

METHOD STATEMENT



Determinand:

Suspended Solids, Volatile Matter and Ashed Solids

Matrix:

Raw waters, effluents, leachates and waste waters

Principle of Method:

Suspended matter is removed from a measured volume of sample by filtration under reduced pressure through a pre-treated, pre-weighed glass fibre filter paper and determined gravimetrically after washing and drying at $105 \pm 5^\circ\text{C}$. For ashed solids this is followed by ignition at 450°C and weighing the residue.

Sampling and Sample Preparation:

Samples should be shaken before analysis to ensure that any subsample is as homogeneous as possible. Samples are stable for 7 days (In-House Data) from sampling.

Interferences:

Samples containing oil or other organic liquids require special treatment. Oil or other organic liquids may be retained on the filter and only partially volatilised on drying. The filtered, water-washed residue can be freed from oil by washing with methanol and petroleum ether, before drying. Samples containing high levels of dissolved solids also require special treatment. This can be confirmed by a very high EC result, for example, $>20,000$. Where a sample contains a high level of dissolved solids, a false high result may be obtained due to dissolved solids crystallising out on the filter paper during the filtration process. After filtration, as described in the method, the sample is washed with near to boiling deionised or distilled water. The same procedure is used for foamy samples.

Performance of Method:

Determinand: Suspended Solids
Range of Application: up to 25mg of recovered material
1.0mg/l - 125mg/l for 200ml volume
Limit of Detection: 0.4989 mg/l
Normal Reporting Limit: <1.0 mg/l

| Determinand | Low Standard | | High Standard | |
|------------------|--------------|--------|---------------|--------|
| | RSD % | Bias % | RSD % | Bias % |
| Suspended Solids | 8.38 | 3.64 | 1.07 | -0.22 |

| Determinand | % | Finham FE | | Trade Effluent | | Crude Sewage | |
|------------------|------|-----------|-------|----------------|--------|--------------|--------|
| | | Low | High | Low | High | Low | High |
| Suspended Solids | Rec. | 98.96 | 99.99 | 99.85 | 100.57 | 99.90 | 101.97 |
| | RSD | 3.31 | 0.98 | 9.89 | 1.71 | 4.12 | 3.03 |

| Determinand | % | Soil Leachate | | Ground Water | |
|------------------|------|---------------|-------|--------------|--------|
| | | Low | High | Low | High |
| Suspended Solids | Rec. | 93.64 | 97.61 | 102.95 | 104.03 |
| | RSD | 6.95 | 5.15 | 2.67 | 4.72 |

METHOD STATEMENT



Determinand: Ashed Solids
Range of Application: 3 mg/l upwards
Normal Reporting Level: 3 mg/l

| Determinand | Final Effluent | | Trade Effluent | | Soil Leachate | | Surface water | |
|--------------|----------------|-------|----------------|-------|---------------|-------|---------------|-------|
| | %RSD | %Rec | %RSD | %Rec | %RSD | %Rec | %RSD | %Rec |
| Ashed Solids | 3.60 | 95.73 | 11.33 | 90.55 | 3.95 | 92.00 | 6.47 | 91.64 |

| Determinand | Groundwater | | Crude Effluent | | Landfill Leachate | |
|--------------|-------------|-------|----------------|-------|-------------------|-------|
| | %RSD | %Rec | %RSD | %Rec | %RSD | %Rec |
| Ashed Solids | 3.36 | 96.23 | 7.80 | 98.91 | 2.42 | 94.82 |

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 % |
|------------------|------------------------------|
| Suspended Solids | 11.39 |
| Ashed Solids | 16.75 |

References:

Suspended, Settleable, and Total Dissolved Solids in Waters and Effluents 1980.

Methods for the Examination of Waters and Associated Materials. HMSO. ISBN 011 751957 x.

ISBN 0-87553-161-X, Standard Methods for the Examination of Water and Wastewater.