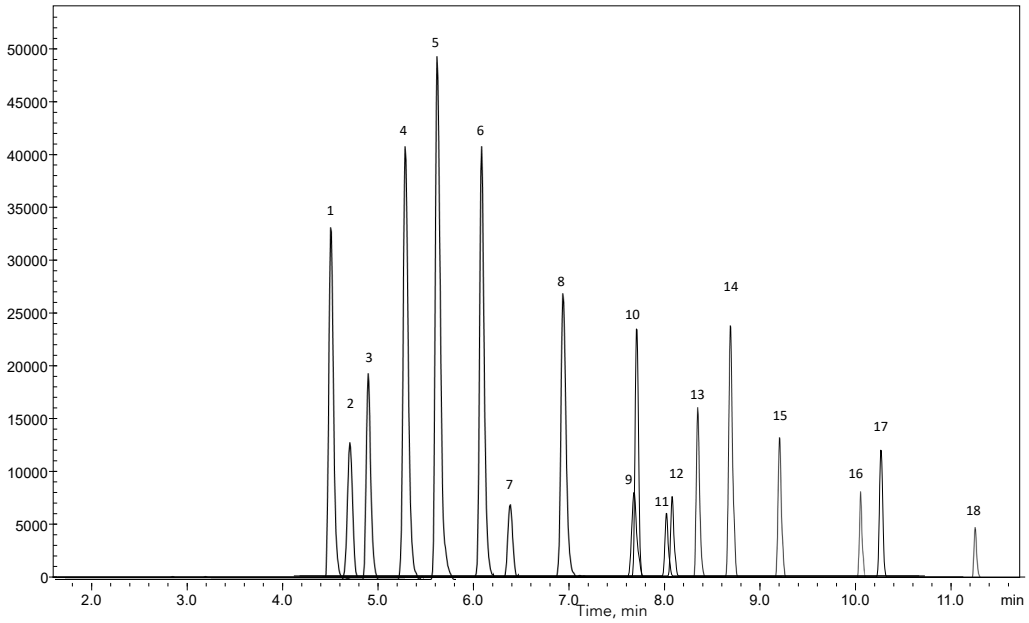
HALO®

ENVIRONMENTAL

PFAS Analysis According to EPA 537.1 Using HALO® 90 Å C18, 2.0 µm

Application Note: 218-PF



Per- and polyfluoroalkyl substances (PFASs) are a toxic group of chemicals that have found wide ranging application across numerous industries due to their chemical structure, which includes both a hydrophobic fluorocarbon section, and a hydrophilic carboxylate section. PFAS exposure in humans has been linked to a variety of diseases, including cancer, ulcerative colitis, thyroid disease, and hypercholesterolemia. EPA Method 537.1 can be used for the quantitation of 18 PFAS in drinking water, using solid phase extraction (SPE) and liquid chromatography/tandem mass spectrometry (LC/MS/MS). The method stipulates two columns be used for chromatography, one to be used as a delay column to mitigate PFAS contamination from the HPLC, and the other to be used as the analytical column and perform the separation. Per- and polyfluoroalkyl substances (PFASs) are a toxic group of chemicals that have found wide ranging application across numerous industries due to their chemical structure, which includes both a hydrophobic fluorocarbon section, and a hydrophilic carboxylate section. PFAS exposure in humans has been linked to a variety of diseases, including cancer, ulcerative colitis, thyroid disease, and hypercholesterolemia. EPA Method 537.1 can be used for the quantitation of 18 PFAS in drinking water, using solid phase extraction (SPE) and liquid chromatography/tandem mass spectrometry (LC/MS/MS). The method stipulates two columns be used for chromatography, one to be used as a delay column to mitigate PFAS contamination from the HPLC, and the other to be used as the analytical column and perform the separation.

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PEAK IDENTITIES

Peak Number	PFAS Species	Observed Transition	Retention Time
1	PFHxA	313.0000>269.0000	4.502
2	PFBS	299.0000>80.0000	4.618
3	HFPO-DA	285.0000>169.0000	4.812
4	PFHpA	363.0000>319.0000	5.341
5	ADONA	377.0000>250.9000	5.637
6	PFOA	413.0000>369.0000	6.145
7	PFHxS	399.0000>80.0000	6.451
8	PFNA	463.0000>419.0000	6.925
9	N-MeFOSAA	570.0000>419.0000	7.681
10	PFDA	513.0000>469.0000	7.696
11	N-EtFOSAA	584.0000>419.0000	8.022
12	PFOS	499.0000>80.0000	8.102
13	PFUnA	563.0000>519.0000	8.498
14	9Cl-PF3ONS	530.9000>351.0000	8.739
15	PFDoA	613.0000>569.0000	9.333
16	PFTriA	663.0000>619.0000	10.179
17	11Cl-PF3OUdS	630.7000>451.0000	10.475
18	PFTreA	713.0000>669.0000	11.053

TEST CONDITIONS

Delay Column: HALO 90 Å C18, 2.7 µm, 2.1 x 50 mm
Part Number: 92812-702
Analytical Column: HALO 90 Å C18, 2.0 µm, 2.1 x 100 mm
Part Number: 92112-730
Mobile Phase A: (95/5) H2O/ACN .1% acetic acid
Mobile Phase B: (95/5) ACN/H2O 10mM ammonium formate/ 0.1% acetic acid
Flow Rate: 0.3 mL/min
Sample Solvent: (95/5) MeOH/ H2O

Time	%B
0.0	0
6.0	50
13.0	85
14.0	100
17.0	100
18.0	0
21.0	stop

Initial Pressure: 315 bar
Temperature: 40 °C

MS CONDITIONS

Detection: -ESI MS
LC System: Shimadzu Nexera X2 ESI
LCMS system: Shimadzu LCMS-8050
Spray Voltage: -2.0 kV
Nebulizing gas: 2 L/min
Drying gas: 15 L/min
DL temp: 250 °C
Heat Block: 400 °C