

Automated PFAS extraction in drinking water using Biotage® PrepXpert-8 in compliance with EPA Method 533

Introduction

Per- and polyfluoroalkyl substances (PFAS) have been widely manufactured and utilized across numerous industrial and consumer applications since their introduction in the mid-20th century. Their exceptional chemical stability and persistence have made them a major focus of global regulatory oversight and analytical testing. To meet evolving detection standards, laboratories increasingly rely on EPA Method 533, which targets a broad range of short-chain PFAS compounds in drinking water. This application note presents a validated workflow designed to deliver reliable, compliant results under EPA Method 533. Data were generated using the Biotage® PrepXpert-8 automated solid-phase extraction (SPE) system, in combination with EVOLUTE® PFAS 533 SPE cartridge and a TurboVap® LV system, providing a robust, automated approach for accurate and reproducible PFAS analysis. This workflow simplifies PFAS sample preparation, improves throughput, and ensures compliance with stringent regulatory requirements.



Analytes

Table 1. Listing of target analytes, isotope dilution standards and isotope performance standards

Analyte name	Acronym	CAS
Target analytes		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Perfluorobutanoic acid	PFBA	375-22-4
Perfluorobutanesulfonic acid	PFBS	375-73-5
1H,1H,2H,2H-Perfluorodecane sulfonic acid	8:2FTS	39108-34-4
Perfluorodecanoic acid	PFDA	335-76-2
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluoroheptanoic acid	PFHpA	375-85-9
1H,1H,2H,2H-Perfluorohexane sulfonic acid	4:2FTS	757124-72-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Perfluorononanoic acid	PFNA	375-95-1
1H,1H,2H,2H-Perfluorooctane sulfonic acid	6:2FTS	27619-97-2
Perfluorooctanesulfonic acid	PFOS	1763-23-1



Perfluorooctanoic acid	PFOA	335-67-1
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluoroundecanoic acid	PFOA	2058-94-8
Isotope performance standards		
Perfluoro-n-[2,3,4- ¹³ C ₃]butanoic acid	¹³ C ₃ -PFBA	
Perfluoro-[1,2- ¹³ C ₂]octanoic acid	¹³ C ₂ -PFOA	
Sodium perfluoro-1-[1,2,3,4- ¹³ C ₄]octanesulfonate	¹³ C ₄ -PFOS	
Isotope dilution standards		
Perfluoro-n-[1,2,3,4- ¹³ C ₄]butanoic acid	¹³ C ₄ -PFBA	
Perfluoro-n-[1,2,3,4,5- ¹³ C ₅]pentanoic acid	¹³ C ₅ -PFPeA	
Sodium perfluoro-1-[2,3,4- ¹³ C ₃]butanesulfonate	¹³ C ₃ -PFBS	
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2- ¹³ C ₂]hexane sulfonate	¹³ C ₂ -4:2FTS	
Perfluoro-n-[1,2,3,4,6- ¹³ C ₅]hexanoic acid	¹³ C ₅ -PFHxA	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy- ¹³ C ₃ -propanoic acid	¹³ C ₃ -HFPO-DA	
Perfluoro-n-[1,2,3,4- ¹³ C ₄]heptanoic acid	¹³ C ₄ -PFHpA	
Sodium perfluoro-1-[1,2,3- ¹³ C ₃]hexanesulfonate	¹³ C ₃ -PFHxS	
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2- ¹³ C ₂]-octane sulfonate	¹³ C ₂ -6:2FTS	
Perfluoro-n-[¹³ C ₈]octanoic acid	¹³ C ₈ -PFOA	
Perfluoro-n-[¹³ C ₉]nonanoic acid	¹³ C ₉ -PFNA	
Sodium perfluoro-[¹³ C ₈]octanesulfonate	¹³ C ₈ -PFOS	
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2- ¹³ C ₂]-decane sulfonate	¹³ C ₂ -8:2FTS	
Perfluoro-n-[1,2,3,4,5,6- ¹³ C ₆]decanoic acid	¹³ C ₆ -PFDA	
Perfluoro-n-[1,2,3,4,5,6,7- ¹³ C ₇]undecanoic acid	¹³ C ₇ -PFUnA	
Perfluoro-n-[1,2- ¹³ C ₂]dodecanoic acid	¹³ C ₂ -PFDoA	



Solution preparation

2% NH₄OH in MeOH

1. Add 2 mL of NH₄OH for every 98 mL of methanol to a clean beaker.
2. Agitate to homogenize the solution.
3. Prepare fresh daily before extraction.

0.1 M phosphate buffer solution

1. Add 4.45 g of monobasic sodium phosphate and 2.5 g of dibasic sodium phosphate for every 500 mL of reagent water to a clean beaker.
2. Sonicate the solution for 5 minutes to dissolve the salt.

NH₄Ac in water solution

1. Add 1 g of NH₄Ac for every 1 L of reagent water to a clean beaker.
2. Sonicate the solution for 5 minutes to dissolve the salt.

Working spiking solution

1. Dilute 100 µL of the Native Stock Solution with 900 µL of methanol to achieve spike solution of 50 ppt.

Sample preparation procedure

1. Clean the automated extractor system using the technique given in Appendix A. If the cleanliness of a particular channel is suspect, it is recommended that the cleaning method be run multiple times and that the cleanliness be verified by extracting blanks.
2. Set up and fill in new sample containers with reagent water; both 100 mL and 200 mL volumes were used for this application.
3. Add the appropriate amount of NH₄Ac to each of the sample containers; for example, 0.10 g and 0.25 g were added to the 100 mL and 250 mL samples respectively.
4. Verify that the pH of the sample is between 6.0 and 8.0 and adjust using acetic acid if necessary.
5. Prepare for the determination of the initial sample volume by either marking the level of the sample on the container or by weighing the sample container.
6. Fortify each sample with an internal standard at a concentration corresponding to the mid-range of the calibration curve. If desired, add a known amount of PFAS target compounds into the samples.
7. Attach each prepared water sample to the bottle rinse heads on the Biotage® PrepXpert-8 system, ensuring the sip tube is positioned in the lowest corner of the container.
8. Load the desired EVOLUTE® PFAS 533 cartridge onto Biotage® PrepXpert-8.
9. Load 15 mL centrifuge tubes onto the collection rack and place into the Biotage® PrepXpert-8.
10. Run the method given in Table 2, adjusting for the preferred sample volumes, to extract the attached samples. The protocol will yield an extract of approximately 10 mL in volume.
11. Determine the initial sample volume by either using a graduated cylinder and filling the sample container to the original mark or by taking an additional weight of the container.
12. Transfer the centrifuge tubes to the TurboVap® LV system and evaporate the samples to dryness using nitrogen according to the parameters in Table 3.
13. Reconstitute each sample using 990 µL of 80:20 methanol: reagent water and transfer to an autosampler vial.
14. Add 10 µL of the isotope performance standards and mix to homogenize.
15. Load the extract onto a calibrated LC-MS/MS system and process using the conditions given in the below sections.



Table 2. Extraction parameters

Operation	Amount (mL)	Input	Output	Flow (mL/min)
Condition	10	MeOH	Solvent waste	10
Condition	10	Phosphate buffer	Water waste	10
Condition	3	Phosphate buffer	Water waste	10
Condition	3	Water	Water waste	10
Load	265	Sample	Water waste	5
Rinse	10	NH ₄ Ac in water	Water waste	60
Wait	15 sec			
Wash	13	Sample	Water waste	5
Rinse	1	MeOH	Solvent waste	60
Wait	10 sec			
Wash	5	Sample	Solvent waste	5
Dry: 5 min		Nitrogen	Water waste	-
Rinse	5	NH ₄ OH in MeOH	Sample	60
Wait	15 sec			
Elute	8	Sample	Vial 2	5
Rinse	5	NH ₄ OH in MeOH	Sample	60
Wait	15 sec			
Elute	8	Sample	Vial 2	5
Purge	5	Air	Vial 2	2



Table 3. TurboVap® LV concentration protocol

Bath temp:	60 °C
Evaporation mode:	Method (Ramp gradient)
Manifold setup:	48 positions
Rack row height:	120 mm
Step 1:	1.5 L/min for 20 min
Step 2:	3.0 L/min for 15 min
Step 3:	3.5 L/min for 50 min

*The nozzle position was adjusted such that it was as far to the right as possible to give the user a clear view of the vortex within the tube.

LC-MS/MS Conditions

Agilent 1290 Infinity II LC System

- 1290 Infinity II Multicolumn Thermostat, G7116B
- 1290 Infinity II Multisampler, G7167B
- 1290 Infinity II High Speed Pump, G7120A

Columns

- InfinityLab PFC Delay column, 4.6 x 30 mm, p/n 5062-8100
- Guard column: ZORBAX Eclipse Plus C18, 2.1 x 5 mm, 1.8 µm, p/n 821725-901
- Analytical column: ZORBAX RRHD Eclipse Plus C18, 95 Å, 2.1 x 50 mm, 1.8 µm, p/n 959757-902

Mobile Phases

A: 20 mM ammonium acetate in water

B: Methanol

Table 4. LC Gradient

Time (min)	%A	%B
0.50	95	5
3.00	60	40
16.00	20	80
18.00	20	80
20.00	5	95

- Flow rate: 0.2 mL/min
- Injection volume: 5 µL
- Column temperature: 50 °C

Agilent 6470 MS/MS, G6470B

- Gas temperature: 230 °C
- Gas flow: 4 L/min
- Nebulizer: 20 psi
- Sheath gas temperature: 375 °C
- Sheath gas flow: 12 L/min
- Capillary voltage (Positive): 3500 V
- Capillary voltage (Negative): 2500 V
- Nozzle voltage (Positive): 500 V
- Nozzle voltage (Negative): 0 V

For a complete listing of MRM Transitions, see Appendix B.



