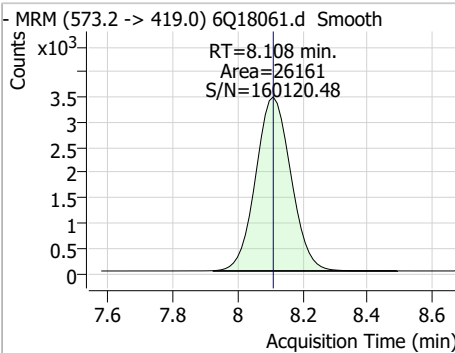


Perfluorinated Compounds by LC/MS/MS

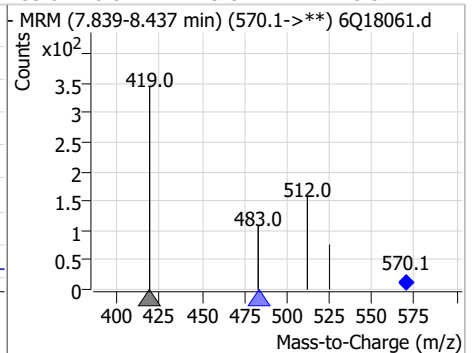
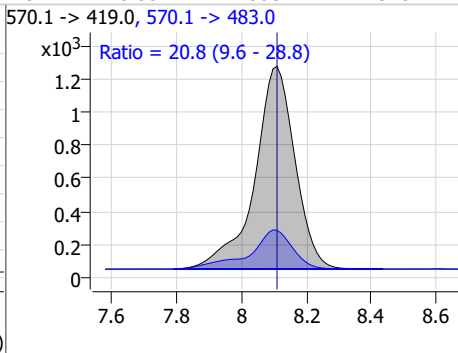
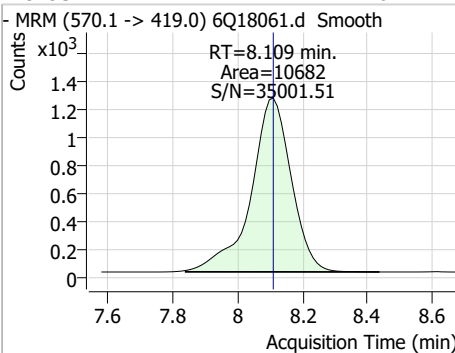
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.09	8.05	0.00	48899	512.9 -> 219.0	15.5	8.0	23.9



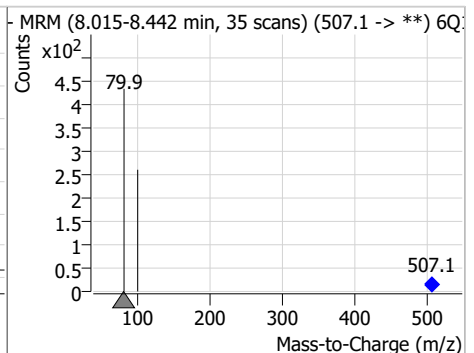
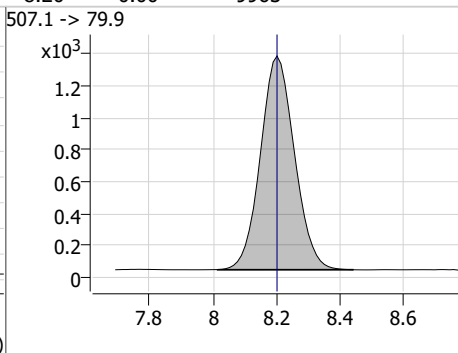
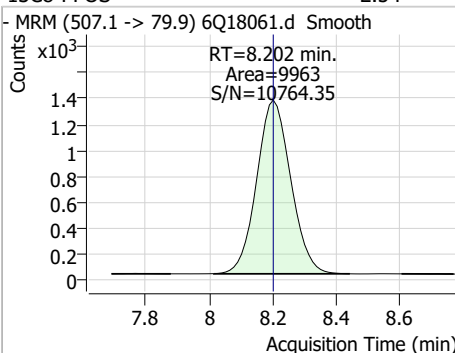
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.37	8.11	0.00	26161				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.07	8.11	0.00	10682	570.1 -> 483.0	20.8	9.6	28.8



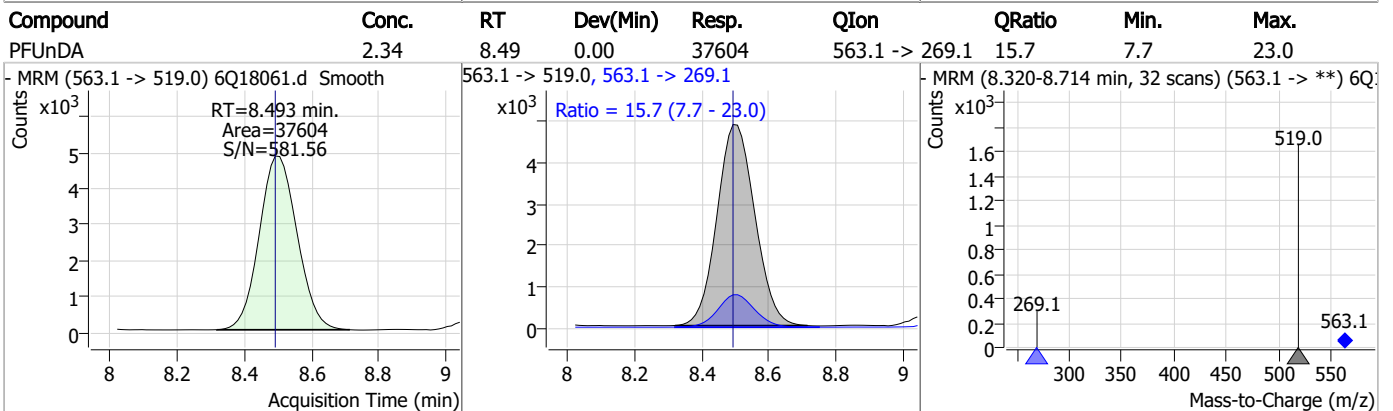
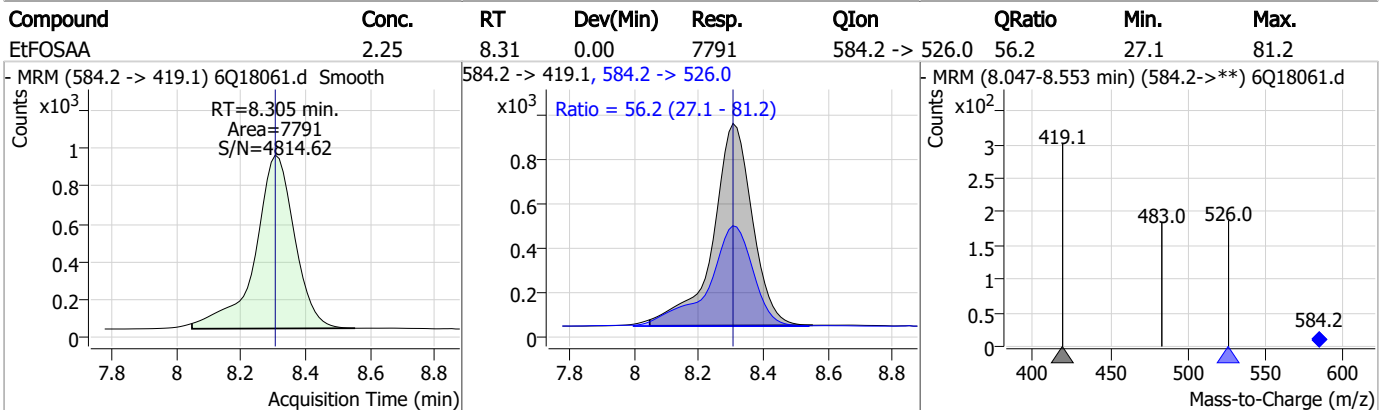
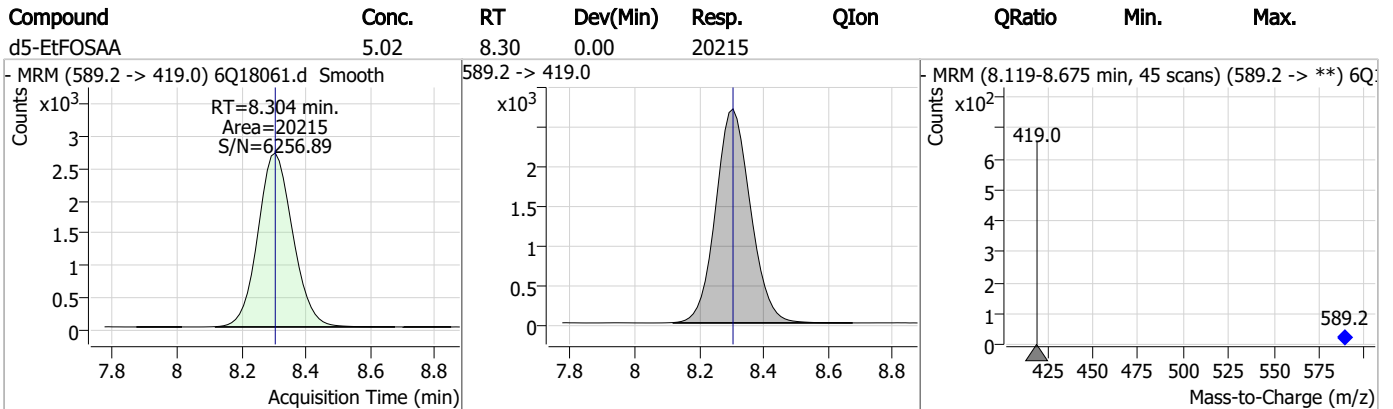
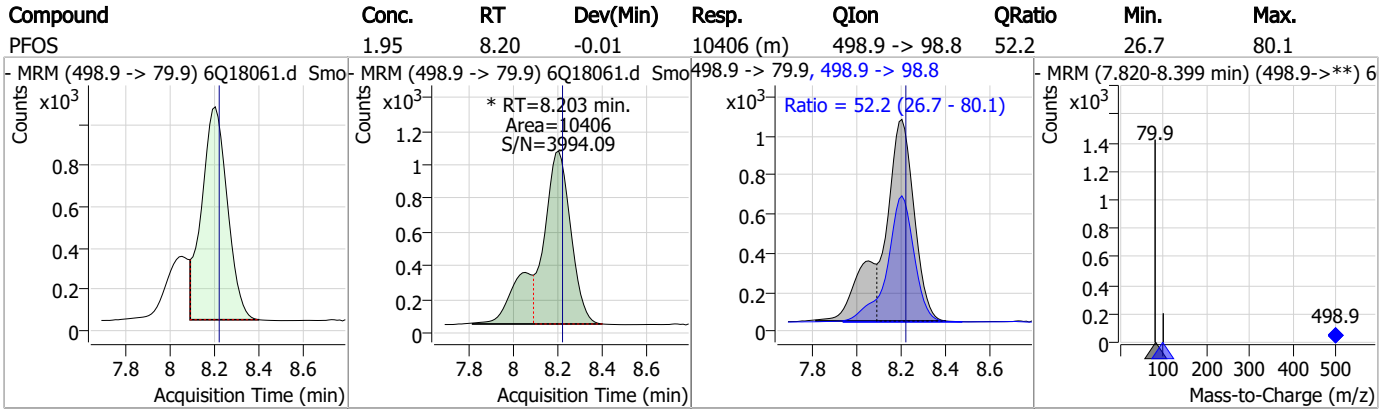
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.20	0.00	9963				



7.6.10 7

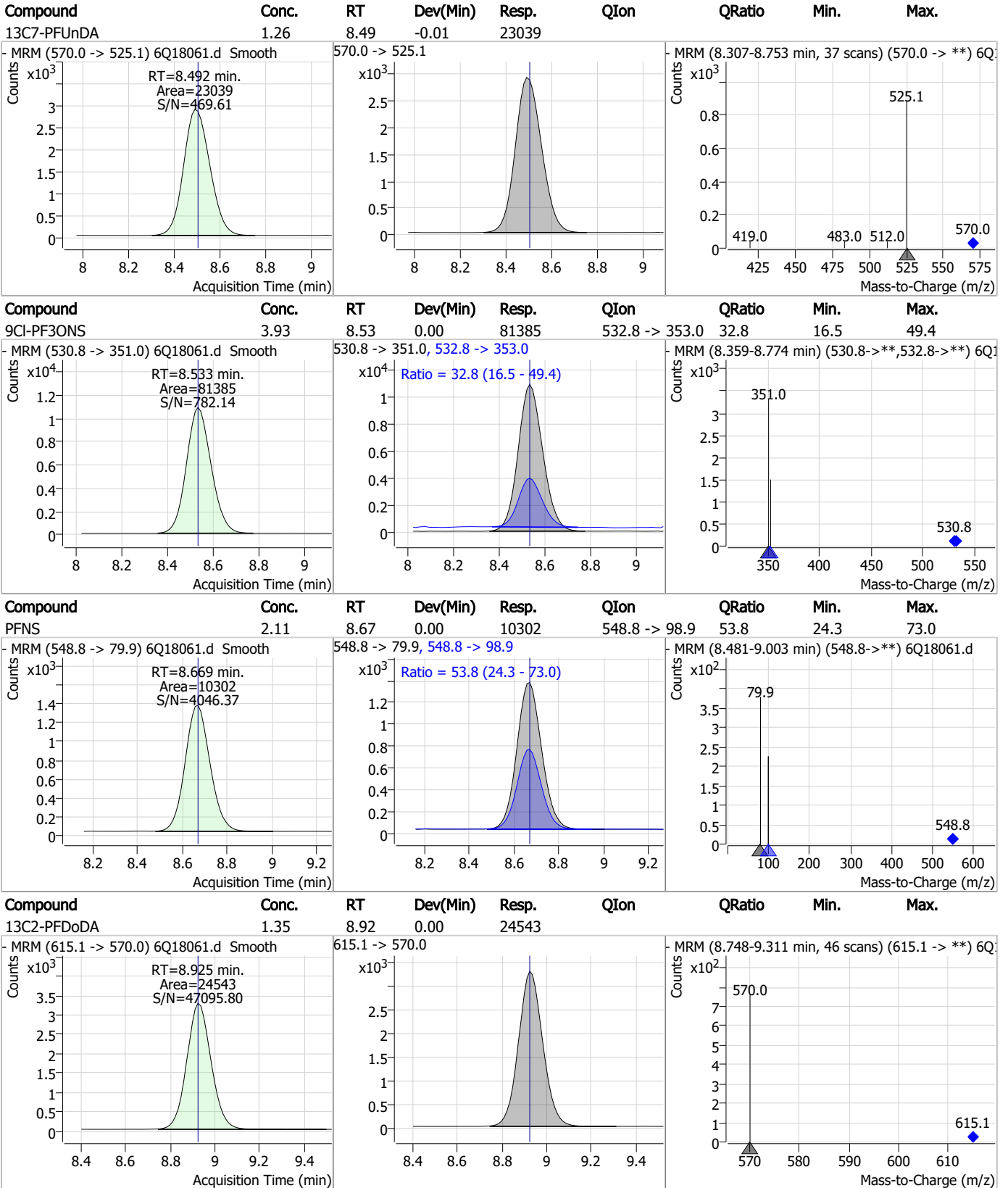


Perfluorinated Compounds by LC/MS/MS



7.6.10 7

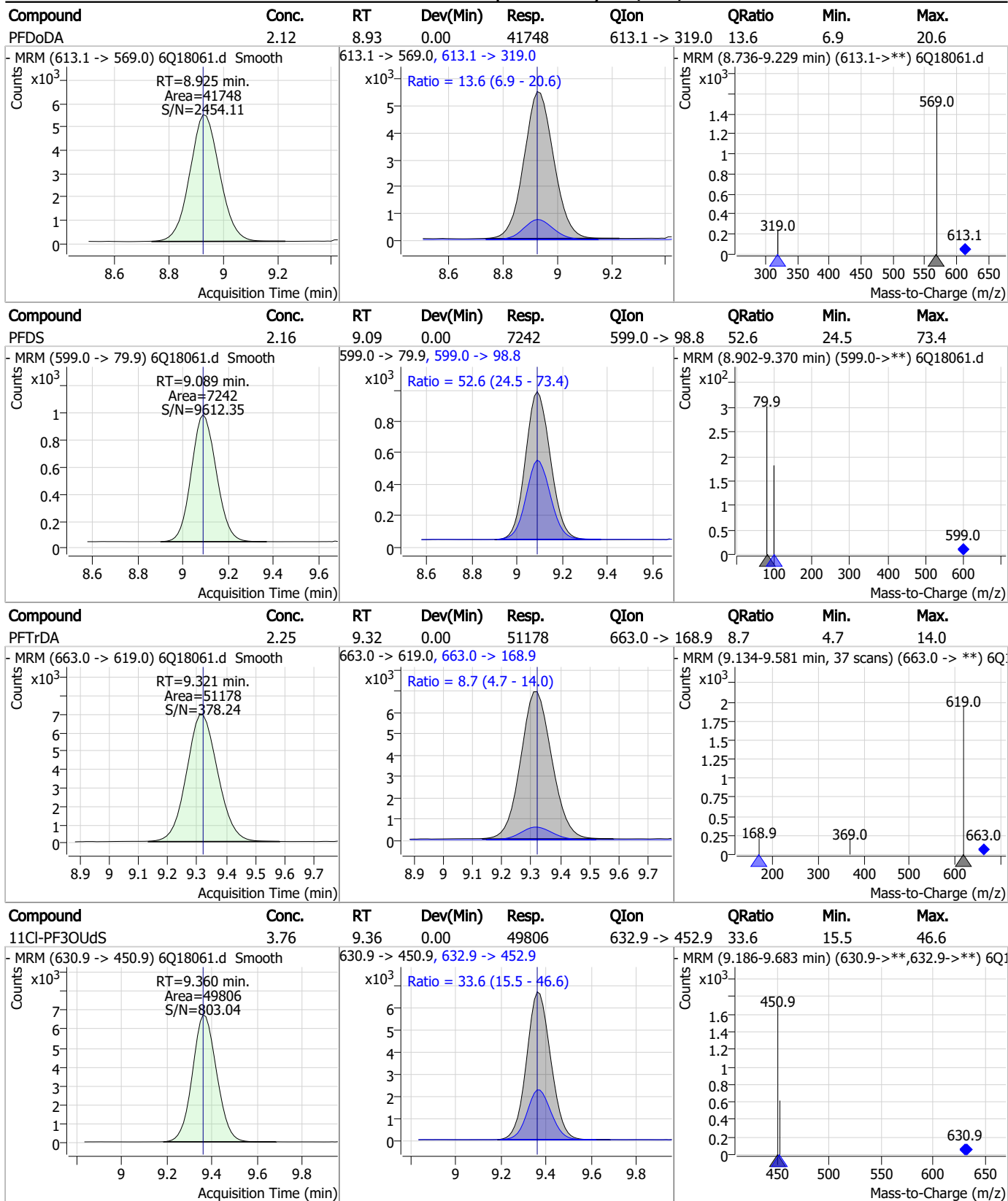
Perfluorinated Compounds by LC/MS/MS



7.6.10 7

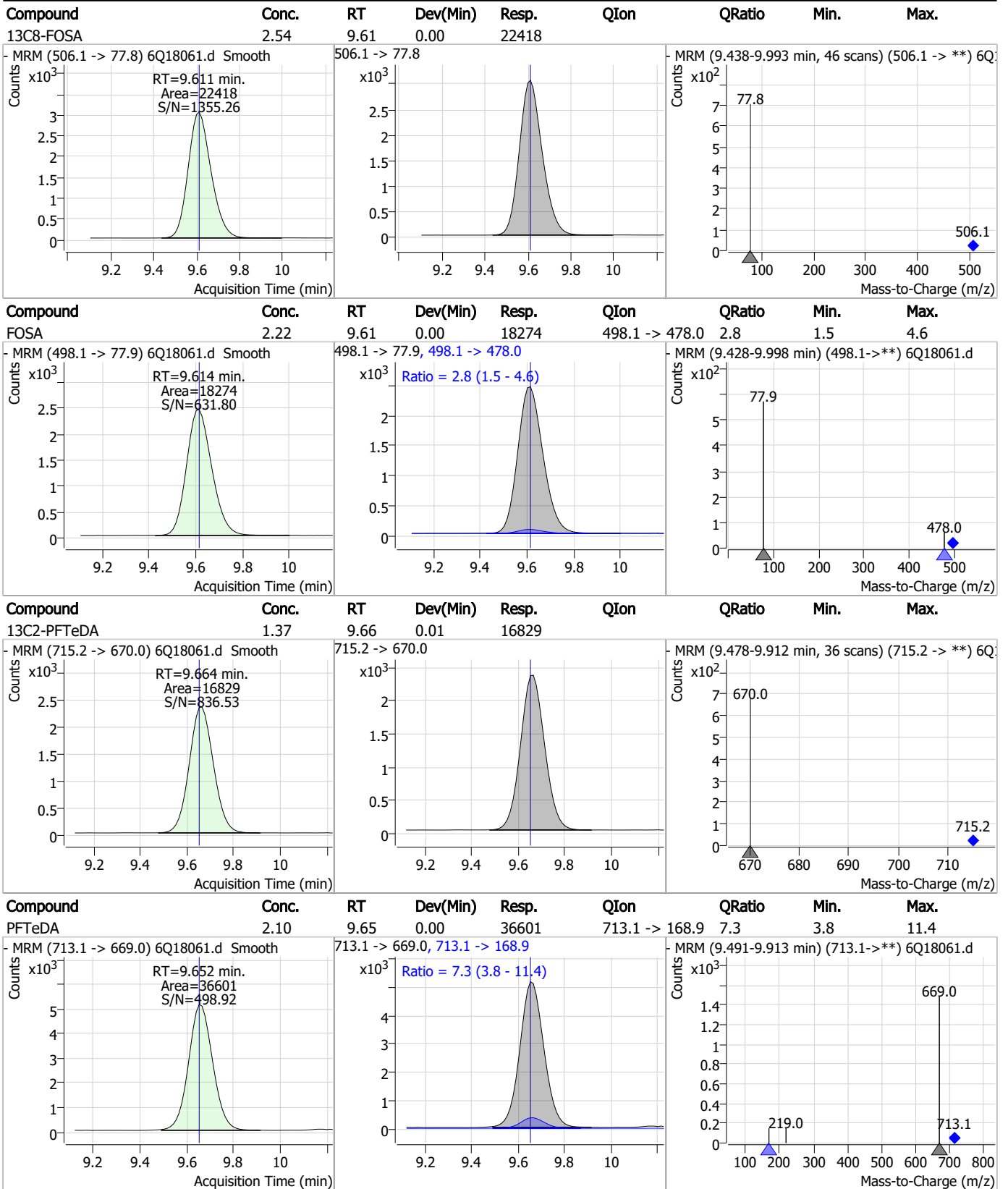


Perfluorinated Compounds by LC/MS/MS



7.6.10 7

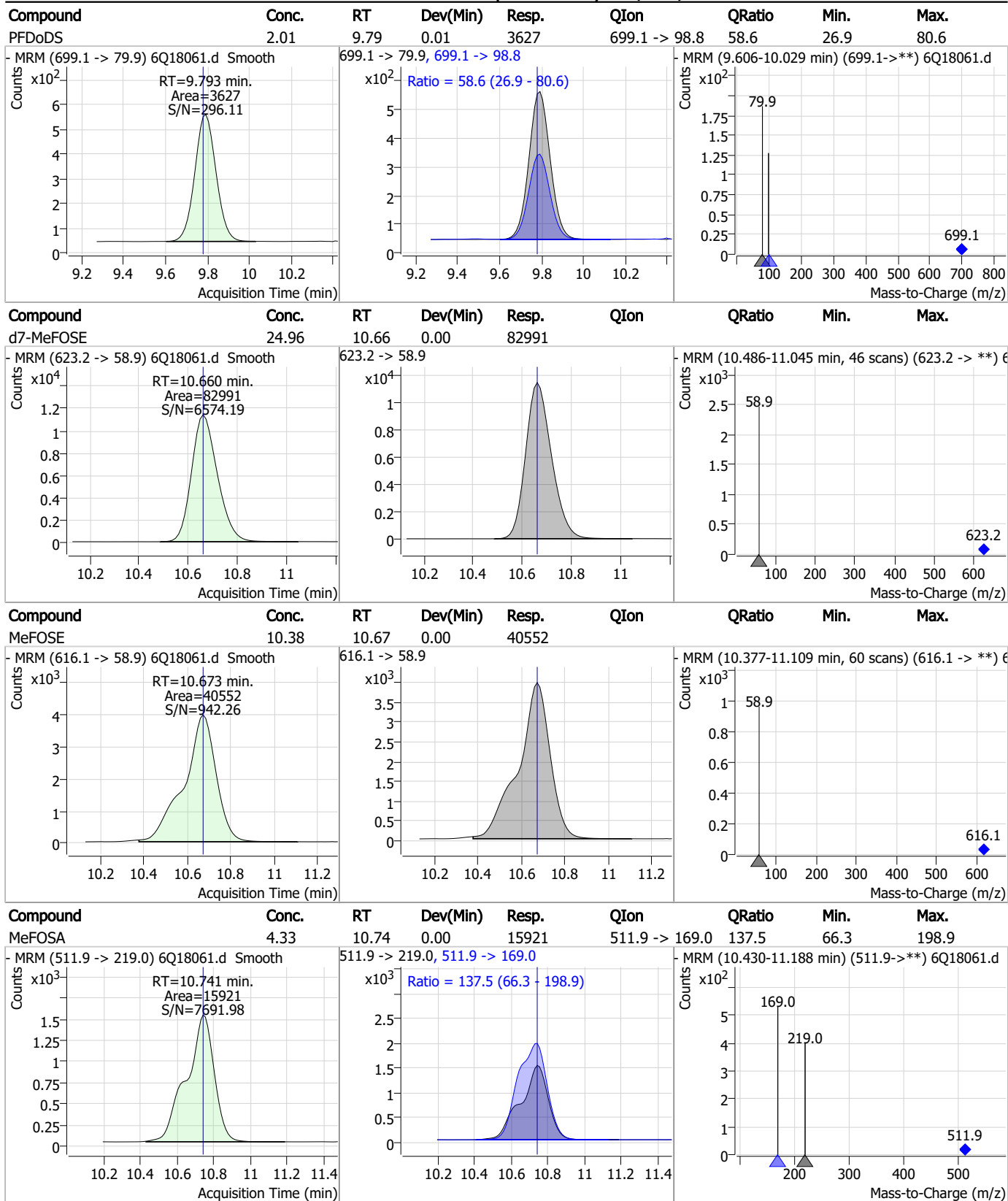
Perfluorinated Compounds by LC/MS/MS



7.6.10 7

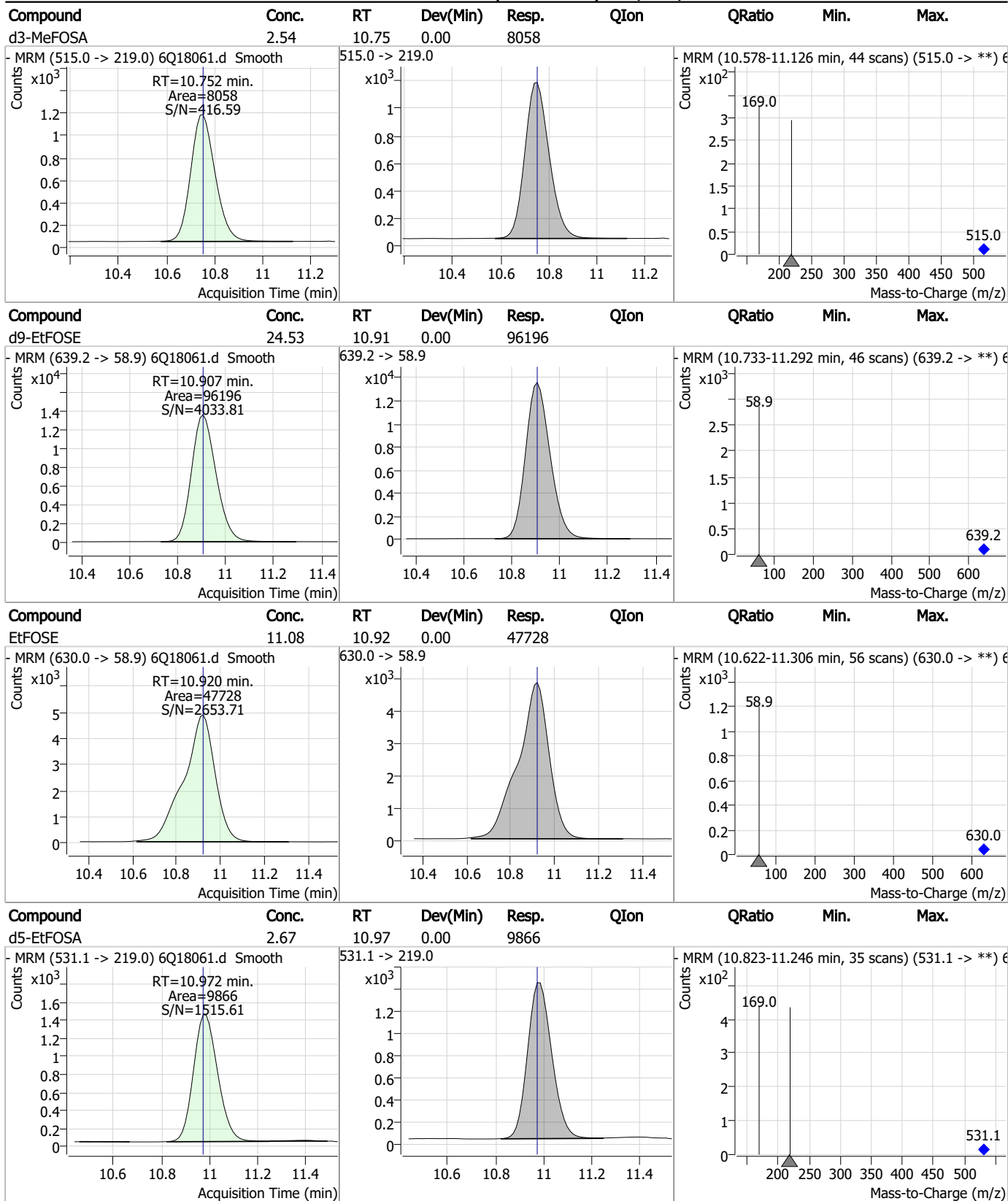


Perfluorinated Compounds by LC/MS/MS



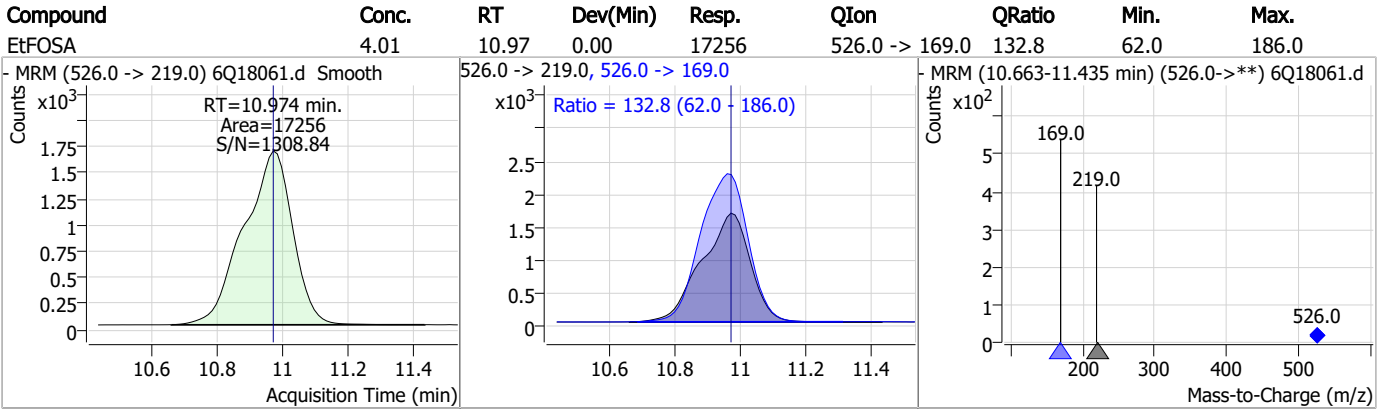
7.6.10
7

Perfluorinated Compounds by LC/MS/MS



7.6.10
7

Perfluorinated Compounds by LC/MS/MS



7.6.10
7

Manual Integration Approval Summary

Sample Number: S6Q272-ICV272 Method: EPA DRAFT 1633
Lab FileID: 6Q18061.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 21:09 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.6.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18062.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 9:24:25 PM
 Sample Name : icv272-20
 Vial : P1-B2
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	133568	10.00 µg/L	-0.012
M5-PFPeA	4.235	268.3 -> 223.0	40670	5.00 µg/L	-0.012
M5-PFHxA	5.429	318.0 -> 273.0	46691	2.50 µg/L	-0.012
M4-PFHpA	6.395	367.1 -> 322.0	42049	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	59111	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	21725	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	14676	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	20336	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	20456	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	13862	1.25 µg/L	0.012
M8-FOSA	9.611	506.1 -> 77.8	18439	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	15723	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	9310	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	8485	2.50 µg/L	0.000
M2-4:2FTS	5.106	329.1 -> 80.9	2000	5.00 µg/L	-0.012
M2-6:2FTS	6.813	429.1 -> 80.9	2297	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	2450	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	23303	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	28996	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	16037	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	67259	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	86079	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	8088	2.50 µg/L	0.012
M3-MeFOSA	10.752	515.0 -> 219.0	6683	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	10411	2.50 µg/L	-0.012
13C3-PFBA	2.864	216.0 -> 172.0	54768	5.00 µg/L	-0.015
18O2-PFHxS	7.154	403.0 -> 83.9	7251	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	62866	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	18197	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	22585	1.25 µg/L	0.000
13C2-PFHxA	5.430	315.1 -> 270.0	38269	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.106	329.1 -> 80.9	2000	5.14 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-6:2FTS	6.813	429.1 -> 80.9	2297	4.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-8:2FTS	7.839	529.1 -> 80.9	2450	4.56 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.2%		
13C2-PFDoDA	8.925	615.1 -> 570.0	20456	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-PFTeDA	9.664	715.2 -> 670.0	13862	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C3-PFBS	5.359	302.1 -> 79.9	15723	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.155	402.1 -> 79.9	9310	2.40 µg/L	0.000

7.6.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C4-PFBA	2.876	216.8 -> 171.9	133568	10.22 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C4-PFHpA	6.395	367.1 -> 322.0	42049	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C5-PFHxA	5.429	318.0 -> 273.0	46691	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFPeA	4.235	268.3 -> 223.0	40670	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C6-PFDA	8.051	519.1 -> 474.1	14676	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C7-PFUnDA	8.492	570.0 -> 525.1	20336	1.28 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-FOSA	9.611	506.1 -> 77.8	18439	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-PFOA	7.038	421.1 -> 376.0	59111	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.202	507.1 -> 79.9	8485	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C9-PFNA	7.569	472.1 -> 427.0	21725	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
d3-MeFOSAA	8.108	573.2 -> 419.0	23303	5.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.5%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	28996	10.49 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d3-MeFOSA	10.752	515.0 -> 219.0	6683	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
d5-EtFOSAA	8.304	589.2 -> 419.0	16037	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d7-MeFOSE	10.660	623.2 -> 58.9	67259	25.29 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d9-EtFOSE	10.907	639.2 -> 58.9	86079	27.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
d5-EtFOSA	10.985	531.1 -> 219.0	8088	2.74 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.5%	
Target Compounds					QValue
4:2FTS	5.107	327.1 -> 307.0	66179	22.42 µg/L	96
		327.1 -> 80.9	24722		
6:2FTS	6.813	427.1 -> 407.0	58808	23.68 µg/L	98
		427.1 -> 80.9	19113		
8:2FTS	7.840	527.1 -> 507.0	33449	23.88 µg/L	99
		527.1 -> 80.8	13998		
EtFOSAA	8.318	584.2 -> 419.1	62524	22.75 µg/L	98
		584.2 -> 526.0	34587		
FOSA	9.602	498.1 -> 77.9	148847	22.01 µg/L	99
		498.1 -> 478.0	4167		
MeFOSAA	8.109	570.1 -> 419.0	86620	18.88 µg/L	99
		570.1 -> 483.0	17099		
PFBA	2.868	212.8 -> 168.9	101088	20.84 µg/L	100
PFBS	5.360	298.7 -> 79.9	164712	21.47 µg/L	97
		298.7 -> 98.8	62870		
PFDA	8.052	512.9 -> 469.0	438522	25.05 µg/L	98
		512.9 -> 219.0	65631		
PFDoDA	8.925	613.1 -> 569.0	306275	18.63 µg/L	99
		613.1 -> 319.0	42839		
PFDS	9.089	599.0 -> 79.9	59608	20.92 µg/L	98

7.6.11
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.395	599.0 -> 98.8	29956	19.65	µg/L	98
		363.1 -> 319.0	422637			
PFHpS	7.710	363.1 -> 169.0	67253	21.12	µg/L	97
		449.0 -> 79.9	96887			
PFHxA	5.432	449.0 -> 98.9	45848	22.68	µg/L	100
		313.0 -> 269.0	412552			
PFHxS	7.156	313.0 -> 118.9	18941	22.84	µg/L	99
		398.7 -> 79.9	118832			
PFNA	7.570	398.7 -> 98.9	57008	22.42	µg/L	97
		463.0 -> 419.0	358892			
PFNS	8.669	463.0 -> 219.0	75456	22.58	µg/L	99
		548.8 -> 79.9	93948			
PFOA	7.040	548.8 -> 98.9	45220	22.16	µg/L	98
		413.0 -> 369.0	639758			
PFOS	8.203	413.0 -> 169.0	105402	17.49	µg/L	95
		498.9 -> 79.9	79630			
PFPeA	4.237	498.9 -> 98.8	39679	22.96	µg/L	100
		263.0 -> 219.0	276521			
PFPeS	6.447	349.1 -> 79.9	117809	22.71	µg/L	95
		349.1 -> 98.9	51771			
PFTeDA	9.665	713.1 -> 669.0	327947	22.89	µg/L	99
		713.1 -> 168.9	23471			
PFTrDA	9.321	663.0 -> 619.0	368926	19.49	µg/L	98
		663.0 -> 168.9	32216			
PFUnDA	8.493	563.1 -> 519.0	323070	22.74	µg/L	98
		563.1 -> 269.1	46677			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	237580	20.94	µg/L	97
		632.9 -> 452.9	77223			
9Cl-PF3ONS	8.533	530.8 -> 351.0	367061	20.71	µg/L	96
		532.8 -> 353.0	112990			
ADONA	6.646	376.9 -> 250.9	1007691	21.71	µg/L	97
		376.9 -> 84.8	256368			
HFPO-DA	5.807	284.9 -> 168.9	56917	20.19	µg/L	100
		284.9 -> 184.9	7672			
3:3FTCA	3.727	241.0 -> 177.0	16160	21.32	µg/L	98
		241.0 -> 117.0	2235			
5:3FTCA	6.111	341.0 -> 237.1	75894	23.08	µg/L	98
		341.0 -> 217.0	55142			
7:3FTCA	7.535	441.0 -> 316.9	34869	21.34	µg/L	98
		441.0 -> 336.9	75919			
EtFOSA	10.986	526.0 -> 219.0	70209	19.92	µg/L	88
		526.0 -> 169.0	77442			
EtFOSE	10.920	630.0 -> 58.9	413732	107.35	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	60129	19.73	µg/L	80
		511.9 -> 169.0	65841			
MeFOSE	10.686	616.1 -> 58.9	342942	108.30	µg/L	100
PFDoDS	9.793	699.1 -> 79.9	29339	19.08	µg/L	96
		699.1 -> 98.8	16649			
NFDHA	5.311	295.0 -> 201.0	45109	22.11	µg/L	97
		295.0 -> 84.9	11462			
PFMBA	4.650	279.0 -> 85.1	183496	21.67	µg/L	100
PFMPA	3.388	229.0 -> 84.9	139128	22.22	µg/L	100
PFEESA	5.900	314.8 -> 134.9	461240	19.17	µg/L	99
		314.8 -> 82.9	16313			

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

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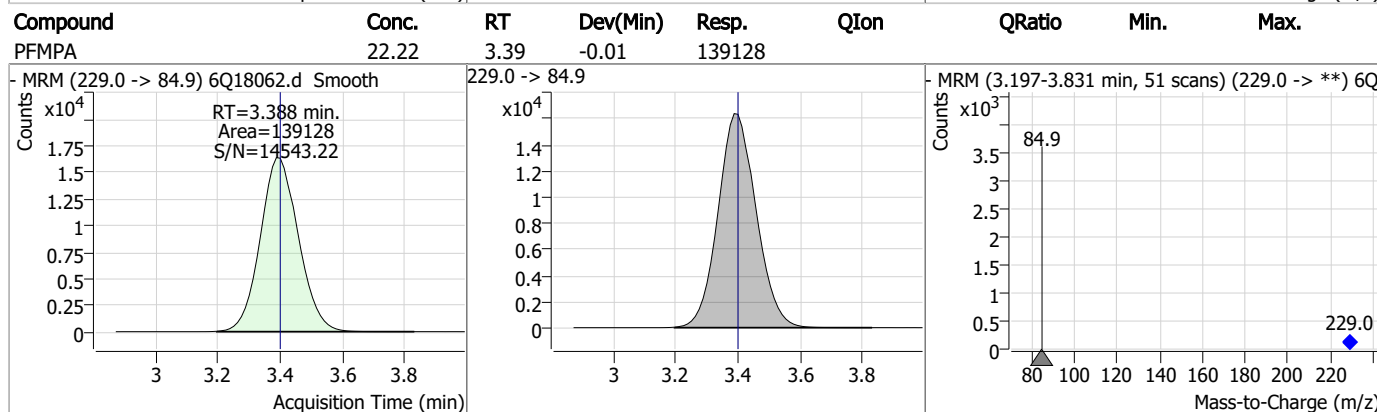
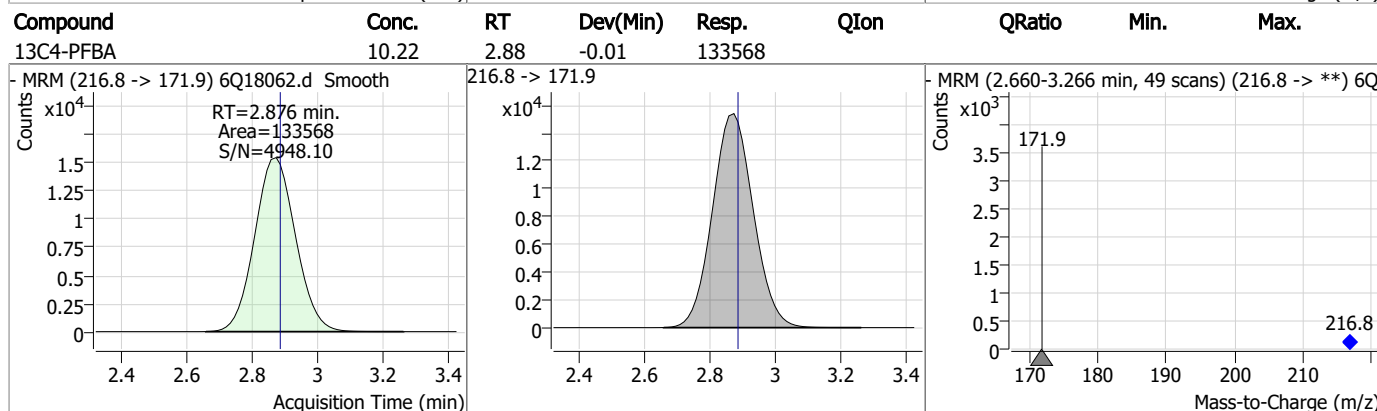
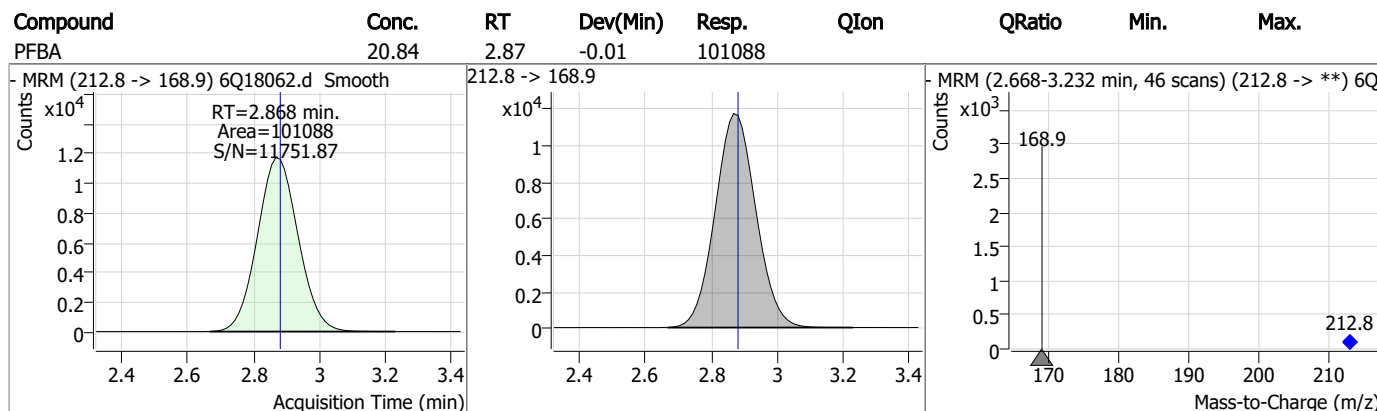
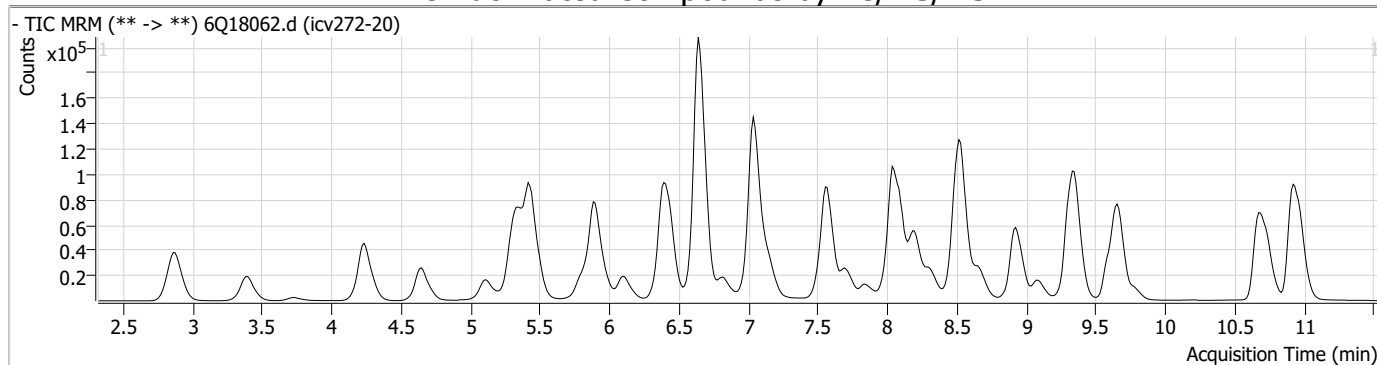
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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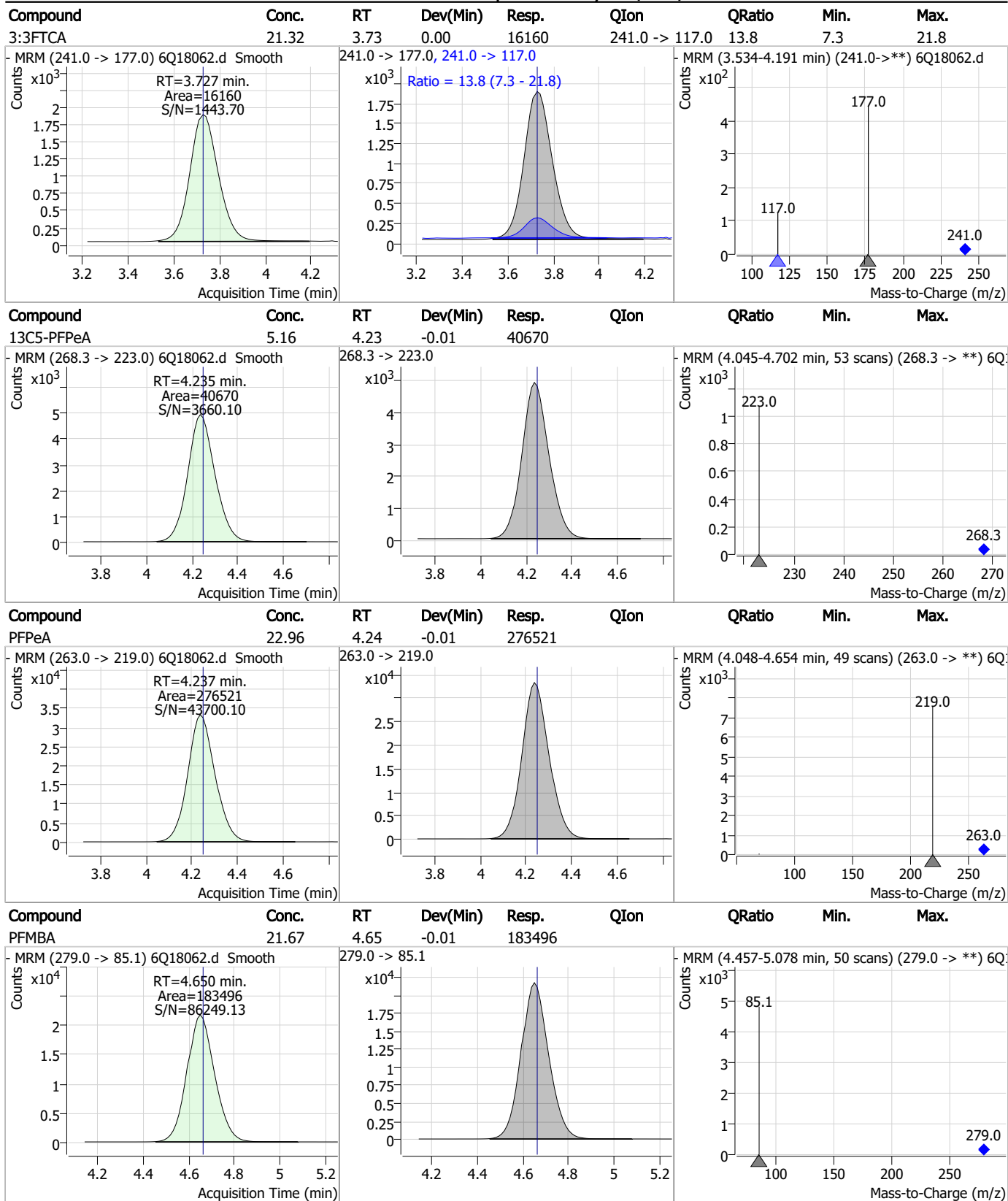
7.6.11

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Perfluorinated Compounds by LC/MS/MS



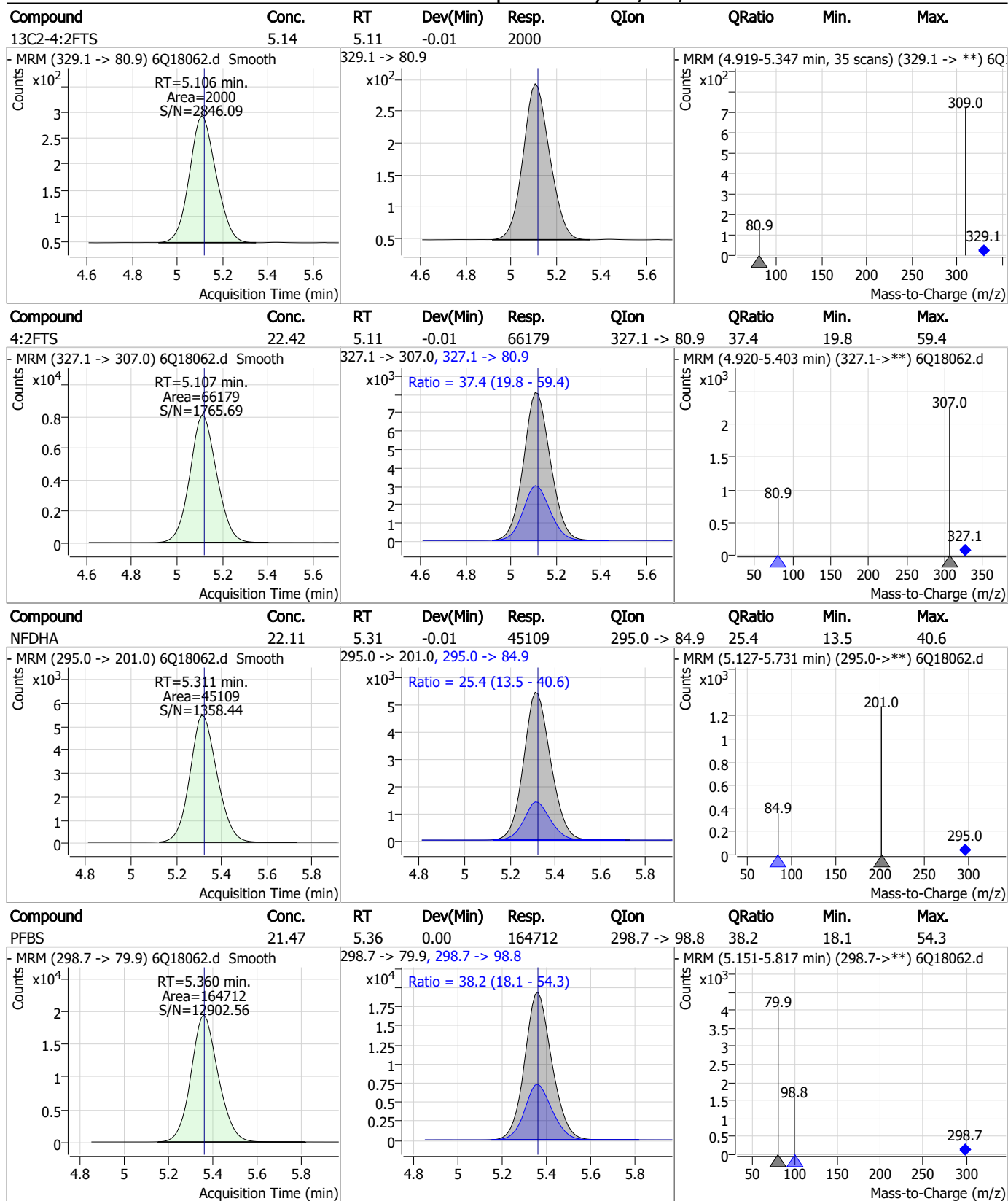
Perfluorinated Compounds by LC/MS/MS



7.6.11

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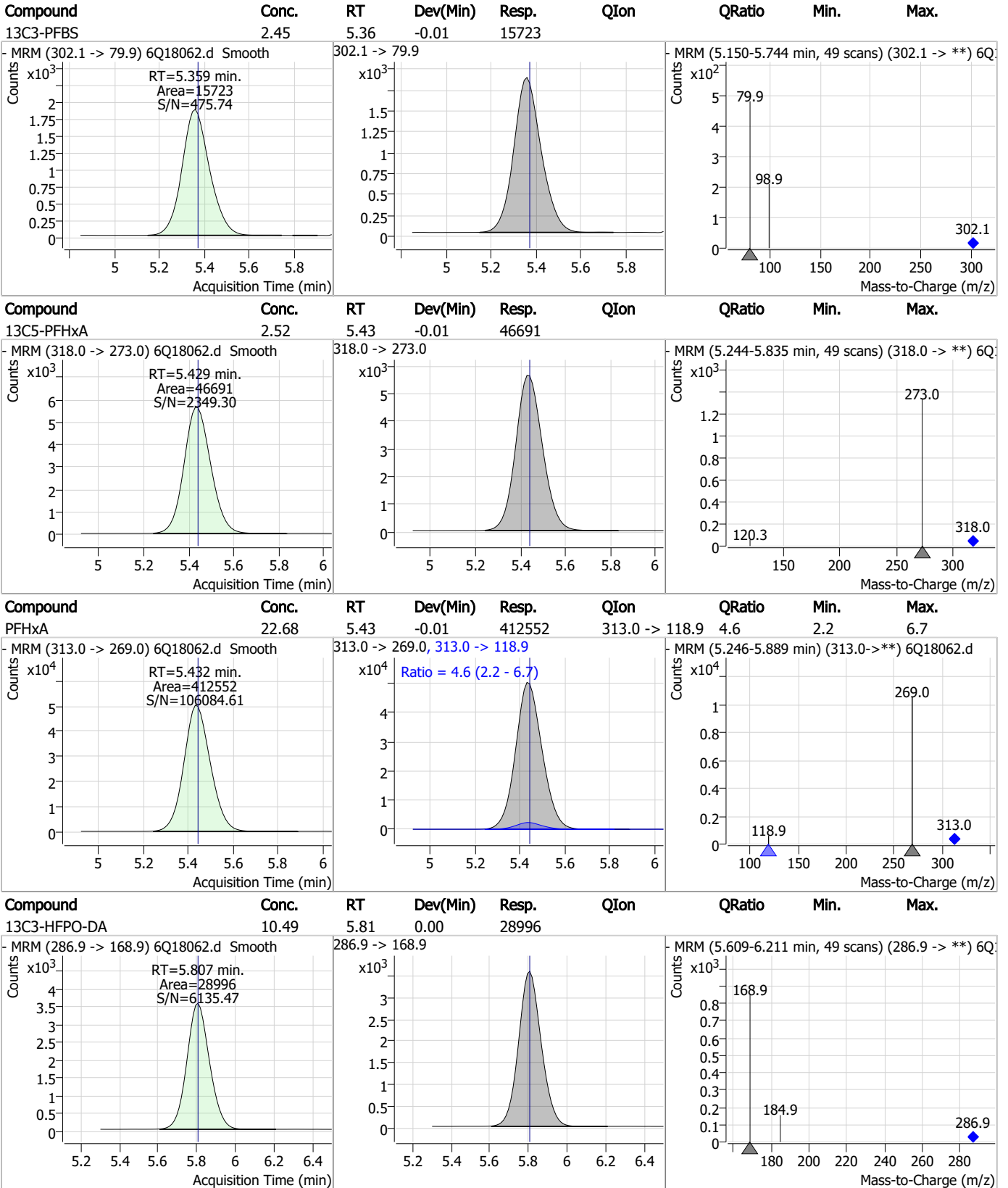
Perfluorinated Compounds by LC/MS/MS



7.6.11

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Perfluorinated Compounds by LC/MS/MS

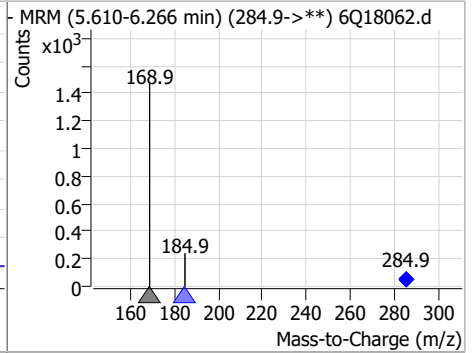
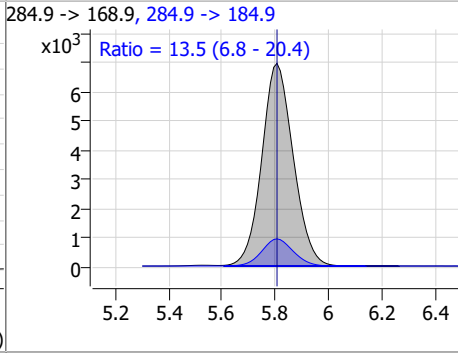
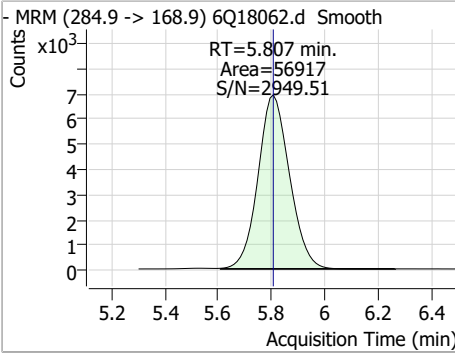


7.6.11

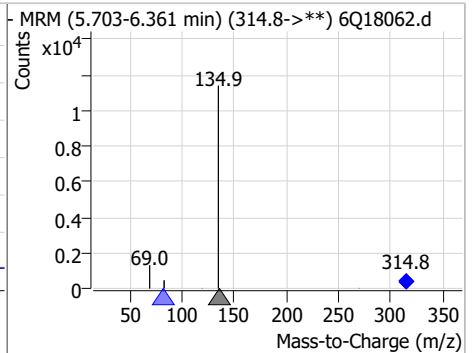
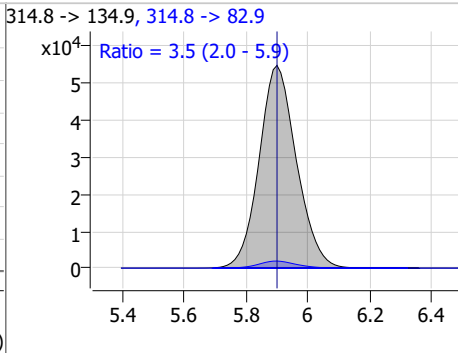
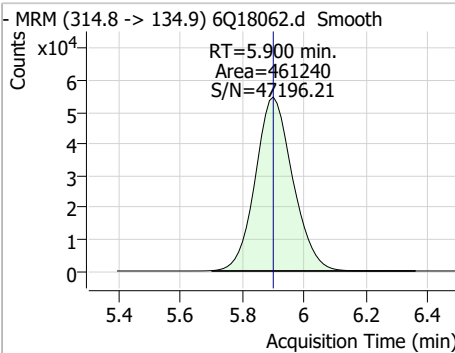
7

Perfluorinated Compounds by LC/MS/MS

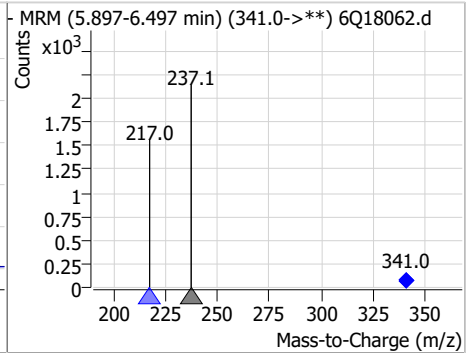
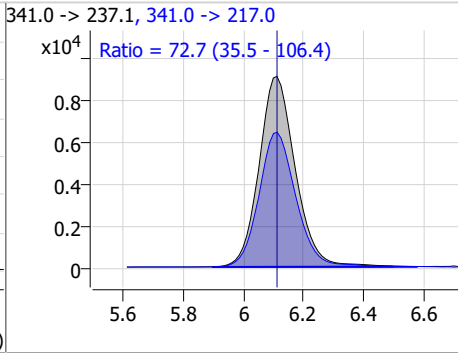
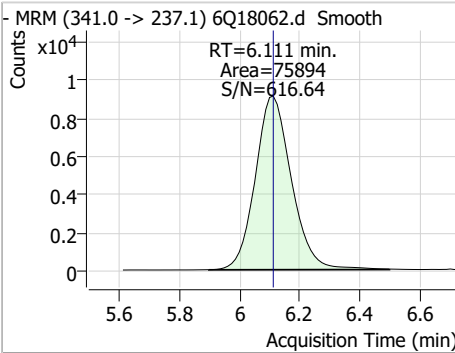
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.19	5.81	0.00	56917	284.9 -> 184.9	13.5	6.8	20.4



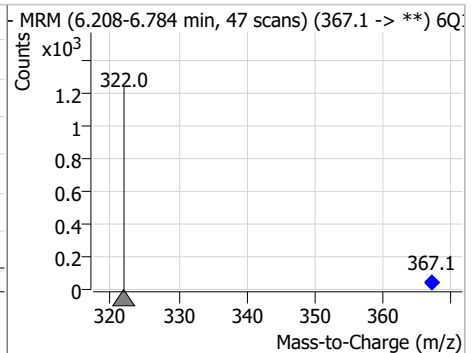
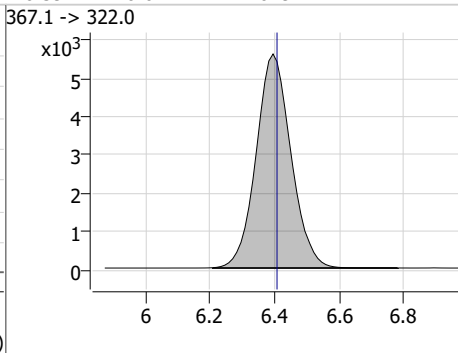
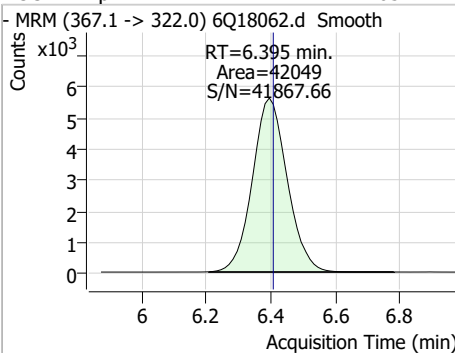
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.17	5.90	0.00	461240	314.8 -> 82.9	3.5	2.0	5.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	23.08	6.11	0.00	75894	341.0 -> 217.0	72.7	35.5	106.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.65	6.39	-0.01	42049	367.1 -> 322.0			

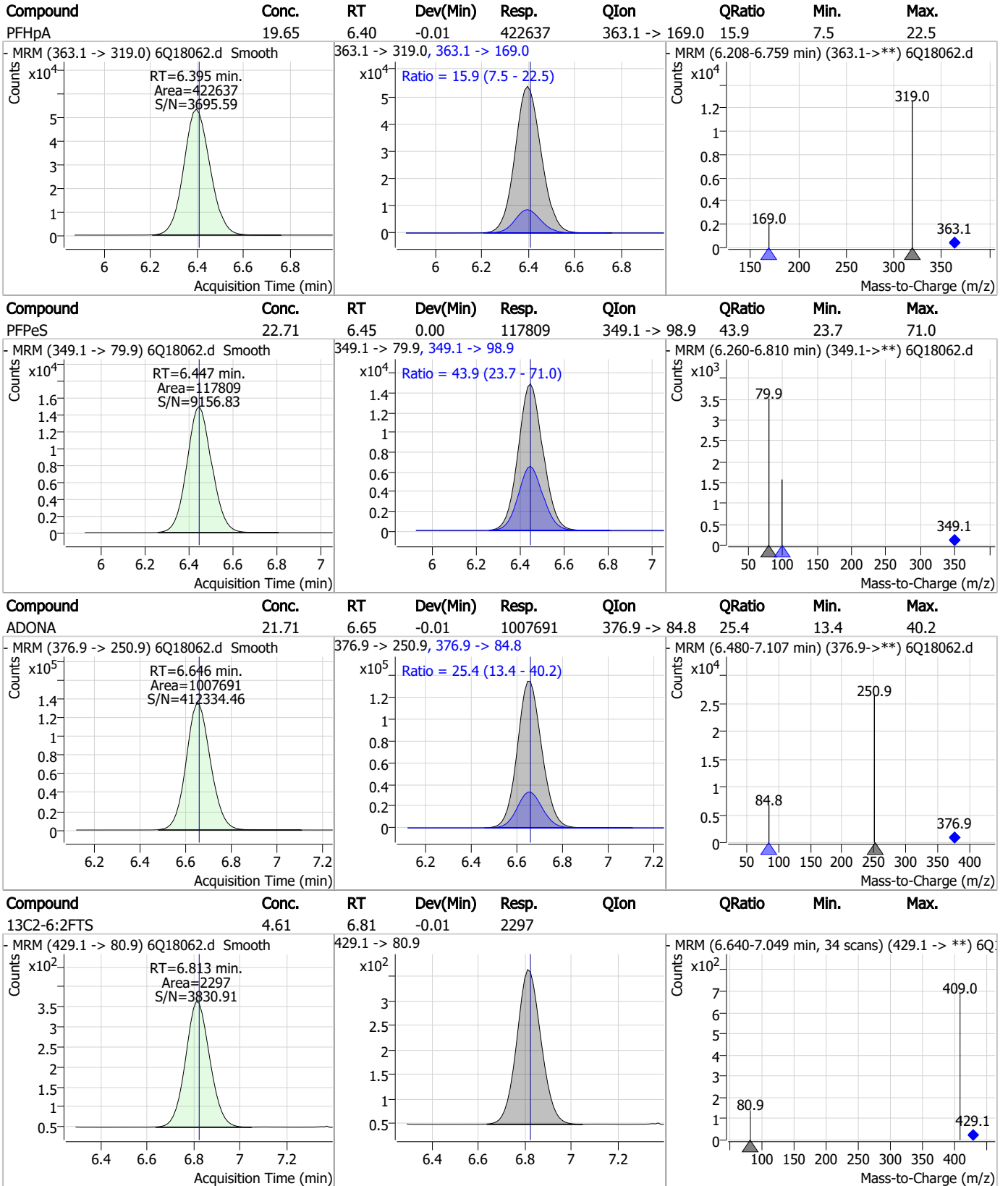


7.6.11

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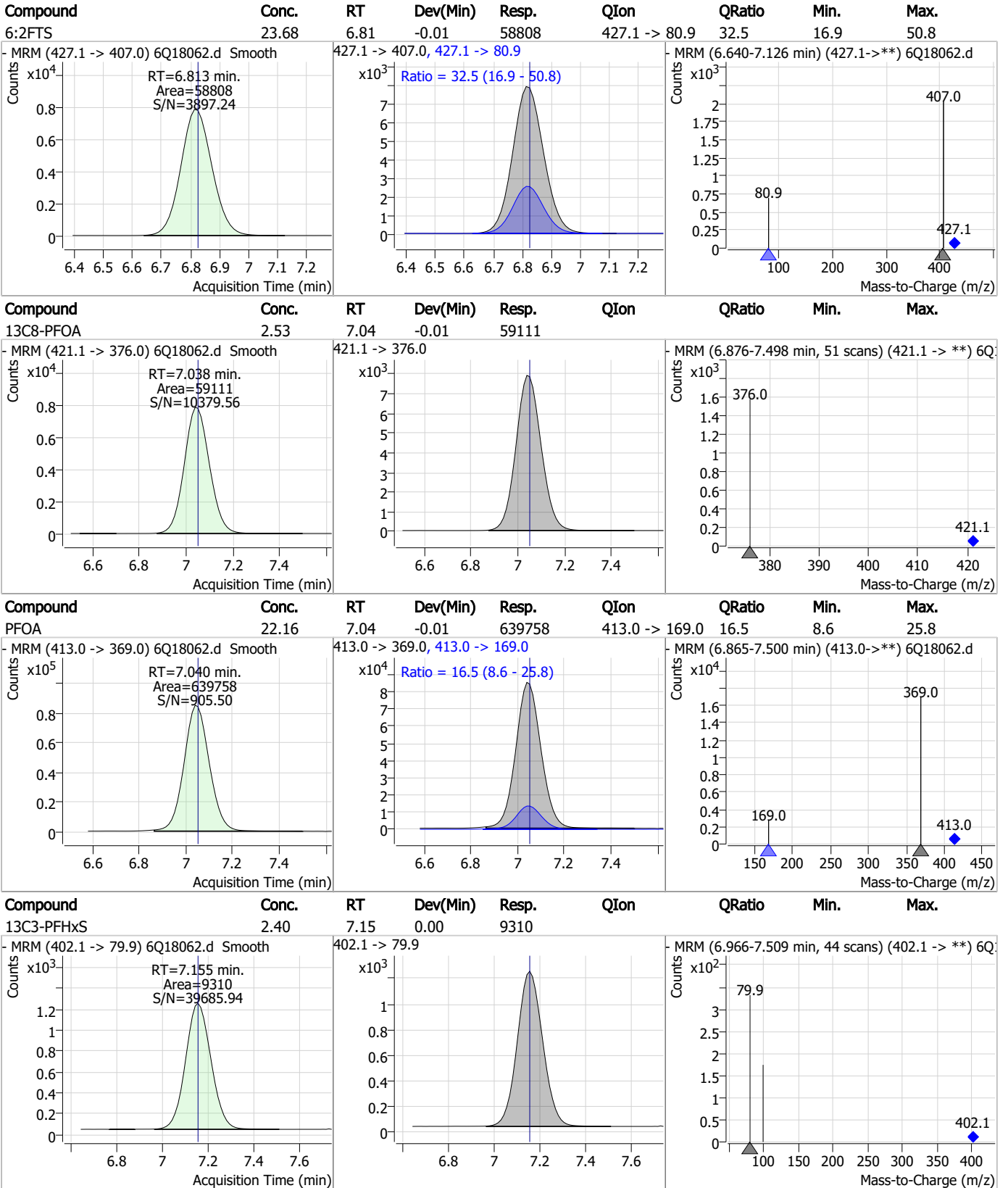
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

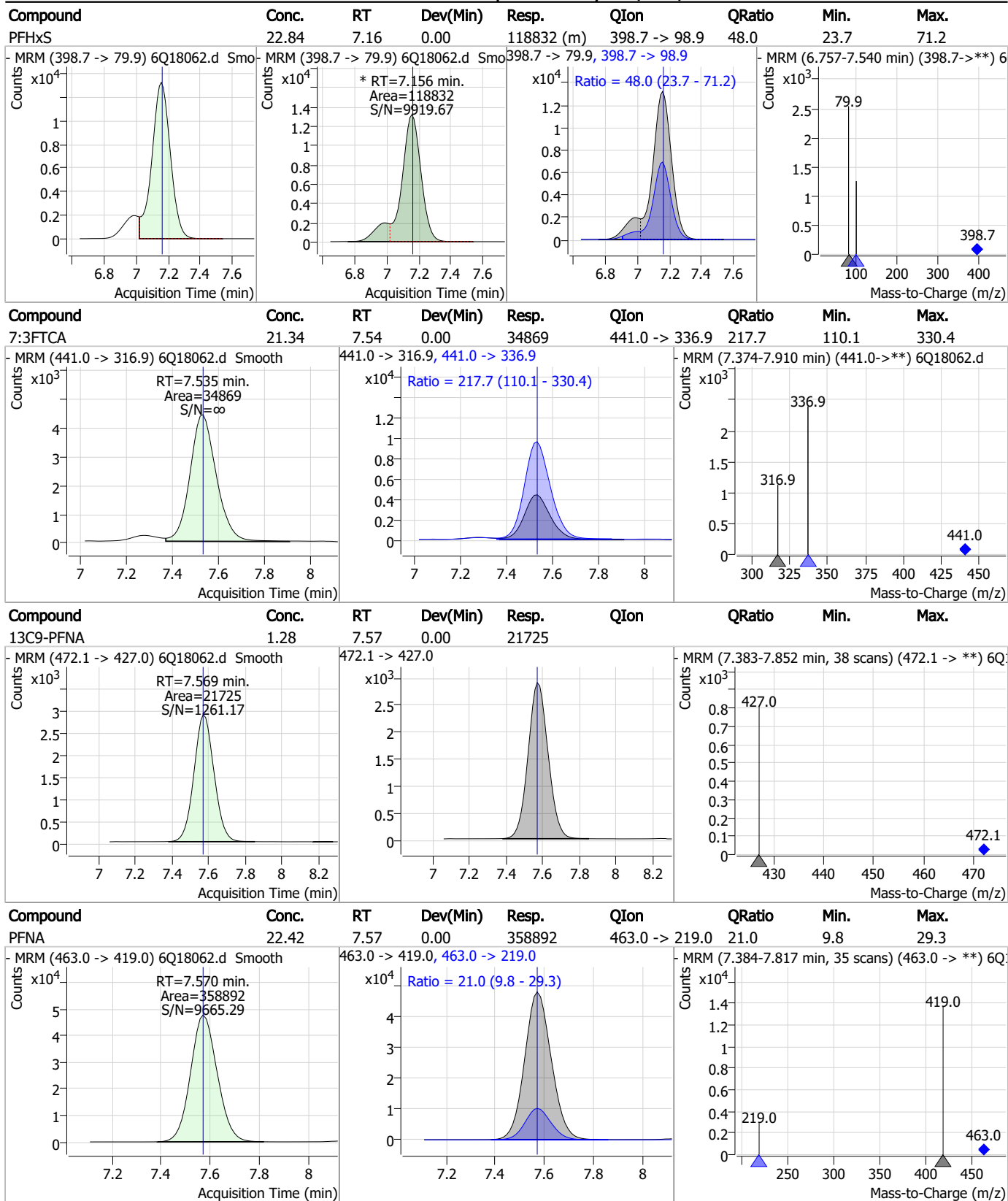


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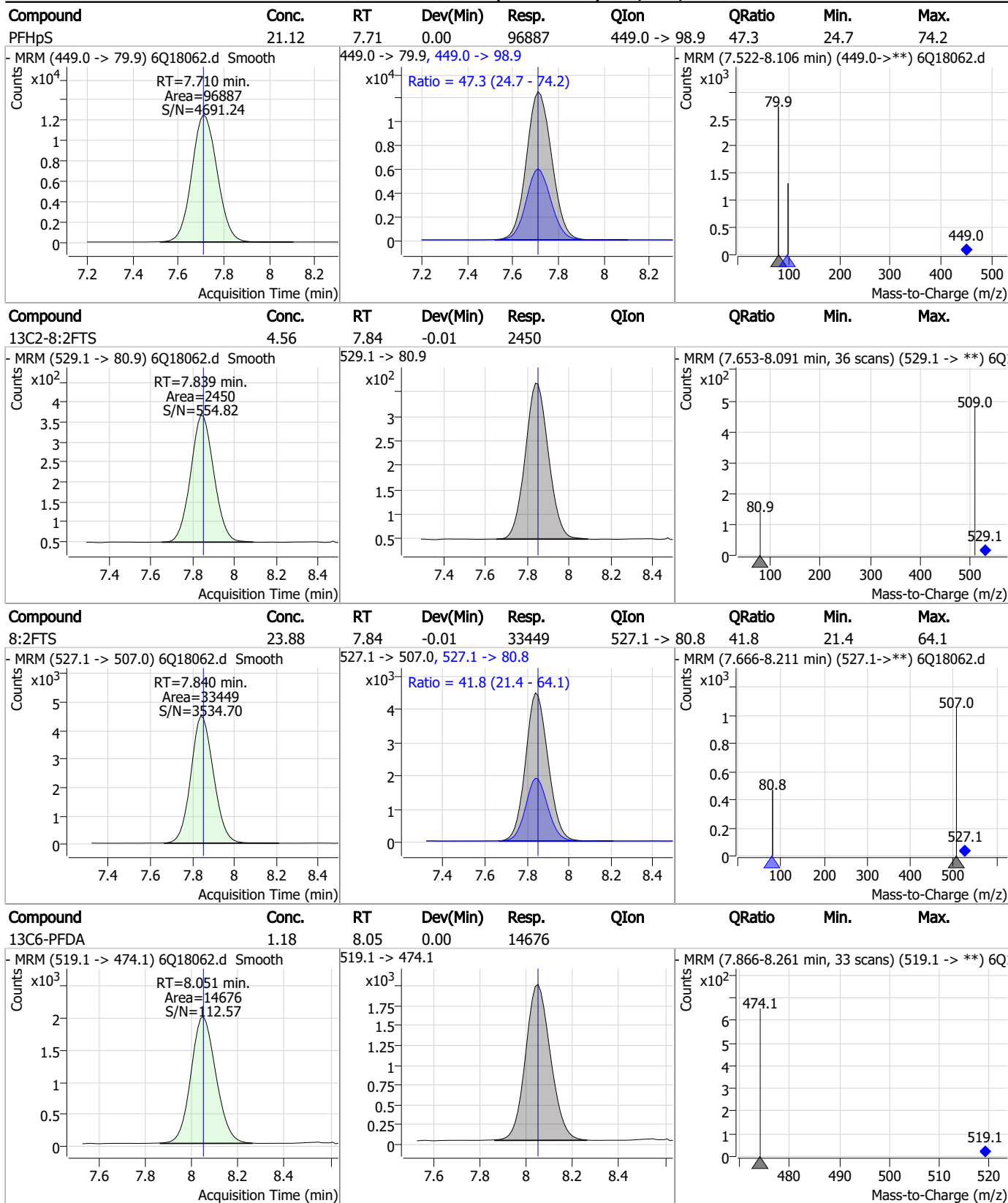
Perfluorinated Compounds by LC/MS/MS



