SLOVENSKI STANDARD
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Tissue papir in proizvodi iz tissue papirja - 17. del: Določanje razvlaknjevanja v vodi (ISO/DIS 12625-17:2020)

Tissue paper and tissue products - Part 17: Determination of disintegration in water (ISO/DIS 12625-17:2020)

Tissue-Papier und Tissue-Produkte - Teil 17: Bestimmung der Desintegration in Wasser (ISO/DIS 12625-17:2020)

Papier tissue et produits tissue - Partie 17: Détermination de la désintégration dans l'eau (ISO/DIS 12625-17:2020)

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Tissue paper and tissue products —

Part 17:
Determination of disintegration in water

Papier tissue et produits tissue —

Partie 17: Détermination de la désintégration dans l'eau

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Foreword

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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).

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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*.

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.

Introduction

This document describes a test method to determine the disintegration in water for tissue paper and tissue products after agitation time periods of 30 s, 2 min and 10 min.

Tissue paper and tissue products —

Part 17:
Determination of disintegration in water

1 Scope

This document specifies a method to assess the disintegration of tissue paper and tissue products when subjected to mechanical agitation in water.

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 638, *Paper, board and pulps — Determination of dry matter content — Oven-drying method*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 3310-2, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal plate*

ISO 14487, *Pulps — Standard water for physical testing*

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:

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

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

3.1
desintegration
process that is characterized by a material breaking into small pieces in water under specified conditions

4 Principle

A test piece of tissue paper or tissue product is placed in a beaker and is agitated in water using an impeller rotating at a constant speed for time durations of 30 s, 2 min and 10 min. After agitation, the beaker contents are poured into a calibrated sieve, and if there are remains on the sieve, they are collected and analysed gravimetrically to determine the percentages of disintegration after each agitation time period.

5 Reactants

5.1 Deionized water at 23 °C ± 0,5 °C, with a conductivity ≤ 0,25 mS/m at 25 °C, in accordance with ISO 14487.

6 Apparatus

6.1 Transparent beaker with a flat bottom, internal diameter 98 mm ± 5 mm, total height 150 mm.

6.2 Graduated cylinder, beaker, or other suitable container, having enough capacity to accurately measure and contain 600 ml ± 10 ml of water.

6.3 Stopwatch with an accuracy of 0,1 s.

6.4 Agitating device with a rotation speed of 800 r/min ± 20 r/min, equipped with a polytetrafluoroethylene (PTFE) screw-propeller. The technical description of the propeller is given in Annex A, Figure A.1.

6.5 Stainless-steel test sieve, compliant with ISO 3310-2, 200 mm dia. x 50 mm H, with perforated plate with round holes 12,5 mm in diameter.

NOTE Example and picture of typical, suitable and commercially available sieve is given in Annex B (Retsch brand Stainless-Steel Test Sieve, 200mm diameter, with perforated plates with round holes 12.5 mm diameter. See Figure B.4).

6.6 Drying oven capable of maintaining a constant air temperature of 105 °C ± 2 °C, suitably ventilated, and capable of maintaining 80 °C ± 2 °C when test pieces are submitted to accelerated ageing.

6.7 Analytical balance with an accuracy of 0,001 g.

6.8 Drying pans

6.9 Forceps

6.10 Desiccator

6.11 Shower head of diameter 70 mm ± 5 mm, having 50 ± 5 holes of diameter 1,0 mm ± 0,2 mm. attached to a faucet (tap) with a regulator adjusted to deliver 4,0 l/min ± 0,5 l/min.

NOTE Examples and pictures of typical, suitable and commercially available shower head types are given in Annex B.

7 Conditioning of test pieces

Conditioning shall be done prior to the preparation of test pieces, according to ISO 187.

8 Preparation of test pieces

8.1 General

If the tests are being made to evaluate a lot, the sample shall be selected in accordance with ISO 186.

If the tests are being made on another type of sample, make sure that the specimens taken are representative of the sample. Each test piece shall be free from faults not normally inherent to the tissue.

For converted multi-ply tissue products, testing shall be done on the product as received, regardless of the number of plies which are supplied as a product unit (no ply separation).

Tissue papers that have not been converted into finished products shall be tested as single plies, unless otherwise agreed between the parties concerned

8.2 Accelerated ageing (optional)

The wet strength of tissue paper is frequently enhanced by addition of a wet strength agent. An accelerated ageing with heat, also called curing, is frequently used to develop the maximum wet strength that a tissue paper or tissue product will achieve after a period of natural ageing at ambient conditions, which may vary from a few days to several weeks depending on the wet strength agent used.

NOTE 1 The decision of whether or not to use accelerated ageing will be determined by the user of this standard, based upon the information about the tissue paper or tissue product sample being tested. Accelerated ageing is not a requirement of this standard, but is an allowed option.

There is no rule for determining whether to rapidly age or not, but the following principles are generally applied.

Tissue product which has not left the manufacturing environment is usually subjected to accelerated ageing. It is recommended that this be carried out by heating the samples in an oven at 80 °C ± 2 °C for 30 min and then placing them in the standard atmosphere specified in ISO 187 for at least 1 h prior to testing.

NOTE 2 For quality control of the production process, where test results are required quickly, accelerated ageing conditions of 105°C ± 2 °C for 15 min may be used, and shall be recorded with the reported results.

Test pieces which have been delivered into the marketing chain, and especially those available for sale to the consumer, are generally not subjected to accelerated ageing.

The test report shall state whether the sample was subjected to accelerated ageing, and if so, the procedure used.

8.3 Mass

Cut samples in the cross direction to provide test pieces with a mass of 1,0 g ± 0,1 g.

If the sample is in continuous sheet form, cut a continuous length of material in the cross direction of such dimensions as to achieve the required mass.

If the sample is in the form of separate units, such as boxed tissue, take sufficient units and, if necessary, cut a portion of a unit in the cross direction as to achieve the required mass.

If the test piece is larger than 12 cm in either direction (machine direction or cross direction), then it must be folded in middle until it is 12 cm or less in both directions. Only fold the minimum number of times needed to achieve dimensions of 12 cm or less.

Prepare nine test pieces.

Additionally, at least 4 g of sample is required for determination of dry matter content.

9 Test procedure

9.1 General

9.1.1 Determine the dry matter content (X) of the sample according to ISO 638.