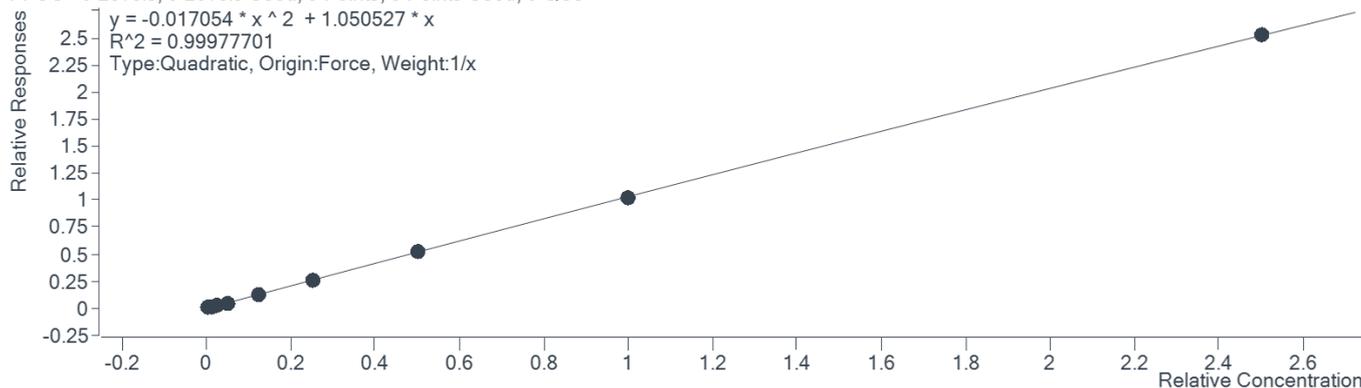
Results

System calibration

For the work being done here, a total of five points were used in the calibration covering a range of 0.2-100 ppt. The calibration curve was forced through zero and achieved excellent R² values.

PFOS

PFOS - 9 Levels, 9 Levels Used, 9 Points, 9 Points Used, 0 QCs



PFOA

PFOA - 9 Levels, 9 Levels Used, 9 Points, 9 Points Used, 0 QCs

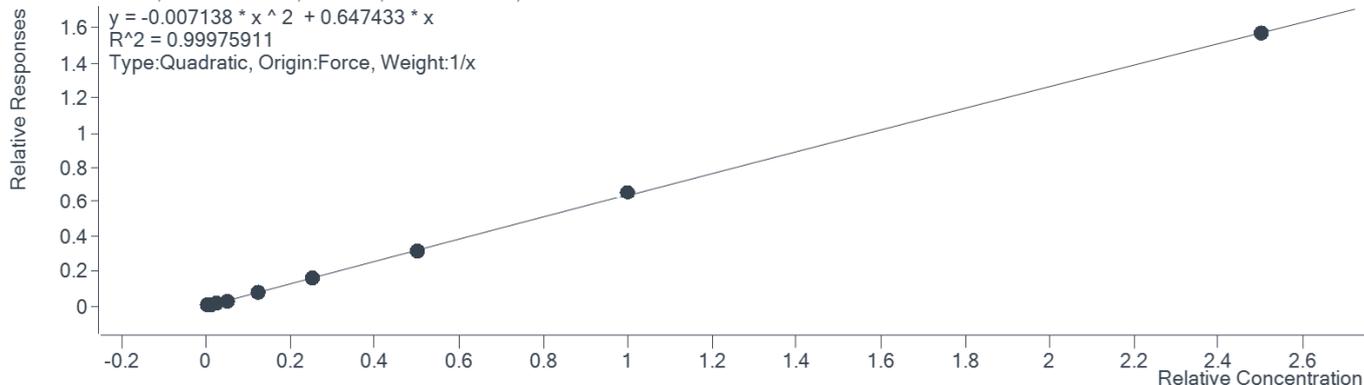


Figure 1. Calibration curve plots for PFOS and PFOA. Additional calibration curves for all other target analytes listed in Table 1 are provided in Appendix C.



Determination of the minimum reporting level (MRL) and detection limits (DL)

A target minimum reporting level (MRL) of 2 ng/L was selected and ten replicate laboratory fortified blanks (LFBs) were created and run at that concentration, with at least eight data points being selected for each compound. This experiment was replicated twice: one dataset used 100 mL samples with the 200 mg cartridge, and the other used 250 mL samples with the 500 mg cartridge. The resulting data was then used to calculate the half-range for the prediction interval (HRPIR), the upper and lower bounds for the PIR, and the DL for both iterations of this experiment.

Figure 2 below illustrates the calculated detection limit (DL) for all EPA 533 target compounds ranging between 0.13 ng/L to 0.38 ng/L across both datasets. Figures 3 and 4 illustrate the upper and lower bounds for the PIR for the 200 mg and 500 mg cartridge respectively. Based on the data obtained, the calculated upper and lower predicted interval range (PIR) were all well within the specified boundaries and proven to be repeatable. 11Cl-PF3OUdS was identified to behave erratically when compared to the associated labeled compound, this necessitated the removal of clear outliers from the DL study, still maintaining a minimum of 8 data points for this compound.

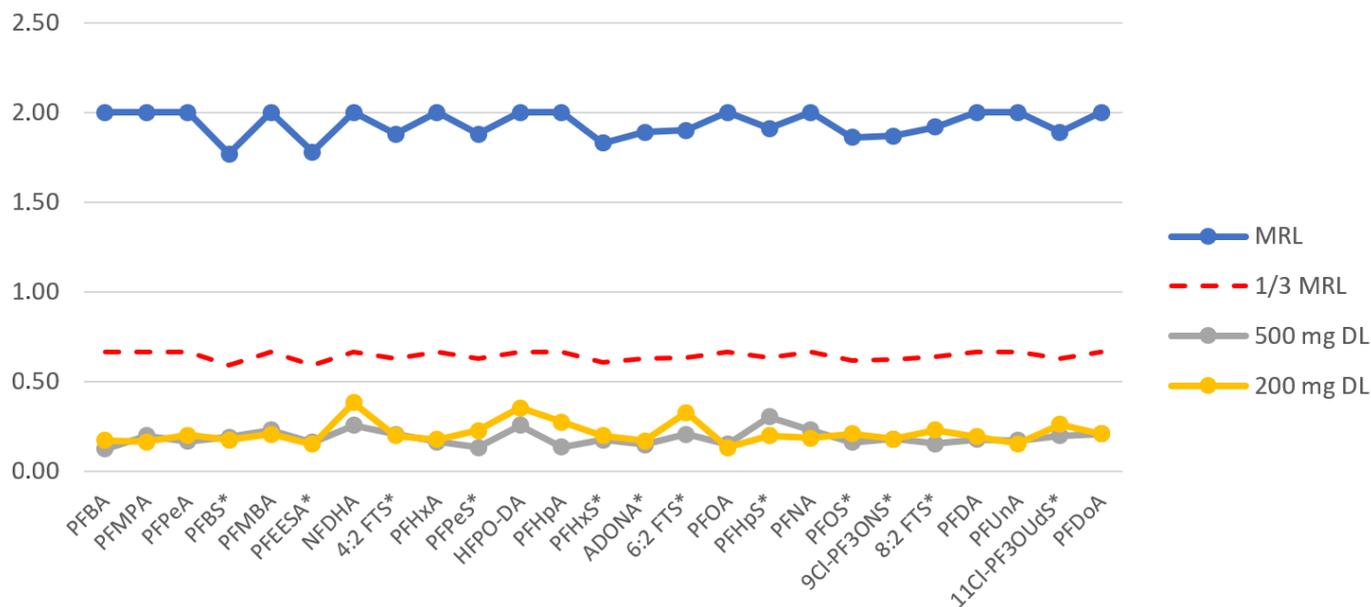


Figure 2. MRL and DL recoveries for EVOLUTE® PFAS 533 cartridges (200 mg and 500 mg). Compounds marked with an asterisk were analyzed in salt form.

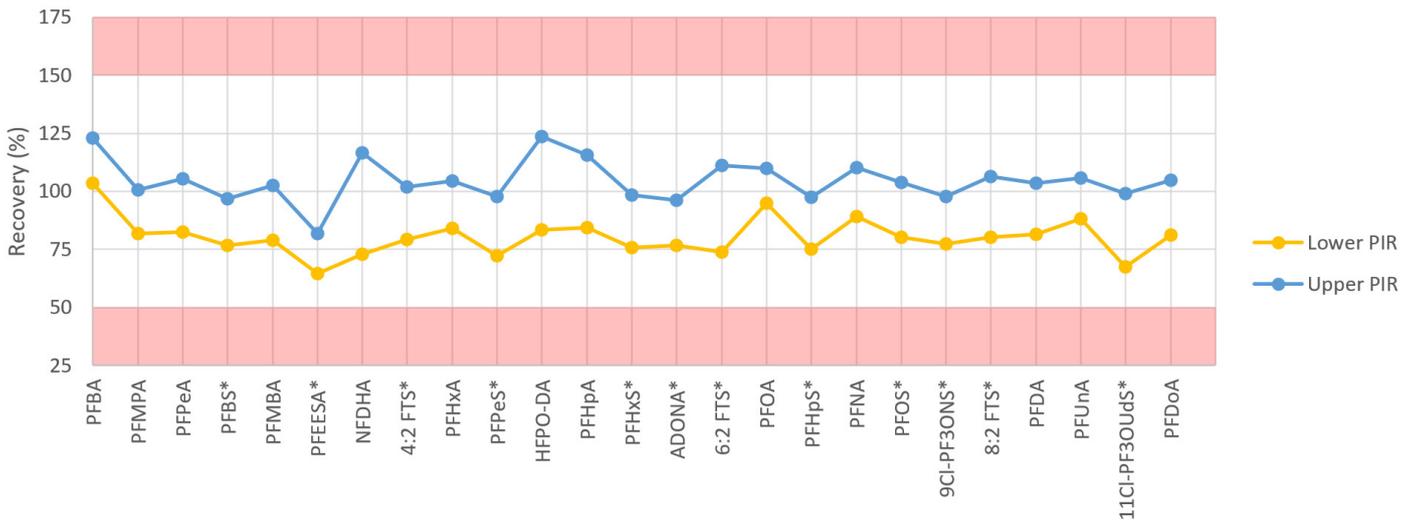


Figure 3. Predicted interval range (PIR) limits for EVOLUTE® PFAS 533 200 mg cartridge, with acceptance range shown in white. Compounds marked with an asterisk were analyzed in salt form.

