



Starch

Dry matter content

1 Scope

This SCAN-test Method specifies a procedure for the determination of the dry matter content of samples of starch used in manufacture of papers or boards.

The Method is applicable to air-dry samples of native and modified starches that contain no appreciable quantity of matter, other than water, volatile at the temperature specified for the drying.

2 Definition

For the purpose of this Method, the following definition applies:

2.1 *Dry matter content (of starch)* – Ratio of the mass of a test sample after drying at a temperature of (130 ± 3) °C, to its mass at the time of sampling.

Note – The drying conditions are those standardized by ISO. See also Section 9.

3 Principle

The sample is dried at (130 ± 3) °C for a period of 90 min.

4 Apparatus

Ordinary laboratory equipment, including

4.1 *Weighing bottles*, of glass, bottom diameter at least 55 mm, with ground glass covers.

4.2 *Drying oven*, capable of being controlled at (130 ± 3) °C, and suitably ventilated.

5 Preparation of sample

The sample for examination should be received in a well closed and moisture-tight container. No pretreatment of the sample should be made.

6 Procedure

Carry out the following procedure at least in duplicate. Heat a weighing bottle and its cover in the drying oven at 130 °C for 30 min. Cool in a desiccator and weigh to the nearest 1 mg.

Transfer, with a minimum exposure to the ambient air, approximately 5 g of the sample to the bottle and close it with the cover immediately. Weigh to the nearest 1 mg.

Place the bottle in the drying oven. Open it and place the cover besides the bottle. Dry for a period of 90 min, starting from the moment the oven has reached the drying temperature, $(130 \pm 3) ^\circ\text{C}$.

Replace the cover and place the bottle in a desiccator. Allow it to cool for 45 min. After cooling, equalize the air pressures outside and inside the bottle by quickly half-opening the lid. Weigh the bottle and its contents.

Note – Do not open the oven, for example for introducing new bottles, during the drying period.

7 Calculation

Calculate the dry matter content from the expression:

$$X = \frac{100 (b - c)}{(a - c)} \quad [1]$$

where

X = the dry matter content, expressed as a percentage;

a = the mass of container and cover with sample, before drying, in grams;

b = mass of container and cover with sample, after drying, in grams;

c = mass of the empty container and cover, in grams.

Calculate the mean dry matter content to one decimal place.

8 Report

The report shall include reference to this SCAN-test Method and the following particulars:

- (a) date and place of testing;
- (b) identification mark of the sample tested;
- (c) the result;
- (d) any departure from the procedure described in this Method or any other circumstances that may have affected the test results.

9 Additional information

This SCAN-test Method is based on ISO 1660, *Starch – Determination of moisture content – Oven drying methods*. It should give results equivalent to those obtained by Method 1 described in the ISO Standard.

The drying conditions, 90 min at $130 ^\circ\text{C}$, are those specified by ISO. Starch generally has relatively poor heat stability and drying under other conditions are likely to give results that differ from those obtained by the standard method.