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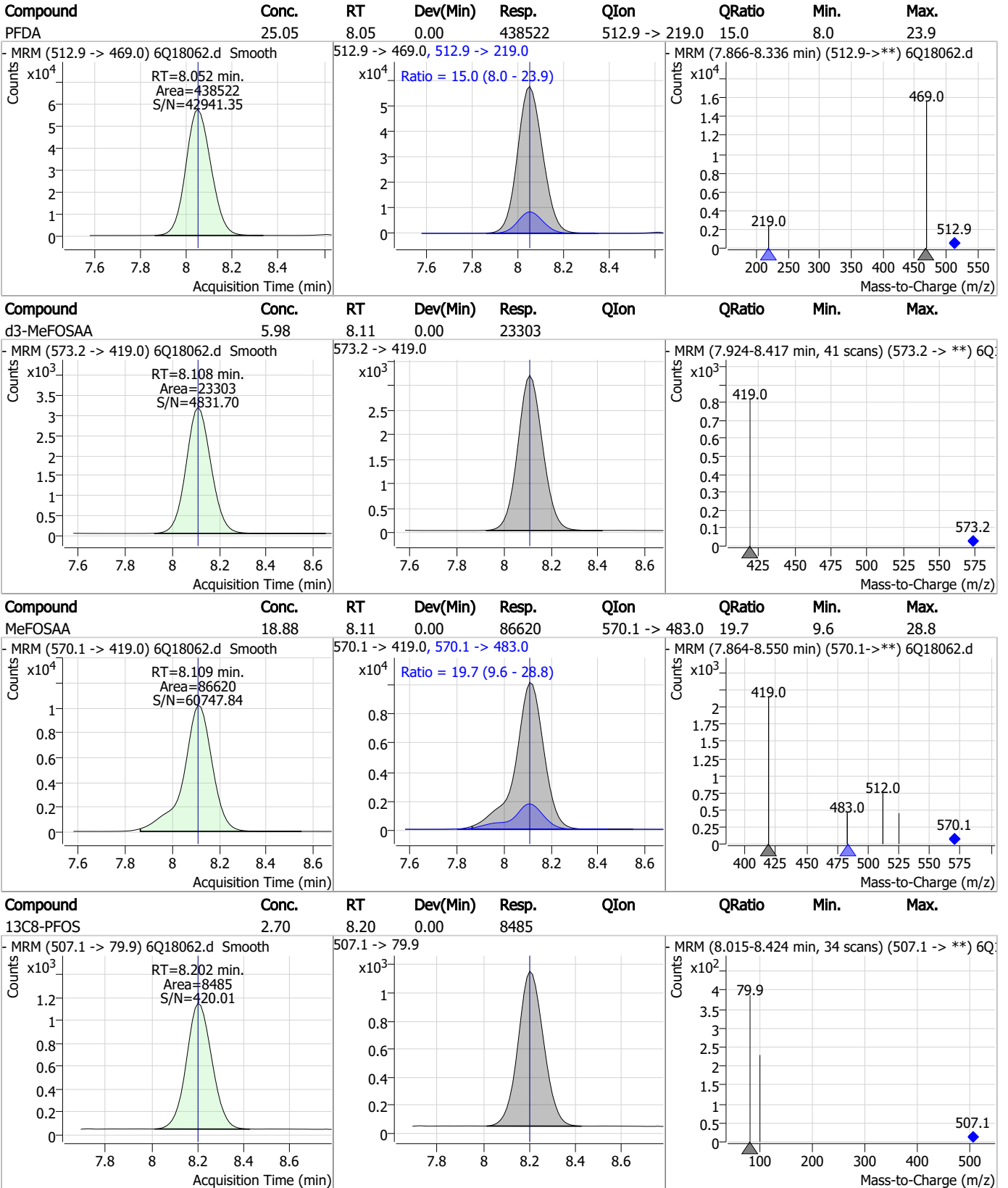
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



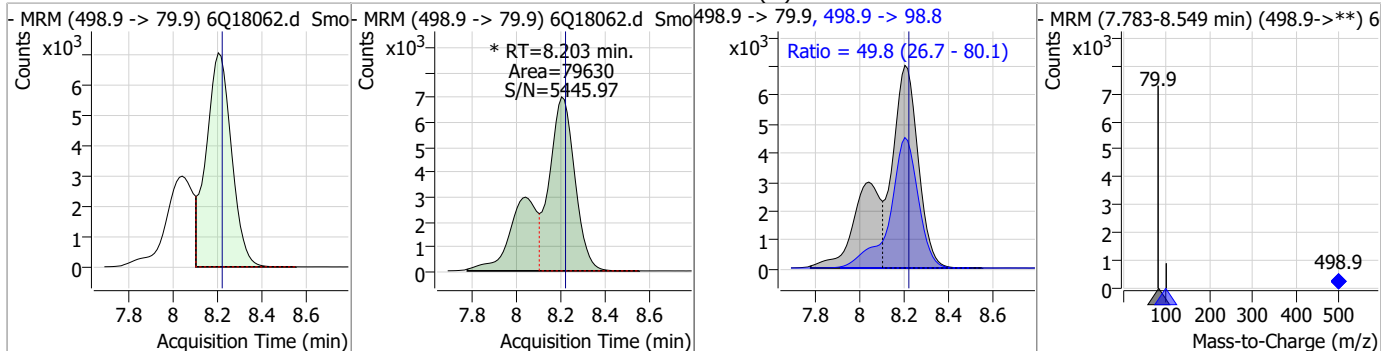
7.6.11

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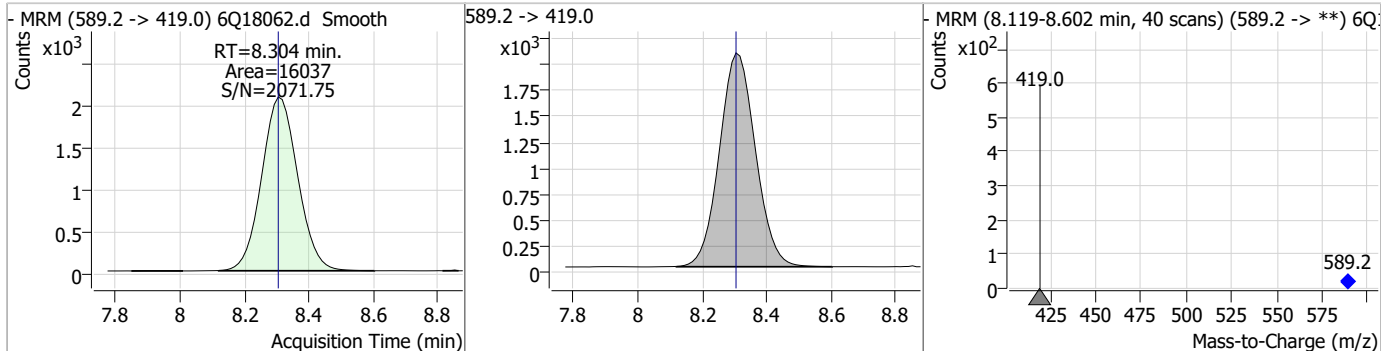


Perfluorinated Compounds by LC/MS/MS

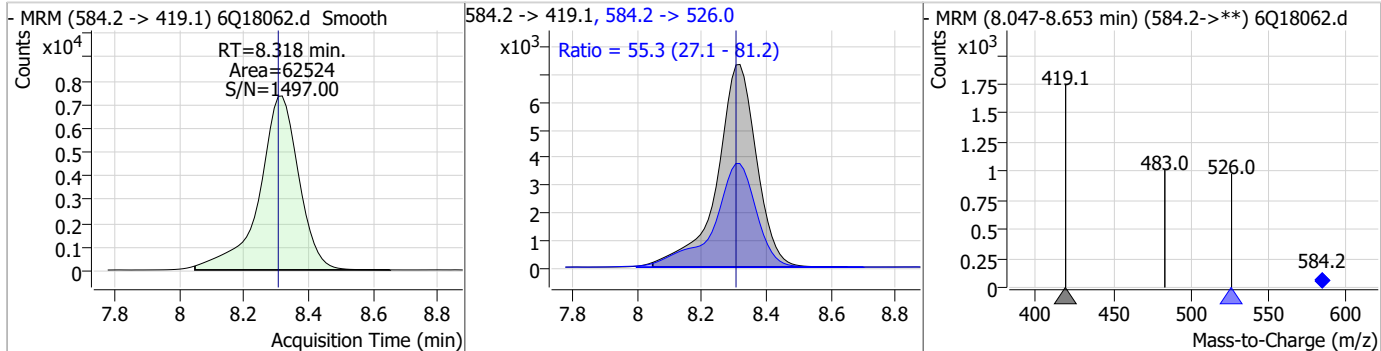
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.49	8.20	-0.01	79630 (m)	498.9 -> 98.8	49.8	26.7	80.1



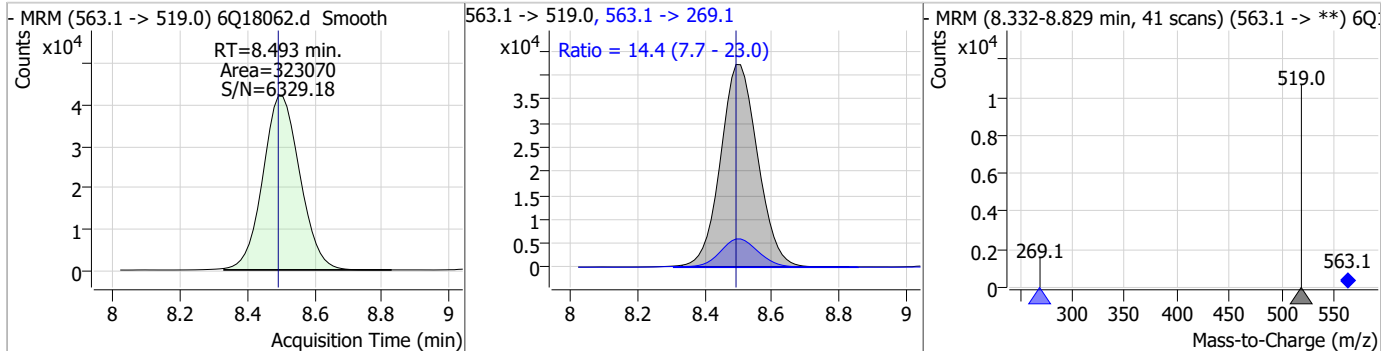
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.98	8.30	0.00	16037				



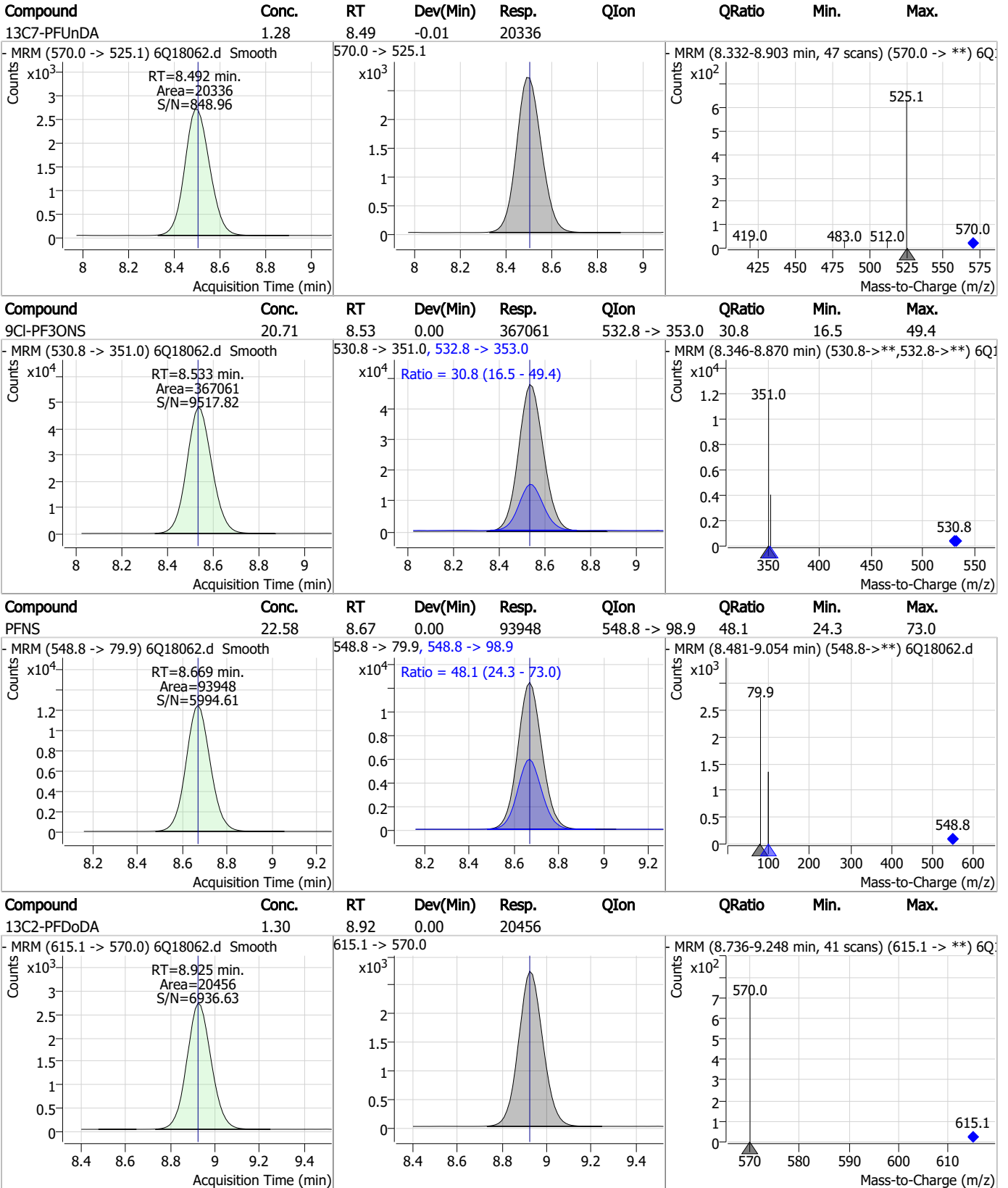
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.75	8.32	0.01	62524	584.2 -> 526.0	55.3	27.1	81.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	22.74	8.49	0.00	323070	563.1 -> 269.1	14.4	7.7	23.0



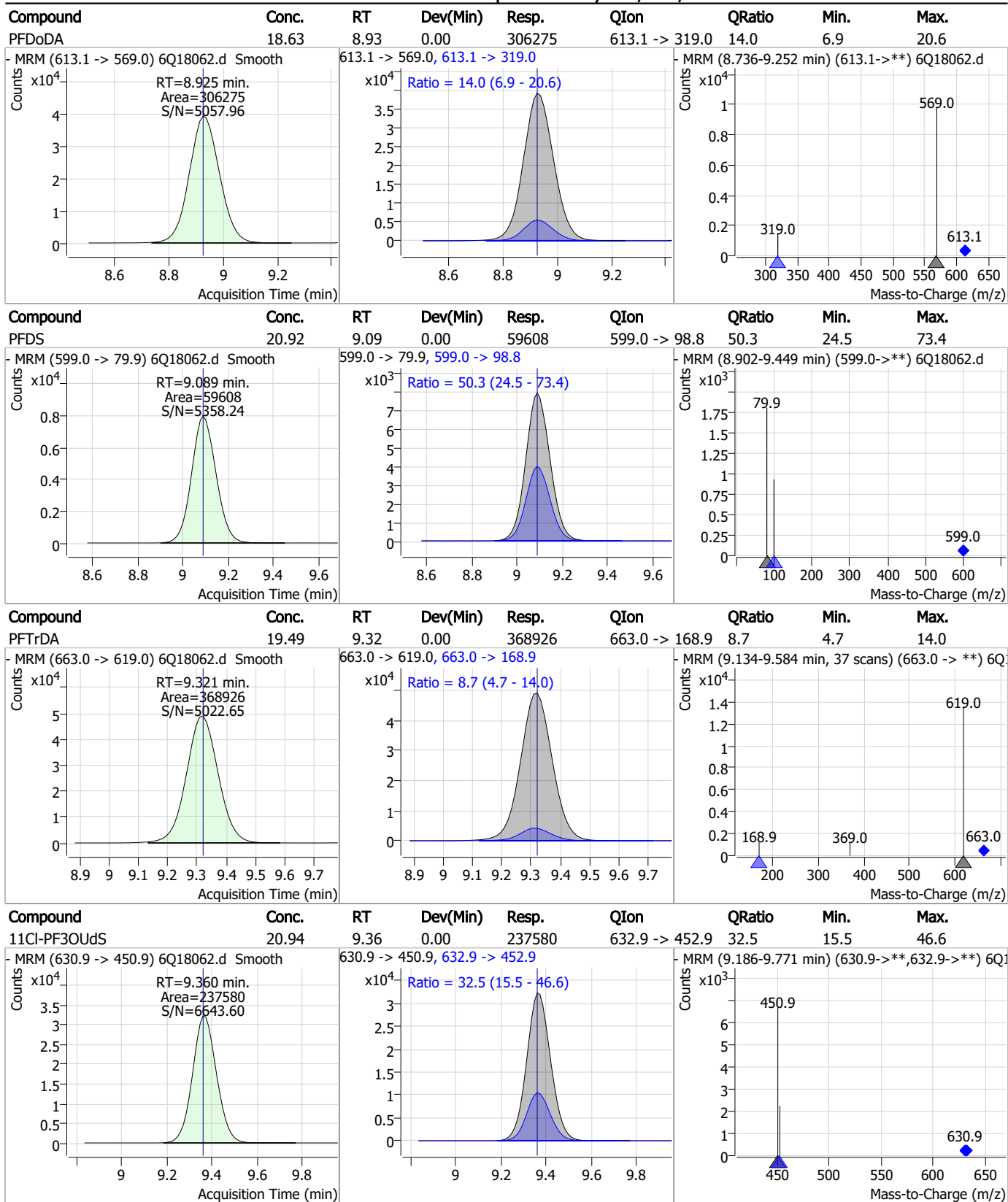
Perfluorinated Compounds by LC/MS/MS



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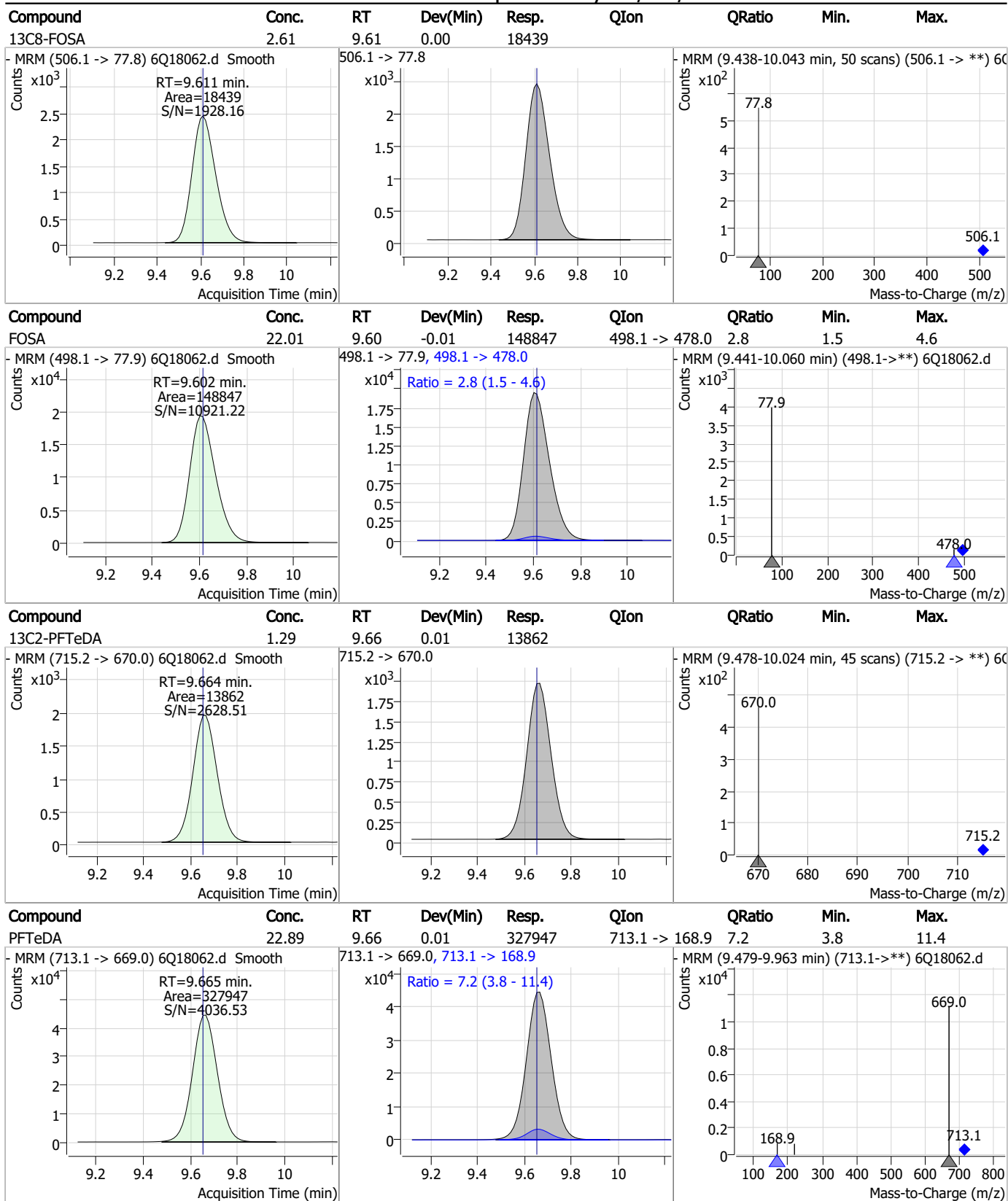
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

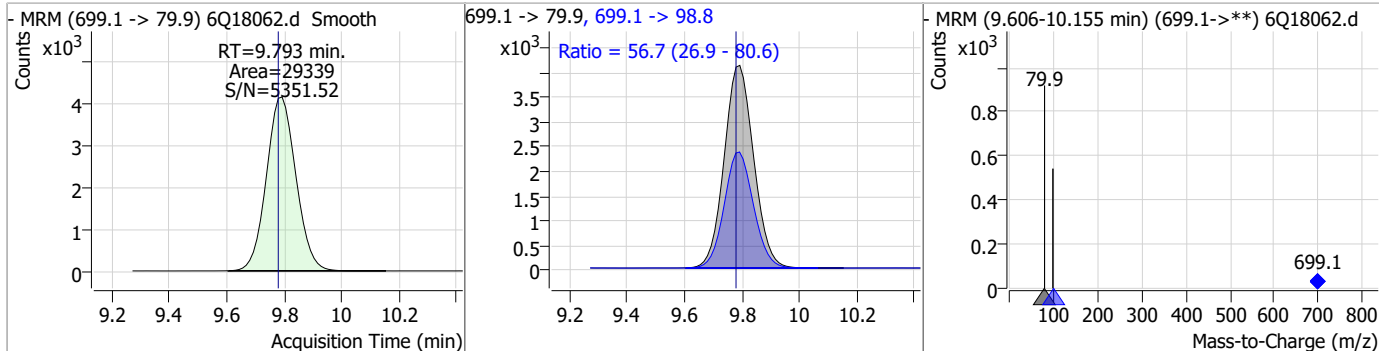


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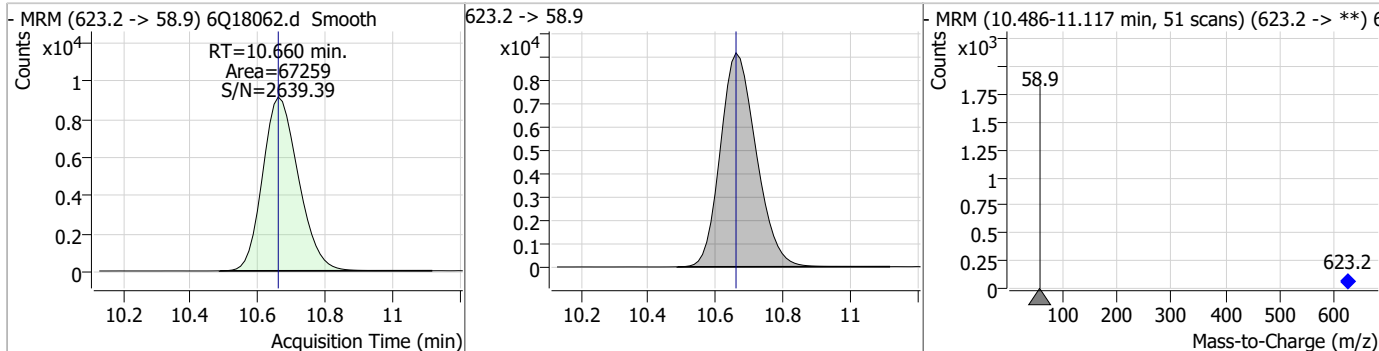
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Perfluorinated Compounds by LC/MS/MS

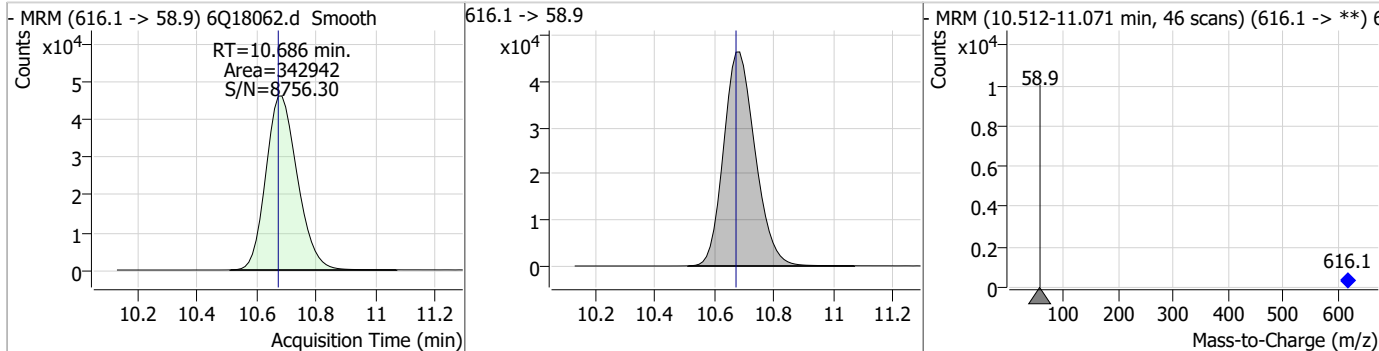
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	19.08	9.79	0.01	29339	699.1 -> 98.8	56.7	26.9	80.6



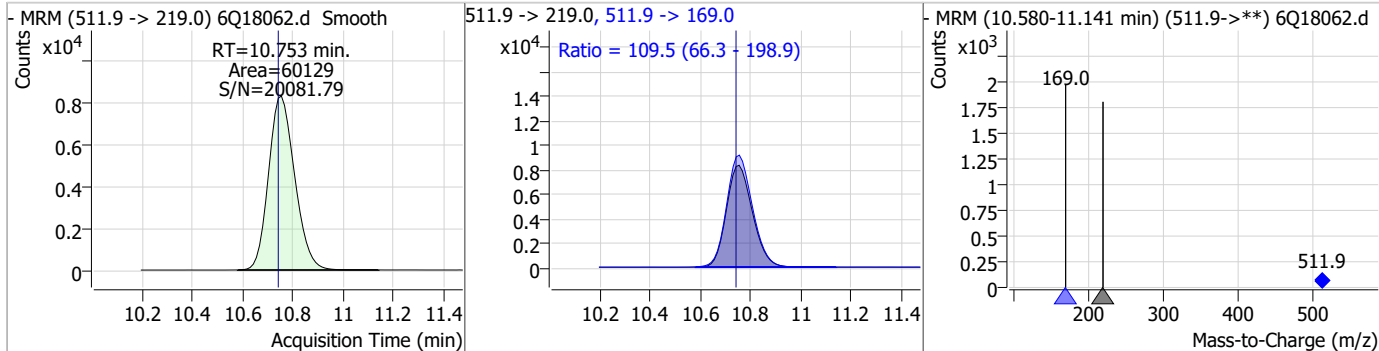
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.29	10.66	0.00	67259				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	108.30	10.69	0.01	342942				

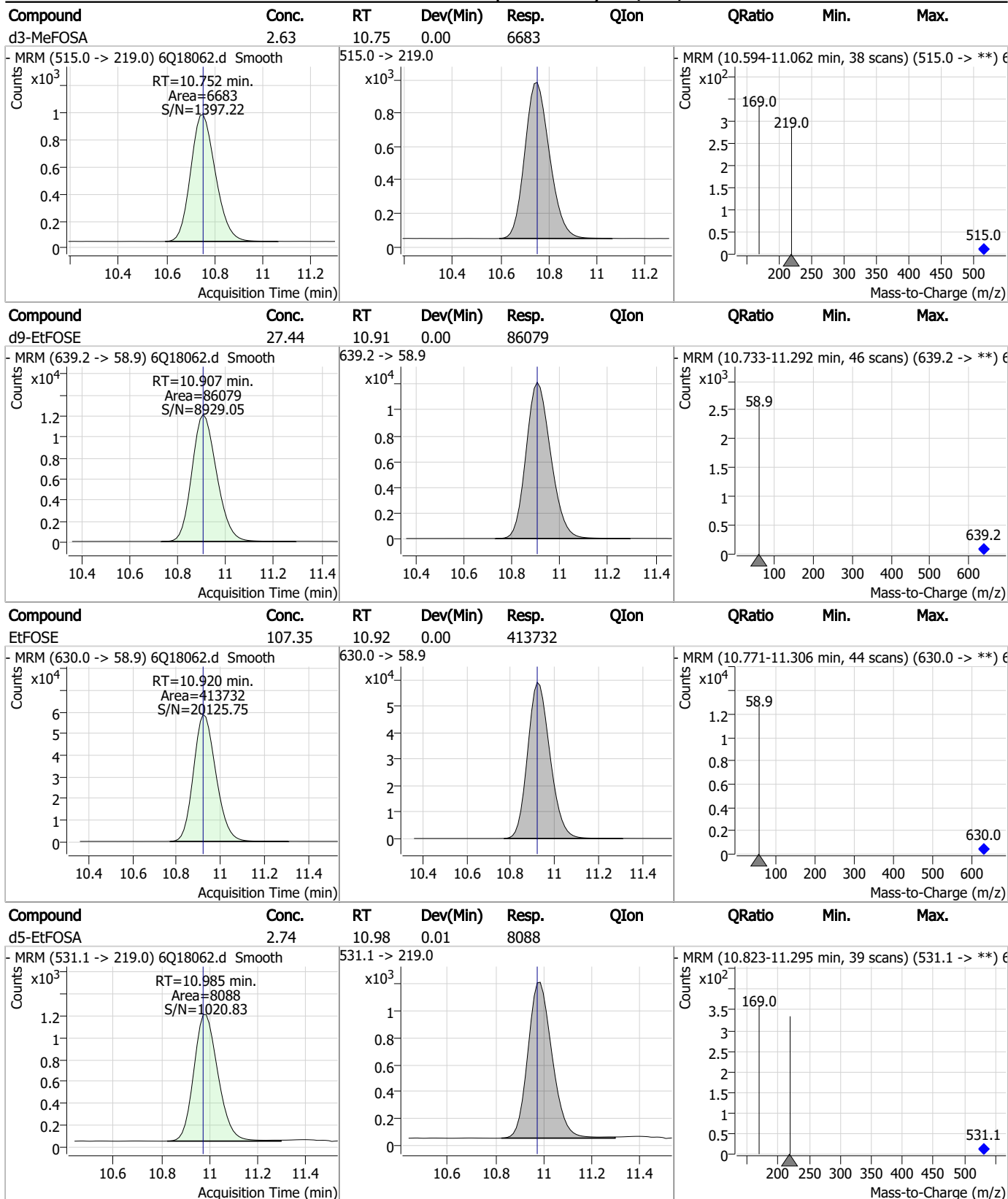


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	19.73	10.75	0.01	60129	511.9 -> 169.0	109.5	66.3	198.9



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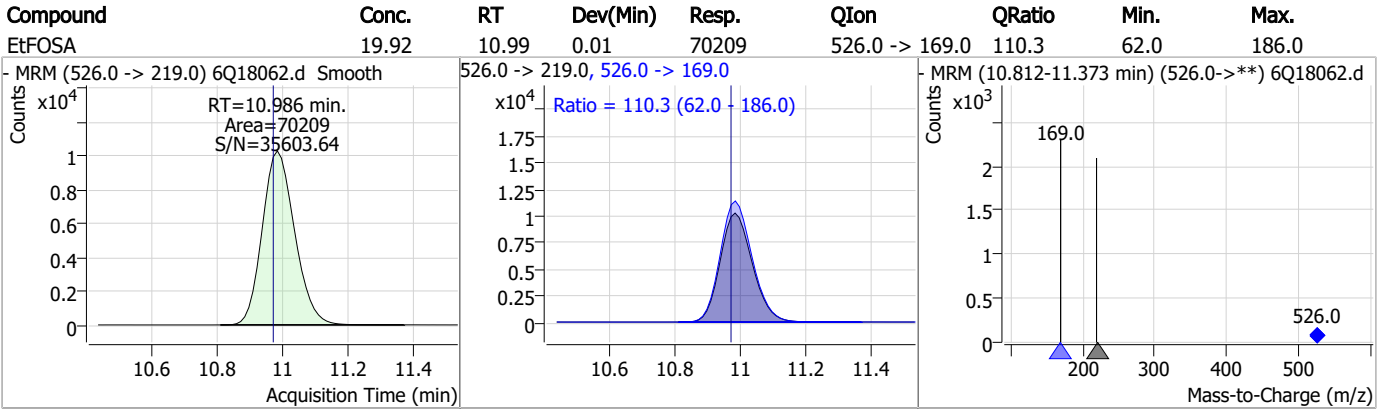
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q272-ICV272 Method: EPA DRAFT 1633
Lab FileID: 6Q18062.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 21:24 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18063.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 9:38:54 PM
 Sample Name : cc272-4
 Vial : P1-A5
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	157824	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	49033	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	57123	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	49668	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	75107	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	25216	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	19289	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	24704	1.25 µg/L	0.000
M2-PFDoDA	8.925	615.1 -> 570.0	24742	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	16624	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	22658	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	18765	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11160	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	9444	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2369	5.00 µg/L	0.000
M2-6:2FTS	6.813	429.1 -> 80.9	3172	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	3235	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	26858	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	33298	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	21061	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	84446	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	99699	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9567	2.50 µg/L	0.012
M3-MeFOSA	10.752	515.0 -> 219.0	7953	2.50 µg/L	0.000
13C4-PFOS	8.202	502.8 -> 79.9	13220	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	65703	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8340	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	80659	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	22463	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	29424	1.25 µg/L	0.000
13C2-PFHxA	5.430	315.1 -> 270.0	47678	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2369	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-6:2FTS	6.813	429.1 -> 80.9	3172	5.54 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.8%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3235	5.24 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-PFDoDA	8.925	615.1 -> 570.0	24742	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.652	715.2 -> 670.0	16624	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFBS	5.359	302.1 -> 79.9	18765	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C3-PFHxS	7.155	402.1 -> 79.9	11160	2.50 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFBA	2.888	216.8 -> 171.9	157824	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.395	367.1 -> 322.0	49668	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFHxA	5.441	318.0 -> 273.0	57123	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFPeA	4.247	268.3 -> 223.0	49033	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C6-PFDA	8.051	519.1 -> 474.1	19289	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C7-PFUnDA	8.506	570.0 -> 525.1	24704	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-FOSA	9.611	506.1 -> 77.8	22658	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOA	7.038	421.1 -> 376.0	75107	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.202	507.1 -> 79.9	9444	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C9-PFNA	7.569	472.1 -> 427.0	25216	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
d3-MeFOSAA	8.108	573.2 -> 419.0	26858	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	33298	9.67 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d3-MeFOSA	10.752	515.0 -> 219.0	7953	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
d5-EtFOSAA	8.304	589.2 -> 419.0	21061	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d7-MeFOSE	10.660	623.2 -> 58.9	84446	25.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	99699	25.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSA	10.984	531.1 -> 219.0	9567	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
Target Compounds					QValue
4:2FTS	5.107	327.1 -> 307.0	31683	9.06 µg/L	100
		327.1 -> 80.9	12464		
6:2FTS	6.813	427.1 -> 407.0	31460	9.17 µg/L	99
		427.1 -> 80.9	10491		
8:2FTS	7.840	527.1 -> 507.0	18430	9.97 µg/L	98
		527.1 -> 80.8	7619		
EtFOSAA	8.305	584.2 -> 419.1	8399	2.33 µg/L	91
		584.2 -> 526.0	5117		
FOSA	9.614	498.1 -> 77.9	20751	2.50 µg/L	99
		498.1 -> 478.0	658		
MeFOSAA	8.109	570.1 -> 419.0	12419	2.35 µg/L	99
		570.1 -> 483.0	2310		
PFBA	2.882	212.8 -> 168.9	55829	9.74 µg/L	100
PFBS	5.360	298.7 -> 79.9	19809	2.16 µg/L	97
		298.7 -> 98.8	7522		
PFDA	8.052	512.9 -> 469.0	58800	2.56 µg/L	97
		512.9 -> 219.0	8667		
PFDODA	8.925	613.1 -> 569.0	47519	2.39 µg/L	99
		613.1 -> 319.0	6651		
PFDS	9.089	599.0 -> 79.9	8231	2.60 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.395	599.0 -> 98.8	3942	2.39	µg/L	98
		363.1 -> 319.0	60754			
PFHpS	7.710	363.1 -> 169.0	9625	2.67	µg/L	93
		449.0 -> 79.9	13639			
PFHxA	5.432	449.0 -> 98.9	6088	2.49	µg/L	99
		313.0 -> 269.0	55452			
PFHxS	7.156	313.0 -> 118.9	2632	2.14	µg/L	94
		398.7 -> 79.9	13329			
PFNA	7.570	398.7 -> 98.9	6891	2.32	µg/L	98
		463.0 -> 419.0	43045			
PFNS	8.669	463.0 -> 219.0	8785	2.59	µg/L	98
		548.8 -> 79.9	12012			
PFOA	7.040	548.8 -> 98.9	5692	2.37	µg/L	98
		413.0 -> 369.0	87081			
PFOS	8.203	413.0 -> 169.0	14320	2.40	µg/L	96
		498.9 -> 79.9	12182			
PFPeA	4.249	498.9 -> 98.8	6164	4.81	µg/L	100
		263.0 -> 219.0	69894			
PFPeS	6.447	349.1 -> 79.9	14253	2.29	µg/L	98
		349.1 -> 98.9	6592			
PFTeDA	9.652	713.1 -> 669.0	42990	2.50	µg/L	98
		713.1 -> 168.9	2960			
PFTrDA	9.321	663.0 -> 619.0	57653	2.52	µg/L	98
		663.0 -> 168.9	4996			
PFUnDA	8.493	563.1 -> 519.0	45918	2.66	µg/L	99
		563.1 -> 269.1	7171			
11CI-PF3OUdS	9.360	630.9 -> 450.9	61254	4.70	µg/L	98
		632.9 -> 452.9	18409			
9CI-PF3ONS	8.533	530.8 -> 351.0	94135	4.63	µg/L	97
		532.8 -> 353.0	29610			
ADONA	6.658	376.9 -> 250.9	242984	4.56	µg/L	97
		376.9 -> 84.8	68373			
HFPO-DA	5.807	284.9 -> 168.9	16025	4.95	µg/L	98
		284.9 -> 184.9	2290			
3:3FTCA	3.727	241.0 -> 177.0	10824	11.84	µg/L	99
		241.0 -> 117.0	1543			
5:3FTCA	6.111	341.0 -> 237.1	243193	60.46	µg/L	100
		341.0 -> 217.0	172353			
7:3FTCA	7.535	441.0 -> 316.9	128319	64.19	µg/L	91
		441.0 -> 336.9	264475			
EtFOSA	10.974	526.0 -> 219.0	20323	4.87	µg/L	98
		526.0 -> 169.0	25578			
EtFOSE	10.920	630.0 -> 58.9	54410	12.19	µg/L	100
		511.9 -> 219.0	18230			
MeFOSA	10.741	511.9 -> 169.0	24288	5.03	µg/L	99
		616.1 -> 58.9	49817			
MeFOSE	10.673	699.1 -> 79.9	4172	12.53	µg/L	100
		699.1 -> 98.8	2344			
PFDoDS	9.793	295.0 -> 201.0	12375	2.44	µg/L	97
		295.0 -> 84.9	3114			
NFDHA	5.324	279.0 -> 85.1	49737	4.96	µg/L	96
		229.0 -> 84.9	36368			
PFMBA	4.650	314.8 -> 134.9	123855	4.87	µg/L	100
PFMPA	3.401	314.8 -> 82.9	4192	4.82	µg/L	100
PFEESA	5.900			4.21	µg/L	98

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



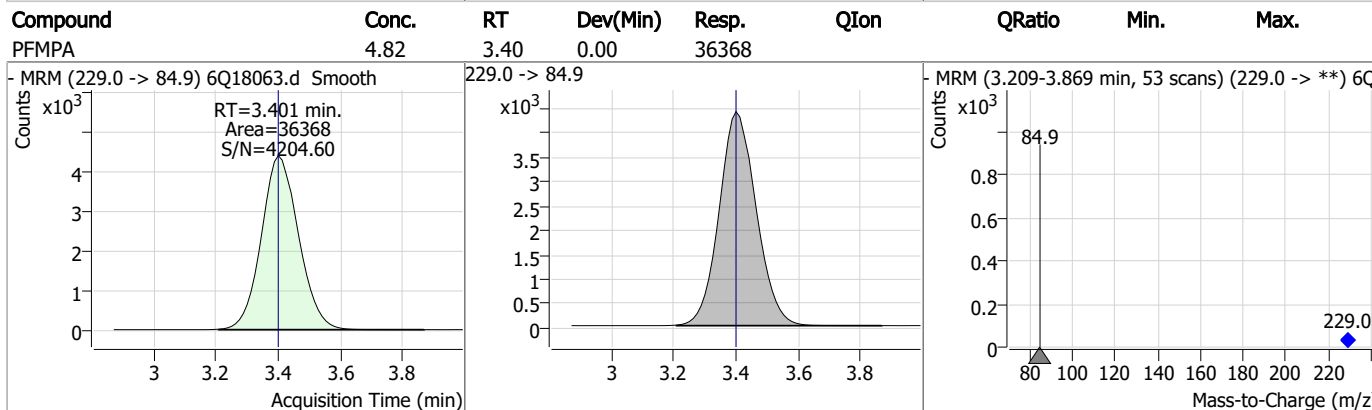
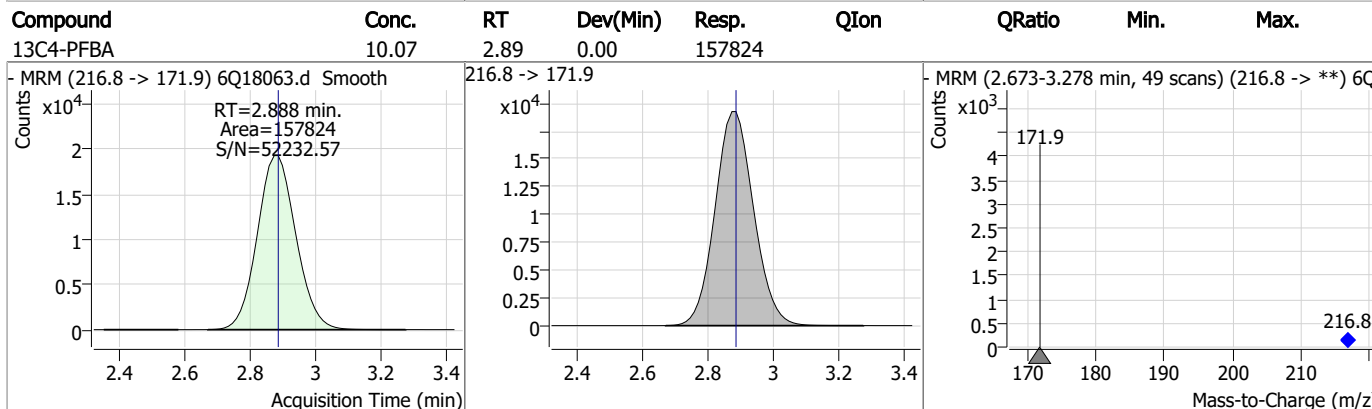
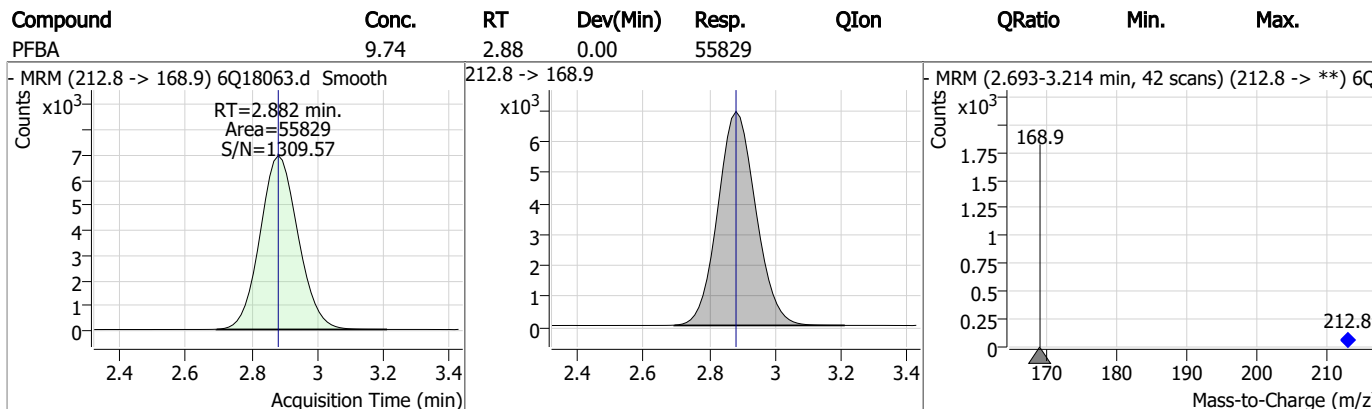
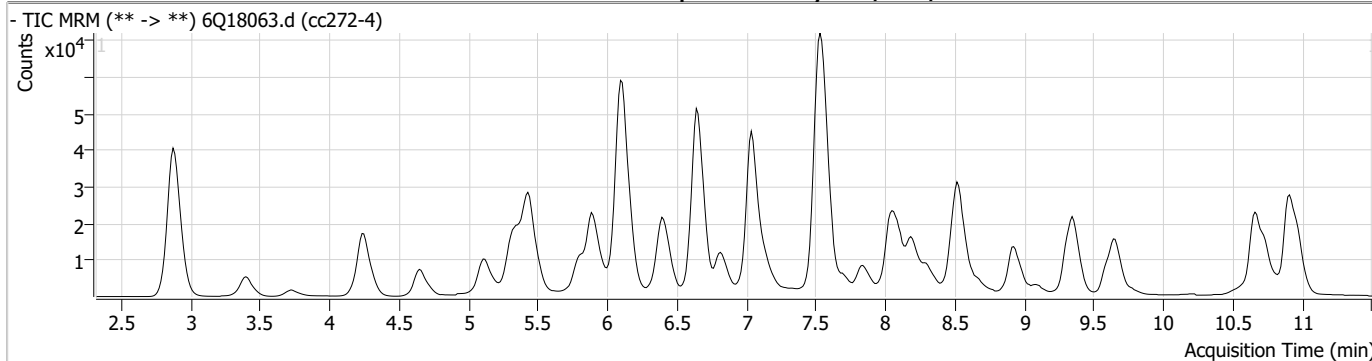
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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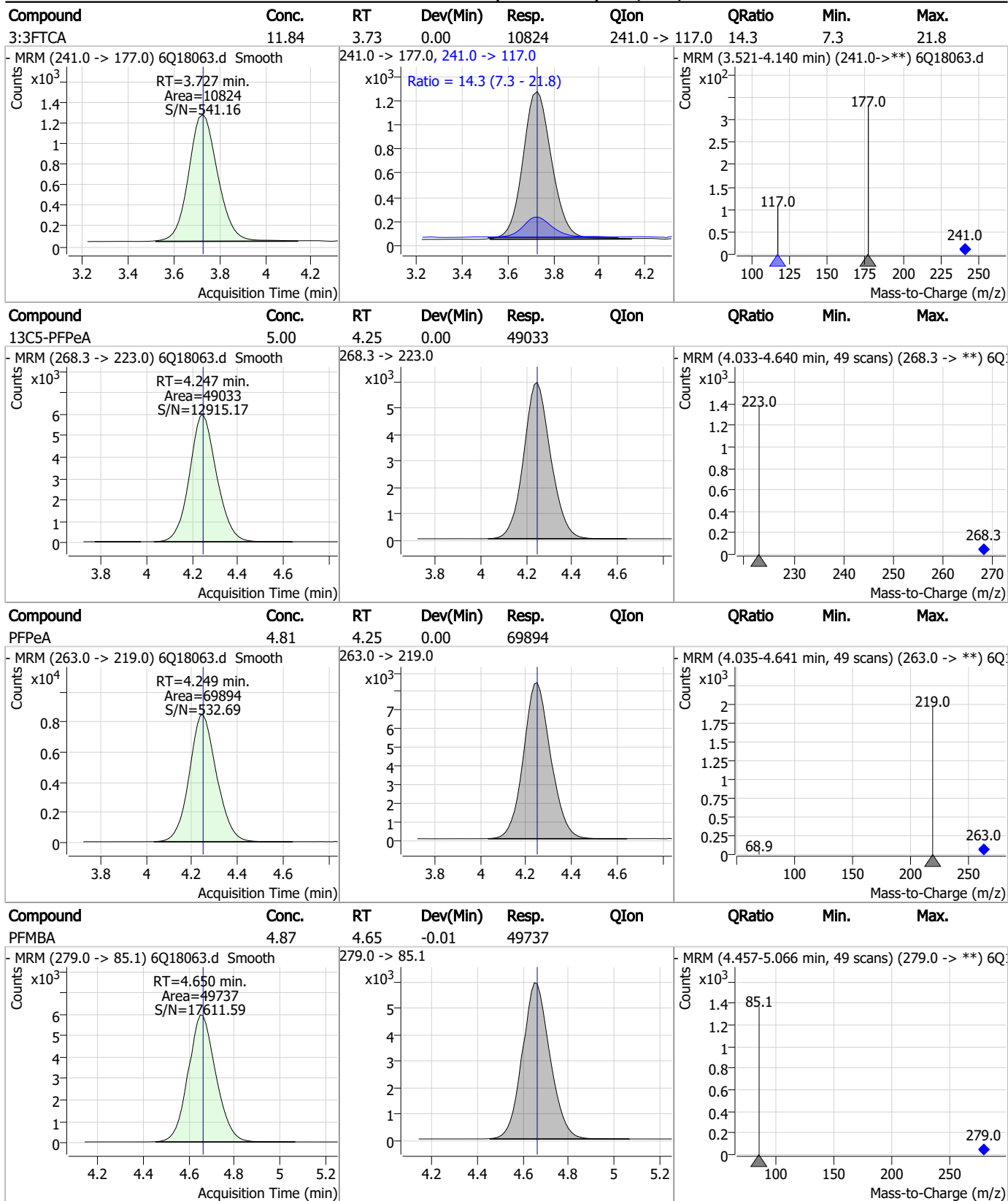
7.6.12

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Perfluorinated Compounds by LC/MS/MS

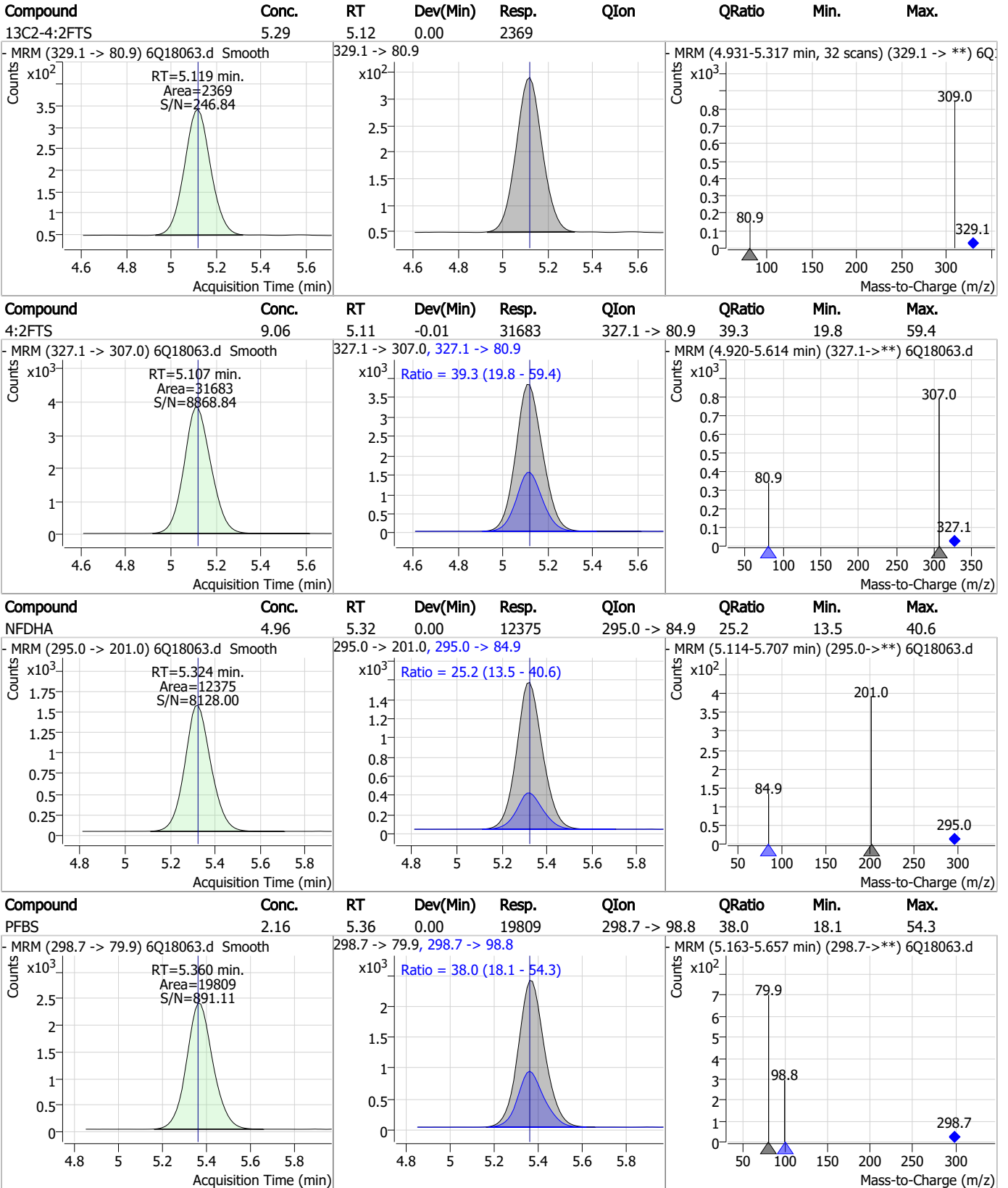


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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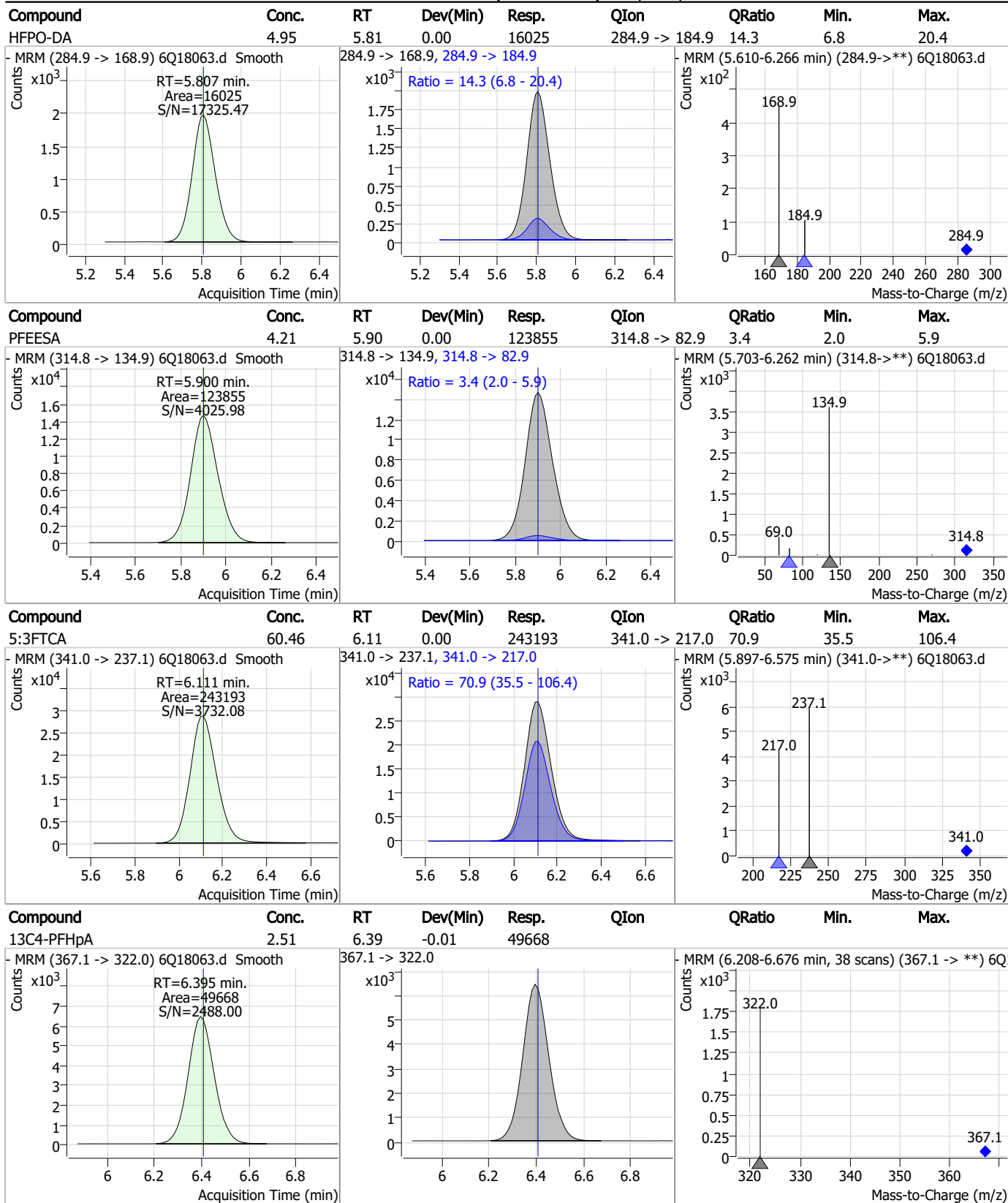
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.54	5.36	-0.01	18765				
13C5-PFHxA	2.47	5.44	0.00	57123				
PFHxA	2.49	5.43	-0.01	55452	313.0 ->	118.9	4.7	2.2
13C3-HFPO-DA	9.67	5.81	0.00	33298				

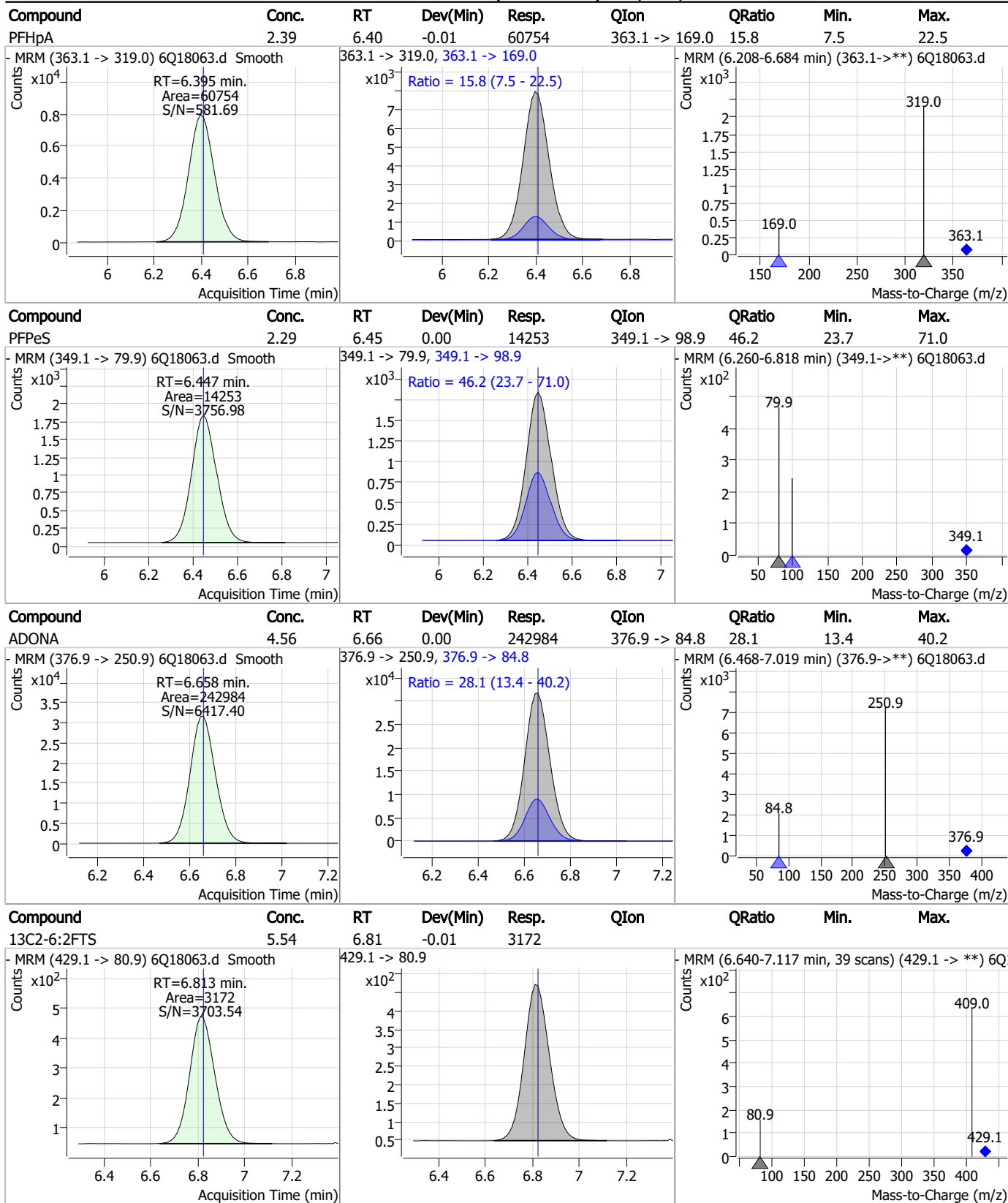
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Perfluorinated Compounds by LC/MS/MS



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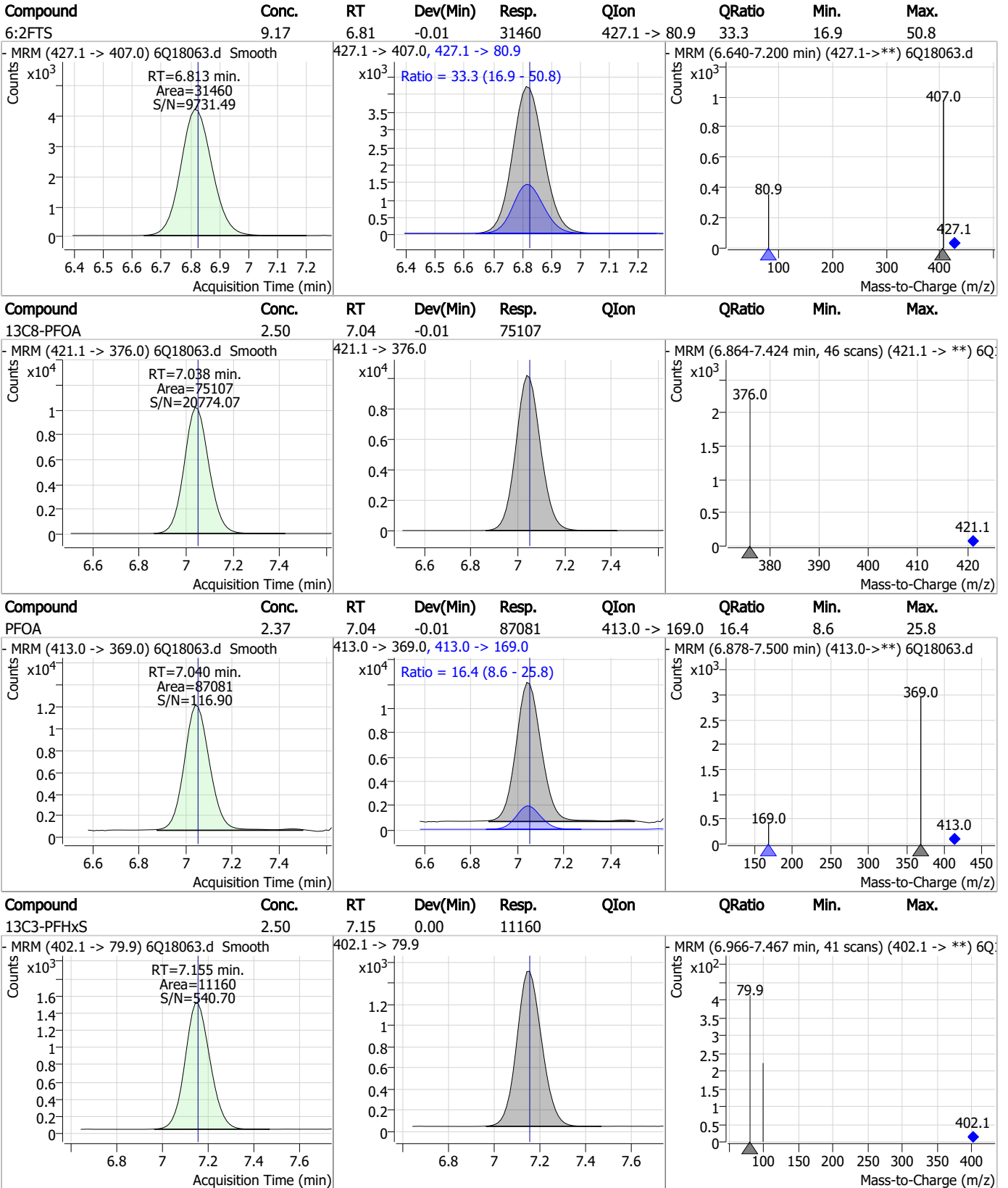
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

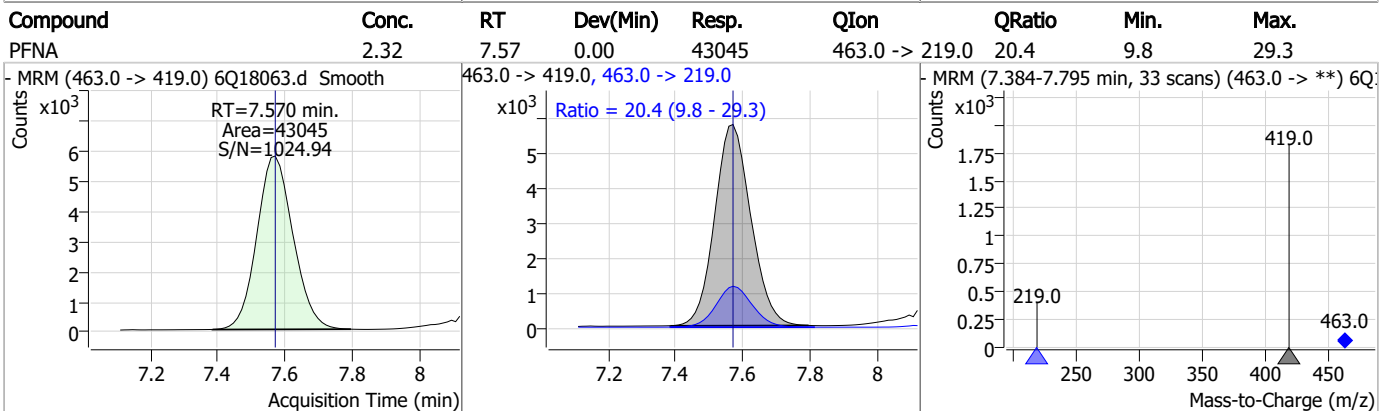
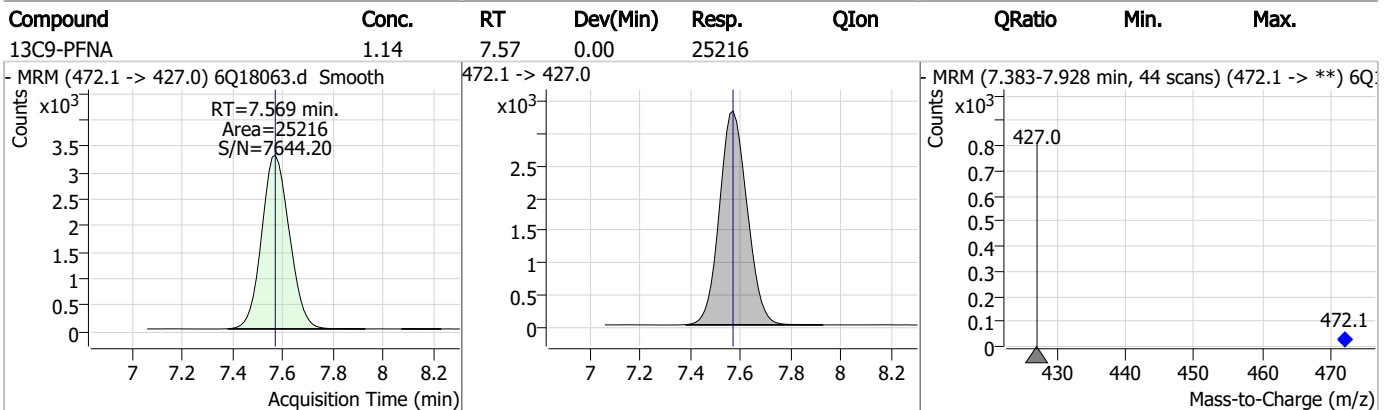
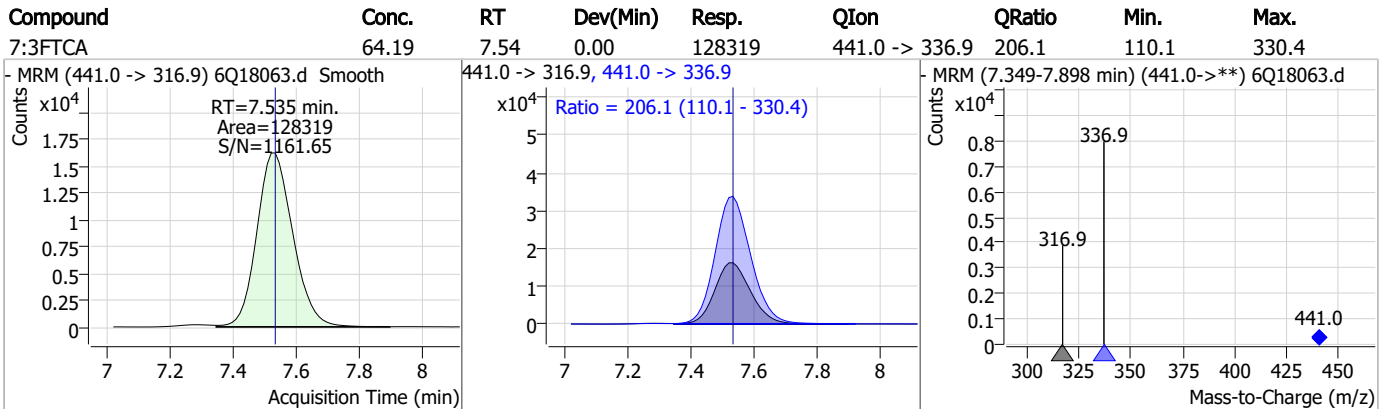
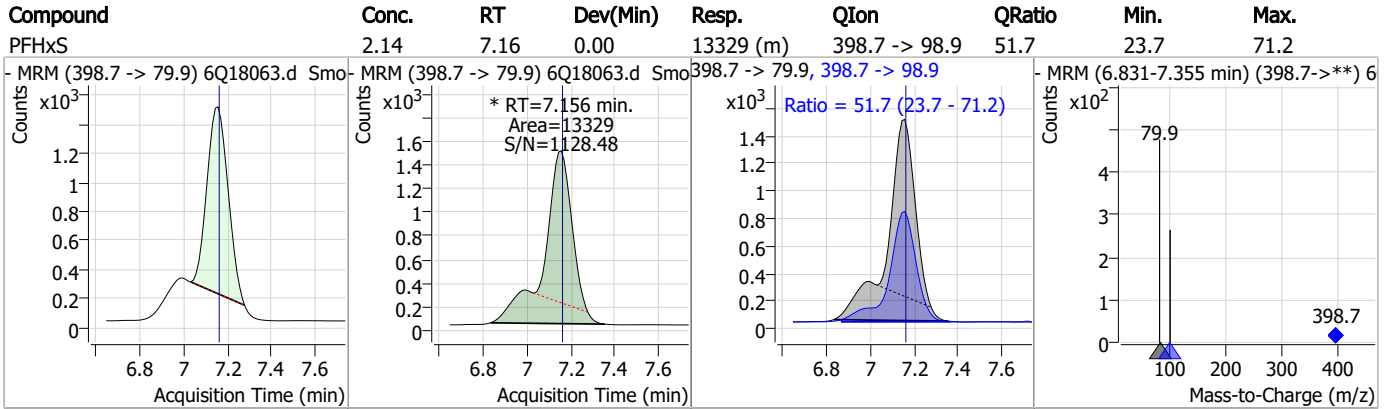


