INTERNATIONAL STANDARD

ISO 22652

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Footwear — Test methods for insoles, lining and insocks — Perspiration resistance

Chaussures — Méthodes d'essai relatives aux premières de montage, doublures et première de propreté — Résistance à la transpiration

Reference number
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Foreword

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

ISO 22652 was prepared by CEN (as EN 12801:2000) 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.

For the purposes of international standardization, a list of corresponding International and European Standards for which equivalents are not given in EN 12801 has been listed as annex ZZ.

The version of EN 12801 reproduced in this International Standard incorporates the amendment EN 12801/A1:2001.

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of an identical text or by endorsement, at the latest by August 2000, and conflicting national standards shall be withdrawn at the latest by August 2000.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

1 Scope

This European standard specifies a method for the determination of the ageing of insoles, lining or insocks, caused by human sweat.

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 into 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.*
prEN 13400:1998	*Footwear – Sampling location of components for footwear.*

3 Definitions

For the purposes of this standard the following definition applies:

3.1
perspiration resistance
resistance to the action of an artificial sweat solution, measured by the change in size and appearance of the component tested

4 Apparatus and material

The following apparatus and material shall be used:

4.1 Oven for heating the test piece to 35 °C ± 1 °C and 40 °C ± 1 °C.

4.2 Measuring devices, Vernier calipers or similar, capable of measuring to an accuracy of 0,1 mm.

4.3 Glasses or flat bottomed containers of an adecuate size such that the test pieces can be placed in the bottom.

4.4 Alkaline perspiration solution containing, per litre of solution:

- l-histidine monohydrochloride monohydrate: 5,00 g;
- Sodium chloride: 5,00 g;
- Disodium hydrogen orthophosphate dihydrate: 2,50 g.

After preparation, the solution is brought to pH 8 with 0,1 M sodium hydroxide solution.

5 Sampling and conditioning

Cut a test piece of dimensions (60 mm ± 20 mm) x (60 mm ± 20 mm) from the shoe, cut component or component as supplied. According to the given dimensions, cut the test pieces as big as the sample will allow.

Minimum two test pieces are necessary.

If the test piece is taken from the shoe or cut component, sampling shall be done according to prEN 13400:1998.

Condition the test pieces according to EN 12222, for a minimum of 24 h.

6 Test method

6.1 On the conditioned test piece parallel lines are traced 5 mm in from each side (see figure 1).

6.2 With a measuring device (see 4.2) measure distances A-B, C-D, E-F and G-H.

6.3 Place the test piece in the container with the artificial sweat solution (see 4.4). The test piece shall be placed so that the sweat solution can reach the upper part of the test piece through the addition of a small weight. Then the whole collection is placed in a drying oven (see 4.1) at 35 °C for 24 hours.

6.4 The test piece is taken out of the sweat solution, washed with distilled water and put in the oven at 40 °C for 24 hours.

6.5 Take the test piece out of the drying oven and leave for 24 hours in a normalized atmosphere according to EN 12222.

6.6 Repeat steps 6.3, 6.4 and 6.5 five times.

6.7 Measure distances A-B, C-D, E-F and G-H.

During measurement unfold test piece, if folded.

6.8 If desired the mechanical strength of the material can be determined (tensile strength or tear resistance) before and after treatment.

7 Expression of results

7.1 Calculate the linear shrinking (lengthways and widthways) following the equations:

$$k_a = \frac{L_{1a} - L_{2a}}{L_{1a}} \, x \, 100$$

where:

k_a is the shrinking in direction a, expressed as a pecertange
L_{1a} is the average initial length of A-B and C-D (see 6.2)
L_{2a} is the average length of A-B and C-D after treatment described (see 6.7)

and

$$k_b = \frac{L_{1b} - L_{2b}}{L_{1b}} \times 100$$

where:

k_b is the shrinking in direction b, expressed as a percentage
L_{1b} is the average initial length of E-F and G-H (see 6.2)
L_{2b} is the average length of E-F and G-H after treatment described (see 6.7).

Express the results to the nearest 0,5 %.

7.2 If the test for tensile strength or tear strength has been carried out, express this result in pascals or newtons per square metre for each of the directions.

8 Test report

The test report shall include the following information:

a) the results, expressed in accordance with 7.1 and 7.2;
b) full description of the samples tested including commercial styles, codes, colours, nature, etc.;
c) description of sampling procedure, where relevant;
d) reference to the method of test;
e) details of any deviation from the standard test procedure;
f) date of testing.