AS 1301.420:2019

Australian STANDARD

Methods of test for pulp and paper

Method 420: Gurley air permeance of paper (ISO 5636-5:2013, MOD)

STANDARDS Australia

AS 1301.420:2019

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Appita
Australian Institute of Packaging
Monash University

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Originated in Australia as AS 1301.420s—1989.
Jointly revised and designated AS/NZS 1301.420s:2006.
Revised and redesignated as AS 1301.420:2019.

Preface

This Standard 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 1301.420s:2006, *Methods of test for pulp and paper, Method 420s: Gurley air permeance of paper (ISO 5636-5:2003 MOD)*.

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 Test Method is to specify the Gurley method for determining the air permeance of paper and board using an air resistance tester, the Gurley apparatus.

This Standard is an adoption with national modifications, and has been reproduced from, ISO 5636-5:2013, *Paper and board — Determination of air permeance (medium range) — Part 5: Gurley 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 5636-5:2013 for the application of this Standard in Australia.

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

(a) In the source text “this part of ISO 5636” should read “this Australian Standard”.

(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 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.

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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 third edition cancels and replaces the second edition (ISO 5636-5:2003), which has been technically revised. In this third edition mainly editorial changes have been made and also precision data has been added as informative Annex C.

ISO 5636 consists of the following parts, under the general title *Paper and board — Determination of air permeance (medium range)*:

— *Part 3: Bendtsen method*

— *Part 4: Sheffield method*

— *Part 5: Gurley method*

— *Part 6: Oken method*

NOTE 1 *Part 1: General method* will be withdrawn after the third editions of Parts 3, 4 and 5 have been published, as it was considered redundant.

NOTE 2 *Part 2: Schopper method* was withdrawn in 2006 as it was considered obsolete.

NOTE 3 *Part 6: Oken method* is being prepared.

Australian Standard®

Methods of test for pulp and paper

Method 420: Gurley air permeance of paper (ISO 5636-5:2013, MOD)

1 Scope

This part of ISO 5636 specifies the Gurley method for determining the air permeance of paper and board using an air resistance tester, the Gurley apparatus.

It is applicable to papers and boards which have air permeances between 0,1 µm/(Pa·s) and 100 µm/(Pa·s) when tested with the Gurley apparatus.

It is unsuitable for rough-surfaced materials, which cannot be securely clamped to avoid leakage.

This part of ISO 5636 may also be used to determine the air resistance of paper and board.

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 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

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 385, *Laboratory glassware — Burettes*

ISO 3104, *Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity*

3 Terms and definitions

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

3.1
air permeance
mean air flow rate through unit area under unit pressure difference in unit time, under specified conditions

Note 1 to entry: Air permeance is expressed in micrometres per pascal second [1 ml/(m^2·Pa·s) = 1 µm/(Pa·s)].

Note 2 to entry: This property is called air permeance, and not air permeability, because it is reported as a sheet property and is not standardized with respect to thickness to give a material property per unit thickness.

3.2
air resistance
time required for a specific volume of air under unit pressure to pass through unit area

Note 1 to entry: Air resistance is expressed in seconds per 100 millilitres [s/(100 ml)].