

METHOD STATEMENT



Determinand:

1,2-Propanediol, 1,3-Propanediol, 1,3-Butanediol, 1,4-Butanediol, ethylene glycol, diethylene glycol and triethylene glycol.

(Not UKAS Accredited)

Matrix:

Surface waters, effluents and leachates

Principle of Method:

The compounds are quantified directly in aqueous solution by gas chromatography with flame ionisation detection (GC-FID).

Sampling and Sample Preparation:

Samples should be stored in a refrigerator at $3\pm 2^{\circ}\text{C}$ and prepared within 14 working days.

Interferences:

Any co-extracted material, which has a corresponding retention time and which elicits a response to the flame ionisation detector, will interfere.

Performance of Method:

Determinand	LOD mg/l	Range of Application mg/l	Reporting Limit: (mg/l)
1,2-Propanediol	1.11869	2 - 200	2
Ethylene Glycol	1.12948	2 - 200	2
1,3-Butanediol	1.24678	2 - 200	2
1,3-Propanediol	1.59919	2 - 200	2
1,4-Butanediol	1.21062	2 - 200	2
Diethylene Glycol	1.34628	2 - 200	2
Triethylene Glycol	1.86947	2 - 200	2

Spiked Sample Recovery

Determinand	Finham FE			
	Low Spike		High Spike	
	% Recovery	% RSD	% Recovery	% RSD
1,2-Propanediol	97.00	8.36	100.34	6.15
Ethylene Glycol	94.99	7.63	98.53	7.02
1,3-Butanediol	101.57	8.55	104.87	7.86
1,3-Propanediol	97.07	7.26	97.59	12.85
1,4-Butanediol	98.29	8.36	98.63	6.92
Diethylene Glycol	95.53	10.06	98.89	7.33
Triethylene Glycol	90.45	14.38	97.96	9.03

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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%.

Determinand	Uncertainty of Measurement (%)
1,2-Propanediol	16.19
Ethylene Glycol	18.52
1,3-Butanediol	21.11
1,3-Propanediol	23.41
1,4-Butanediol	19.25
Diethylene Glycol	18.90
Triethylene Glycol	28.81

References:

In-house method