AS 1301.438:2019

Australian STANDARD®

Methods of test for pulp and paper

Method 438: Bursting strength of board (ISO 2759:2014, MOD)

STANDARDS Australia

AS 1301.438:2019

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Appita
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Originated as AS 1301.438s—1989.
Jointly revised and redesignated as AS/NZS 1301.438s:1997.
Revised and redesignated as AS 1301.438:2019.

Preface

This Test Method was prepared by the Australian members of Joint Standards Australia/Standards New Zealand Committee PK-019, Methods of Test for Pulp and Paper, to supersede AS/NZS 1301.438s-1997, *Methods of test for pulp and paper — Bursting strength of board*.

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

The objective of this Test Method is to specify a method for measuring the bursting strength of board submitted to increasing hydraulic pressure. It is applicable to all types of board (including corrugated and solid fibreboard) having bursting strengths within the range 350 kPa to 5 500 kPa.

This Test Method is also applicable to papers or boards having bursting strengths as low as 250 kPa if the paper or board is to be used to prepare a material of higher bursting strength, such as corrugated board. In such cases, the measurements will not necessarily have the accuracy or precision stated for this method and it is necessary to include a note in the test report stating that the test gave results that were below the minimum value required by this method.

In the absence of any commercial agreement as to which method should be used for materials with bursting strengths between 350 kPa and 1 400 kPa, all materials with bursting strengths below 600 kPa, except components of solid and corrugated fibreboard, should be tested by AS 1301.403, and the remainder according to this Test Method.

This Test Method is an adoption with national modifications and has been reproduced from, ISO 2759:2014, *Board — Determination of bursting strength*. The modifications are additional requirements and are set out in Appendix ZZ, which has been added at the end of the source text.

Appendix ZZ lists the variations to ISO 2759:2014 for the application of this Test Method in Australia.

As this document has been reproduced from an International Standard, the following applies:

(a) In the source text "this International Standard" should read "this Australian Test Method".

(b) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms "normative" and "informative" are used in Test Methods to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Test Method, whereas an "informative" appendix or annex is only for information and guidance.

Contents

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*.

This fourth edition cancels and replaces the third edition (ISO 2759:2001), of which it constitutes a minor revision to include precision data.

Introduction

This International Standard is applicable to boards with bursting strengths between 350 kPa (or 250 kPa for the components of combined materials) and 5 500 kPa. All components of solid and corrugated fibreboard, irrespective of bursting strength, should be tested by this International Standard.

For materials with bursting strengths less than 1 400 kPa, an alternative method, based on similar principles, is specified in ISO 2758[1].

NOTE Due to differences in the specification of the apparatus, tests made on the same material using the procedures of ISO 2758 and this International Standard will not necessarily give the same results.

Australian Standard®

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1 Scope

This International Standard specifies a method for measuring the bursting strength of board submitted to increasing hydraulic pressure. It is applicable to all types of board (including corrugated and solid fibreboard) having bursting strengths within the range 350 kPa to 5 500 kPa. It is also applicable to papers or boards having bursting strengths as low as 250 kPa if the paper or board is to be used to prepare a material of higher bursting strength, such as corrugated board. In such cases, the measurements will not necessarily have the accuracy or precision stated for this method and it is necessary to include a note in the test report stating that the test gave results that were below the minimum value required by the method.

In the absence of any commercial agreement as to which method should be used for materials with bursting strengths between 350 kPa and 1 400 kPa, all materials with bursting strengths below 600 kPa, except components of solid and corrugated fibreboard, should be tested by ISO 2758 and the remainder by this International Standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
bursting strength
maximum pressure developed by the hydraulic system in forcing an elastic diaphragm through a circular area of the board when the pressure is applied in the manner described in the method

Note 1 to entry: The indicated bursting pressure includes the pressure required to extend the diaphragm during the test.

3.2
burst index
bursting strength of the board divided by the grammage of the board determined in accordance with ISO 536

4 Principle

A test piece, placed over a circular elastic diaphragm, is rigidly clamped at the periphery but free to bulge with the diaphragm. Hydraulic fluid is pumped at a constant rate, bulging the diaphragm until the test piece ruptures. The bursting strength of the test piece is the maximum value of the applied hydraulic pressure.