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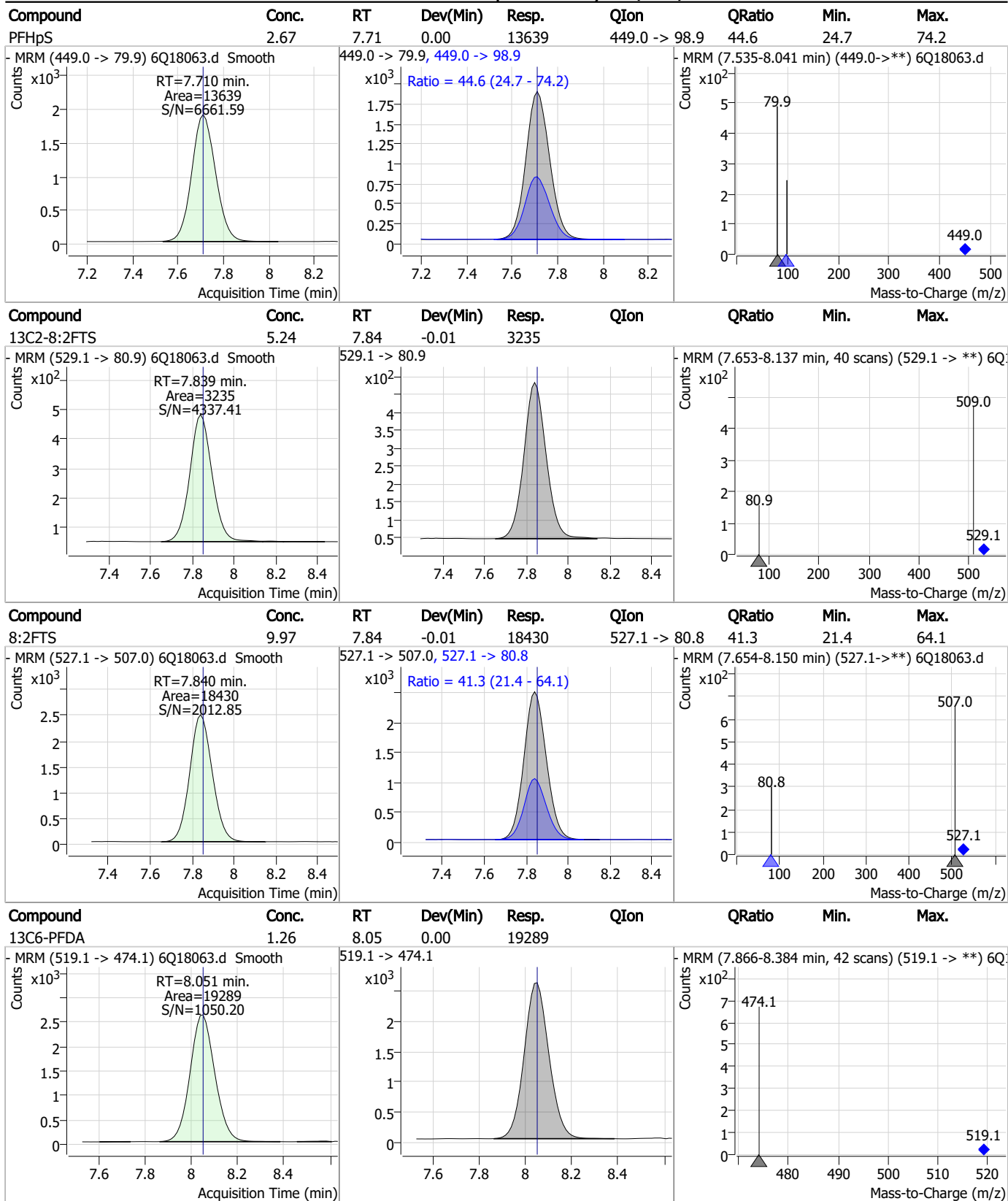


Perfluorinated Compounds by LC/MS/MS



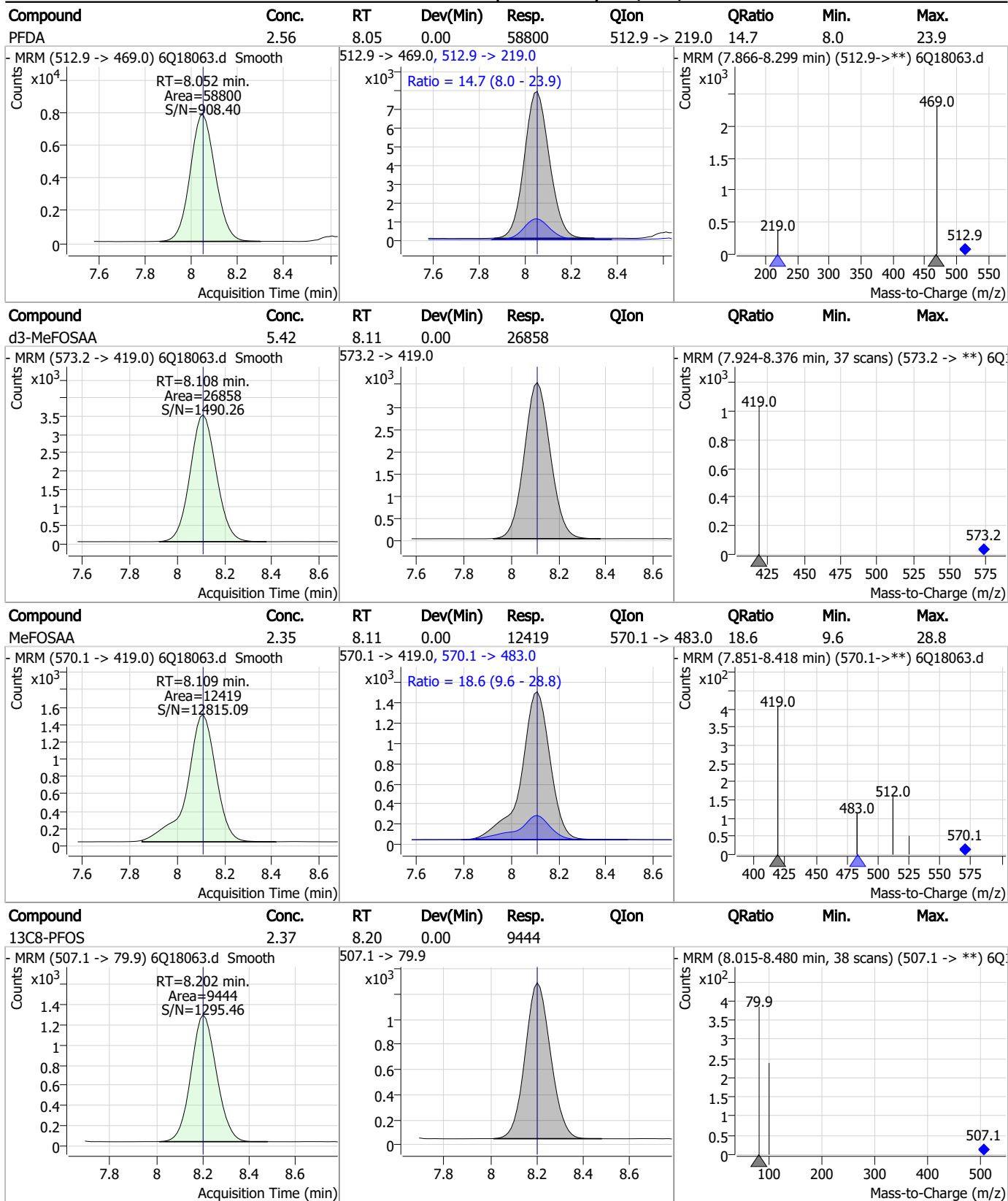
7.6.12 7

Perfluorinated Compounds by LC/MS/MS



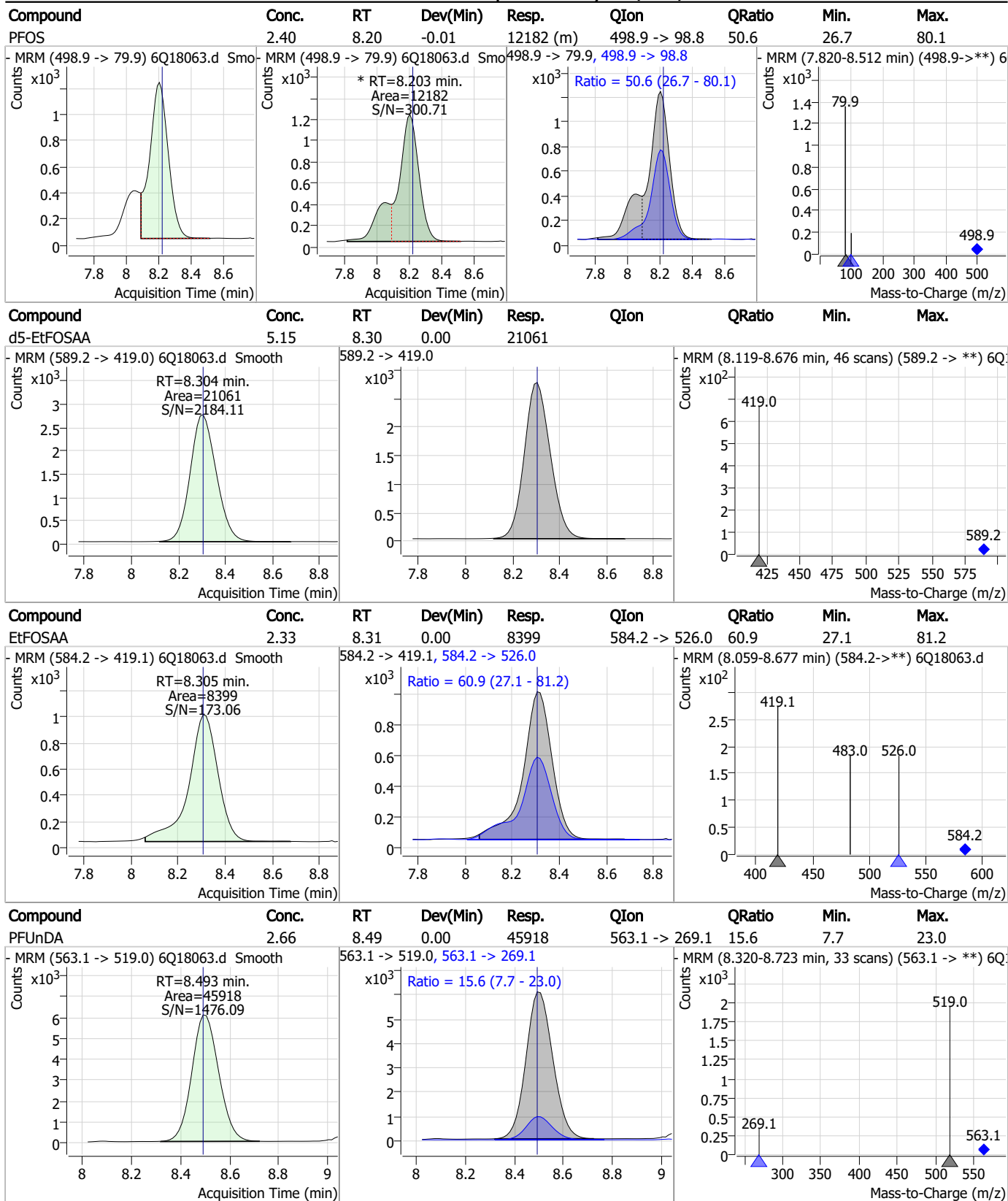
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Perfluorinated Compounds by LC/MS/MS



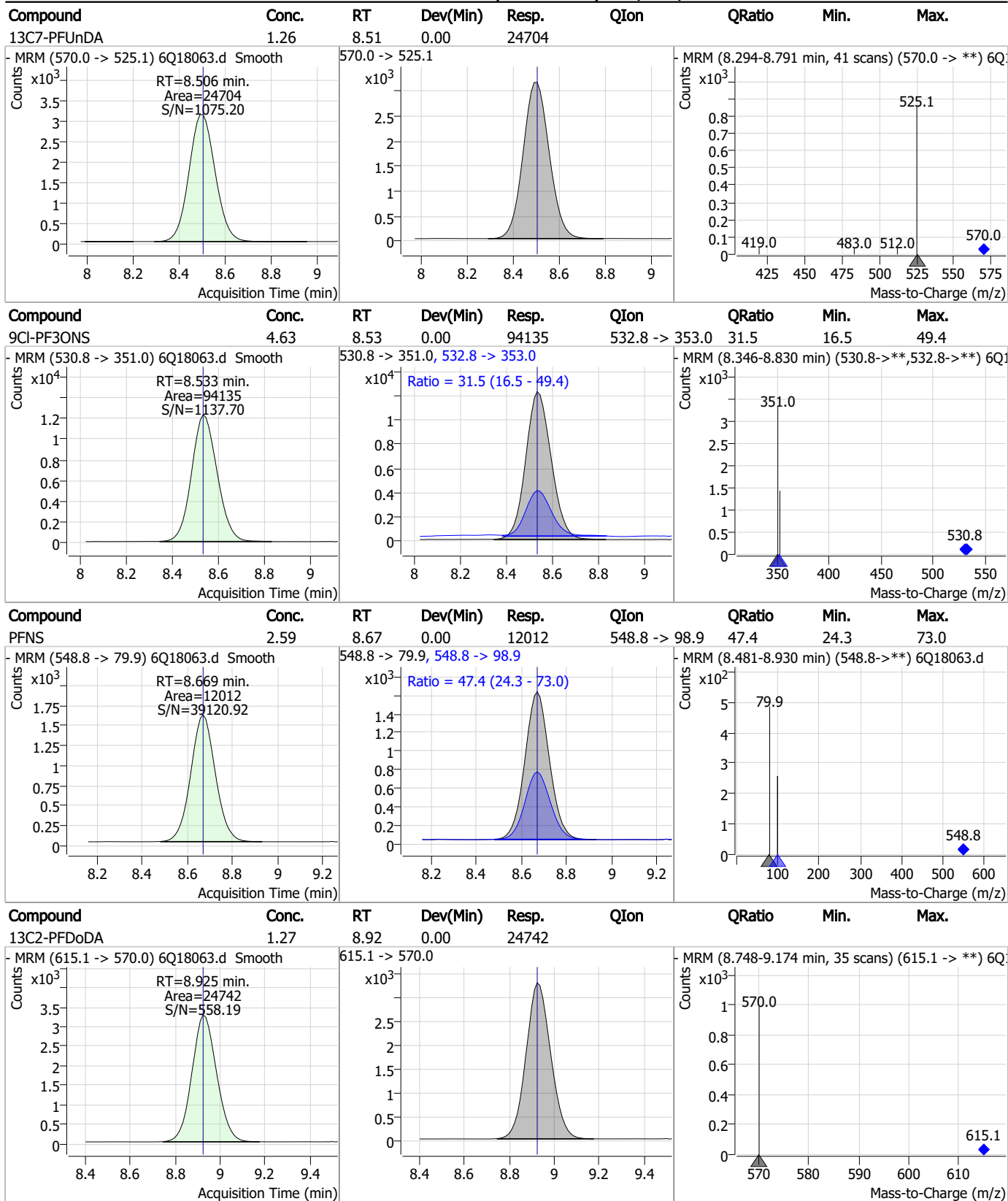
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Perfluorinated Compounds by LC/MS/MS



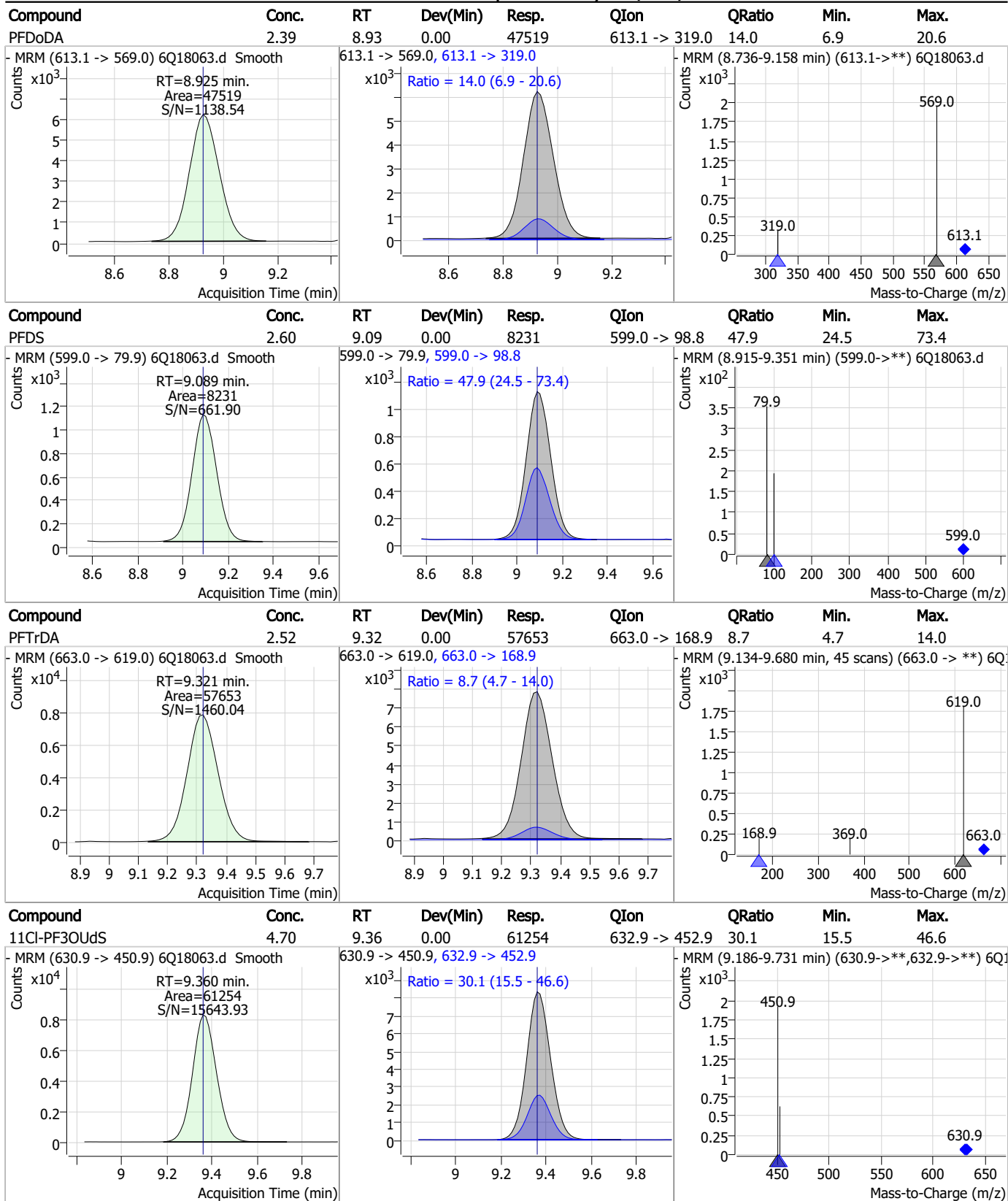
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Perfluorinated Compounds by LC/MS/MS



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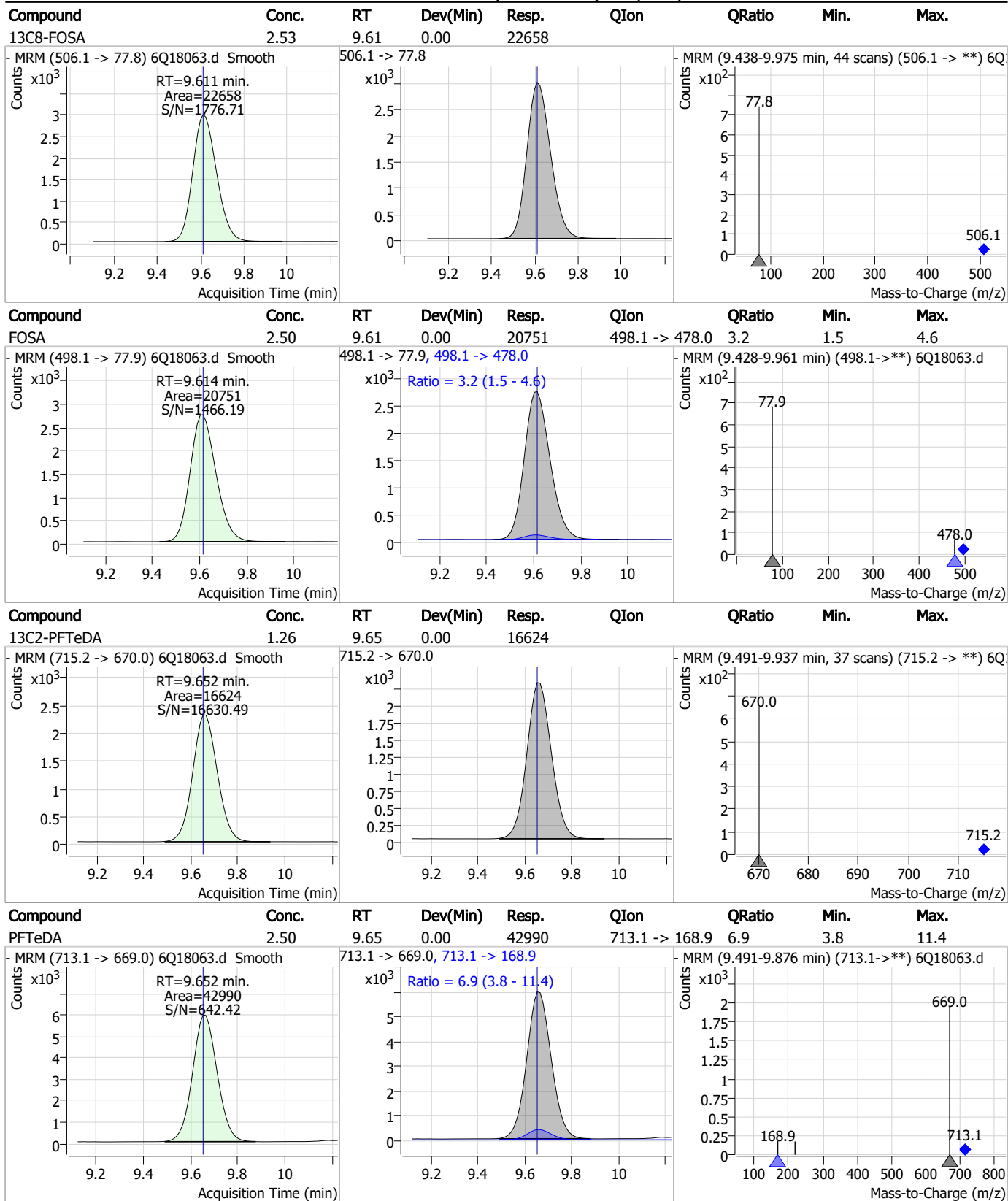
Perfluorinated Compounds by LC/MS/MS



7.6.12 7

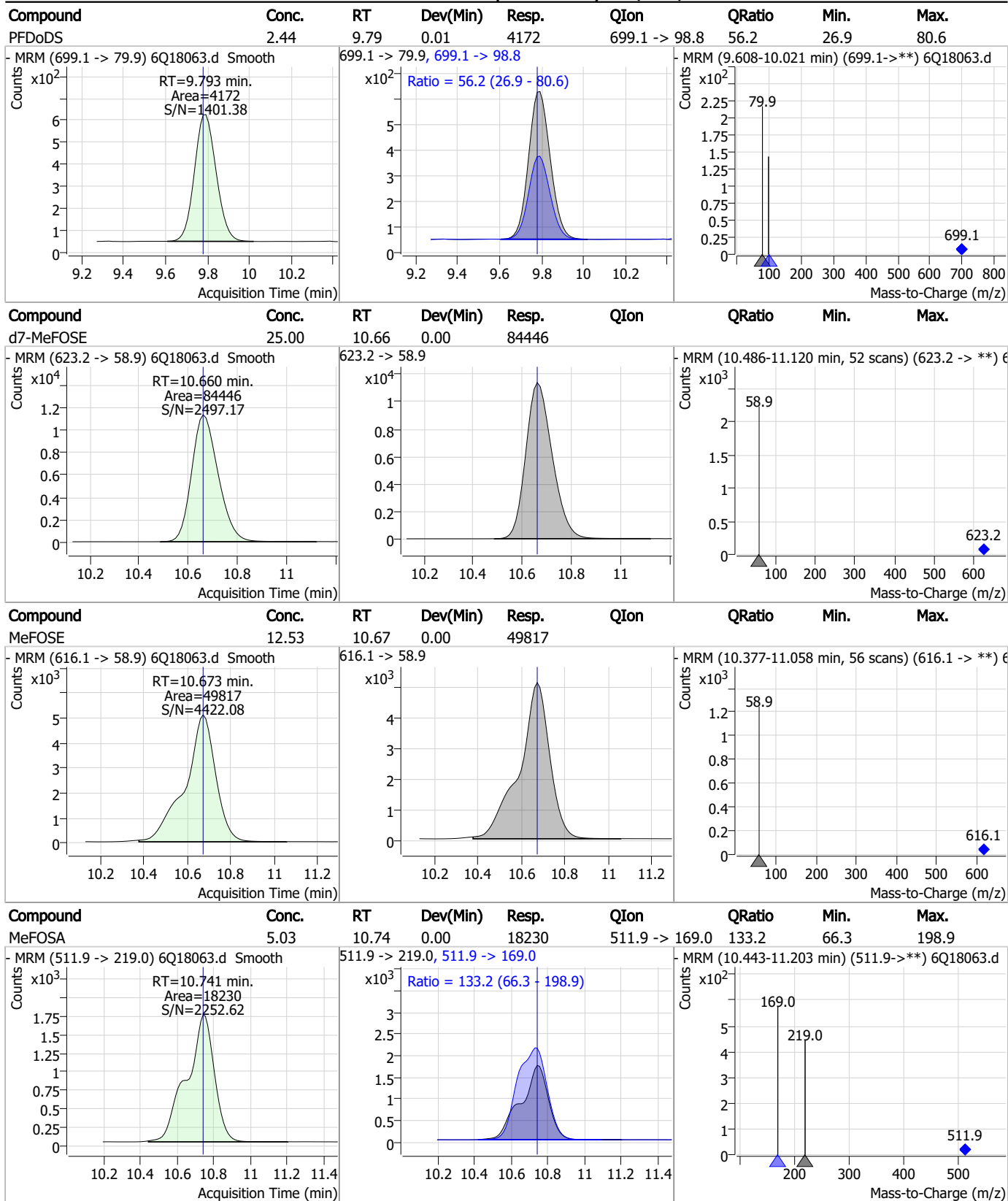


Perfluorinated Compounds by LC/MS/MS



7.6.12 7

Perfluorinated Compounds by LC/MS/MS



7.6.12 7

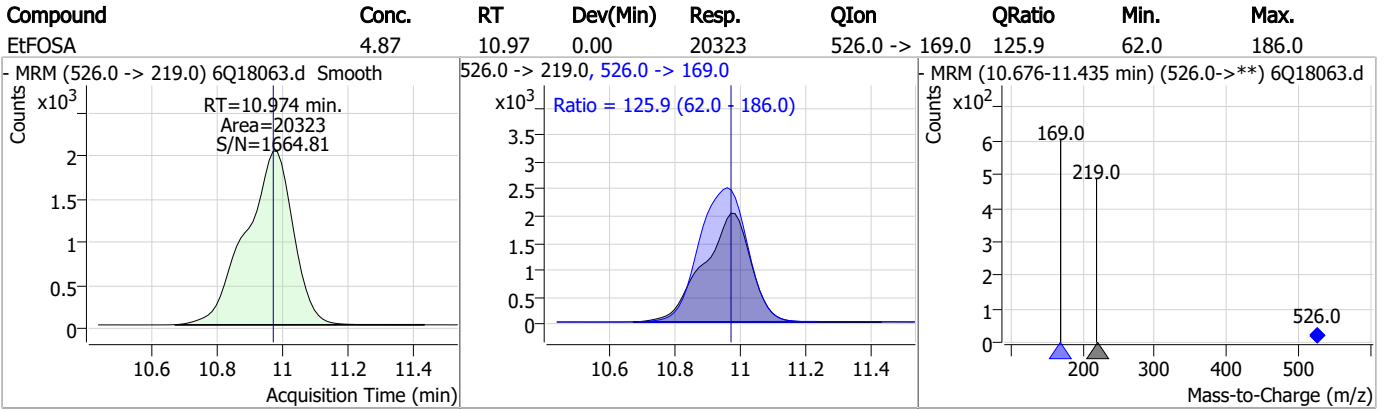


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	10.75	0.00	7953				
- MRM (515.0 -> 219.0) 6Q18063.d Smooth Counts x10 ³ RT=10.752 min. Area=7953 S/N=364.84 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.578-11.076 min, 41 scans) (515.0 -> **) € Counts x10 ² 169.0 219.0 515.0 Mass-to-Charge (m/z)		
d9-EtFOSE	25.03	10.91	0.00	99699				
- MRM (639.2 -> 58.9) 6Q18063.d Smooth Counts x10 ⁴ RT=10.907 min. Area=99699 S/N=97749.43 Acquisition Time (min)			639.2 -> 58.9 Counts x10 ⁴ Acquisition Time (min)			- MRM (10.733-11.292 min, 46 scans) (639.2 -> **) € Counts x10 ³ 58.9 639.2 Mass-to-Charge (m/z)		
EtFOSE	12.19	10.92	0.00	54410				
- MRM (630.0 -> 58.9) 6Q18063.d Smooth Counts x10 ³ RT=10.920 min. Area=54410 S/N=13669.46 Acquisition Time (min)			630.0 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.634-11.256 min, 51 scans) (630.0 -> **) € Counts x10 ³ 58.9 630.0 Mass-to-Charge (m/z)		
d5-EtFOSA	2.55	10.98	0.01	9567				
- MRM (531.1 -> 219.0) 6Q18063.d Smooth Counts x10 ³ RT=10.984 min. Area=9567 S/N=584.87 Acquisition Time (min)			531.1 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.823-11.295 min, 39 scans) (531.1 -> **) € Counts x10 ² 169.0 531.1 Mass-to-Charge (m/z)		

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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q272-CC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18063.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 21:38 Supervisor approved: 05/22/23 12:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.6.12.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18064.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/18/2023 9:53:22 PM
 Sample Name : cc272-1.0LL
 Vial : P1-A2
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	157127	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	48745	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	59057	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	50141	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	72108	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	27241	1.25 µg/L	0.000
M6-PFDA	8.039	519.1 -> 474.1	18651	1.25 µg/L	-0.012
M7-PFUnDA	8.492	570.0 -> 525.1	26578	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	24530	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	17121	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	23328	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	19088	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11310	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	10884	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2346	5.00 µg/L	0.000
M2-6:2FTS	6.825	429.1 -> 80.9	3067	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3030	5.00 µg/L	-0.012
M3-MeFOSAA	8.096	573.2 -> 419.0	27079	5.00 µg/L	-0.012
M3-HFPO-DA	5.807	286.9 -> 168.9	32036	10.00 µg/L	0.000
M5-EtFOSAA	8.292	589.2 -> 419.0	22213	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	88869	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	103669	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9492	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	8020	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	12172	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	66169	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8522	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	78034	2.50 µg/L	0.000
13C2-PFDA	8.052	515.1 -> 470.1	23685	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	28356	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	49039	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2346	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3067	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3030	4.80 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFDoDA	8.925	615.1 -> 570.0	24530	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-PFTeDA	9.652	715.2 -> 670.0	17121	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFBS	5.359	302.1 -> 79.9	19088	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.155	402.1 -> 79.9	11310	2.48 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C4-PFBA	2.888	216.8 -> 171.9	157127	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C4-PFHpA	6.395	367.1 -> 322.0	50141	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C5-PFHxA	5.441	318.0 -> 273.0	59057	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C5-PFPeA	4.247	268.3 -> 223.0	48745	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C6-PFDA	8.039	519.1 -> 474.1	18651	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C7-PFUnDA	8.492	570.0 -> 525.1	26578	1.29 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C8-FOSA	9.611	506.1 -> 77.8	23328	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C8-PFOA	7.051	421.1 -> 376.0	72108	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C8-PFOS	8.202	507.1 -> 79.9	10884	2.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.6%		
13C9-PFNA	7.569	472.1 -> 427.0	27241	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.3%		
d3-MeFOSAA	8.096	573.2 -> 419.0	27079	5.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.8%		
13C3-HFPO-DA	5.807	286.9 -> 168.9	32036	9.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 90.4%		
d3-MeFOSA	10.739	515.0 -> 219.0	8020	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.2%		
d5-EtFOSAA	8.292	589.2 -> 419.0	22213	5.90 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.0%		
d7-MeFOSE	10.660	623.2 -> 58.9	88869	28.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 114.3%		
d9-EtFOSE	10.907	639.2 -> 58.9	103669	28.27 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
d5-EtFOSA	10.972	531.1 -> 219.0	9492	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.9%		
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	2616	0.76 µg/L	96
		327.1 -> 80.9	973		
6:2FTS	6.813	427.1 -> 407.0	2552	0.77 µg/L	96
		427.1 -> 80.9	813		
8:2FTS	7.840	527.1 -> 507.0	1378	0.80 µg/L	92
		527.1 -> 80.8	656		
EtFOSAA	8.305	584.2 -> 419.1	902	0.24 µg/L	72
		584.2 -> 526.0	307		
FOSA	9.614	498.1 -> 77.9	1610	0.19 µg/L	100
		498.1 -> 478.0	48		
MeFOSAA	8.109	570.1 -> 419.0	876	0.16 µg/L	85
		570.1 -> 483.0	228		
PFBA	2.882	212.8 -> 168.9	4311	0.76 µg/L	100
PFBS	5.372	298.7 -> 79.9	1576	0.17 µg/L	100
		298.7 -> 98.8	570		
PFDA	8.040	512.9 -> 469.0	4858	0.22 µg/L	98
		512.9 -> 219.0	734		
PFDODA	8.925	613.1 -> 569.0	4224	0.21 µg/L	97
		613.1 -> 319.0	526		
PFDS	9.076	599.0 -> 79.9	596	0.16 µg/L	95

7.6.13
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	273			
PFHpA	6.395	363.1 -> 319.0	4735	0.18	µg/L	97
		363.1 -> 169.0	772			
PFHpS	7.710	449.0 -> 79.9	880	0.15	µg/L	93
		449.0 -> 98.9	478			
PFHxA	5.444	313.0 -> 269.0	4427	0.19	µg/L	99
		313.0 -> 118.9	207			
PFHxS	7.156	398.7 -> 79.9	1228	0.19	µg/L	93
		398.7 -> 98.9	525			
PFNA	7.570	463.0 -> 419.0	3368	0.17	µg/L	93
		463.0 -> 219.0	763			
PFNS	8.657	548.8 -> 79.9	840	0.16	µg/L	95
		548.8 -> 98.9	439			
PFOA	7.040	413.0 -> 369.0	7459	0.21	µg/L	m 99
		413.0 -> 169.0	1259			
PFOS	8.203	498.9 -> 79.9	971	0.17	µg/L	m 96
		498.9 -> 98.8	490			
PFPeA	4.249	263.0 -> 219.0	5515	0.38	µg/L	100
PFPeS	6.447	349.1 -> 79.9	1138	0.18	µg/L	97
		349.1 -> 98.9	560			
PFTeDA	9.652	713.1 -> 669.0	3491	0.20	µg/L	98
		713.1 -> 168.9	246			
PFTrDA	9.309	663.0 -> 619.0	4430	0.20	µg/L	99
		663.0 -> 168.9	388			
PFUnDA	8.493	563.1 -> 519.0	3090	0.17	µg/L	88
		563.1 -> 269.1	627			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	4878	0.39	µg/L	95
		632.9 -> 452.9	1645			
9Cl-PF3ONS	8.533	530.8 -> 351.0	7049	0.36	µg/L	90
		532.8 -> 353.0	1937			
ADONA	6.658	376.9 -> 250.9	19894	0.39	µg/L	98
		376.9 -> 84.8	5494			
HFPO-DA	5.820	284.9 -> 168.9	1167	0.37	µg/L	97
		284.9 -> 184.9	144			
3:3FTCA	3.727	241.0 -> 177.0	872	0.96	µg/L	m 97
		241.0 -> 117.0	116			
5:3FTCA	6.111	341.0 -> 237.1	21442	5.16	µg/L	98
		341.0 -> 217.0	15601			
7:3FTCA	7.535	441.0 -> 316.9	10381	5.02	µg/L	95
		441.0 -> 336.9	21968			
EtFOSA	10.974	526.0 -> 219.0	1685	0.41	µg/L	95
		526.0 -> 169.0	2186			
EtFOSE	10.920	630.0 -> 58.9	4374	0.94	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	1389	0.38	µg/L	87
		511.9 -> 169.0	2050			
MeFOSE	10.673	616.1 -> 58.9	3829	0.92	µg/L	100
PFDoDS	9.779	699.1 -> 79.9	386	0.20	µg/L	88
		699.1 -> 98.8	174			
NFDHA	5.324	295.0 -> 201.0	908	0.35	µg/L	91
		295.0 -> 84.9	289			
PFMBA	4.663	279.0 -> 85.1	3883	0.38	µg/L	100
PFMPA	3.401	229.0 -> 84.9	2919	0.39	µg/L	100
PFEESA	5.900	314.8 -> 134.9	9973	0.33	µg/L	98
		314.8 -> 82.9	333			

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

7.6.13
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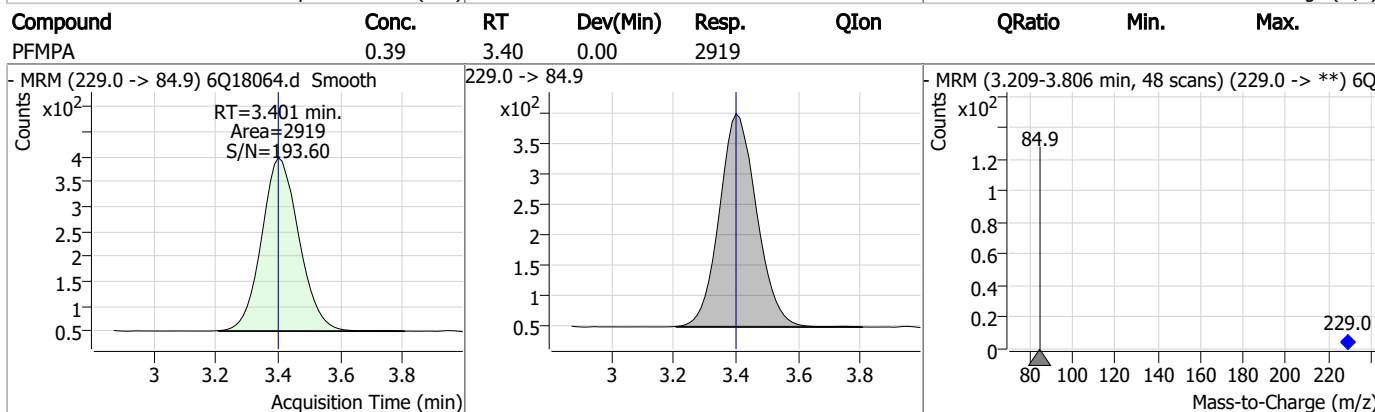
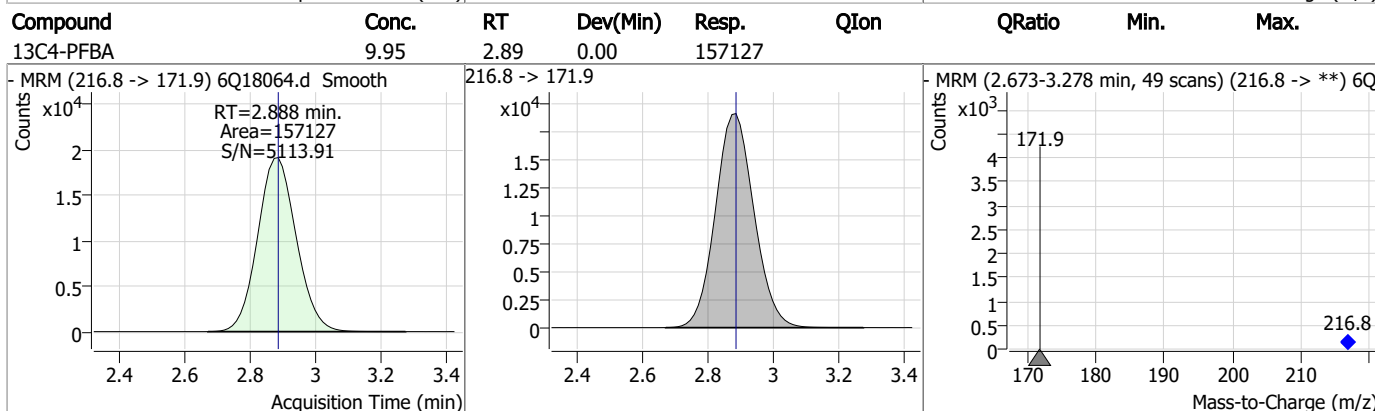
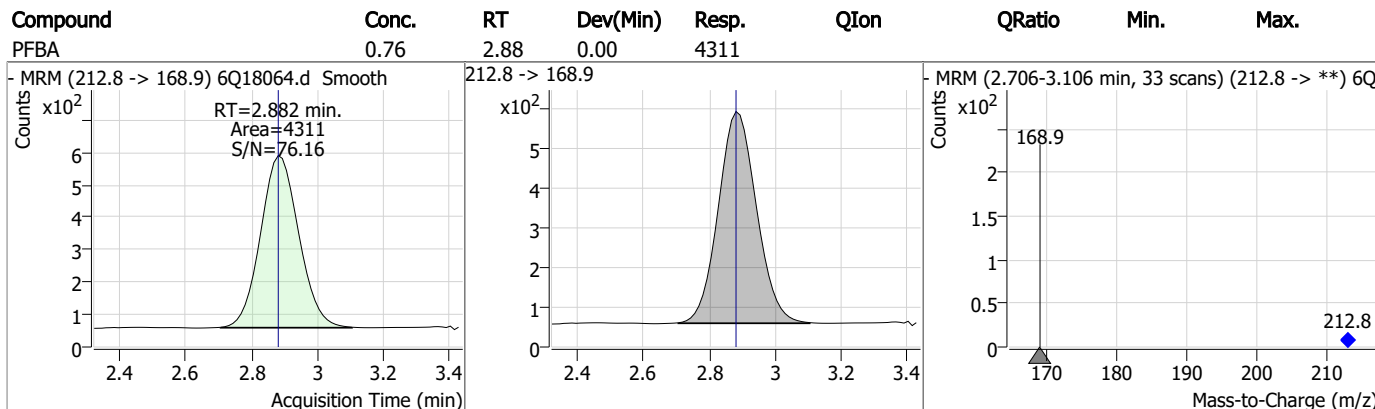
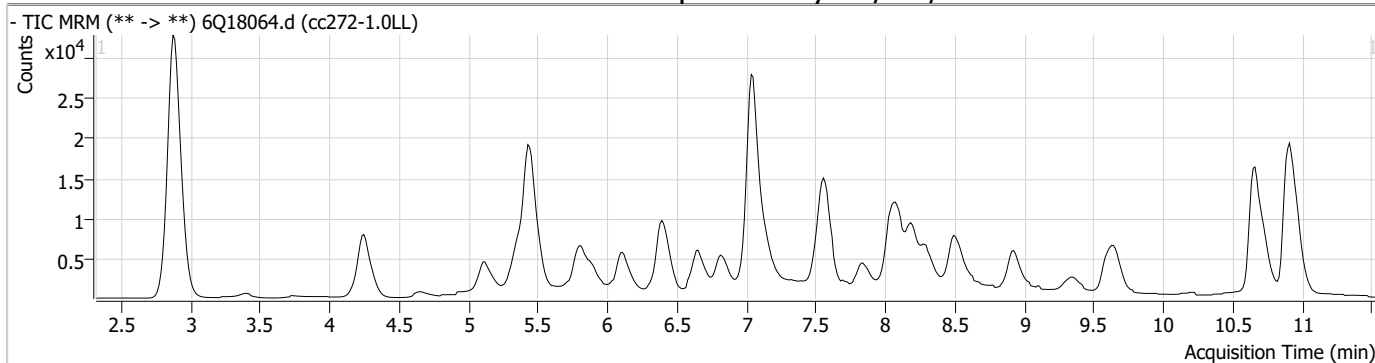
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.13

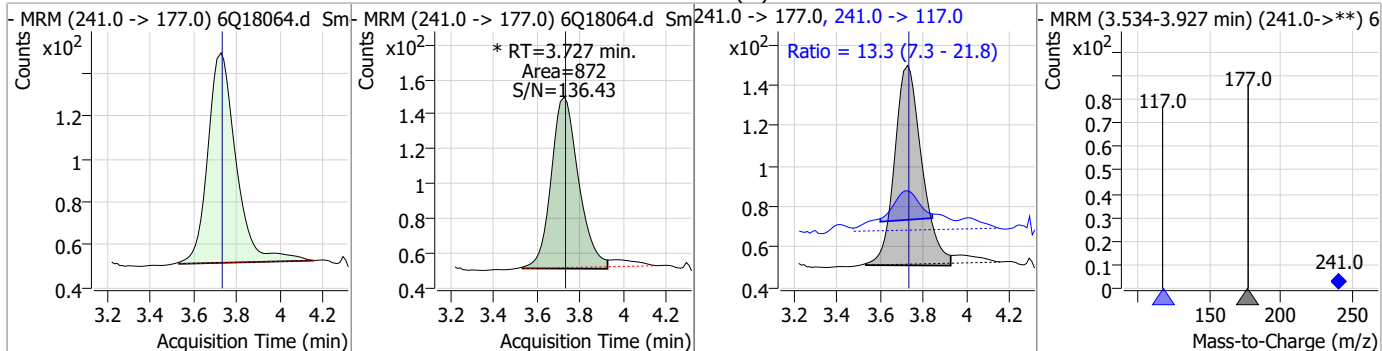
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Perfluorinated Compounds by LC/MS/MS

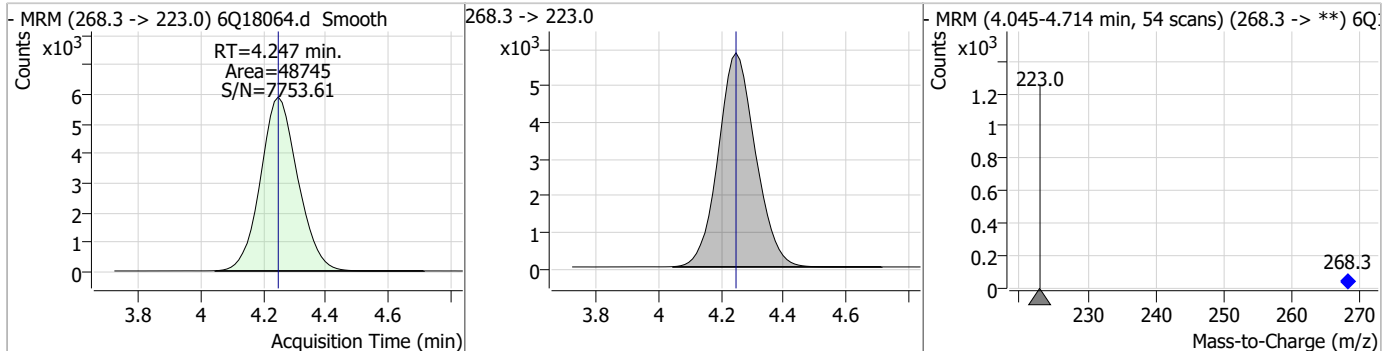


Perfluorinated Compounds by LC/MS/MS

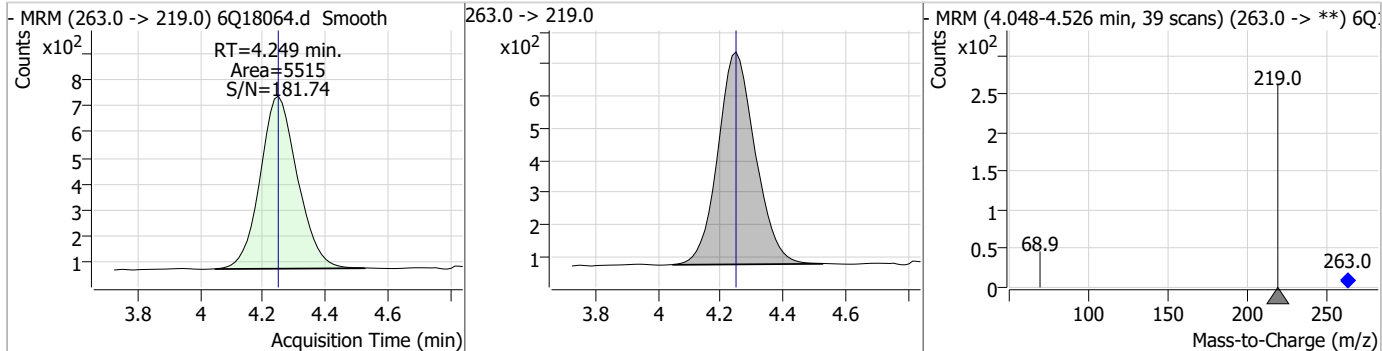
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.96	3.73	0.00	872 (m)	241.0 -> 117.0	13.3	7.3	21.8



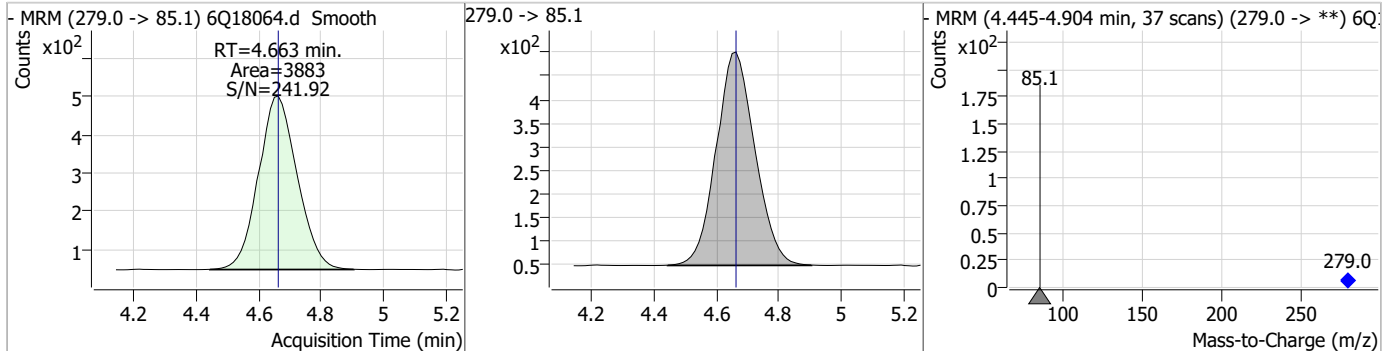
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.83	4.25	0.00	48745				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.38	4.25	0.00	5515				

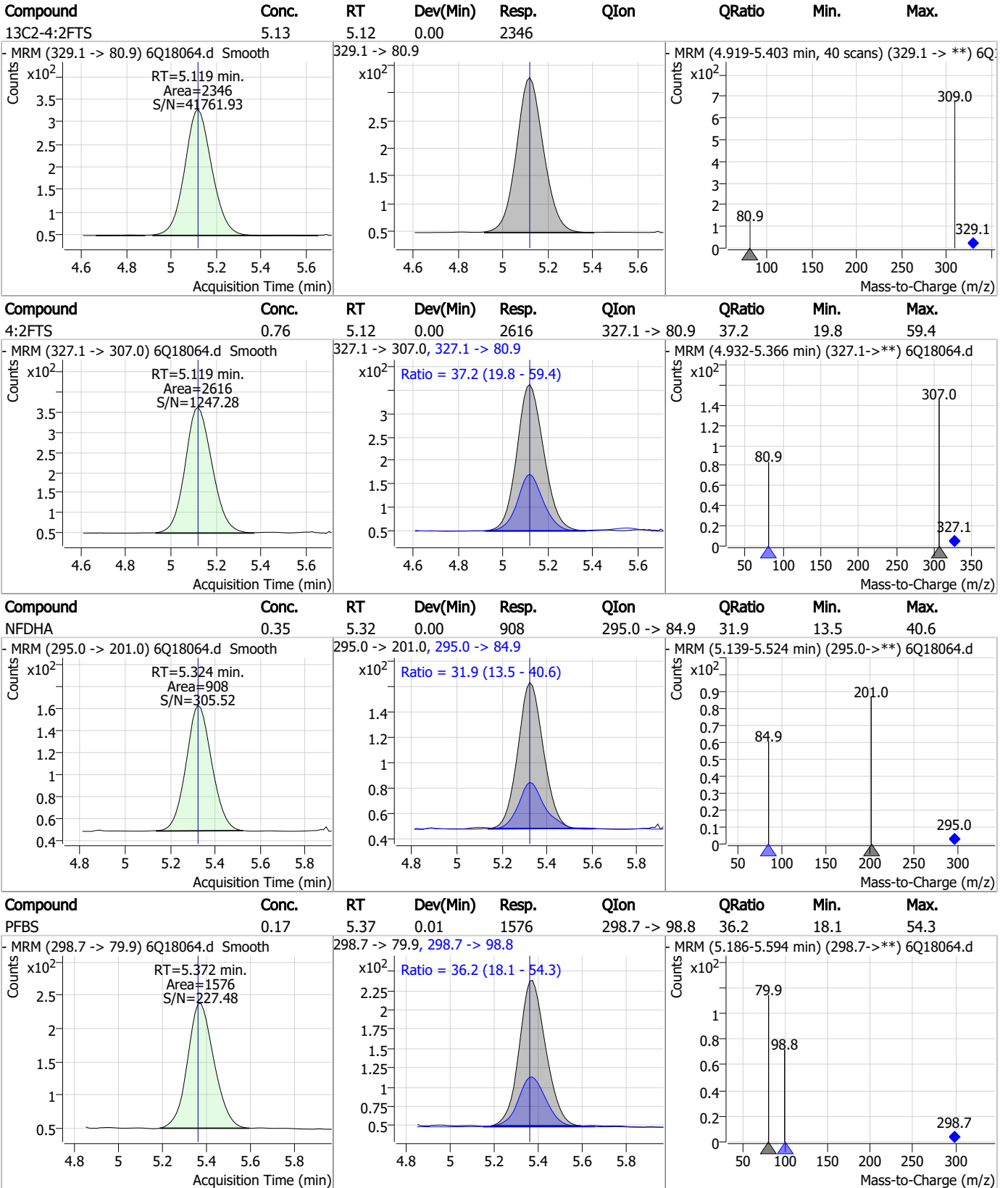


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.38	4.66	0.00	3883				



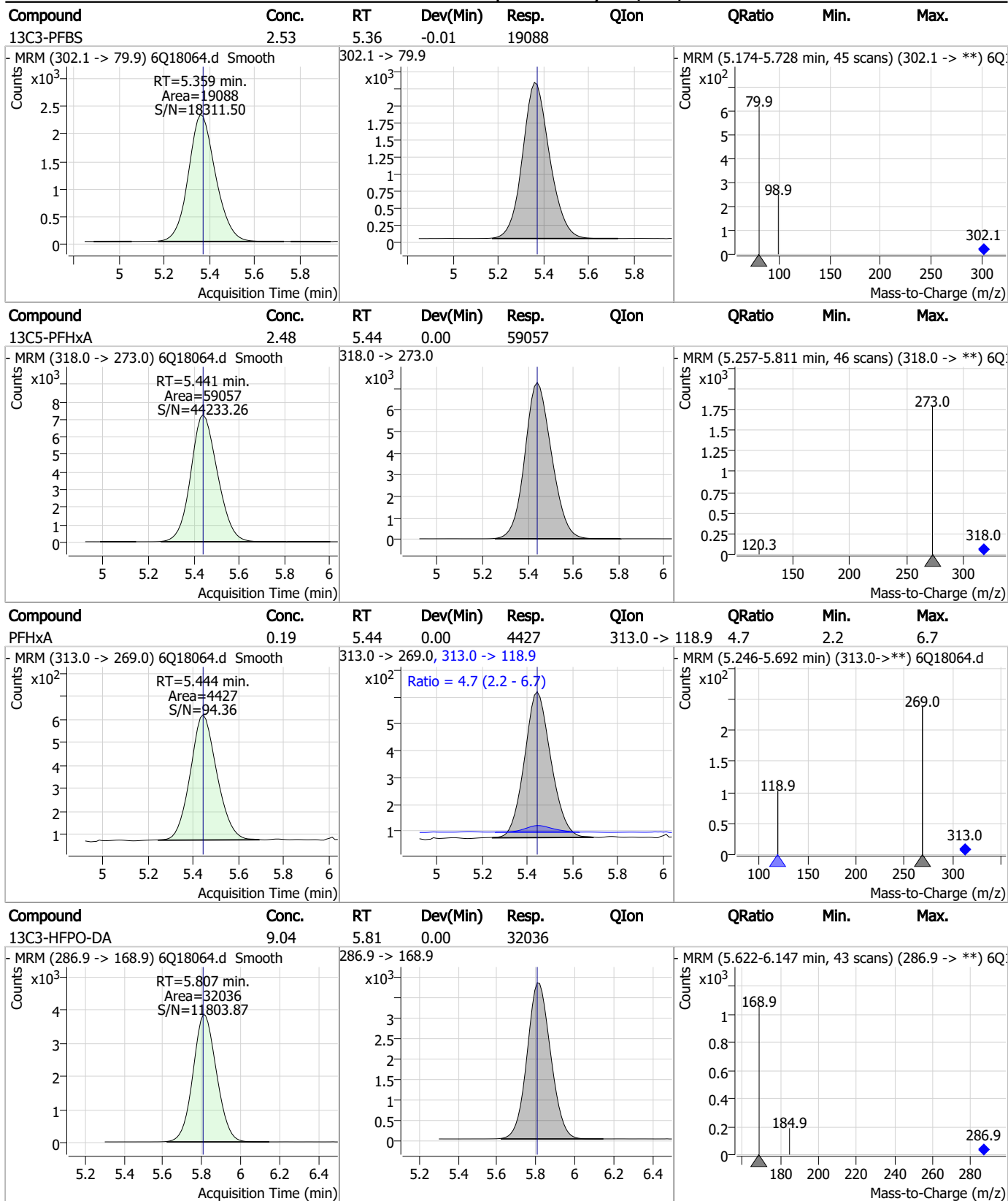
7.6.13
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Perfluorinated Compounds by LC/MS/MS



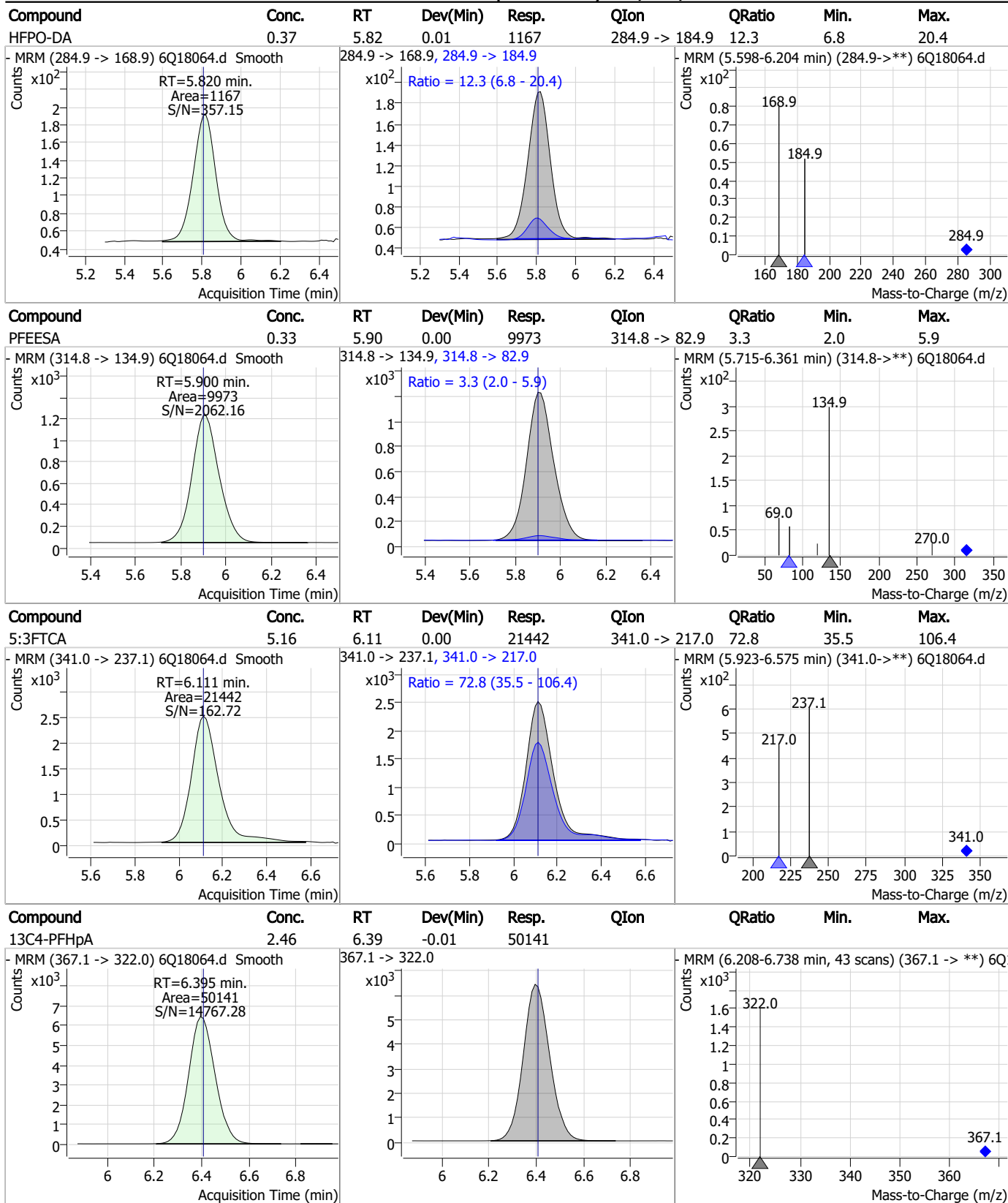
7.6.13 7

Perfluorinated Compounds by LC/MS/MS



7.6.13
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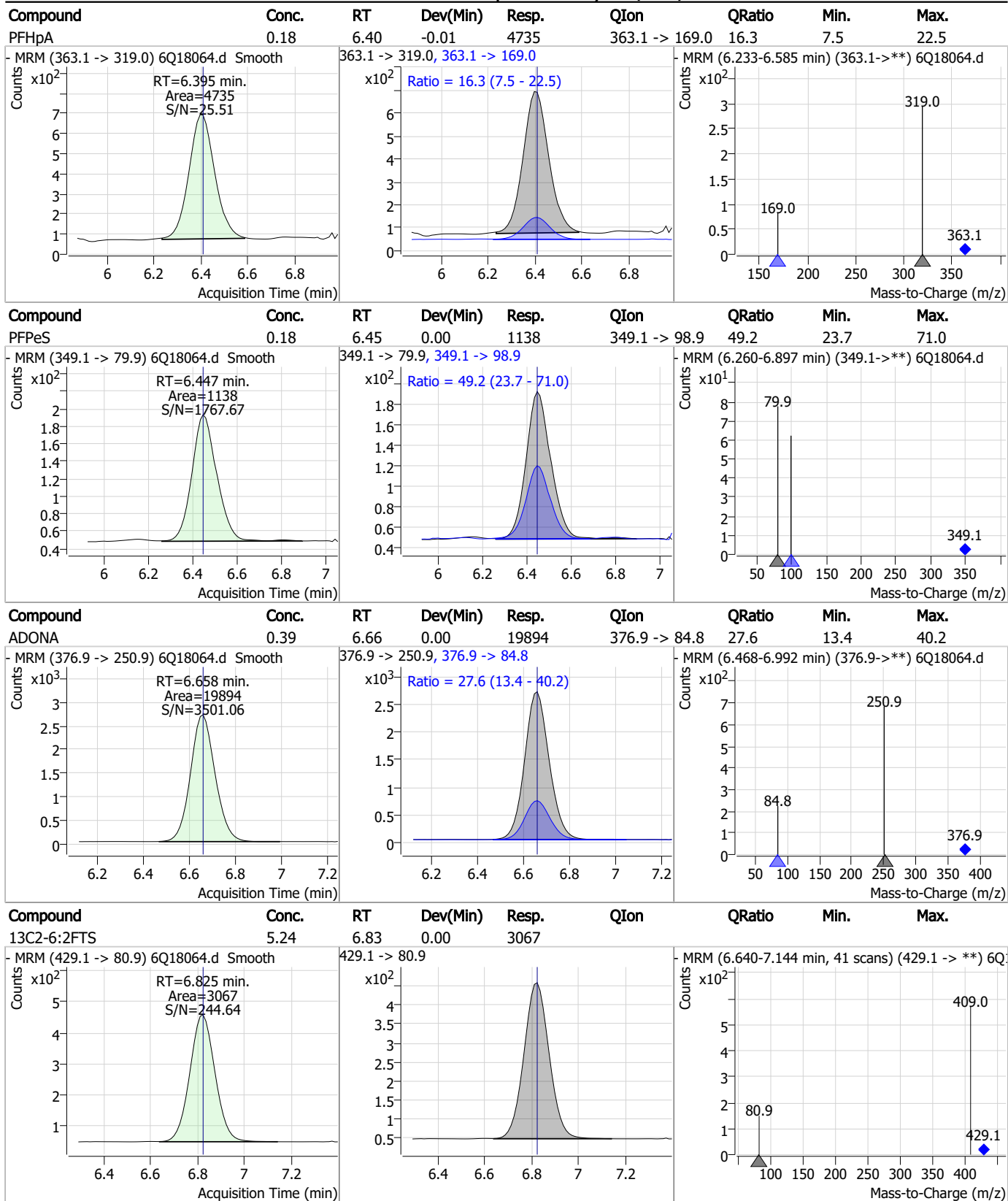
Perfluorinated Compounds by LC/MS/MS



7.6.13

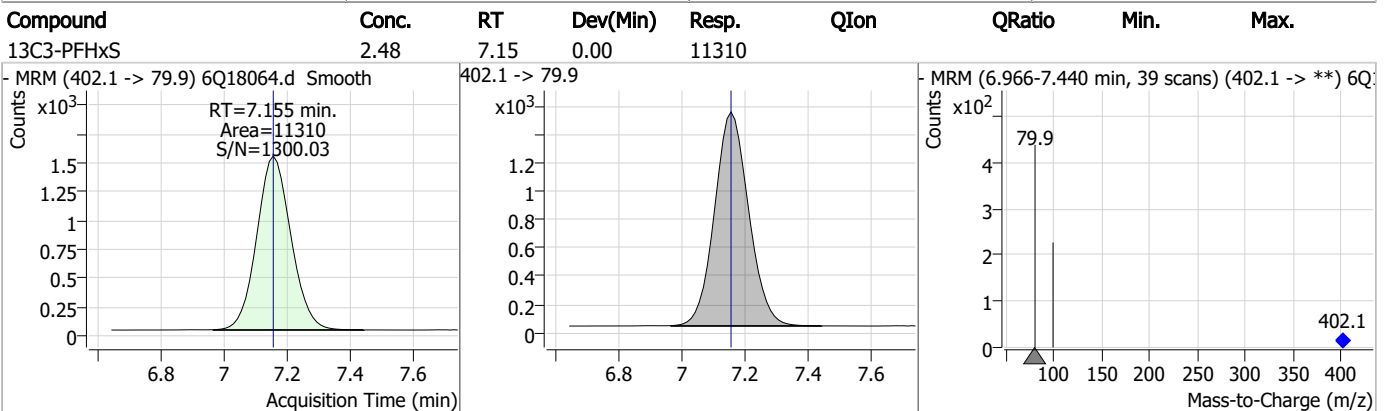
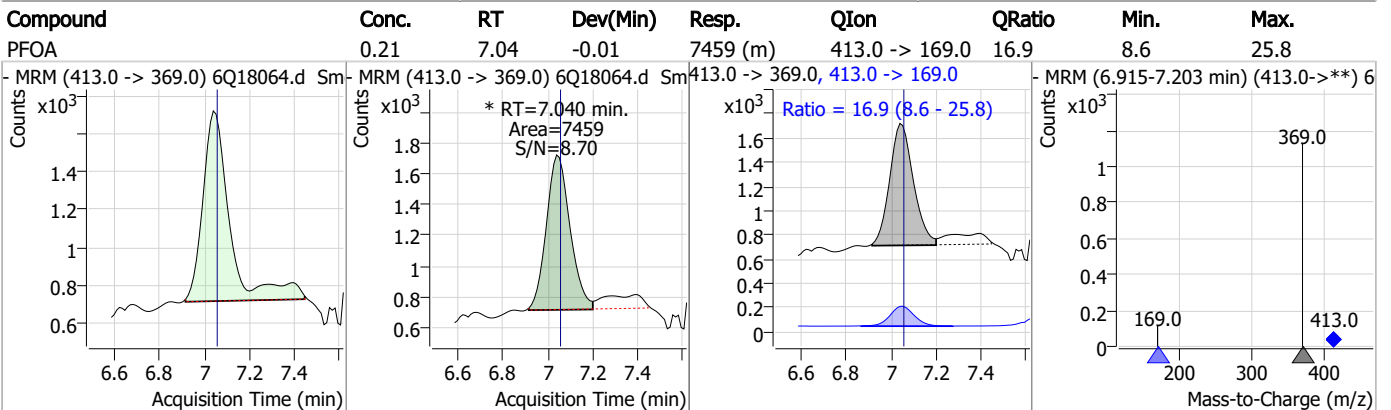
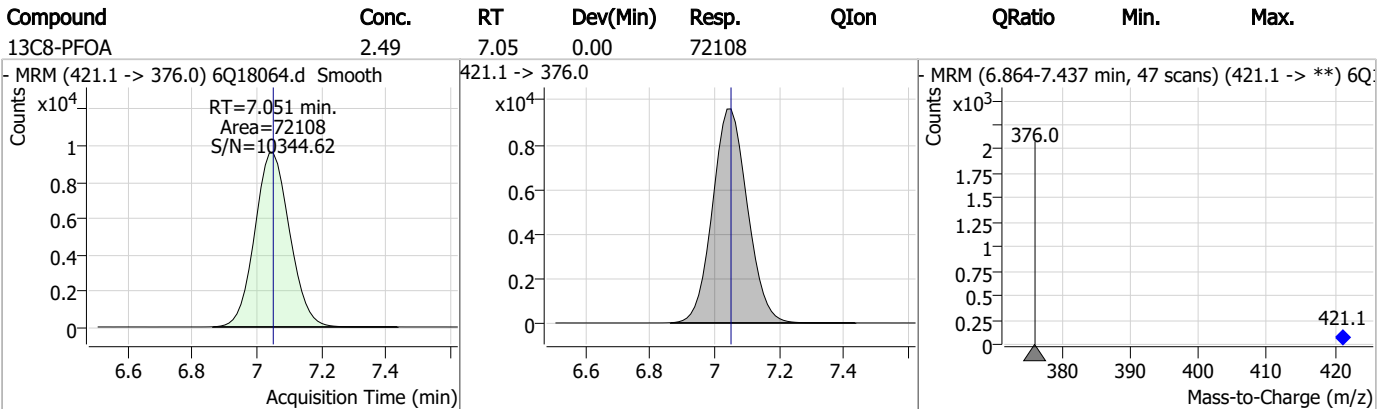
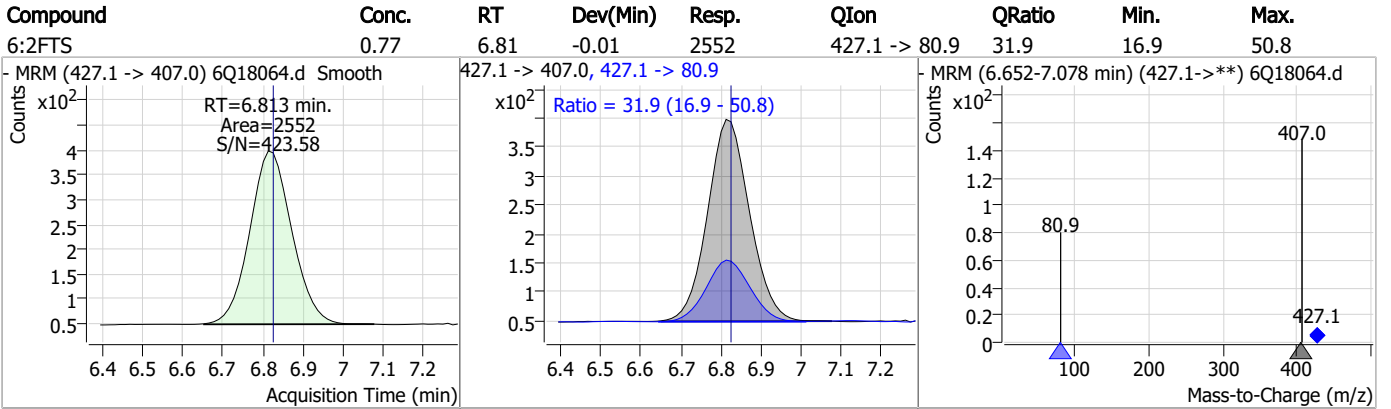
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Perfluorinated Compounds by LC/MS/MS



7.6.13
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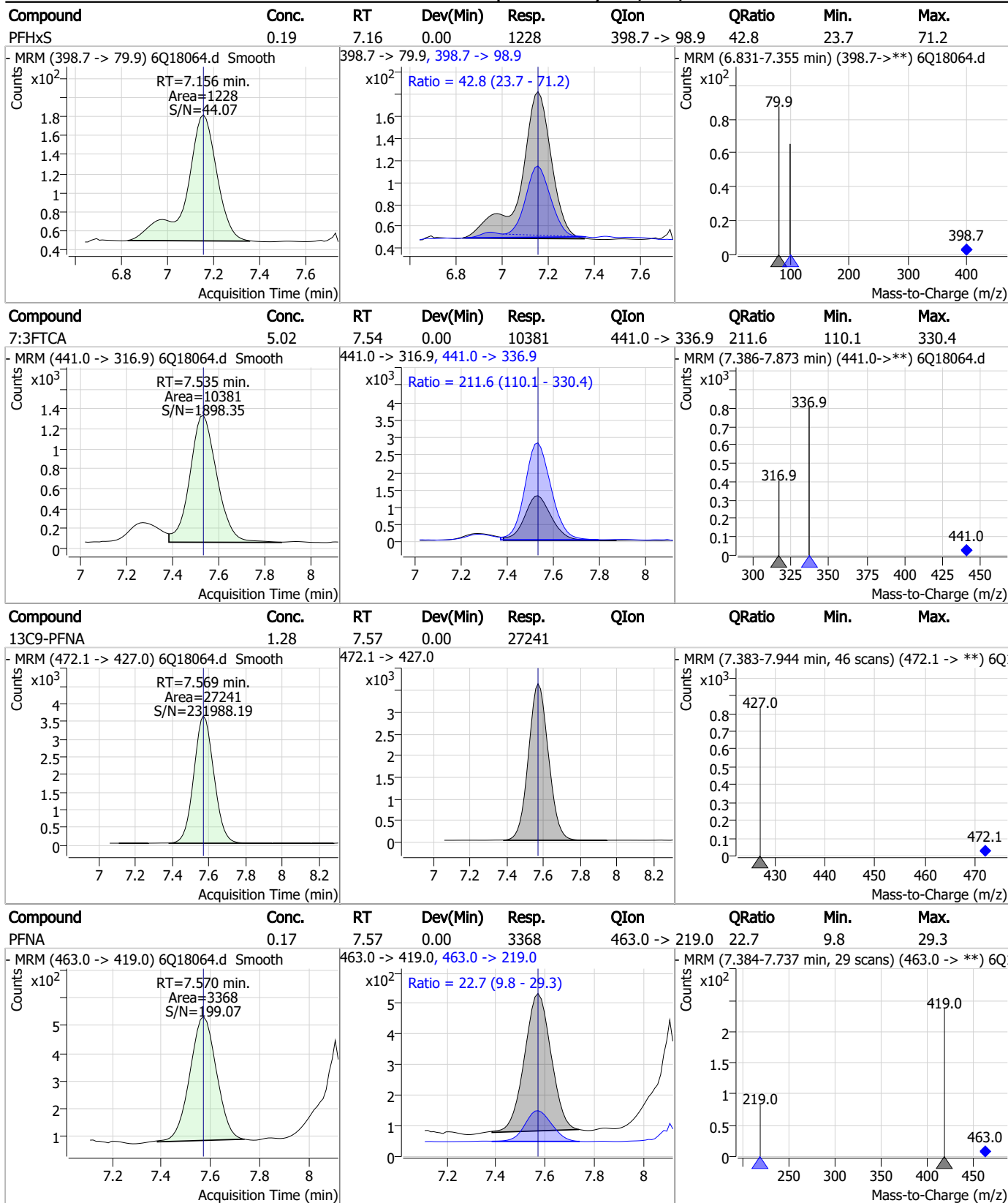
Perfluorinated Compounds by LC/MS/MS



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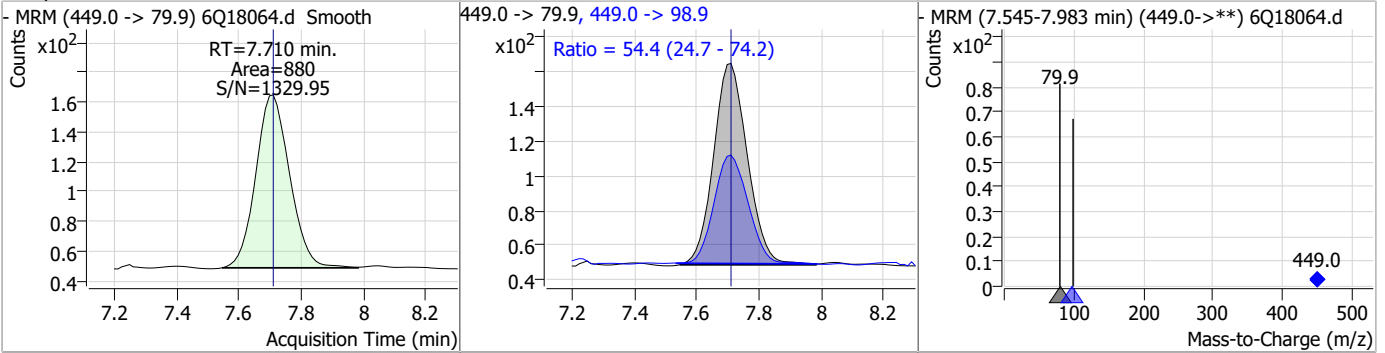
Perfluorinated Compounds by LC/MS/MS



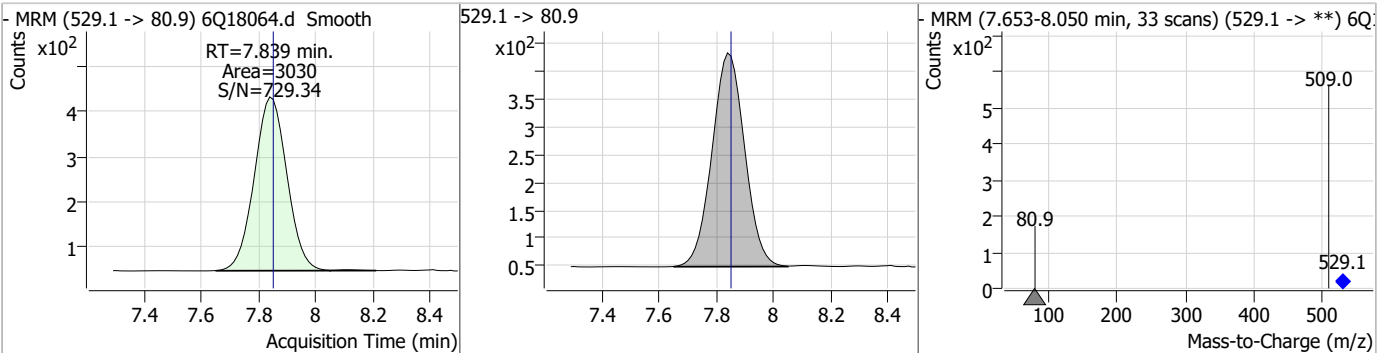
7.6.13
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Perfluorinated Compounds by LC/MS/MS

