

METHOD STATEMENT



Determinand:

8:2 Fluorotelomer alcohol and 6:2 Fluorotelomer alcohol

Matrix:

Saline, Surface, and Ground waters.

Principle of Method:

The neutral perfluorinated compounds are isolated from aqueous matrix using solid phase extraction (SPE) and eluted from the SPE cartridges with methanol. The methanol extract is further extracted with pentane before being analysed by GC-MSMS with Positive Chemical Ionization (PCI). Quantification is based upon an internal standardisation procedure.

Sampling and Sample Preparation:

Samples should be taken in 40ml STL 92 glass vials containing 2mls of Methanol. They must be taken without any significant headspace (when vial is inverted, air bubble no more than 6mm diameter). Samples are stored at $3 \pm 2^\circ\text{C}$ and analysed within 5 days of sampling (In-house stability data) for all compounds.

Interferences:

MS/MS is an extremely selective technique and interferences should only be encountered very rarely, however in theory, any compound which is extracted by the procedure, which has a chromatographic retention time similar to the compound of interest and which produces both precursor and product ions similar to that of the compounds in question, may interfere.

Performance of Method:

Range of Application: 0.005 - 0.250 $\mu\text{g/l}$ without dilution

Precision, Bias and LOD

Compound	LOD ng/l	Low Standard		High Standard	
		Bias (%)	RSD (%)	Bias (%)	RSD (%)
6:2 Fluorotelomer Alcohol	1.81	0.60	11.26	0.95	7.01
8:2 Fluorotelomer Alcohol	2.00	-3.81	11.78	1.40	8.03

Spike Recoveries from Matrix Waters

Compound	Groundwater		Surface Water		Saline water	
	% Rec.	% RSD	% Rec.	% RSD	% Rec.	% RSD
6:2 Fluorotelomer Alcohol	100.92	7.34	100.34	8.10	100.18	8.31
8:2 Fluorotelomer Alcohol	100.11	9.30	99.99	9.76	99.67	8.88

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Uncertainty of Measurement

The reported uncertainty is an expanded uncertainty calculated using a coverage factor of 2, which gives a level of confidence of approximately 95%.

Compound	Uncertainty of Measurement %
6:2 Fluorotelomer Alcohol	16.39
8:2 Fluorotelomer Alcohol	18.04

References:

In-house developed method.

EPA Method 5021A : Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis