AS 1301.004:2019

Australian STANDARD®

Methods of test for pulp and paper

Method 004: Solubility of wood in boiling water

STANDARDS Australia

AS 1301.004:2019

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Appita
Monash University

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Method 004: Solubility of wood in boiling water

Originated in Australia as AS P1.P4m—1961.
Previous edition AS/NZS 1301.004s:1998.
Second edition 2007.
Revised and redesignated as AS 1301.004:2019.

Preface

This Standard was prepared by the Australian members of the joint Standards Australia/Standards New Zealand Committee PK-019, Methods of Test for Pulp and Paper, to supersede AS/NZS 1301.004S:2007, *Methods of test for pulp and paper, Method 004S: Solubility of wood in boiling water.*

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to define one method for providing a reproducible measure of the amount of material in wood that is soluble in boiling water.

The major change in this edition is the inclusion of an equation in Clause 7.

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Introduction

This determination is a measure of the materials in wood (or pulp) which are soluble in boiling water. They may include tannins, kinos, colouring matter, sugars, free acids and free mineral matter. The values obtained are arbitrary because departures from the conditions laid down can cause more or less material to be extracted. Since hot water has a limited hydrolytic effect on wood, which increases with time of extraction, some water soluble hydrolysis products are extracted along with the soluble material initially present.

Australian Standard®

Methods of test for pulp and paper

Method 004: Solubility of wood in boiling water

1 Scope

This Standard sets out a method to be used to determine the proportion of material in wood which is soluble in boiling water.

2 Normative references

The following document is referred to in the text in such a way that some or all of its content constitutes requirements of this document.

AS/NZS 1301.002S, *Methods of test for pulp and paper, Method 002S: Preparation of wood samples for chemical analysis*

3 Principle

A prepared sample of air-dry wood is boiled in water for one hour. The oven-dry mass of dissolved material is calculated by difference and expressed as a percentage of the oven-dry mass of the sample.

4 Apparatus

The following apparatus shall apply.

(a) *Hotplate with regulator*, for boiling the water steadily throughout the determination.

(b) *Alundum crucibles*, porosity R.A. 98; or sintered glass crucibles, porosity 2.

5 Preparation of sample

Prepare the sample for testing in accordance with AS/NZS 1301.002S.

6 Procedure

WARNING — This procedure calls for the use of boiling or near-boiling water. Appropriate measures shall be taken to avoid accidental scalding.

The solubility of wood in boiling water shall be determined in duplicate, using the following procedure for each test sample:

(a) Determine the moisture content of the air-dry wood by drying duplicate weighed test specimens in an oven at 105 °C ± 2 °C until constant weight is attained.

(b) Weigh to the nearest 0.001 g a quantity of the air-dry wood equivalent to 2.0 g ± 0.1 g of oven-dry material and place it in a 1 L conical flask.

(c) Measure 300 mL of boiling distilled water in a graduated measuring cylinder and add it to the flask. Fit the flask with a reflux condenser, heat the contents to boiling point, and boil steadily under reflux for one hour.

(d) Dry a crucible in the oven at 105 °C ± 2 °C for 30 min, cool in a desiccator, and weigh the crucible.