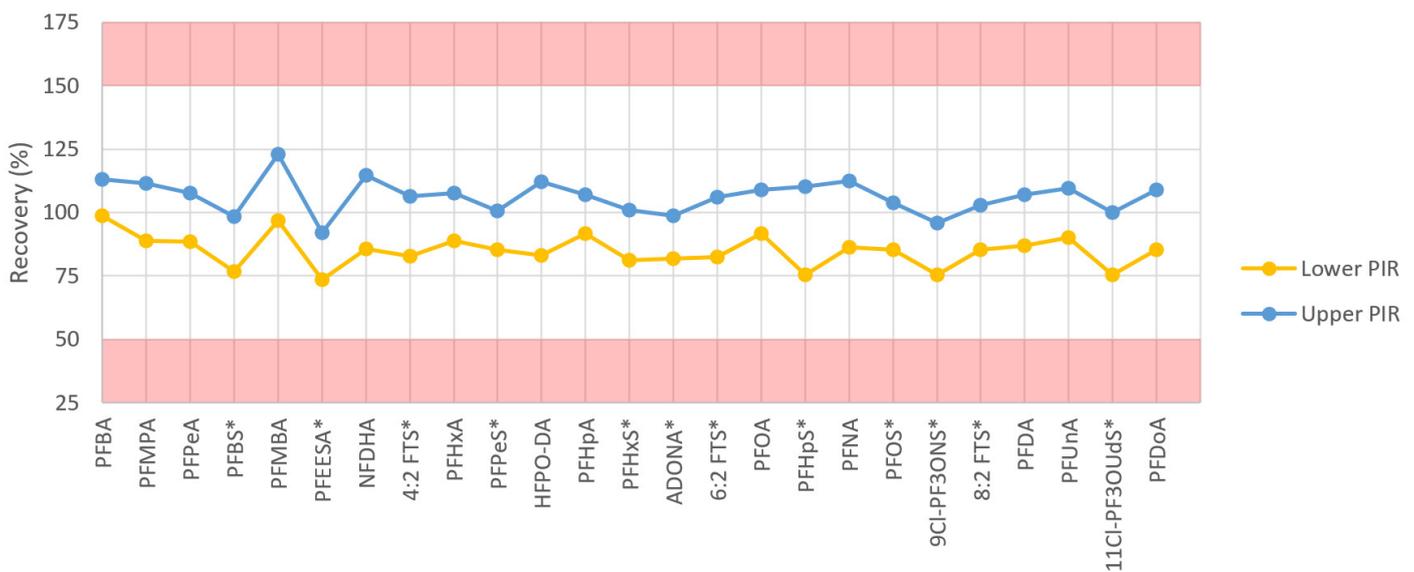


Figure 4. Predicted interval range (PIR) limits for EVOLUTE® PFAS 533 500 mg cartridge, with acceptance range shown in white. Those compounds with an asterisk were used in salt form. The data for individual compounds is shown in Appendix D.



Initial Demonstration of Precision and Accuracy (IDP, IDA)

Four LFB samples each were prepared at concentrations of 20 ng/L for 100 mL volume samples using 200 mg cartridges and 250 mL volume samples using 500 mg cartridges. This data was used to determine the precision and accuracy of the sample preparation process, Figure 5 below illustrates the accuracy while Figure 6 illustrates the precision; all target compounds exhibited tight recoveries, recovering on average between 81%-102% of the spiked amount and had calculated CV less than 6.7%. These results fall well within the limits defined by EPA Method 533 of +/- 30% of the nominal value with relative standard deviations under 20%.

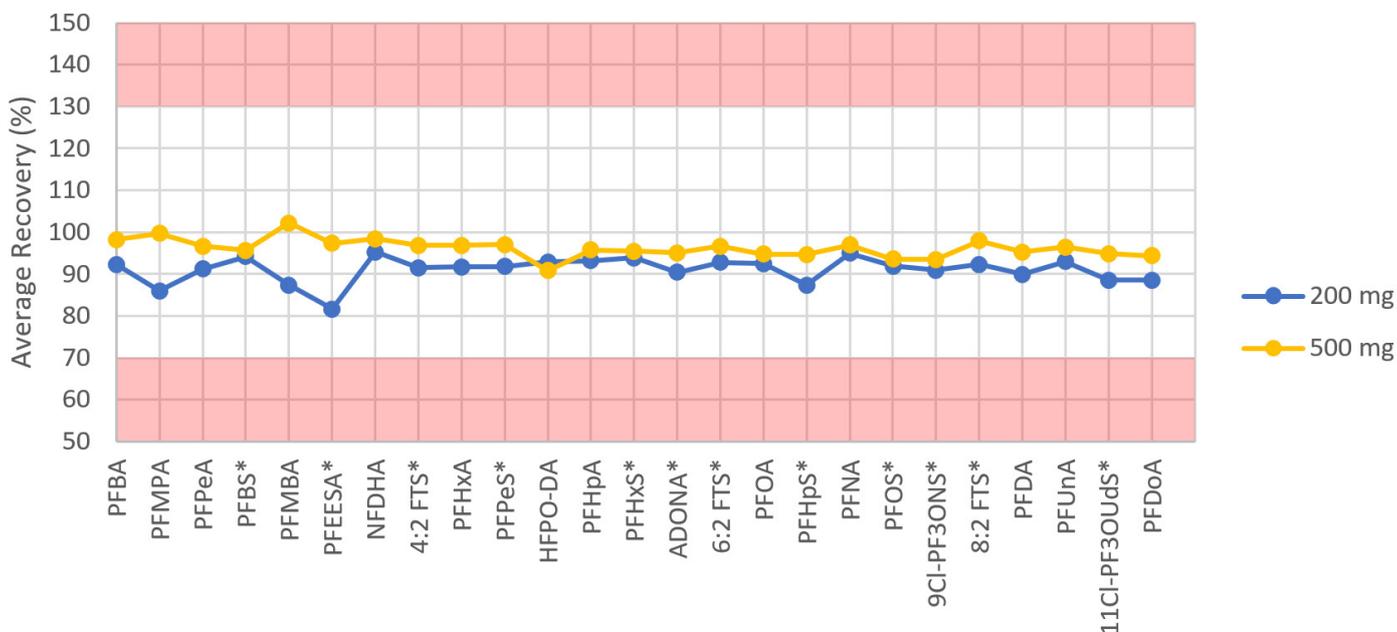


Figure 5. Initial Demonstration of Accuracy (20 ng/L, n=4) for EVOLUTE® PFAS 533 cartridges (200 mg and 500 mg). Compounds marked with an asterisk were analyzed in salt form.

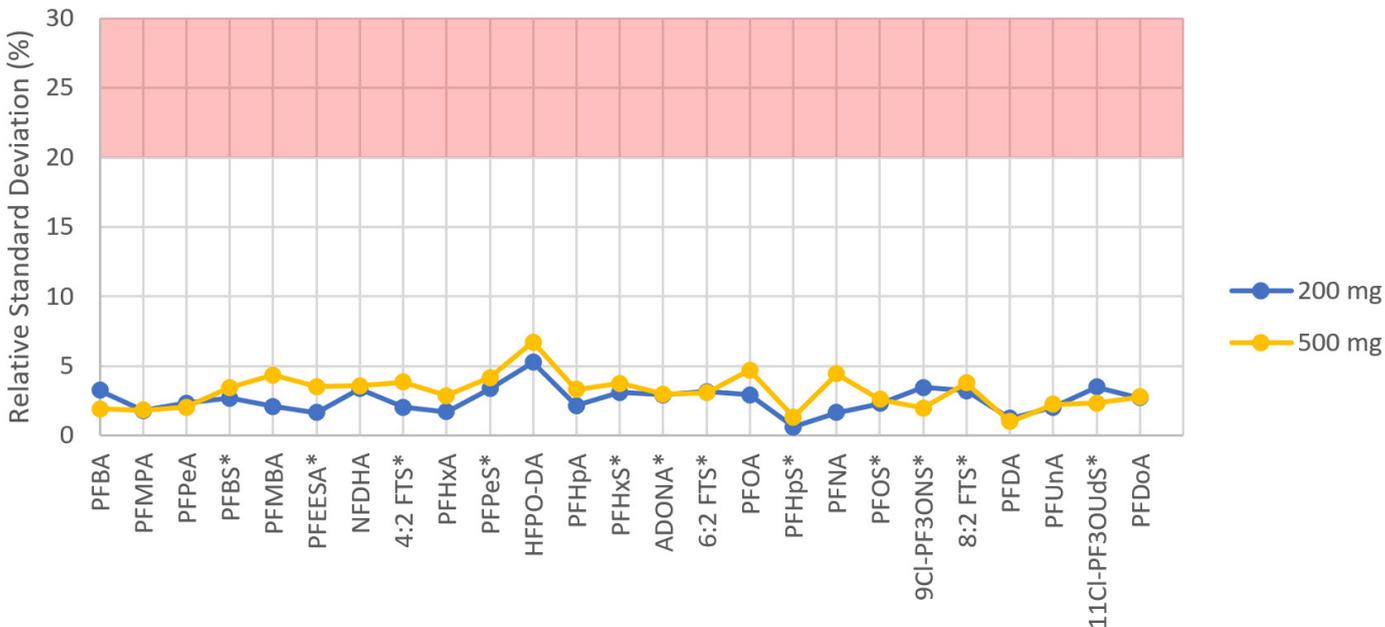


Figure 6. Initial Demonstration of Accuracy (20 ng/L, n=4) for EVOLUTE® PFAS 533 cartridges (200 mg and 500 mg). Compounds marked with an asterisk were analyzed in salt form. The data for individual compounds is shown in Appendix E.



Demonstration of low system background

A study was conducted to investigate each part of the extraction process and any potential contribution to PFAS background. This sequential process is visualized below and highlights each component of the full extraction process as they are screened for PFAS background contribution before finally being combined into a single process when extracting the Reagent Water Blank samples.

Test	Biotage® PrepXpert-8	EVOLUTE® PFAS 533	Collection tube	TurboVap® LV	LC-TQ	Solvent
LC-TQ blank					X	X
TurboVap® LV blank			X	X	X	X
Column blank		X	X	X	X	X
Biotage® PrepXpert-8 blank	X		X	X	X	X
Reagent water blank	X	X	X	X	X	X

The results of these tests are given in Appendix F, and selected data are shown below in Figures 7-10.

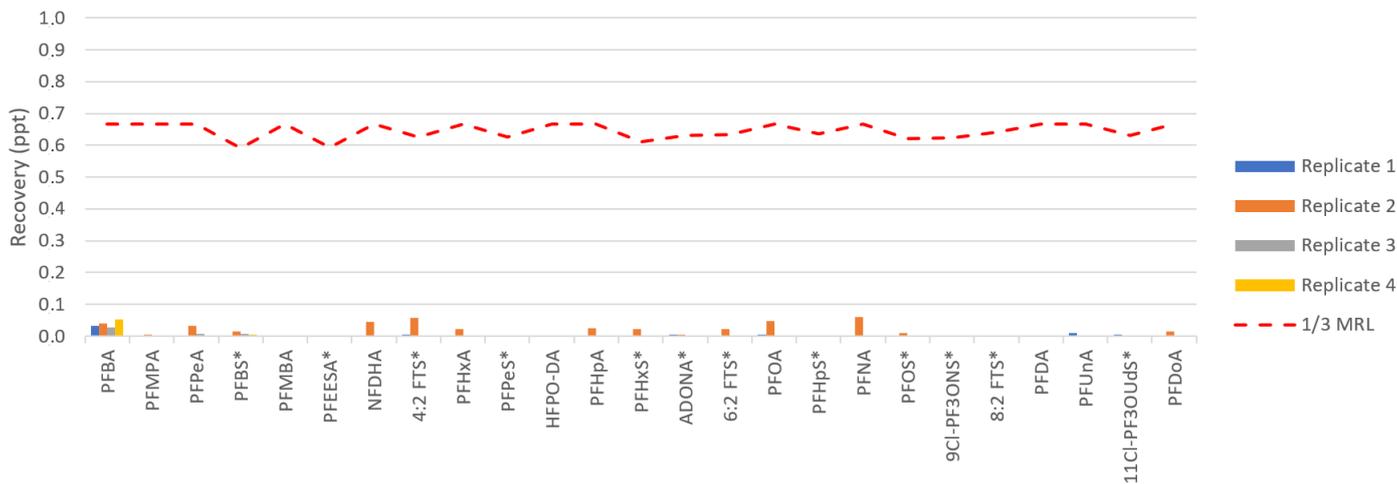


Figure 7. Contribution of the TurboVap® LV to the PFAS background levels. Compounds marked with an asterisk were analyzed in salt form.



