

Australian/New Zealand Standard™

Methods of test for pulp and paper

**Method 453: Determination of bending
resistance—Constant rate of deflection**



AS/NZS 1301.453:2016

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Method 453: Determination of bending resistance—Constant rate of deflection

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee PK-019, Methods of Test for Pulp and Paper, to supersede AS/NZS 1301.453s:1998, *Methods of test for pulp and paper*, Method 453s: Bending *resistance of paper and board—Constant rate of deflection*, (reconfirmed 2013).

The objective of this Standard is to provide a method for determining the resistance to bending of paper and board at a constant rate of deflection.

This Standard is identical with, and has been reproduced from ISO 2493-1:2010, *Paper and board—Determination of bending resistance*, Part 1: *Constant rate of deflection*.

As this Standard is reproduced from an International Standard, the following applies:

- (a) In the source text ‘this part of ISO 2493’ should read ‘this Australian/New Zealand Standard’.
- (b) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>	<i>Australian/New Zealand Standard</i>
ISO	AS/NZS
186 Paper and board—Sampling to determine average quality	1301 Method of test for pulp and paper 1301.417s Method 417s: Sampling to determine average quality
536 Paper and board—Determination of grammage	1301.405s Part 405s: Grammage of non-creped paper and board

The normative reference ISO 187 has not been adopted as an Australian/New Zealand Standard.

In Australia and New Zealand the following standards are generally used:

AS/NZS 1301.414s:2006, *Methods of test for pulp and paper*, Methods 414s: *Conditioning of paper for testing*.

AS/NZS 1301.415s:2008, *Methods of test for pulp and paper*, Methods 415s: *Standard atmosphere for testing paper and board and procedure for monitoring the atmosphere*.

The term ‘informative’ has been used in this Standard to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

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INTRODUCTION

In ISO 2493:1992, two principles for determining the bending resistance were incorporated in the same standard, although the two principles were very different.

One principle involved the deflection of an equal number of test pieces with opposing surfaces towards the direction of deflection; this principle is described in this part of ISO 2493.

The other principle used a Taber-type tester, where the test piece was inserted and deflected to the top side and then, without changing the test piece, it was deflected in the opposite direction. This principle is described in ISO 2493-2. The method is based on TAPPI Test Method T 489 om-04^[4].

AUSTRALIAN/NEW ZEALAND STANDARD

Methods of test for pulp and paper

Method 453:

Determination of bending resistance—Constant rate of deflection

1 Scope

This part of ISO 2493 specifies procedures, based on the two-point loading principle, for determining the bending resistance of paper and board.

NOTE 1 See ISO 5628^[1] for a detailed description of the two-point loading principle.

This part of ISO 2493 applies to the measurement of the bending resistance within the range 20 mN to 10 000 mN. It is not applicable to corrugated board but can be applicable to the components of such board.

The bending angle is 15° and the bending length is 50 mm.

For samples having a bending resistance that is too low to measure with a bending length of 50 mm, a shorter bending length, i.e. 10 mm, can be used.

IMPORTANT — The results obtained when using different bending lengths will not be comparable.

For boards that tend to be permanently deformed if bent through 15°, the half bending angle, i.e. 7,5°, can be used.

NOTE 2 Taber-type testers and testers using the principle of constant rate of deflection do not give comparable results. For this reason, ISO 2493:1992 has been divided into two parts.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 186, *Paper and board — Sampling to determine average quality*

ISO 187, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*

ISO 536, *Paper and board — Determination of grammage*