



## **Methods of test for pulp and paper**

### **Method 457: Determination of moisture content in paper, board and pulps**

**STANDARDS**  
Australia



AS 1301.457:2020

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## Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee PK-019, *Methods of Test for Pulp and Paper*, to supersede AS/NZS 1301.457s:2006, *Methods of test for pulp and paper, Method 457s: Determination of moisture content in paper, board and pulps*.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide a defined procedure for determining moisture content of paper and board products and pulps, which recognizes some specific properties of such materials. In particular, this Standard is suitable for determining the moisture content of a lot.

The major changes in this edition are as follows:

- (a) Specification of only one procedure for determining moisture content. The previous distillation method is now presented in an informative Appendix.
- (b) Inclusion of a definition for a lot of paper, board or pulp.
- (c) Re-specification of the accuracy of the balance to enable the precision required in the procedure to be achieved.
- (d) Insertion of a new Sampling clause to clarify that, while AS/NZS 1301.417 can be applied when testing papers and boards, and AS/NZS ISO 7213 can be applied when testing pulps, other sampling procedures may be used.
- (e) Clarification of recommendation that gloves be worn when handling a test piece.
- (f) Addition of formula to illustrate how to calculate the moisture content on either an “as received” basis or on an “oven-dry” basis.

At the time of publication of this Standard there was no corresponding ISO Standard.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

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## Introduction

The moisture content of many materials is commonly determined by oven-drying, the change in mass of the material being assumed to be due solely to removal of water. In the case of paper products and pulp this assumption is incorrect. Volatile constituents other than water may be lost in oven-drying and oxidation or decomposition of some constituents is possible at high temperatures.

The quantity of water removed depends on the method of drying adopted. In oven-drying the moisture values obtained are to some extent dependent on the temperature used, the humidity in the oven and also on the time of drying.

When other methods of water removal are used, for instance vacuum desiccation or distillation or extraction with solvents, moisture content values do not always agree with those obtained by an oven-drying method.

The moisture content of paper products and pulps therefore needs to always be defined in terms of a particular method. This Standard prescribes only the Oven-drying method. [Appendix A](#) (informative) describes a Distillation method.

The method of sampling for determination of moisture content is critical if the purpose is to determine the moisture content of a lot. Relevant standards that fully describe suitable procedures are as follows:

- (a) AS/NZS 1301.417s, *Methods of test for pulp and paper, Method 417s: Sampling paper to determine average quality*, is applicable to sampling of a lot of paper or board.
- (b) AS/NZS ISO 7213, *Pulps — Sampling for testing*, is applicable to sampling of a lot of pulp in bale or roll form.

# Australian Standard®

## Methods of test for pulp and paper

### Method 457: Determination of moisture content in paper, board and pulps

#### 1 Scope

This document specifies a test method for determining moisture content in paper, board and pulps.

#### 2 Normative references

There are no normative references in this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

#### 3 Terms and definitions

For the purpose of this Standard the following terms and definitions apply.

##### 3.1

##### **lot**

aggregate of paper or board or pulp of a single kind with specified characteristics produced under conditions that are presumed uniform, and available for sampling at one time

##### 3.2

##### **may**

indicates the existence of an option

##### 3.3

##### **shall**

indicates that a statement is mandatory

##### 3.4

##### **should**

indicates a recommendation

##### 3.5

##### **tare weight**

indicates the weight of an empty container

##### 3.6

##### **test piece**

piece or pieces of sampled material on which the moisture determination is to be carried out

#### 4 Principle

A sample of paper, board or pulp from a lot is weighed before and after oven drying. The moisture content is calculated.

This oven-drying method applies to paper and board products and pulps that do not contain any appreciable quantity of material other than water which will escape from the paper at the temperature specified for the test.