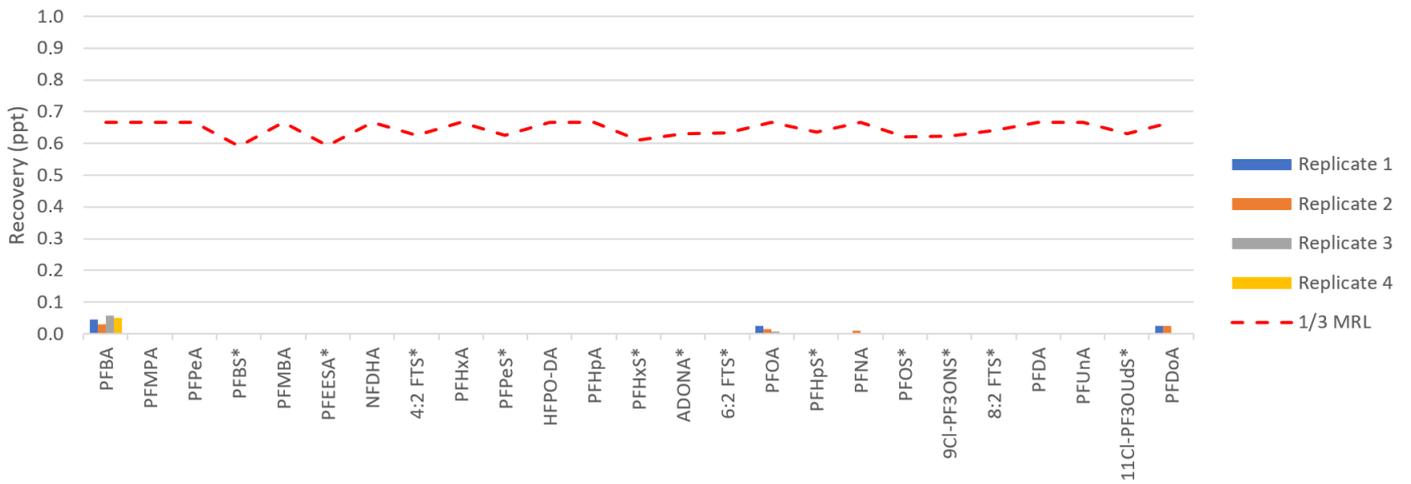


Figure 8. Contribution of the EVOLUTE® PFAS 533 cartridge to the PFAS background levels. Compounds marked with an asterisk were analyzed in salt form.

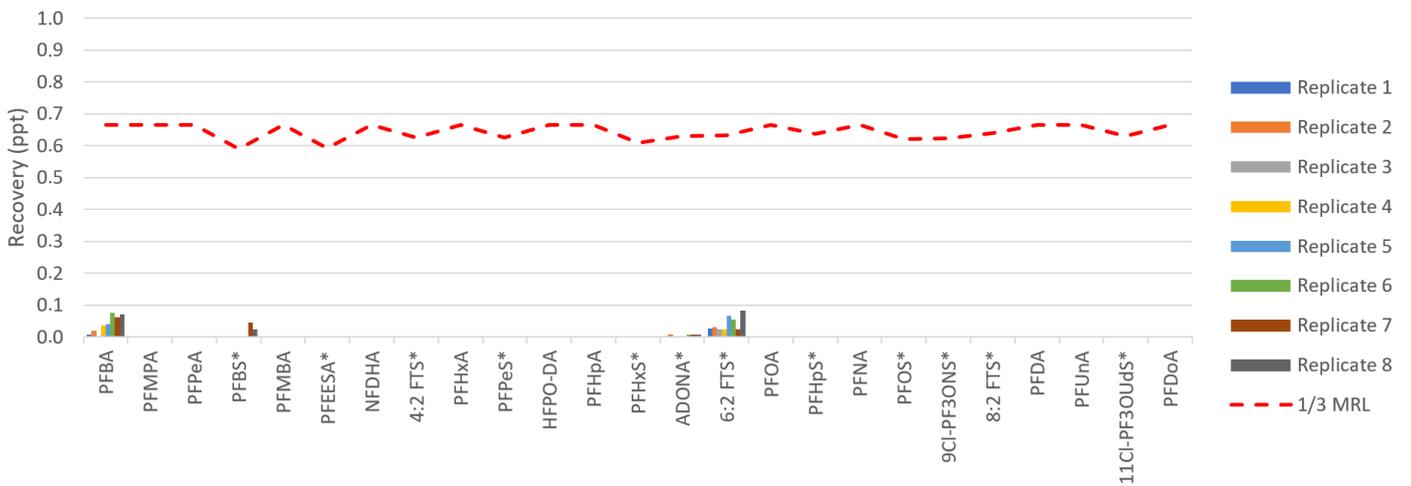


Figure 9. Contribution of the Biotage® PrepXpert-8 to the PFAS background levels. Compounds marked with an asterisk were analyzed in salt form.



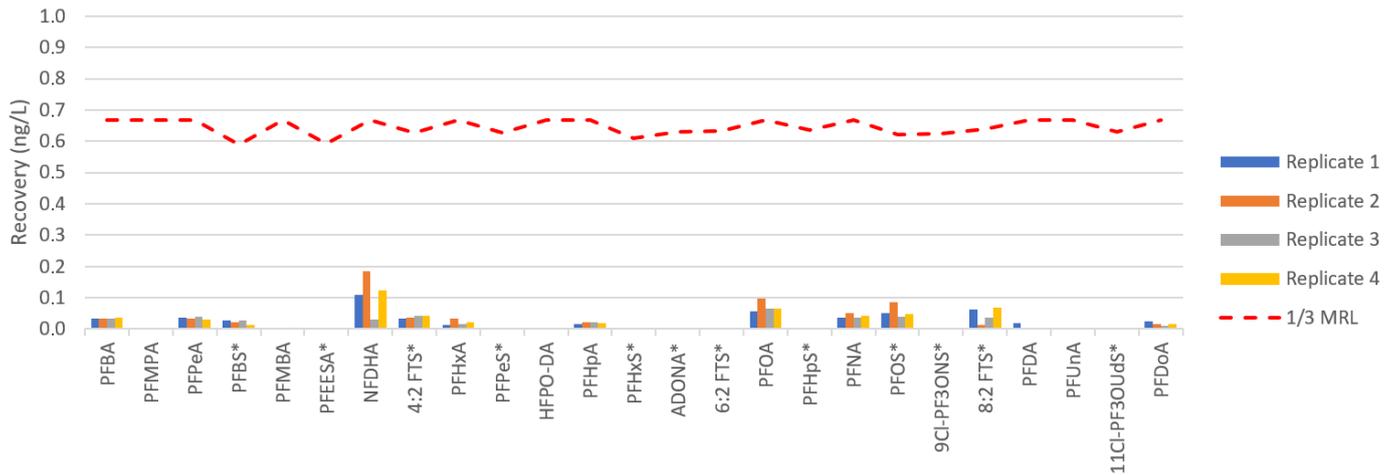


Figure 10. PFAS background levels for full LRB extraction using EVOLUTE® PFAS 533 cartridge. Compounds marked with an asterisk were analyzed in salt form.

For those results which were generated using only the analytical system, all target analytes were N.D. (unable to be separated from the noise in the baseline) and so not listed out in the previous tables.

When examining the resulting data for the Biotage® PrepXpert-8, the EVOLUTE® PFAS 533 cartridge, and the TurboVap® LV blanks, only trace levels of PFAS are observed, however these trace levels are all well below the lowest curve point of the calibration and will not interfere with water sample extractions.

When evaluating the LRB sample extractions, it can be seen that there are indications of the presence of a PFAS background at very low levels. However, even at the highest concentrations detected, all levels are much lower than the 1/3 MRL limit indicating that the background is acceptable.

NFDHA can be seen in the background at slightly higher levels than other compounds during the reagent water blank extractions, however upon further investigation it was determined that much of this is due to the nature of the curve fit of the calibration to allow for a range of 0.2-100 ng/L. Results at the lowest point of the curve for this compound were seen to be elevated due to this. If this compound is of particular interest, it is suggested to remove the upper levels of the calibration curve in order to get a more representative indication of the background.

Examination of system carryover

To simulate an influent sample, four LFB samples were created with concentrations which were equal to the highest point on the calibration curve (100 ppt). These samples were extracted, and the cleanup procedure given in Appendix A was run three times. To ensure that the system background was adequately reduced, a set of four LRB samples were extracted immediately after the cleaning procedure and analyzed. The LRB data obtained from this study is presented in Appendix F and illustrated in figure 11.

