

Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 012: Organic solvent
extractives in wood, pulp and paper



AS/NZS 1301.012:2017

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PREFACE

This document is a Joint Australian/New Zealand Standard and was prepared by the Joint Technical Committee PK-019, Methods of Test for Pulp and Paper to supersede AS/NZS 1301.012s:2003, *Methods of test for pulp and paper*, Method 012s: *Organic solvent extractives in wood, pulp and paper*.

The objective of this Standard is to specify two procedures for determining organic solvent extractives in wood, pulp and paper, namely the Soxhlet and Soxtec® procedures. It is recognized that the two procedures can yield different results.

The principal difference between this and the previous edition is that a procedure for use of the Soxtec® apparatus is included. A normative appendix has also been added, specifying the procedure for acid pre-treatment of samples prior to solvent extraction.

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

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FOREWORD

Certain materials in wood, pulp and paper are soluble in organic solvents. They consist primarily of resin and fatty acids and their esters, waxes and unsaponifiable substances. No single solvent is capable of removing all of these materials and different solvents remove different combinations of them. Therefore this Standard leaves the choice of solvent open, to be decided according to the purpose of the test. The following properties of various solvents need to be taken into consideration.

Petroleum ether has very low polarity and does not readily dissolve oxidized resin.

Diethyl ether, dichloromethane and tert-butyl methyl ether have low and about equal polarity and give approximately the same results. They remove resin and oxidized resin from softwoods and fats, waxes, etc., from hardwoods.

Acetone and methanol are polar solvents and dissolve some of the more polar compounds such as phenols, tannins, lignans and low molecular mass carbohydrates in addition to fats, waxes, fatty and resin acids, etc. They are particularly useful for hardwoods that have a high content of polar substances.

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Australian/New Zealand Standard
Methods of test for pulp and paper**Method 012: Organic solvent extractives in wood, pulp and paper****1 SCOPE**

This Standard specifies two procedures that can be used for the determination of the quantities of organic solvent extractives in wood, pulp and paper.

Appendix A specifies the acidification procedure for pH correction before extraction of pulps. This procedure is required if the contents of acetone soluble matter in pulp samples having different pH-values are to be compared.

NOTE: In the case of calcium soaps, the acidification specified in Appendix A is not sufficiently strong and the fatty acids in these soaps will not be fully included in the extract.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS

- 1301 Methods of test for pulp and paper
- 1301.002 Method 002: Preparation of wood samples for chemical analysis
- 1301.010 Method 010: Determination of moisture in woodchips
- 1301.013 Method 013: Sampling of woodchips for testing
- 1301.417 Method 417: Sampling of paper, board and pulp for testing
- 1301.457 Method 457: Determination of moisture content in paper, board and pulps
- 2243 Safety in laboratories
- 2243.2 Part 2: Chemical aspects
- 2243.10 Part 10: Storage of chemicals

3 PRINCIPLE

The sample is extracted with the solvent in either a Soxhlet extraction apparatus or a Soxtec® apparatus. The solvent is recovered by distillation and the extract is dried.