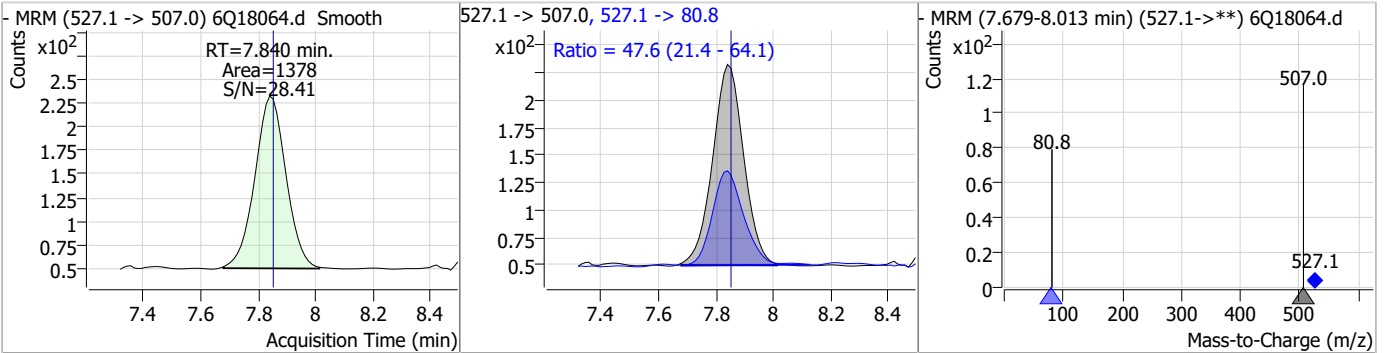
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.15	7.71	0.00	880	449.0 -> 98.9	54.4	24.7	74.2



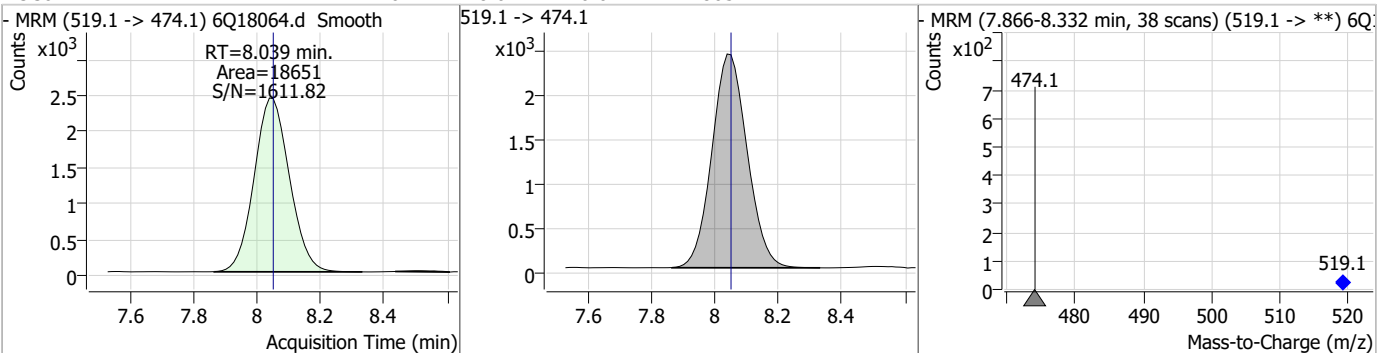
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.80	7.84	-0.01	3030				



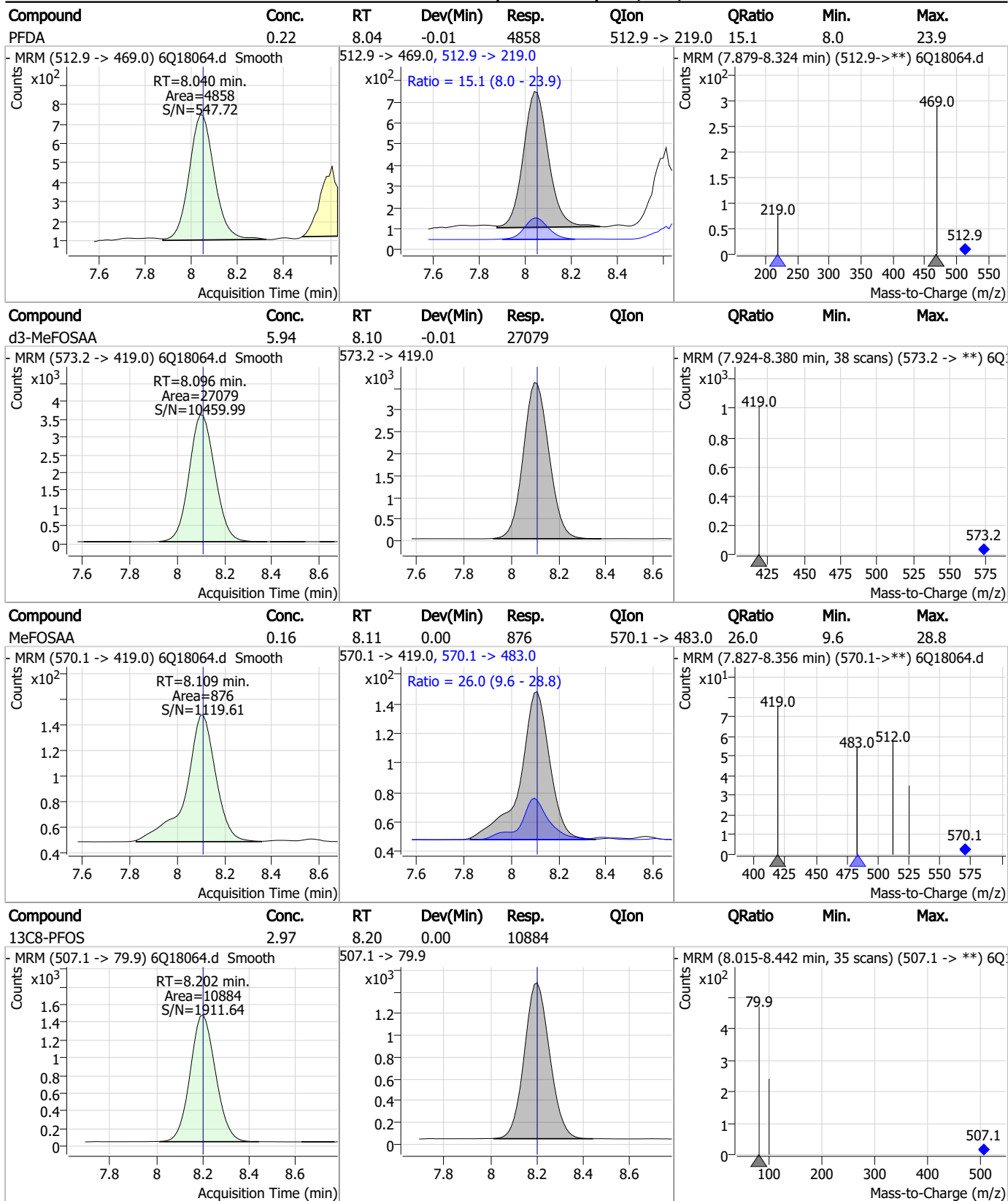
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.80	7.84	-0.01	1378	527.1 -> 80.8	47.6	21.4	64.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.16	8.04	-0.01	18651				

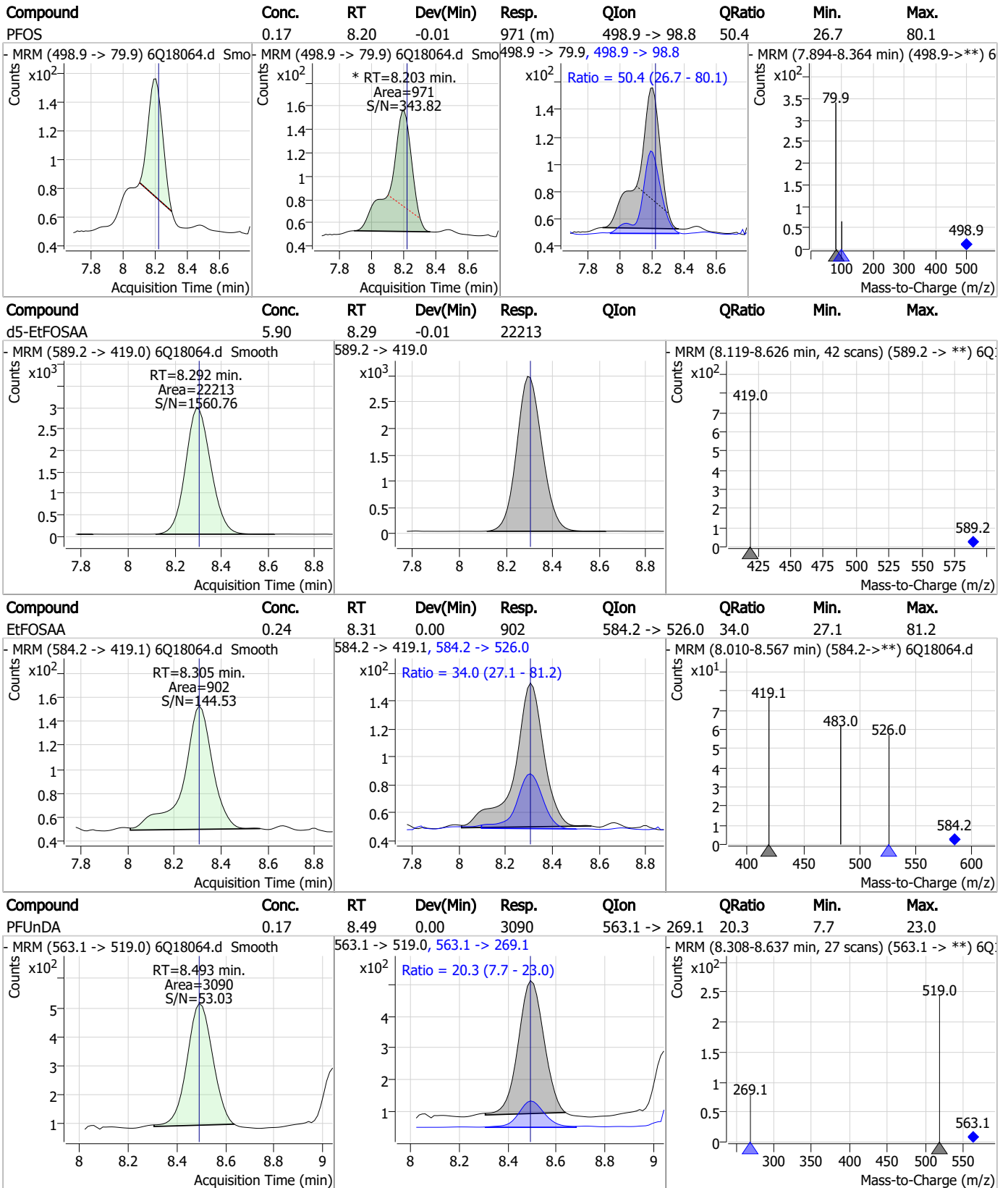


Perfluorinated Compounds by LC/MS/MS



7.6.13
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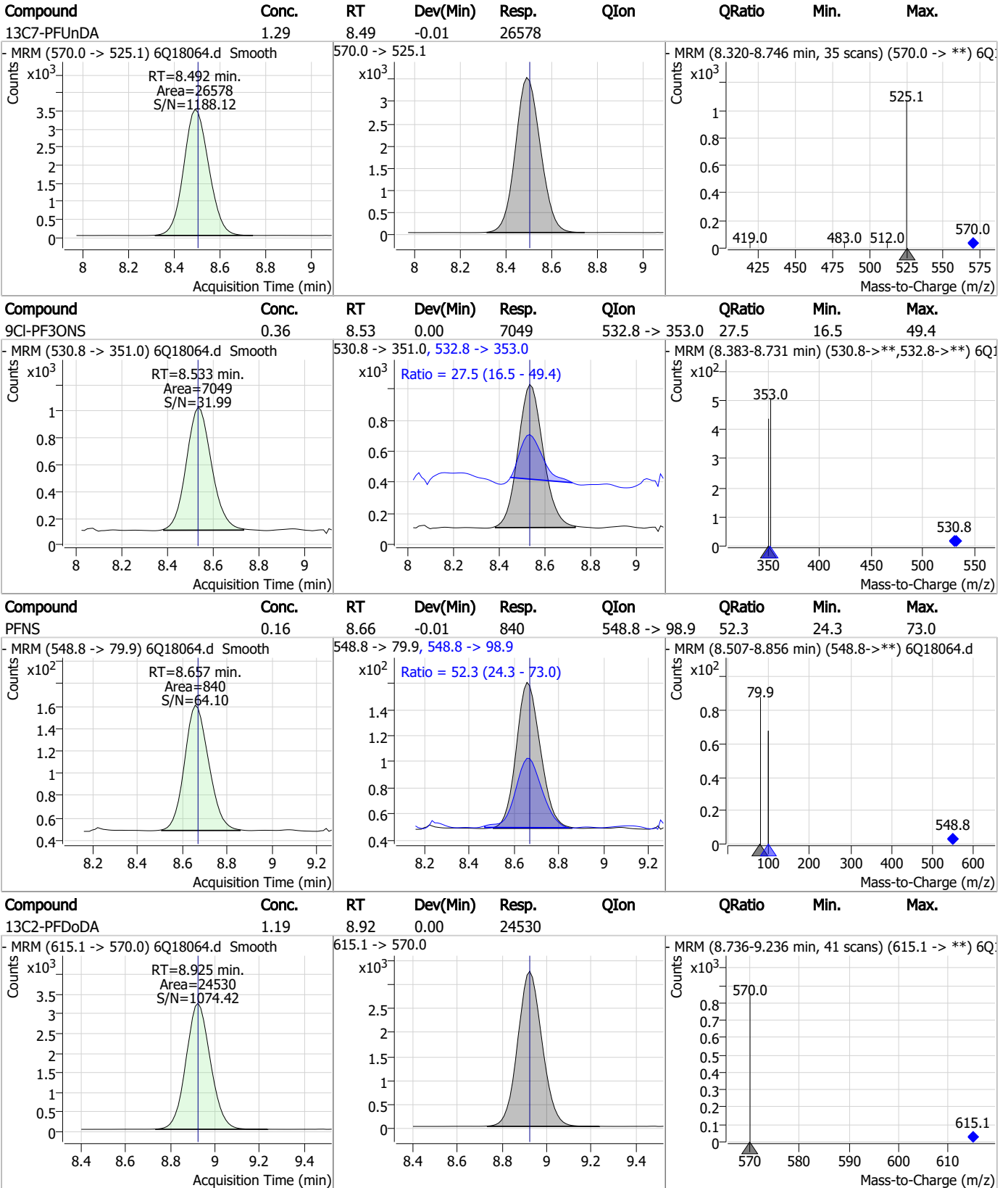
Perfluorinated Compounds by LC/MS/MS



7.6.13
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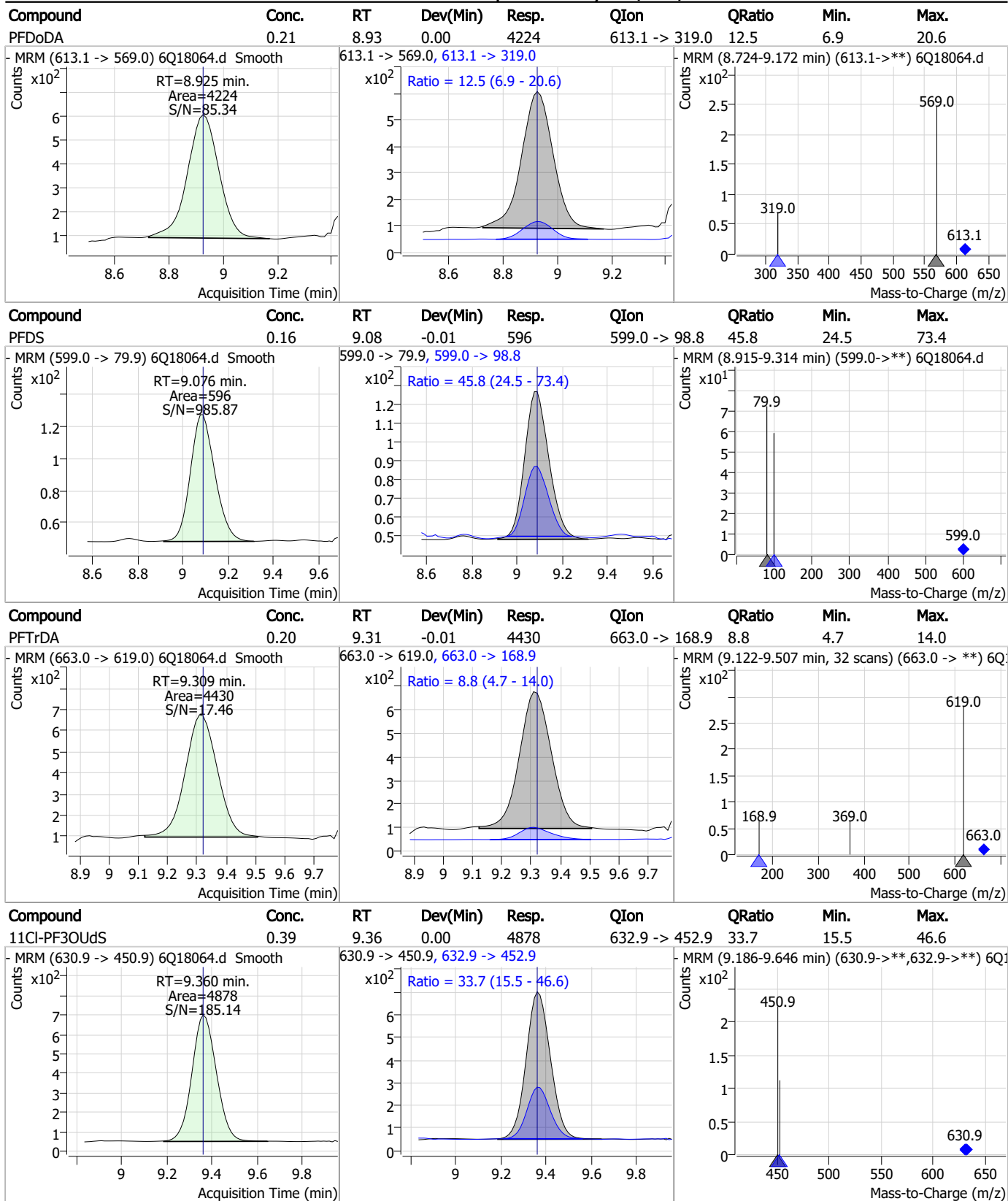
Perfluorinated Compounds by LC/MS/MS



7.6.13 7



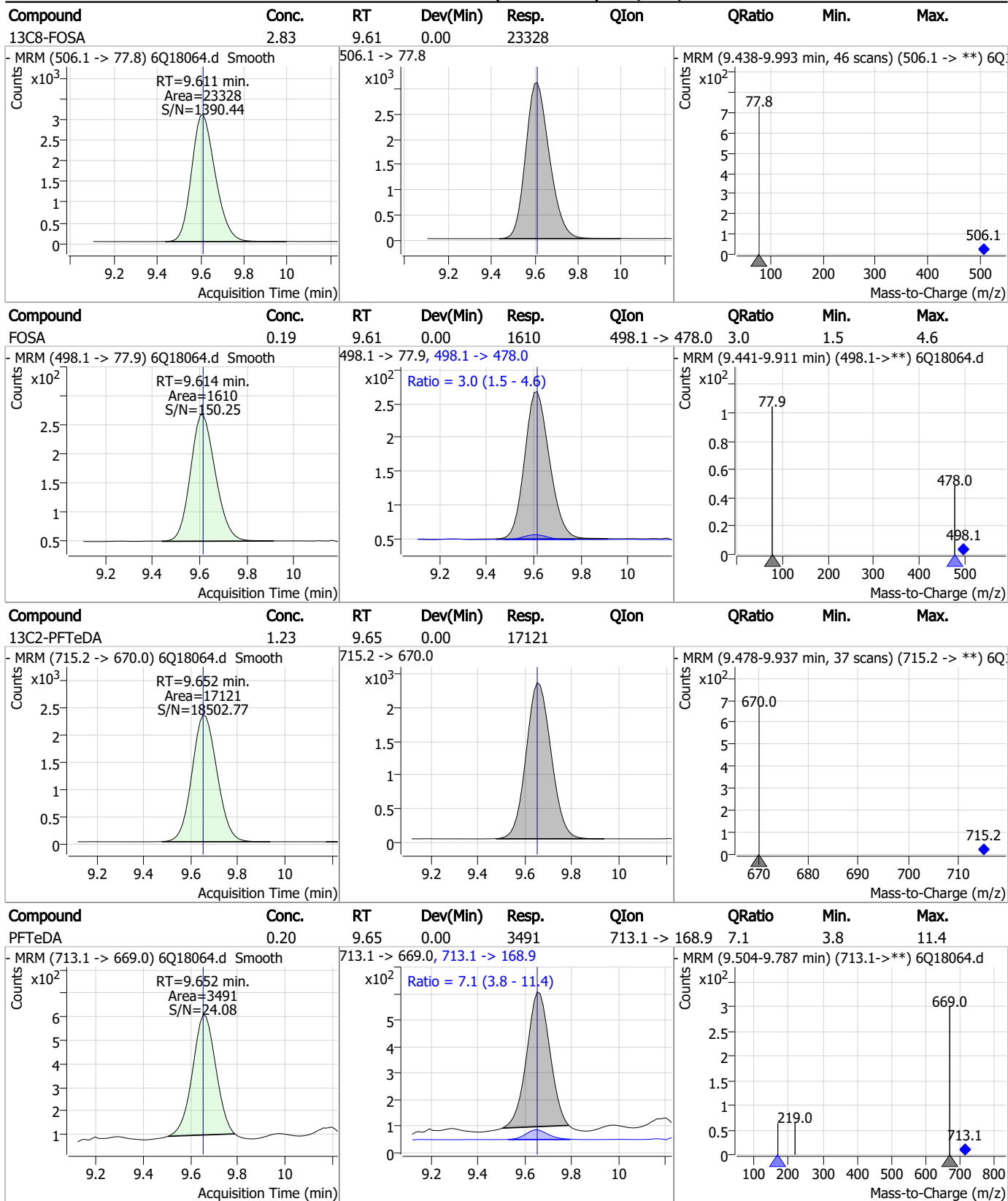
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



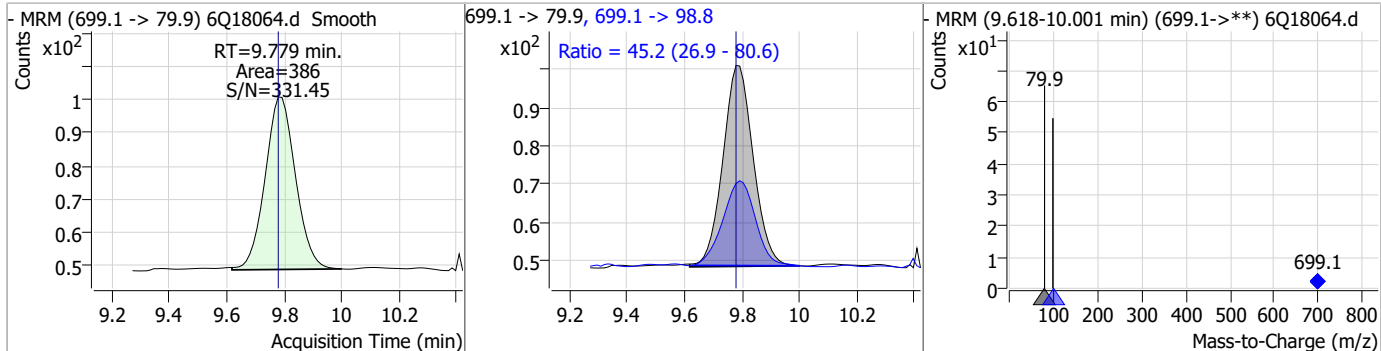
7.6.13

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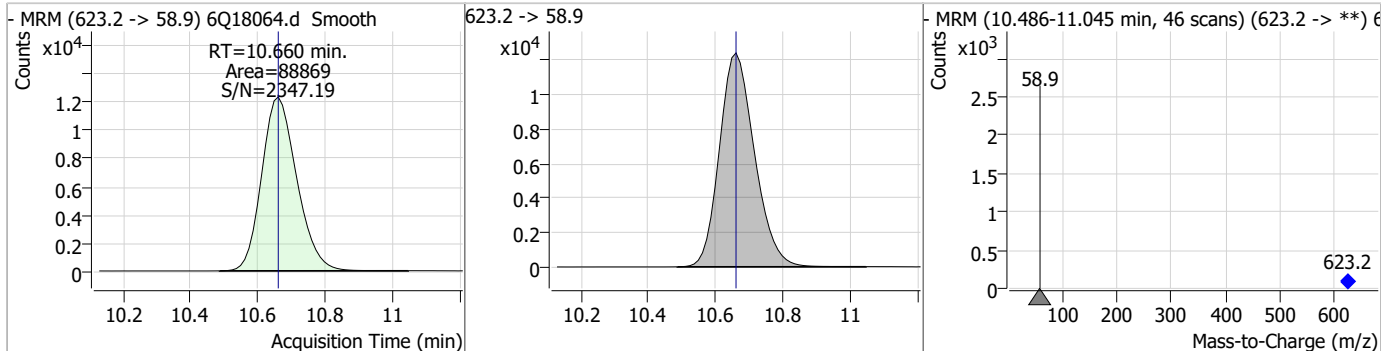


Perfluorinated Compounds by LC/MS/MS

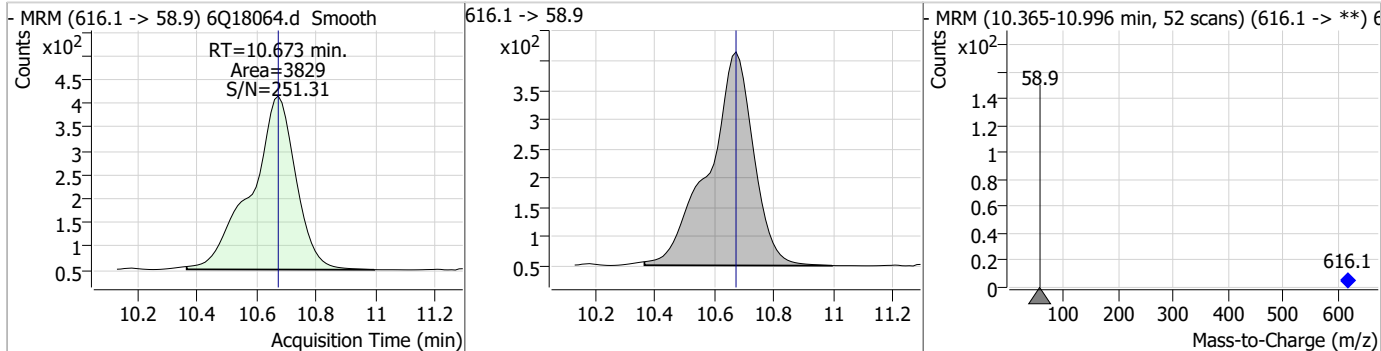
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.20	9.78	0.00	386	699.1 -> 98.8	45.2	26.9	80.6



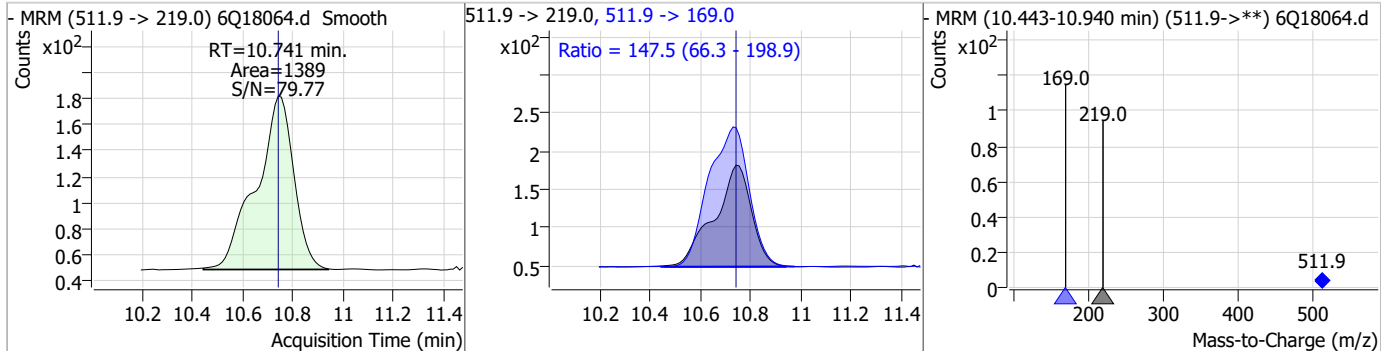
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	28.58	10.66	0.00	88869				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.92	10.67	0.00	3829				

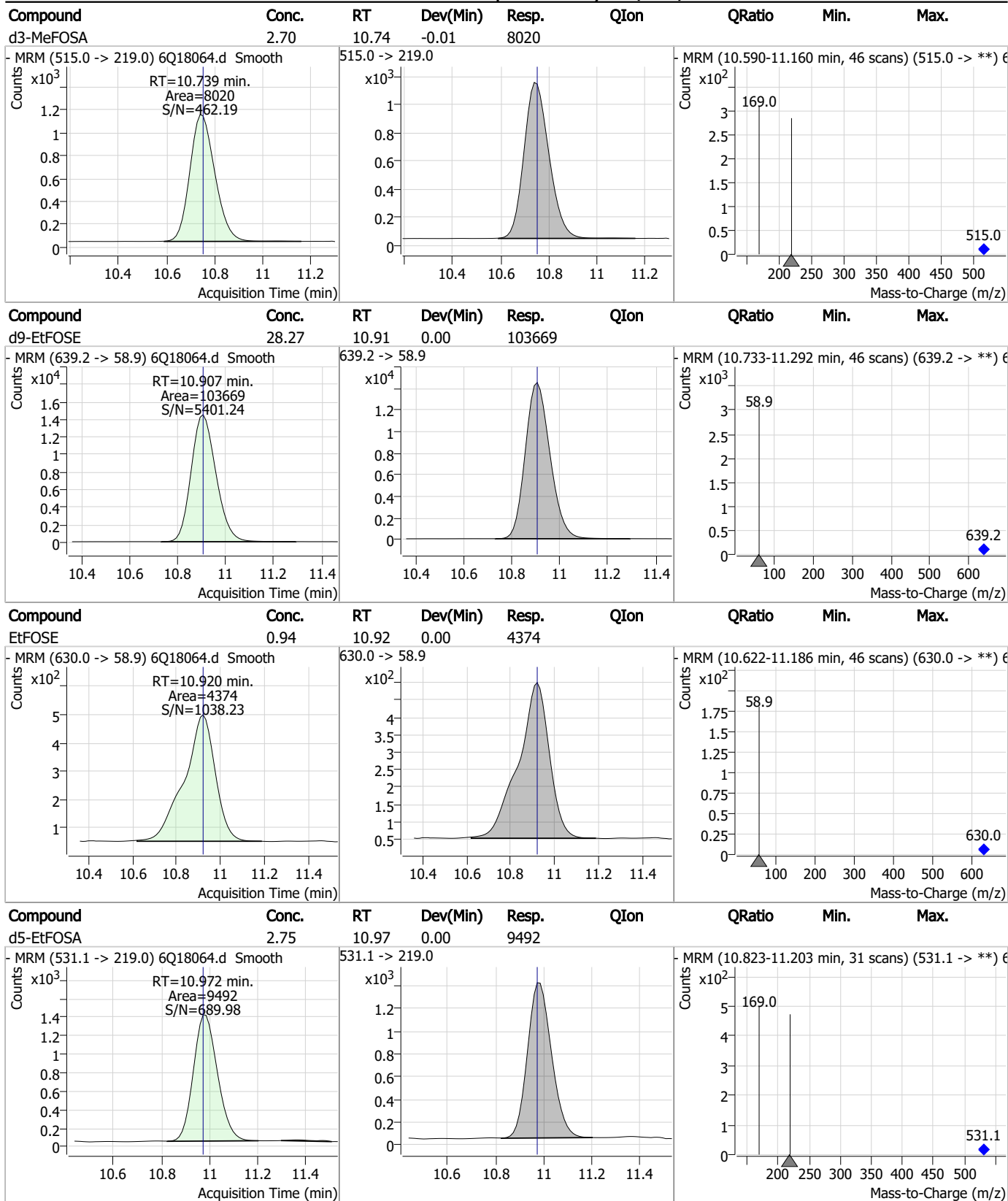


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.38	10.74	0.00	1389	511.9 -> 169.0	147.5	66.3	198.9



7.6.13
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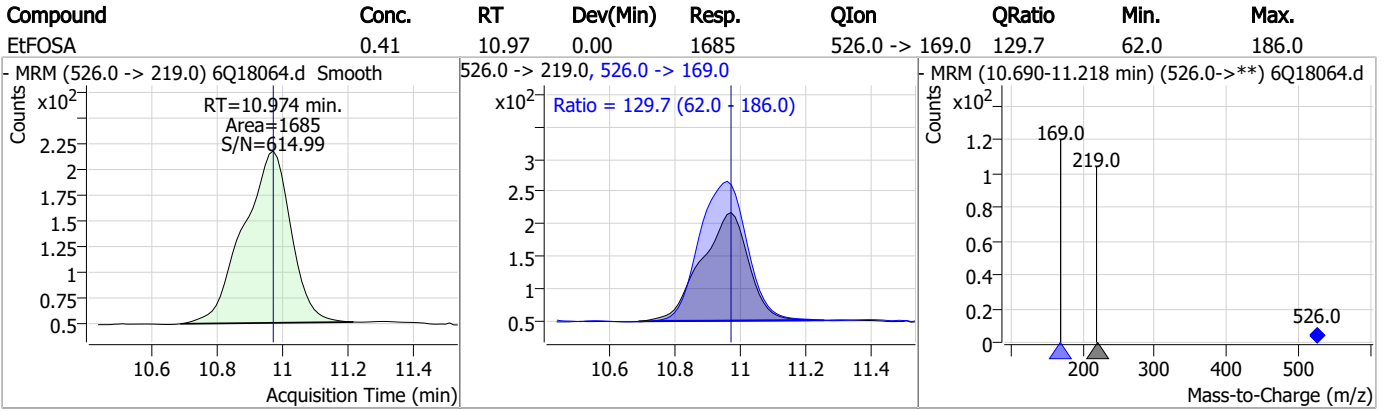
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.6.13

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Manual Integration Approval Summary

Sample Number: S6Q272-CC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18064.D Analyst approved: 05/19/23 12:17 Natasha Gumtie
Injection Time: 05/18/23 21:53 Supervisor approved: 05/22/23 12:22 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
3:3 Fluorotelomer carboxylate	356-02-5		3.73	Poor instrument integration
Perfluorooctanoic acid	335-67-1		7.04	Poor instrument integration
Perfluorooctanesulfonic acid	1763-23-1		8.20	Split peak

7.6.13.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18106.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 8:01:57 AM
 Sample Name : cc272-1.0LL
 Vial : P1-A2
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	163265	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	50777	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	56838	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	50438	2.50 µg/L	-0.012
M8-PFOA	7.051	421.1 -> 376.0	76262	2.50 µg/L	0.000
M9-PFNA	7.569	472.1 -> 427.0	26941	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	20167	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	26652	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	26414	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	17291	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	23736	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	20216	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11460	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	10410	2.50 µg/L	0.000
M2-4:2FTS	5.106	329.1 -> 80.9	2853	5.00 µg/L	-0.012
M2-6:2FTS	6.825	429.1 -> 80.9	3248	5.00 µg/L	0.000
M2-8:2FTS	7.839	529.1 -> 80.9	3811	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	28251	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	35183	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	22621	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	85518	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	100660	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9727	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	8318	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	13203	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	68121	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	9023	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	80158	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	24772	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	29575	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	47121	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.106	329.1 -> 80.9	2853	5.89 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-6:2FTS	6.825	429.1 -> 80.9	3248	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3811	5.70 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.0%		
13C2-PFDoDA	8.925	615.1 -> 570.0	26414	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C2-PFTeDA	9.652	715.2 -> 670.0	17291	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C3-PFBS	5.359	302.1 -> 79.9	20216	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.155	402.1 -> 79.9	11460	2.37 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 = 95.0%		
13C4-PFBA	2.888	216.8 -> 171.9	163265	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C4-PFHpA	6.395	367.1 -> 322.0	50438	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C5-PFHxA	5.441	318.0 -> 273.0	56838	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C5-PFPeA	4.247	268.3 -> 223.0	50777	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C6-PFDA	8.051	519.1 -> 474.1	20167	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C7-PFUnDA	8.492	570.0 -> 525.1	26652	1.23 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C8-FOSA	9.611	506.1 -> 77.8	23736	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C8-PFOA	7.051	421.1 -> 376.0	76262	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C8-PFOS	8.202	507.1 -> 79.9	10410	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C9-PFNA	7.569	472.1 -> 427.0	26941	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
d3-MeFOSAA	8.108	573.2 -> 419.0	28251	5.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.3%		
13C3-HFPO-DA	5.807	286.9 -> 168.9	35183	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
d3-MeFOSA	10.739	515.0 -> 219.0	8318	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.4%		
d5-EtFOSAA	8.304	589.2 -> 419.0	22621	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.8%		
d7-MeFOSE	10.660	623.2 -> 58.9	85518	25.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
d9-EtFOSE	10.907	639.2 -> 58.9	100660	25.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
d5-EtFOSA	10.972	531.1 -> 219.0	9727	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.8%		
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	3058	0.73 µg/L	95
		327.1 -> 80.9	1121		
6:2FTS	6.826	427.1 -> 407.0	3029	0.86 µg/L	100
		427.1 -> 80.9	1033		
8:2FTS	7.840	527.1 -> 507.0	1730	0.79 µg/L	99
		527.1 -> 80.8	725		
EtFOSAA	8.318	584.2 -> 419.1	671	0.17 µg/L	96
		584.2 -> 526.0	384		
FOSA	9.602	498.1 -> 77.9	1772	0.20 µg/L	96
		498.1 -> 478.0	31		
MeFOSAA	8.109	570.1 -> 419.0	1242	0.22 µg/L	87
		570.1 -> 483.0	164		
PFBA	2.882	212.8 -> 168.9	4460	0.75 µg/L	100
PFBS	5.360	298.7 -> 79.9	1638	0.17 µg/L	99
		298.7 -> 98.8	599		
PFDA	8.040	512.9 -> 469.0	5154	0.21 µg/L	100
		512.9 -> 219.0	828		
PFDODA	8.925	613.1 -> 569.0	4280	0.20 µg/L	93
		613.1 -> 319.0	462		
PFDS	9.089	599.0 -> 79.9	630	0.18 µg/L	93

7.6.14

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.395	599.0 -> 98.8	339	0.20	µg/L	100
		363.1 -> 319.0	5050			
PFHpS	7.710	363.1 -> 169.0	755	0.18	µg/L	99
		449.0 -> 79.9	1016			
PFHxA	5.444	449.0 -> 98.9	510	0.22	µg/L	97
		313.0 -> 269.0	4924			
PFHxS	7.156	313.0 -> 118.9	274	0.19	µg/L	96
		398.7 -> 79.9	1208			
PFNA	7.570	398.7 -> 98.9	605	0.19	µg/L	99
		463.0 -> 419.0	3724			
PFNS	8.669	463.0 -> 219.0	738	0.19	µg/L	93
		548.8 -> 79.9	970			
PFOA	7.040	548.8 -> 98.9	424	0.17	µg/L	92
		413.0 -> 369.0	6282			
PFOS	8.203	413.0 -> 169.0	1295	0.16	µg/L	95
		498.9 -> 79.9	877			
PFPeA	4.249	498.9 -> 98.8	499	0.39	µg/L	100
		263.0 -> 219.0	5861			
PFPeS	6.447	349.1 -> 79.9	1186	0.19	µg/L	96
		349.1 -> 98.9	596			
PFTeDA	9.652	713.1 -> 669.0	3285	0.18	µg/L	100
		713.1 -> 168.9	252			
PFTrDA	9.309	663.0 -> 619.0	4906	0.20	µg/L	95
		663.0 -> 168.9	374			
PFUnDA	8.493	563.1 -> 519.0	3512	0.19	µg/L	99
		563.1 -> 269.1	547			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	4779	0.35	µg/L	99
		632.9 -> 452.9	1521			
9Cl-PF3ONS	8.533	530.8 -> 351.0	7961	0.37	µg/L	96
		532.8 -> 353.0	2809			
ADONA	6.658	376.9 -> 250.9	19856	0.35	µg/L	98
		376.9 -> 84.8	5551			
HFPO-DA	5.807	284.9 -> 168.9	1382	0.40	µg/L	95
		284.9 -> 184.9	161			
3:3FTCA	3.727	241.0 -> 177.0	925	0.98	µg/L	95
		241.0 -> 117.0	153			
5:3FTCA	6.111	341.0 -> 237.1	21617	5.40	µg/L	96
		341.0 -> 217.0	16069			
7:3FTCA	7.535	441.0 -> 316.9	9223	4.64	µg/L	87
		441.0 -> 336.9	22303			
EtFOSA	10.974	526.0 -> 219.0	1511	0.36	µg/L	88
		526.0 -> 169.0	2086			
EtFOSE	10.907	630.0 -> 58.9	4476	0.99	µg/L	100
		511.9 -> 219.0	1326			
MeFOSA	10.741	511.9 -> 169.0	2166	0.35	µg/L	74
		616.1 -> 58.9	3897			
MeFOSE	10.673	699.1 -> 79.9	359	0.97	µg/L	100
		699.1 -> 98.8	189			
PFDoDS	9.793	295.0 -> 201.0	1096	0.19	µg/L	99
		295.0 -> 84.9	265			
NFDHA	5.324	279.0 -> 85.1	3978	0.44	µg/L	94
		229.0 -> 84.9	2947			
PFMBA	4.650	314.8 -> 134.9	10306	0.38	µg/L	100
		314.8 -> 82.9	406			
PFMPA	3.401			0.38	µg/L	100
PFEESA	5.900			0.35	µg/L	100

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

7.6.14
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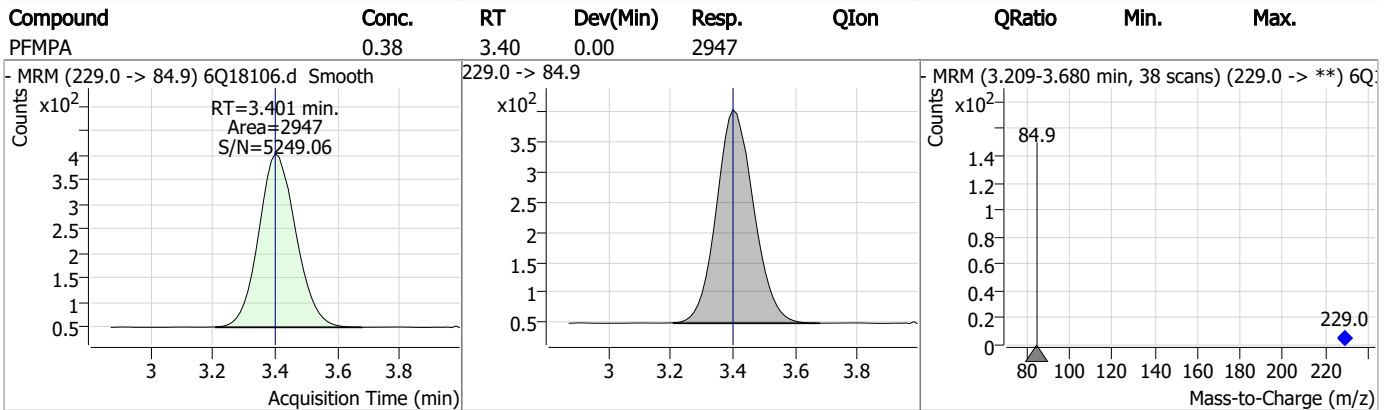
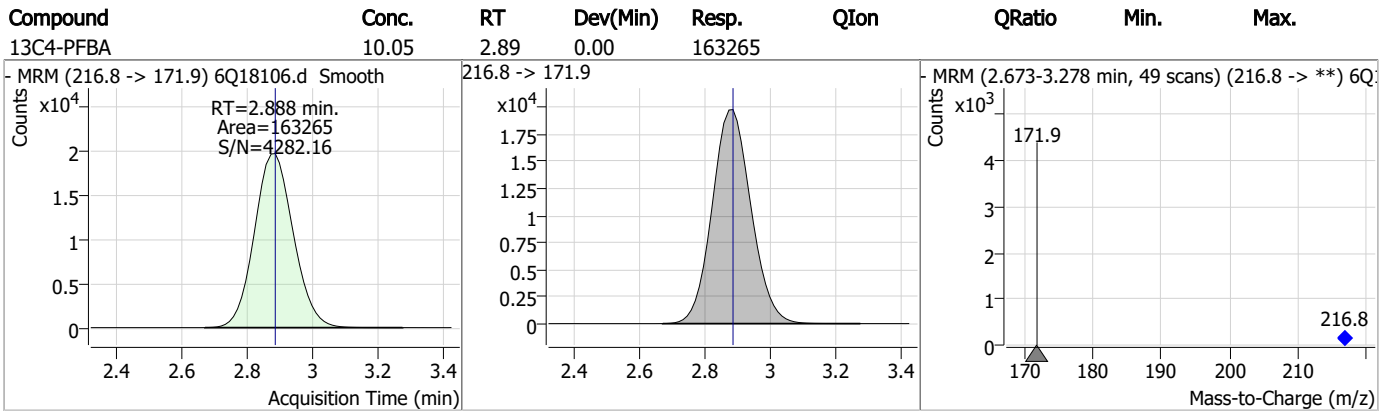
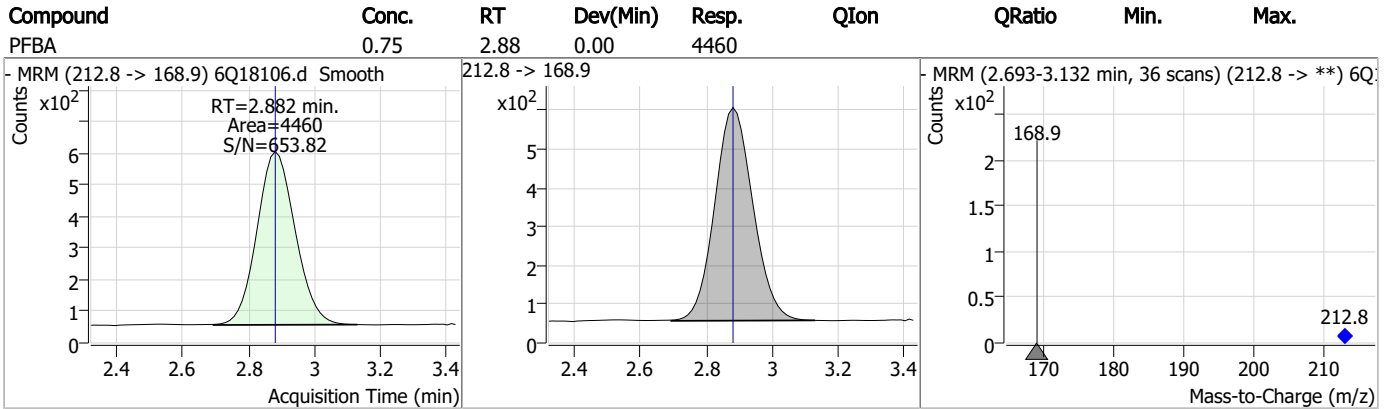
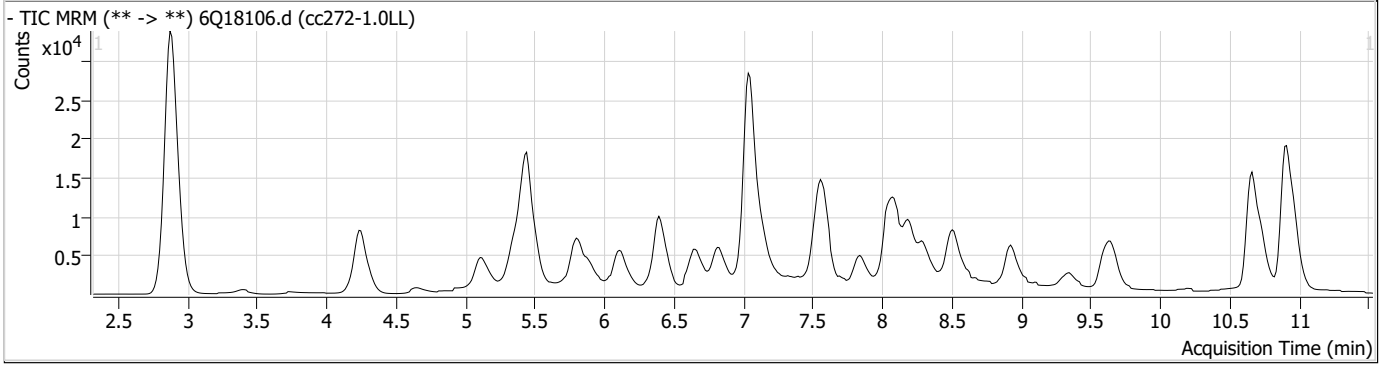
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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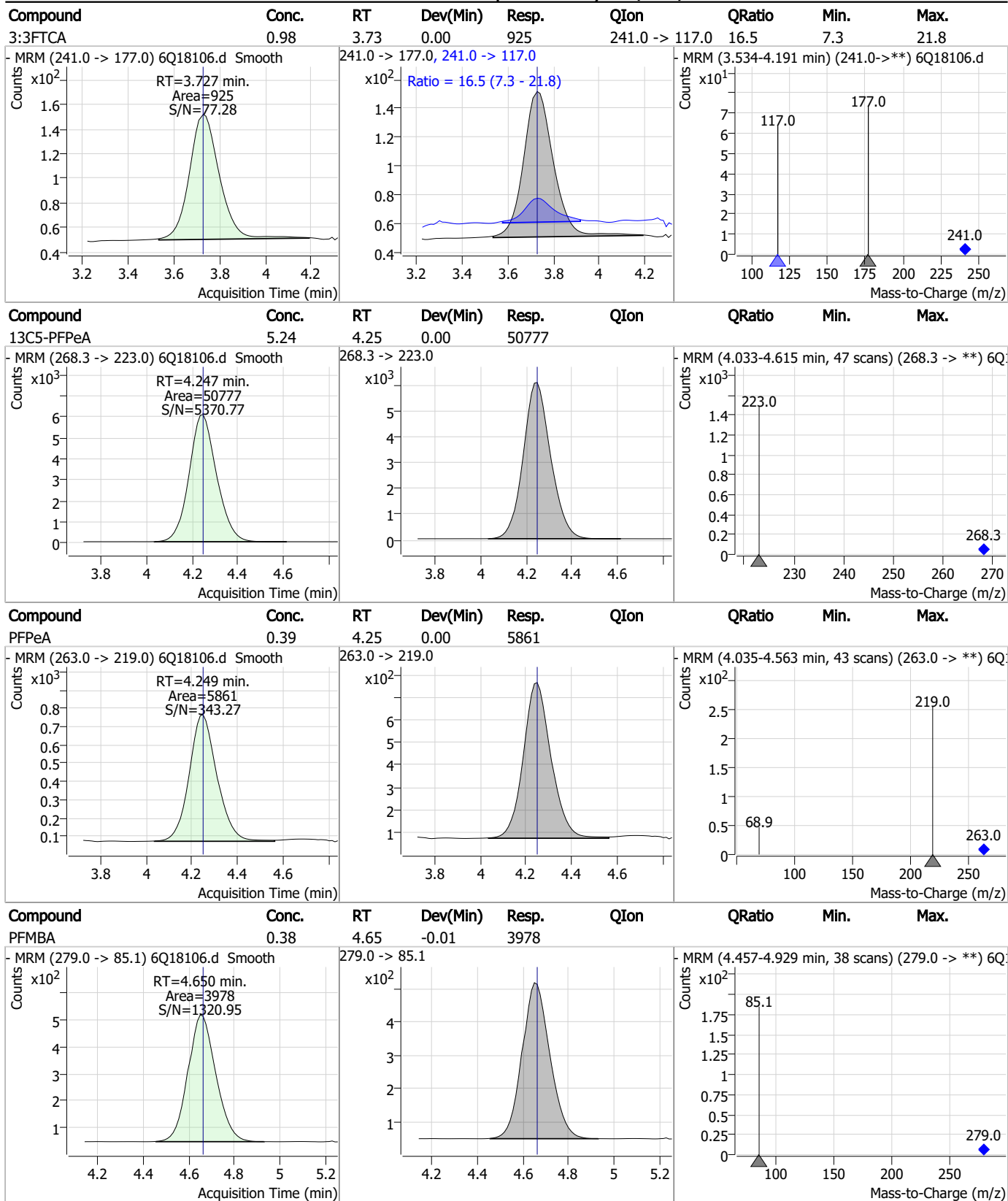
7.6.14

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Perfluorinated Compounds by LC/MS/MS



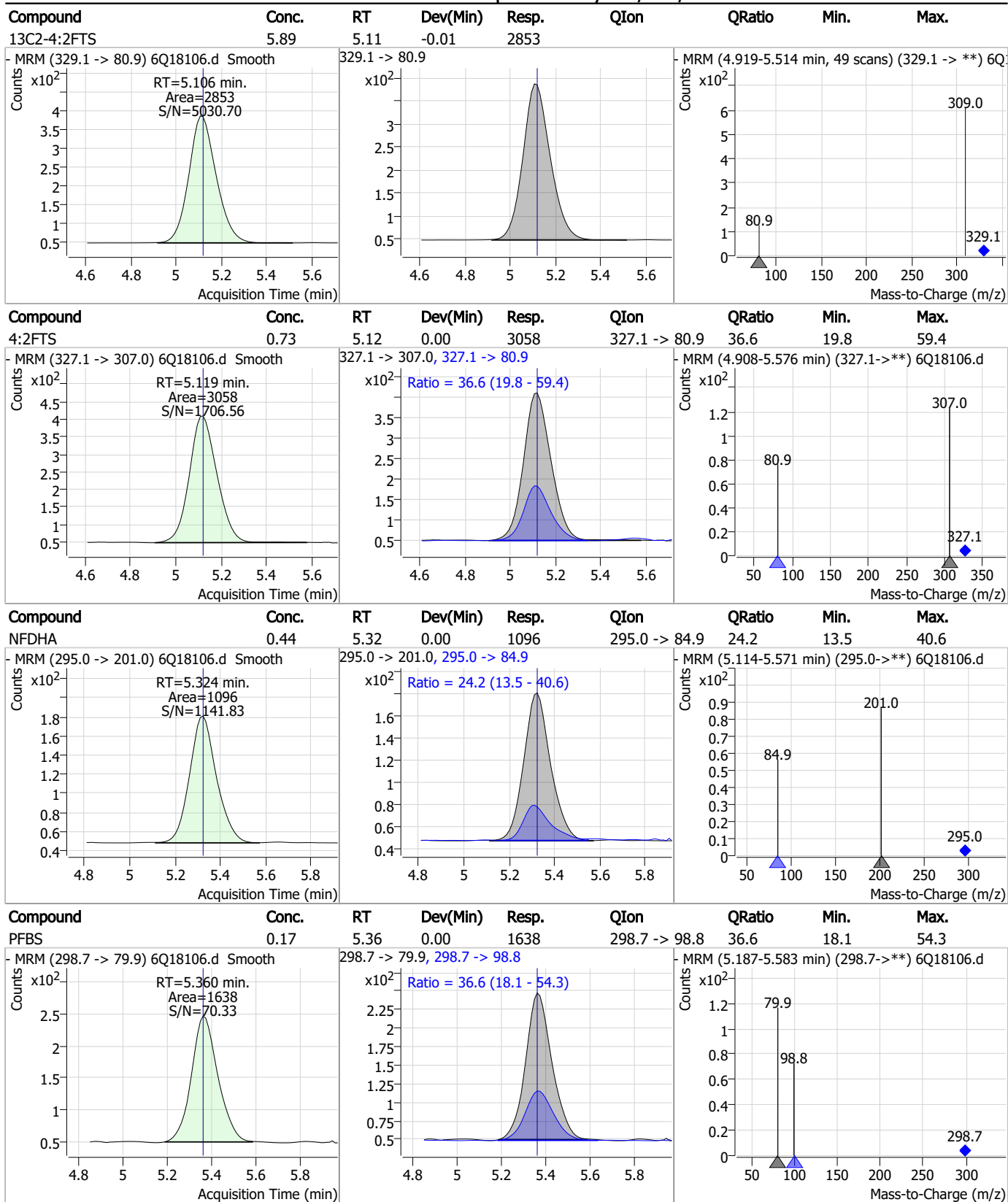
Perfluorinated Compounds by LC/MS/MS



7.6.14

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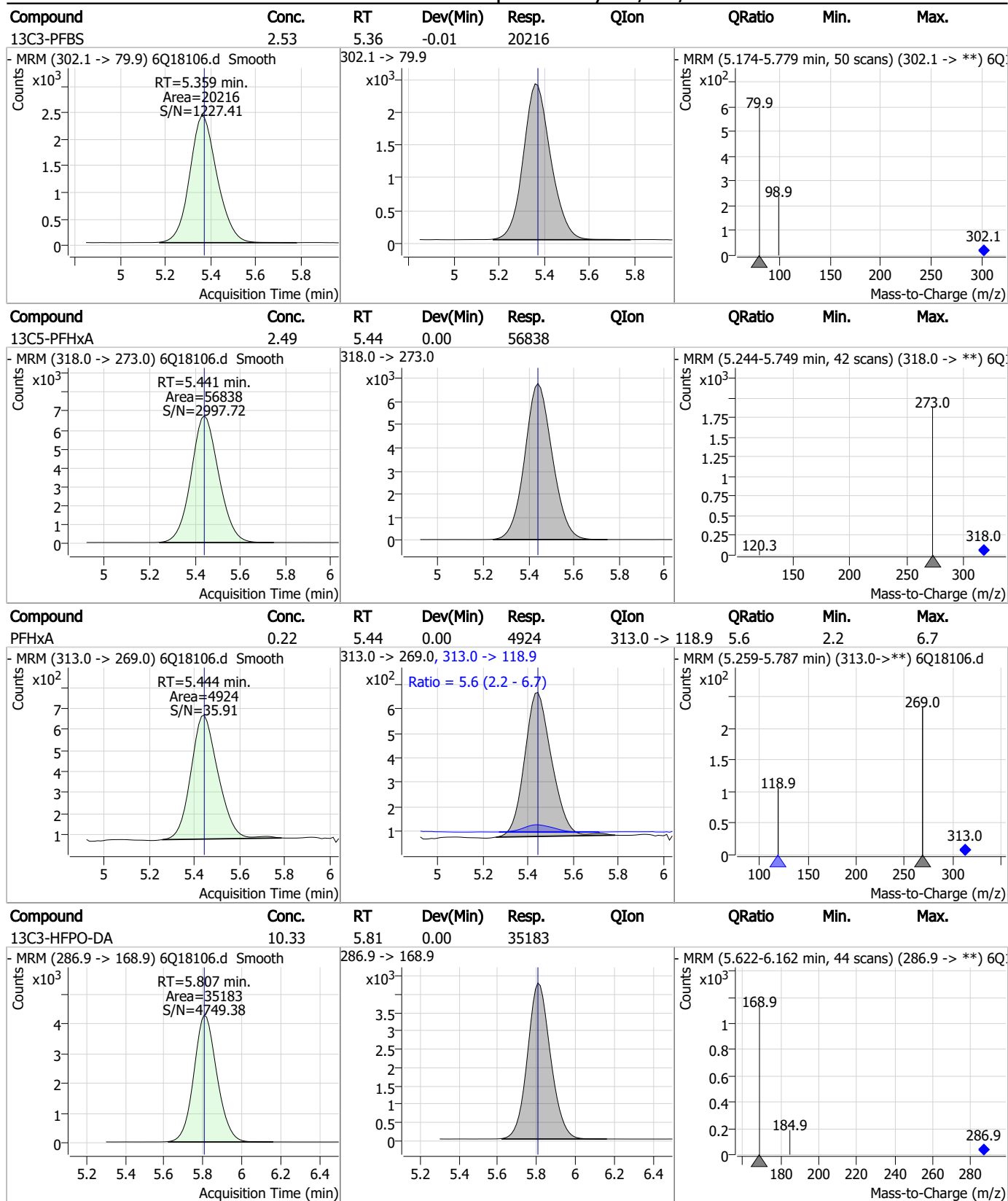
Perfluorinated Compounds by LC/MS/MS



7.6.14

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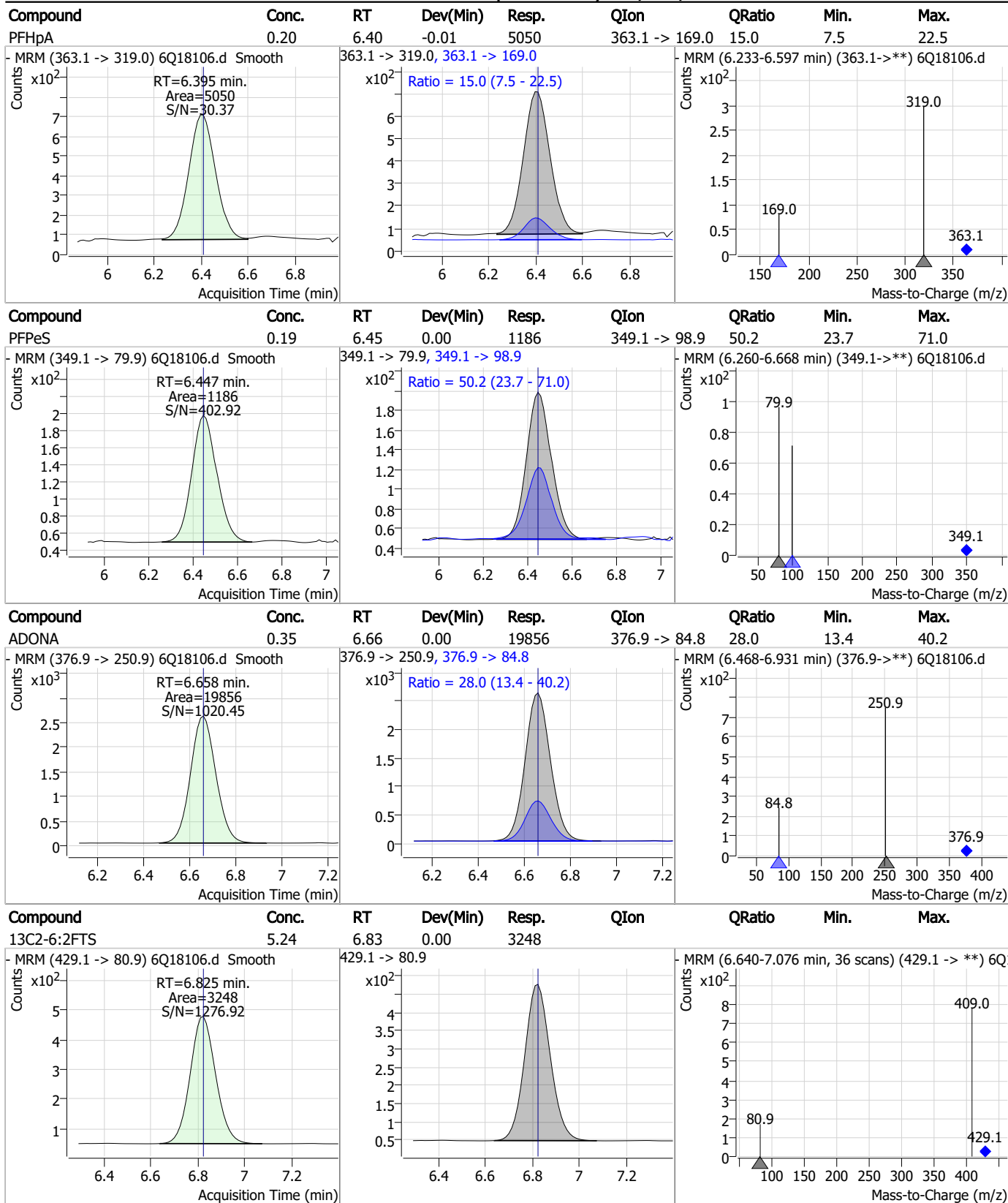
Perfluorinated Compounds by LC/MS/MS



7.6.14
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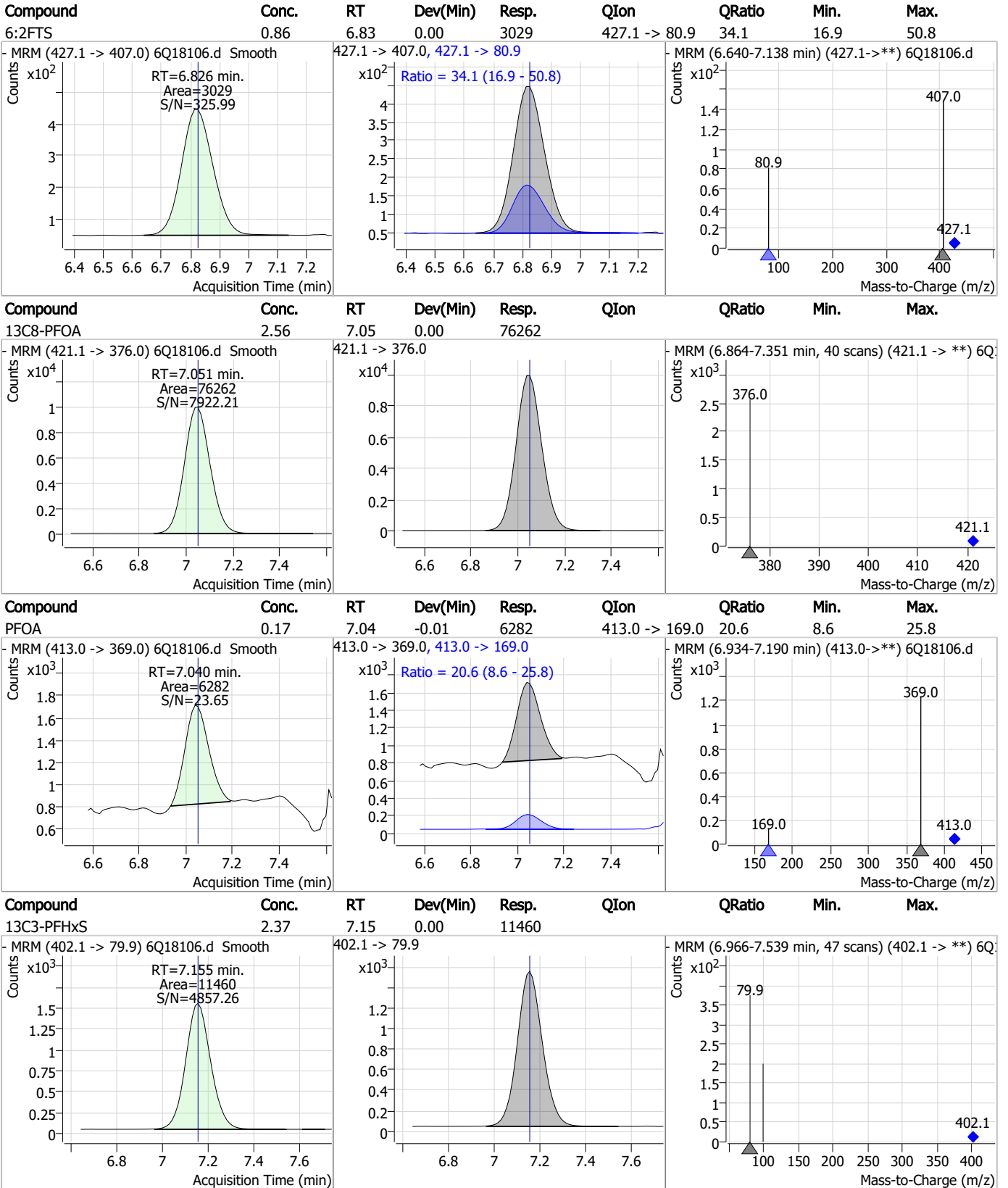
Perfluorinated Compounds by LC/MS/MS



7.6.14

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Perfluorinated Compounds by LC/MS/MS

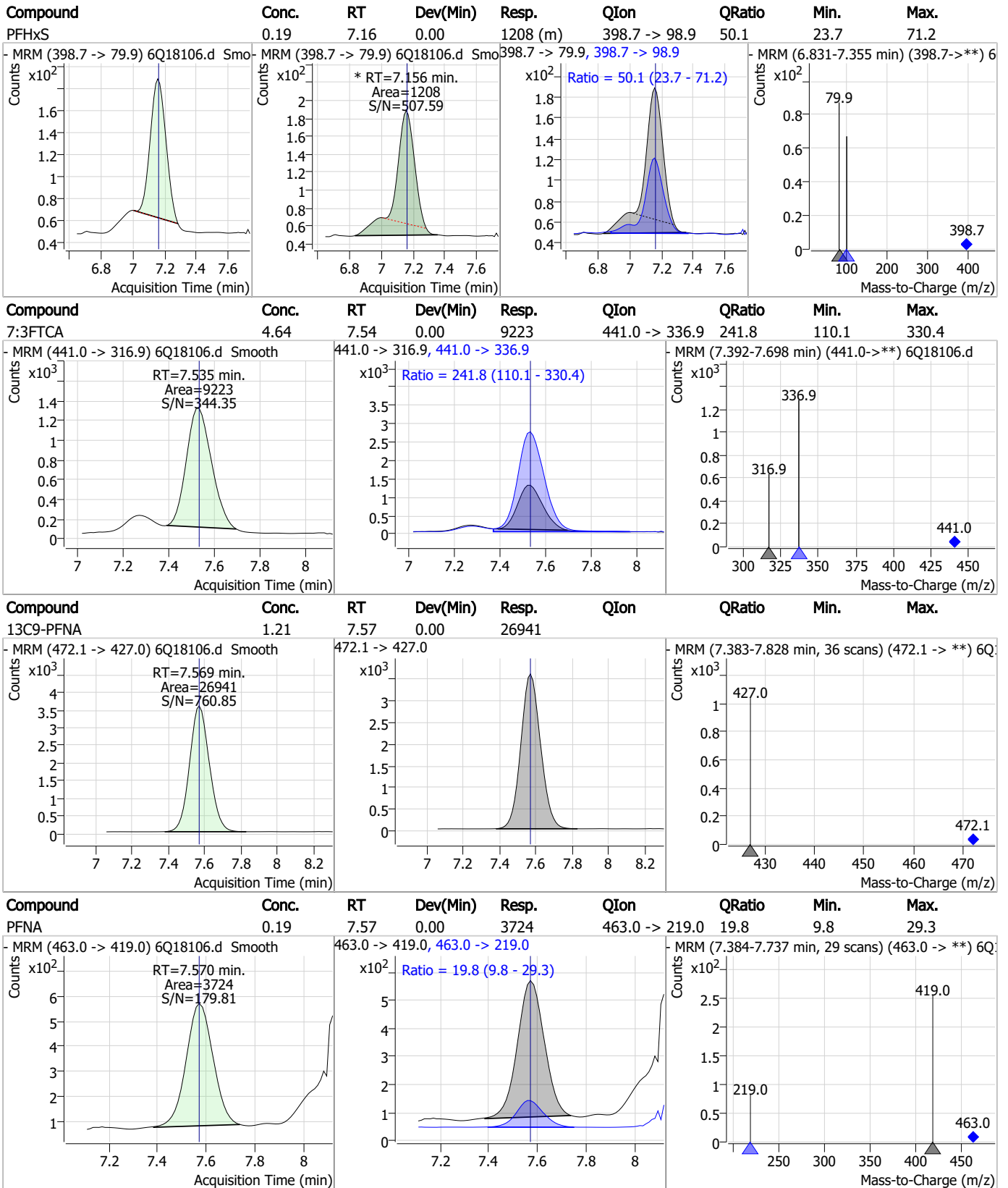


7.6.14

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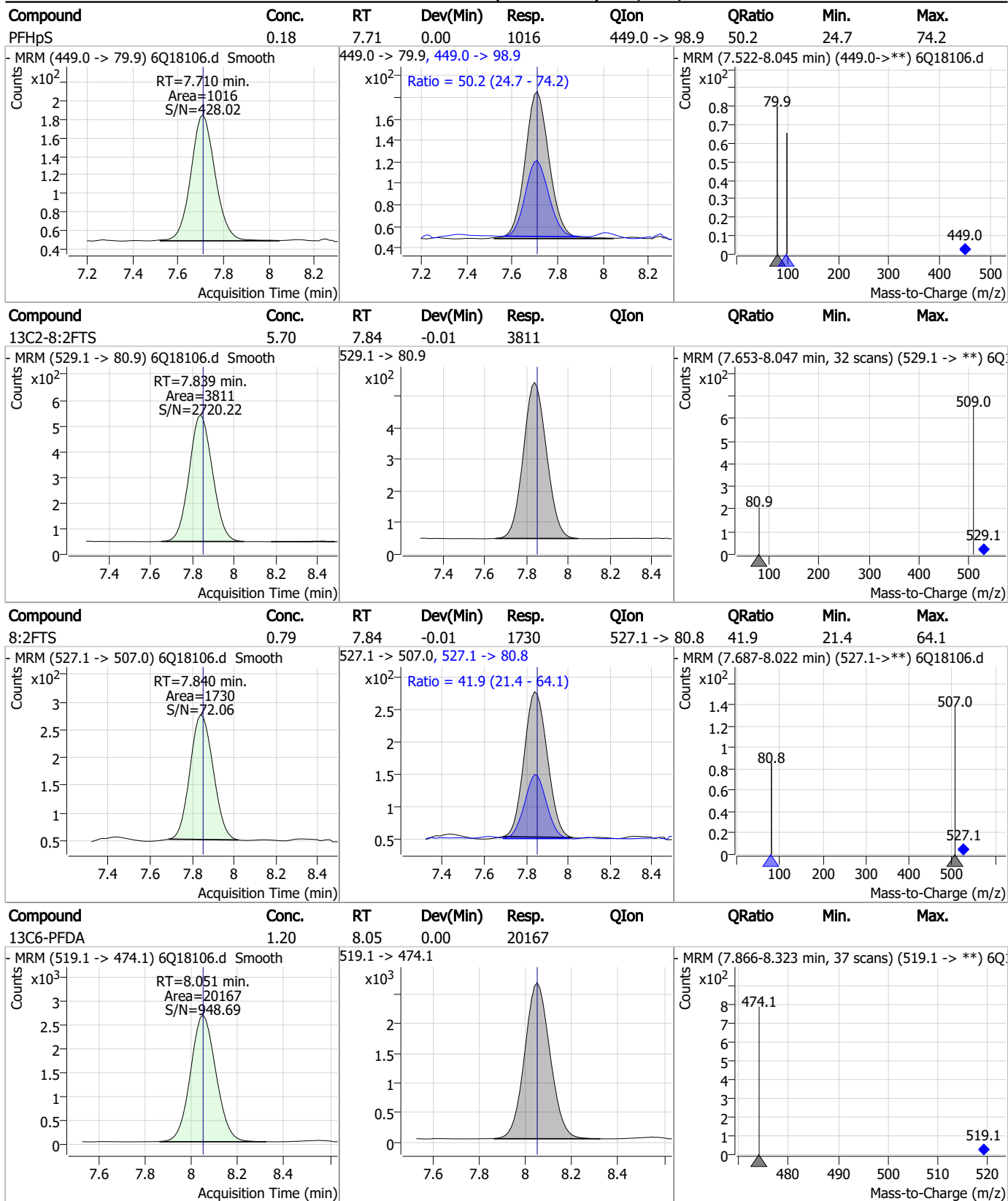
Perfluorinated Compounds by LC/MS/MS