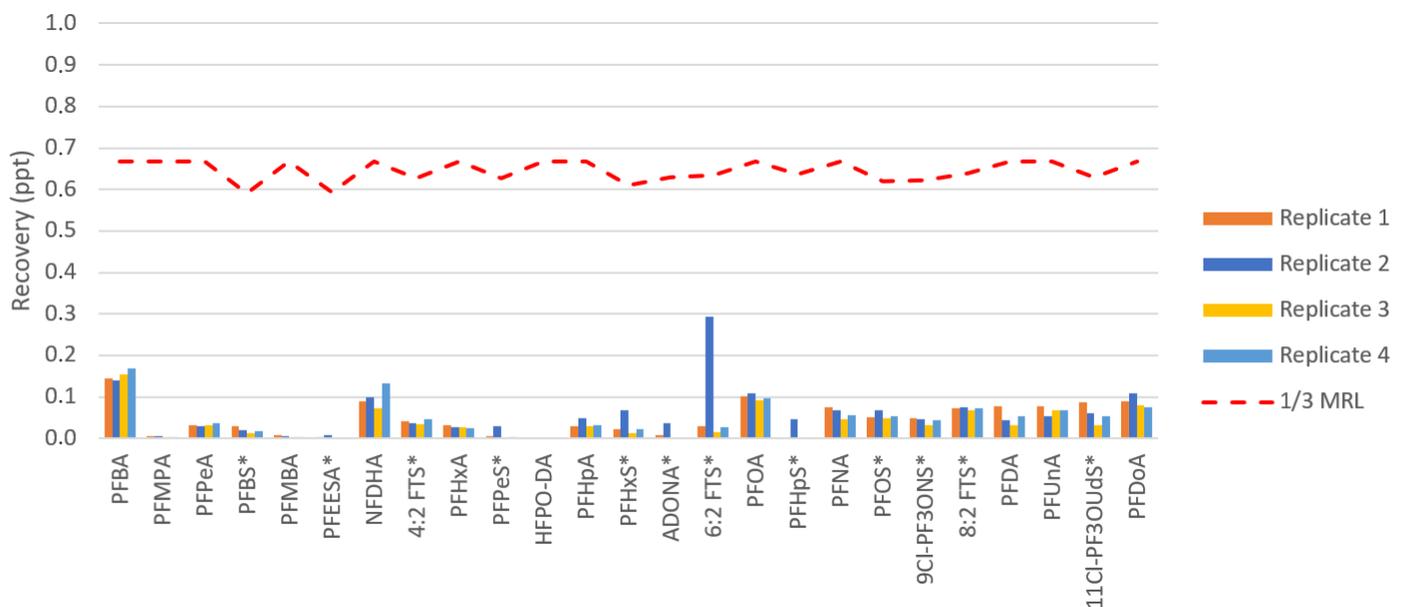


Figure 11. Carryover study results after processing four 100 ng/L LFB samples using EVOLUTE® PFAS 533 500 mg/6 mL cartridge. Compounds marked with an asterisk were analyzed in salt form.

The graph shown in Figure 11 shows a clear indication that the cleaning procedure was successful in reducing the background of PFAS compounds to below the 1/3 MRL limit. The trace levels of PFAS targets that were observed were determined to be at very trace levels for all compounds. These results show that the cleaning method given in Appendix A is sufficient

to clean the Biotage® PrepXpert-8 system. If lower concentrations are targeted for any of the PFAS compounds, it is suggested to run additional cleaning methods or examine alternative stronger cleaning solvents to help re-establish the system background to the desired levels.

Conclusion

As PFAS regulations continue to evolve, compliance with validated methods such as EPA Method 533 is essential. This study demonstrates that the EVOLUTE® PFAS 533 SPE cartridge, combined with the TurboVap® LV and Biotage® PrepXpert-8 automated extraction platform, delivers a robust, high-throughput workflow that meets and exceeds Method 533 requirements for precision, accuracy, and sensitivity. The results confirm that Biotage® PrepXpert-8 is contamination free and provides consistent, reliable performance, making it an ideal solution for laboratories performing PFAS analysis under EPA Method 533.

Ordering Information

Part Number	Description
419800	Biotage® PrepXpert-8
604-0050-C-533	EVOLUTE® PFAS 533 500 mg/6 mL cartridge
604-0020-C-533	EVOLUTE® PFAS 533 200 mg/6 mL cartridge
415000	TurboVap® LV Automated solvent evaporation system
414964	TurboVap® LV Multi Rack (48 Positions, 10–20 mm Tubes)

Appendix A: Cleaning procedure

For the best results, it is recommended that this procedure be completed before the use of the Biotage® PrepXpert-8 each day and at the end of each extraction prior to proceeding with the next set of samples.

1. Ensure that an empty cleaning cartridge and sample bottle are installed onto each position of the Biotage® PrepXpert-8.
2. Load and run the cleaning method outlined in table 5 below.
3. Remove the cleaning cartridge and sample bottles, disposing of the remaining solvent from the sample bottles.
4. Using methanol in a squeeze bottle, clean the adapters, sample bottle rinse heads, and the sip tubes.

Note: In situations where the previous sample was highly concentrated, the above cleaning procedure may need to be repeated multiple times. If there is concern regarding potential carryover contamination regardless of the cleaning procedure, a laboratory reagent blank should be run in that position to ensure its cleanliness.

Table 5. Cleaning parameters

Operation	Amount (mL)	Input	Output	Flow (mL/min)
Rinse	5	MeOH	Sample Rinse	60
Pump	2.5	MeOH	Sample	15
Pump	2.5	MeOH	Sample	15
Pump	5	Water	Sample	15
Pump	5	MeOH	Solvent waste	15
Pump	5	MeOH	Solvent waste	15
Dry	10 sec	Nitrogen	Solvent waste	-



Appendix B: MRM transitions

Table 6. MRM transitions for Agilent 6470 MS/MS

Compound name	Precursor ion	Product ion	Fragmen-tor (V)	Collision energy (V)	Cell acc (V)	Ret time (min)	Ret window	Polarity
11Cl-PF3OUdS	630.9	450.9	165	32	5	18	1	Negative
11Cl-PF3OUdS	630.9	82.9	165	32	5	18	1	Negative
4:2FTS	327	306.9	125	20	5	9.71	1	Negative
4:2FTS	327	80.9	125	36	5	9.71	1	Negative
6:2FTS	427	406.8	125	24	5	13.6	1	Negative
6:2FTS	427	80.9	125	40	5	13.6	1	Negative
8:2FTS	527	506.8	170	28	5	16.39	1	Negative
8:2FTS	527	80.9	170	40	5	16.39	1	Negative
9Cl-PF3ONS	530.9	350.9	145	28	5	15.9	1	Negative
9Cl-PF3ONS	530.9	83	145	32	5	15.9	1	Negative
ADONA	377	250.9	80	12	5	12.27	1	Negative
ADONA	377	85	80	36	5	12.27	1	Negative
C2-4:2FTS	329	309	125	20	5	9.71	1	Negative
C2-6:2FTS	429	409	125	24	5	13.6	1	Negative
C2-8:2FTS	529	509	170	28	5	16.39	1	Negative
C2-PFDoA	614.9	570	79	5	5	18.43	1	Negative
C2-PFOA	415	369.9	80	8	5	13.7	1	Negative
C2-PFOA	415	168.9	80	20	5	13.7	1	Negative
C3-HFPO-DA	287	184.9	160	20	5	10.6	1	Negative
C3-HFPO-DA	287	168.9	160	4	5	10.6	1	Negative
C3-PFBA	216	171.9	65	8	5	5.42	1	Negative



Compound name	Precursor ion	Product ion	Fragmen- tor (V)	Collision energy (V)	Cell acc (V)	Ret time (min)	Ret window	Polarity
C3-PFBS	302	80	100	45	5	8.11	1	Negative
C3-PFHxS	402	80	100	45	5	12.12	1	Negative
C4-PFBA	217	172	60	8	5	5.42	1	Negative
C4-PFHpA	367	322	72	0	5	11.96	1	Negative
C4-PFOS	502.9	98.9	180	48	5	15.18	1.2	Negative
C4-PFOS	502.9	79.9	180	52	5	15.18	1.2	Negative
C5-PFHxA	318	273	70	8	5	9.91	1	Negative
C5-PFPeA	268	223	60	8	5	7.64	1	Negative
C6-PFDA	519	474	81	4	5	16.42	1	Negative
C7-PFUnA	570	525	73	5	5	17.49	1	Negative
C8-PFOA	421	376	69	4	5	13.7	1	Negative
C8-PFOS	507	80	100	50	5	15.18	1.2	Negative
C9-PFNA	472	427	66	4	5	15.17	1	Negative
HFPO-DA-CO2	285	184.9	155	16	5	10.59	1	Negative
HFPO-DA-CO2	285	168.9	155	4	5	10.59	1	Negative
NFDHA	295	201	75	5	5	9.57	1	Negative
NFDHA-CO2	251	84.9	130	20	5	12.28	2	Negative
PFBA	213	168.9	60	8	5	5.41	1	Negative
PFBS	298.9	98.9	100	29	5	8.1	1	Negative
PFBS	298.9	80	100	45	5	8.1	1	Negative
PFDA	513	469	81	4	5	16.42	1	Negative
PFDA	513	218.7	100	16	5	16.42	1	Negative
PFDoA	613	569	79	5	5	18.43	1	Negative



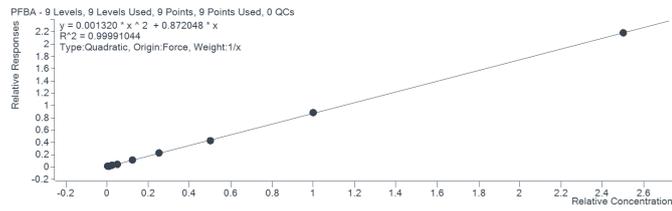
Compound name	Precursor ion	Product ion	Fragmen-tor (V)	Collision energy (V)	Cell acc (V)	Ret time (min)	Ret window	Polarity
PFD _o A	613	268.7	100	20	5	18.43	1	Negative
PFEESA	314.9	134.9	110	24	5	9.03	1	Negative
PFEESA	314.9	69	110	60	5	9.03	1	Negative
PFHpA	362.9	319	72	0	5	11.97	1	Negative
PFHpA	362.9	169	72	12	5	11.97	1	Negative
PFHpS	448.9	98.7	100	44	5	13.77	1	Negative
PFHpS	448.9	79.7	100	52	5	13.77	1	Negative
PFHxA	313	268.9	70	8	5	9.91	1	Negative
PFHxA	313	119	70	18	5	9.91	1	Negative
PFHxS	398.9	99	100	45	5	12.12	1.5	Negative
PFHxS	398.9	80	100	49	5	12.12	1.5	Negative
PFMBA	279	84.9	70	12	5	8.36	1	Negative
PFMPA	229	84.9	60	12	5	6.27	1	Negative
PFNA	463	419	66	4	5	15.17	1	Negative
PFNA	463	219	66	17	5	15.17	1	Negative
PFOA	413	369	69	4	5	13.7	1	Negative
PFOA	413	169	69	12	5	13.7	1	Negative
PFOS	498.9	99	100	50	5	15.18	1.5	Negative
PFOS	498.9	80	100	50	5	15.18	1.5	Negative
PFPeA	263	218.9	60	8	5	7.64	1	Negative
PFPeS	348.9	98.9	135	40	5	10.21	1	Negative
PFPeS	348.9	79.9	135	40	5	10.21	1	Negative
PFUnA	563	519	73	5	5	17.49	1	Negative
PFUnA	563	269	100	20	5	17.49	1	Negative



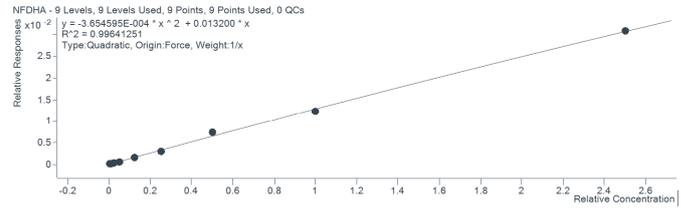
Appendix C: Calibration curves

Calibration curves for the target analytes in Table 1, covering a concentration range of 0.2-100 ppt.

