AS/NZS 1301.441:2018
ISO 8791-3:2017

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Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 441: Determination of roughness/smoothness (air leak methods)—Sheffield method (ISO 8791-3:2017, MOD)

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AS/NZS 1301.441:2018

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The following are represented on Committee PK-019:

Appita
Australian Forest Products Association
Australian Institute of Packaging
Monash University
New Zealand Paper Forum
Scion

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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 1301.441s:1998, *Methods of test for pulp and paper, Method 441s: Sheffield roughness of paper and board* .

The objective of this Standard is to specify a method for the determination of the roughness of paper and board using the Sheffield apparatus.

This Standard is an adoption with national modifications and has been reproduced from ISO 8791-3:2017, *Paper and board — Determination of roughness/smoothness (air leak methods) — Part 3: Sheffield method*. 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 8791-3:2017 for the application of this Standard in Australia and New Zealand.

As this document has been reproduced from an International Standard, 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 Standards to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Standard, 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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*.

This third edition cancels and replaces the second edition (ISO 8791-3:2005), which has been technically revised.

The main changes compared to the previous edition are as follows:

— editorial changes have been made;

— precision data has been added as Annex D.

A list of all parts in the ISO 8791 series can be found on the ISO website.

Australian/New Zealand Standard

Methods of test for pulp and paper

Method 441: Determination of roughness/smoothness (air leak methods)—Sheffield method (ISO 8791-3:2017, MOD)

1 Scope

This document specifies a method for the determination of the roughness of paper and board using the Sheffield apparatus.

This document is applicable to papers and boards which have Sheffield roughness values between 10 ml/min and about 3 000 ml/min. It is not suitable for soft papers which allow the lands of the test head to indent the surface, or for high air-permeance papers which allow a significant flow of air through the sheet, or for papers which will not lie flat during the test.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
Sheffield roughness
measure of the rate at which air flows between flat circular lands and the surface of a sheet of paper or board under specified conditions

Note 1 to entry: The roughness is expressed in millilitres per minute.

Note 2 to entry: The Sheffield unit is not defined, since it has been found that the scale units (Sheffield units) on different instruments can correspond to different air flows, and there is no precise physical definition. This document requires that the flowmeters be calibrated to give a flow rate in millilitres per minute.

4 Principle

A test piece is clamped between a flat plate and two flat concentric annular lands. Air is supplied at a specified pressure to the space between the two lands, and the rate of air flow between the lands and the test piece is measured. The air flow rate is a measure of the roughness of the test piece.