7.6.14 7



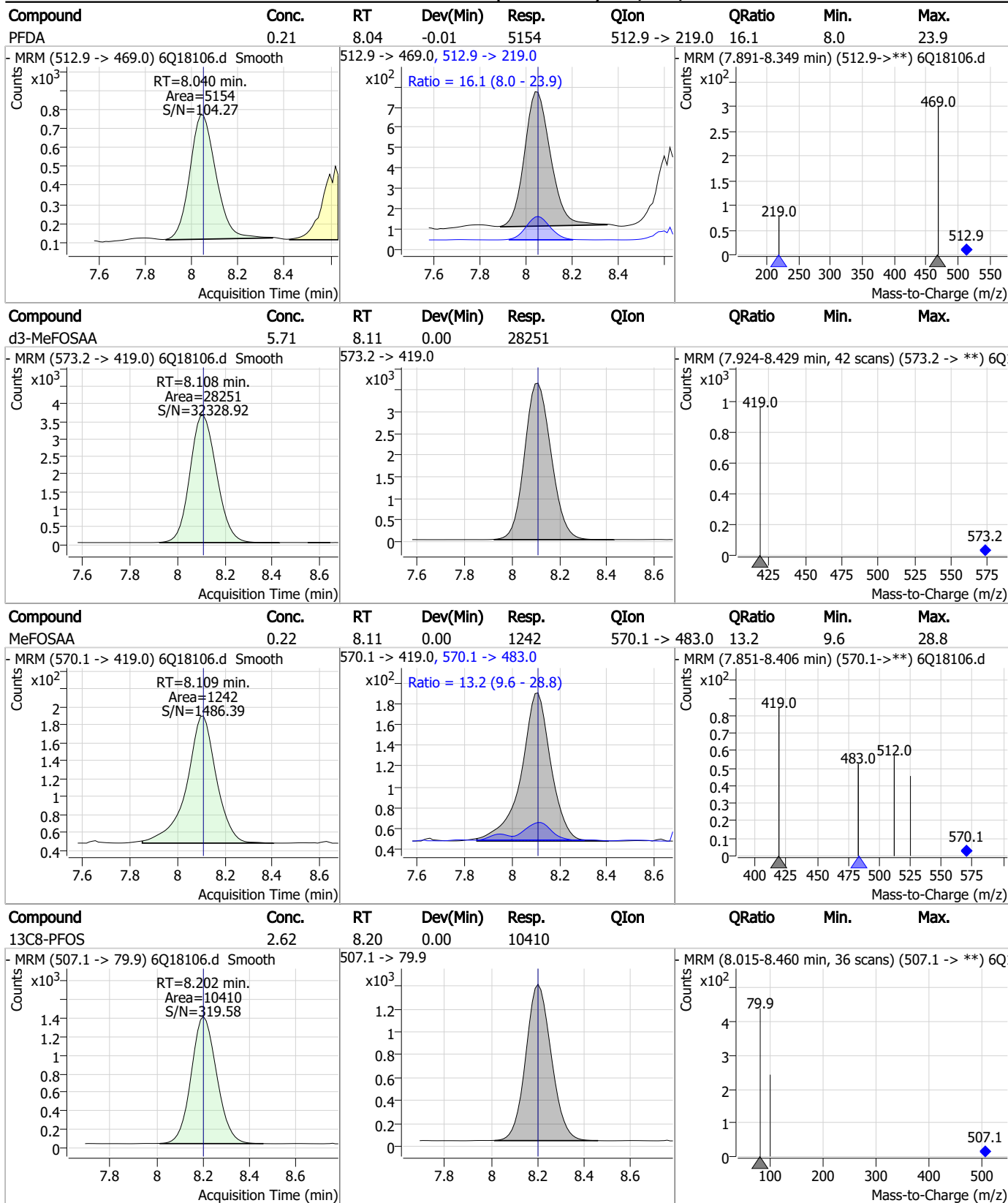
Perfluorinated Compounds by LC/MS/MS



7.6.14

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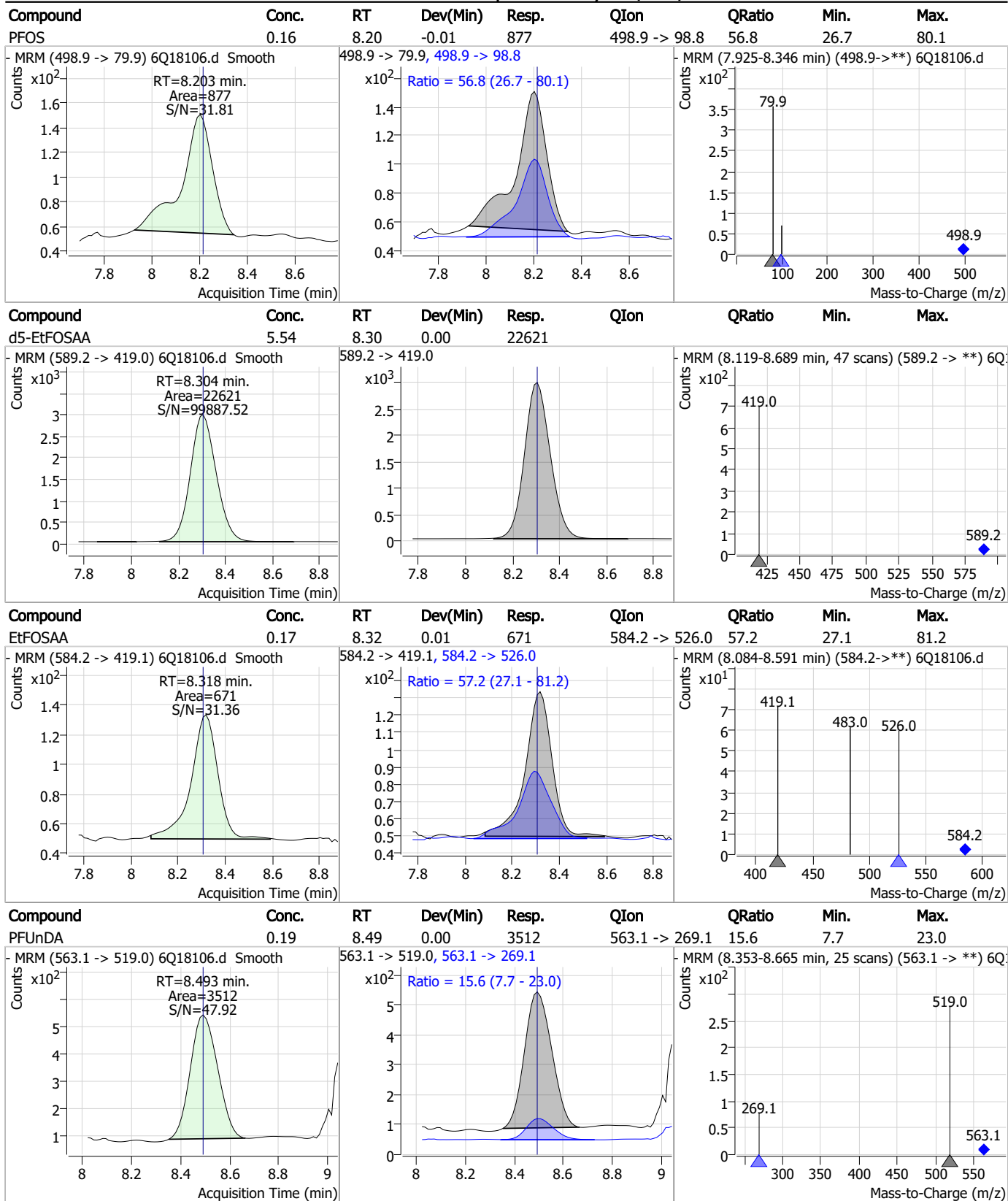
Perfluorinated Compounds by LC/MS/MS



7.6.14

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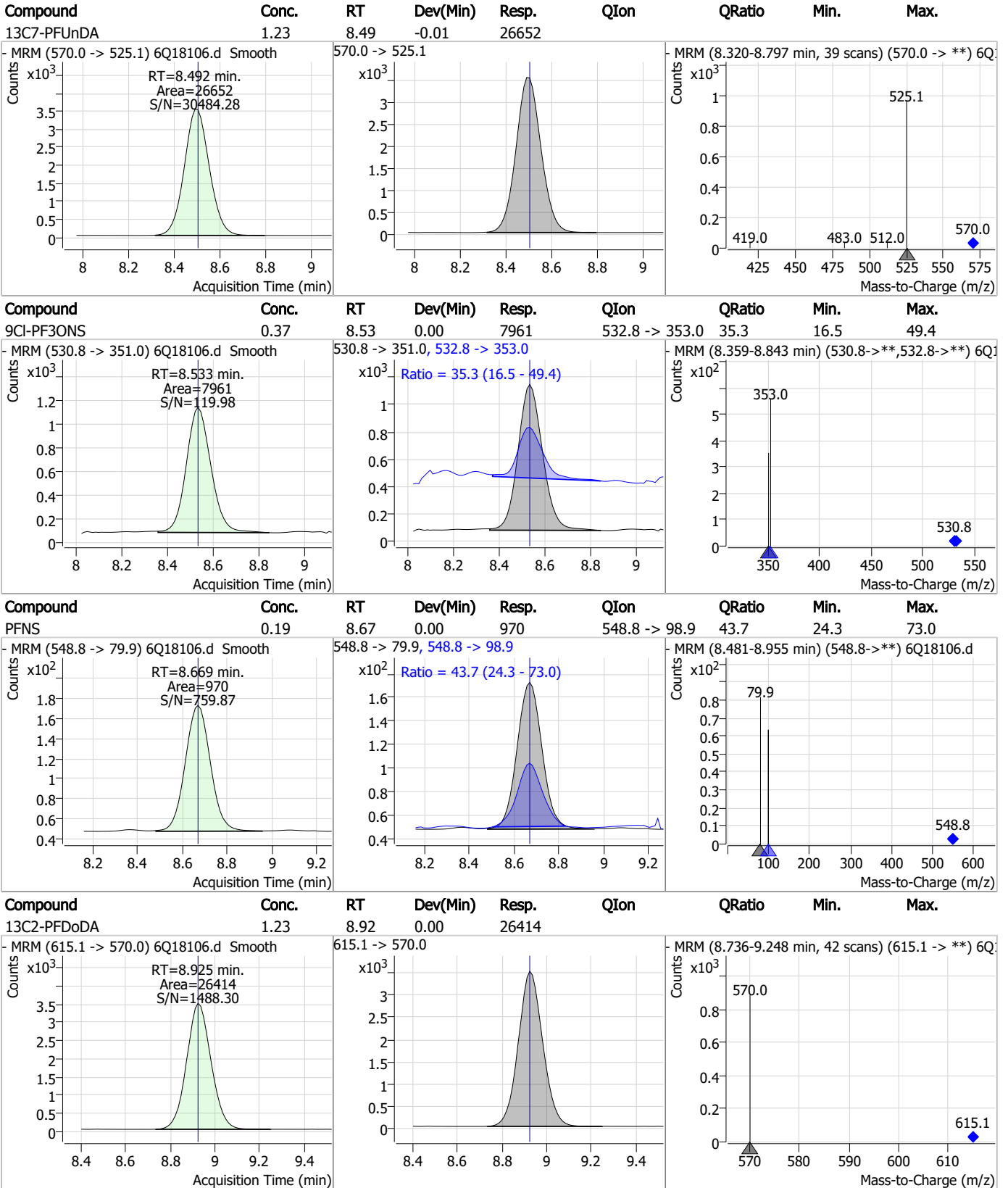
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7.6.14

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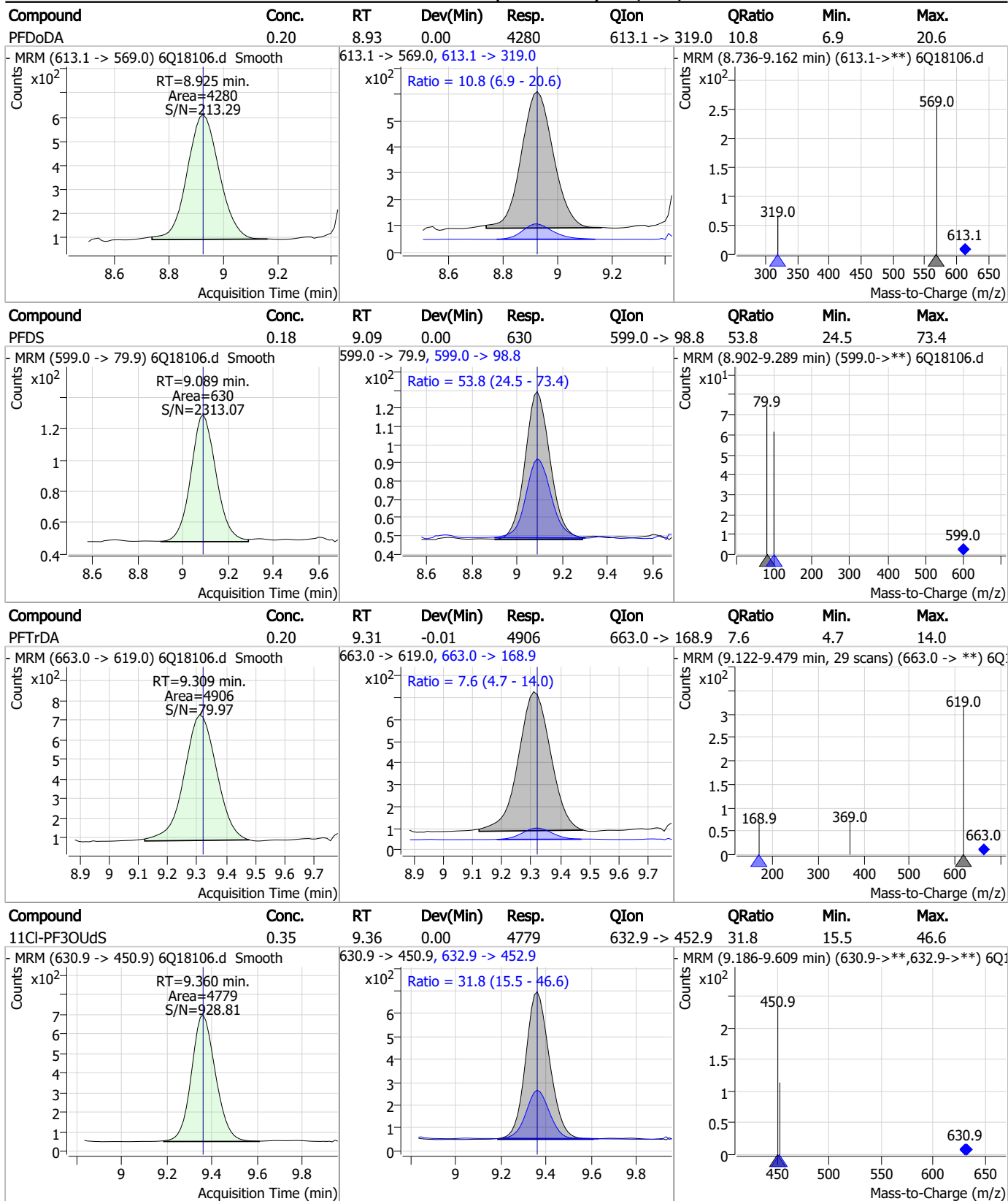
Perfluorinated Compounds by LC/MS/MS



7.6.14 7



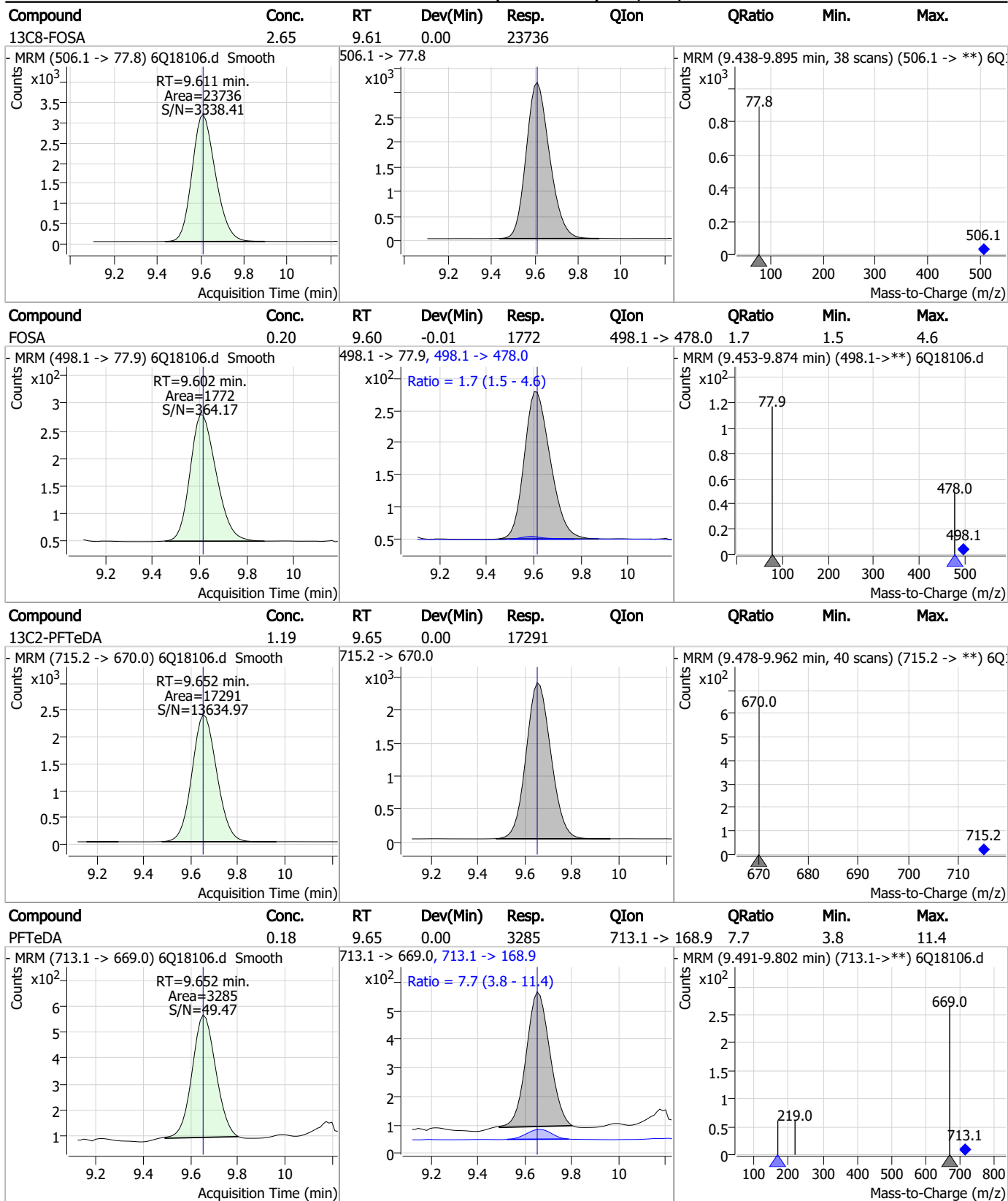
Perfluorinated Compounds by LC/MS/MS



7.6.14
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Perfluorinated Compounds by LC/MS/MS

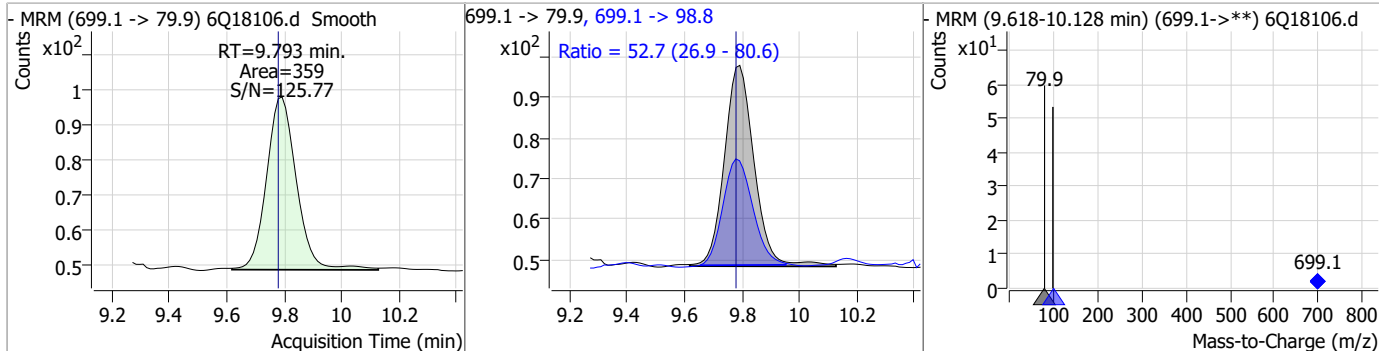


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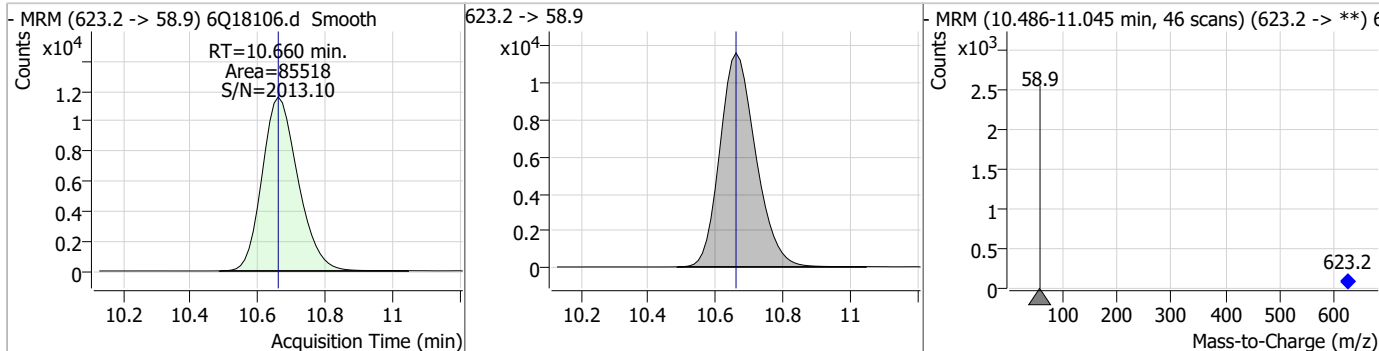
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Perfluorinated Compounds by LC/MS/MS

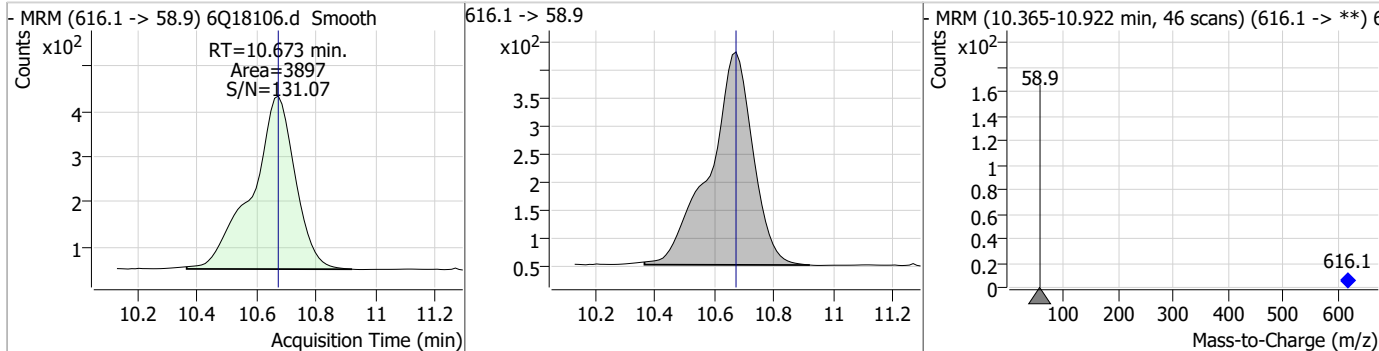
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.19	9.79	0.01	359	699.1 -> 98.8	52.7	26.9	80.6



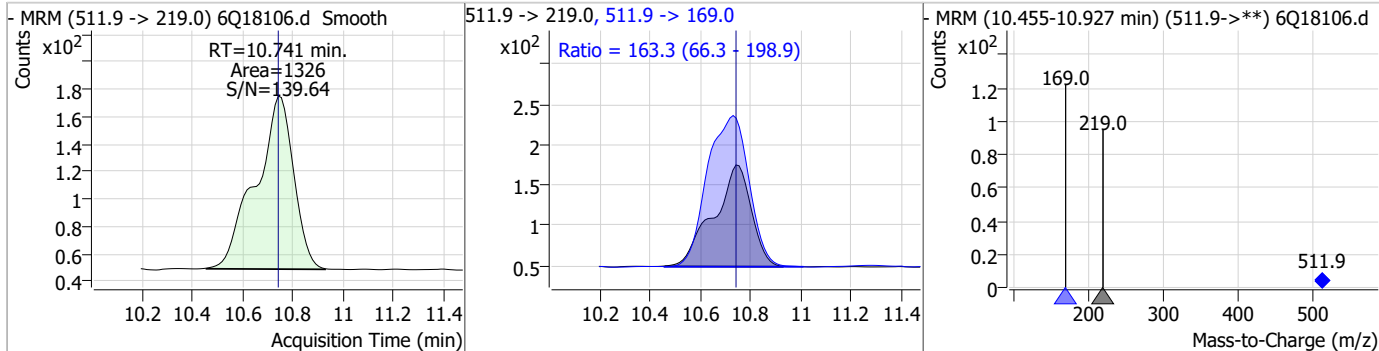
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.35	10.66	0.00	85518				



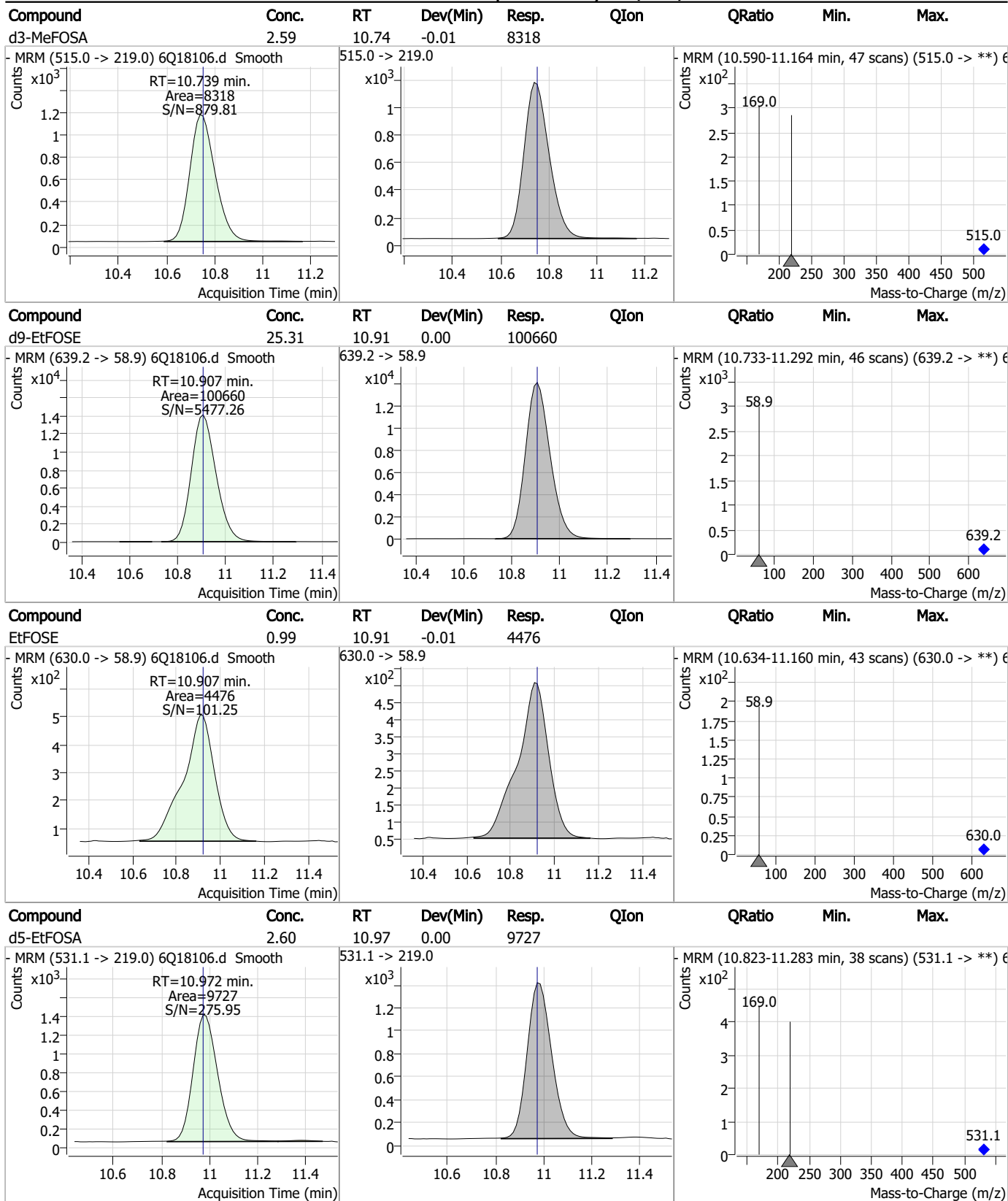
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.97	10.67	0.00	3897				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.35	10.74	0.00	1326	511.9 -> 169.0	163.3	66.3	198.9



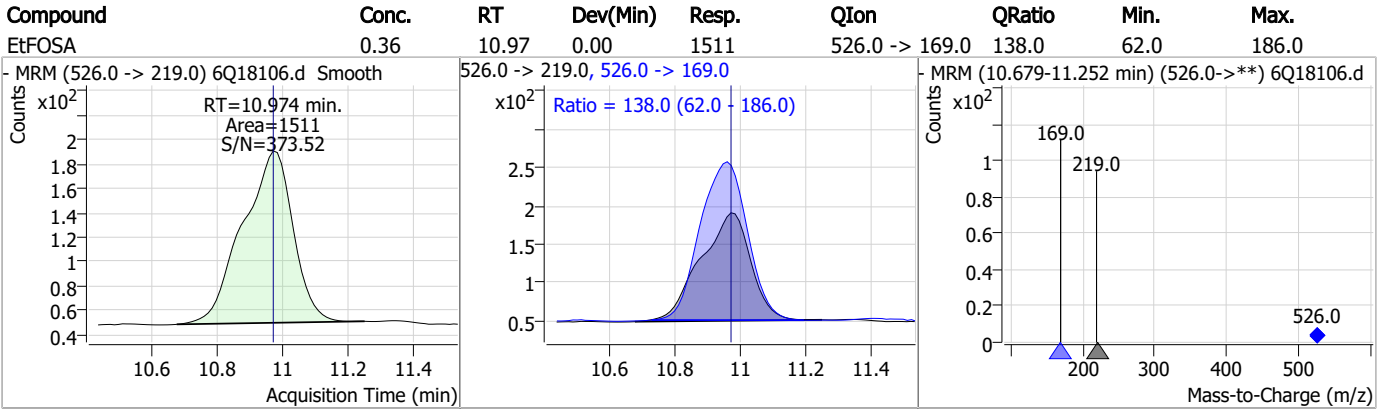
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.6.14

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Manual Integration Approval Summary

Sample Number: S6Q272-CC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18106.D Analyst approved: 05/19/23 17:26 Norman Farmer
Injection Time: 05/19/23 08:01 Supervisor approved: 05/22/23 12:22 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak

7.6.14.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18118.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 10:55:52 AM
 Sample Name : cc272-4
 Vial : P1-A5
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.876	216.8 -> 171.9	164614	10.00 µg/L	-0.012
M5-PFPeA	4.235	268.3 -> 223.0	50387	5.00 µg/L	-0.012
M5-PFHxA	5.441	318.0 -> 273.0	60013	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	52604	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	80894	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	27170	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	20206	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	26795	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	26860	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	17351	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	24549	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	19893	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11897	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	10209	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	2977	5.00 µg/L	0.000
M2-6:2FTS	6.813	429.1 -> 80.9	3643	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	3947	5.00 µg/L	-0.012
M3-MeFOSAA	8.108	573.2 -> 419.0	28346	5.00 µg/L	0.000
M3-HFPO-DA	5.807	286.9 -> 168.9	34911	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	23476	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	87823	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	100234	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9386	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	7834	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	13007	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	68312	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8597	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	82456	2.50 µg/L	-0.012
13C2-PFDA	8.052	515.1 -> 470.1	26451	1.25 µg/L	-0.012
13C5-PFNA	7.570	468.0 -> 423.0	29763	1.25 µg/L	0.000
13C2-PFHxA	5.442	315.1 -> 270.0	48785	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	2977	6.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.0%		
13C2-6:2FTS	6.813	429.1 -> 80.9	3643	6.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.4%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3947	6.20 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.0%		
13C2-PFDoDA	8.925	615.1 -> 570.0	26860	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C2-PFTeDA	9.652	715.2 -> 670.0	17351	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.2%		
13C3-PFBS	5.359	302.1 -> 79.9	19893	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C3-PFHxS	7.155	402.1 -> 79.9	11897	2.59 µg/L	0.000

7.6.15
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C4-PFBA	2.876	216.8 -> 171.9	164614	10.10 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.395	367.1 -> 322.0	52604	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.441	318.0 -> 273.0	60013	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFPeA	4.235	268.3 -> 223.0	50387	5.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C6-PFDA	8.051	519.1 -> 474.1	20206	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C7-PFUnDA	8.492	570.0 -> 525.1	26795	1.16 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C8-FOSA	9.611	506.1 -> 77.8	24549	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.4%	
13C8-PFOA	7.038	421.1 -> 376.0	80894	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-PFOS	8.202	507.1 -> 79.9	10209	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C9-PFNA	7.569	472.1 -> 427.0	27170	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSAA	8.108	573.2 -> 419.0	28346	5.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.4%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	34911	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSA	10.739	515.0 -> 219.0	7834	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSAA	8.304	589.2 -> 419.0	23476	5.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.7%	
d7-MeFOSE	10.660	623.2 -> 58.9	87823	26.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	100234	25.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d5-EtFOSA	10.972	531.1 -> 219.0	9386	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
Target Compounds					QValue
4:2FTS	5.119	327.1 -> 307.0	38158	8.68 µg/L	98
		327.1 -> 80.9	15469		
6:2FTS	6.813	427.1 -> 407.0	37391	9.49 µg/L	97
		427.1 -> 80.9	13334		
8:2FTS	7.840	527.1 -> 507.0	23774	10.54 µg/L	93
		527.1 -> 80.8	9092		
EtFOSAA	8.305	584.2 -> 419.1	9698	2.41 µg/L	95
		584.2 -> 526.0	5620		
FOSA	9.602	498.1 -> 77.9	21019	2.33 µg/L	99
		498.1 -> 478.0	577		
MeFOSAA	8.109	570.1 -> 419.0	14523	2.60 µg/L	98
		570.1 -> 483.0	2650		
PFBA	2.882	212.8 -> 168.9	58220	9.74 µg/L	100
PFBS	5.360	298.7 -> 79.9	20067	2.07 µg/L	96
		298.7 -> 98.8	7746		
PFDA	8.052	512.9 -> 469.0	62128	2.58 µg/L	95
		512.9 -> 219.0	8512		
PFDODA	8.925	613.1 -> 569.0	48280	2.24 µg/L	99
		613.1 -> 319.0	6840		
PFDS	9.089	599.0 -> 79.9	8318	2.43 µg/L	99

7.6.15

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.395	599.0 -> 98.8	4011	2.28	µg/L	97
		363.1 -> 319.0	61231			
PFHpS	7.710	363.1 -> 169.0	9836	2.48	µg/L	96
		449.0 -> 79.9	13685			
PFHxA	5.444	449.0 -> 98.9	6393	2.48	µg/L	99
		313.0 -> 269.0	57914			
PFHxS	7.156	313.0 -> 118.9	2748	2.16	µg/L	99
		398.7 -> 79.9	14340			
PFNA	7.570	398.7 -> 98.9	6706	2.29	µg/L	100
		463.0 -> 419.0	45919			
PFNS	8.657	463.0 -> 219.0	9034	2.35	µg/L	95
		548.8 -> 79.9	11765			
PFOA	7.040	548.8 -> 98.9	6149	2.36	µg/L	98
		413.0 -> 369.0	93071			
PFOS	8.203	413.0 -> 169.0	15000	2.30	µg/L	93
		498.9 -> 79.9	12623			
PFPeA	4.237	498.9 -> 98.8	6079	4.86	µg/L	100
		263.0 -> 219.0	72472			
PFPeS	6.447	349.1 -> 79.9	14482	2.19	µg/L	95
		349.1 -> 98.9	6323			
PFTeDA	9.652	713.1 -> 669.0	44434	2.48	µg/L	99
		713.1 -> 168.9	3193			
PFTrDA	9.321	663.0 -> 619.0	58161	2.34	µg/L	99
		663.0 -> 168.9	5102			
PFUnDA	8.493	563.1 -> 519.0	45376	2.42	µg/L	99
		563.1 -> 269.1	6833			
11Cl-PF3OUdS	9.360	630.9 -> 450.9	64173	4.70	µg/L	100
		632.9 -> 452.9	19799			
9Cl-PF3ONS	8.533	530.8 -> 351.0	96495	4.52	µg/L	99
		532.8 -> 353.0	31056			
ADONA	6.658	376.9 -> 250.9	259037	4.64	µg/L	100
		376.9 -> 84.8	69948			
HFPO-DA	5.807	284.9 -> 168.9	16422	4.84	µg/L	99
		284.9 -> 184.9	2282			
3:3FTCA	3.727	241.0 -> 177.0	11275	12.01	µg/L	97
		241.0 -> 117.0	1473			
5:3FTCA	6.111	341.0 -> 237.1	251927	59.61	µg/L	98
		341.0 -> 217.0	183104			
7:3FTCA	7.535	441.0 -> 316.9	125082	59.56	µg/L	95
		441.0 -> 336.9	264772			
EtFOSA	10.974	526.0 -> 219.0	20585	5.03	µg/L	97
		526.0 -> 169.0	24930			
EtFOSE	10.920	630.0 -> 58.9	55701	12.41	µg/L	100
		511.9 -> 219.0	18310			
MeFOSA	10.741	511.9 -> 169.0	24986	5.13	µg/L	97
		616.1 -> 58.9	49757			
MeFOSE	10.673	699.1 -> 79.9	4247	12.03	µg/L	100
		699.1 -> 98.8	2206			
PFDoDS	9.779	295.0 -> 201.0	12981	2.30	µg/L	98
		295.0 -> 84.9	3146			
NFDHA	5.324	279.0 -> 85.1	51102	4.95	µg/L	94
		229.0 -> 84.9	38187			
PFMBA	3.401	314.8 -> 134.9	126023	4.92	µg/L	100
		314.8 -> 82.9	4799			
PFEESA	5.900			4.07	µg/L	100

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



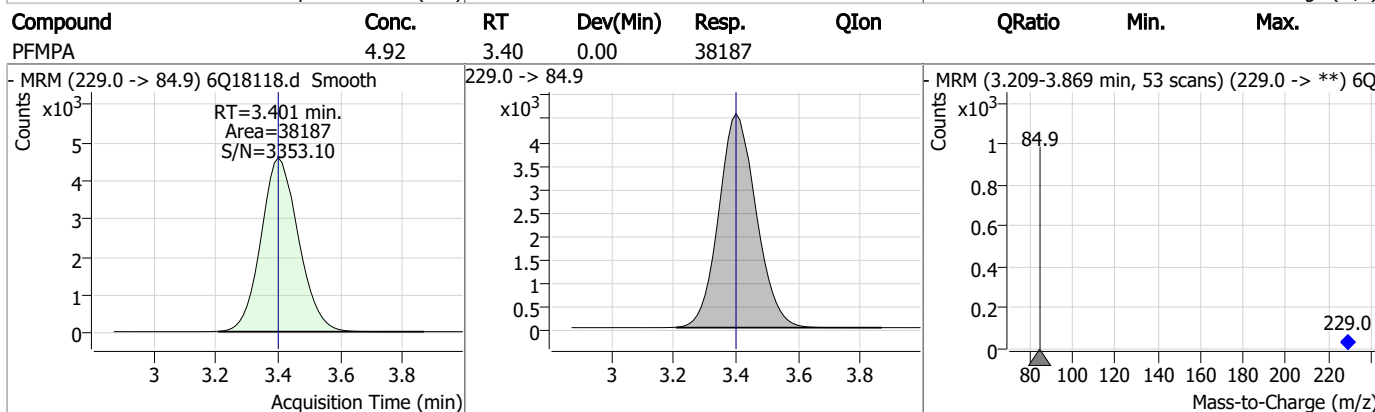
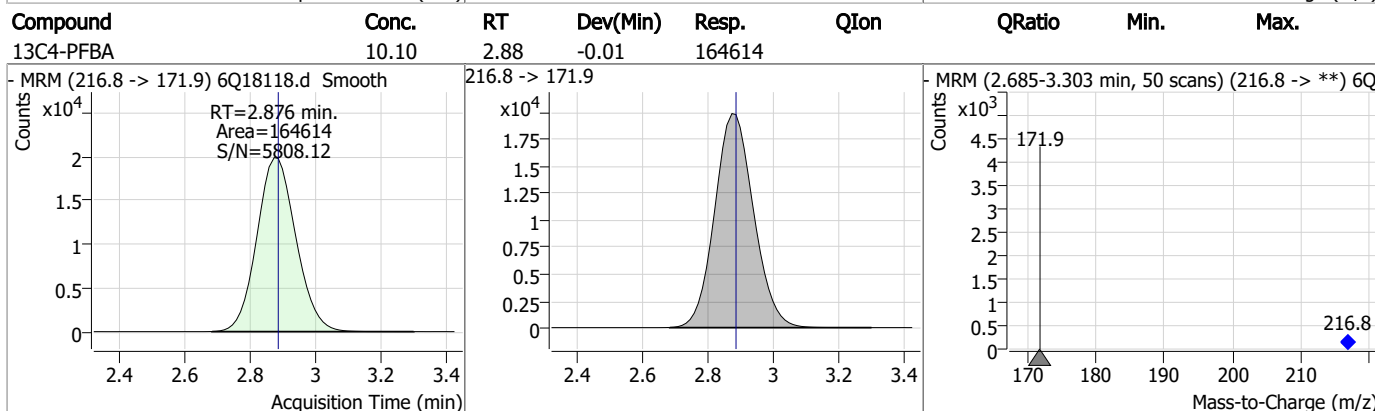
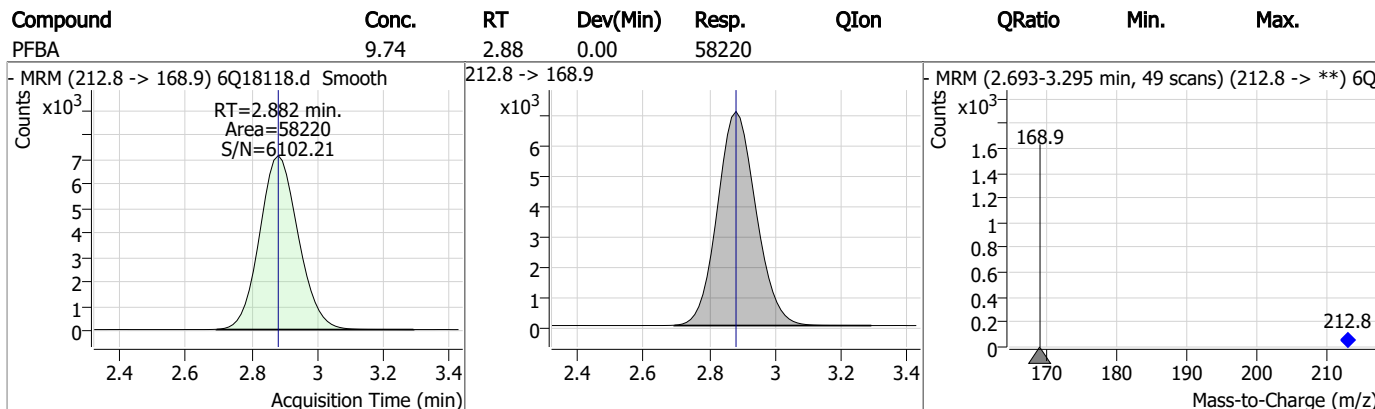
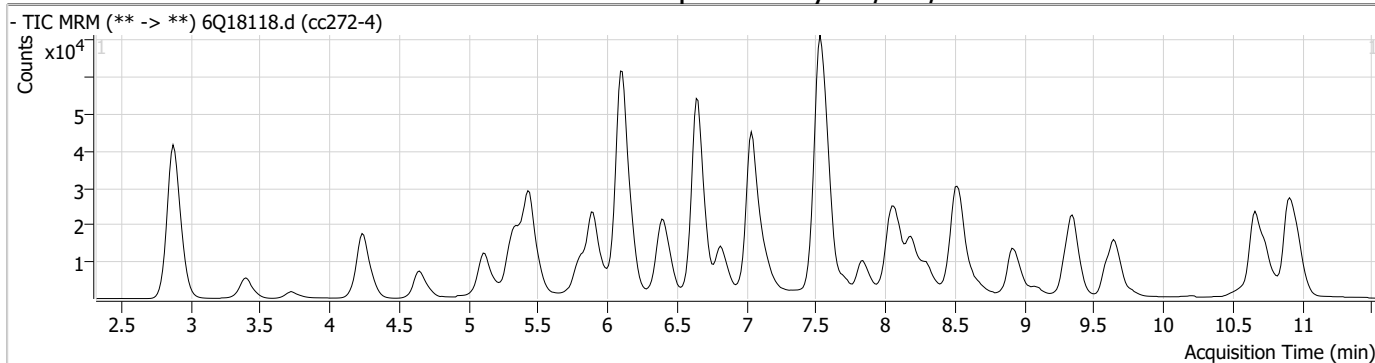
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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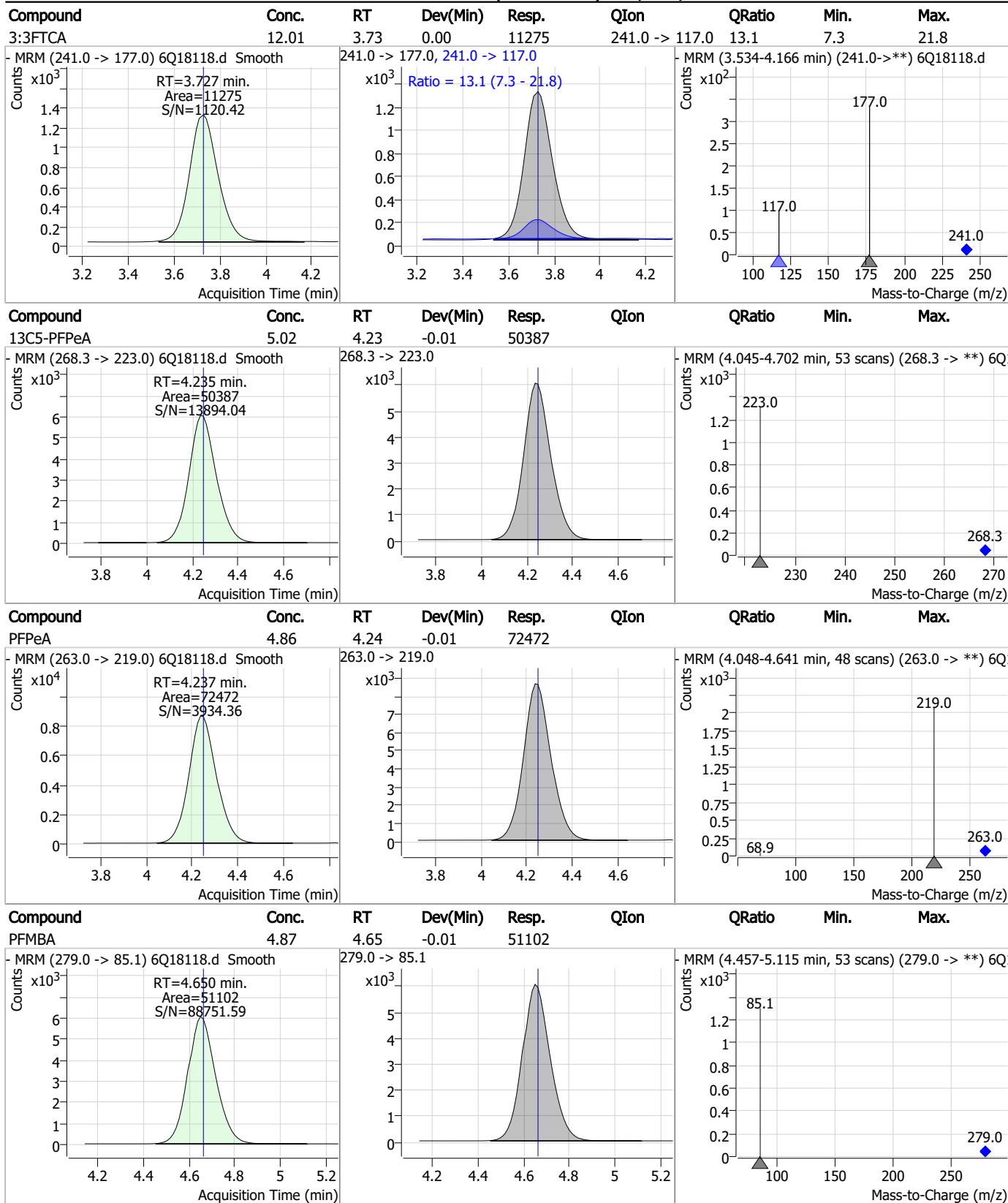
7.6.15

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Perfluorinated Compounds by LC/MS/MS

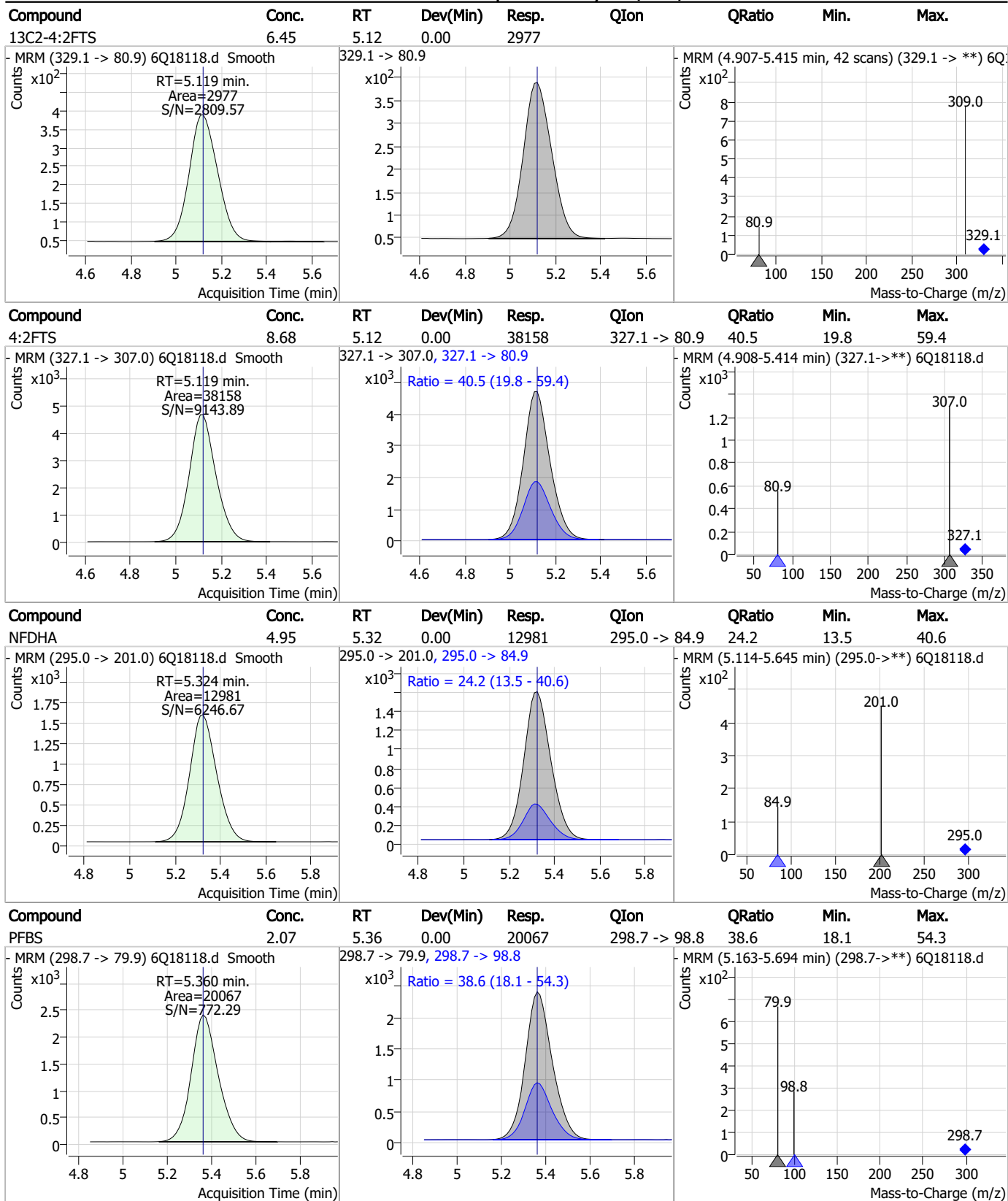


Perfluorinated Compounds by LC/MS/MS



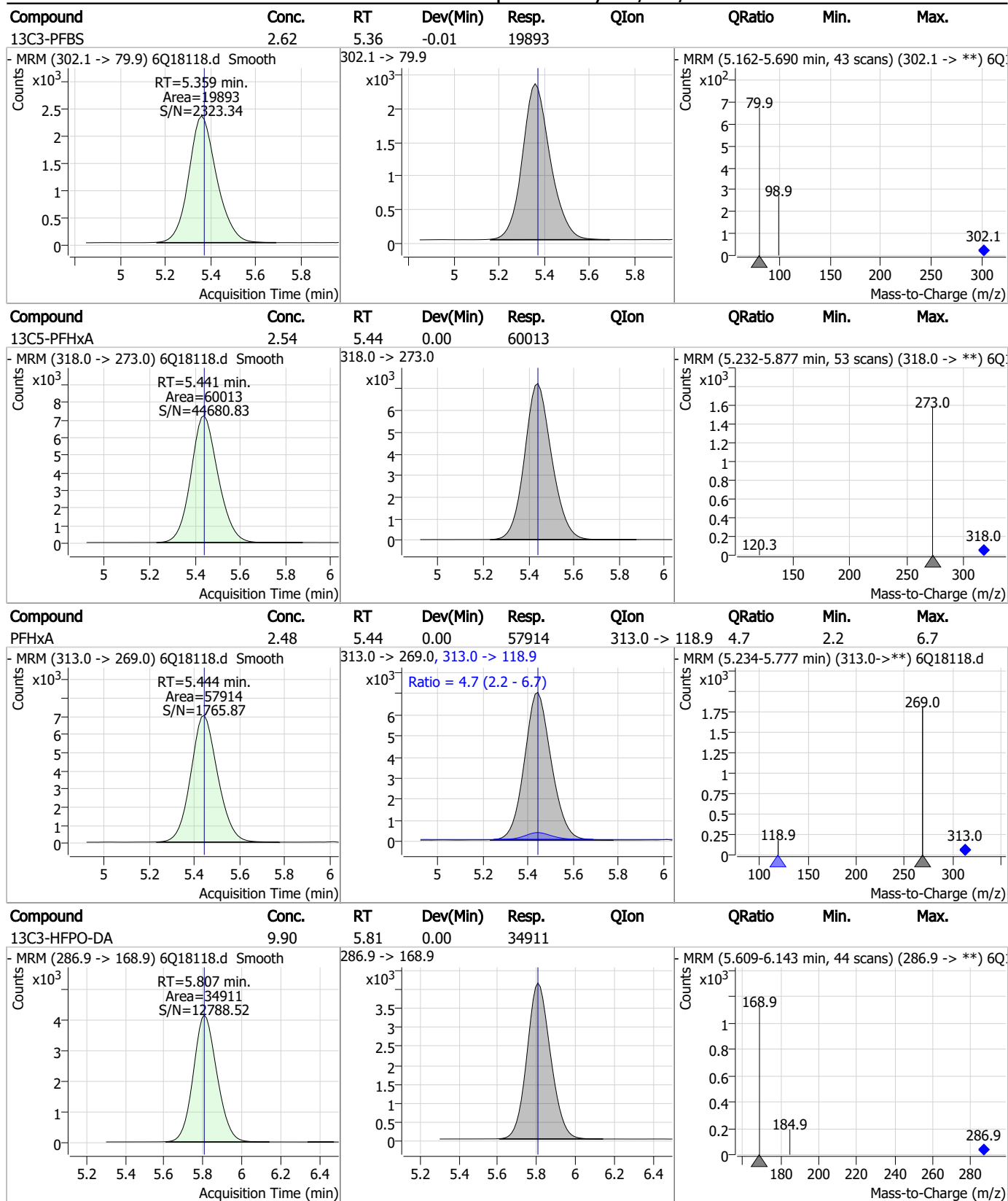
7.6.15

Perfluorinated Compounds by LC/MS/MS



7.6.15
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Perfluorinated Compounds by LC/MS/MS

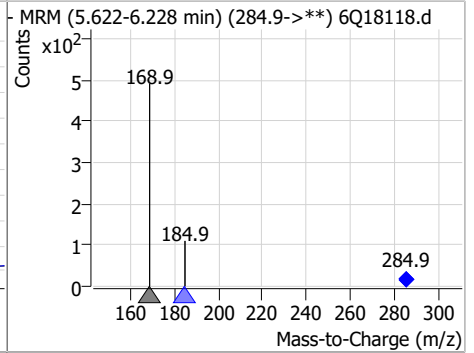
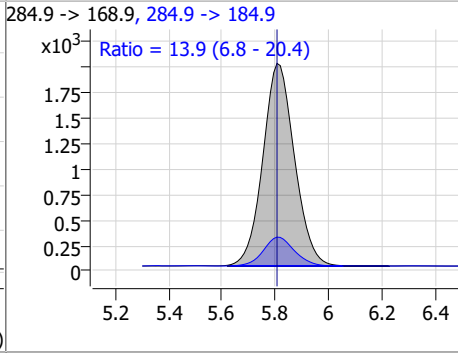
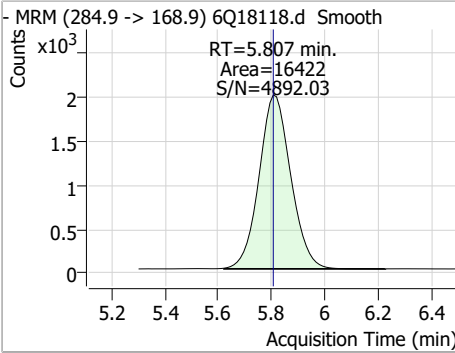


7.6.15

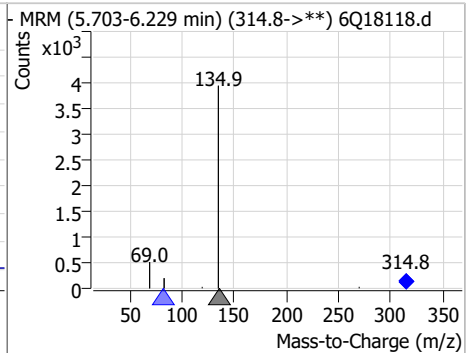
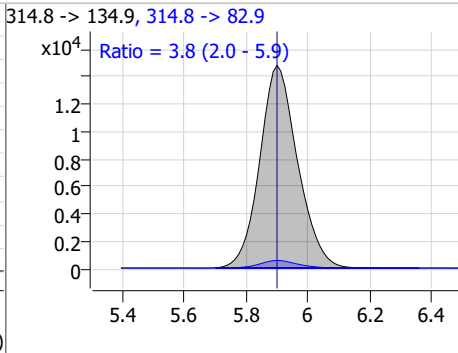
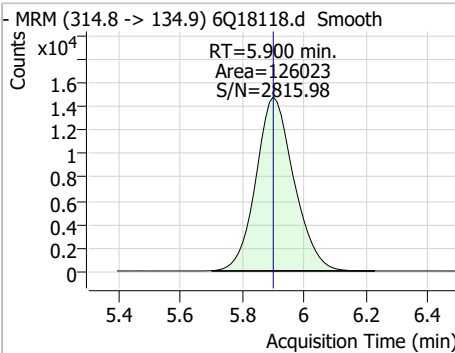
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Perfluorinated Compounds by LC/MS/MS

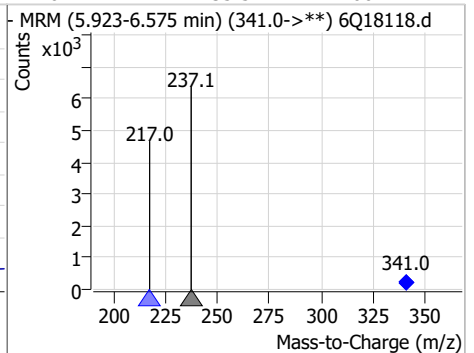
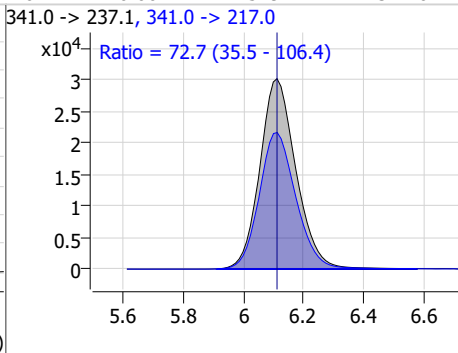
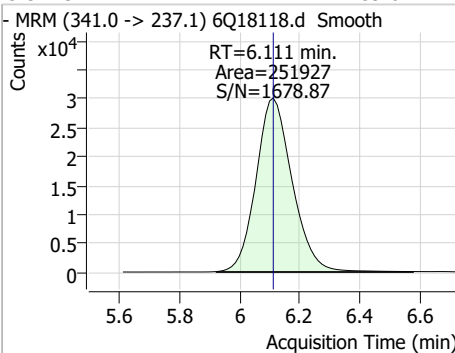
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.84	5.81	0.00	16422	284.9 -> 184.9	13.9	6.8	20.4



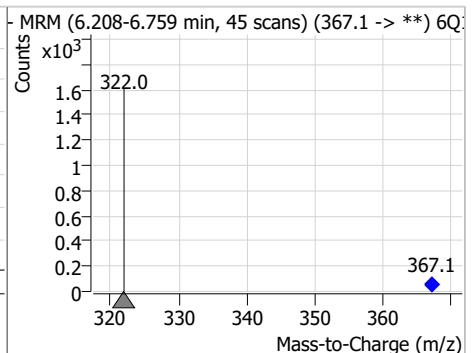
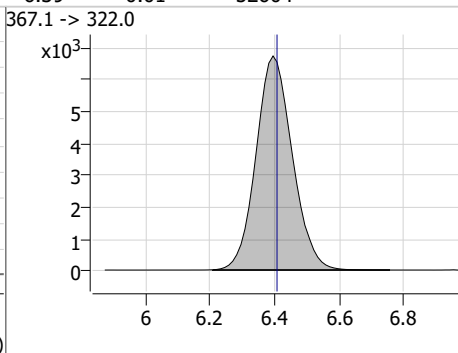
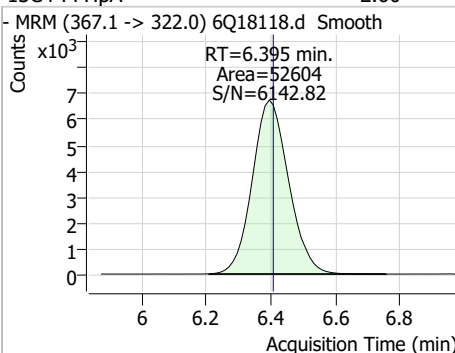
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.07	5.90	0.00	126023	314.8 -> 82.9	3.8	2.0	5.9



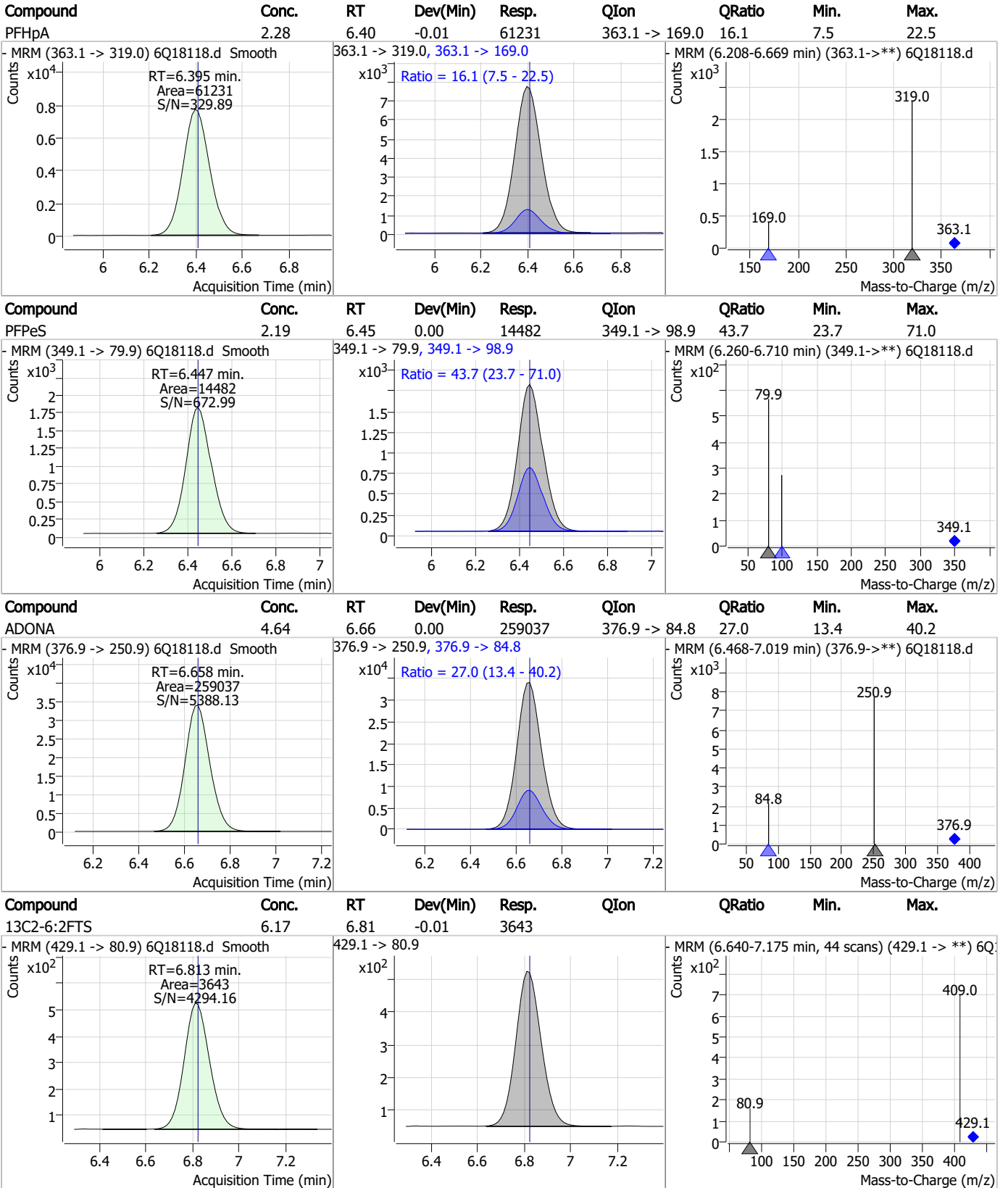
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	59.61	6.11	0.00	251927	341.0 -> 217.0	72.7	35.5	106.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.60	6.39	-0.01	52604	367.1 -> 322.0			



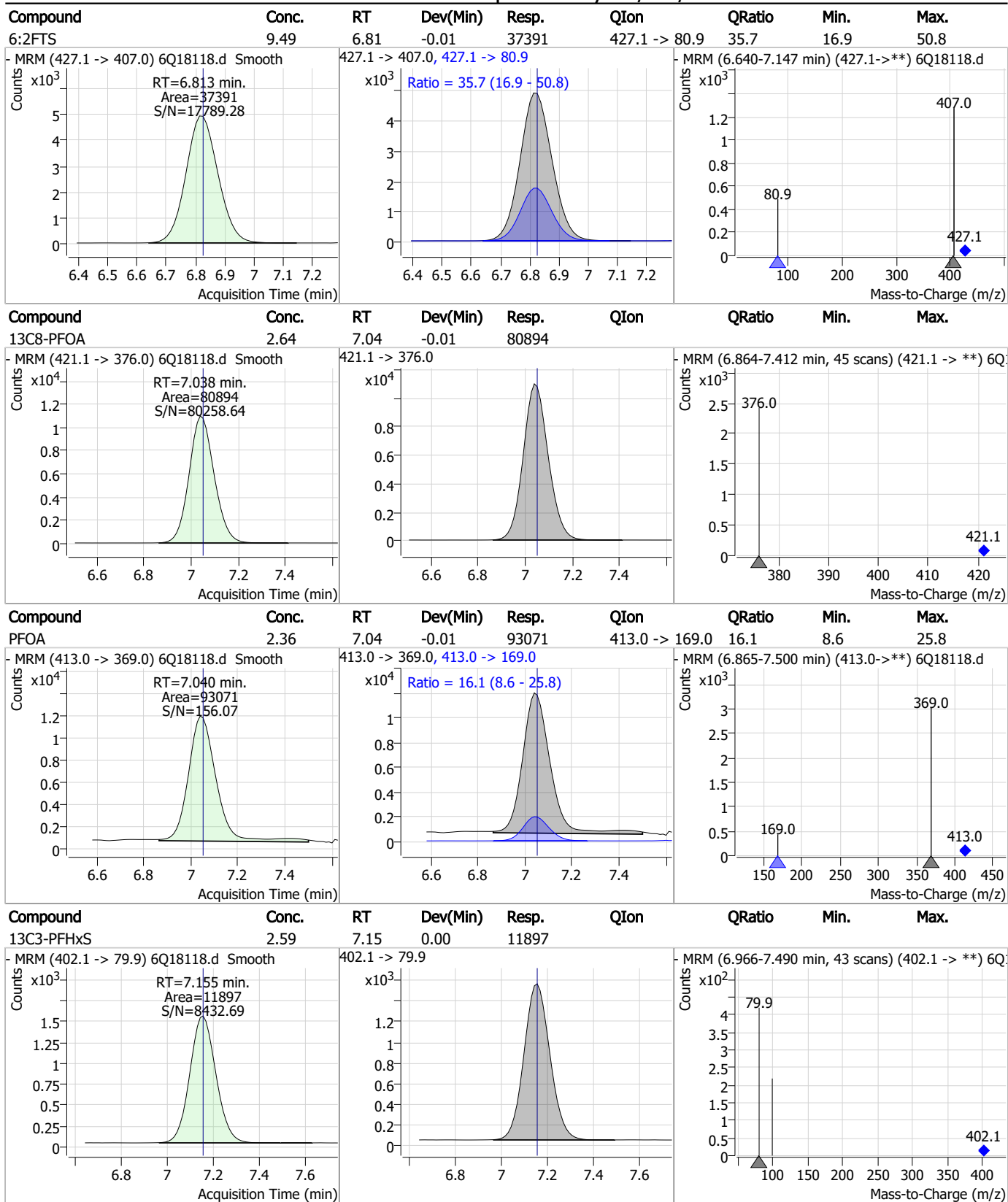
Perfluorinated Compounds by LC/MS/MS



7.6.15 7



Perfluorinated Compounds by LC/MS/MS

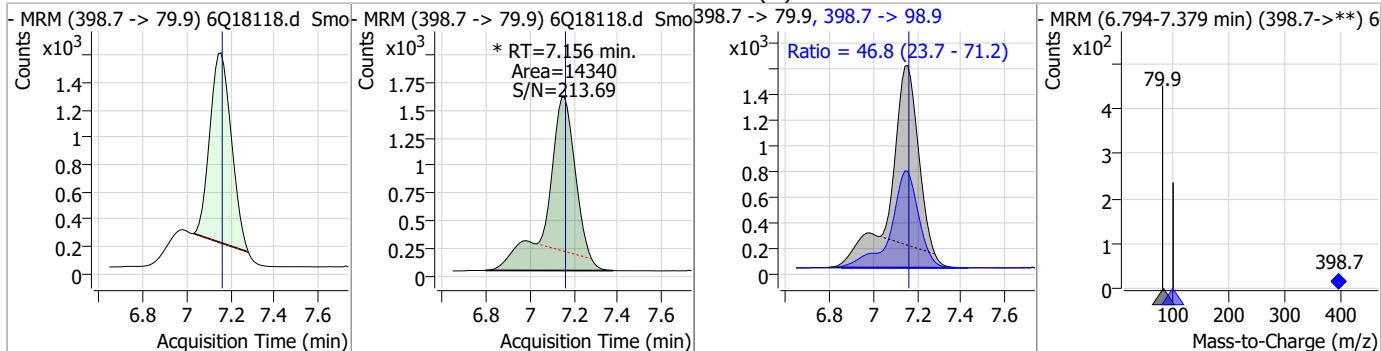


7.6.15

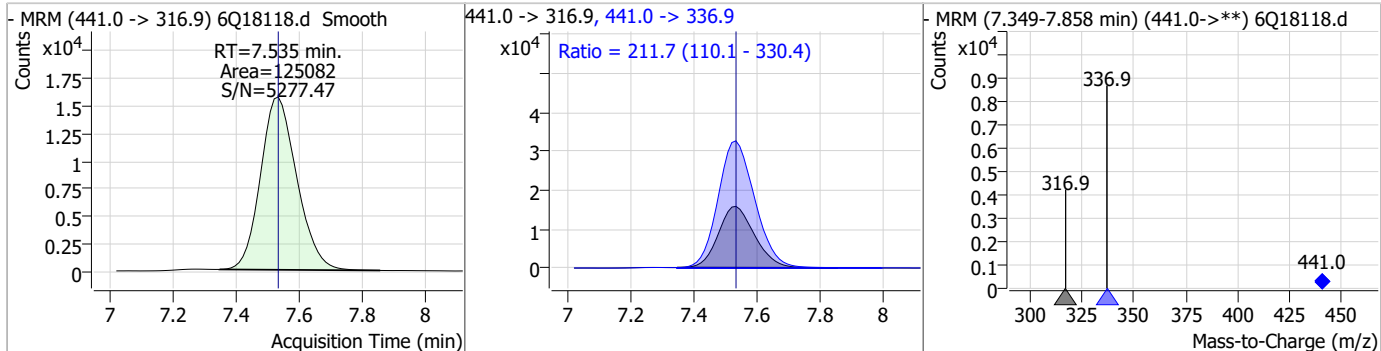
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Perfluorinated Compounds by LC/MS/MS

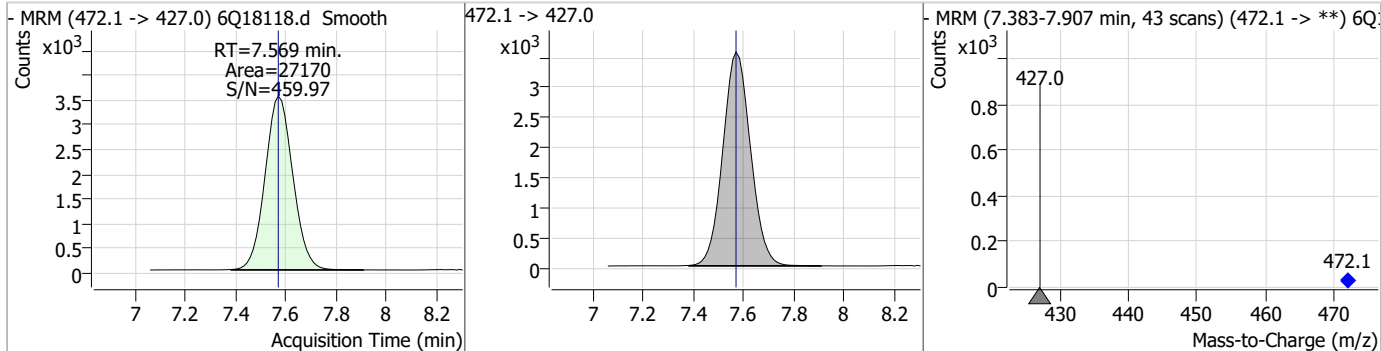
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.16	7.16	0.00	14340 (m)	398.7 -> 98.9	46.8	23.7	71.2



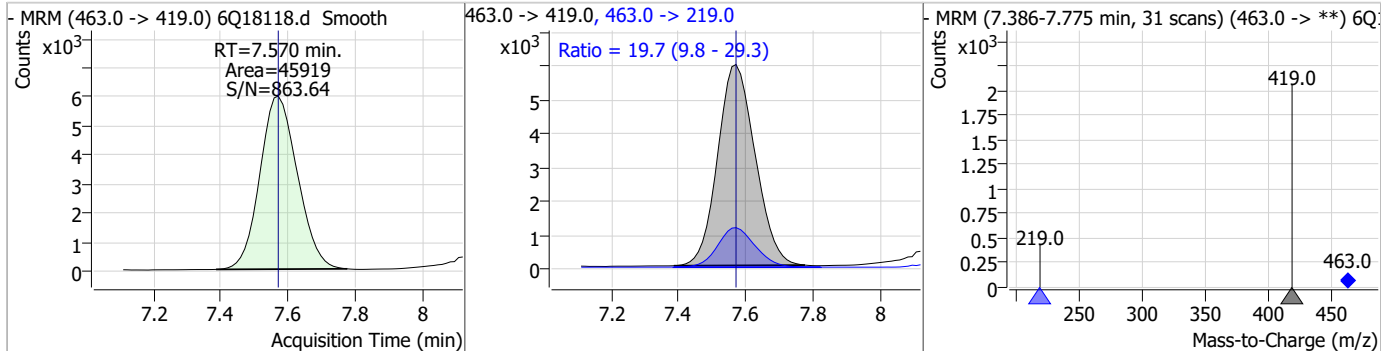
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	59.56	7.54	0.00	125082	441.0 -> 336.9	211.7	110.1	330.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.21	7.57	0.00	27170	472.1 -> 427.0			

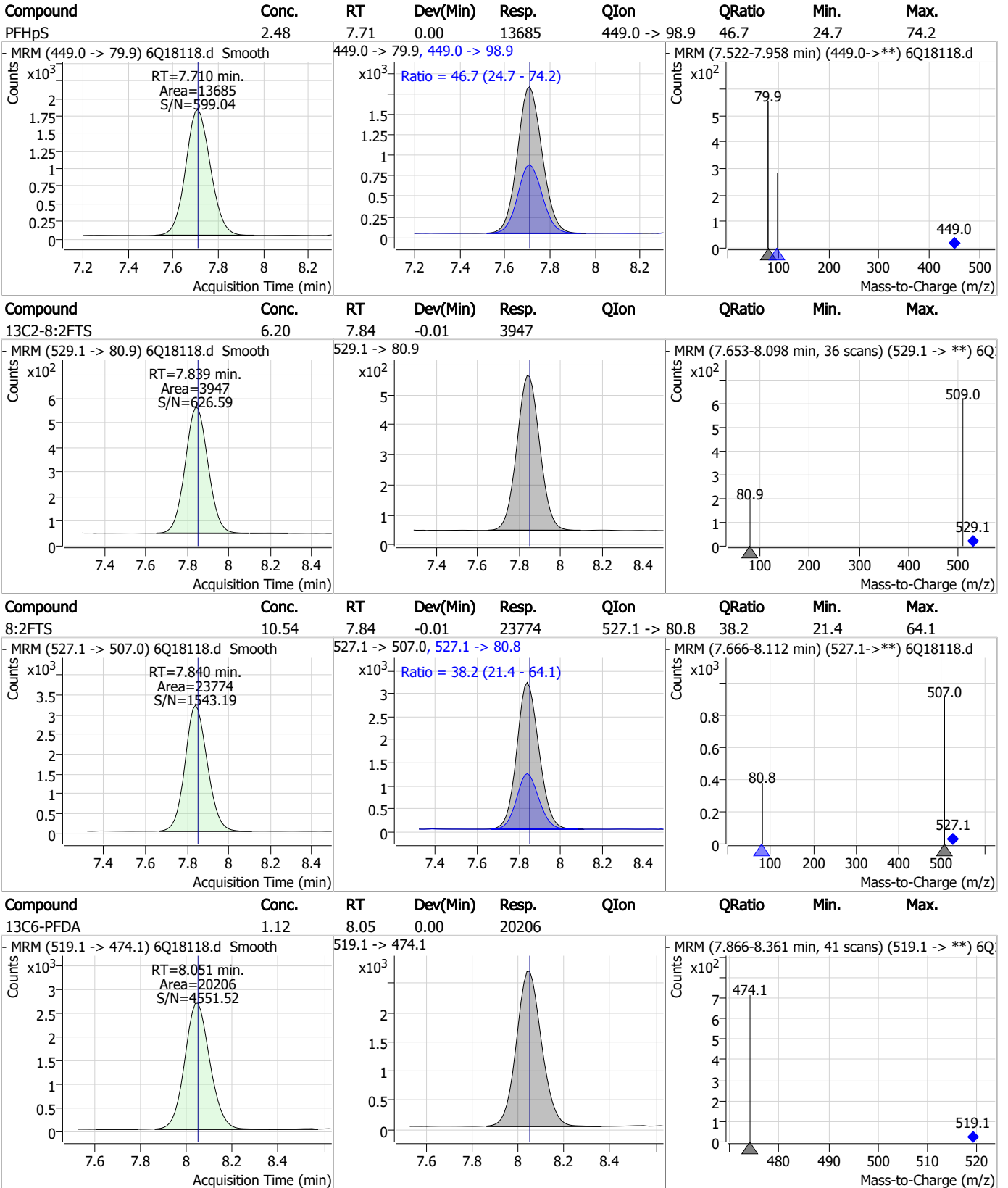


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.29	7.57	0.00	45919	463.0 -> 219.0	19.7	9.8	29.3



