

# 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: 0.1mg/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.