



SLOVENSKI STANDARD
oSIST prEN ISO 9073-14:2022
01-september-2022

Vlaknovine - Metode preskušanja - 14. del: Povratno vlaženje vpojnega prekrivnega materiala (simulirani seč) (ISO/DIS 9073-14:2022)

Nonwovens - Test methods - Part 14: Coverstock wetback (simulated urine) (ISO/DIS 9073-14:2022)

Vliesstoffe - Prüfverfahren - Teil 14: Auflagen (künstlicher Urin) (ISO/DIS 9073-14:2022)

Nontissés - Méthodes d'essai - Partie 14: Remouillage de l'enveloppe (urine artificielle) (ISO/DIS 9073-14:2022)

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59.080.30 Tkanine Textile fabrics

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Nonwovens — Test methods —

Part 14: Coverstock wetback (simulated urine)

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ISO/DIS 9073-14:2022(E)

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 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 38, *Textiles*, Working Group WG 9, *Nonwovens*.

This second edition cancels and replaces the first edition (ISO 9073-14:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

- Title change
- Textual review and improvement
- Improved description of [5.1](#), [5.2](#) and [5.3](#)
- Procedure description in [9.3](#) changed
- Report items changed and addition of blotter paper identification

A list of all parts in the ISO 9073 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.

Nonwovens — Test methods —

Part 14: Coverstock wetback (simulated urine)

1 Scope

This document specifies a test method for the determination of the ability of diaper coverstock to resist the transport back onto the skin of a liquid which has already penetrated the coverstock.

This test corresponds with Repeated Liquid Strike-Through Time - NWSP 070.7.

This test method is intended for Quality Control and is designed for comparison of wetback for different nonwoven coverstocks and treatments. It does not simulate in use conditions for finished products.

SI values are regarded as the official standard system of measurement for this standard procedure. If other systems of measurement are used in place of SI units (including inch-pound), their values must be reported independently. Systems of measurement must not be combined in any way, but shall be regarded and reported separately.

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 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 3951-1, *Sampling procedures for inspection by variables — Part 1: Specification for single sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection for a single quality characteristic and a single AQL*

ISO 5725-1, *Accuracy (trueness and precision) of Measurement Methods and Results — Part 1: General Principles and Definitions*

ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO 9073-8¹⁾, *Textiles — Test method for nonwovens — Part 8: Determination of liquid strike-through time (simulated urine)*

ISO 9237, *Textiles — Determination of the permeability of fabrics to air*

ISO 5636-1, *Paper and board, determination of air permeability*

ASTM D 3574, *Standard test method for flexible cellular materials, slab, bonded and moulded urethane foams.*

1) NOTE: ISO 9073-8 measures the STT for a single dose contrary to NWSP 070.7 which measures the STT for repeated doses.

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NWSP 001.0, *Standard Terminology Relating to the Nonwoven Industry, EDANA's and INDA's Standard Procedures*

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 <https://www.electropedia.org/>

3.1 sample
product or portion of a product taken from a production lot for testing purposes, identifiable and traceable back to the origin

3.2 simulated urine
testing liquid consisting of a 9 g/l solution of sodium chloride in demineralized water with a surface tension of (70 ± 2) mN/m

3.3 test specimen
specific portion of the identified sample upon which a test is performed, many specimens sometimes being tested from the same sample, using different locations

3.4 strike-through time
the time taken for a known volume of liquid to pass through the nonwoven that is in contact with an underlying dry standard absorbent pad

4 Principle

A test specimen of coverstock is placed over a standard absorbent medium (ply of blotter paper) which is then loaded three times according to the Repeated STT method NWSP 70.7 with a specific quantity of simulated urine. After the third dose a Simulated Baby Weight (SBW) is placed onto the coverstock and absorbent medium to ensure even spreading of the liquid.

A pre-weighed pick-up paper is then placed on the coverstock and the weight (SBW) again put on top.

The mass of liquid absorbed by the pickup paper is defined as wetback.

5 Reagents and materials

Use reagents of recognized analytical grade, unless otherwise specified, and demineralized water.

5.1 Absorbent pad (blotter paper).

The absorbent pad for this method consists of 7 layers of blotter paper (100 mm x 100 mm) with the smooth side up.

The blotter paper needs to meet the following specifications:

- a) The mass per unit area of paper is (139 ± 11) g/m².
- b) The liquid absorption capacity, of the paper, as determined by NWSP 010.1, is at least 480 %.

- c) The mean first strike-through time is 2 seconds or less, using test procedure NWSP 70.7, but without a test sample.

NOTE Information concerning a potential source of suitable blotter paper can be obtained from the nonwovens industry associations:

EDANA, www.edana.org or look directly at the [test method webpage](#)

INDA, www.inda.org

5.2 Simulated urine.

Consisting of a 9 g/l solution of sodium chloride in water with a surface tension of (70 ± 2) mN/m. This surface tension should be checked before each series of tests, as it can alter during storage.

NOTE The surface tension of adult human urine is published as 69 to 70 mN/m. There is a suggestion that some babies' urine could have a lower surface tension (e.g. 45 mN/m). The surface tension of the simulated urine can be adjusted by the addition of a surfactant. In this case it should be reported as a deviation from standard procedure and the surface tension should be stated in the test report.

5.3 Pick-up (blotter) paper, with dimensions 125 mm x 125 mm, needs to meet the same specifications as the absorbent pad, see [5.1](#).

6 Apparatus

6.1 Burette, with a 50 ml capacity, with a supporting stand, or 5 ml pipette.

6.2 Funnel, fitted with a magnetic valve, giving a rate of discharge of 25 ml in $(3,5 \pm 0,25)$ s.

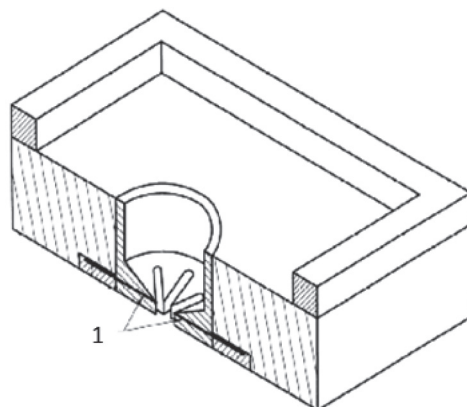
6.3 Ring stand, to support the funnel.

6.4 Strike-through plate, see [Figures 1](#) and [2](#), constructed of 25 mm thick transparent acrylic sheet, of total mass (500 ± 5) g, fitted with corrosion-resistant electrodes consisting of 1,6 mm diameter platinum or stainless-steel wire set in grooves of cross-section 4,0 mm x 7,0 mm cut in the base of the plate and fixed with quick-setting epoxy resin.

a) The electrodes shall be positioned as shown in [Figures 1](#) and [2](#).

b) Base plate, of transparent acrylic sheet, approximately 125 mm x 125 mm square and the thickness about 5 mm.

NOTE The plate surface, electrode surface and the star-shaped orifice must be clean and free from deposit or particulate matter. Clean regularly, e.g. with mildly abrasive car polish and dry cloth, and/or hot water.

**Key**

1 wire electrodes \varnothing 1,6 mm

Figure 1 — Section across strike-through plate on centreline of 25 mm dia. cavity

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