SLOVENSKI STANDARD
SIST EN ISO 9073-12:2005

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Tekstilije - Metode preskušanja vlaknovin - 12. del: Zahtevana vpojnost (ISO 9073-12:2002)

Textiles - Test methods for nonwovens - Part 12: Demand absorbency (ISO 9073-12:2002)

Textilien - Prüfverfahren für Vliesstoffe - Teil 12: Bestimmung der Saugfähigkeit (ISO 9073-12:2002)

Textiles - Méthodes d'essai pour nontissés - Partie 12: Absorption par contact unifacial (ISO 9073-12:2002)

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Textiles - Test methods for nonwovens - Part 12: Demand absorbency (ISO 9073-12:2002)

Textiles - Méthodes d'essai pour nontissés - Partie 12: Absorption par contact unifacial (ISO 9073-12:2002)

Textilien - Prüfverfahren für Vliesstoffe - Teil 12: Bestimmung der Saugfähigkeit (ISO 9073-12:2002)

This European Standard was approved by CEN on 21 December 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

The text of ISO 9073-12:2002 has been prepared by Technical Committee ISO/TC 38 "Textiles" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 9073-12:2004 by Technical Committee CEN/TC 248 "Textiles and textile products", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.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.

Endorsement notice

The text of ISO 9073-12:2002 has been approved by CEN as EN ISO 9073-12:2004 without any modifications.

INTERNATIONAL STANDARD

ISO 9073-12

First edition
2002-11-01

Textiles — Test methods for nonwovens —

Part 12: Demand absorbency

Textiles — Méthodes d'essai pour nontissés —

Partie 12: Absorption par contact unifacial

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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 3.

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 part of ISO 9073 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 9073-12 was prepared by Technical Committee ISO/TC 38, *Textiles*.

ISO 9073 consists of the following parts, under the general title *Textiles — Test methods for nonwovens*:

— *Part 1: Determination of mass per unit area*

— *Part 2: Determination of thickness*

— *Part 3: Determination of tensile strength and elongation*

— *Part 4: Determination of tear resistance*

— *Part 6: Absorption*

— *Part 7: Determination of bending length*

— *Part 8: Determination of liquid strike-through time (simulated urine)*

— *Part 9: Determination of drape coefficient*

— *Part 10: Generation of lint and other particles in the dry state*

— *Part 11: Run-off*

— *Part 12: Demand absorbency*

Annex A forms a normative part of this part of ISO 9073. Annexes B and C are for information only.

Textiles — Test methods for nonwovens —

Part 12: Demand absorbency

1 Scope

This part of ISO 9073 describes a method for the evaluation of the absorbency of fabrics when one side is in contact with a liquid and the fabric is under mechanical pressure.

This test is designed to allow comparison of absorbent materials such as nonwovens and is not intended to simulate in-use conditions of finished products.

NOTE Demand absorbency is also called demand wettability.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 9073. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 9073 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 139:1973, *Textiles — Standard atmospheres for conditioning and testing*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*

3 Terms and definitions

For the purposes of this part of ISO 9073 the following terms and definitions apply.

3.1
maximum absorbed mass
A_f
mass of liquid absorbed, in grams, at time T_f, when the absorbed mass variation in the previous 5 s time period is lower than 1 % of the absorbed mass corresponding to T_f

3.2
demand absorbency capacity
DAC
maximum absorbed mass of liquid, A_f, divided by the mass of the test piece, m, expressed in grams per gram

3.3
maximum absorption rate
MAR
maximum change in liquid absorbed mass per time interval, expressed in grams per second

NOTE The MAR is calculated over a 1 s time period from data recorded with sampling intervals of 0,25 s or less. The maximum absorption rate is observed at the point of inflexion of the curve absorbed mass of liquid versus time.

