



METHOD STATEMENT

Determinand:

Dissolved methane

Matrix:

Groundwaters, water extracts and leachates.

Principle of Method:

A known amount of water is sealed in a headspace vial. The sample is then heated and agitated. This drives the dissolved methane into the 'headspace' above the aqueous layer. A portion of the headspace can then be sampled and analysed by GC using Flame Ionisation Detection.

Sampling and Sample Preparation

This test is carried out on the water sample as received from the client.

The sample should be stored in a 40ml glass vial in a cold store at $3 \pm 2^\circ\text{C}$ until required.

Interferences:

Any compound, eluting at the same retention time as methane and giving a response on the flame ionisation detector has the potential to interfere with the result.

Performance of Method:

Range of Application: 0.01 – 25 mg/l

Normal Reporting Limit: 0.1 mg/l

Determinand	LOD (mg/l)	Low Standard		High Standard	
		RSD %	Bias %	RSD %	Bias %
Methane	0.00211	5.67	2.35	5.34	-1.10

Determinand	Leachate				Surface Water				Ground Water			
	Low Spike		High Spike		Low Spike		High Spike		Low Spike		High Spike	
	RSD %	Rec %	RSD %	Rec %	RSD %	Rec %	RSD %	Rec %	RSD %	Rec %	RSD %	Rec %
Methane	3.33	99.9	3.85	97.5	6.10	95.9	5.41	96.3	4.33	96.3	5.68	95.9

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 %
Methane	14.22

References:

The determination of Methane and other Hydrocarbon Gases in Water 1988. ISBN 0117521280.