INTERNATIONAL STANDARD

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Tissue paper and tissue products —

Part 12: Determination of tensile strength of perforated lines and calculation of perforation efficiency

Papier tissue et produits tissue —

Partie 12: Détermination de la résistance à la rupture par traction des lignes de prédécoupe et calcul de l'efficacité des perforations

Reference number
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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 document 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).

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For an explanation of 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 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,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 172, *Pulp, paper and board,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 12625-12:2010), which has been technically revised.

The main changes are as follows:

— the expression of the rate of elongation has been changed from a value expressed in mm/min into a value expressed in the rate of elongation of the initial test span length in %/min, independently from the test piece length (see 5.1);

— precisions have been added in case of decrease of the distance between the clamping lines (see 5.2).

A list of all parts in the ISO 12625 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Tissue papers such as toilet paper and kitchen towel are often pre-cut. They are used after separation of two consecutive sheets.

It is important to know the efficiency of the pre-cut perforations.

The perforation strength should be enough to ensure the product cohesion, but not too high, so that sheets can be easily separated.

The method described in this document uses forces applied perpendicular to the perforation lines.

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Tissue paper and tissue products —

Part 12:
Determination of tensile strength of perforated lines and calculation of perforation efficiency

1 Scope

This document specifies a test method for the determination of the tensile strength of perforated lines of tissue paper. It uses a tensile-testing apparatus operating with a constant rate of elongation.

This method is only used for measuring machine-direction tensile strength, that is for cross-direction perforations on tissue paper.

The calculation of perforation efficiency is also specified in this document.

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*

ISO 1924-2, *Paper and board — Determination of tensile properties — Part 2: Constant rate of elongation method (20 mm/min)*

ISO 7500-1, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

ISO 12625-1, *Tissue paper and tissue products — Part 1: Vocabulary*

ISO 12625-4, *Tissue paper and tissue products — Part 4: Determination of tensile strength, stretch at maximum force and tensile energy absorption*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12625-1 and the following apply.

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

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

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

3.1
tensile strength
S
maximum tensile force per unit width that a test piece will withstand before breaking

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