AS/NZS 1301.210s:2002
ISO 692:1982

Australian/New Zealand Standard™

Methods of test for pulp and paper

Part 210s: Alkali solubility of pulp

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The following are represented on Committee PK-019:

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Forest Research (New Zealand)
National Association of Forest Industries
New Zealand Pulp and Paper Industry Association
Printing Industries Association of Australia
Pulp and Paper Manufacturers Federation of Australia

Additional interests participating in the preparation of this Standard:
Paper manufacturers
Pulp manufacturers
Research interests
Manufacturers of paper testing instruments
Suppliers of paper testing instruments

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Part 210s: Alkali solubility of pulp

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee PK-019, Methods of Test for Pulp and Paper as a revision of AS Pl.P210m—1969, which was withdrawn in July 1996.

The objective of this Standard is to provide those involved with the analysis of pulps a standardized method of determining the cold alkali solubility of pulp.

This Standard is identical with and has been reproduced from ISO 692:1982, *Pulps — Determination of alkali solubility.*

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.

(c) A full point should be substituted for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to equivalent Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*
ISO		AS/NZS
638	Pulps — Determination of dry matter content	—

AUSTRALIAN/NEW ZEALAND STANDARD

Methods of test for pulp and paper

Method 210s: Alkali solubility of pulp

0 Introduction

The object of both this International Standard and ISO 699, *Pulps — Determination of alkali resistance*, is to permit the study of the behaviour of pulps in the presence of alkali solutions, but their fields of application are different : while this International Standard describes the volumetric determination of the alkali-soluble constituents of the pulp and is applied preferably to the control of bleached pulps, ISO 699 describes the gravimetric determination of the alkali-insoluble constituents of the pulp and applies to all categories of pulps.

1 Scope and field of application

This International Standard specifies a method for the determination of the solubility of pulp in cold sodium hydroxide solutions of various and fixed concentrations. The sodium hydroxide concentrations most frequently used are 18 and 10 % (m/m).

The method is mainly intended for the investigation of bleached pulps, but may, however, also be used with unbleached pulps, for example in the different stages of manufacture of bleached pulp.

2 Reference

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

3 Definitions

3.1 S**-value** : Alkali solubility; the soluble fraction expressed as a percentage by mass of the oven-dry pulp.

3.2 S_{18}, S_{10} or S_c : S-values in which the indices 18, 10 or c refer to the chosen concentration, in grams of sodium hydroxide per 100 g of solution.

4 Principle

Treatment of the pulp with sodium hydroxide solution and oxidation of the dissolved organic matter with potassium dichromate. Titration of the excess potassium dichromate and calculation of the amount of cellulose equivalent to the potassium dichromate consumed.

5 Reagents

Use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

5.1 Sodium hydroxide, solution of known concentration, containing less than 1 g of sodium carbonate per litre (see the note), for example :

— 5,39 ± 0,03 mol/l solution, containing 18,0 ± 0,1 g of sodium hydroxide per 100 g of solution (ϱ_{20} = 1,197 2 g/ml), equivalent to 215,5 ± 1,0 g of sodium hydroxide per litre;

— 2,77 ± 0,03 mol/l solution, containing 10,0 ± 0,1 g of sodium hydroxide per 100 g of solution (ϱ_{20} = 1,108 9 g/ml), equivalent to 110,9 ± 1,0 g of sodium hydroxide per litre.

NOTE — The sodium hydroxide solution may be conveniently prepared as follows :

Dissolve a quantity of solid sodium hydroxide in an equal mass of water and allow the suspended sodium carbonate to settle. Decant the supernatant liquid and dilute with carbon dioxide-free water to the appropriate concentration. Check by titration with standard acid solution.

5.2 Sulphuric acid, concentrated, not less than 94 % (V/V) (ϱ_{20} = 1,84 g/ml).

NOTE — If the concentration of the sulphuric acid is less than 94 % (V/V), the temperature will not reach the 125 to 130 °C required during the oxidation.