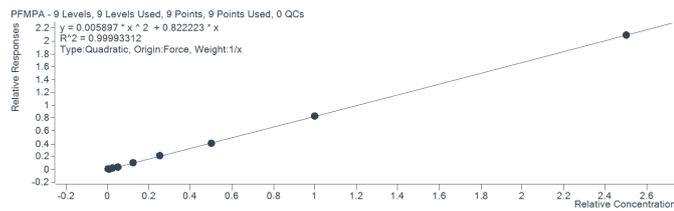
PFBA



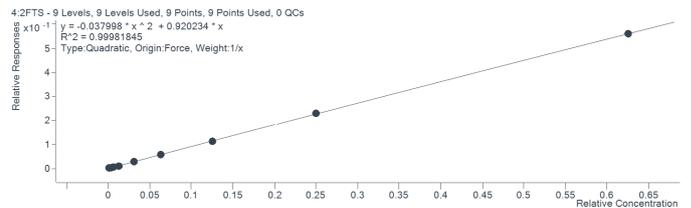
NFDHA



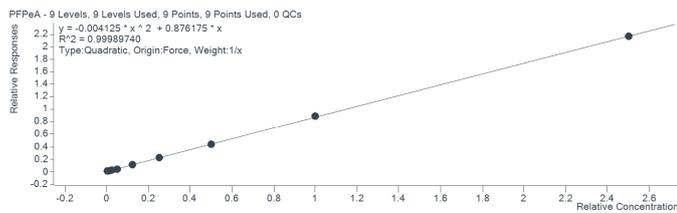
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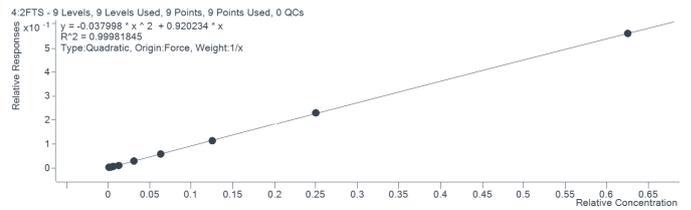
4:2 FTS



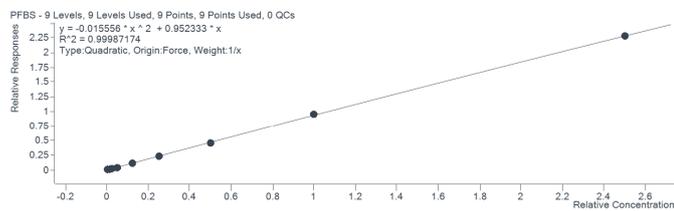
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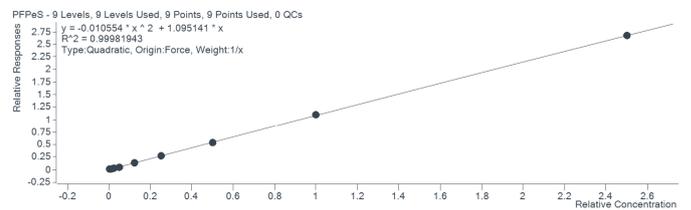
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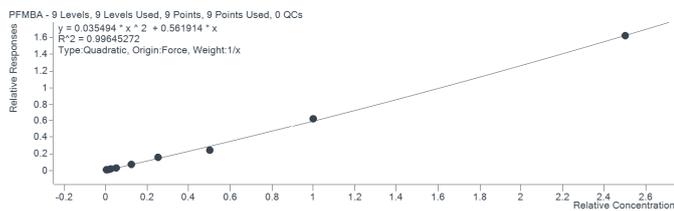
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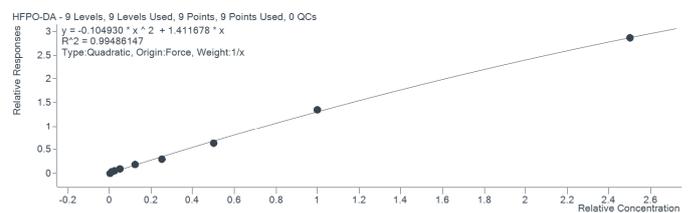
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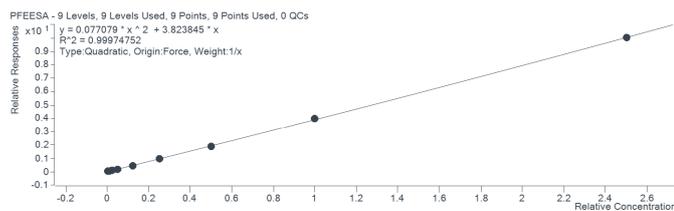
PFMBA



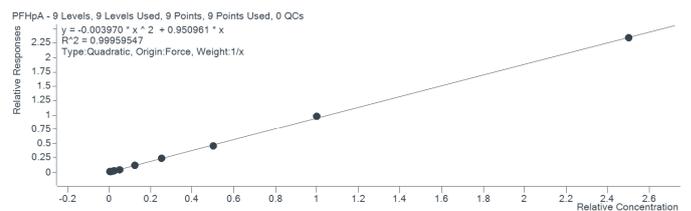
HFPO-DA



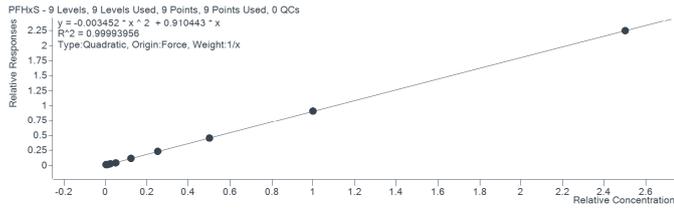
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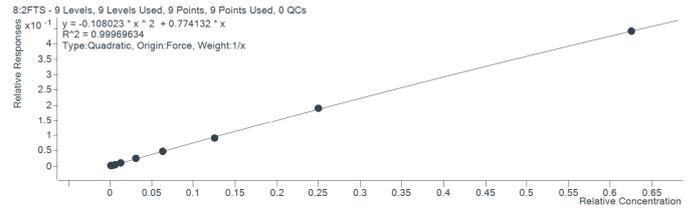
PFHpA



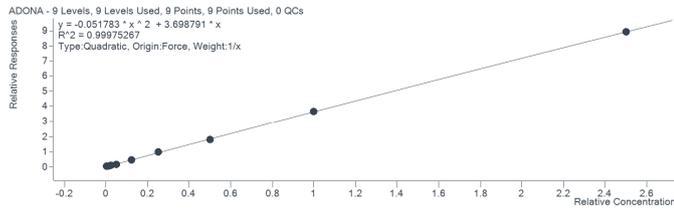
PFHxS



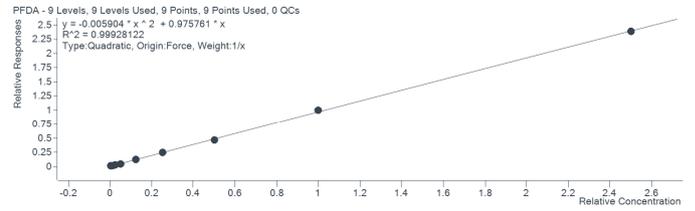
8:2 FTS



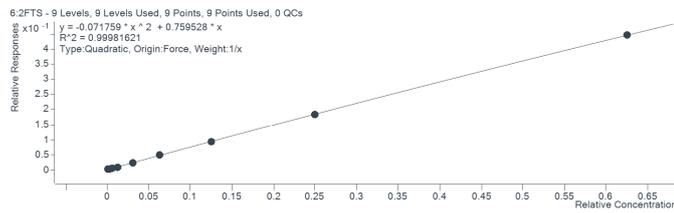
ADONA



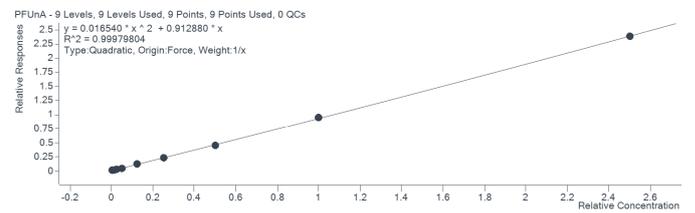
PFDA



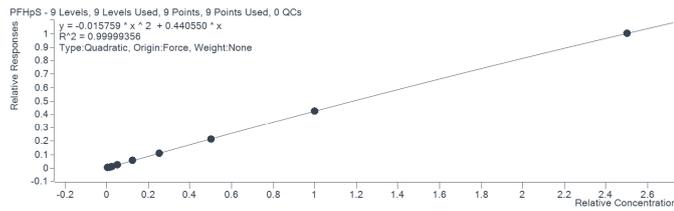
6:2 FTS



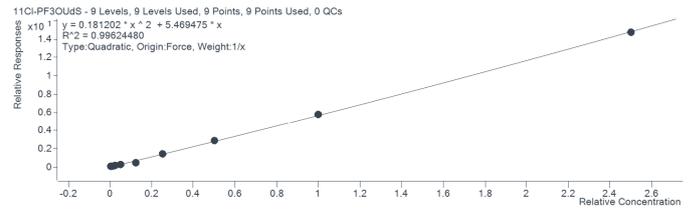
PFUnA



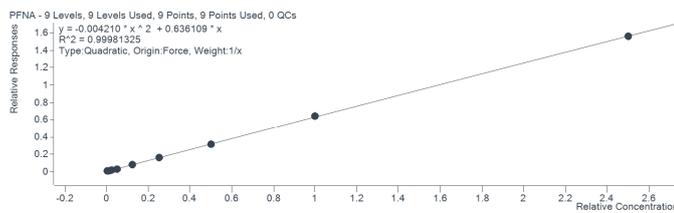
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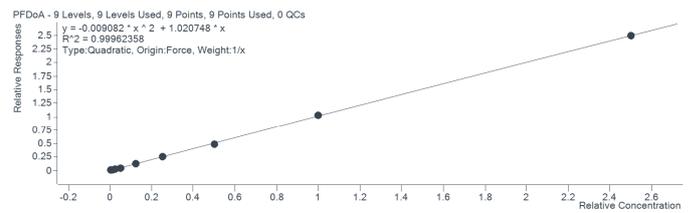
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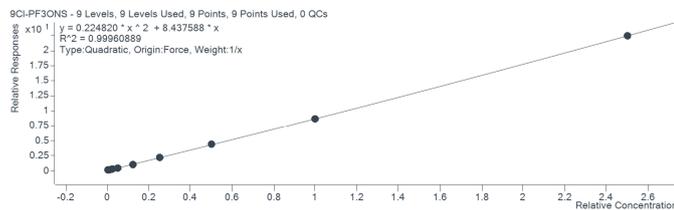
PFNA



PFDoA



9CI-PF3ONS



Appendix D: MRL and DL data

Table 7. MRL and DL Recoveries for EVOLUTE® PFAS 533
200 mg/6 mL cartridge.