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Perfluorinated Compounds by LC/MS/MS

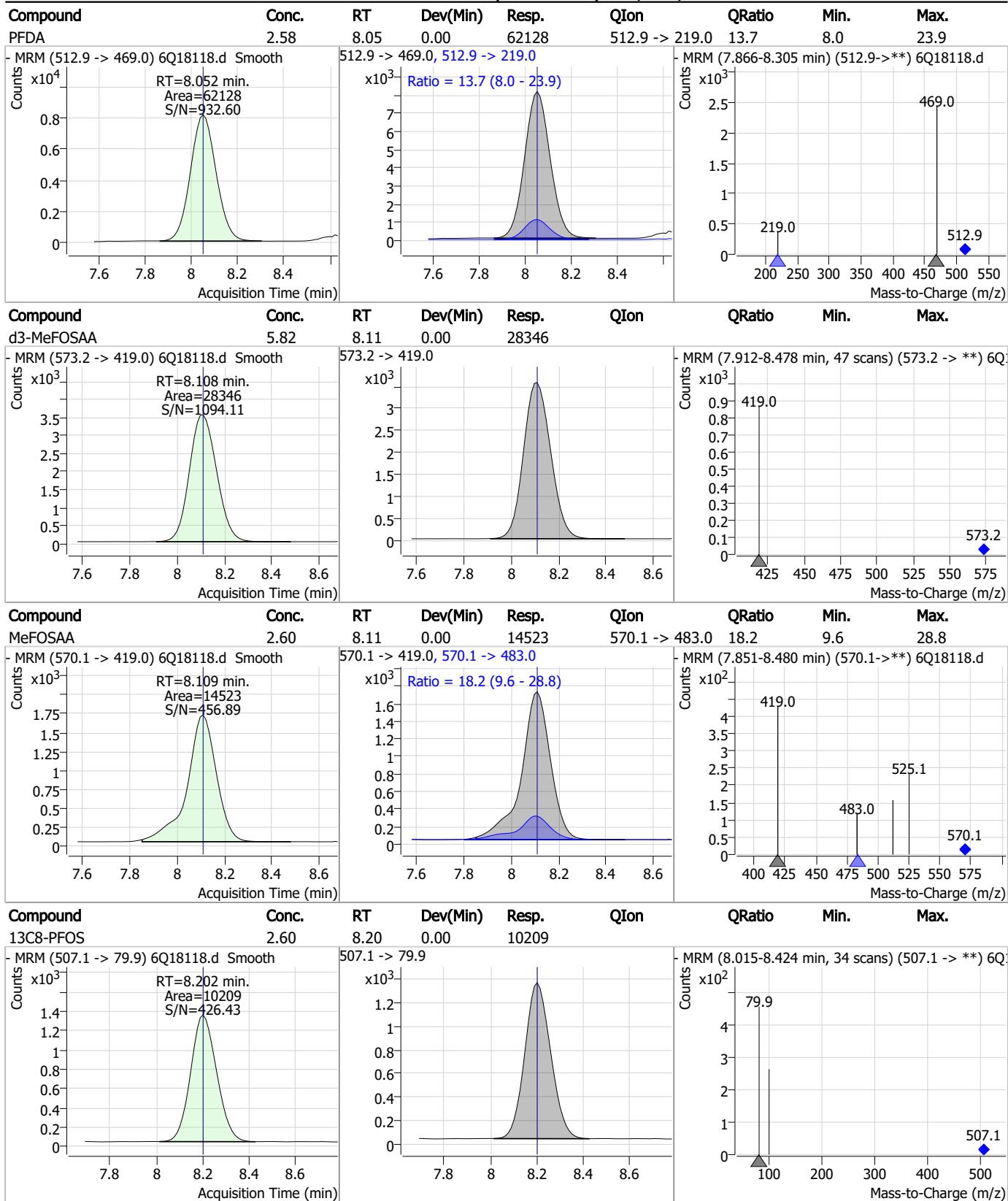


7.6.15

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Perfluorinated Compounds by LC/MS/MS

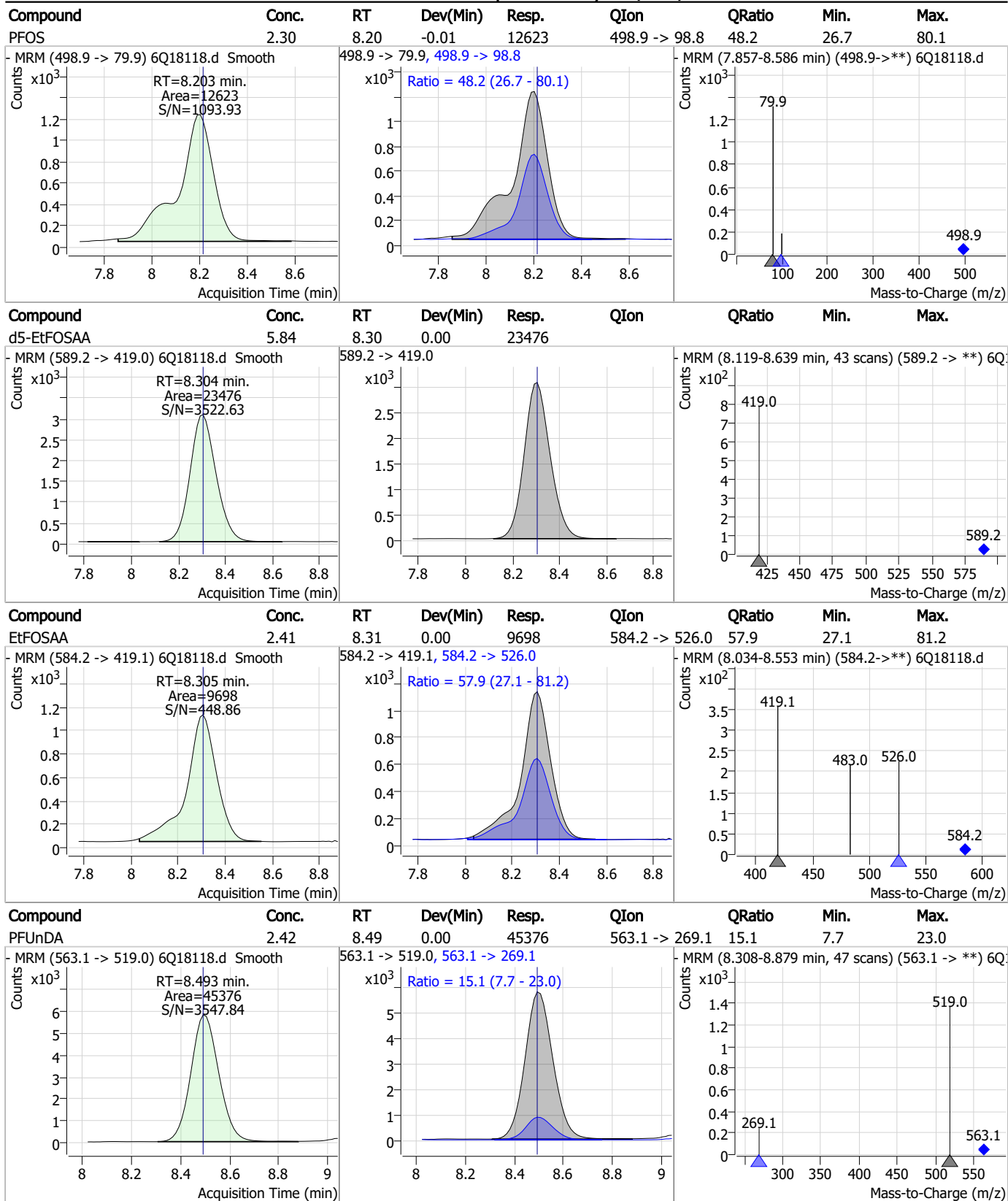


7.6.15

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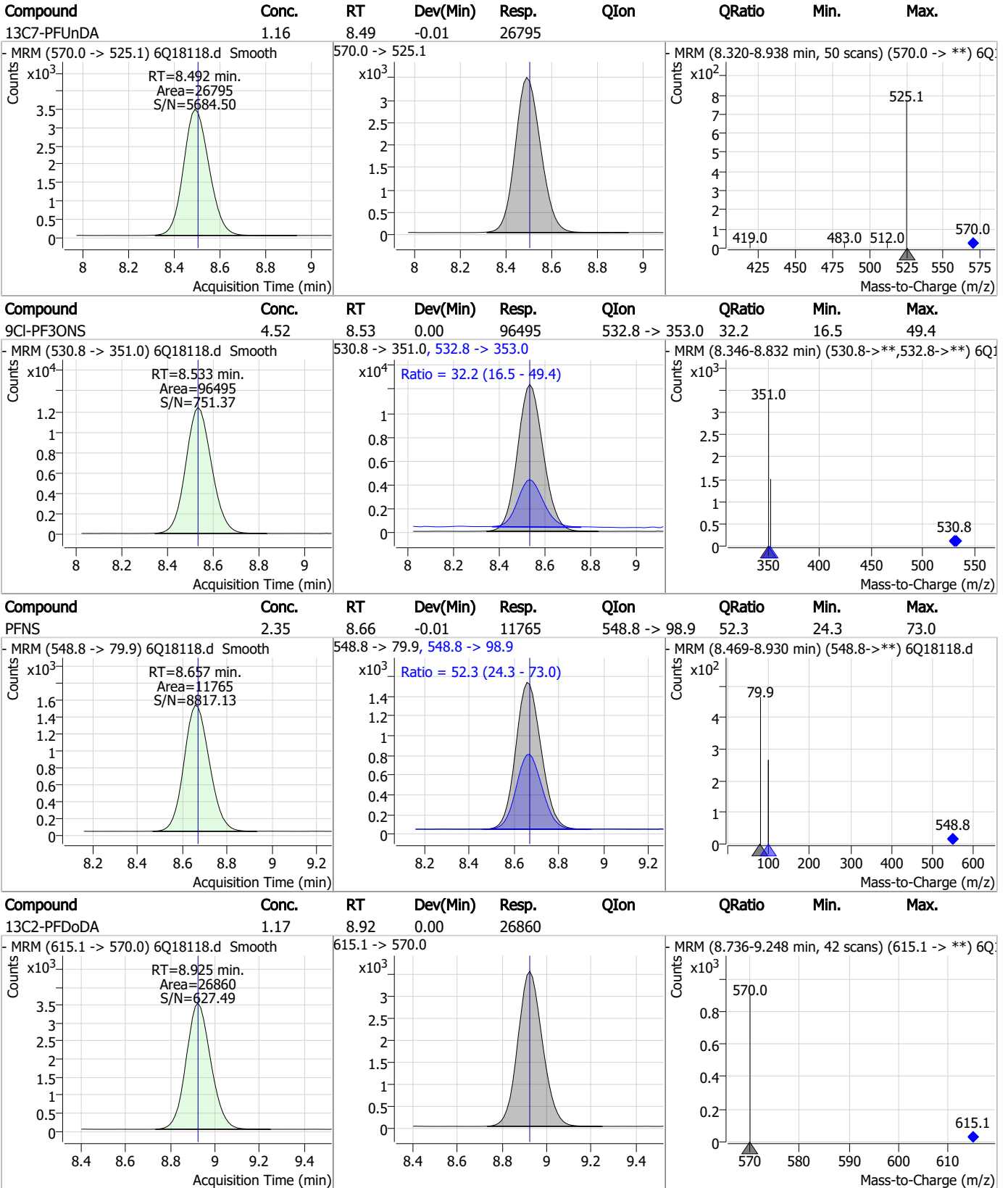


Perfluorinated Compounds by LC/MS/MS



7.6.15

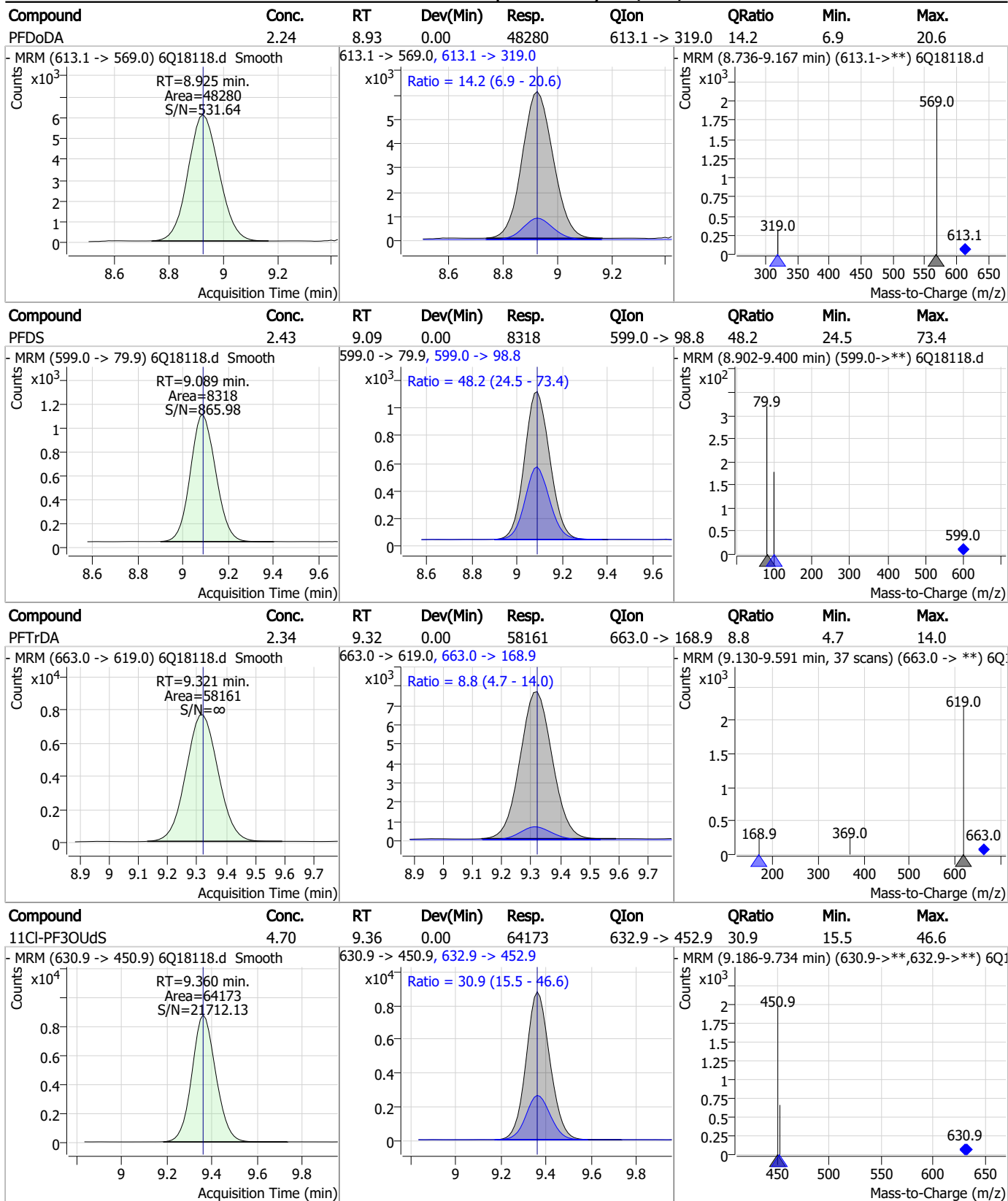
Perfluorinated Compounds by LC/MS/MS



7.6.15 7

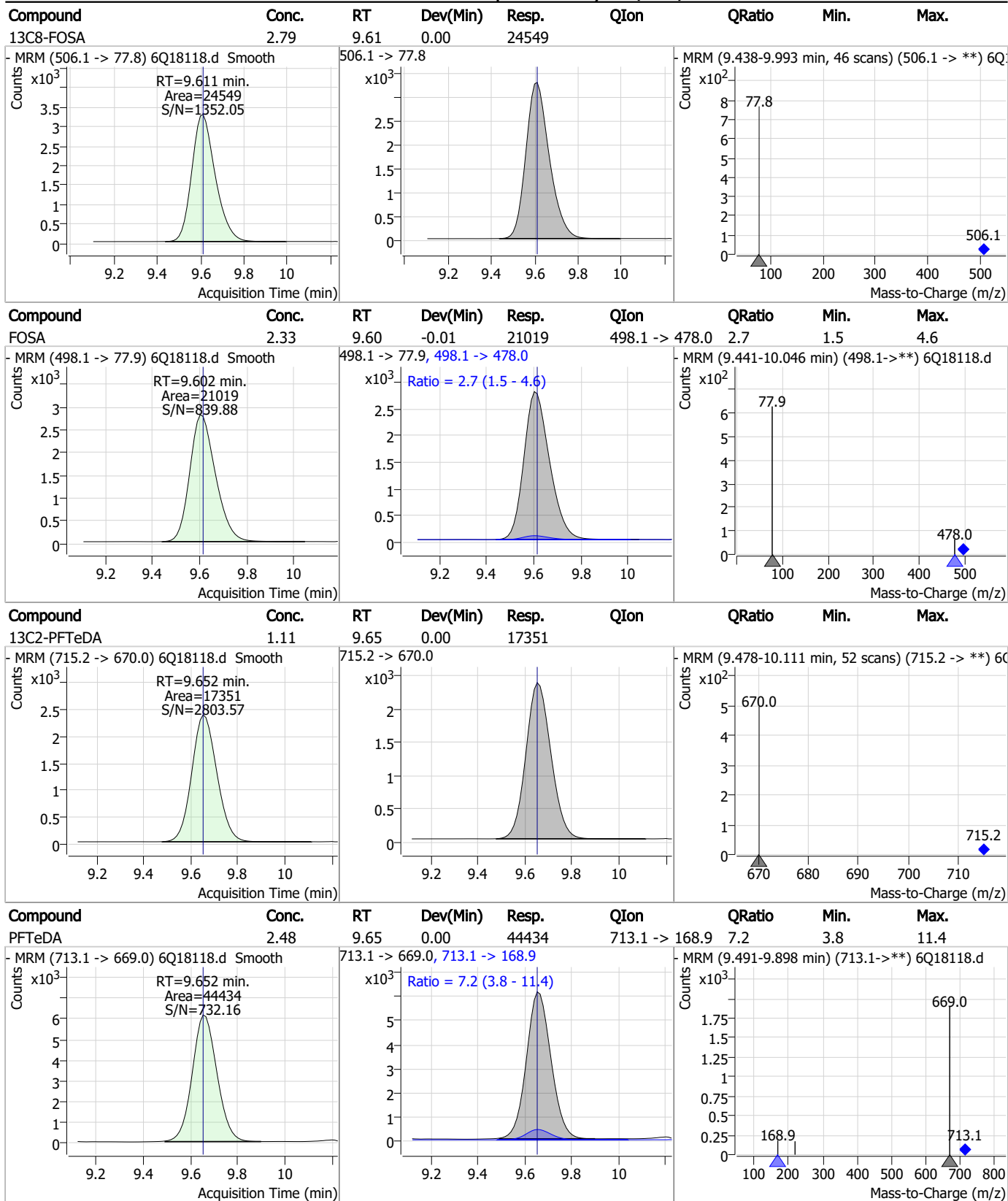


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

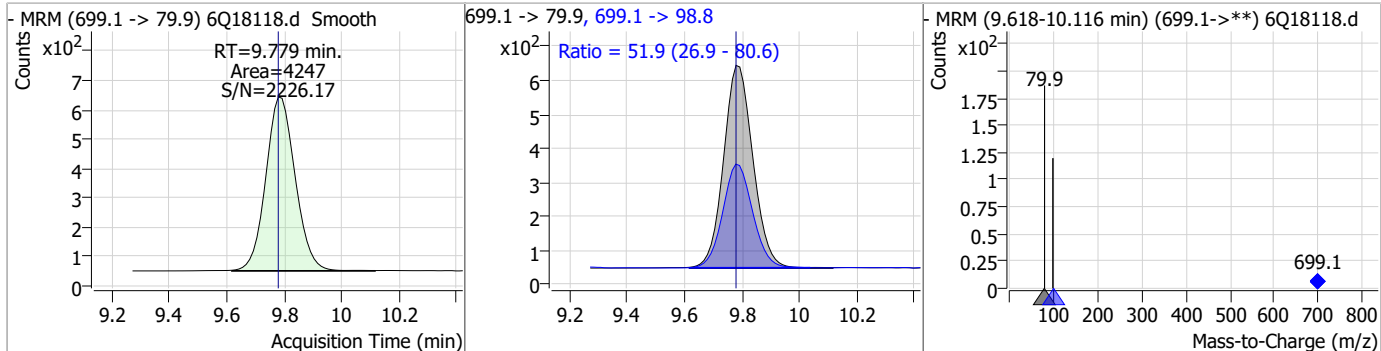


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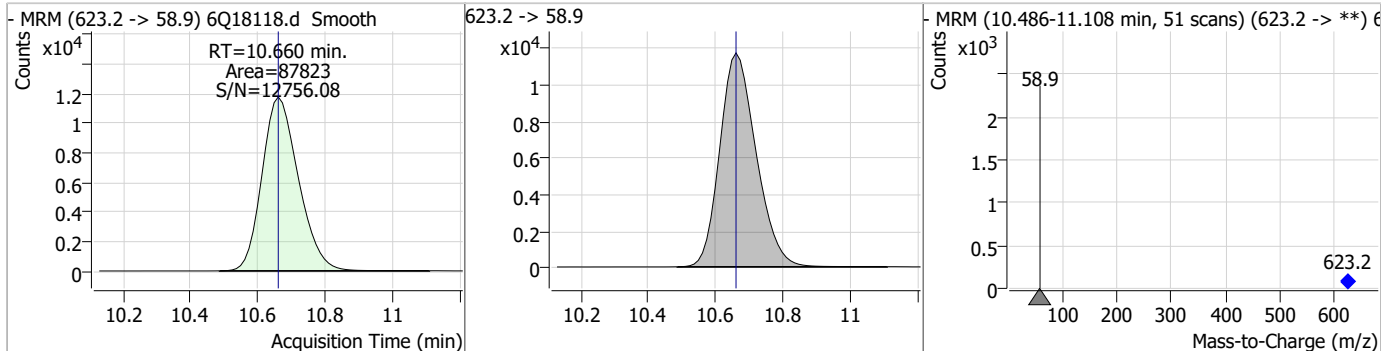
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Perfluorinated Compounds by LC/MS/MS

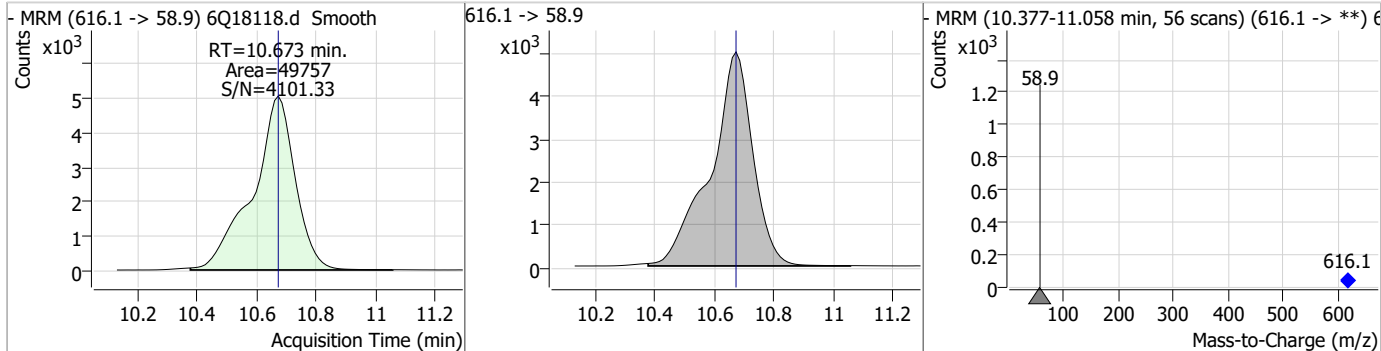
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.30	9.78	0.00	4247	699.1 -> 98.8	51.9	26.9	80.6



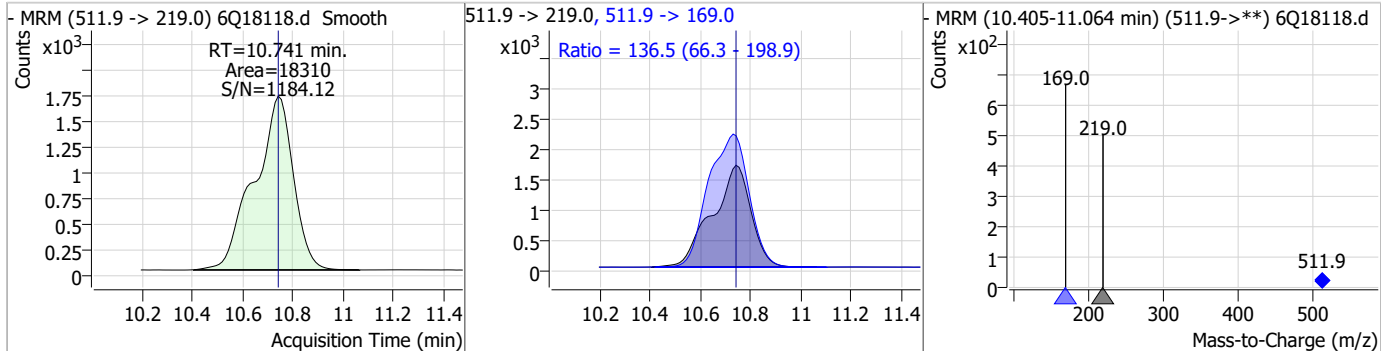
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.43	10.66	0.00	87823				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.03	10.67	0.00	49757				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.13	10.74	0.00	18310	511.9 -> 169.0	136.5	66.3	198.9



7.6.15
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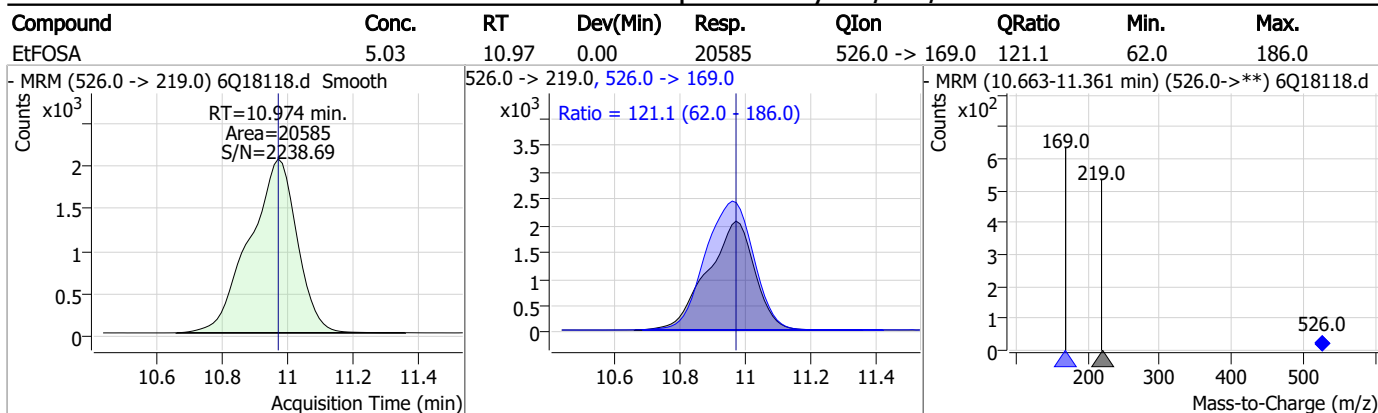
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	10.74	-0.01	7834				
- MRM (515.0 -> 219.0) 6Q18118.d Smooth Counts x10 ³ RT=10.739 min. Area=7834 S/N=398.09 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.590-11.025 min, 36 scans) (515.0 -> **) € Counts x10 ² 169.0 219.0 515.0 Mass-to-Charge (m/z)		
d9-EtFOSE	25.58	10.91	0.00	100234				
- MRM (639.2 -> 58.9) 6Q18118.d Smooth Counts x10 ⁴ RT=10.907 min. Area=100234 S/N=6382.38 Acquisition Time (min)			639.2 -> 58.9 Counts x10 ⁴ Acquisition Time (min)			- MRM (10.733-11.292 min, 46 scans) (639.2 -> **) € Counts x10 ³ 58.9 639.2 Mass-to-Charge (m/z)		
EtFOSE	12.41	10.92	0.00	55701				
- MRM (630.0 -> 58.9) 6Q18118.d Smooth Counts x10 ³ RT=10.920 min. Area=55701 S/N=7881.22 Acquisition Time (min)			630.0 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.622-11.306 min, 56 scans) (630.0 -> **) € Counts x10 ³ 58.9 630.0 Mass-to-Charge (m/z)		
d5-EtFOSA	2.54	10.97	0.00	9386				
- MRM (531.1 -> 219.0) 6Q18118.d Smooth Counts x10 ³ RT=10.972 min. Area=9386 S/N=1353.58 Acquisition Time (min)			531.1 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.823-11.258 min, 36 scans) (531.1 -> **) € Counts x10 ² 169.0 531.1 Mass-to-Charge (m/z)		

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Perfluorinated Compounds by LC/MS/MS



7.6.15

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Manual Integration Approval Summary

Sample Number: S6Q272-CC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18118.D Analyst approved: 05/20/23 10:05 Mike Eger
Injection Time: 05/19/23 10:55 Supervisor approved: 05/22/23 12:22 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak

7.6.15.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18130.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 1:49:46 PM
 Sample Name : cc272-4
 Vial : P1-A5
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	164687	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	50333	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	58453	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	50478	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	77307	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	26376	1.25 µg/L	0.000
M6-PFDA	8.039	519.1 -> 474.1	19619	1.25 µg/L	-0.012
M7-PFUnDA	8.492	570.0 -> 525.1	26938	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	27073	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	18815	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	24609	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	18844	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11203	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	10793	2.50 µg/L	0.000
M2-4:2FTS	5.119	329.1 -> 80.9	3026	5.00 µg/L	0.000
M2-6:2FTS	6.813	429.1 -> 80.9	3699	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	3998	5.00 µg/L	-0.012
M3-MeFOSAA	8.096	573.2 -> 419.0	28131	5.00 µg/L	-0.012
M3-HFPO-DA	5.807	286.9 -> 168.9	35569	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	23435	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	90411	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	107298	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9216	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	7796	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	12911	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	68853	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8316	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	81918	2.50 µg/L	-0.012
13C2-PFDA	8.039	515.1 -> 470.1	25141	1.25 µg/L	-0.025
13C5-PFNA	7.570	468.0 -> 423.0	28859	1.25 µg/L	0.000
13C2-PFHxA	5.430	315.1 -> 270.0	48204	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.119	329.1 -> 80.9	3026	6.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.6%		
13C2-6:2FTS	6.813	429.1 -> 80.9	3699	6.48 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.6%		
13C2-8:2FTS	7.839	529.1 -> 80.9	3998	6.49 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.8%		
13C2-PFDoDA	8.925	615.1 -> 570.0	27073	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFTeDA	9.652	715.2 -> 670.0	18815	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C3-PFBS	5.359	302.1 -> 79.9	18844	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.155	402.1 -> 79.9	11203	2.52 µg/L	0.000

7.6.16
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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 = 100.7%	
13C4-PFBA	2.888	216.8 -> 171.9	164687	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.395	367.1 -> 322.0	50478	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFHxA	5.441	318.0 -> 273.0	58453	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFPeA	4.247	268.3 -> 223.0	50333	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.039	519.1 -> 474.1	19619	1.15 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C7-PFUnDA	8.492	570.0 -> 525.1	26938	1.23 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-FOSA	9.611	506.1 -> 77.8	24609	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.5%	
13C8-PFOA	7.038	421.1 -> 376.0	77307	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOS	8.202	507.1 -> 79.9	10793	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C9-PFNA	7.569	472.1 -> 427.0	26376	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.3%	
d3-MeFOSAA	8.096	573.2 -> 419.0	28131	5.82 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.4%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	35569	10.21 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d3-MeFOSA	10.739	515.0 -> 219.0	7796	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.304	589.2 -> 419.0	23435	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.4%	
d7-MeFOSE	10.660	623.2 -> 58.9	90411	27.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
d9-EtFOSE	10.907	639.2 -> 58.9	107298	27.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
d5-EtFOSA	10.972	531.1 -> 219.0	9216	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
Target Compounds					QValue
4:2FTS	5.107	327.1 -> 307.0	38748	8.67 µg/L	99
		327.1 -> 80.9	15469		
6:2FTS	6.826	427.1 -> 407.0	37975	9.50 µg/L	99
		427.1 -> 80.9	13188		
8:2FTS	7.840	527.1 -> 507.0	23506	10.29 µg/L	94
		527.1 -> 80.8	9165		
EtFOSAA	8.305	584.2 -> 419.1	9763	2.43 µg/L	98
		584.2 -> 526.0	5438		
FOSA	9.602	498.1 -> 77.9	21407	2.37 µg/L	99
		498.1 -> 478.0	588		
MeFOSAA	8.109	570.1 -> 419.0	13973	2.52 µg/L	98
		570.1 -> 483.0	2530		
PFBA	2.882	212.8 -> 168.9	58122	9.72 µg/L	100
PFBS	5.360	298.7 -> 79.9	20624	2.24 µg/L	99
		298.7 -> 98.8	7561		
PFDA	8.052	512.9 -> 469.0	61111	2.61 µg/L	99
		512.9 -> 219.0	9499		
PFDODA	8.925	613.1 -> 569.0	51437	2.36 µg/L	99
		613.1 -> 319.0	6788		
PFDS	9.089	599.0 -> 79.9	7776	2.15 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3939			
PFHpA	6.395	363.1 -> 319.0	63445	2.46	µg/L	98
		363.1 -> 169.0	9944			
PFHpS	7.710	449.0 -> 79.9	12477	2.14	µg/L	97
		449.0 -> 98.9	6416			
PFHxA	5.444	313.0 -> 269.0	58575	2.57	µg/L	100
		313.0 -> 118.9	2731			
PFHxS	7.156	398.7 -> 79.9	14084	2.25	µg/L	m 94
		398.7 -> 98.9	7299			
PFNA	7.570	463.0 -> 419.0	47572	2.45	µg/L	97
		463.0 -> 219.0	9944			
PFNS	8.657	548.8 -> 79.9	11293	2.13	µg/L	92
		548.8 -> 98.9	6093			
PFOA	7.052	413.0 -> 369.0	87767	2.32	µg/L	99
		413.0 -> 169.0	15329			
PFOS	8.203	498.9 -> 79.9	11954	2.06	µg/L	98
		498.9 -> 98.8	6187			
PFPeA	4.237	263.0 -> 219.0	72476	4.86	µg/L	100
PFPeS	6.447	349.1 -> 79.9	15178	2.43	µg/L	93
		349.1 -> 98.9	6483			
PFTeDA	9.652	713.1 -> 669.0	45676	2.35	µg/L	100
		713.1 -> 168.9	3469			
PFTrDA	9.309	663.0 -> 619.0	55518	2.22	µg/L	99
		663.0 -> 168.9	5398			
PFUnDA	8.493	563.1 -> 519.0	46856	2.49	µg/L	97
		563.1 -> 269.1	7761			
11CI-PF3OUdS	9.360	630.9 -> 450.9	64061	4.60	µg/L	99
		632.9 -> 452.9	20134			
9CI-PF3ONS	8.533	530.8 -> 351.0	100785	4.64	µg/L	96
		532.8 -> 353.0	30707			
ADONA	6.658	376.9 -> 250.9	261650	4.60	µg/L	98
		376.9 -> 84.8	67178			
HFPO-DA	5.807	284.9 -> 168.9	16910	4.89	µg/L	99
		284.9 -> 184.9	2389			
3:3FTCA	3.727	241.0 -> 177.0	11313	12.06	µg/L	97
		241.0 -> 117.0	1491			
5:3FTCA	6.111	341.0 -> 237.1	251634	61.13	µg/L	100
		341.0 -> 217.0	177697			
7:3FTCA	7.535	441.0 -> 316.9	125722	61.46	µg/L	98
		441.0 -> 336.9	281137			
EtFOSA	10.974	526.0 -> 219.0	19882	4.95	µg/L	94
		526.0 -> 169.0	25953			
EtFOSE	10.920	630.0 -> 58.9	56597	11.78	µg/L	100
MeFOSA	10.741	511.9 -> 219.0	18492	5.20	µg/L	96
		511.9 -> 169.0	25350			
MeFOSE	10.673	616.1 -> 58.9	47959	11.27	µg/L	100
PFDoDS	9.779	699.1 -> 79.9	4539	2.32	µg/L	95
		699.1 -> 98.8	2284			
NFDHA	5.324	295.0 -> 201.0	13068	5.12	µg/L	97
		295.0 -> 84.9	3327			
PFMBA	4.650	279.0 -> 85.1	51667	4.93	µg/L	100
PFMPA	3.401	229.0 -> 84.9	37981	4.90	µg/L	100
PFEESA	5.900	314.8 -> 134.9	130504	4.33	µg/L	99
		314.8 -> 82.9	4630			

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

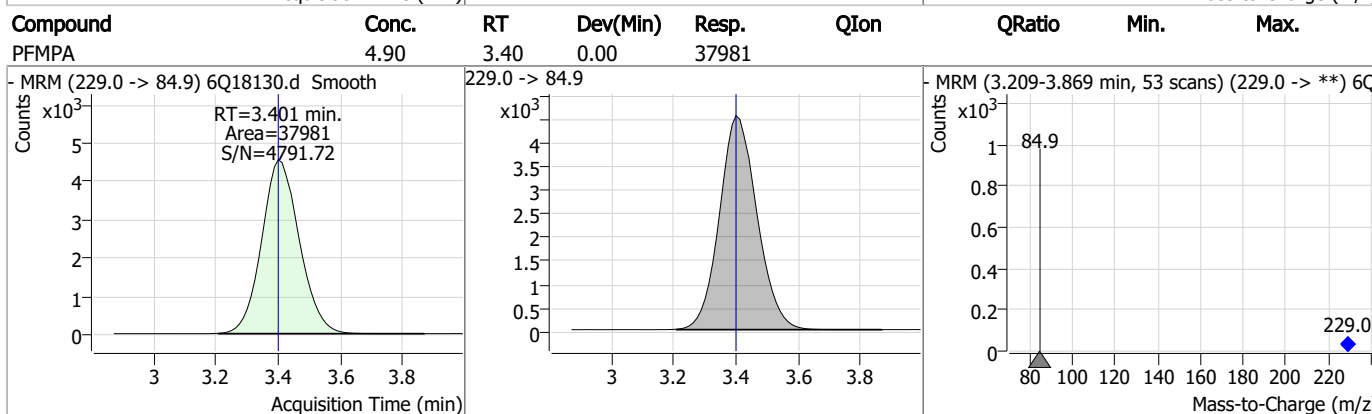
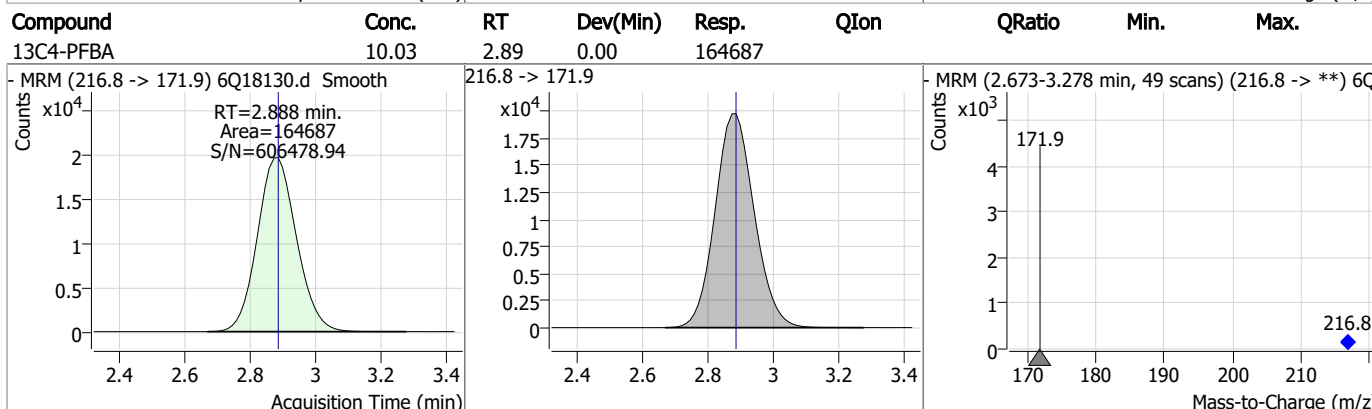
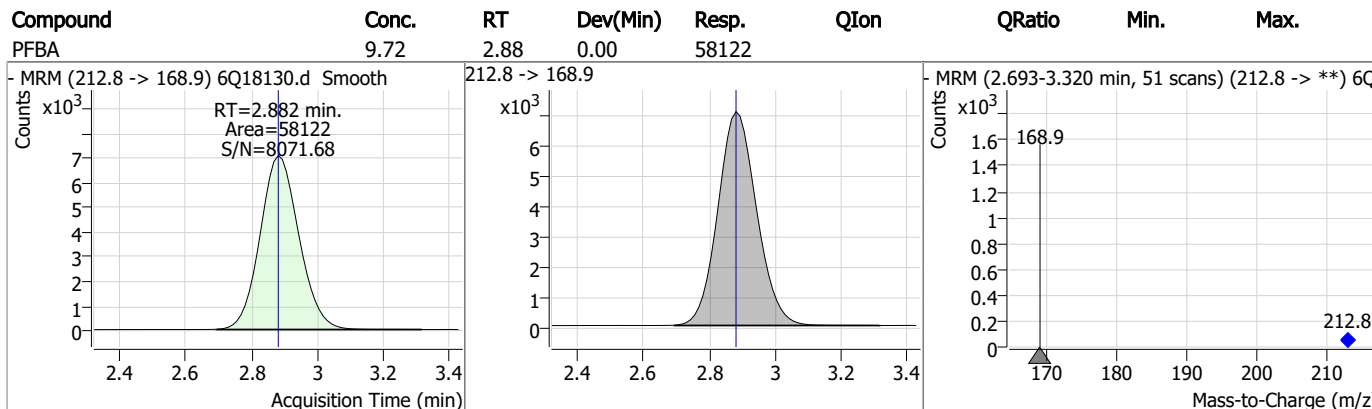
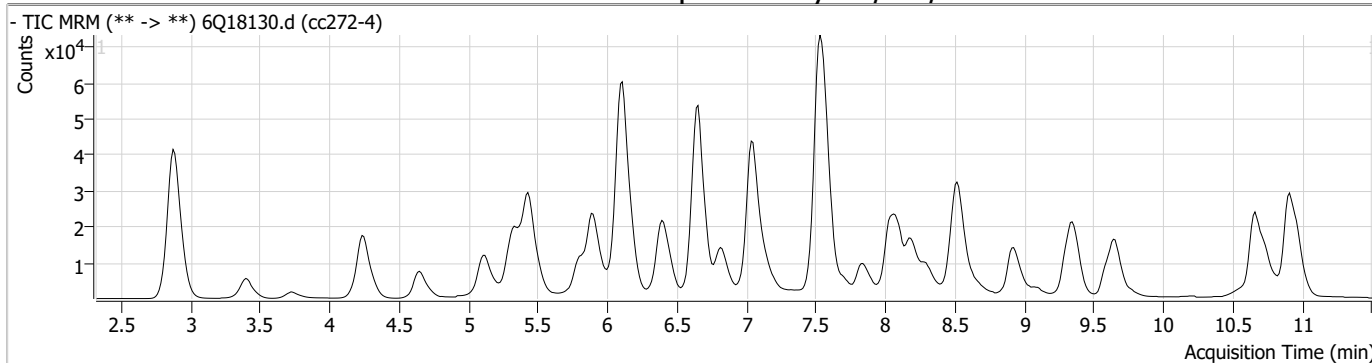
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.16

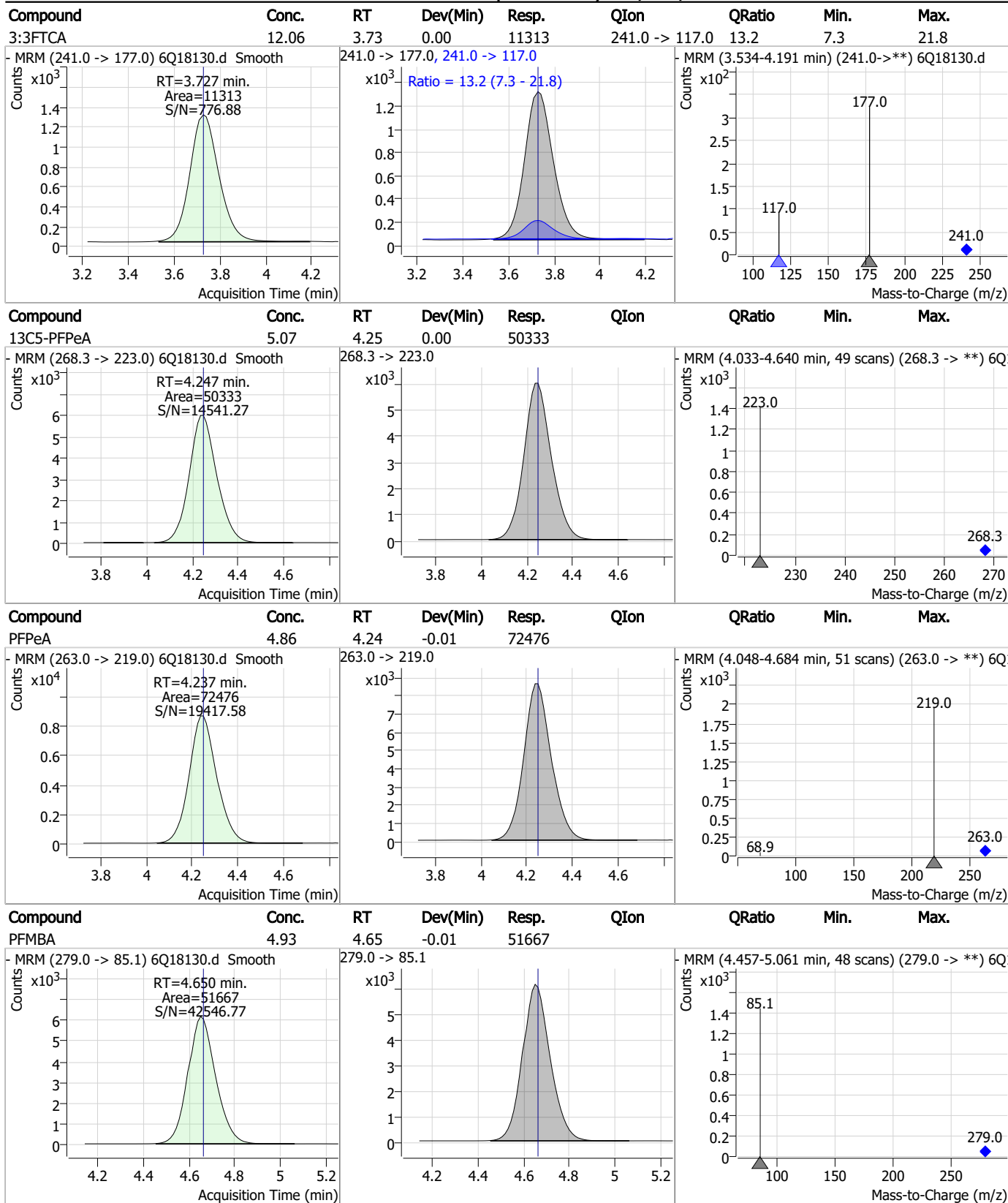
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Perfluorinated Compounds by LC/MS/MS



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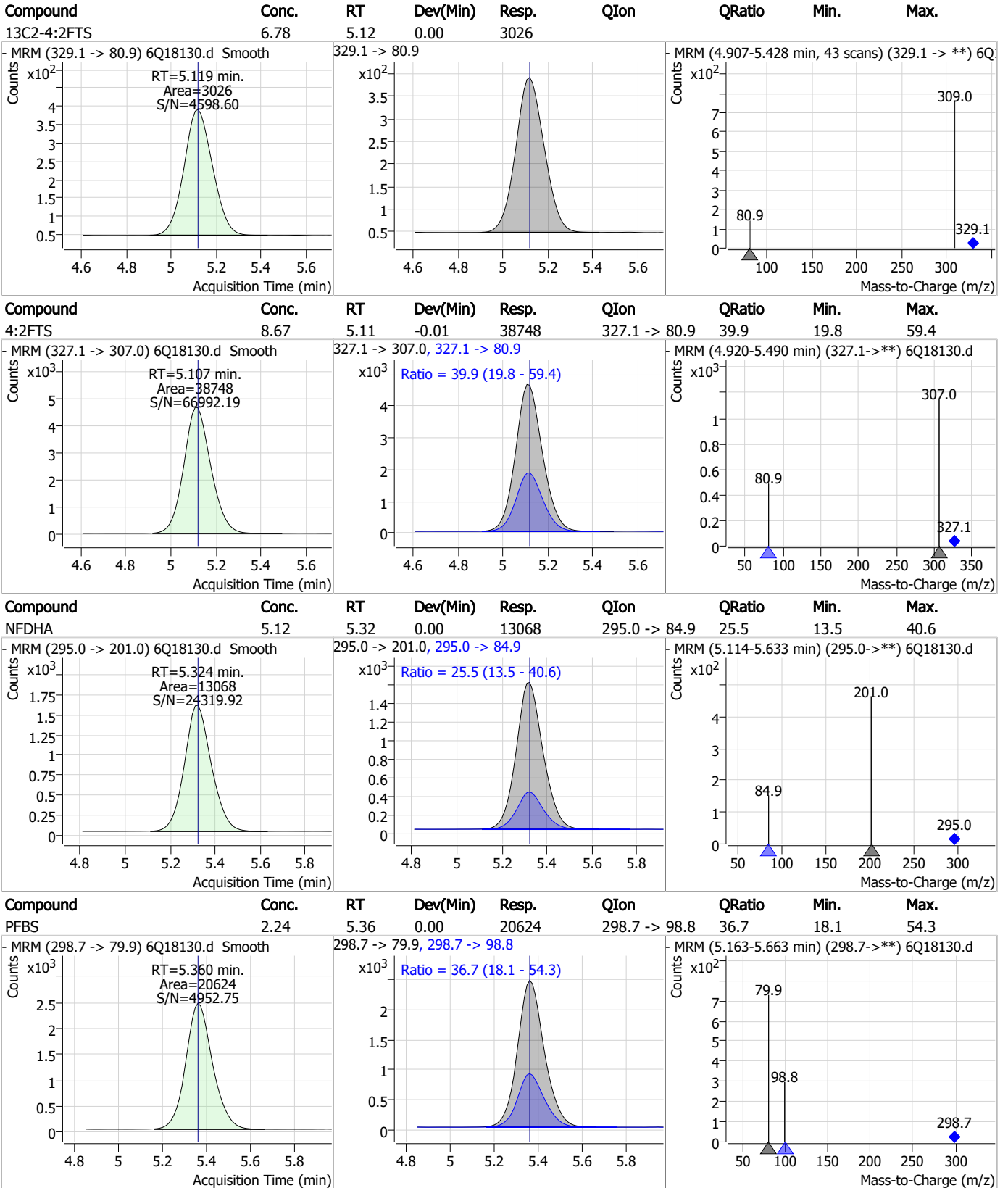
Perfluorinated Compounds by LC/MS/MS



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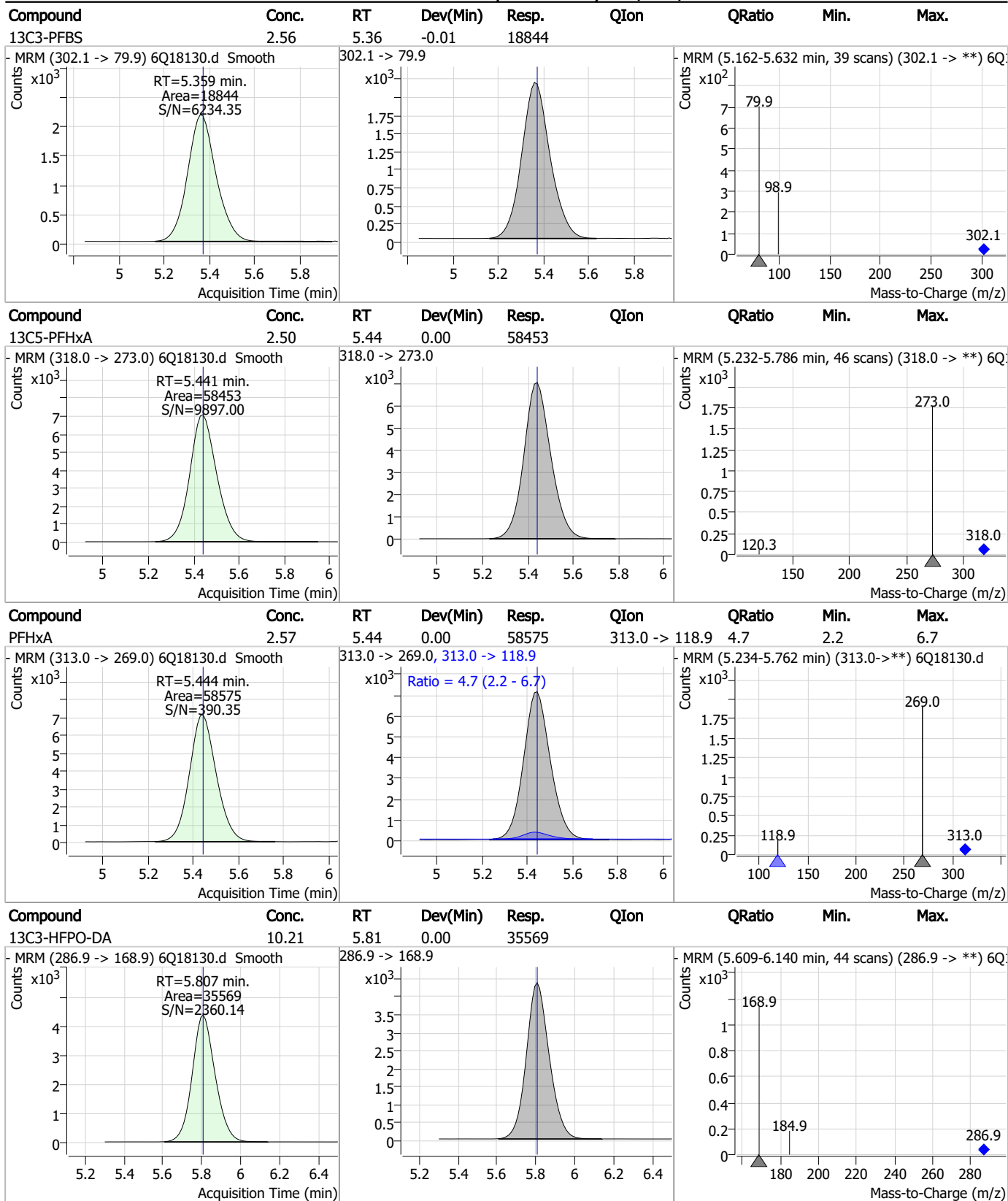
Perfluorinated Compounds by LC/MS/MS



7.6.16 7

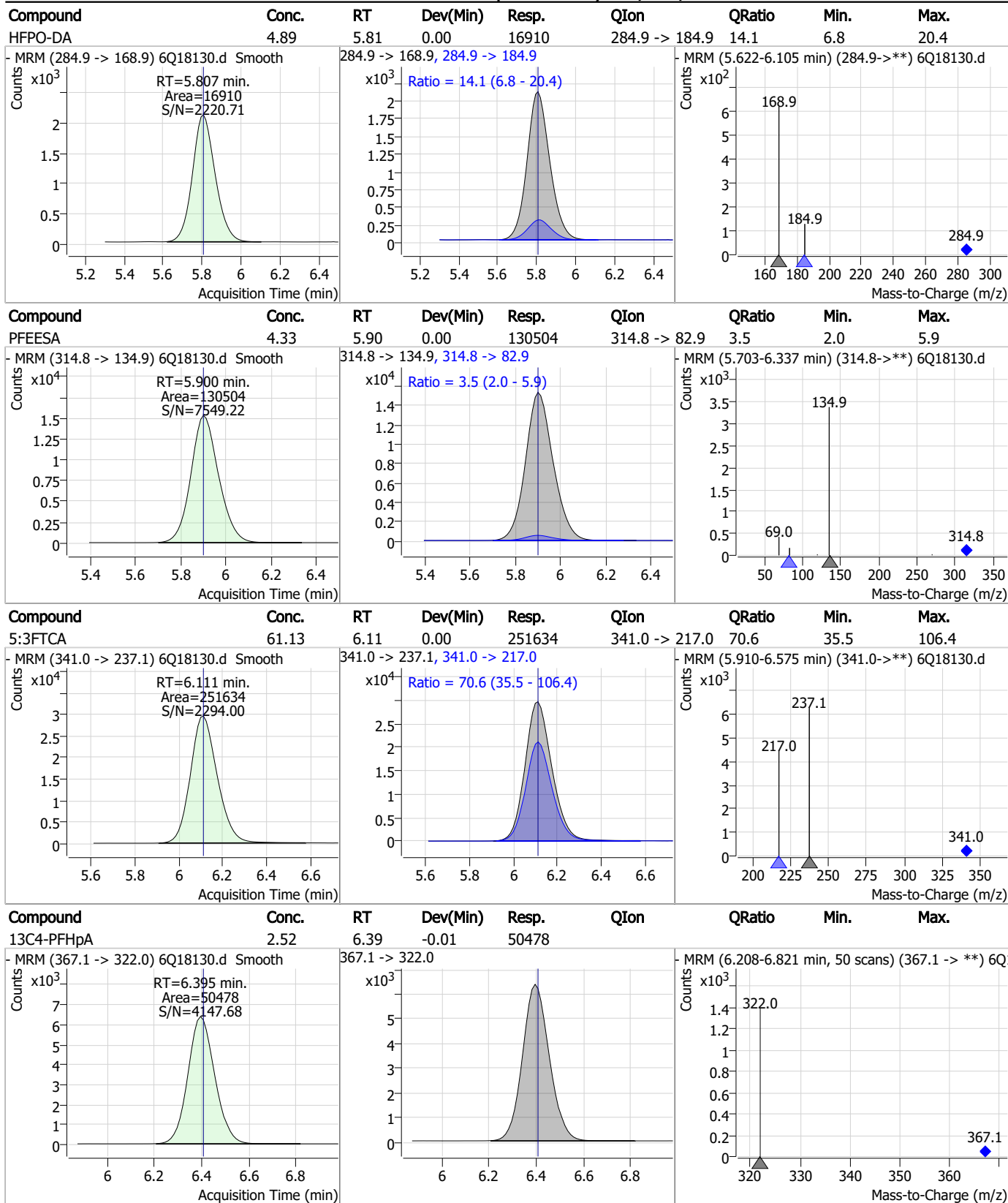


Perfluorinated Compounds by LC/MS/MS



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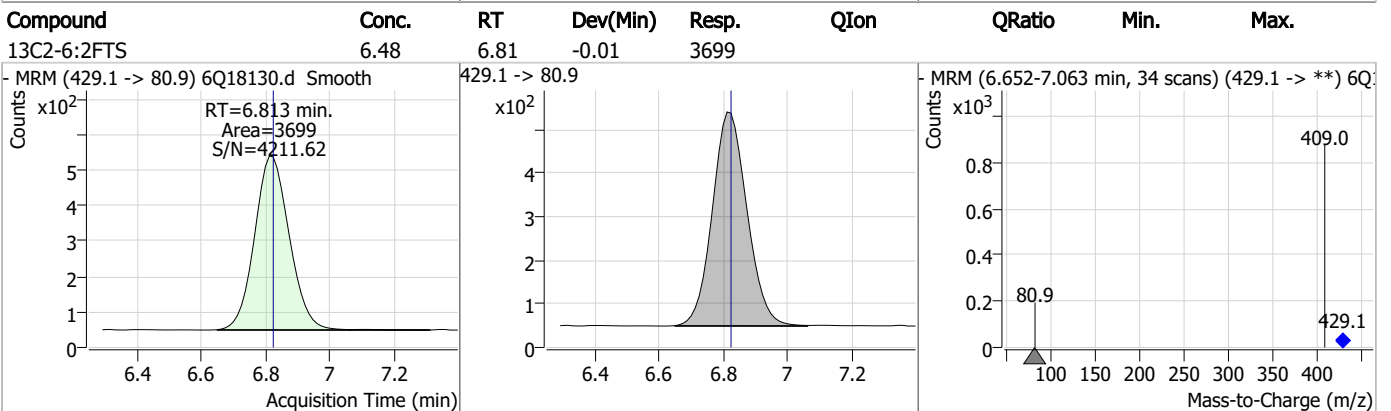
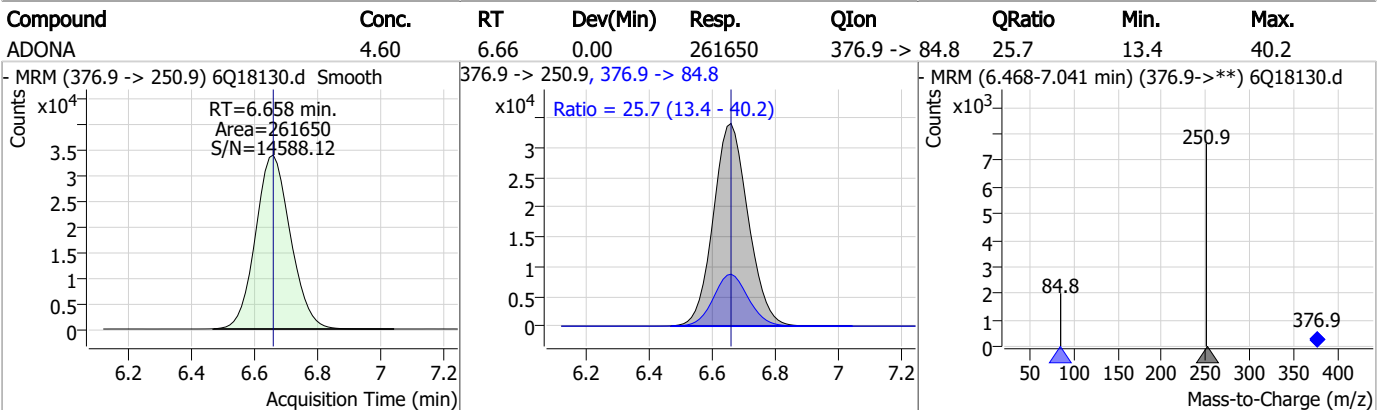
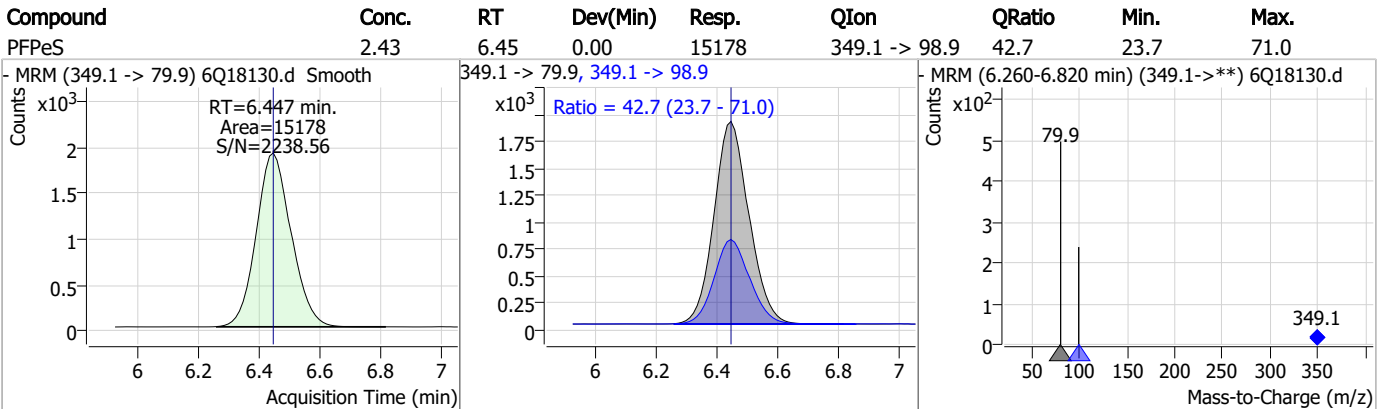
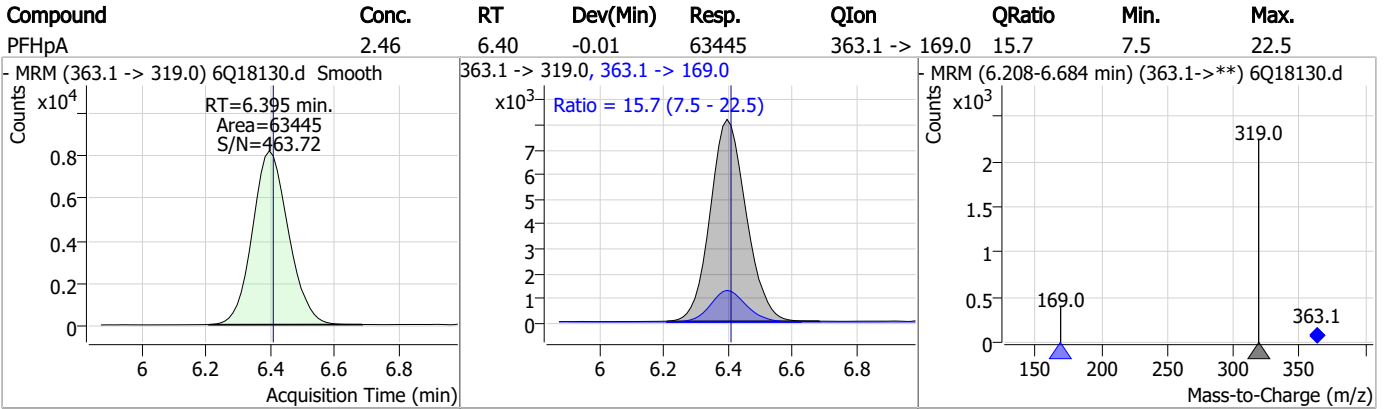
Perfluorinated Compounds by LC/MS/MS



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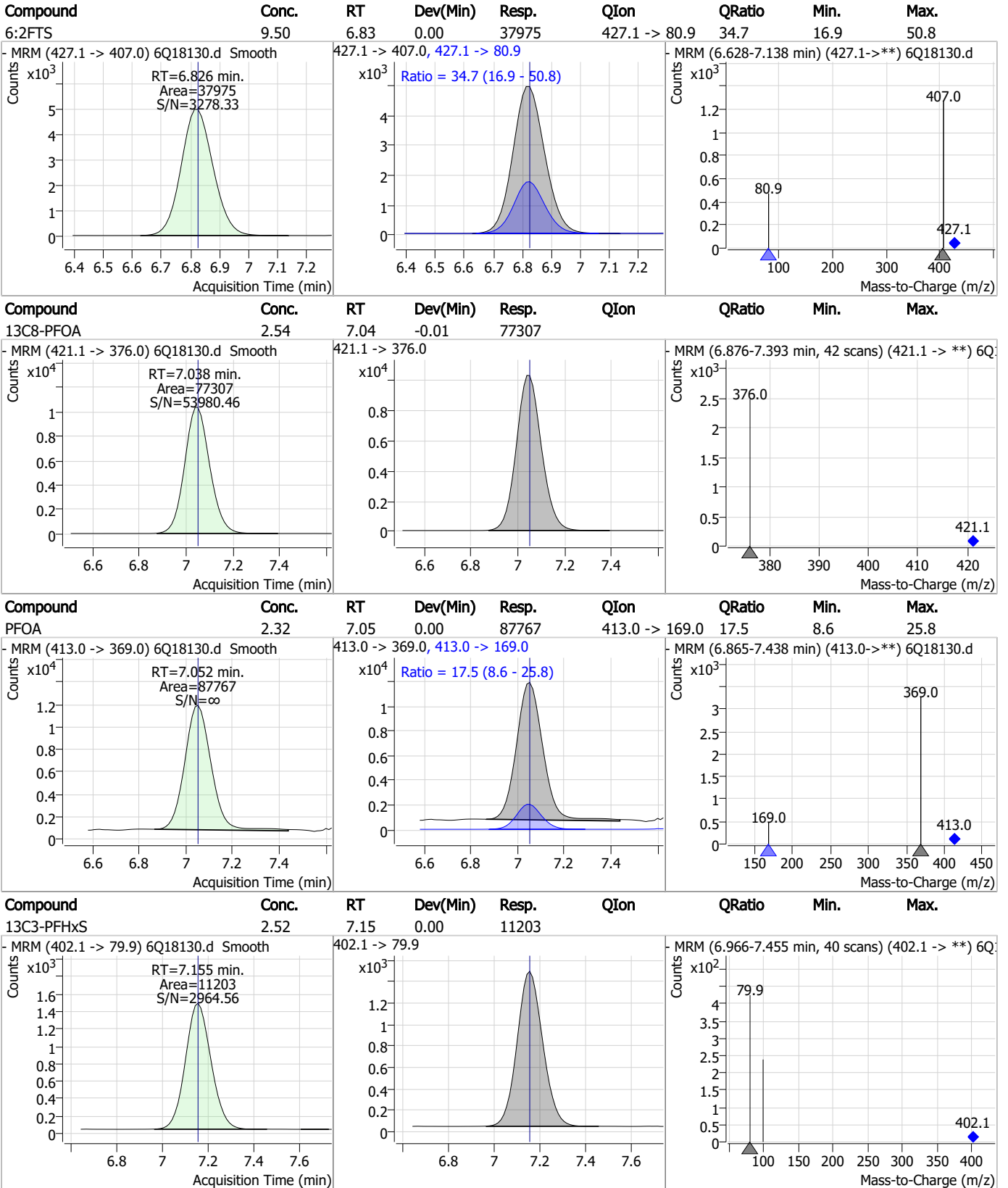
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

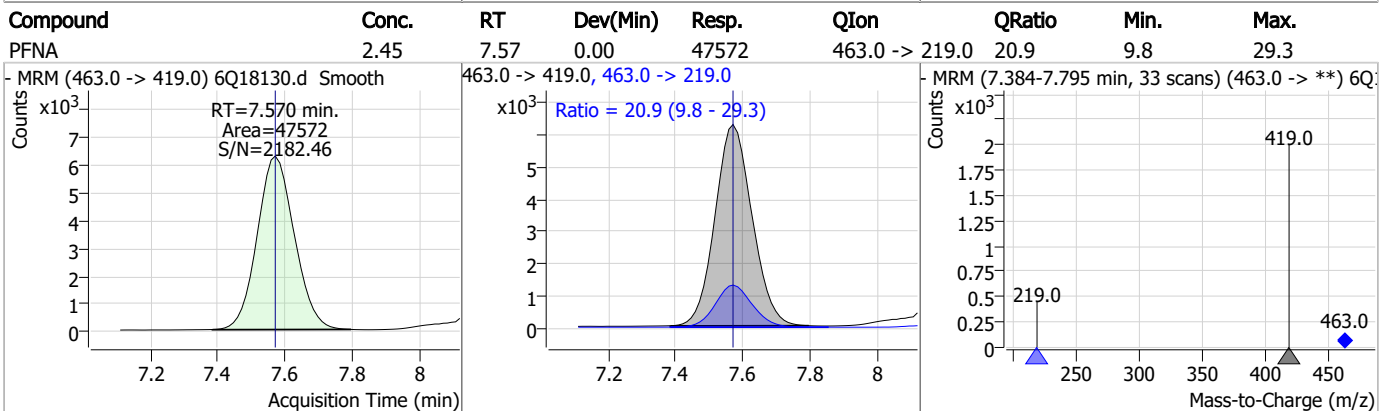
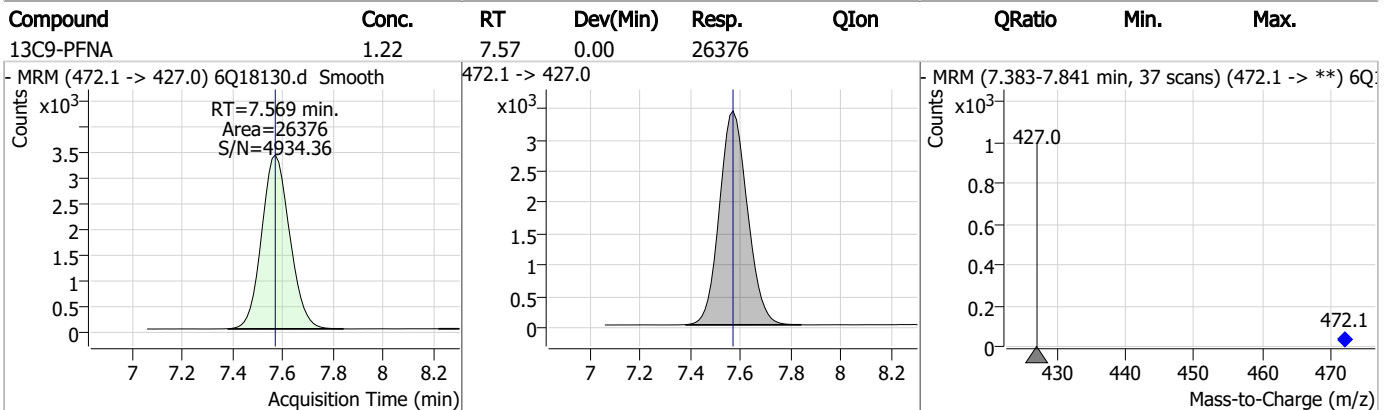
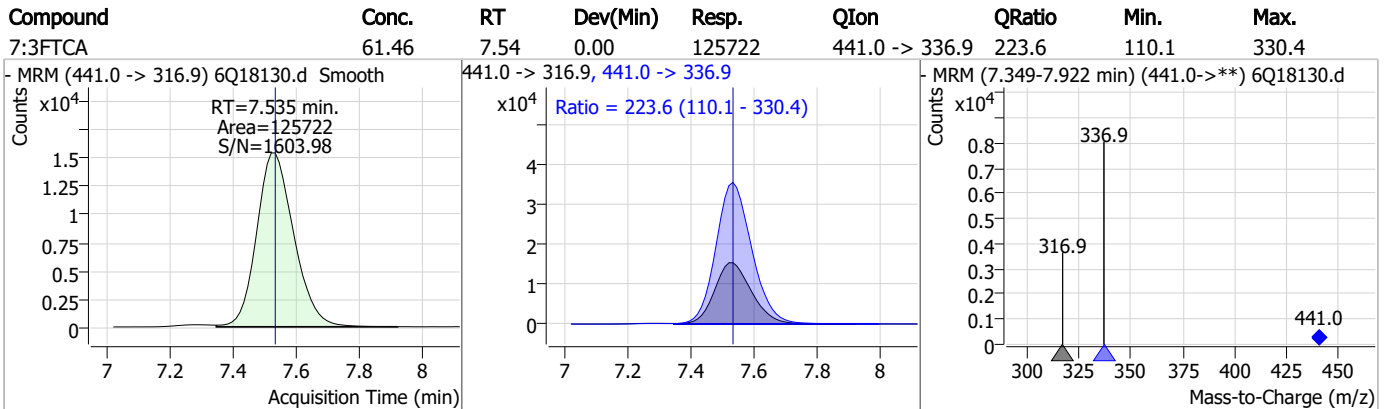
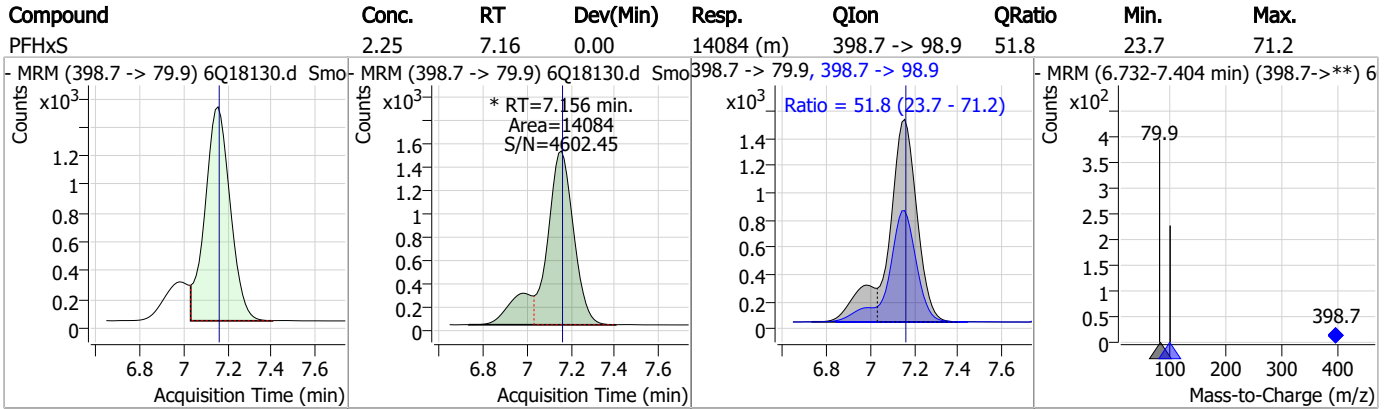


