



Method Summary

The Determination of Per- and Polyfluorinated Substances (PFAS) in Water Samples by LC-MS/MS.

Scope and Range

PFAS are surfactants with many industrial uses, particularly in the production of PTFE and in coatings for paper. Historically they have seen use in foaming agents, particularly aqueous film-forming foams (AFFF) used in firefighting. The release of some of these compounds into the environment is now under regulation.

Quantitation range: 0.65 to 200 ng/L or higher with dilutions

Perfluoroalkylcarboxylic Acids		CAS	ng/L
PFBA	perfluoro-n-butanoic acid	375-22-4	2
PFPA	perfluoro-n-pentanoic acid	2706-90-3	1
PFHxA	perfluoro-n-hexanoic acid	307-24-4	1
PFHpA	perfluoro-n-heptanoic acid	375-85-9	1
PFOA	perfluoro-n-octanoic acid	335-67-1	0.65
PFNA	perfluoro-n-nonanoic acid	375-95-1	1
PFDA	perfluoro-n-decanoic acid	335-76-2	1
PFUnA	perfluoro-n-undecanoic acid	2058-94-8	1
PFDoA	perfluoro-n-dodecanoic acid	307-55-1	1
Perfluoroalkylsulfonates [#]			
PFBS	perfluoro-1-butanedisulfonate	375-73-5	1
PFPeS	perfluoro-1-pentadisulfonate	2706-91-4	1
PFHxS	perfluoro-1-hexadisulfonate	355-46-4	1
PFHpS	perfluoro-1-heptadisulfonate	375-92-8	1
Linear PFOS	perfluoro-1-octadisulfonate	1763-23-1	0.65
Branched PFOS	(mixture of isomers)	-	1
Total PFOS	(sum of linear and branched)	-	1
PFDS	perfluoro-1-decadisulfonate	335-73-3	1
Perfluorooctanesulfonamides			
PFOSA	perfluorooctanesulfonamide	754-91-6	2
Fluorinated Telomer Sulfonates			
6:2 FtS	6:2 fluorotelomer sulfonate	27619-97-2	1

Table 1 List of per- and polyfluorinated compounds contained within suite and associated limits of detection.

- The listed CAS numbers refer to the parent perfluoroalkylsulfonic acid. It should be noted that the method detects the perfluoroalkylsulfonate base anion which may derive from a range of substances, such as the parent acid and salts of the acid.



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Principle

Samples are extracted using solid phase extraction (SPE) and analysed by liquid chromatography coupled with a triple quadrupole mass spectrometer (LC-MS/MS). For samples known to have high concentrations of target analytes, a direct injection method is used. The direct injection method is unaccredited.

Extracted samples may contain interferences from other compounds contained within the sample matrix. Using the principles of MS/MS, many of these interferences will be eliminated. However, there may be occasions when interferences from non-target compounds arise from similar precursor and product ions. In these cases, reported limits of detection may be raised.