

Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 11s: Klason lignin in wood and pulp



AS/NZS 1301.11s:2005

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Preface

This standard was prepared by Joint Technical Committee PK-019, Methods of Test for Pulp and Paper, as part of AS/NZS 1301, *Methods of test for pulp and paper*.

This method is similar to TAPPI T222 om-02, PAPTAC G8-1997 and G9-1997, and ASTM D1106-96(2001).

This edition cancels and replaces AS 1301.P11s—1978 and NZS 1301.P11s:1978.

This revision is necessary to allow an alternative filtration apparatus and to remove references to the use of benzene as a solvent.

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Klason lignin in wood and pulp

1 Scope

Lignin is the aromatic amorphous material found in the cell wall and middle lamella of a wood fibre [1] and [2]. Its removal is the main objective of chemical pulping and bleaching processes.

For the purpose of this Standard, Klason lignin is defined as those components of wood or pulp which are insoluble after treatment with 72 per cent m/m sulphuric acid followed by boiling in 3 per cent sulphuric acid. This Standard describes a method for determination of Klason lignin. The lignin content should not be less than 1 per cent to provide a sufficient amount of lignin, about 20 mg, for accurate weighing. It is not applicable to bleached pulps containing small amounts of lignin.

Most woods contain some lignin which is rendered soluble by the above treatment and which is not determined by this Standard. In softwoods and sulphate pulps this soluble lignin content is small, about 0.2 to 0.5 per cent, but in hardwoods it can amount to 5 per cent. In semi-bleached pulps about one-half of the total lignin content could be acid soluble. The filtrate obtained during performance of this test may be used for determination of acid-soluble lignin (see NOTE 2).

Hardwoods contain appreciable quantities of alkali soluble lignin so hardwood which has had any alkali treatment, may give a lower result than would be obtained on the untreated wood. Some eucalypt woods contain polyphenolic substances which are included in the acid insoluble lignin if not removed prior to the test [3].

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of AS/NZS 1301.11s. At the time of publication, the editions indicated were valid:

AS

1301.417s Sampling paper, board and pulp for testing

AS/NZS

1301.002s Preparation of wood samples for chemical analysis

1301.012s Organic solvent extractives in wood, pulp and paper

1301.013rp Sampling of woodchips for testing

1301.418s Ash content of wood, pulp, paper and board

3 Apparatus

3.1 Filtration apparatus

Consisting of a 2-litre filtering flask, a suitable adaptor, and a filter crucible as shown in Figure 1. If desired, a siphon tube may be fitted as shown in the figure. Any acid washed filter medium may be used provided a clear filtrate is obtained. The most common mediums are sintered glass discs of either fine or medium porosity.