
**Pulps — Determination of acetone-
soluble matter**

Pâtes — Détermination des matières solubles dans l'acétone



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 6, *Paper, board and pulps*.

This second edition cancels and replaces the first edition (ISO 14453:1997), which has been technically revised to include the use of automated extraction, and to add a new precision statement that complies with the requirements of ISO/TR 24498.

Introduction

The amount of acetone-soluble matter in pulp provides a measure of the content of wood extractives, often called resin. The acetone-soluble matter includes fatty acids, resin acids, fatty alcohols, sterols, diglycerides and triglycerides, steryl esters and waxes.

In addition, acetone extracts of mechanical pulps may also contain phenolic compounds such as lignans. In the case of incompletely washed chemical pulps, the acetone extracts will also include dissolved kraft lignin.

Metal soaps of fatty and resin acids, such as those present in unwashed or deinked pulp, are not extracted under the conditions specified in this International Standard.

Pulps — Determination of acetone-soluble matter

1 Scope

This International Standard describes the determination of acetone-soluble matter in pulp.

It is applicable to all types of pulp. The lower limit of the determination is about 0,05 %. This limit can be lowered by increasing the amount of sample analysed.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7213, *Pulps — Sampling for testing*

ISO 638, *Paper, board and pulps — Determination of dry matter content — Oven-drying method*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

acetone-soluble matter

amount of material that can be extracted with acetone from a sample of pulp by the method specified in this International Standard

4 Principle

A pulp sample is extracted with acetone in a Soxhlet apparatus (Option A) or in a Soxtec®¹ apparatus or similar extraction equipment (Option B).

NOTE Extraction with a Soxtec® apparatus is carried out with boiling solvent instead of condensed solvent as is the case with the Soxhlet extraction. The main advantages of the Soxtec® system are much shorter extraction times and recovery of the main portion of the solvent^[1] ^[2]. Other extraction methods, such as Accelerated Solvent Extraction (ASE), can produce different results and are not within the scope of this International Standard^[2]. As reported in Reference ^[2] and based on several interlaboratory studies^[3], including that reported in [Annex A](#), no statistically significant differences were found between the two extraction methods.

After extraction, the solvent is evaporated and the residue is dried at a temperature of 105 °C.

The content of acetone-soluble matter is reported as a percentage of dry pulp.

5 Reagent

5.1 Acetone (CH₃COCH₃), analytical reagent grade.

WARNING — Acetone is a highly flammable material; therefore only approved electric or steam heating shall be used. The entire procedure must be performed in a chemical fume hood and the

1) Soxtec® is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.