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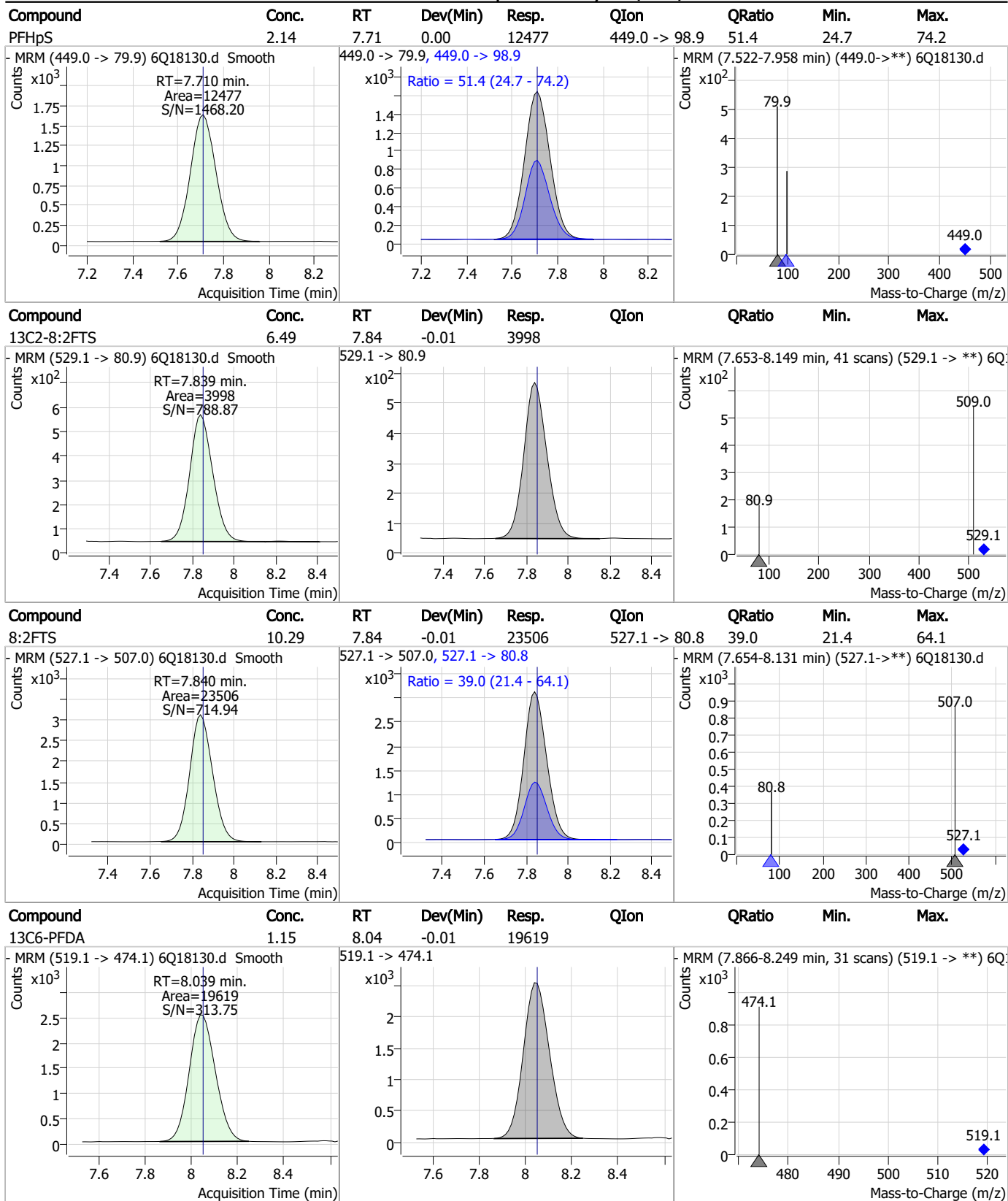
Perfluorinated Compounds by LC/MS/MS



7.6.16 7

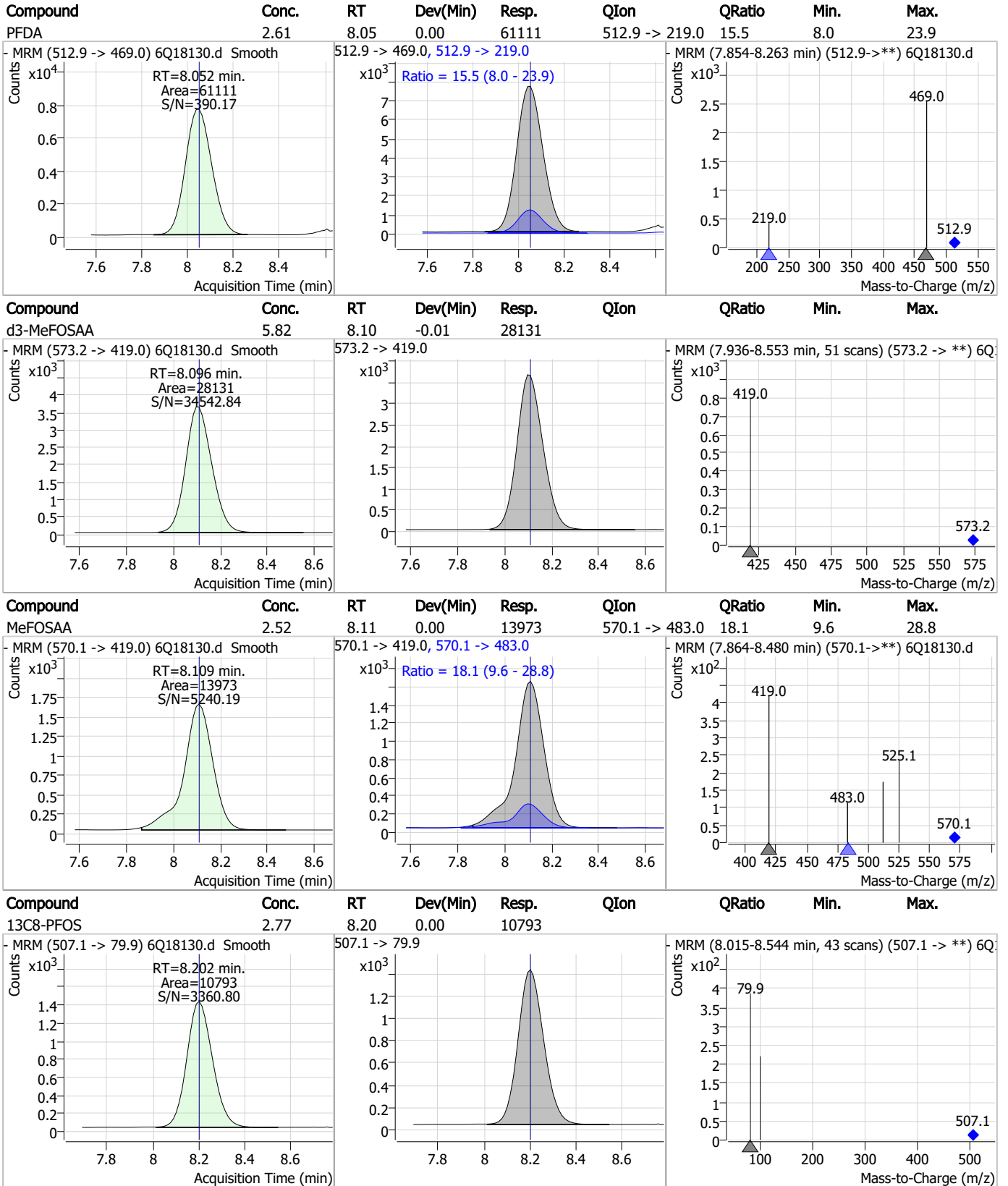


Perfluorinated Compounds by LC/MS/MS



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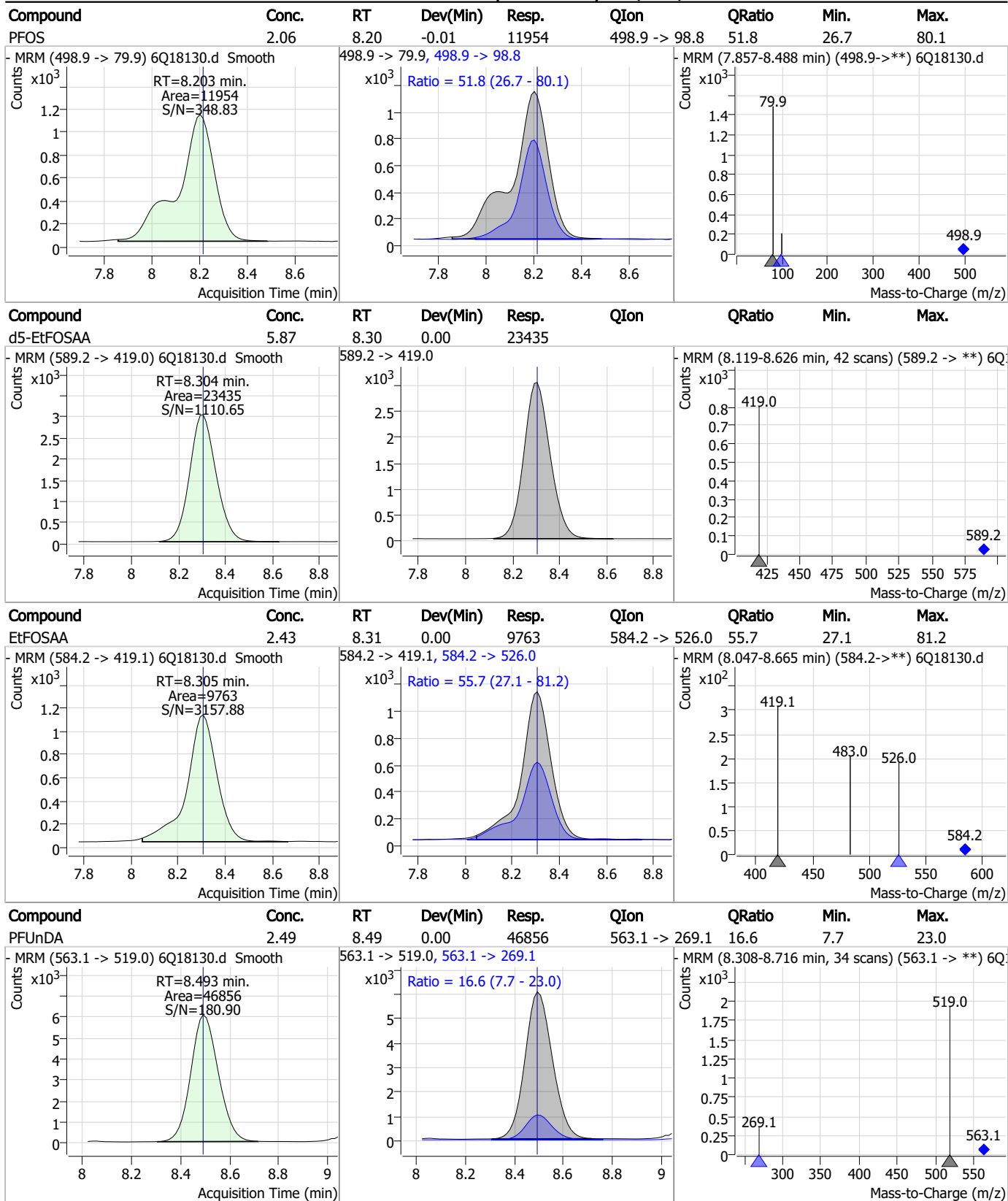
Perfluorinated Compounds by LC/MS/MS



7.6.16 7

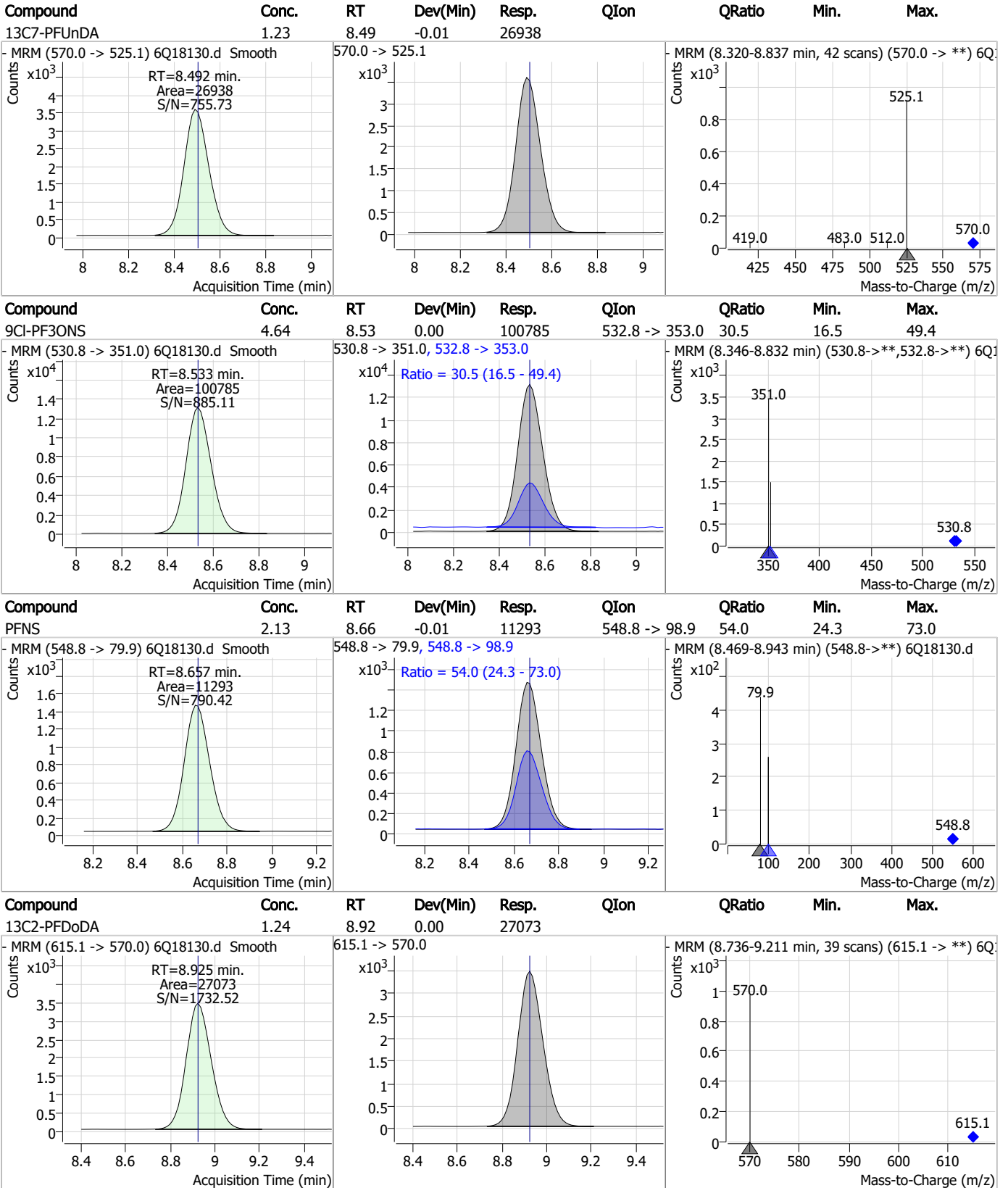


Perfluorinated Compounds by LC/MS/MS



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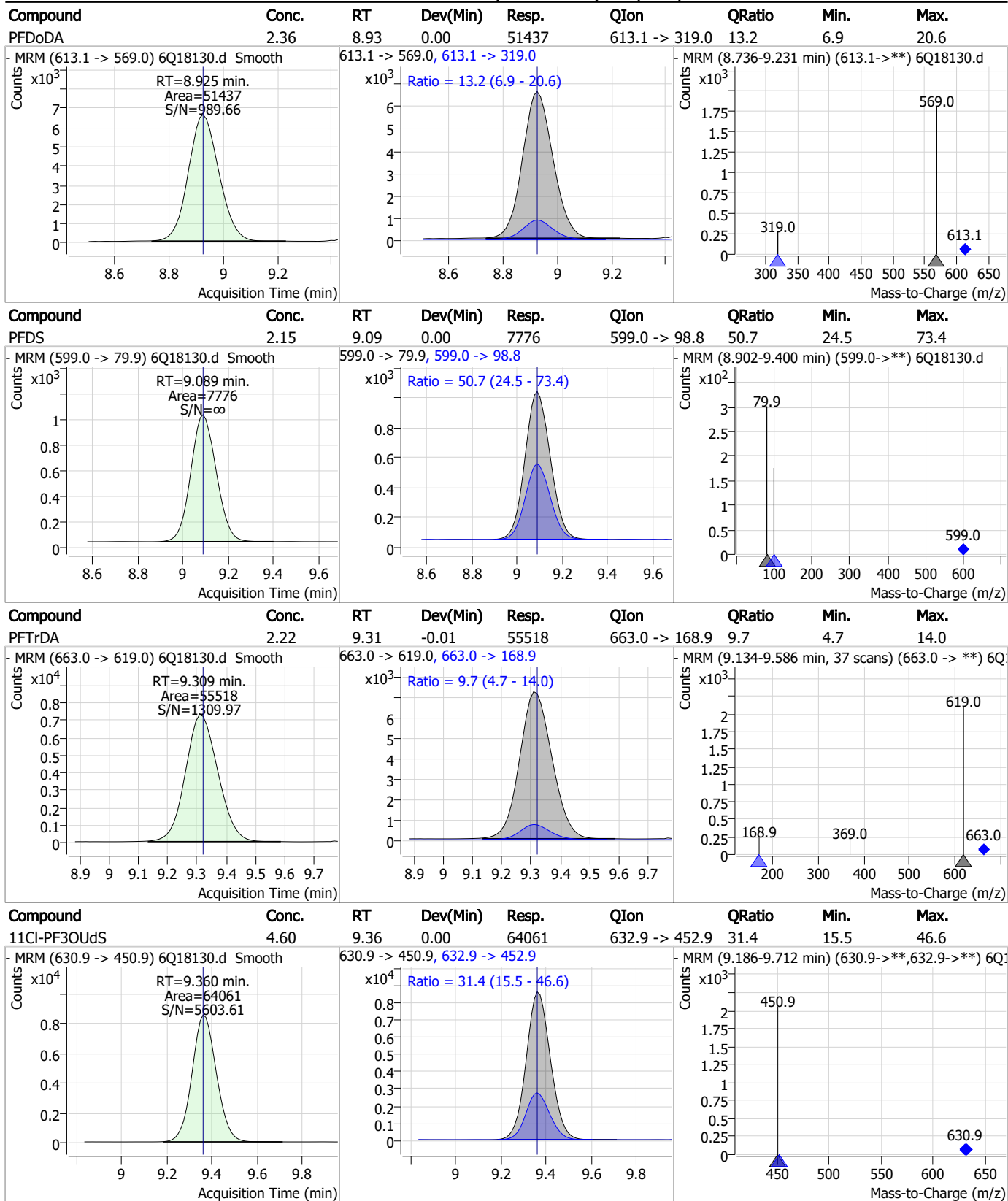
Perfluorinated Compounds by LC/MS/MS



7.6.16 7

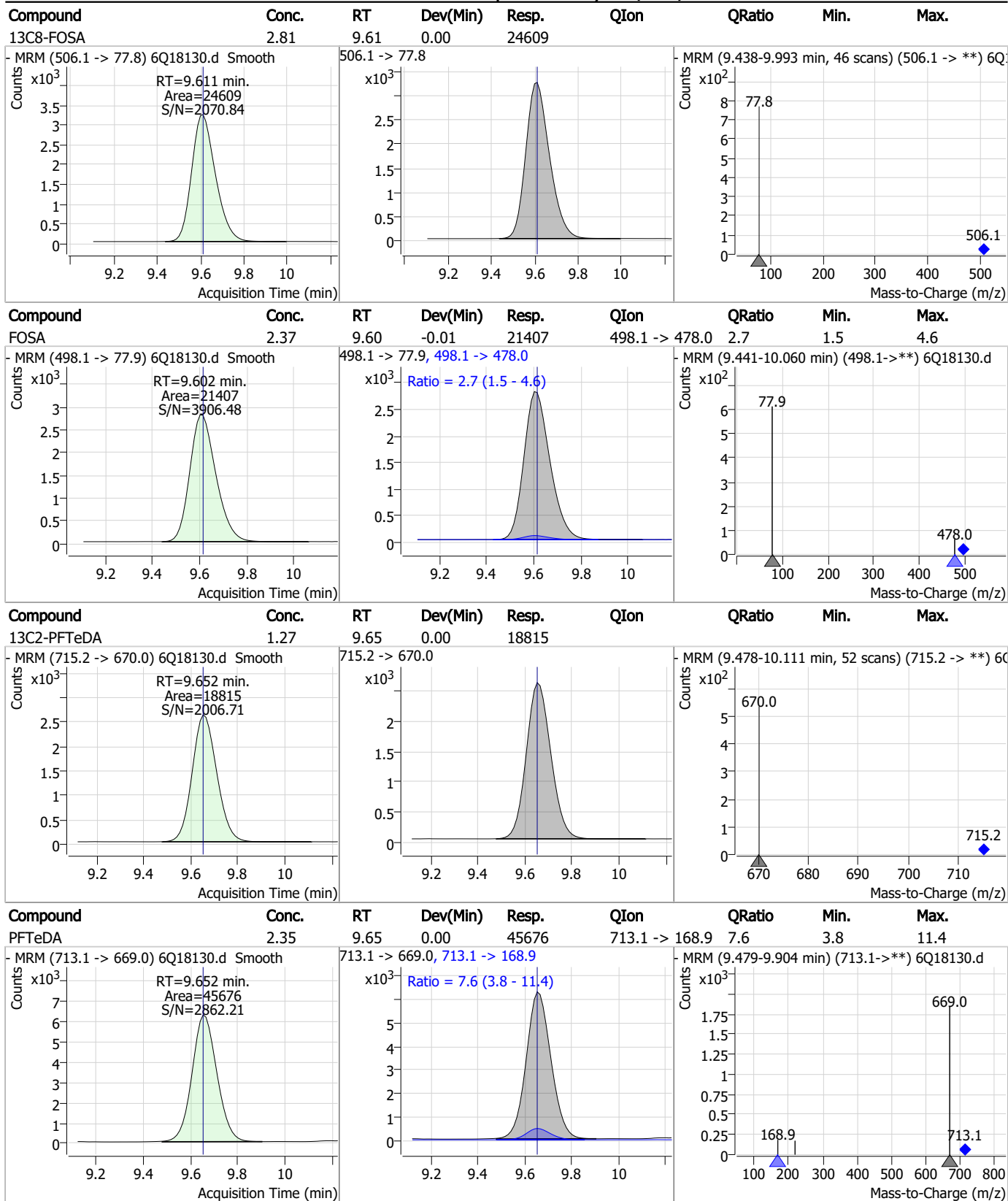


Perfluorinated Compounds by LC/MS/MS



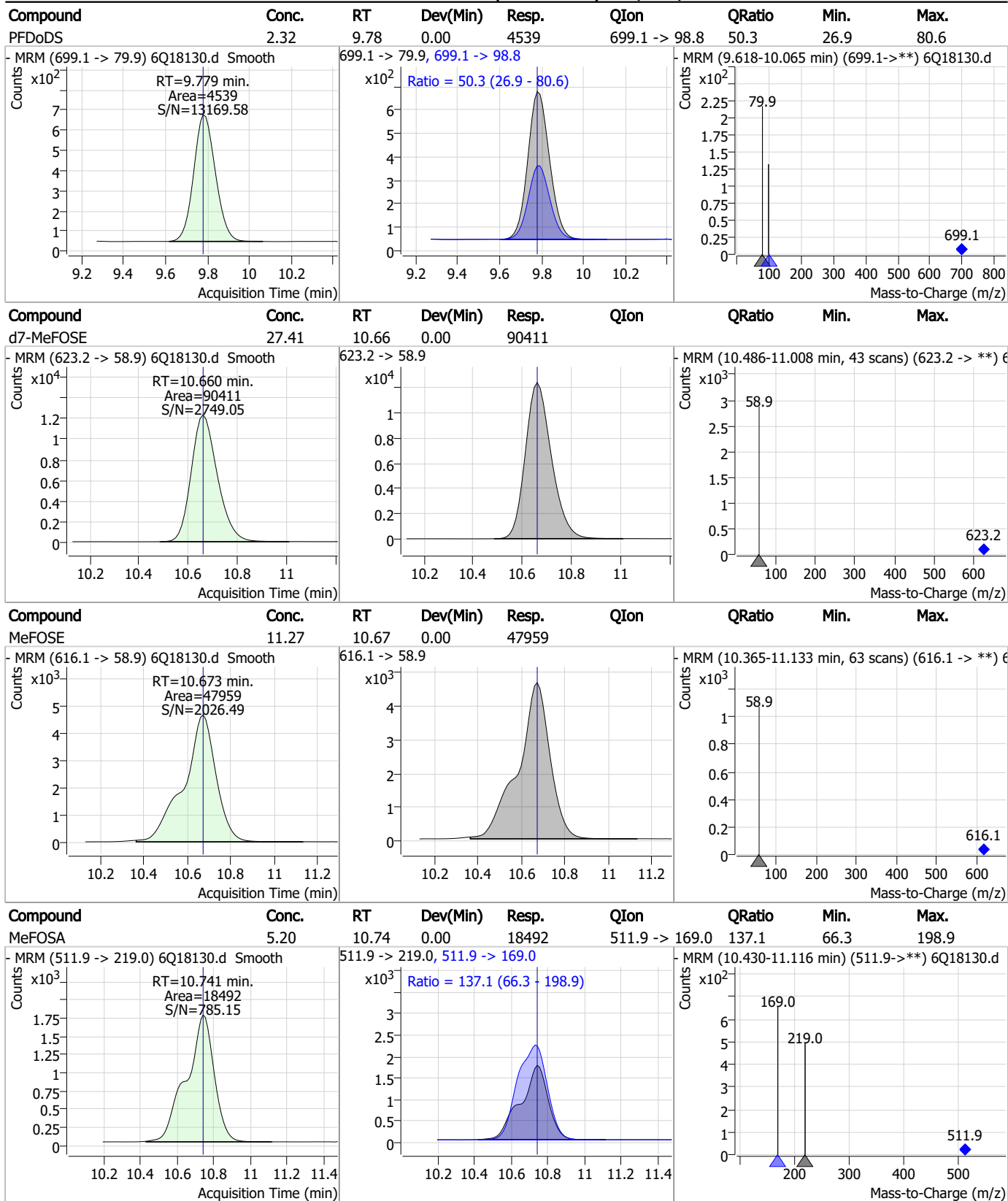
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

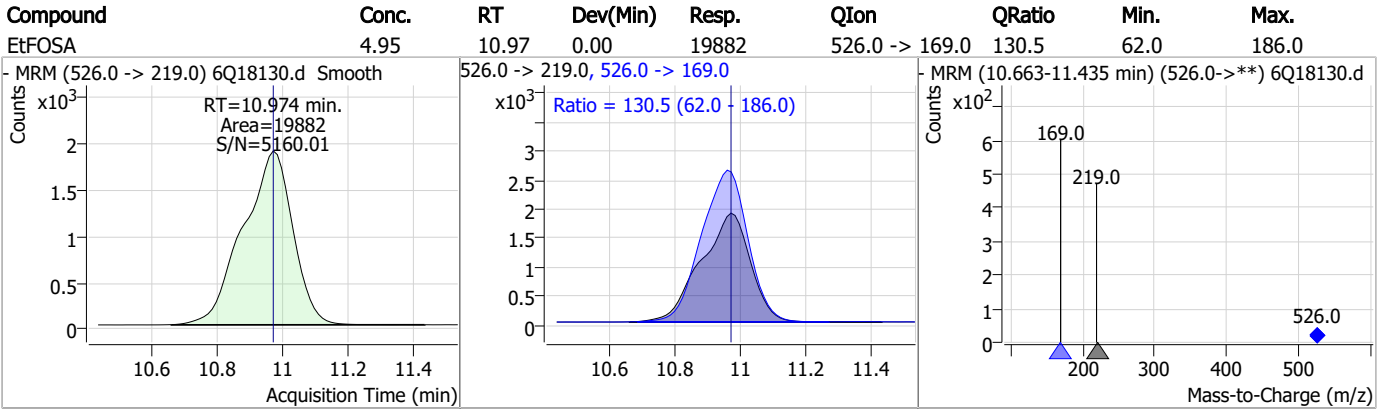
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.48	10.74	-0.01	7796				
- MRM (515.0 -> 219.0) 6Q18130.d Smooth Counts x10 ³ RT=10.739 min. Area=7796 S/N=807.49 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.590-11.013 min, 35 scans) (515.0 -> **) € Counts x10 ² 169.0 219.0 515.0 Mass-to-Charge (m/z)		
d9-EtFOSE	27.58	10.91	0.00	107298				
- MRM (639.2 -> 58.9) 6Q18130.d Smooth Counts x10 ⁴ RT=10.907 min. Area=107298 S/N=4799.53 Acquisition Time (min)			639.2 -> 58.9 Counts x10 ⁴ Acquisition Time (min)			- MRM (10.733-11.292 min, 46 scans) (639.2 -> **) € Counts x10 ³ 58.9 639.2 Mass-to-Charge (m/z)		
EtFOSE	11.78	10.92	0.00	56597				
- MRM (630.0 -> 58.9) 6Q18130.d Smooth Counts x10 ³ RT=10.920 min. Area=56597 S/N=3105.94 Acquisition Time (min)			630.0 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.622-11.306 min, 56 scans) (630.0 -> **) € Counts x10 ³ 58.9 630.0 Mass-to-Charge (m/z)		
d5-EtFOSA	2.52	10.97	0.00	9216				
- MRM (531.1 -> 219.0) 6Q18130.d Smooth Counts x10 ³ RT=10.972 min. Area=9216 S/N=553.55 Acquisition Time (min)			531.1 -> 219.0 Counts x10 ³ Acquisition Time (min)			- MRM (10.823-11.188 min, 30 scans) (531.1 -> **) € Counts x10 ² 169.0 531.1 Mass-to-Charge (m/z)		

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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q272-CC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18130.D Analyst approved: 05/21/23 08:45 Mike Eger
Injection Time: 05/19/23 13:49 Supervisor approved: 05/23/23 10:19 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q18137.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/19/2023 3:31:12 PM
 Sample Name : ecc272-4
 Vial : P1-A5
 DA Method File : 1633_051823_S6Q272.quantmethod.xml
 Batch Name : s6q272.batch.bin
 Sample Information : OP96663,S6Q272,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	162317	10.00 µg/L	0.000
M5-PFPeA	4.247	268.3 -> 223.0	50289	5.00 µg/L	0.000
M5-PFHxA	5.441	318.0 -> 273.0	58616	2.50 µg/L	0.000
M4-PFHpA	6.395	367.1 -> 322.0	51149	2.50 µg/L	-0.012
M8-PFOA	7.038	421.1 -> 376.0	75729	2.50 µg/L	-0.012
M9-PFNA	7.569	472.1 -> 427.0	28539	1.25 µg/L	0.000
M6-PFDA	8.051	519.1 -> 474.1	19835	1.25 µg/L	0.000
M7-PFUnDA	8.492	570.0 -> 525.1	25947	1.25 µg/L	-0.013
M2-PFDoDA	8.925	615.1 -> 570.0	26082	1.25 µg/L	0.000
M2-PFTeDA	9.652	715.2 -> 670.0	17740	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	23566	2.50 µg/L	0.000
M3-PFBS	5.359	302.1 -> 79.9	19045	2.50 µg/L	-0.012
M3-PFHxS	7.155	402.1 -> 79.9	11310	2.50 µg/L	0.000
M8-PFOS	8.202	507.1 -> 79.9	10509	2.50 µg/L	0.000
M2-4:2FTS	5.106	329.1 -> 80.9	2867	5.00 µg/L	-0.012
M2-6:2FTS	6.813	429.1 -> 80.9	3743	5.00 µg/L	-0.012
M2-8:2FTS	7.839	529.1 -> 80.9	4342	5.00 µg/L	-0.012
M3-MeFOSAA	8.096	573.2 -> 419.0	28946	5.00 µg/L	-0.012
M3-HFPO-DA	5.807	286.9 -> 168.9	35547	10.00 µg/L	0.000
M5-EtFOSAA	8.304	589.2 -> 419.0	23406	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	86397	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	103953	25.00 µg/L	0.000
M5-EtFOSA	10.972	531.1 -> 219.0	9565	2.50 µg/L	0.000
M3-MeFOSA	10.739	515.0 -> 219.0	7980	2.50 µg/L	-0.012
13C4-PFOS	8.202	502.8 -> 79.9	12955	2.50 µg/L	-0.012
13C3-PFBA	2.879	216.0 -> 172.0	68840	5.00 µg/L	0.000
18O2-PFHxS	7.154	403.0 -> 83.9	8274	2.50 µg/L	0.000
13C4-PFOA	7.039	417.1 -> 372.0	83238	2.50 µg/L	-0.012
13C2-PFDA	8.039	515.1 -> 470.1	25003	1.25 µg/L	-0.025
13C5-PFNA	7.570	468.0 -> 423.0	29286	1.25 µg/L	0.000
13C2-PFHxA	5.430	315.1 -> 270.0	51159	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.106	329.1 -> 80.9	2867	6.46 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.1%		
13C2-6:2FTS	6.813	429.1 -> 80.9	3743	6.59 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.8%		
13C2-8:2FTS	7.839	529.1 -> 80.9	4342	7.08 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 141.7%		
13C2-PFDoDA	8.925	615.1 -> 570.0	26082	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-PFTeDA	9.652	715.2 -> 670.0	17740	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C3-PFBS	5.359	302.1 -> 79.9	19045	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C3-PFHxS	7.155	402.1 -> 79.9	11310	2.56 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 = 102.2%	
13C4-PFBA	2.888	216.8 -> 171.9	162317	9.88 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C4-PFHpA	6.395	367.1 -> 322.0	51149	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C5-PFHxA	5.441	318.0 -> 273.0	58616	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C5-PFPeA	4.247	268.3 -> 223.0	50289	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C6-PFDA	8.051	519.1 -> 474.1	19835	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C7-PFUnDA	8.492	570.0 -> 525.1	25947	1.19 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-FOSA	9.611	506.1 -> 77.8	23566	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C8-PFOA	7.038	421.1 -> 376.0	75729	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C8-PFOS	8.202	507.1 -> 79.9	10509	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C9-PFNA	7.569	472.1 -> 427.0	28539	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%	
d3-MeFOSAA	8.096	573.2 -> 419.0	28946	5.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.3%	
13C3-HFPO-DA	5.807	286.9 -> 168.9	35547	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSA	10.739	515.0 -> 219.0	7980	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
d5-EtFOSAA	8.304	589.2 -> 419.0	23406	5.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.9%	
d7-MeFOSE	10.660	623.2 -> 58.9	86397	26.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
d9-EtFOSE	10.907	639.2 -> 58.9	103953	26.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d5-EtFOSA	10.972	531.1 -> 219.0	9565	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
Target Compounds					QValue
4:2FTS	5.107	327.1 -> 307.0	42722	10.10 µg/L	92
		327.1 -> 80.9	14820		
6:2FTS	6.813	427.1 -> 407.0	38458	9.50 µg/L	96
		427.1 -> 80.9	13886		
8:2FTS	7.840	527.1 -> 507.0	23776	9.58 µg/L	93
		527.1 -> 80.8	9121		
EtFOSAA	8.305	584.2 -> 419.1	10278	2.56 µg/L	95
		584.2 -> 526.0	5227		
FOSA	9.614	498.1 -> 77.9	21360	2.47 µg/L	99
		498.1 -> 478.0	541		
MeFOSAA	8.109	570.1 -> 419.0	14258	2.50 µg/L	99
		570.1 -> 483.0	2645		
PFBA	2.882	212.8 -> 168.9	58034	9.85 µg/L	100
PFBS	5.360	298.7 -> 79.9	20252	2.18 µg/L	97
		298.7 -> 98.8	7732		
PFDA	8.040	512.9 -> 469.0	62691	2.65 µg/L	97
		512.9 -> 219.0	9316		
PFDODA	8.925	613.1 -> 569.0	51610	2.46 µg/L	99
		613.1 -> 319.0	6823		
PFDS	9.089	599.0 -> 79.9	8183	2.32 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.395	599.0 -> 98.8	4148	2.43	µg/L	97
		363.1 -> 319.0	63539			
PFHpS	7.710	363.1 -> 169.0	10209	2.21	µg/L	95
		449.0 -> 79.9	12564			
PFHxA	5.444	449.0 -> 98.9	6598	2.49	µg/L	99
		313.0 -> 269.0	56932			
PFHxS	7.156	313.0 -> 118.9	2766	2.31	µg/L	100
		398.7 -> 79.9	14598			
PFNA	7.570	398.7 -> 98.9	6901	2.26	µg/L	98
		463.0 -> 419.0	47529			
PFNS	8.657	463.0 -> 219.0	9767	2.34	µg/L	94
		548.8 -> 79.9	12065			
PFOA	7.040	548.8 -> 98.9	6406	2.43	µg/L	100
		413.0 -> 369.0	89985			
PFOS	8.203	413.0 -> 169.0	15565	2.22	µg/L	97
		498.9 -> 79.9	12524			
PFPeA	4.249	498.9 -> 98.8	6385	4.87	µg/L	100
		263.0 -> 219.0	72536			
PFPeS	6.447	349.1 -> 79.9	14750	2.34	µg/L	95
		349.1 -> 98.9	6511			
PFTeDA	9.652	713.1 -> 669.0	45024	2.46	µg/L	100
		713.1 -> 168.9	3371			
PFTrDA	9.309	663.0 -> 619.0	60653	2.51	µg/L	98
		663.0 -> 168.9	5133			
PFUnDA	8.493	563.1 -> 519.0	47483	2.62	µg/L	100
		563.1 -> 269.1	7358			
11CI-PF3OUdS	9.360	630.9 -> 450.9	62851	4.52	µg/L	100
		632.9 -> 452.9	19650			
9CI-PF3ONS	8.533	530.8 -> 351.0	95675	4.40	µg/L	97
		532.8 -> 353.0	29656			
ADONA	6.658	376.9 -> 250.9	267646	4.70	µg/L	100
		376.9 -> 84.8	71932			
HFPO-DA	5.807	284.9 -> 168.9	17153	4.96	µg/L	98
		284.9 -> 184.9	2197			
3:3FTCA	3.727	241.0 -> 177.0	11178	11.93	µg/L	97
		241.0 -> 117.0	1489			
5:3FTCA	6.111	341.0 -> 237.1	248161	60.12	µg/L	100
		341.0 -> 217.0	176663			
7:3FTCA	7.535	441.0 -> 316.9	126210	61.53	µg/L	97
		441.0 -> 336.9	272298			
EtFOSA	10.974	526.0 -> 219.0	20146	4.83	µg/L	93
		526.0 -> 169.0	26658			
EtFOSE	10.920	630.0 -> 58.9	55855	12.00	µg/L	100
		511.9 -> 219.0	17389			
MeFOSA	10.741	511.9 -> 169.0	25310	4.78	µg/L	89
		616.1 -> 58.9	48349			
MeFOSE	10.673	699.1 -> 79.9	4408	11.89	µg/L	100
		699.1 -> 98.8	2375			
PFDoDS	9.779	295.0 -> 201.0	12838	2.31	µg/L	100
		295.0 -> 84.9	3385			
NFDHA	5.324	279.0 -> 85.1	50618	5.01	µg/L	99
		229.0 -> 84.9	37734			
PFMBA	4.650	314.8 -> 134.9	126373	4.83	µg/L	100
		314.8 -> 82.9	4563			
PFMPA	3.401			4.87	µg/L	100
PFEESA	5.900			4.18	µg/L	99

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

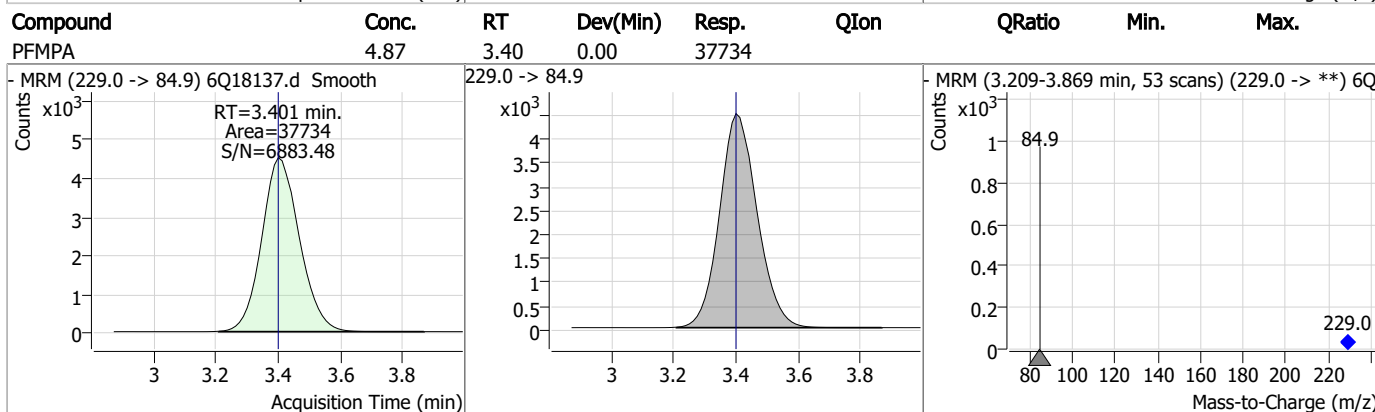
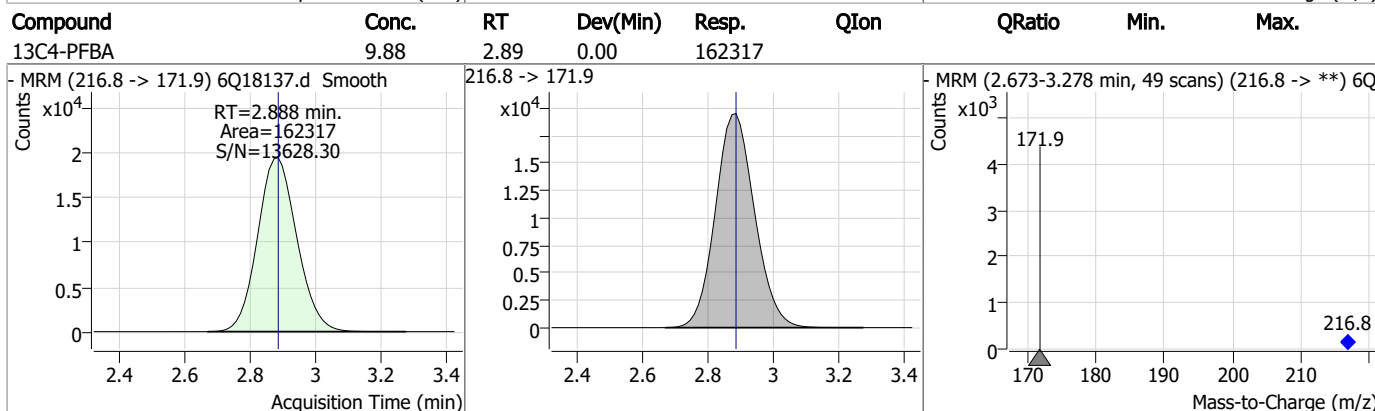
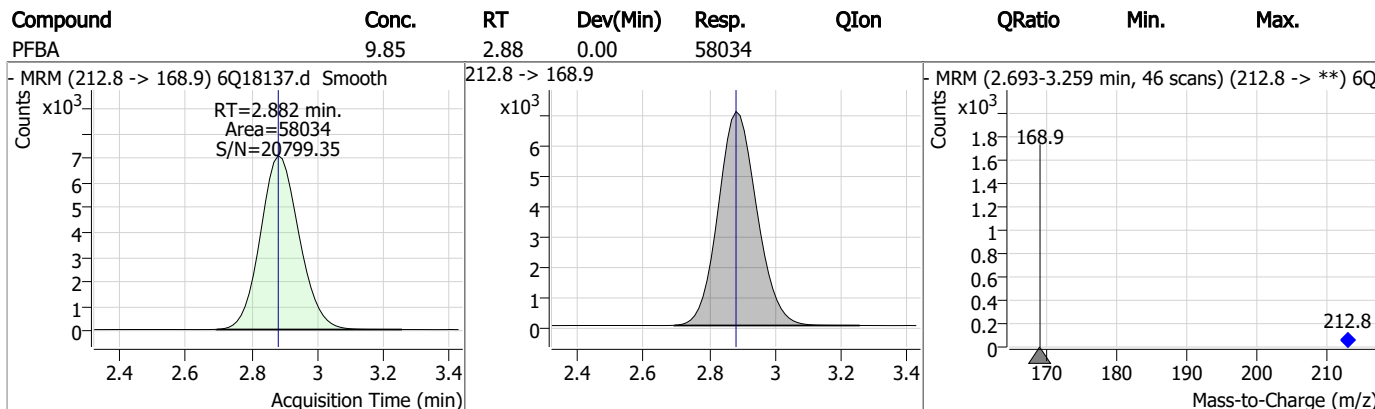
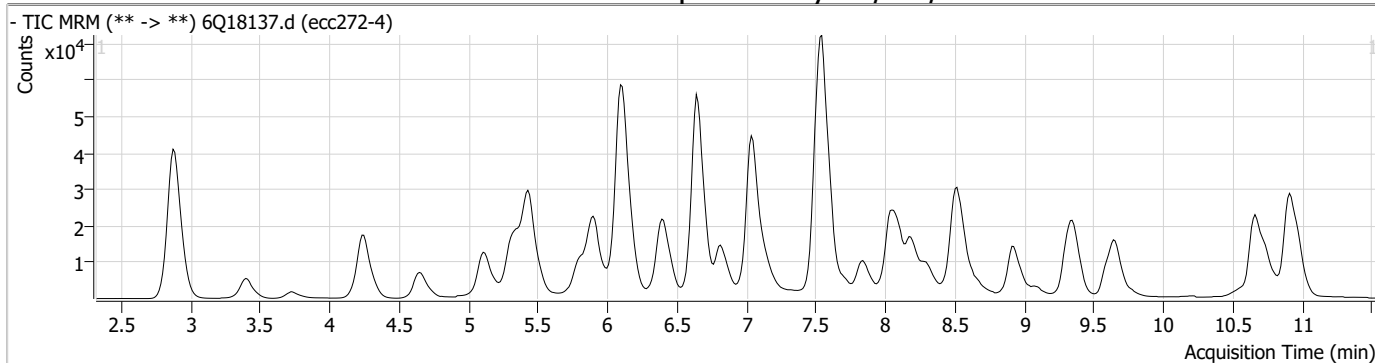


Perfluorinated Compounds by LC/MS/MS

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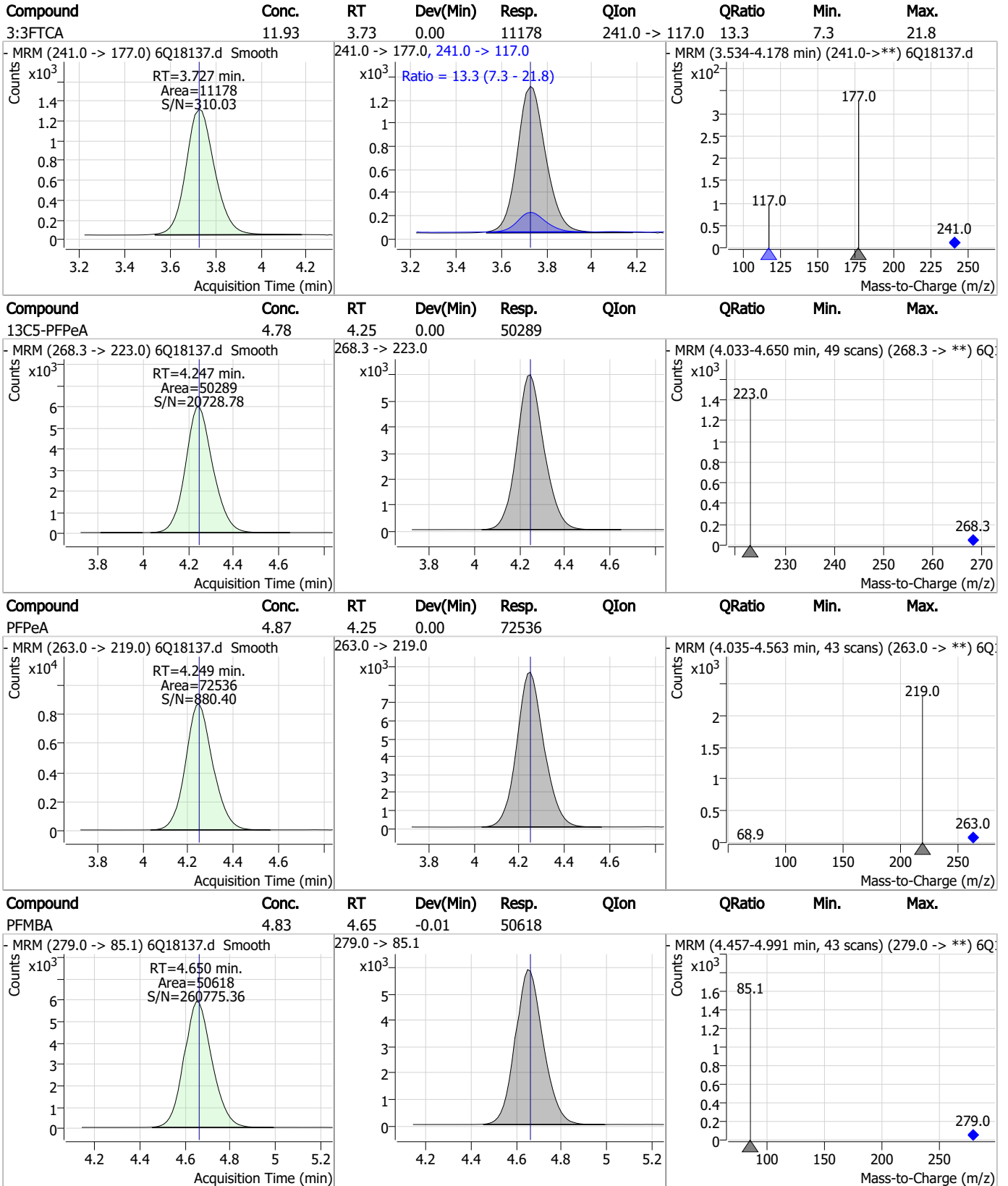
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Perfluorinated Compounds by LC/MS/MS



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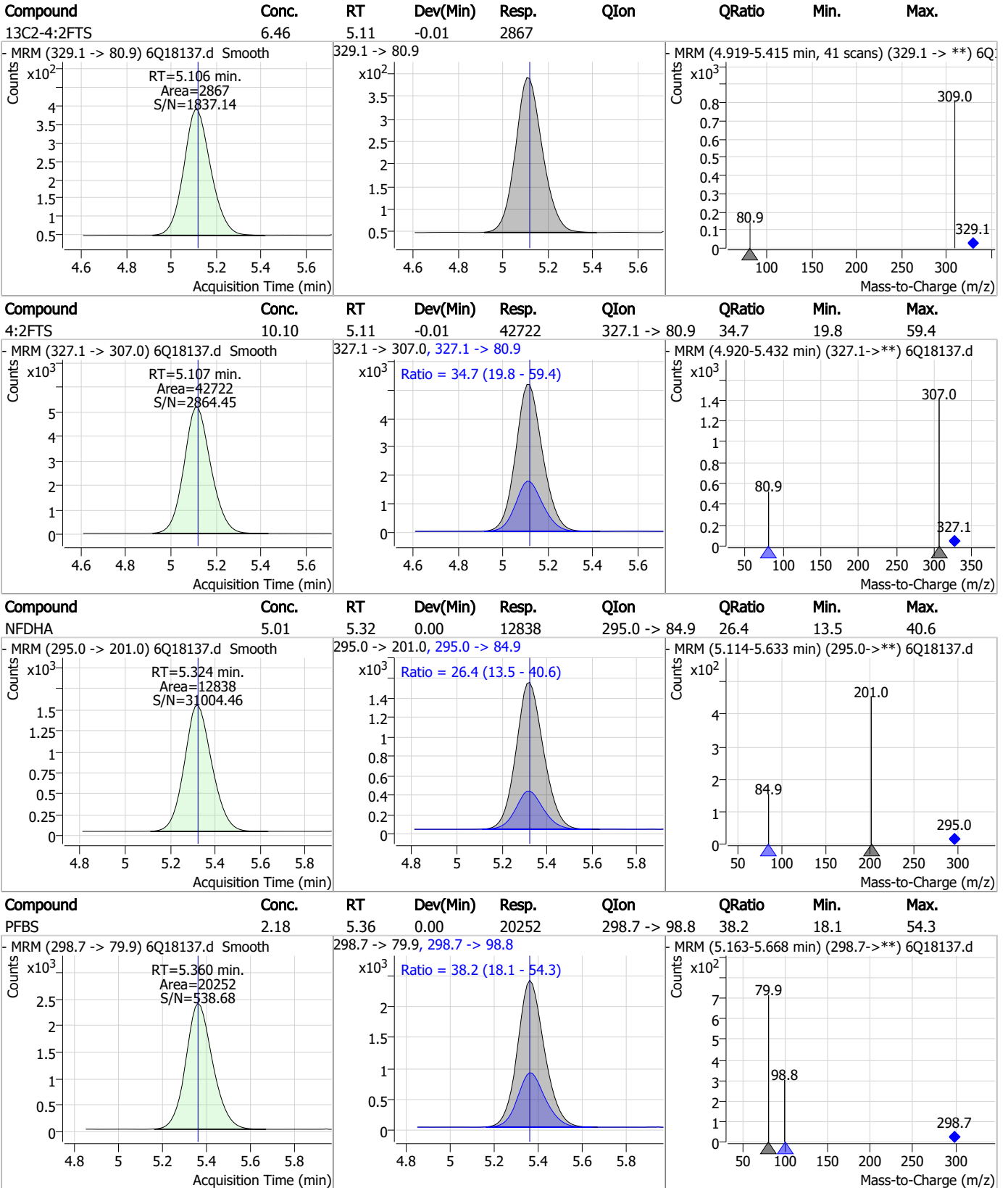
Perfluorinated Compounds by LC/MS/MS



7.6.17



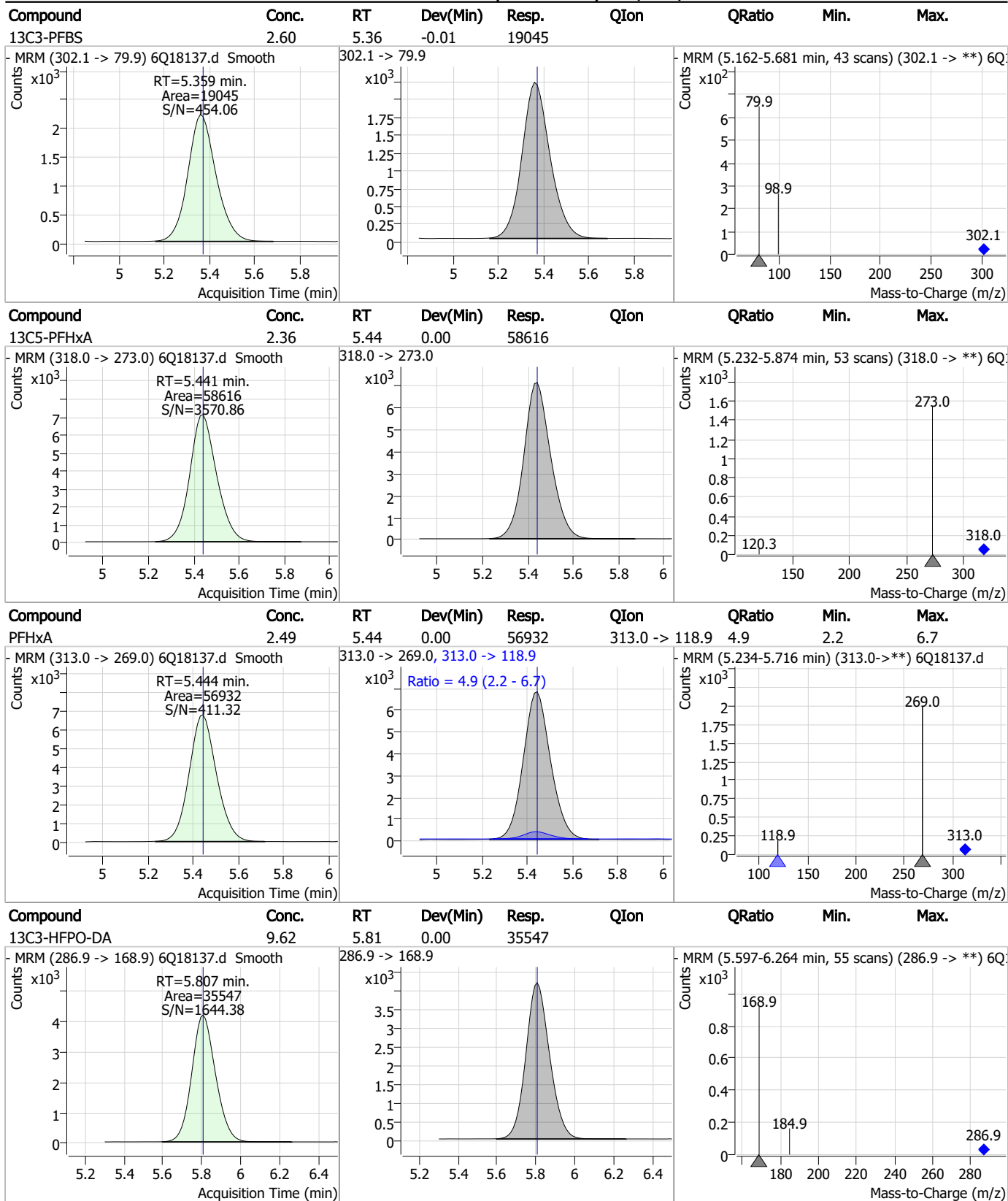
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

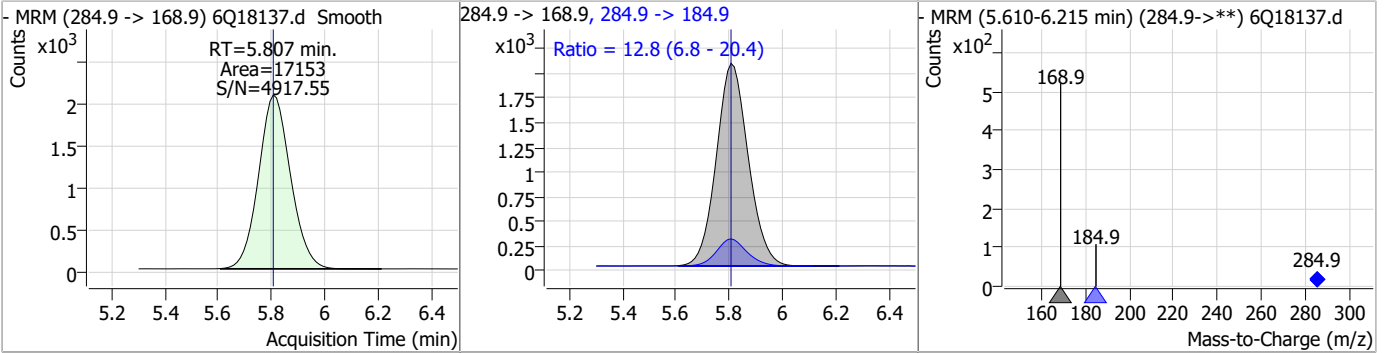


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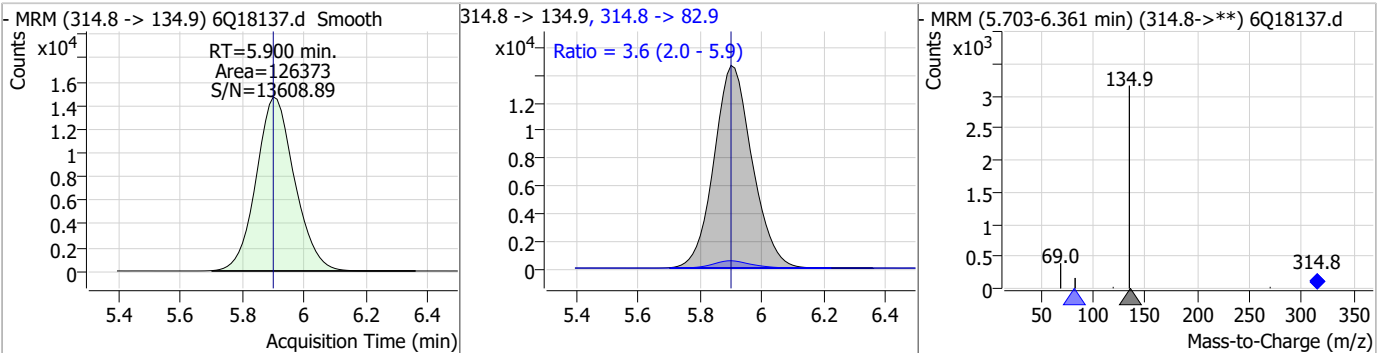


Perfluorinated Compounds by LC/MS/MS

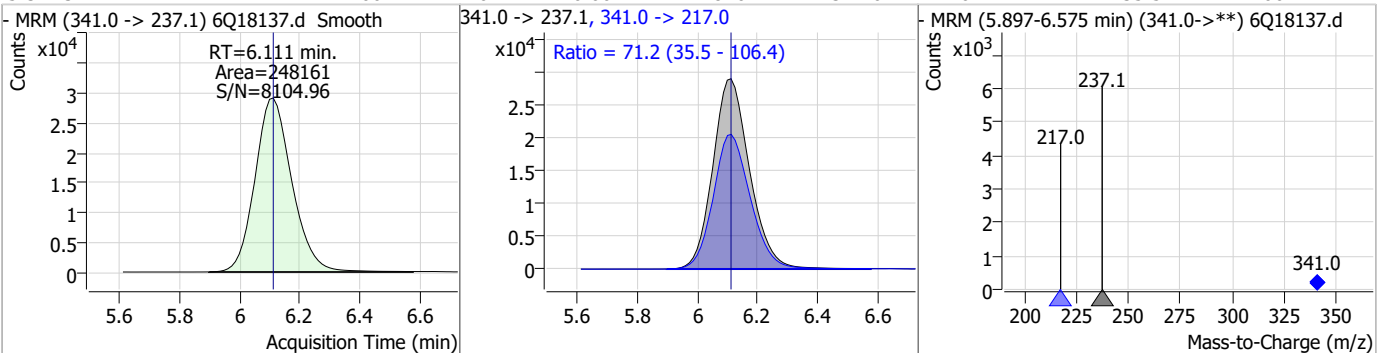
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.96	5.81	0.00	17153	284.9 -> 184.9	12.8	6.8	20.4



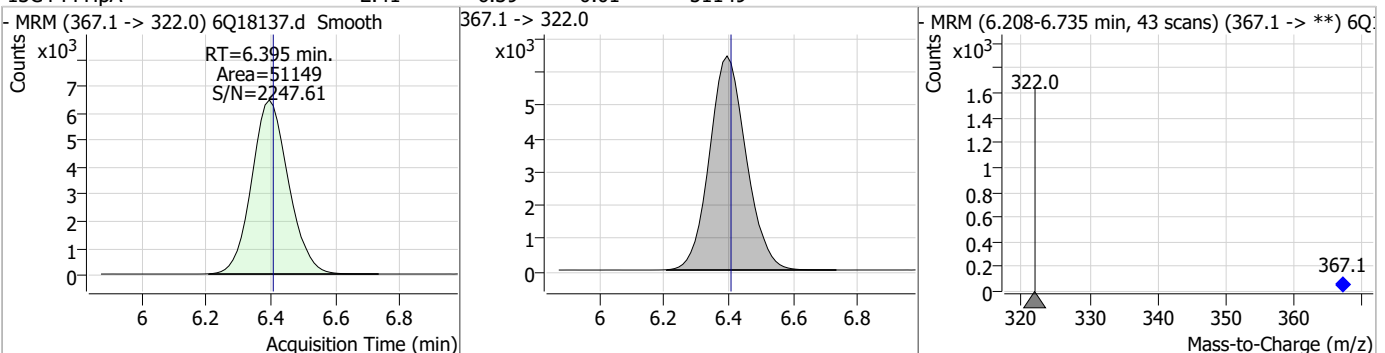
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.18	5.90	0.00	126373	314.8 -> 82.9	3.6	2.0	5.9



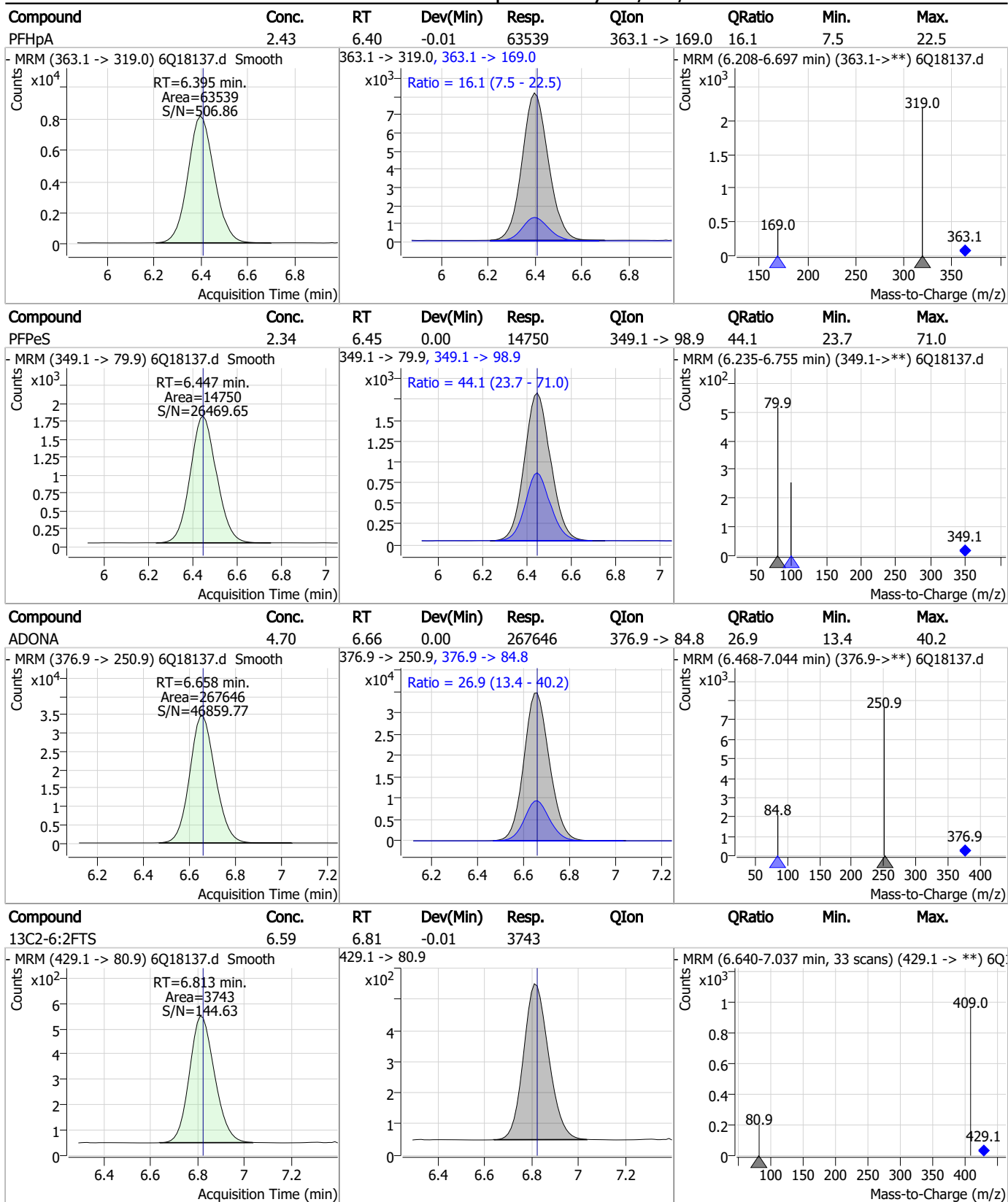
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	60.12	6.11	0.00	248161	341.0 -> 217.0	71.2	35.5	106.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.41	6.39	-0.01	51149	367.1 -> 322.0			



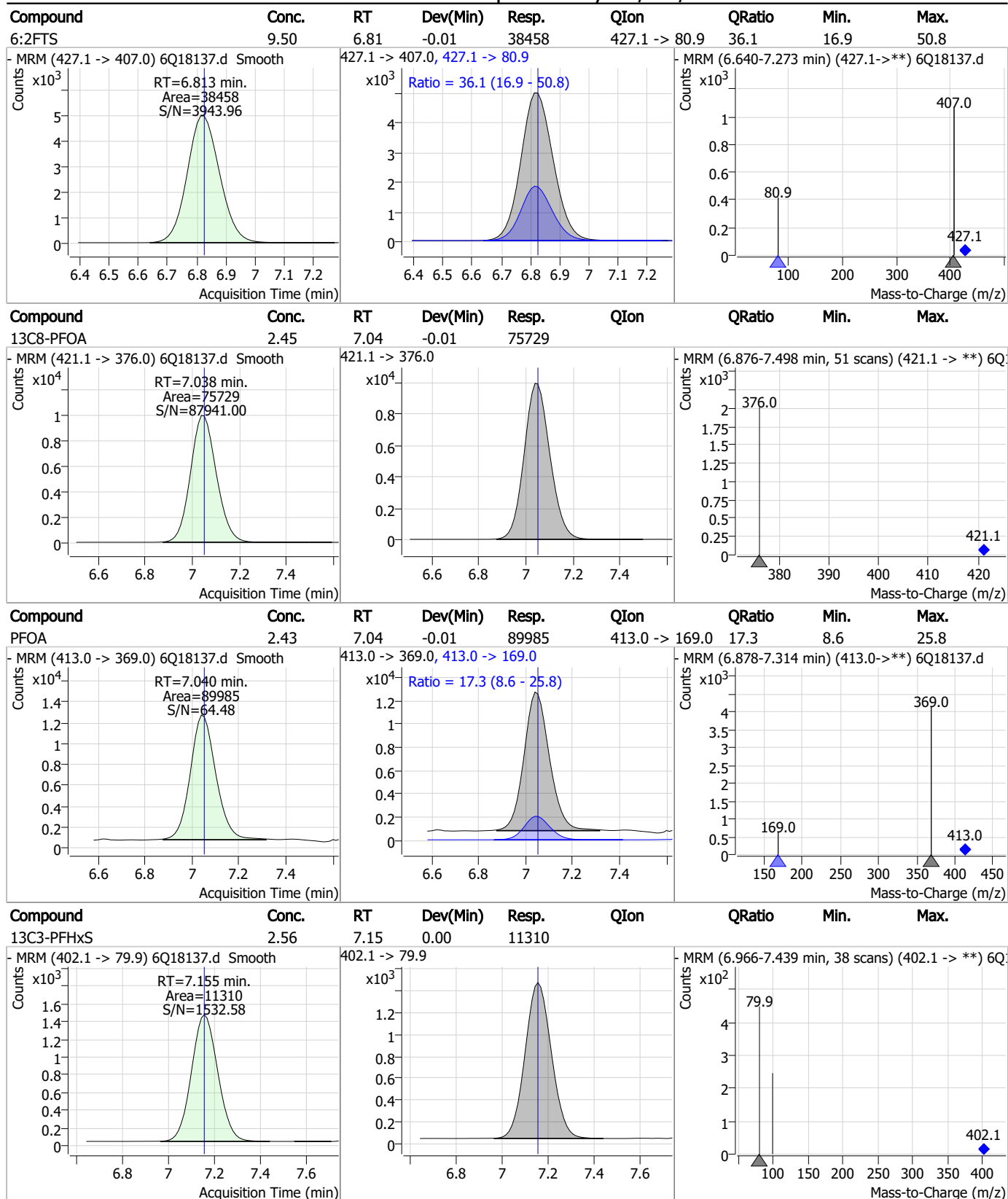
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

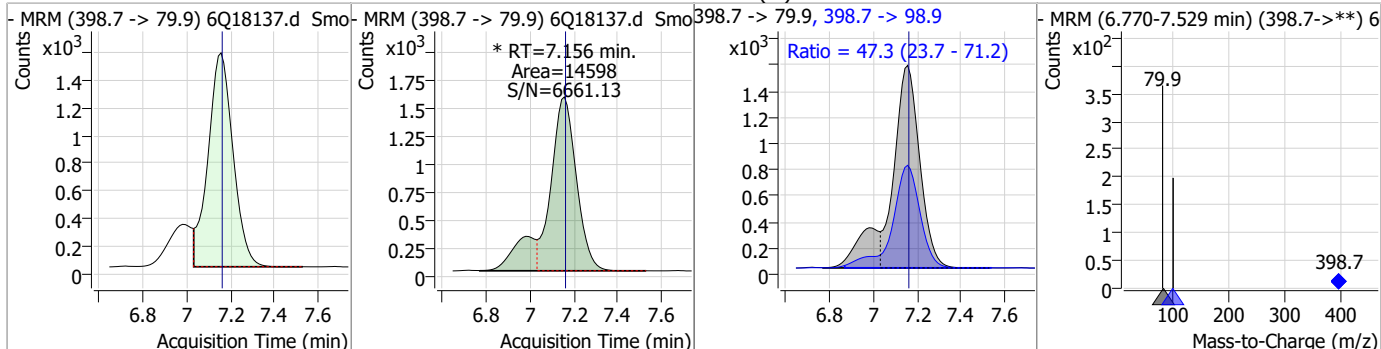


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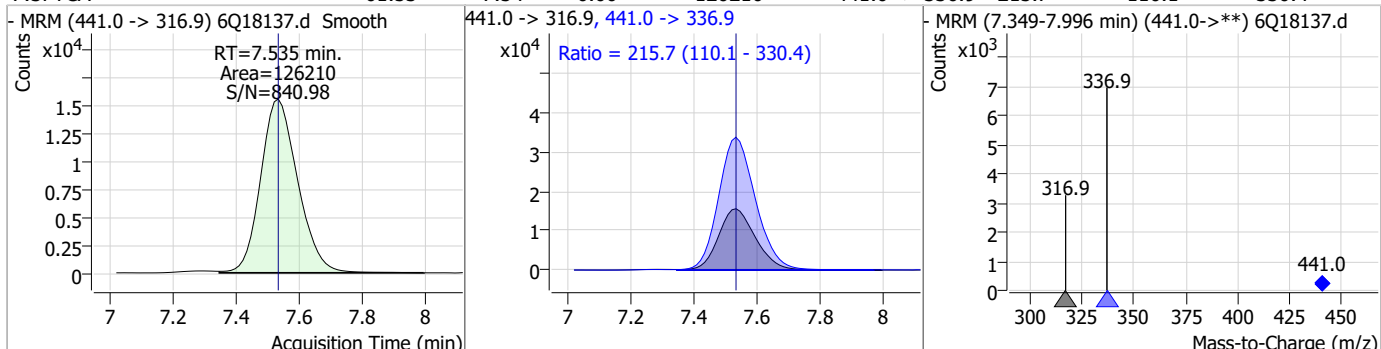


Perfluorinated Compounds by LC/MS/MS

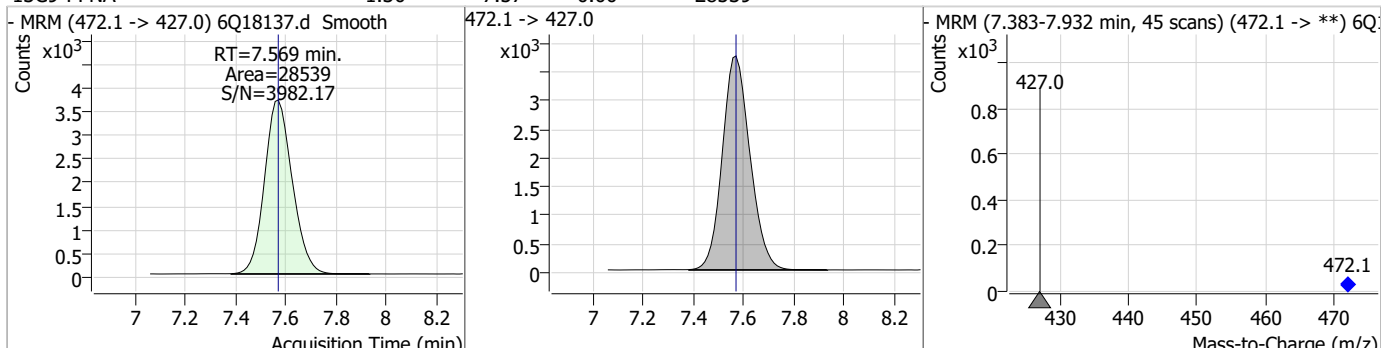
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.31	7.16	0.00	14598 (m)	398.7 -> 98.9	47.3	23.7	71.2



