AS/NZS 1301.414s:2006
Reconfirmed 2017

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Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 414s: Conditioning of paper for testing

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.
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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

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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.

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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

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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*.

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 ±2°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

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.