
**Footwear — Test methods for insoles and
insocks — Water absorption and
desorption**

*Chaussures — Méthodes d'essai applicables aux premières de
montage et aux premières de propreté — Absorption et désorption
d'eau*

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Foreword

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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 22649 was prepared by CEN (as EN 12746:2000) and was adopted, under a special “fast-track procedure”, by Technical Committee ISO/TC 216, *Footwear*, in parallel with its approval by the ISO member bodies.

The version of EN 12746 reproduced in this International Standard incorporates the amendment EN 12746/A1:2003.

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 309 "Footwear", the secretariat of which is held by AENOR.

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of an identical text or by endorsement, at the latest by September 2000, and conflicting national standards shall be withdrawn at the latest by September 2000.

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

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1 Scope

This European standard specifies two test methods for determining the water absorption and desorption of insoles and insocks, irrespective of the material.

These methods are:

- Method A: Determination of the static water absorption and desorption of insoles and insocks.
- Method B: Determination of the dynamic water absorption and desorption of insoles

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 12222, *Footwear – Standard atmospheres for conditioning and testing of footwear and components for footwear*

EN 13400:2001, *Footwear – Sampling location, preparation and duration of conditioning of samples and test pieces*

3 Definitions

ISO 22649:2003

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For the purposes of this standard the following definitions apply:

3.1

water absorption

the gain in mass per area unit of the test piece due to water absorption during one or more specified periods of time

3.2

water desorption

the percentage loss in mass of the test piece, expressed in terms of the mass of water absorbed

4 Apparatus and material

The following apparatus and material shall be used:

4.1 Method A

4.1.1 Laboratory balance with an accuracy of 0,01 g.

4.1.2 Square knife, to cut a test piece of (50 mm ± 1 mm) x (50 mm ± 1 mm). The inner surface of the knife shall be angled outward from the cutting edge at approximately 5° to the vertical so that when the test piece is cut the knife passes through it without damage to the test piece edge.

4.1.3 Filter paper

4.1.4 Distilled water

4.1.5 Beaker or recipient with flat bottom and suitable dimensions.

4.1.6 Vernier calipers, capable of measuring to an accuracy of 0,2 mm.

4.2 Method B

4.2.1 Apparatus (as indicated in figure 1) composed of:

4.2.1.1 Brass roller (A), of diameter $120 \text{ mm} \pm 1 \text{ mm}$ and width $50 \text{ mm} \pm 1 \text{ mm}$, which is placed over the test piece (B).

4.2.1.2 Platform (C) is covered, with a roughened upper surface and with sufficient perforations to allow the surface to be kept wet by a flow of water through the platform. The upper surface of the platform (C) is covered, by a strip of cotton gauze.

4.2.1.3 Clamp (D), to hold one short side of the test piece (B) in a horizontal position on the platform (C).

4.2.1.4 Clamp (E), to attach the other short side of the test piece to the roller with the attached side being parallel to the axis of the roller.

The clamp is held by a weak spring to maintain the sample under slight tension.

4.2.1.5 Water supply (F), through the platform (C) and a means of draining away excess water.

4.2.1.6 Means of moving the axis of the roller, with a *to-and-fro* motion along the X-X axis, with an amplitude of $50 \text{ mm} \pm 2 \text{ mm}$ about a point directly over the mid point of the test piece and frequency of (20 ± 1) cycles per minute.

The movement of the axis causes the roller to move backwards and forwards along the test piece, raising one end and bending it to conform to the shape of the roller.

4.2.1.7 Means of pressing the platform, test piece and roller together with a force of $80 \text{ N} \pm 5 \text{ N}$.

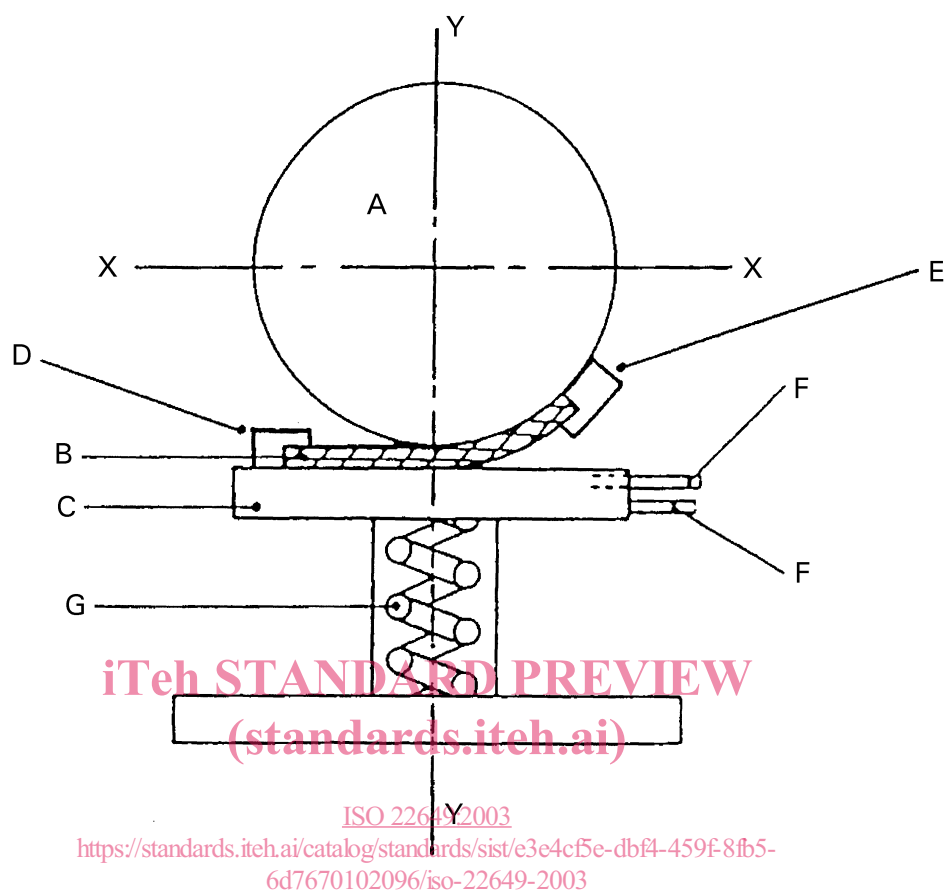


Figure 1 – Device for measuring water absorption and desorption

4.2.2 Press knife to cut test pieces of dimensions $(110 \text{ mm} \pm 1 \text{ mm}) \times (40 \text{ mm} \pm 1 \text{ mm})$.

4.2.3 Balance, reading to 0,001 g.

4.2.4 Clock, reading to 1 s.

4.2.5 Silicone grease.

5 Sampling and conditioning

5.1 Method A

Using the square knife described in 4.1.2, cut a test piece of dimensions $(50 \text{ mm} \pm 1 \text{ mm}) \times (50 \text{ mm} \pm 1 \text{ mm})$ from the shoe insole or insock, cut insole or insock, or from the