INTERNATIONAL STANDARD

ISO 9986

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Composition cork for shoe outsoles

Aggloméré composé de liège pour semelles extérieures pour chaussure

Reference number
ISO 9986:1990(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.

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.

International Standard ISO 9986 was prepared by Technical Committee ISO/TC 87, *Cork*.

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Composition cork for shoe outsoles

1 Scope

This International Standard specifies requirements for test methods for composition cork for the manufacture of outsoles of shoes and boots.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2077:1979, *Pure expanded corkboard — Determination of the modulus of rupture by bending.*

ISO 4714:1986, *Composition cork — Specifications.*

ISO 7322:1986, *Cork — Composition cork — Test methods.*

3 Requirements

3.1 Dimensions and tolerances

Unless otherwise agreed, the nominal dimensions of composition cork for the manufacture of outsoles are as follows:

blocks:	1 025 mm × 525 mm × 200 mm
slabs:	1 025 mm × 525 mm × 30 mm
	1 025 mm × 525 mm × 60 mm
	1 025 mm × 525 mm × 100 mm

The tolerances on these dimensions are specified in ISO 4714.

3.2 Density

Blocks or slabs tested in accordance with 5.3.2 shall have a density not less than 250 kg/m³.

3.3 Moisture content

The moisture content of composition cork tested in accordance with 5.3.3 shall not be higher than 8 %.

3.4 Resistance to boiling water

Composition cork tested in accordance with 5.3.4 shall not shown signs of disintegration.

3.5 Water retention and loss

Composition cork tested in accordance with 5.3.5 shall not exhibit water retention greater than 30 % and shall show a water loss greater than 40 %.

3.6 Resistance to bending

Composition cork tested in accordance with 5.3.6 shall not exhibit cracks when under a flexion of 10 daN/cm² before being immersed in water and of 5 daN/cm² after immersion in water.

3.7 Resistance to mould

Composition cork tested in accordance with 5.3.7 shall not exhibit the development of mould.

3.8 Tensile strength

See ISO 4714.

4 Sampling

From each homogeneous lot of up to 500 units, take at random 1 % of the blocks or slabs. From each homogeneous lot of more than 500 units, take 0,2 % of the blocks or slabs up to a maximum of 10 blocks or slabs.

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The number of the blocks or slabs to be taken shall be rounded off to the nearest higher unit.

5 Test methods

5.1 Apparatus

See ISO 2077 and ISO 7322.

5.1.1 Vernier gauge, accurate to 0,1 mm.

5.1.2 Container, to carry not the test of retention and loss of water.

5.2 Test pieces

5.2.1 Preparation

Laminate the blocks or slabs to obtain test samples with thickness of 25 mm. Cut each sample at the extremities and in the middle to obtain the dimensions and number of test pieces as indicated in table 1.

5.2.2 Conditioning

The tests shall be carried out at room temperature, using test pieces previously conditioned for 24 h in a conditioning chamber at a temperature of 20 °C ± 2 °C and a relative humidity of (65 ± 5) %.

5.3 Determinations

5.3.1 Dimensions

Each of the dimensions of the blocks or slabs, determined by means of a metal ruler, shall be the arithmetic average of three measurements taken on the edges and in the middle of the corresponding face.

Express the results, in millimetres, rounded off to the nearest integer.

5.3.2 Density

Determine the density of the test pieces in accordance with ISO 7322.

5.3.3 Moisture content

Determine the moisture content of the test pieces by drying them in the oven at 103 °C ± 2 °C to constant mass.

5.3.4 Resistance to boiling water

Determine the resistance of the test pieces to boiling water in accordance with ISO 7322.

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Table 1 — Dimensions and number of test pieces

Test	Dimensions of test pieces (mm)	Number of test pieces	Remarks
Dimensions	Block or slab itself	According to sampling	—
Density	Unit obtained from lamination of the block or slab	3	—
Moisture content	50 × 50 × 25	3	—
Resistance to boiling water	50 × 50 × 25	3	—
Water retention and loss	175 × 75 × 25	(3*)	Test pieces are later submitted to the test for resistance to bending
Resistance to bending	175 × 75 × 25	3 + (3*)	(3*) from the previous test
Resistance to mould	50 × 50 × 25	5	—
Tensile strength	100 × 50 × 25	3	—

5.3.5 Water retention and loss

5.3.5.1 Procedure

Determine the mass of a piece (m_0).

Immerse the test piece for three days in a container containing distilled water.

Remove excess water with filter paper and weigh again (m_1).

Leave the test piece for 16 h at the ambient temperature and weigh once again (m_2).

Repeat these operations for all the test pieces.

5.3.5.2 Expression of results

Calculate the water retention R and loss P related to the initial mass of each test piece, expressed as a percentage and rounded off to the nearest 0,1, using the formulae:

$$R = \frac{m_1 - m_0}{m_0} \times 100$$

$$P = \frac{m_1 - m_2}{m_1 - m_0} \times 100$$

where

m_0 is the initial mass of the test piece, expressed in grams, rounded off to the nearest 0,1 g;

m_1 is the mass of the test piece after immersion, expressed in grams, rounded off to the nearest 0,1 g;

m_2 is the final mass of the test piece, expressed in grams, rounded off to the nearest 0,1 g.

Calculate the water retention and loss of the sample as the arithmetic averages of the results obtained for all test pieces.

Express the results as percentages, rounded off to the nearest integer.

5.3.6 Resistance to bending

Determine the resistance of the test pieces to bending in accordance with ISO 2077.

The test shall be carried out both on test pieces as prepared, and on test pieces previously tested as in 5.3.5.

5.3.7 Resistance to mould

5.3.7.1 Procedure

Place the test pieces for 7 d in a conditioning chamber with a temperature of 35 °C ± 5 °C, and with a relative humidity higher than 90 %.

Remove the test pieces and observe them with the naked eye.

5.3.7.2 Expression of results

Express the results by reporting the presence or absence of mould.

5.3.8 Tensile strength

See ISO 7322.

5.4 Test report

The test report shall include the following information:

a) reference to this International Standard;

b) all details required to identify the sample;

c) the results obtained;

d) all details of procedure not specified in this International Standard or any optional operations;

e) any occurrences that may have affected the results.

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