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SETTLEABLE MATTER IN WASTE WATER

Definition

For the purpose of this method settleable matter in waste water is defined as the matter that separates on sedimentation under specified conditions.

Object and scope

The test specified in this method is intended for measuring the amount of settleable matter present in a sample of waste water.

Principle

The sample is shaken and a known volume is withdrawn and then allowed to settle for a specified time, generally 30 min. The supernatant water is removed by suction and the remainder is filtered. The solid matter so obtained is dried and weighed.

Apparatus

1. Imhoff cone (conical vessel of glass) capacity 1 litre.
2. Glass-fibre filters, pore size approximately 10 µm (Note 1), 55 mm in diameter (Note 2).
3. Büchner funnels, with an inner diameter to take the paper filters.
4. Filter pump and filter flask for the Büchner funnels.
5. Drying oven, adjustable to 105° C ± 5° C.

Preparation of sample

Remove floating material and other particulate agglomerates not dispersed on agitating the gross sample. Allow this to attain ambient temperature.

Because some kinds of effluents — for example those from kraft mills — are unstable the samples should be analysed without delay.

Procedure

Agitate the gross sample vigorously and immediately transfer 1 litre of the contents to an Imhoff cone. Agitate with a glass rod until all air bubbles have escaped.

Allow suspended matter to settle for 30 min, or, if this occurs slowly, for 60 min. Withdraw the supernatant water by means of a filter pump, taking care that no sedimented matter is lost.

Dry a filter for 1 h at 105° C ± 5° C in the drying oven. Allow it to attain equilibrium with the atmosphere near the balance and weigh it to the nearest 0.1 mg. Ensure that during this procedure the filter is not contaminated by dust.

Place the weighed filter in the Büchner funnel and apply suction. Moisten the weighed filter with a few drops of distilled water and check that it fits the funnel tightly.

Transfer the sediment quantitatively to the funnel and rinse the cone with 20 ml of distilled water; use this for washing the filter. Rinse the sides of the funnel with a few millilitres of distilled water. Carefully remove the filter from the funnel and dry in the drying oven for 2 h at 105° C ± 5° C. Allow to cool and weigh as before. Check that the temperature and relative humidity near the balance have

not changed appreciably since the filter was weighed prior to filtration.
Carry out the procedure in duplicate. The results should agree within 10 per cent.

Calculation and report

The amount of settleable matter is given by the expression

$$X = a - b$$

where
a = weight of filter and residue, mg.
b = weight of filter, mg.
X = settleable matter content, mg/l.

The report should also state:
(a) The time elapsing between sampling and analysis
(b) The manufacturer of the filter, its pore size (where known) and other relevant information
(c) The time allowed for sedimentation.

Note 1

A suitable filter is «Whatman GF/A».

Note 2

If the amount of settleable matter is large, larger filters and funnels may be used.

This method has been published in:

Norsk Skogindustri *26* (1972): 2, 47—50. (English and Norwegian)
Paperi ja Puu — Papper och Trä *54* (1972): 1, 11—16. (English, Finnish and Swedish)
Svensk Papperstidning *75* (1972): 4, 143—144. (English and Swedish)

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