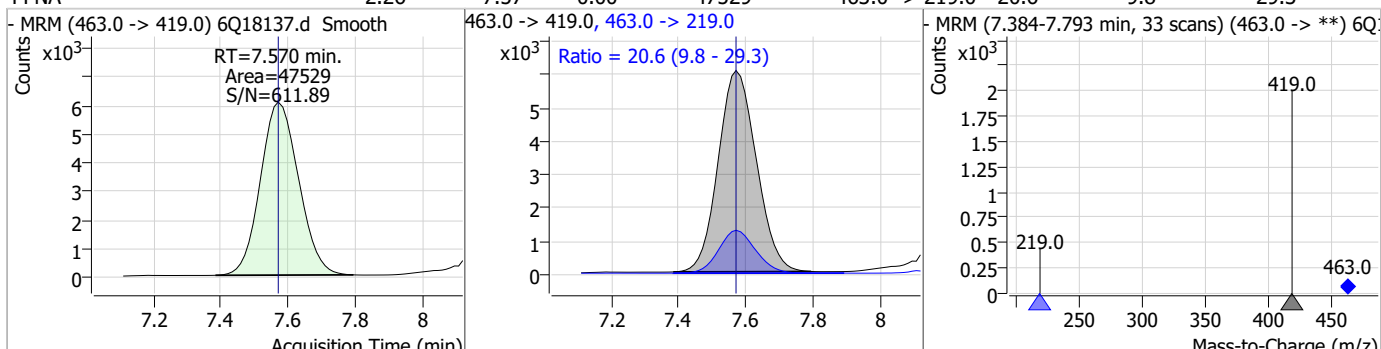
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	61.53	7.54	0.00	126210	441.0 -> 336.9	215.7	110.1	330.4



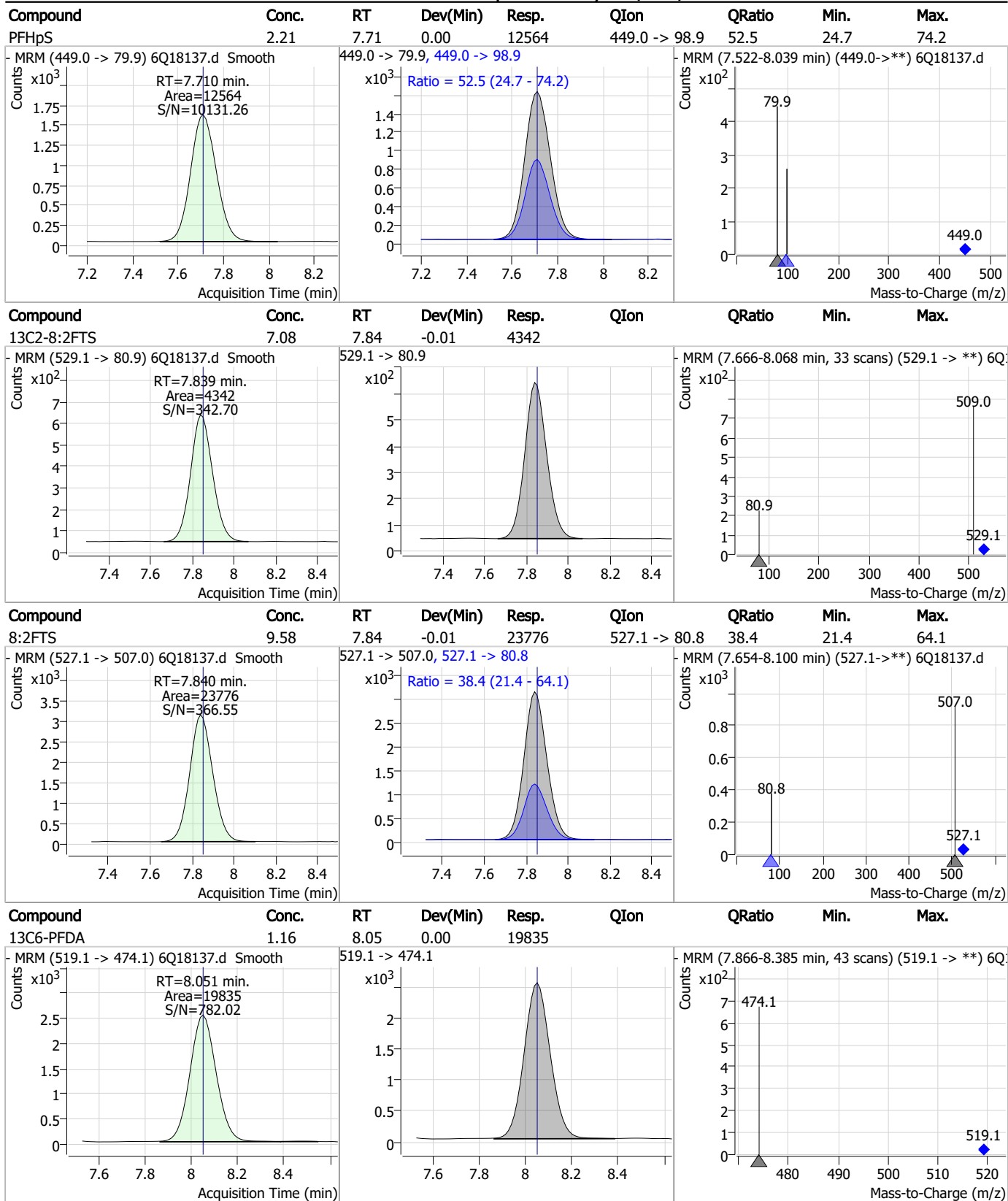
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.30	7.57	0.00	28539	472.1 -> 427.0	45	427.1	472.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.26	7.57	0.00	47529	463.0 -> 219.0	20.6	9.8	29.3



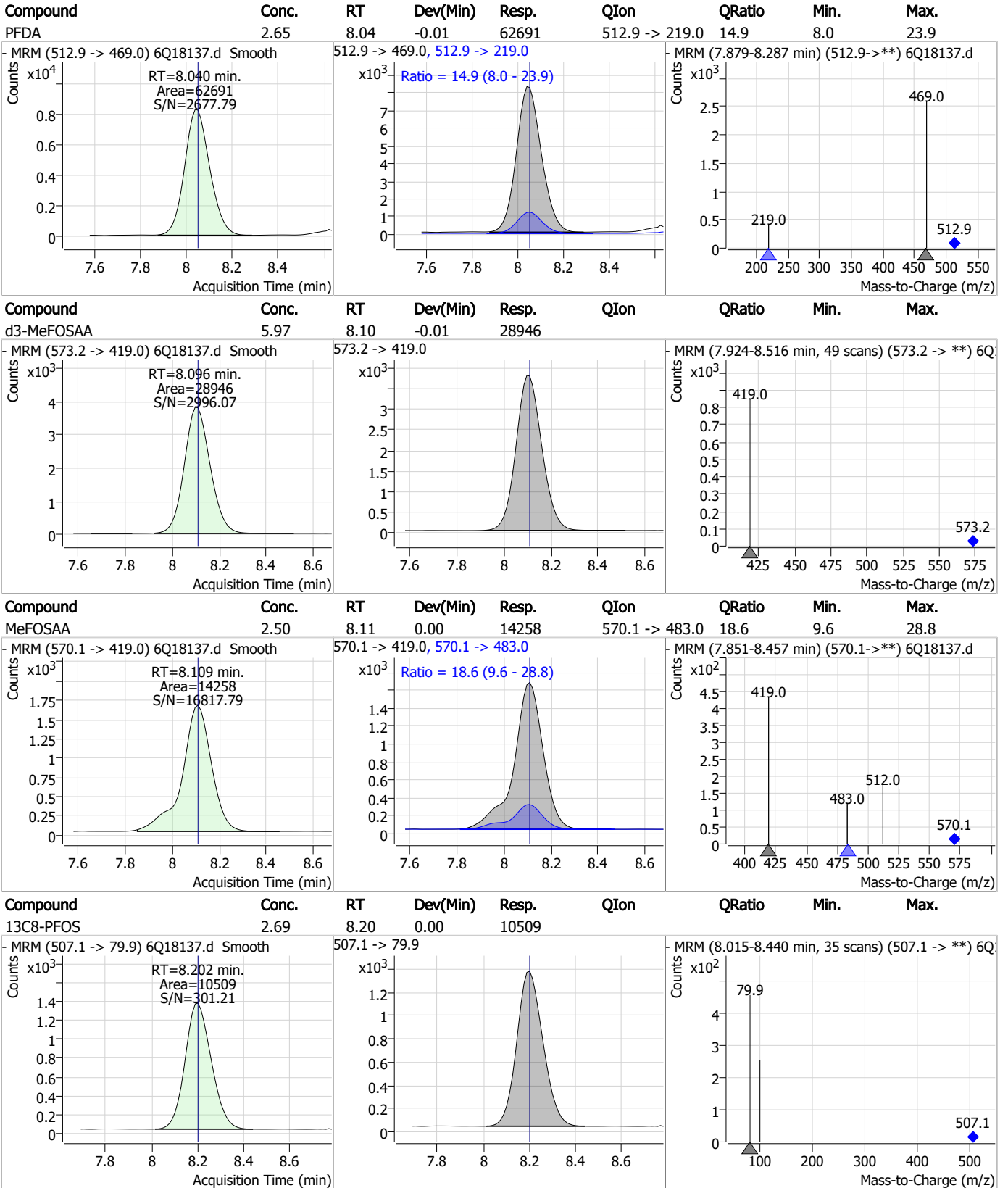
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

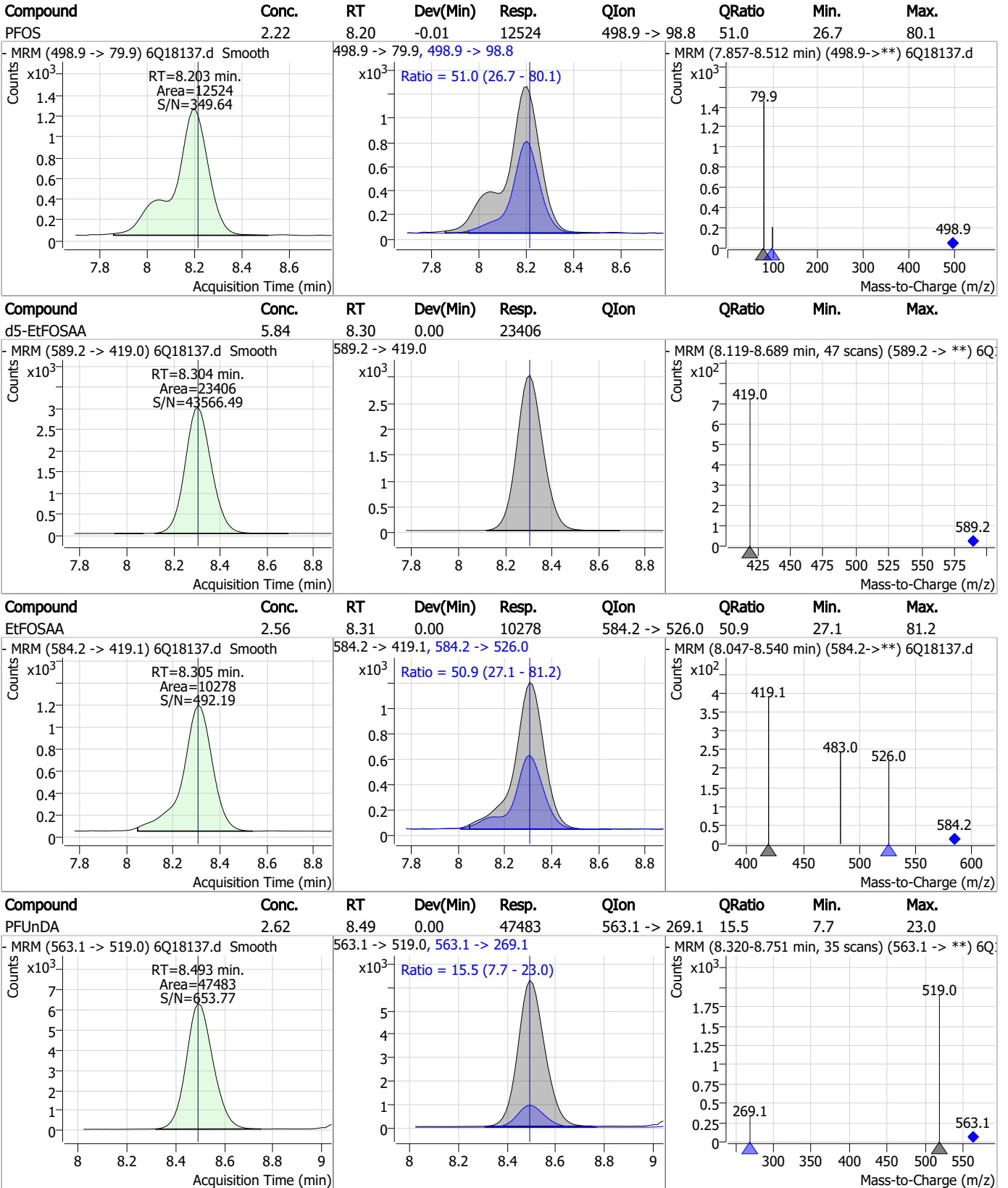


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Perfluorinated Compounds by LC/MS/MS

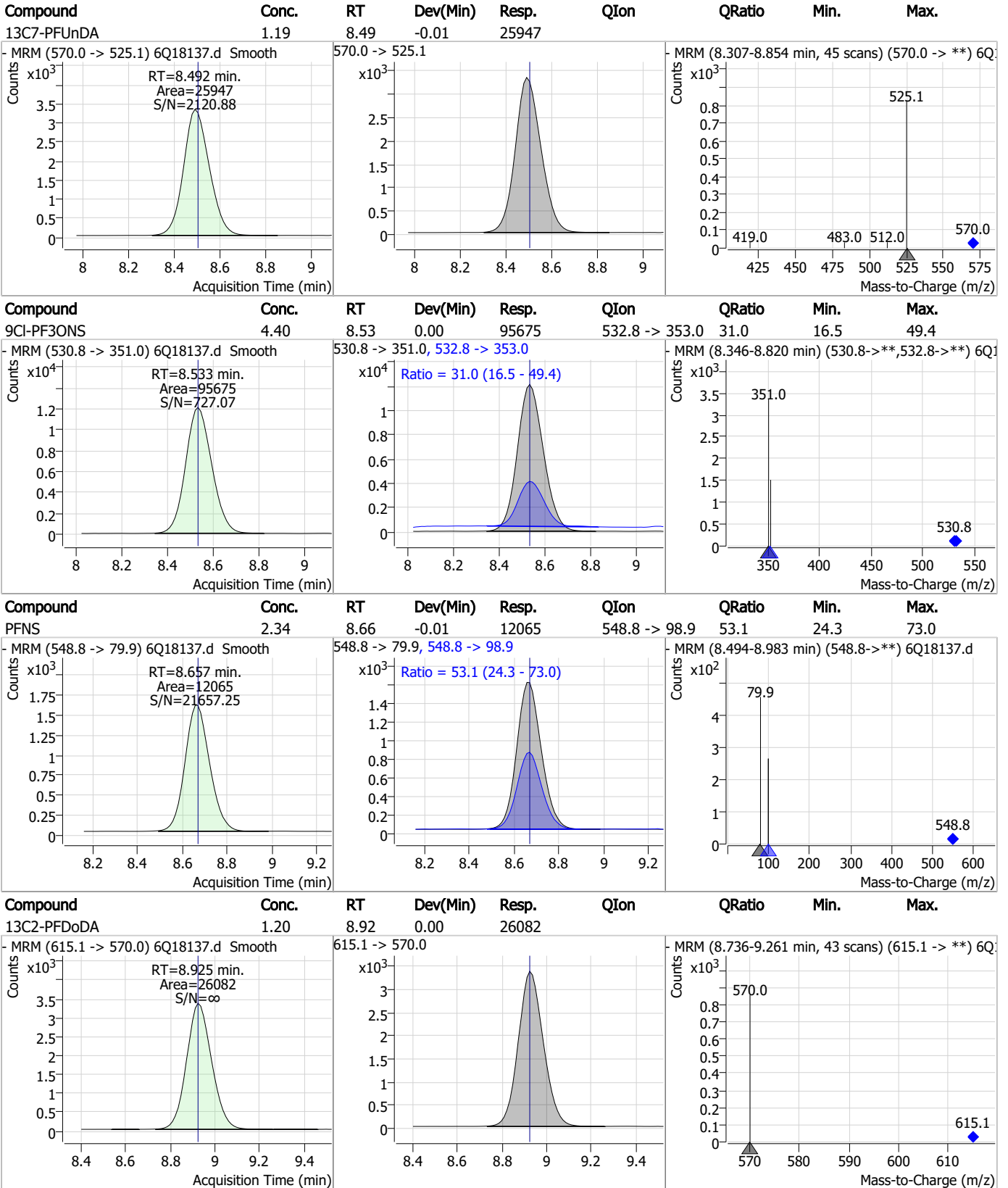


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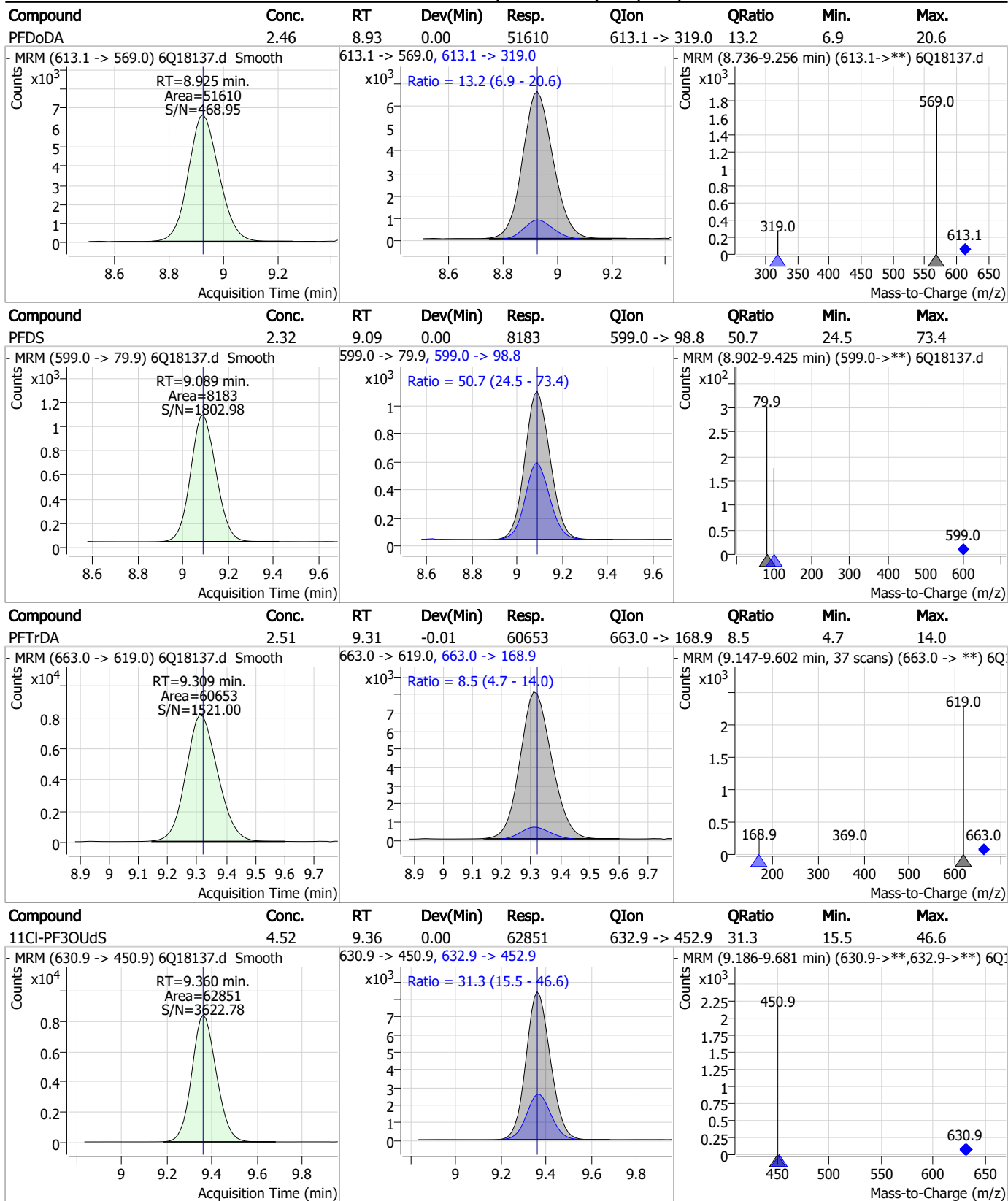
Perfluorinated Compounds by LC/MS/MS



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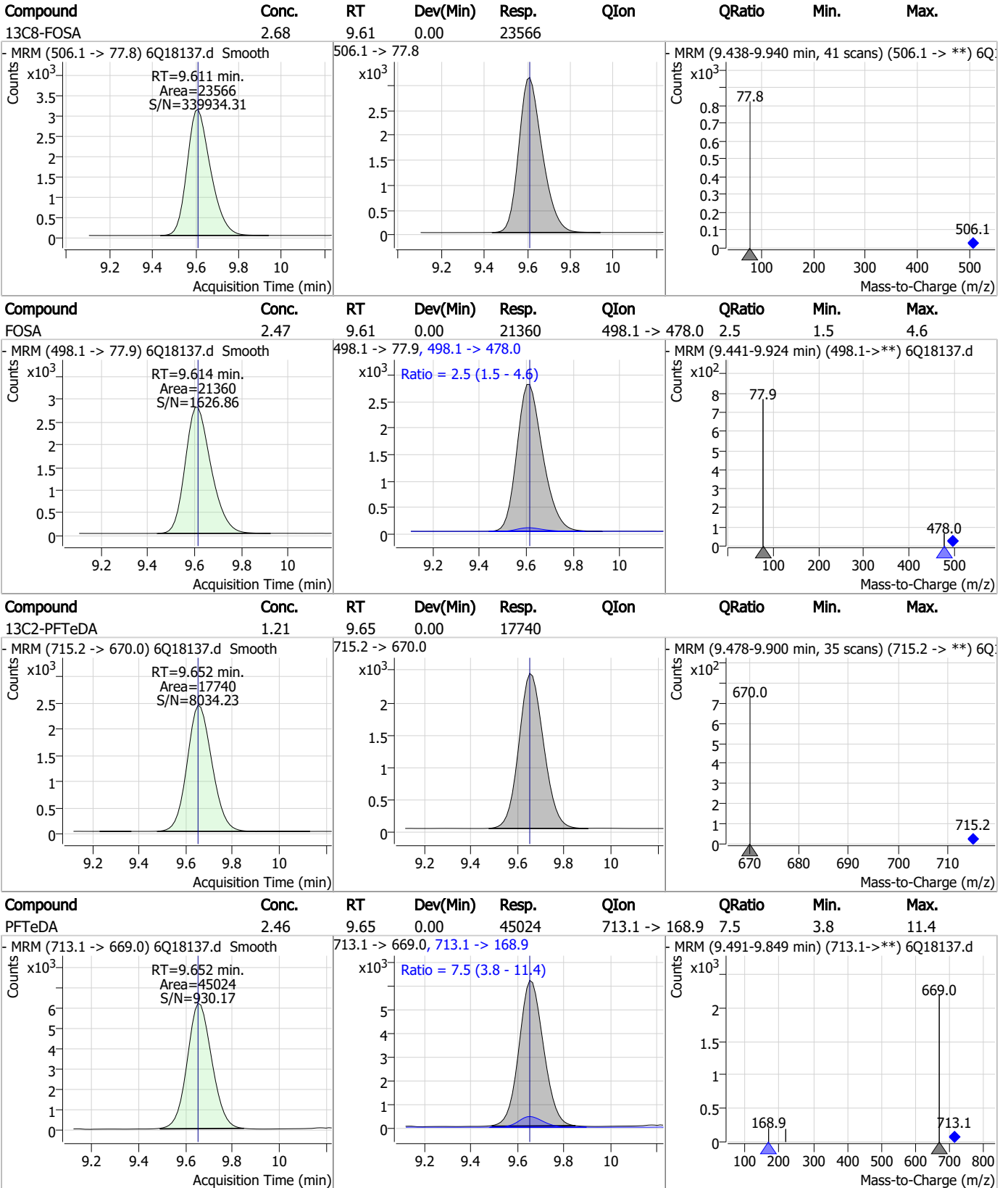
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



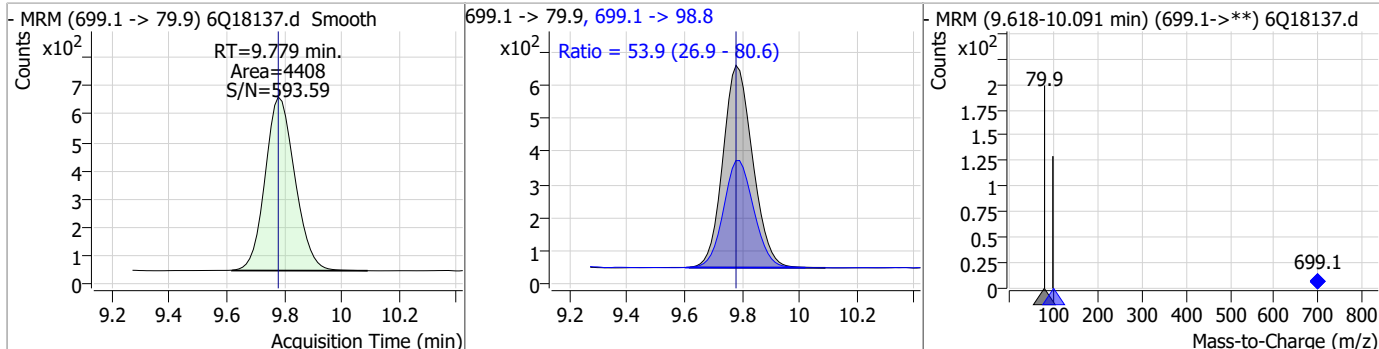
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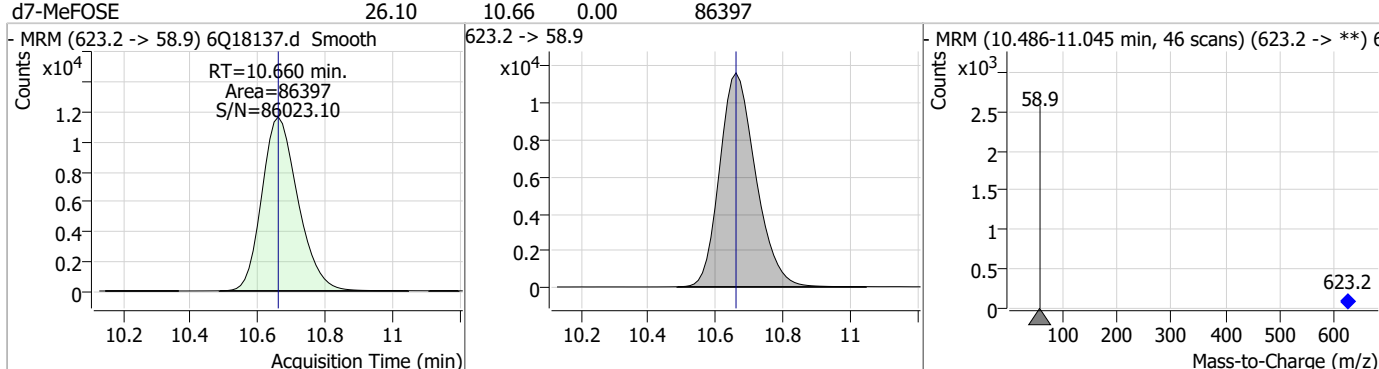


Perfluorinated Compounds by LC/MS/MS

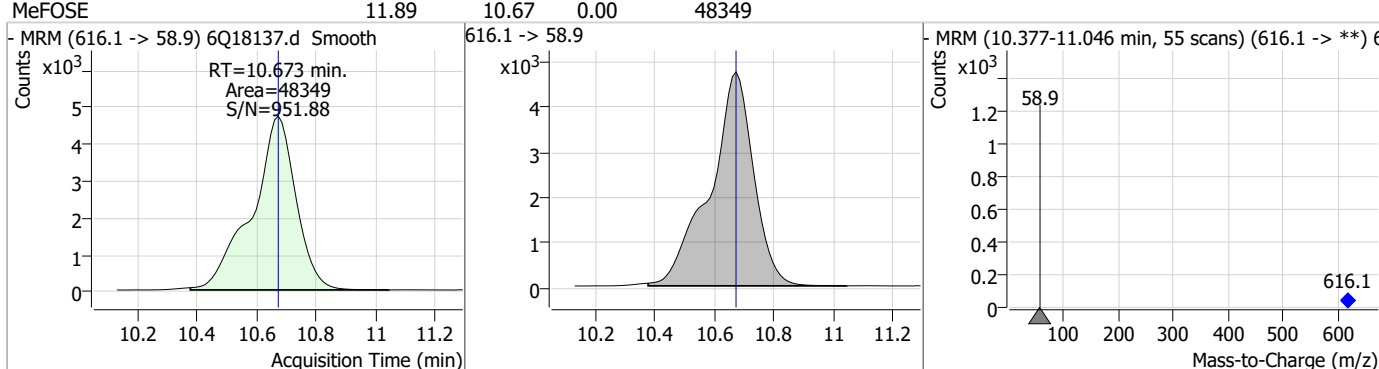
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.31	9.78	0.00	4408	699.1 -> 98.8	53.9	26.9	80.6



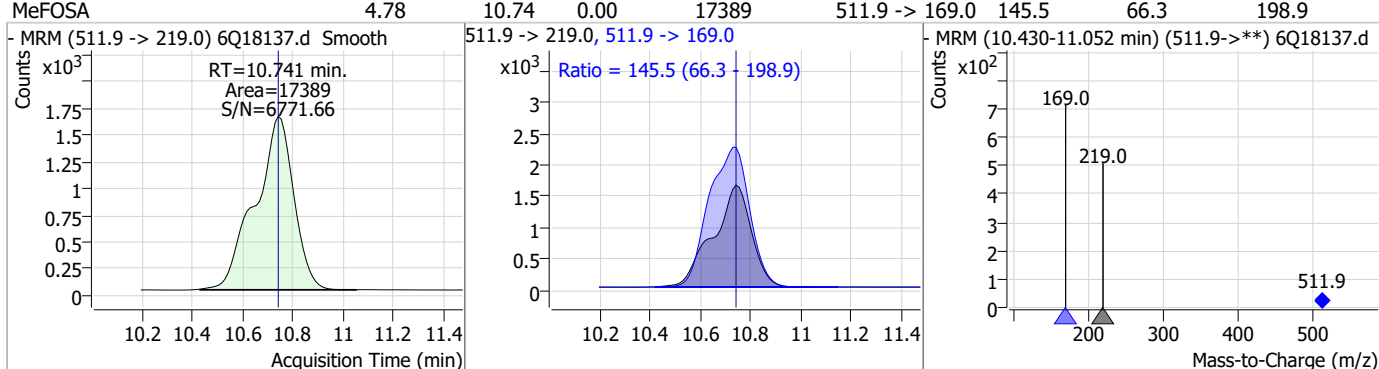
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.10	10.66	0.00	86397				



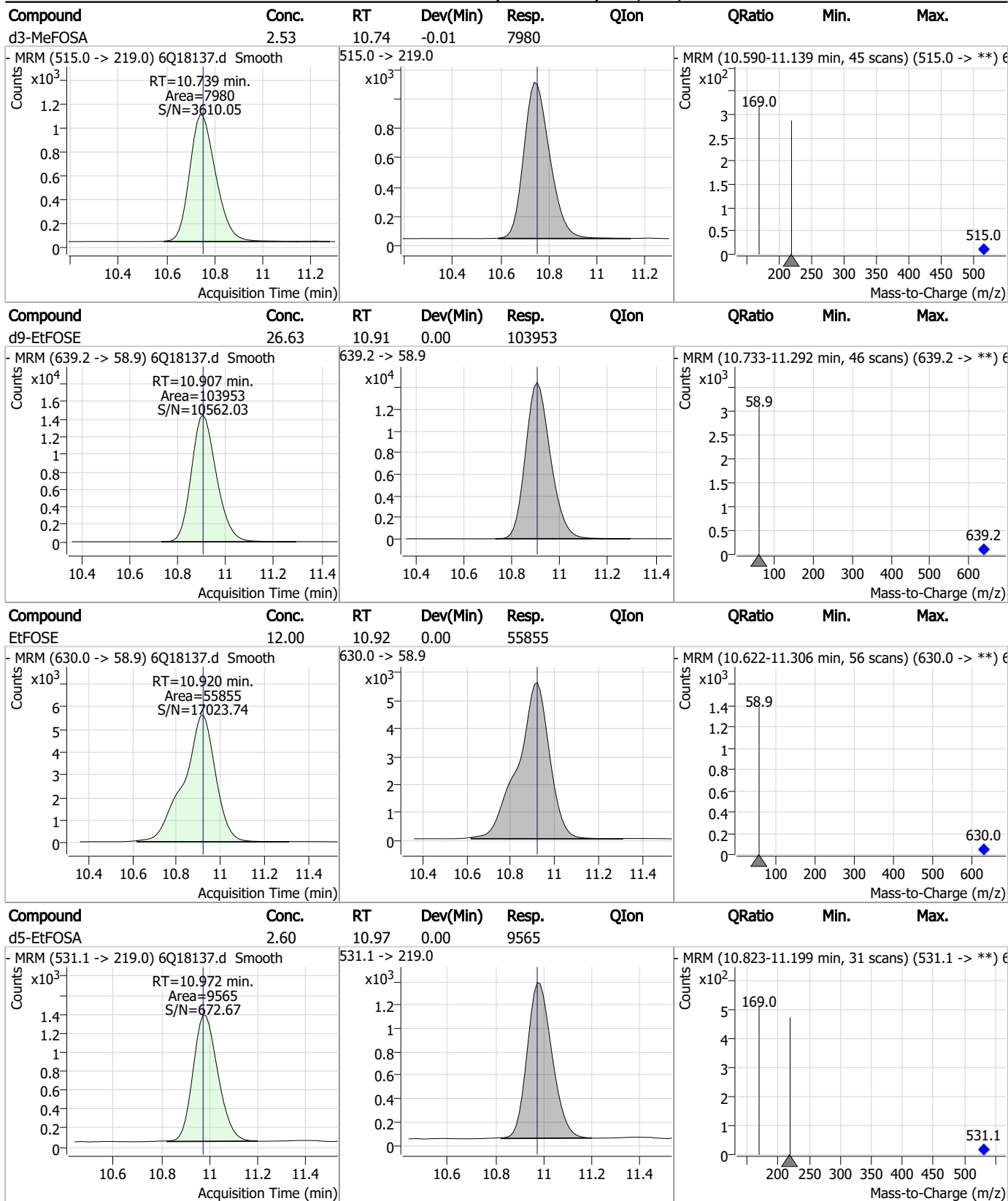
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.89	10.67	0.00	48349				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	4.78	10.74	0.00	17389	511.9 -> 169.0	145.5	66.3	198.9



Perfluorinated Compounds by LC/MS/MS

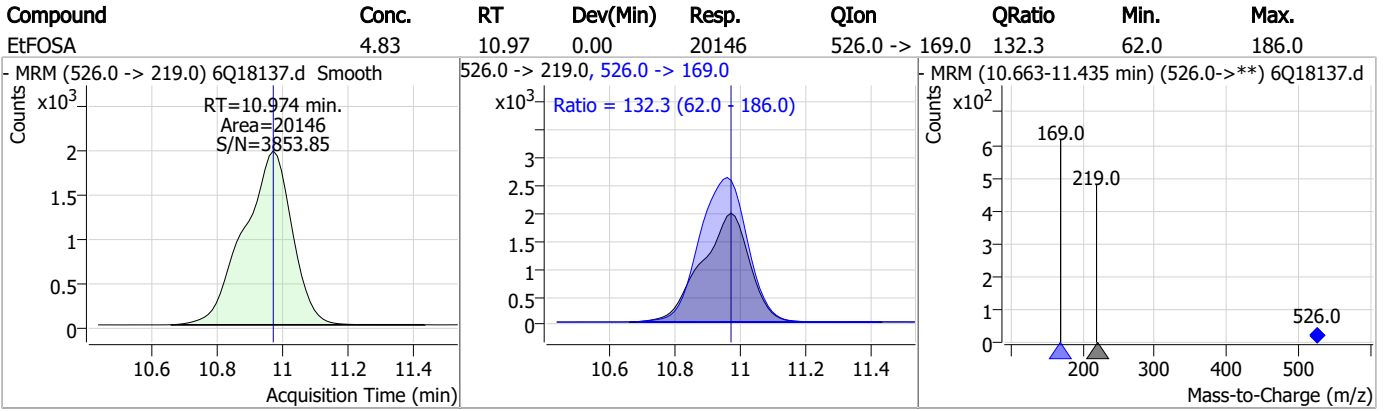


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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q272-ECC272 Method: EPA DRAFT 1633
Lab FileID: 6Q18137.D Analyst approved: 05/21/23 08:45 Mike Eger
Injection Time: 05/19/23 15:31 Supervisor approved: 05/23/23 10:19 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.16	Split peak

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DATE:	05/18/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_051823_S6Q272
CAL DATE:	05/18/23
ANALYST:	M. Valls NG
RUN BATCH:	S6Q272

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	6Q18039.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
2	6Q18040.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
3	6Q18041.d	P1-B3	RT TDCA	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
4	6Q18042.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
5	6Q18043.d	P1-A9	High Std	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
6	6Q18044.d	P1-A1	iblk	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	soil iblk op96667
7	6Q18045.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q272.500,,5.0,1,,water	SURR high
8	6Q18046.d	P1-A2	cc268-1.0LL	1633full.m	QC	1.6/500	OP96663.S6Q272.500,,5.0,1,,water	Surr failing high, re-calibrate
9	6Q18047.d	P4-C3	op96919-bs	1633full.m	Sample		OP96919.S6Q272.500,,5.0,1,,water	rt
10	6Q18048.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
11	6Q18049.d	P1-B3	RT TDCA	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
12	6Q18050.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
13	6Q18051.d	P1-A1	ic272-0	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
14	6Q18052.d	P1-A2	ic272-1	1633full.m	Calibration	1.6/500	OP96663.S6Q272.500,,5.0,1,,water	✓
15	6Q18053.d	P1-A3	ic272-2	1633full.m	Calibration	3.2/500	OP96663.S6Q272.500,,5.0,1,,water	✓
16	6Q18054.d	P1-A4	ic272-3	1633full.m	Calibration	10/500	OP96663.S6Q272.500,,5.0,1,,water	✓
17	6Q18055.d	P1-A5	icc272-4	1633full.m	Calibration	20/500	OP96663.S6Q272.500,,5.0,1,,water	✓
18	6Q18056.d	P1-A6	ic272-5	1633full.m	Calibration	40/500	OP96663.S6Q272.500,,5.0,1,,water	✓
19	6Q18057.d	P1-A7	ic272-6	1633full.m	Calibration	100/500	OP96663.S6Q272.500,,5.0,1,,water	✓
20	6Q18058.d	P1-A8	ic272-7	1633full.m	Calibration	200/500	OP96663.S6Q272.500,,5.0,1,,water	✓
21	6Q18059.d	P1-A9	ic272-8	1633full.m	Calibration	1x	OP96663.S6Q272.500,,5.0,1,,water	✓
22	6Q18060.d	P1-A1	iblk	1633full.m	Sample		OP96663.S6Q272.500,,5.0,1,,water	✓
23	6Q18061.d	P1-B1	icv272-4	1633full.m	QC	20/500	OP96663.S6Q272.500,,5.0,1,,water	✓ Prepped by NG
24	6Q18062.d	P1-B2	icv272-20	1633full.m	QC	100/500	OP96663.S6Q272.500,,5.0,1,,water	✓
25	6Q18063.d	P1-A5	cc272-4	1633full.m	QC	20/500	OP96663.S6Q272.500,,5.0,1,,water	✓
26	6Q18064.d	P1-A2	cc272-1.0LL	1633full.m	QC	1.6/500	OP96663.S6Q272.500,,5.0,1,,water	✓
27	6Q18065.d	P4-C3	op96919-bs	1633full.m	Sample		OP96919.S6Q272.500,,5.0,1,,water	BS PASS
28	6Q18066.d	P4-C4	op96919-llbs:3	1633full.m	Sample		OP96919.S6Q272.500,,5.0,1,,water	LLBS PASS
29	6Q18067.d	P4-C5	op96919-mb	1633full.m	Sample		OP96919.S6Q272.500,,5.0,1,,water	ND
30	6Q18068.d	P4-C6	FC5561-1	1633full.m	Sample		OP96919.S6Q272.565,,5.0,1,,water	✓
31	6Q18069.d	P4-C7	FC5561-3	1633full.m	Sample		OP96919.S6Q272.565,,5.0,1,,water	✓
32	6Q18070.d	P4-C8	FC5567-1	1633full.m	Sample		OP96919.S6Q272.545,,5.0,1,,water	✓
33	6Q18071.d	P4-C9	op96919-ms	1633full.m	Sample		OP96919.S6Q272.545,,5.0,1,,water	✓
34	6Q18072.d	P4-D1	FC5567-2	1633full.m	Sample		OP96919.S6Q272.535,,5.0,1,,water	✓
35	6Q18073.d	P4-D2	op96919-dup	1633full.m	Sample		OP96919.S6Q272.535,,5.0,1,,water	✓



LCMS6-6Q ANALYSIS LOG

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36	6Q18074.d	P4-D3	FC5567-3	1633full.m	Sample	OP96919,S6Q272.545,,,5.0,1,water	✓
37	6Q18075.d	P1-A5	cc272-4	1633full.m	QC	OP96663,S6Q272.500,,,5.0,1,water	✓
38	6Q18076.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q272.500,,,5.0,1,water	✓
39	6Q18077.d	P4-D4	FC5567-4	1633full.m	Sample	OP96919,S6Q272.545,,,5.0,1,water	✓
40	6Q18078.d	P4-D5	FC5567-5	1633full.m	Sample	OP96919,S6Q272.550,,,5.0,1,water	✓
41	6Q18079.d	P4-D6	FC5567-6	1633full.m	Sample	OP96919,S6Q272.510,,,5.0,1,water	✓
42	6Q18080.d	P4-D7	FC5567-7	1633full.m	Sample	OP96919,S6Q272.565,,,5.0,1,water	✓
43	6Q18081.d	P4-D8	FC5567-8	1633full.m	Sample	OP96919,S6Q272.550,,,5.0,1,water	✓
44	6Q18082.d	P4-D9	FC5567-9	1633full.m	Sample	OP96919,S6Q272.520,,,5.0,1,water	✓
45	6Q18083.d	P4-E1	FC5567-10	1633full.m	Sample	OP96919,S6Q272.545,,,5.0,1,water	✓
46	6Q18084.d	P4-E2	FC5567-11	1633full.m	Sample	OP96919,S6Q272.535,,,5.0,1,water	✓
47	6Q18085.d	P4-E3	FC5567-12	1633full.m	Sample	OP96919,S6Q272.525,,,5.0,1,water	✓
48	6Q18086.d	P4-E4	FC5567-13	1633full.m	Sample	OP96919,S6Q272.535,,,5.0,1,water	✓
49	6Q18087.d	P1-A5	cc272-4	1633full.m	QC	OP96663,S6Q272.500,,,5.0,1,water	✓
50	6Q18088.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q272.500,,,5.0,1,water	✓
51	6Q18089.d	P4-E5	FC5567-14	1633full.m	Sample	OP96919,S6Q272.565,,,5.0,1,water	✓
52	6Q18090.d	P4-E6	FC5567-15	1633full.m	Sample	OP96919,S6Q272.565,,,5.0,1,water	✓
53	6Q18091.d	P4-E7	FC5567-16	1633full.m	Sample	OP96919,S6Q272.565,,,5.0,1,water	✓
54	6Q18092.d	P4-E8	FC5567-17	1633full.m	Sample	OP96919,S6Q272.565,,,5.0,1,water	✓
55	6Q18093.d	P1-A5	cc272-4	1633full.m	QC	OP96663,S6Q272.500,,,5.0,1,water	✓
56	6Q18094.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q272.500,,,5.0,1,water	✓
57	6Q18095.d	P4-A1	FC5501-1	1633full.m	Sample	OP96916,S6Q272.2.5,,,5.0,5,water	✓
58	6Q18096.d	P4-A2	FC5501-2	1633full.m	Sample	OP96916,S6Q272.2.5,,,5.0,5,water	✓
59	6Q18097.d	P4-A3	FC5501-3	1633full.m	Sample	OP96916,S6Q272.50,,,5.0,5,water	✓
60	6Q18098.d	P4-A4	FC5501-4	1633full.m	Sample	OP96916,S6Q272.500,,,5.0,5,water	✓
61	6Q18099.d	P4-A5	op96916-ms	1633full.m	Sample	OP96916,S6Q272.500,,,5.0,5,water	✓
62	6Q18100.d	P4-A6	FC5501-5	1633full.m	Sample	OP96916,S6Q272.50,,,5.0,5,water	✓
63	6Q18101.d	P4-A7	FC5501-6	1633full.m	Sample	OP96916,S6Q272.10,,,5.0,5,water	✓
64	6Q18102.d	P4-A8	FC5501-8	1633full.m	Sample	OP96916,S6Q272.10,,,5.0,5,water	✓
65	6Q18103.d	P4-A9	FC5501-10	1633full.m	Sample	OP96916,S6Q272.2.5,,,5.0,5,water	✓
66	6Q18104.d	P4-B1	FC5501-11	1633full.m	Sample	OP96916,S6Q272.2.5,,,5.0,5,water	✓
67	6Q18105.d	P1-A5	cc272-4	1633full.m	QC	OP96663,S6Q272.500,,,5.0,1,water	✓
68	6Q18106.d	P1-A2	cc272-1.0LL	1633full.m	QC	OP96663,S6Q274.500,,,5.0,1,water	✓
69	6Q18107.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q272.500,,,5.0,1,water	✓
70	6Q18108.d	P4-B2	FC5501-13	1633full.m	Sample	OP96917,S6Q272.10,,,5.0,5,water	✓
71	6Q18109.d	P4-B3	FC5542-2	1633full.m	Sample	OP96917,S6Q272.10,,,5.0,5,water	✓
72	6Q18110.d	P4-B4	FC5542-3	1633full.m	Sample	OP96917,S6Q272.2.5,,,5.0,5,water	✓
73	6Q18111.d	P4-B5	FC5542-5	1633full.m	Sample	OP96917,S6Q272.200,,,5.0,5,water	✓
74	6Q18112.d	P4-B6	FC5542-6	1633full.m	Sample	OP96917,S6Q272.5,,,5.0,5,water	✓
75	6Q18113.d	P4-B7	op96917-dup	1633full.m	Sample	OP96917,S6Q272.5,,,5.0,5,water	✓
76	6Q18114.d	P4-B8	FC5565-1	1633full.m	Sample	OP96917,S6Q272.1,,,5.0,2,water	✓
77	6Q18115.d	P4-B9	FC5565-2	1633full.m	Sample	OP96917,S6Q272.5,,,5.0,2,water	✓
78	6Q18116.d	P4-C1	FC5565-3	1633full.m	Sample	OP96917,S6Q272.2.5,,,5.0,2,water	✓



LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

79	6Q18117.d	P4-C2	JD65440-1	1633full.m	Sample	50/500	OP96818,S6Q272,535,,,5.0,10,water	redo at 60mL, hits above cal
80	6Q18118.d	P1-A5	cc272-4	1633full.m	QC	20/500	OP96663,S6Q272,500,,,5.0,1,water	✓
81	6Q18119.d	P1-A1	iccb	1633full.m	Sample		OP96663,S6Q272,500,,,5.0,1,water	✓
82	6Q18120.d	P4-E9	op96921-bs	1633full.m	Sample		OP96921,S6Q272,500,,,5.0,1,water	✓
83	6Q18121.d	P4-F1	op96921-llbs:3	1633full.m	Sample		OP96921,S6Q272,500,,,5.0,1,water	✓
84	6Q18122.d	P4-F2	op96921-mb	1633full.m	Sample		OP96921,S6Q272,500,,,5.0,1,water	✓
85	6Q18123.d	P4-F3	FC5594-1	1633full.m	Sample		OP96921,S6Q272,570,,,5.0,1,water	✓
86	6Q18124.d	P4-F4	FC5594-2	1633full.m	Sample		OP96921,S6Q272,570,,,5.0,1,water	✓
87	6Q18125.d	P4-F5	op96921-ms	1633full.m	Sample		OP96921,S6Q272,570,,,5.0,1,water	✓
88	6Q18126.d	P4-F6	op96921-msd	1633full.m	Sample		OP96921,S6Q272,570,,,5.0,1,water	✓
89	6Q18127.d	P4-F7	FC5594-3	1633full.m	Sample		OP96921,S6Q272,560,,,5.0,1,water	✓
90	6Q18128.d	P4-F8	FC5594-4	1633full.m	Sample		OP96921,S6Q272,570,,,5.0,1,water	✓
91	6Q18129.d	P4-F9	FC5594-5	1633full.m	Sample		OP96921,S6Q272,570,,,5.0,1,water	✓
92	6Q18130.d	P1-A5	cc272-4	1633full.m	QC	20/500	OP96663,S6Q272,500,,,5.0,1,water	✓
93	6Q18131.d	P1-A1	iccb	1633full.m	Sample		OP96663,S6Q272,500,,,5.0,1,water	✓
94	6Q18132.d	P5-A1	FC6097-1	1633full.m	Sample		OP96921,S6Q272,570,,,5.0,1,water	✓
95	6Q18133.d	P5-A2	FC6097-2	1633full.m	Sample		OP96921,S6Q272,530,,,5.0,1,water	✓
96	6Q18134.d	P5-A3	FC6097-3	1633full.m	Sample		OP96921,S6Q272,540,,,5.0,1,water	✓
97	6Q18135.d	P5-A4	FC6097-4	1633full.m	Sample		OP96921,S6Q272,540,,,5.0,1,water	✓
98	6Q18136.d	P5-A5	FC6097-5	1633full.m	Sample		OP96921,S6Q272,530,,,5.0,1,water	✓
99	6Q18137.d	P1-A5	ecc272-4	1633full.m	QC	20/500	OP96663,S6Q272,500,,,5.0,1,water	✓
100	6Q18138.d	P1-A1	iccb	1633full.m	Sample		OP96663,S6Q272,500,,,5.0,1,water	✓



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2106A-B	PFC SPIKE	11653	PF0A-100 (28 comps)	Absolute Wellington Labs	11/08/27	10/18/24	1.0ppm	2mL	5mL	400ppb	MS/MNH 5/14/20	09/18/23	10/18/23	NG
		11432	N-He-FOSA-m	Wellington Labs	02/28/27	03/13/24	50ppm	40uL						NG
		11513	FBSA-1		11/10/26	04/18/24								NG
		11514	FHSA-1		12/29/26	04/18/24								NG
		11332	PFERHS		03/28/27	10/18/24								NG
LCMS 2107A-C	1633-OPiKE Cal Std.	11734	PFAC MxH	Wellington	8/8/27	4/14/24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 MIX	4/19/23	10/14/23	MV
		11736	PFAC MxH	Wellington	11/11/25	4/14/24	2ppm	250uL		125ppb	2688mL			
		11737	PFAC MxG		12/11/27	4/11/24	2ppm	250uL		312.5ppb				
		11676	PFAC MxJ		9/11/26	4/19/24	2ppm	250uL		125ppb				
		11689	MPAC-A4-ES	Wellington Labs	01/18/28	04/18/24	1.0ppm	312uL		312/1000 ppb				
LCMS 2108A-O	10PPb PFC ID SURT	11763	M3HFO-DA	Wellington Labs	01/18/28	04/18/24	1.0ppm	2.4mL	~50mL	0.5ppm	95/MNH 5/14/20	04/24/23	10/24/23	NG
		11431	d-N-MAROSAM		11/08/28	04/18/24	50ppm	48uL						NG
LCMS-2109	537.1 DW STD.	11653	PF0A-DOD (28 comps)	Absolute Wellington Labs	05/06/27	03/13/24	50ppm	48uL						NG
		2080	DW SURT		11/09/27	04/18/24	1.0mg/mL	400uL	4mL	100PPB	90% MeOH 4/24/23	09/10/23	09/10/23	JR
					07/06/23	1.0/2.0 PPM	400uL	↓	100/200 PPB	↓	↓	↓	↓	JR

* 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 20915A-E	(10ppb) PFC ID SURR	A-5 11669	PFAC-2YES	Wilmington Labs	01/16/18	03/18/24	1.0ppm	2.4mL	~50mL	0.5ppm	151mech 51.420	03/18/23	09/18/23	NS
↓	↓	11585	MTHRO-DA	↓	11/08/15	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-N	↓	05/10/07	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 20916A-B	1033 spike Cal w/d.	11672	PFAC-MxH	Wilmington	8/8/17	3/23/24	1-4 ppm	250uL	4mL	02.5 125 250ppb	1033 MIX	3/30/23	9/18/23	MU
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	02.5 0.25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxI	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxI	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11660	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 PPb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11672B	PFAC-MxJ	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 PPb	↓	↓	↓	↓
LCMS 2097A-B	BR-LN metal for 1033	11497	br-N metosa	Wilmington	08/23/17	10/28/23	50ppm	200uL	5mL	2ppm Efflu	1033 MIX	4/16/23	10/28/23	MU
↓	↓	11498	br-N Effosa	↓	10/6/17	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11495	br-N metosa	↓	10/6/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effosa	↓	10/7/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/16/23								

* tested 3/22 10/27

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



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2098A	1033 spike Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 250ppb	1033 mix	4/6/23	10/6/23	MW
		LCMS 2097	Br-1n Et-Me	SGS Labo	NA	10/28/23	3ppm 5ppm	250uL		125ppb 312.5ppb				
		11674B	PFAC Mx F	Wellington	1/11/25	3/30/24	2ppm	250uL 500uL		max 350ppb 125ppb				
		11675	PFAC Mx G		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11672B	PFAC Mx J		9/14/26	3/23/24	4-20 ppm	312uL		312/100 ppb				
LCMS 2099	(Fumeral) 537.1 Du std.	11670	M3P-PEA	Wellington Labs	07/08/25	04/06/24	50ppm	80uL	4mL	1.0ppm	0.10 MESH 41. H2O	04/06/23	05/15/23	NG
		10436A	Mx 2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10522B	d3-N-NEOSAA		10/22/25	08/15/23		160uL		20ppm				NG
		10498A	M1FOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M2RFA		12/01/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (40) List 40 spike (500)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O (2,40031)	4/11/23	7/24/23	MW
		LCMS 2067	40 List ADD ON #1	SGS Add.		8/23/23	1.0ppm	400uL						
		LCMS 2070	40 List ADD ON #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	F055 Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 2101	F055 std.	11336	N-et F055	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me f055		5/13/27	9/19/23	50ppm	200uL						

* based on date opened as specified in each SGS - Orlando SOP. (1,600)

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* LCMS 2100 91B
rechecked & tested on 10/23/23
are normal

LCMS 2100 91B
rechecked & tested on 10/23/23
are normal



Organic Standards Preparation Log

SGS - Orlando Std. #	Parent Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List std. ADD-ON #1	10720A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth 5% H2O	2/8/23	3/21/23 8/23/23	MV
		10840	L- PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N- MCFOSA		8/3/26	8/23/23								
		10837	N- E-FOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFOA		5/7/26	10/18/23								
		11116B	3:3FTCA PFRPA		2/3/27	2/8/24								
		10685A	5:3FTCA PF2PA		11/1/25	8/23/23								
		11116A	7:3FTCA FHPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA		3/31/25	10/18/23								
		10764	PFMFA PF40eA		3/31/25	2/8/24								
		10765B	NFHDA 3.6-OPHdA		3/31/25	10/18/23								
					NG 02/10/23									

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

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Organic Standards Preparation Log

SGS - Orlando Sid. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2074 A-B	PFC SPIKE	11613	PROA-DOD CASCOMP	Absolute Wellington Labs	11/09/23	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		10829	N-Me-PBSA-M	Wellington Labs	08/23/26	08/23/23	50ppm	40uL						NG
		11250	PBSA-1		11/10/26	11/08/23								NG
		11249	PHSA-1		12/29/26	11/03/23								NG
		11322	PFECHS		02/28/27	10/18/23								NG
LCMS 2075A-F	(10 PPB) PFC ID SURF	11639	MPPAC-24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		11585	N2HFO-DA	Wellington Labs	11/08/23	01/26/24	50ppm	48uL						NG
		11385	B-N-NACROSA-M	Wellington Labs	05/10/27	01/01/24	50ppm	48uL						NG
LCMS 2076	40 List std. ADDON #2	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/27/23	5/2/26	MW
		11249	FHSA-1		2/29/26	11/3/23	50ppm	80uL						
		11140	L-PFRG		7/12/26	5/26/23	50ppm	80uL						
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Acetate	Sigmaaldrich		1/25/24	99.9%	0.62g	4L	2mM	95% MeOH 5% H2O	2/28/23	4/28/23	MW
		224870	HPLC water	Fisher		2/28/23		3,800ml		95%				
		220225	Acetoni trile			2/20/24		200mL		5%				
						aka new 2/28/23								
						Continue next page #1								

* added 2/23/23
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* based on date opened as specified in each SGS - Orlando SOP.
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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 2052	1633 prep mix	Lot: 221044	MeOH	Fisher	—	1/4/24	99.9%	92mL	100mL	92%	N/A	1/19/23	2/19/23	MV
		Lot: 219481	NH4OH		—	9/19/23	100%	3.3mL		1%				
		Lot: 224863	H2O		—	1/17/24	100%	1.7mL		4%				
		Lot: 224297	Acetic Acid		—	6/24	99.7%	0.625mL		.625%				
LCMS 2053	(spike) Full list std	11568	PFOA DOP 28 Calc	SGS Standards	11/9/27	11/10/24	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
		LCMS 1987	40 list Add on #1		—	3/21/23	1.0ppm	400uL						
		LCMS 1986	40 list Add on #2		—	4/18/23	1.0ppm	400uL						
		LCMS 2054	Fose std.		—	7/7/23	5.0ppm	400uL		500ppb				
		LCMS 2054	Fose std.		—	5/13/27	5.0ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	12/4/23	7/24/23	MV
		LCMS 2054	Fose std.		—	9/19/23	50ppm	200uL						
		LCMS 2055	1633 Cal std.		—	9/14/26	1-4 ppm	2.50uL	4mL	62.5 125 250ppb	1633 MIX	1/24/23	7/24/23	MV
		LCMS 2055	1633 Cal std.		—	9/14/26	1-10 ppm	2.50uL		62.5 125 250ppb				
		LCMS 2055	1633 Cal std.		—	11/1/24	2ppm	500uL		250ppb				
		LCMS 2055	1633 Cal std.		—	3/4/25	2ppm	250uL		125ppb				
		LCMS 2055	1633 Cal std.		—	9/14/26	4-20 ppm	312uL		312/100 ppb				
					—		N/A	N/A						

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

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

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rev1

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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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CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide
Isomeric Mix

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

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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brNMeFOSA0822 (1 of 6)
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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

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

DESCRIPTION:

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Revision#:9, Revised 2020-12-23

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rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Table A: PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
B.G. Chittim, General Manager

Date: 10/02/2021
(mm/dd/yyyy)

11688
rec'd 103/03/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Revision#:9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

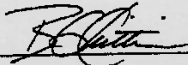
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Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

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

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

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11689
rec'd: 03/03/23



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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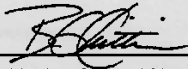
PFACMXJ0921 (1 of 5)
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Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
B.G. Chittim, General Manager

Date: 10/02/2021
(mm/dd/yyyy)

11734
rec'd: 03/29/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Revision# 9, Revised 2020-12-23

PFACMXH3822 11 of 11
rev0

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

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUdA	1000		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
Potassium perfluoro-1-butanedisulfonate	L-PFBS	1000	887	
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexadisulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctadisulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonadisulfonate	L-PFNs	1000	962	19
Sodium perfluoro-1-decadisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecadisulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecane sulfonate	8:2FTS	4000	3840	16

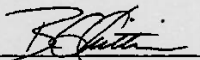
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^c See Table D for percent composition of linear and branched PFHxSK isomers.

^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 08/09/2022
(mm/dd/yyyy)

11736
rec'd: 03/29/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

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

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Form# 13, Issued 2004-11-10
Revision# 3, Revised 2020-12-23

PFACMXF0122 (1 of 5)
rev0

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

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: 

B.G. Chittim, General Manager

Date: 01/12/2022
(mm/dd/yyyy)

11737
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

**Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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PFACMXG1122 (1 of 5)
rev0

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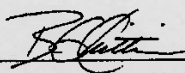
Table A:

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

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

* Concentrations have been rounded to three significant figures.

Certified By:



B.G. Chittim, General Manager

Date: 12/09/2022

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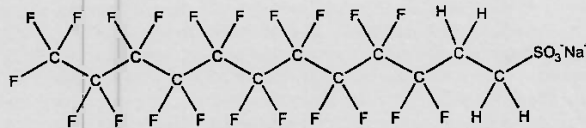


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CERTIFICATE OF ANALYSIS DOCUMENTATION

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

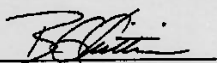
DOCUMENTATION/ DATA ATTACHED:

- 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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 03/05/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

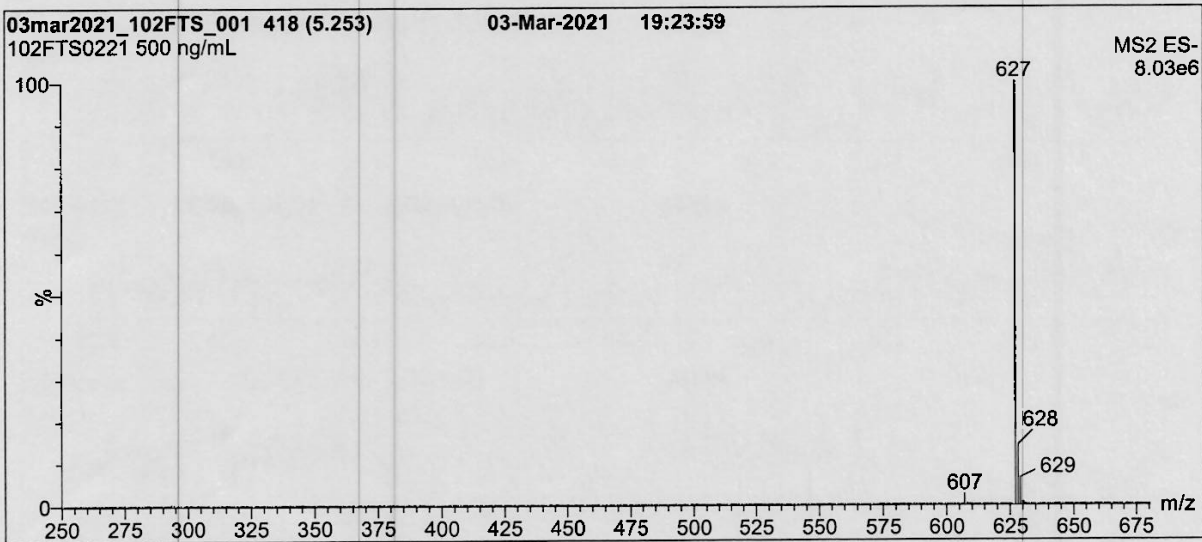
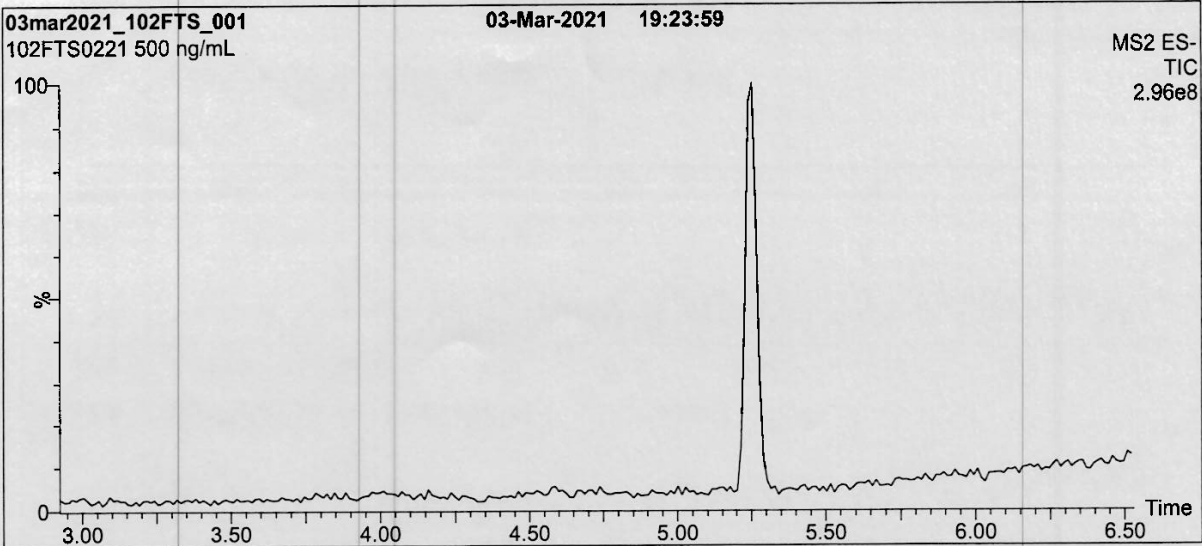
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

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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

10762 A-B

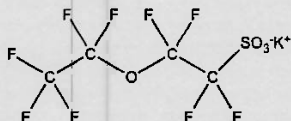


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
44.6 ± 2.2 µg/ml (PFEESA acid)
44.5 ± 2.2 µg/ml (PFEESA anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/13/2020
EXPIRY DATE: (mm/dd/yyyy) 05/13/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

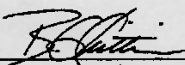
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager **Date:** 05/29/2020
(mm/dd/yyyy)

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Revision#:7, Revised 2020-01-09

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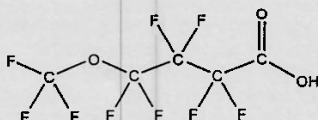
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **MOLECULAR WEIGHT:** 280.05

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

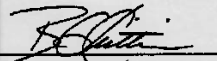
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/21/2020
(mm/dd/yyyy)

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Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)
rev1

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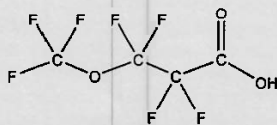
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

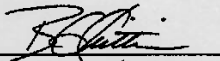
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

7.8.1

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

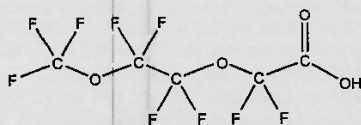
COMPOUND:

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
B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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PRODUCT CODE:

N-EtFOSA-M

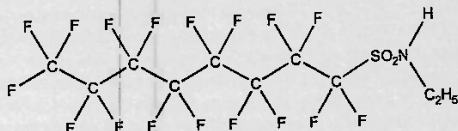
10837

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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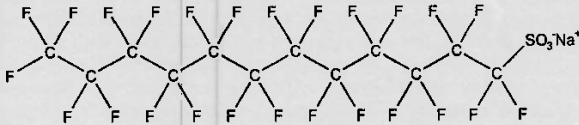
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
48.5 ± 2.4 µg/mL (PFDoS acid)
48.4 ± 2.4 µg/mL (PFDoS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/09/2021
EXPIRY DATE: (mm/dd/yyyy) 07/09/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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

LPFDoS0721 (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NS 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

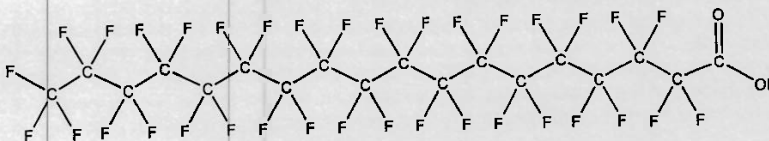
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store 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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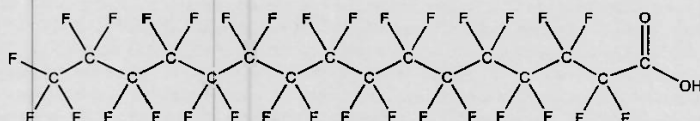
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

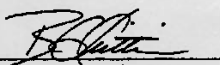
DOCUMENTATION/ DATA ATTACHED:

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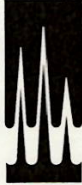
Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)
 rev0

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1116 A.B NW

1116B on the back NW



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

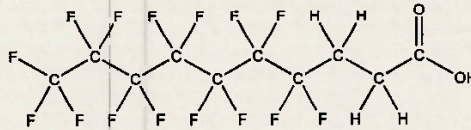
COMPOUND:

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

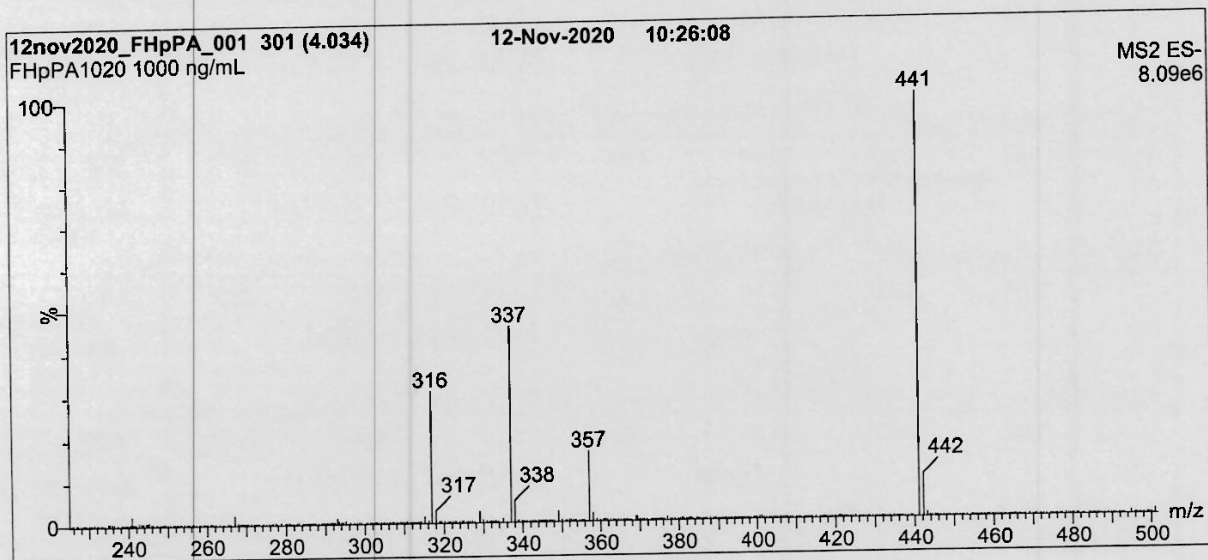
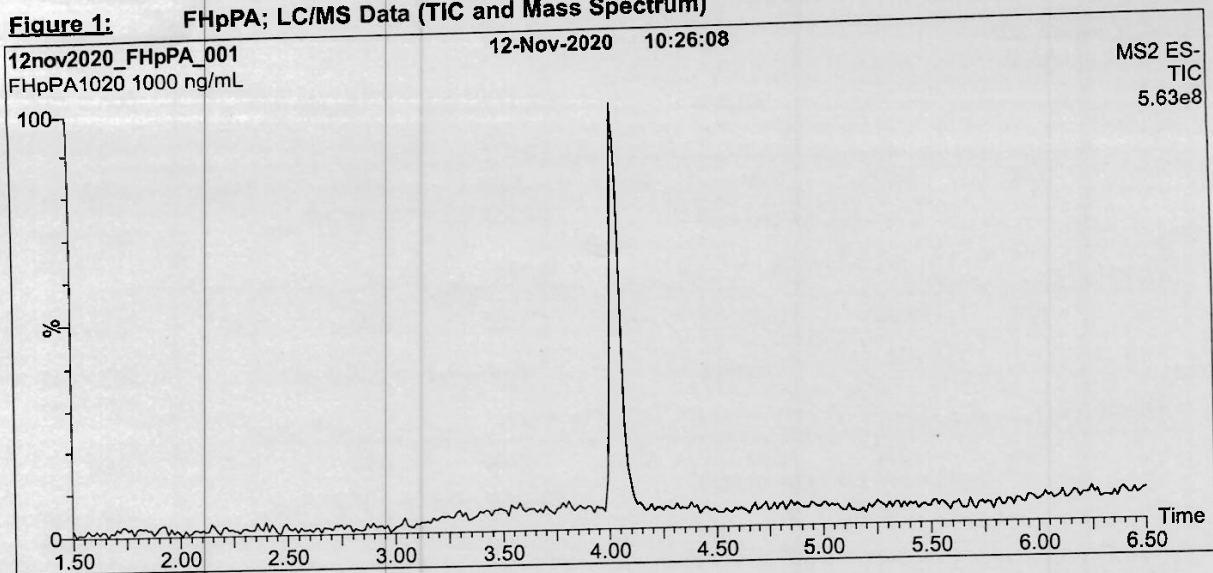
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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

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

FP_rPA(3:3FTCA) 1116 B



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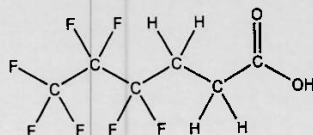
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0122

STRUCTURE:

CAS #: 356-02-5



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

MOLECULAR WEIGHT: 242.09
SOLVENT(S): Methanol

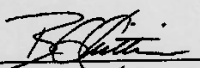
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

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

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11332



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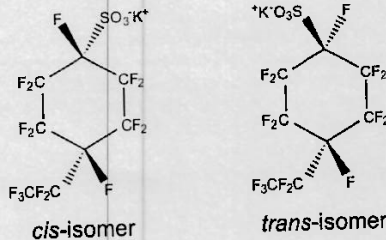
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:

PFECHS
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

LOT NUMBER: PFECHS0222

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:
CONCENTRATION:

$C_8F_{15}SO_3K$
50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)
>98%

MOLECULAR WEIGHT: 500.22
SOLVENT(S): Methanol

CHEMICAL PURITY:

LAST TESTED: (mm/dd/yyyy)

03/28/2022

EXPIRY DATE: (mm/dd/yyyy)

03/28/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022
(mm/dd/yyyy)

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11626
rec'd 01/26/23

CERTIFIED WEIGHT REPORT

Part Number: **64029A**
Lot Number: **110922**
Description: **PFOA - DOD**
28 components
Expiration Date: **110827**
Recommended Storage: **Freezer (0 °C)**
Nominal Concentration (µg/mL): **1.0**
NIST Test ID#: **6UTB**

Solvent(s):
Methanol (1 mM KOH)
2-Propanol
Lot#
102722 (98%)
32500 (2%)

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Prashant Chauhan</i>	DATE
Reviewed By: <i>Prashant Chauhan</i>	110922
Reviewed By: <i>Pedro L. Rentas</i>	DATE

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTriDA)	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	46.8	1.00	0.05	756426-56-1	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).

7.8.1
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11140



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

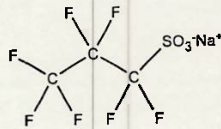
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

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

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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11252 11249
7/1/22 KA



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

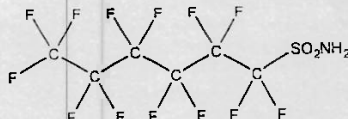
COMPOUND:

Perfluoro-1-hexanesulfonamide

STRUCTURE:

CAS #:

41997-13-1



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT:

399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

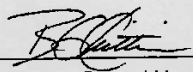
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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7.8.1
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11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

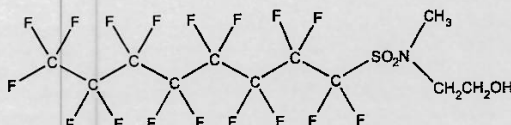
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11764 A-5
rec'd: 04/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled PFAS Injection
Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-IS
LQT NUMBER: MPFACHIFIS1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/28/2022
LAST TESTED: (mm/dd/yyyy) 11/29/2022
EXPIRY DATE: (mm/dd/yyyy) 11/29/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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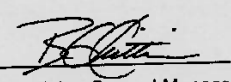
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFIS1122 (1 of 5)
rev0

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

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

* Concentrations have been rounded to three significant figures.

Certified By:  Date: 12/05/2022
(mm/dd/yyyy)
R.G. Chittim, General Manager

11765 A-J
Rec'd: 04/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES1022
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 10/28/2022
LAST TESTED: (mm/dd/yyyy) 11/23/2022
EXPIRY DATE: (mm/dd/yyyy) 11/23/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

MPFACHIFES1022 (1 of 7)
rev0

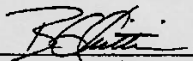
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Table A: MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₂)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₃)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₄)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₆)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid	M7PFUDA	250		18
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFD _o A	250		19
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C 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

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 05/17/23 11:00
(mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time Finished: 05/18/23 13:15
(mm/dd/yy 24:00)

Balance ID: -

Batch#: OP96921 Ext. By: GH

Conc. By: - Viald By: LR

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 96921 MB	/	500	7	N/A	25		5	A4	
OP 96921 BS	/	500	7	N/A		200			
OP 96921 LLBS	/	500	7	N/A		60			
FC 5594-1	1	570	7						
	2	570							
	3	560							
	4	570							
	5	570							
FC 6097-1	2	570							
	2	530							
	3	540							
	4	540	7	N/A	25		5	A4	
	5	530						F	
OP FC5594-2MS	2	570	7	N/A	25	200	5	A4	
OP FC5594-2MSD	3	570	7	N/A	25	200	5	A4	
OP DUP									

Comments:

EIS (SURR) ID: 117880-E Conc: 250-5000 ng/ml Exp. Date: 05/16/24 Inj. By: GH Ver. By: CM
 SPIKE.1 ID: LCMS2122B Conc: VARIED Exp. Date: 10/28/23 Inj. By: GH Ver. By: CM
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11805A-C Conc: 250-10000 ng/ml Exp. Date: 11-27-27 Inj. By: LR Ver. By: NW

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

Methanol Lot # 224231 1% NH4OH MeOH PF400 SPE Lot # 6723930-02
 Water Lot# OP96255 0.3M Formic Acid PF401 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF399 5% Formic Acid _____ Carbon Lot# 99687

Relinquished By: Michelle Vastus
 Accepted By: Lindsey Pitt

Date: 05/17/23
 Date: 5/18/23

7.9.1
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