

Australian/New Zealand Standard™

**Methods of test for pulp and paper**

**Method 415s: Standard atmosphere for testing paper and board and procedure for monitoring the atmosphere**



## **AS/NZS 1301.415s:2008**

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 17 March 2008 and on behalf of the Council of Standards New Zealand on 18 March 2008.  
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The following are represented on Committee PK-019:

Australian Institute of Packaging  
Australian Plantation Products and Paper Industry Council (A3P)  
Appita  
Ensis Papro, SCION  
National Association of Forest Industries

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## Methods of test for pulp and paper

### Method 415s: Standard atmosphere for testing paper and board and procedure for monitoring the atmosphere

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## Foreword

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 edition cancels and replaces AS/NZS 1301.415s:1998.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A 'normative' annex is an integral part of a Standard, whereas an 'informative' annex is only for information and guidance.

## Introduction

This standard specifies the atmospheric conditions for general use in conjunction with other parts of AS/NZS 1301, *Methods of test for pulp and paper*, and the procedure for maintaining those conditions. Other conditions are used occasionally for investigational work or for other special purposes. The atmosphere prescribed is known as the Standard Atmosphere and is defined in terms of temperature and relative humidity.

This standard conforms to ISO 187:1990, *Paper, board and pulps—Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*, except that it specifically allows the use of any type of thermometer and hygrometer, as long as they conform to the required accuracy. It also differs in that the recording hygrometer requires a response of only 1.5% RH/min.

Other similar standards are TAPPI T402sp and PAPTAC A4.

# Standard atmosphere for testing paper and board and procedure for monitoring the atmosphere

## 1 Scope

The atmosphere prescribed in this standard is one in which the temperature and relative humidity are controlled within the following limits:

Temperature .....	23 ±1°C
Relative humidity .....	50 ±2%

The apparatus and procedure to be used for measuring temperature and relative humidity to determine whether a test atmosphere conforms to these limits is described.

## 2 Definition

**Relative humidity**, the ratio, in percent, of the moisture actually in the air to the moisture it would hold if it were saturated at the same temperature and pressure.

## 3 Conditioned test rooms

Where a standard forming part of AS/NZS 1301, *Methods of test for pulp and paper*, requires samples to be conditioned before testing, the conditioning and also the testing are to be carried out in an air conditioned test room, controlled within the limits defined for the Standard Atmosphere. The throughput of air shall be sufficiently high to maintain the atmosphere within the required limits with the normal complement of workers present in the room.

For best results it is desirable that the design include the following features<sup>[1]</sup>.

**3.1** The air conditioning system should be a recirculating one in which fresh air is mixed with the recirculating air at a rate of about 10 percent by volume. The circulation system should keep a slight positive pressure in the room to avoid the intake of air through leaks in the room and through opening the door. Air should be admitted and exhausted in such a manner that it is distributed evenly to all parts of the room. The air throughput should be sufficient to achieve a complete air change in about three minutes.

**3.2** The temperature and relative humidity of the inlet air should be automatically controlled using sensing devices located in the position which best achieves the objective of providing uniform conditions within the stated limits in those parts of the room used for conditioning and testing. It is often necessary to determine by trial and error the best location in a particular room for the sensing devices. Usually a position just above bench level about half way along the longest wall is the most suitable, but in some cases the best location has been found to be within the exhaust ducting. The best system of control is one which provides stepless changes of both humidifying and heating operations.

**3.3** The room shall also be equipped with a means of continually monitoring the conditions in the room, not to obtain results for fine control purposes but only for detecting changes in room conditions and for providing a general record of conditions over a period of time. A continuously operating recording thermo-hygrometer has been found to be suitable, and may be either independent of or part of the control system of the room. It should have a sufficiently rapid response rate to track a relative humidity gradient of 1.5% RH/min and a temperature gradient of 1°C/min. The scale on the chart of the chart recorder should be such that a variation of 1 to 2% in relative humidity and 1°C in temperature are easy to see. A chart with a humidity range of 45 to 55% RH and a temperature range of 17 to 27°C has been found to be suitable.