	Conc.	1	2	3	4	5	6	7	8	9	10	Average	Std Dev	HRPIR	Lower PIR	Upper PIR	DL
	(ng/L)	(ng/L)	(ng/L)	(%)	(%)	(ng/L)											
PFBA	2.00	2.38	2.26	2.23	2.35	2.23	2.24	2.28	2.28	2.19	2.20	2.27	0.06	0.20	103.5	123.0	0.17
PFMPA	2.00	1.92	1.83	1.79	1.92	1.81	1.86	1.79	1.81	1.79	1.74	1.83	0.06	0.19	82.0	100.7	0.16
PFPeA	2.00	2.01	1.91	1.87	1.95	1.82	1.87	1.89	1.88	1.77	1.79	1.88	0.07	0.23	82.4	105.3	0.20
PFBS*	1.77	1.79	1.72	1.77	1.82	1.66	1.80	1.76	1.72	1.69	1.64	1.74	0.06	0.20	76.8	96.9	0.18
PFMBA	2.00	1.95	1.85	1.72	1.90	1.78	1.80	1.86	1.79	1.76	1.74	1.81	0.07	0.24	78.9	102.6	0.21
PFEESA*	1.78	1.57	1.47	1.43	1.51	1.45	1.47	1.46	1.45	1.38	1.41	1.46	0.05	0.17	64.5	81.7	0.15
NFDHA	2.00	2.02	1.86	1.91	1.98	1.89	2.00	1.97	1.99	1.62	1.69	1.89	0.14	0.44	72.9	116.5	0.38
4:2 FTS*	1.88	1.95	1.87	1.78	1.86	1.77	1.88	1.79	1.74	1.77	1.73	1.81	0.07	0.23	79.3	102.0	0.20
PFHxA	2.00	1.95	1.84	1.86	2.00	1.88	1.89	1.94	1.88	1.82	1.78	1.88	0.06	0.20	84.1	104.3	0.18
PFPeS*	1.88	1.83	1.63	1.61	1.77	1.76	1.74	1.70	1.74	1.61	1.60	1.70	0.08	0.26	72.1	97.9	0.23
HFPO-DA	2.00	2.06	2.08	2.06	1.96	2.04	2.41	2.01	1.96	2.06	2.05	2.07	0.13	0.40	83.3	123.6	0.35
PFHpA	2.00	2.15	2.02	1.95	2.12	1.95	2.06	2.06	1.94	1.91	1.85	2.00	0.10	0.31	84.3	115.7	0.28
PFHxS*	1.83	1.84	1.72	1.73	1.76	1.75	1.81	1.83	1.65	1.66	1.66	1.74	0.07	0.23	75.8	98.3	0.20
ADONA*	1.89	1.84	1.69	1.72	1.83	1.72	1.77	1.70	1.68	1.69	1.68	1.73	0.06	0.19	76.8	96.3	0.17
6:2 FTS*	1.90	2.04	1.92	1.75	1.79	1.67	1.85	1.88	1.91	1.96	1.72	1.85	0.12	0.37	73.8	111.1	0.33
PFOA	2.00	2.06	2.10	2.01	2.10	2.04	2.11	2.05	2.02	1.96	2.04	2.05	0.05	0.15	94.9	109.9	0.13
PFHpS*	1.91	1.89	1.75	1.73	1.72	1.69	1.70	1.76	1.63	1.73	1.65	1.73	0.07	0.23	75.0	97.6	0.20
PFNA	2.00	2.10	2.03	1.91	2.04	2.03	1.97	2.05	1.94	1.97	1.91	1.99	0.07	0.21	89.2	110.2	0.19
PFOS*	1.86	2.02	1.78	1.81	1.81	1.90	1.81	1.86	1.79	1.78	1.84	1.84	0.07	0.24	80.1	103.9	0.21
⁹ Cl-PF3ONS*	1.87	1.85	1.76	1.71	1.82	1.75	1.78	1.68	1.78	1.65	1.70	1.75	0.06	0.20	77.2	97.7	0.18
8:2 FTS*	1.92	1.99	1.83	1.78	1.93	1.84	1.93	1.81	1.97	1.77	1.81	1.86	0.08	0.26	80.2	106.3	0.23
PFDA	2.00	1.83	1.91	1.87	1.92	1.80	1.90	1.91	1.85	1.79	1.70	1.85	0.07	0.22	81.4	103.4	0.19
PFUnA	2.00	2.06	1.90	1.90	2.01	1.90	1.91	1.93	1.96	1.90	1.93	1.94	0.05	0.18	88.2	105.8	0.15
¹¹ Cl-PF3OUdS*	1.89	1.83	1.70	1.63	1.76	1.62	1.66		1.67	1.52	1.58	1.66	0.09	0.31	67.4	98.9	0.26
PFDoA	2.00	1.99	1.86	1.77	1.95	1.79	1.87	1.89	1.88	1.85	1.76	1.86	0.07	0.24	81.2	104.9	0.21

*Analytes were used in salt form and calculated concentrations were corrected to compensate where needed.



Table 8. MRL and DL Recoveries for EVOLUTE® PFAS 533
500 mg/6 mL cartridge.

	Conc.	1	2	3	4	5	6	7	8	9	10	Average	Std Dev	HRPIR	Lower PIR	Upper PIR	DL
	(ng/L)	(ng/L)	(ng/L)	(%)	(%)	(ng/L)											
PFBA	2.00	2.18	2.14	2.11	2.07	2.14	2.10	2.10	2.10	2.17	2.04	2.12	0.04	0.14	98.6	113.0	0.13
PFMPA	2.00	2.10	2.04	2.09	1.97	1.98	1.96	1.92	1.92	2.09	1.95	2.00	0.07	0.23	88.8	111.5	0.20
PFPeA	2.00	2.05	1.99	1.99	1.93	1.93	1.94	1.91	1.95	2.05	1.87	1.96	0.06	0.19	88.6	107.6	0.17
PFBS*	1.77	1.84	1.79	1.76	1.71	1.72	1.74	1.67	1.71	1.87	1.67	1.75	0.07	0.22	76.6	98.3	0.19
PFMBA	2.00	2.35	2.28	2.15	2.15	2.21	2.20	2.19	2.19	2.24	2.04	2.20	0.08	0.26	96.8	122.9	0.23
PFEESA*	1.78	1.77	1.70	1.65	1.64	1.66	1.65	1.60	1.63	1.68	1.56	1.66	0.06	0.18	73.6	92.0	0.16
NFDHA	2.00	2.05	2.04	2.18	2.00	1.85	1.92	1.97	2.03	2.07	1.95	2.00	0.09	0.29	85.6	114.8	0.26
4:2 FTS*	1.88	2.00	1.92	1.97	1.88	1.83	1.89	1.87	1.85	1.96	1.76	1.89	0.07	0.24	82.9	106.4	0.21
PFHxA	2.00	2.06	2.03	1.94	1.93	1.94	1.96	1.92	1.93	2.04	1.89	1.96	0.06	0.19	88.8	107.6	0.17
PFPeS*	1.88	1.90	1.90	1.92	1.81	1.87	1.83	1.80	1.81	1.91	1.84	1.86	0.05	0.15	85.3	100.5	0.13
HFPO-DA	2.00	1.90	2.11	2.01	2.01	1.90	1.91	1.87	2.03	1.97	1.81	1.95	0.09	0.29	83.0	112.2	0.26
PFHpA	2.00	2.03	2.03	1.98	1.96	1.94	1.98	1.94	1.96	2.08	1.95	1.98	0.05	0.15	91.6	106.9	0.13
PFHxS*	1.83	1.94	1.87	1.77	1.77	1.81	1.84	1.79	1.77	1.88	1.76	1.82	0.06	0.20	81.1	100.9	0.17
ADONA*	1.89	1.88	1.88	1.81	1.73	1.81	1.81	1.74	1.77	1.84	1.77	1.80	0.05	0.17	81.7	98.7	0.15
6:2 FTS*	1.90	2.00	1.97	1.92	1.81	1.88	1.89	1.92	1.81	1.89	1.76	1.88	0.07	0.24	82.4	106.0	0.21
PFOA	2.00	2.08	2.01	2.00	1.97	2.04	2.09	1.95	2.01	2.00	1.92	2.01	0.05	0.17	91.6	109.0	0.15
PFHpS*	1.91	1.93	1.88	1.82	1.70	2.10	1.75	1.81	1.83	1.84	1.87	1.85	0.11	0.35	75.4	110.1	0.30
PFNA	2.00	2.10	1.94	1.97	1.92	1.99	2.01	1.92	1.99	2.15	1.89	1.99	0.08	0.26	86.3	112.5	0.23
PFOS*	1.86	2.00	1.93	1.86	1.85	1.90	1.92	1.88	1.83	1.91	1.80	1.89	0.06	0.19	85.2	103.7	0.16
⁹ Cl-PF3ONS*	1.87	1.67	1.80	1.78	1.70	1.60	1.73	1.66	1.70	1.79	1.68	1.71	0.06	0.21	75.3	95.8	0.18
8:2 FTS*	1.92	1.92	1.90	1.88	1.76	1.90	1.91	1.82	1.89	1.94	1.92	1.88	0.06	0.18	85.3	103.0	0.16
PFDA	2.00	2.04	2.05	1.91	1.88	1.96	1.88	1.88	1.90	1.98	1.94	1.94	0.06	0.20	87.0	107.2	0.18
PFUnA	2.00	2.07	2.02	2.10	1.93	2.03	2.01	1.91	1.96	1.99	1.94	2.00	0.06	0.20	90.0	109.6	0.17
¹¹ Cl-PF3OUdS*	1.89		1.84	1.80	1.71		1.75	1.69	1.68	1.84	1.73	1.76	0.07	0.24	75.5	100.0	0.20
PFDoA	2.00	2.00	2.02	1.99	1.93	2.00	1.88	1.83	1.91	2.01	1.83	1.94	0.07	0.24	85.2	109.1	0.21

*Analytes were used in salt form and calculated concentrations were corrected to compensate where needed.



