SLOVENSKI STANDARD
oSIST prEN ISO 12625-5:2015

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Tissue papir in proizvodi iz tissue papirja - 5. del: Ugotavljanje mokre natezne trdnosti (ISO/DIS 12625-5:2015)

Tissue paper and tissue products - Part 5: Determination of wet tensile strength (ISO/DIS 12625-5:2015)

Tissue-Papier und Tissue-Produkte - Teil 5: Bestimmung der breitenbezogenen Nassbruchkraft (ISO/DIS 12625-5:2015)

Papier tissue et produits tissue - Partie 5: Détermination de la résistance à la rupture par traction à l'état humide (ISO/DIS 12625-5:2015)

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ICS:

85.080.20 Tissue papir Tissue paper

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Tissue paper and tissue products —

Part 5:
Determination of wet tensile strength

Papier tissue et produits tissue —

Partie 5: Détermination de la résistance à la rupture par traction à l'état humide

ICS: 85.060

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the European Committee for Standardization (CEN), and processed under the **CEN lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 12625-5 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 172, *Pulp, paper and board*, in collaboration with Technical Committee ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (2005), which has been technically revised.

With regard to ISO 12625-5:2005, the following changes have been made:

a) more detailed description of the preparation of the test pieces (clause 7) was included;

b) procedure (clause 8) for the measurement was clarified;

c) additional information to be included in the test report (clause 10);

d) more detailed precision data (Annex A).

e) editorial updating.

ISO 12625 consists of the following parts, under the general title Tissue paper and tissue products:

— *Part 1: General guidance on terms;*

— *Part 3: Determination of thickness, bulking thickness and apparent bulk density and bulk;*

— *Part 4: Determination of tensile strength, stretch at maximum force and tensile energy absorption;*

— *Part 5: Determination of wet tensile strength;*

— *Part 6: Determination of grammage;*

— *Part 7: Determination of optical properties — Measurement of brightness and colour with D65/10° (outdoor daylight);*

— *Part 8: Water absorption time and water absorption capacity — basket immersion test method;*

— *Part 9: Determination of ball burst strength;*

— *Part 11: Determination of wet ball burst strength;*

— *Part 12: Determination of tensile strength of perforated lines — Calculation of perforation efficiency;*

— *Part 15: Determination of optical properties — Measurement of brightness and colour with C/2° (indoor daylight) illuminant*

— *Part 16: Determination of optical properties — Opacity (paper backing) - Diffuse reflectance method*

Introduction

In cases that impurities and contraries have to be determined it is expressly stated that these detections in tissue paper and tissue products should be applied in accordance with ISO 15755 [4].

For the determination of moisture content in tissue paper and tissue products, ISO 287 [1] and ISO 638 [2] should be applied.

Tissue paper and tissue products — Part 5: Determination of wet tensile strength

1 Scope

This part of EN ISO 12625 specifies a test method for the determination of the wet tensile strength of tissue paper and tissue products after soaking with water, using a tensile strength testing apparatus operating with a constant rate of elongation.

Currently, two types of tensile strength testers are commercially available, one where the test piece is positioned vertically and for the other horizontally. This European Standard applies for both. For vertical tensile strength testers, a device which is held in the lower grip of the tensile strength tester, called a Finch Cup, is used to achieve the wetting. For horizontal tensile strength testers the soaking device is placed between the clamps.

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

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

ISO 12625-1, *Tissue paper and tissue products — Part 1: General guidance on terms*

ISO 12625-4, *Tissue paper and tissue products — Part 4: Determination of tensile strength, stretch at break 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.

3.1
wet tensile strength
maximum tensile force per unit width that a test piece soaked with water will withstand before breaking in a tensile test

Note 1 to entry: The wet tensile strength is expressed in newtons per metre.

3.2
wet- tensile strength retention
ratio, expressed as a percentage, of the tensile strength of the wet test piece to the tensile strength of the same test piece in the dry, conditioned state.

4 Principle

A test piece of tissue paper or tissue product of given dimensions, soaked in water for a given period of time under specified conditions, is stretched (elongated) to break at a constant rate of elongation, using a tensile strength testing apparatus that measures and records the tensile force as a function of the elongation of the test piece.

The test can be carried out by a vertical or a horizontal tensile strength tester.

In order to wet the test pieces for a vertical tensile strength tester, a device, called Finch Cup, which is held to the lower clamp, is used; while for a horizontal tensile strength tester a soaking cup is inserted between the clamps.

From the wet tensile strength and the tensile strength of the same sample in the dry conditioned state, the wet tensile strength retention can be calculated.

5 Apparatus

5.1 Vertical tensile strength tester

5.1.1 Tensile strength testing apparatus

The tensile strength testing apparatus shall be in accordance to ISO 1924-2. It is capable of stretching a test piece of tissue paper or tissue product of given dimensions, at a constant rate of elongation of (50 ± 2) mm/min and recording the tensile force as a function of elongation on a strip chart recorder or any equivalent device.