SLOVENSKI STANDARD
SIST EN ISO 12625-5:2005

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Nadomeġļa:
SIST EN 12625-5:2000

Tissue papir in proizvodi iz tissue papirja - 5. del: Ugotavljanje mokre natezne trdnosti (ISO 12625-5:2005)

Tissue paper and tissue products - Part 5: Determination of wet tensile strength (ISO 12625-5:2005)

Tissue-Papier und Tissue-Produkte - Teil 5: Bestimmung der breitenbezogenen Nassbruchkraft (ISO 12625-5:2005)

Papier tissu et produits en tissu - Partie 5: Détermination de la résistance a la rupture par traction a l'état humide (ISO 12625-5:2005)

Ta slovenski standard je istoveten z: **EN ISO 12625-5:2005**

ICS:

85.080.20	Tissue papir	Tissue paper

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Tissue paper and tissue products - Part 5: Determination of wet tensile strength (ISO 12625-5:2005)

Papier tissu et produits en tissu - Partie 5: Détermination de la résistance à la rupture par traction à l'état humide (ISO 12625-5:2005)

Tissue-Papier und Tissue-Produkte - Teil 5: Bestimmung der breitenbezogenen Nassbruchkraft (ISO 12625-5:2005)

This European Standard was approved by CEN on 21 March 2005.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN ISO 12625-5:2005) has been prepared by Technical Committee CEN/TC 172 "Pulp, paper and board", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 6 "Paper, board and pulps".

This document supersedes EN 12625-5:1999.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2005, and conflicting national standards shall be withdrawn at the latest by October 2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

INTERNATIONAL STANDARD

ISO 12625-5

First edition
2005-04-15

Tissue paper and tissue products

Part 5: Determination of wet tensile strength

Papier tissu et produits en tissu

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

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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 first edition cancels and replaces EN 12625-5:1999 which has been technically revised.

With regard to EN 12625-5:1999, the following changes have been made:

a) addition of information concerning the precision of the test method;

b) 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*

— *Part 4: Determination of tensile strength, stretch at break and tensile energy absorption*

— *Part 5: Determination of wet tensile strength*

— *Part 6: Determination of grammage*

— *Part 7: Determination of optical properties*

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

— *Part 9: Determination of ball burst strength*

Tissue paper and tissue products

Part 5:
Determination of wet tensile strength

1 Scope

This part of 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 part of ISO 12625 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.

It is expressly stated that the detection of impurities and contraries in tissue paper and tissue products should be applied according to ISO 15755.

For the determination of moisture content in tissue paper and tissue products, ISO 287 should be applied.

2 Normative references

The following referenced documents are indispensable for the application 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*

ISO 7500-1, *Metallic materials — Verification of static 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 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 a 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

Tensile-strength-testing apparatus shall be in accordance with 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.

The force-measuring system shall measure loads with an accuracy of ± 1 % of the reading or ± 0,1 N, whichever is the greater. It shall be calibrated and verified in accordance with the requirements of ISO 7500-1.

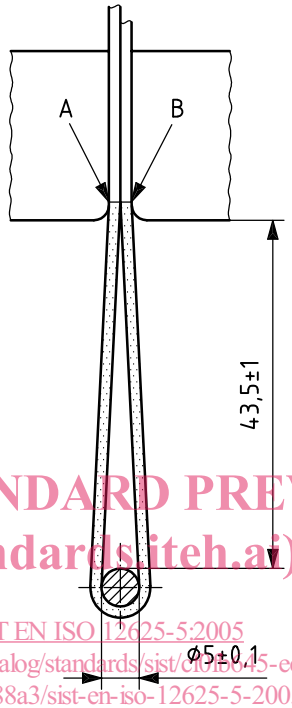
5.1.2 Tensile-tester clamps

The tensile-strength-testing apparatus (5.1.1) shall have an upper clamp with a minimum of 50 mm width, for holding both ends of the test piece firmly and without slippage. To avoid damaging the test pieces, the clamp surfaces that touch the pieces should be smooth and have rounded edges, i.e. free from burrs. The lower clamp shall be designed to grip the Finch Cup soaking device (5.1.3) firmly. The clamps shall have means for adjusting the clamping force.

During the test, the upper clamping line and the Finch Cup soaking device rod (5.1.3) shall be parallel to each other. They shall also be perpendicular to the direction of the applied tensile force and to the length axis of the test piece.

The test span length, which is defined as the distance between the clamping line and the top surface line of the cylindrical rod of the Finch Cup soaking device, shall be adjustable to ± 1 mm (see Figure 1).

Dimensions in millimetres



Key

$\overline{AB}$ = (100 ± 2) mm
= total span length

$\frac{\overline{AB}}{2}$ = (50 ± 1) mm
= test span length

Figure 1 — Positioning of a test piece

5.1.3 Finch Cup soaking device

A Finch Cup soaking device (see Figure 2) consists of a support system that holds a horizontal cylindrical rod of (5 ± 0,1) mm diameter, and approximately 60 mm length, and a water container.

The water container shall be constructed such that it can be moved vertically and locked in a raised position. In the locked raised position, the water in the container shall completely surround the cylindrical rod, which is thereby immersed in the liquid to a depth of (20 ± 1) mm, as indicated in the example of Figure 2.

Projecting downwards, from the bottom of the device, is a rigid metal tongue by means of which the device can be held in the lower clamp of the tensile-strength-testing apparatus.