

Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 414s: Conditioning of paper for testing



AS/NZS 1301.414s:2006

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee PK-019, Methods of Test for Pulp and Paper. It was approved on behalf of the Council of Standards Australia on 24 February 2006 and on behalf of the Council of Standards New Zealand on 3 March 2006.

This Standard was published on 4 April 2006.

The following are represented on Committee PK-019:

Australian Plantation Products and Paper Industry Council (A3P)

Appita

CSIRO Forestry and Forest Products

Ensis Papro, SCION

National Association of Forest Industries

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 05587.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION
OF
AS/NZS 1301.414s:2006
Methods of test for pulp and paper
Method 414s: Conditioning of paper for testing

RECONFIRMATION NOTICE

Technical Committee PK-019 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 4 April 2017.

Approved for reconfirmation in New Zealand on behalf of the Standards Council of New Zealand on 10 August 2017.

The following are represented on Technical Committee PK-019:

Appita
New Zealand Paper Forum
Monash University
Scion

NOTES

Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 414s: Conditioning of paper for testing

Originated in Australia as Appita P414m—1957.
Final Australian edition AS 1301.P414m—1986.
Jointly revised and redesignated as AS/NZS 1301.414s:2006.

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 7340 0

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*.

Other standards, for instance ISO 187:1990 and TAPPI T 402 sp-03, permit the relative humidity of the air during preconditioning to be anywhere between 10% and 35% provided the air temperature does not exceed 40°C. This humidity range is too wide to ensure that the paper sample will achieve or closely approach its lower isotherm moisture level prior to the testing of its physical properties: To achieve this level, the preconditioning r.h. should not exceed 20% — necessitating a cabinet air temperature above 40°C at which elevated temperatures paper can suffer irreversible changes in properties. Hence, the specification of the cabinet air temperature of $35 \pm 2^\circ\text{C}$ in this standard is a compromise designed to minimise variation in the sample moisture content after the conditioning step in Clause 4.

This edition cancels and replaces AS 1301.414m—1986.

Contents

	<i>Page</i>
1 Scope.....	1
2 Normative references.....	1
3 Apparatus.....	1
4 Procedure.....	1
5 Report.....	2
Annex A.....	3

Conditioning of paper for testing

1 Scope

This Standard describes the procedure for general use for the conditioning of paper; the procedure for conditioning handsheets for the physical testing of pulp is given in AS/NZS 1301.208s. The term ‘paper’ is used in this standard in the general sense to include paperboard and corrugated fibreboard, except when the specific use of the term is apparent.

The physical properties of paper are affected materially by its moisture content which, in turn, is dependent on the humidity of the surrounding atmosphere. In order that tests may be made on paper in a stable physical state it is brought from a dry state into equilibrium with an atmosphere of standardized temperature and relative humidity and tested in that atmosphere.

NOTE 1 — Although the establishment of moisture equilibrium is generally adequate to ensure that paper is in a stable physical state, it is possible that the strength or some other property may not have reached equilibrium as soon as moisture content. In such a case the conditioning process should be prolonged until the desired physical equilibrium is attained. It is good practice to postpone the testing for as long as is practical after the moisture content has reached equilibrium.

The moisture content of paper in equilibrium with a given atmosphere varies according to whether the equilibrium is reached by absorption or desorption of moisture. Since physical properties that change with moisture content are affected by this hysteresis, the equilibrium condition must be attained by an absorptive process such that the moisture content approaches — or is identical with — the paper’s lower isotherm moisture content [1] and [2].

Whilst any atmosphere may be selected for special purposes or agreed upon by those concerned in the testing, the atmosphere which is defined in AS/NZS 1301.415s is the standard atmosphere for use with the AS/NZS 1301 series of testing standards.

2 Normative references

The following documents are referred to in this Standard.

AS

1301.457s Determination of moisture content in paper, board and pulps

AS/NZS

1301.415s Standard atmosphere for testing paper and board and procedure for monitoring the atmosphere

3 Apparatus

Conditioning test room capable of meeting the requirements of AS/NZS 1301.415s.

NOTE 2 — A rapid conditioning cabinet can be an advantage where test results are needed quickly (e.g. in a machine control test room). The cabinet consists essentially of a tunnel through which air from the conditioning room is drawn by a fan placed at its exhaust end. Paper is held in sample holders in such a way that all surfaces are exposed to the air-stream, which should be as uniform as possible over the cross-section of the cabinet. However, for referee purposes the use of such cabinets is not in accordance with the requirements of this Standard.

4 Procedure

4.1 Preliminary treatment of sample (preconditioning)

Precondition the sample for a minimum of 24 hours in air of relative humidity approximately 25% and a temperature not above 40°C.