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SIST ISO 776:1996

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International Standard



776

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Pulps — Determination of acid-insoluble ash

Pâtes — Détermination des cendres insolubles dans l'acide

Second edition — 1982-12-01

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Ref. No. ISO 776-1982 (E)

Descriptors : paper pulps, chemical analysis, determination of content, ashes, insoluble matter, hydrochloric acid.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 776 was developed by Technical Committee ISO/TC 6, *Paper, board and pulps*.

This second edition was submitted directly to the ISO Council, in accordance with clause 6.11.2 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 776-1974), which had been approved by the member bodies of the following countries :

Australia	India	Portugal
Belgium	Iran	Romania
Brazil	Israel	Spain
Bulgaria	Italy	Sweden
Canada	Japan	Switzerland
Czechoslovakia	Korea, Dem. P. Rep. of	Turkey
Denmark	Korea, Rep. of	United Kingdom
Egypt, Arab Rep. of	Mexico	USA
Finland	Netherlands	USSR
France	New Zealand	Yugoslavia
Germany, F. R.	Norway	

The member bodies of the following countries had expressed disapproval of the document on technical grounds :

Cuba
South Africa, Rep. of

Pulps — Determination of acid-insoluble ash

1 Scope and field of application

This International Standard specifies a method for the determination of the acid-insoluble ash of pulps.

The method is applicable to all kinds of pulps.

2 References

ISO 638, *Pulps — Determination of dry matter content.*

ISO 1762, *Pulps — Determination of ash.*

3 Definition

For the purposes of this International Standard, the following definition applies :

acid-insoluble ash : The insoluble residue obtained after reducing the pulp to ash and treating the ash with hydrochloric acid.

4 Principle

Ashing of the pulp and treatment with hydrochloric acid. Filtering of the insoluble residue, washing, igniting and weighing.

5 Reagent

During the analysis, use only reagent of recognized analytical grade and only distilled water or water of equivalent purity.

5.1 Hydrochloric acid, about 6 mol/l solution.

Dilute 500 ml of hydrochloric acid ($\rho_{20} = 1,19$ g/ml) to 1 000 ml with water.

6 Apparatus

Usual laboratory apparatus, and

6.1 Dishes, of platinum.

6.2 Balance, accurate to 0,1 mg.

7 Procedure

7.1 Test portion

Weigh, to the nearest 0,01 g, an amount of air-dry pulp, previously torn into pieces of suitable size, that will produce at least 1 mg of acid-insoluble ash. At the same time, weigh a separate test portion for the determination of the dry-matter content in accordance with ISO 638.

7.2 Determination

Ash the test portion, in portions, as described in ISO 1762¹⁾, in the platinum dish (6.1), previously ignited to constant mass and weighed. When the dish has attained room temperature, add 5 ml of the hydrochloric acid (5.1) and evaporate to dryness on a steam bath. Add another 5 ml portion of the hydrochloric acid and again evaporate to dryness. Add 5 ml of the hydrochloric acid to the residue and, after heating for a few seconds on a steam bath, dilute with about 20 ml of water.

Filter the contents of the dish through an ashless filter paper and wash the dish and filter paper several times with hot water until the filtrate is free from chloride ions. Replace the filter paper containing the insoluble residue in the platinum dish. Heat the dish carefully until the water has evaporated and ash the filter paper over a low flame. When the paper is carbonized, ignite the residue in a muffle furnace at 575 ± 25 °C until free from carbon. Allow to cool in a desiccator and weigh to the nearest 0,1 mg.

Carry out two determinations on test portions taken from the same test sample.

1) The temperature specified in ISO 1762 concerning the determination of ash in pulp is 575 ± 25 °C; ignition of pulp is achieved in a muffle furnace adjusted for maintaining temperature within the specified range, previous ignition being obtained by means of the low flame of a gas burner.

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8 Expression of results

The acid-insoluble ash, expressed in milligrams per kilogram, is given by the formula

$$\frac{m_1 \times 1\,000}{m_0}$$

where

m_0 is the mass, in grams, of the pulp, calculated on an oven-dry basis;

m_1 is the mass, in milligrams, of the insoluble residue.

Report the result as the mean of the two determinations to the nearest 5 mg per kilogram.

9 Test report

The test report shall include the following particulars :

- a) a reference to this International Standard;
- b) the results and the method of expression used;
- c) any unusual features noted during the determination;
- d) any operation not included in this International Standard, or regarded as optional.

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