Appendix E: Demonstration of precision and accuracy

Table 9. Results of IDP and IDA for EVOLUTE® PFAS 533 200 mg/6 mL cartridge (20 ng/L, n=4).

Replicate	1	2	3	4	Average	Std Dev	RSD
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
PFBA	96.8	91.0	91.5	90.1	92.3	3.0	3.3
PFMPA	88.2	85.6	84.5	85.7	86.0	1.5	1.8
PFPeA	94.4	90.6	90.2	89.7	91.2	2.1	2.3
PFBS*	97.8	93.4	92.0	93.3	94.1	2.5	2.7
PFMBA	90.1	86.9	86.1	86.4	87.4	1.8	2.1
PFEESA*	83.6	81.1	81.4	80.5	81.6	1.4	1.7
NFDHA	97.0	98.8	93.6	91.7	95.3	3.2	3.4
4:2 FTS*	94.0	91.6	90.8	89.7	91.5	1.9	2.0
PFHxA	93.5	91.4	89.7	92.1	91.7	1.6	1.7
PFPeS*	93.2	89.2	95.4	89.2	91.8	3.1	3.4
HFPO-DA	92.9	98.4	86.5	93.6	92.8	4.9	5.3
PFHpA	94.9	94.7	92.1	90.9	93.1	2.0	2.2
PFHxS*	96.0	91.2	96.8	91.5	93.9	2.9	3.1
ADONA*	94.0	90.9	87.8	89.1	90.4	2.7	2.9
6:2 FTS*	96.2	91.8	93.9	89.3	92.8	2.9	3.2
PFOA	95.7	90.3	93.8	90.3	92.5	2.7	2.9
PFHpS*	87.7	87.6	87.6	86.5	87.4	0.6	0.6
PFNA	96.9	95.7	93.8	93.6	95.0	1.6	1.7
PFOS*	95.0	90.7	91.3	90.5	91.9	2.1	2.3
9Cl-PF3ONS*	94.9	91.8	87.9	88.9	90.9	3.2	3.5
8:2 FTS*	96.5	90.1	92.2	90.2	92.2	3.0	3.2
PFDA	89.5	91.5	89.9	88.8	89.9	1.1	1.2
PFUnA	95.5	91.0	92.3	93.0	92.9	1.9	2.1
11Cl-PF3OUdS*	91.9	90.5	85.4	86.5	88.6	3.1	3.5
PFDoA	91.4	89.3	85.7	87.8	88.5	2.4	2.7

*Analytes were used in salt form and calculated concentrations were corrected to compensate where needed.



Table 10. Results of IDP and IDA for EVOLUTE® PFAS 533
500 mg/6 mL cartridge (20 ng/L, n=4).

Replicate	1	2	3	4	Average	Std Dev	RSD
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
PFBA	99.3	100.3	97.3	96.1	98.3	1.9	1.9
PFMPA	99.5	101.8	97.4	100.1	99.7	1.8	1.8
PFPeA	96.5	99.4	95.7	94.8	96.6	2.0	2.0
PFBS*	95.4	98.1	98.1	91.1	95.7	3.3	3.5
PFMBA	103.6	106.3	103.1	95.9	102.2	4.4	4.4
PFEESA*	98.6	98.8	99.8	92.3	97.4	3.4	3.5
NFDHA	98.2	101.1	100.9	93.5	98.4	3.5	3.6
4:2 FTS*	98.6	101.0	95.2	92.6	96.8	3.7	3.8
PFHxA	98.7	99.5	95.6	93.5	96.8	2.8	2.9
PFPeS*	101.0	100.0	93.9	93.3	97.1	4.1	4.2
HFPO-DA	92.0	86.6	98.9	85.6	90.8	6.1	6.7
PFHpA	100.2	93.0	95.5	94.1	95.7	3.2	3.3
PFHxS*	97.7	98.6	94.7	90.7	95.4	3.6	3.7
ADONA*	97.7	96.3	95.0	91.1	95.0	2.8	3.0
6:2 FTS*	98.3	99.9	94.5	93.7	96.6	3.0	3.1
PFOA	95.7	100.7	91.6	91.0	94.7	4.5	4.7
PFHpS*	93.7	96.3	93.7	94.7	94.6	1.2	1.3
PFNA	98.2	101.5	96.7	91.2	96.9	4.3	4.5
PFOS*	92.4	97.2	92.5	92.0	93.5	2.4	2.6
9Cl-PF3ONS*	94.1	95.8	92.2	91.8	93.5	1.9	2.0
8:2 FTS*	102.9	97.9	96.9	94.0	97.9	3.7	3.8
PFDA	94.8	96.6	94.5	95.1	95.3	1.0	1.0
PFUnA	96.8	99.4	95.1	94.6	96.5	2.2	2.3
11Cl-PF3OUdS*	97.4	96.0	92.6	93.5	94.9	2.2	2.3
PFDoA	97.6	92.2	95.3	92.3	94.4	2.6	2.8

*Analytes were used in salt form and calculated concentrations were corrected to compensate where needed.



Appendix F: PFAS background study

Table 11. Demonstration of low PFAS background contribution from TurboVap® LV and EVOLUTE® PFAS 533 500 mg/6 mL cartridge.

Replicate	TurboVap® LV				EVOLUTE® PFAS 533 cartridge			
	1	2	3	4	1	2	3	4
PFBA	0.03	0.04	0.03	0.05	0.04	0.03	0.06	0.05
PFMPA	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
PFPeA	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
PFBS*	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
PFMBA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFEESA*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NFDHA	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
4:2 FTS*	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.00
PFHxA	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
PFPeS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFPO-DA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFHpA	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
PFHxS*	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
ADONA*	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6:2 FTS*	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
PFOA	0.00	0.05	0.00	0.00	0.03	0.02	0.01	0.00
PFHpS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFNA	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.00
PFOS*	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
9Cl-PF3ONS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8:2 FTS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFDA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFUnA	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11Cl-PF3OUdS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFDoA	0.00	0.01	0.00	0.00	0.03	0.03	0.00	0.00

*Analytes were used in salt form and calculated concentrations were corrected to compensate where needed.



Table 12. Demonstration of low PFAS background contribution from the Biotage® PrepXpert-8.

Replicate	Biotage® PrepXpert-8 blanks							
	1	2	3	4	5	6	7	8
PFBA	0.01	0.02	0.00	0.04	0.04	0.08	0.06	0.07
PFMPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFPeA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFBS*	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03
PFMBA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFEESA*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NFDHA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:2 FTS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFHxA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFPeS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFPO-DA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFHpA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFHxS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ADONA*	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.01
6:2 FTS*	0.03	0.03	0.03	0.03	0.07	0.06	0.03	0.08
PFOA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFHpS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFNA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFOS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9Cl-PF3ONS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8:2 FTS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFDA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFUnA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11Cl-PF3OUdS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFDoA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*Analytes were used in salt form and calculated concentrations were corrected to compensate where needed.



Table 13. Results of RWB samples for EVOLUTE® PFAS 533 200 mg/6 mL and 500 mg/6 mL cartridge. (recoveries in ng/L).

Replicate	200 mg/6 mL				500 mg/6 mL			
	1	2	3	4	1	2	3	4
PFBA	0.04	0.05	0.03	0.03	0.03	0.03	0.03	0.04
PFMPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFPeA	0.03	0.04	0.04	0.03	0.03	0.03	0.04	0.03
PFBS*	0.01	0.01	0.02	0.01	0.03	0.02	0.03	0.01
PFMBA	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFEESA*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NFDHA	0.11	0.06	0.06	0.14	0.11	0.19	0.03	0.12
4:2 FTS*	0.03	0.04	0.03	0.03	0.03	0.04	0.04	0.04
PFHxA	0.02	0.00	0.02	0.02	0.01	0.03	0.02	0.02
PFPeS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFPO-DA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFHpA	0.02	0.02	0.04	0.02	0.02	0.02	0.02	0.02
PFHxS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ADONA*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6:2 FTS*	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
PFOA	0.04	0.05	0.03	0.05	0.06	0.10	0.07	0.07
PFHpS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFNA	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.04
PFOS*	0.03	0.06	0.03	0.04	0.05	0.09	0.04	0.05
9Cl-PF3ONS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8:2 FTS*	0.02	0.02	0.04	0.04	0.06	0.01	0.04	0.07
PFDA	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.00
PFUnA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11Cl-PF3OUdS*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PFDoA	0.02	0.01	0.01	0.02	0.03	0.02	0.01	0.02

*Analytes were used in salt form and calculated concentrations were corrected to compensate where needed.



Table 14. Results of carryover study of RWB samples using EVOLUTE® PFAS 533 500 mg/6 mL cartridge following four 100 ng/L LFB samples being extracted through system.

Replicate	1	2	3	4	Average
	(ng/L)	(ng/L)	(ng/L)	(ng/L)	(ng/L)
PFBA	0.14	0.14	0.15	0.17	0.15
PFMPA	0.01	0.00	0.00	0.00	0.00
PFPeA	0.03	0.03	0.03	0.04	0.03
PFBS*	0.03	0.02	0.01	0.02	0.02
PFMBA	0.01	0.01	0.00	0.00	0.01
PFEESA*	0.00	0.01	0.00	0.00	0.00
NFDHA	0.09	0.10	0.07	0.13	0.10
4:2 FTS*	0.04	0.04	0.03	0.05	0.04
PFHxA	0.03	0.03	0.03	0.02	0.03
PFPeS*	0.01	0.03	0.00	0.00	0.01
HFPO-DA	0.00	0.00	0.00	0.00	0.00
PFHpA	0.03	0.05	0.03	0.03	0.04
PFHxS*	0.02	0.07	0.01	0.02	0.03
ADONA*	0.01	0.04	0.00	0.00	0.01
6:2 FTS*	0.03	0.29	0.02	0.03	0.09
PFOA	0.10	0.11	0.09	0.10	0.10
PFHpS*	0.00	0.05	0.00	0.00	0.01
PFNA	0.08	0.07	0.05	0.06	0.06
PFOS*	0.05	0.07	0.05	0.05	0.06
9Cl-PF3ONS*	0.05	0.05	0.03	0.04	0.04
8:2 FTS*	0.07	0.08	0.07	0.07	0.07
PFDA	0.08	0.04	0.03	0.05	0.05
PFUnA	0.08	0.05	0.07	0.07	0.07
11Cl-PF3OUdS*	0.09	0.06	0.03	0.05	0.06
PFDoA	0.09	0.11	0.08	0.07	0.09

*Analytes were used in salt form and calculated concentrations were corrected to compensate where needed.



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