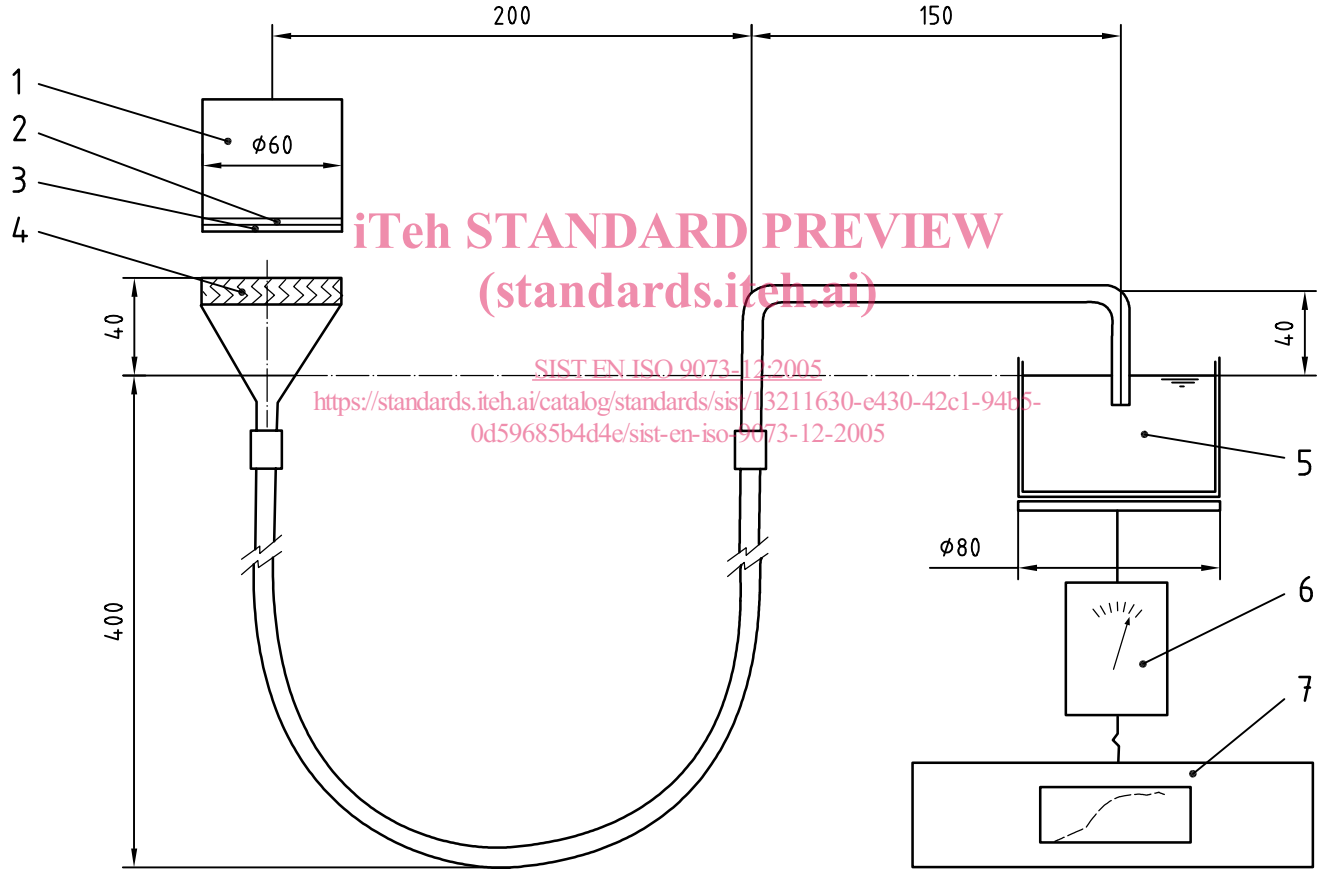
4 Principle

The method measures the demand absorbency of a fabric under constant mechanical pressure. The test piece is placed on a specified porous plate, which is connected by a siphon to a liquid reservoir. The level in the reservoir is set below the upper surface of the porous plate. The demand absorbency is measured in terms of the change in mass of the reservoir with time.

5 Apparatus

See Figure 1.

Dimensions in millimetres



Key

1 Cylindrical weight
2 Foam piece
3 Sample
4 Porous glass plate
5 Reservoir
6 Electronic balance
7 Data system

Figure 1 — Siphon assembly

5.1 Plain porous glass plate, diameter (60 ± 1) mm set into the top of a funnel which has a minimum outlet diameter of (7,0 ± 0,2) mm. The plate (4 ± 1) mm thick has a porosity rating of 2 (4 μm to 90 μm) and a flow rate of 2,5 g/s to 3,5 g/s under the conditions specified in the calibration procedure (see annex A).

5.2 Glass reservoir, cylindrical, with a diameter ⩾ 80 mm.

5.3 Siphon assembly, consisting of a glass U-tube and a flexible silicone rubber tube each with an internal diameter of (8,0 ± 0,2) mm (see Figure 1).

5.4 Electronic balance, to weigh the reservoir and its content, capable of determining the mass to an accuracy of 0,01 g.

5.5 Data acquisition system, that allows the change of mass of the reservoir to be recorded against time (e.g. microprocessing device, data analysis and printing device). If this is a digital system it shall be able to take readings at least four times per second.

NOTE High absorbent rate materials may need readings taken eight times per second. (See 9.4, note 1.)

5.6 Hydrophobic polyether-polyurethane foam piece, (55 ± 1) mm in diameter and (2,0 ± 0,5) mm thick, with 20 regular open cells per centimetre and a density of (28 ± 3) kg/m^3.

5.7 Cylindrical weight, (60 ± 1) mm in diameter. The total mass of the weight and the foam piece shall be (605 ± 5) g, which corresponds to an imposed pressure on the test piece of (2,50 ± 0,05) kPa.

5.8 Test liquid, normally demineralized water (in accordance with ISO 3696), but other appropriate liquids can be used. The liquid used shall be specified and identified in the test report and used at temperature of (20 ± 2) ºC.

5.9 Cleaning product, e.g. sulfochromic acid (1/3 $K_2Cr_2O_7$ at 50 g/l and 2/3 H_2SO_4 at 95 %) or equivalent.

5.10 Spirit level.

6 Assembly of the apparatus

6.1 The layout of the apparatus is shown in Figure 1. The components shall be assembled according to the dimensions given.

6.2 The hydrophobic foam (5.6) is attached to the bottom of the cylindrical weight (5.7) using hydrophobic double-sided tapes so that the foam can be changed from time to time.

6.3 In order that the apparatus be filled with liquid without the entrainment of air bubbles, ensure that all the tubes are filled and then connect them to the funnel containing the porous medium under water as shown in Figure 2.

6.4 Using a spirit level (5.10), align the top surface of the porous medium and the horizontal part of the top external surface of the glass U-tube (5.3) ensuring both are (40,0 ± 0,5) mm above the liquid level in the reservoir.

6.5 Set up the data acquisition system (5.5) and check it for effectiveness.

NOTE The flow resistance of the apparatus itself will affect the results and this is governed by the dimensions and shapes of the tubes, the water level and the porosity of the porous medium. Consequently it is essential to adhere to the specifications of the apparatus and the defined procedure if good reproductibility is to be obtained.