

Determination of solids content of black liquor soap skimmings

Scope

This method describes a laboratory procedure for determining the solids content of black liquor soap skimmings.

The method is used to determine the amount of total contained solids in a given sample on a dry-weight basis. Solids are assumed to be all species that are not volatile under the specified oven drying conditions.

The water content of a sample is measured by drying a known mass of sample in an oven at 105°C.

Apparatus

1. Top-loading balance, 0.001 g precision
2. Evaporating dish or 50-mL beaker with matching watch glass cover
3. Heat lamp or steam bath
4. Desiccator
5. Oven, maintained at 105°C

Procedure

1. Weigh the clean dry beaker or dish (B), add 1.5 - 2.5 g (to the nearest 0.001 g) of the material to be tested into the beaker or dish, and reweigh (C). Record the weights as B and C.
2. Place the beaker or dish with watch glass on a steam bath or under a heat lamp and apply heat until dryness is obtained.
3. Place the container from step 2 into the oven (105°C) for one hour.
4. Cool the container in a desiccator, and then reweigh (A). Record the weight as A.

Calculation

$$\text{Solids, \%} = \frac{A - B}{C - B} \times 100$$

where:

- A = weight of dish plus residue, grams
B = weight of dish, grams
C = weight of dish plus sample, grams

Alternate methods

1. Report the percent solids to the nearest 0.1%. Use a moisture balance (IR - heated balance) according to manufacturer's guidelines to determine the solids content, or measure the moisture content and report the solids as solids = 100 - % moisture. Sample presentation and amount must be considered, since the results may be influenced by these factors.
2. Use an azeotropic solvent-reflux technique (as in PCTM 4A) to measure the moisture content of the sample. The solids content can be reported as solids = 100 - % moisture. ■