INTERNATIONAL STANDARD

ISO 20877

Second edition
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Footwear — Test methods for whole shoe — Thermal insulation

Chaussures — Méthodes d'essai applicables à la chaussure entière — Isolation thermique

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 2.

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

ISO 20877 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 309, *Footwear*, in collaboration with Technical Committee ISO/TC 216, *Footwear*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 20877:2001), which has been technically revised.

Footwear — Test methods for whole shoe — Thermal insulation

1 Scope

This International Standard specifies a method for measuring insulation of footwear against heat or cold, in order to provide information for assessing footwear comfort.

This International Standard is applicable to all types of closed footwear or boots except for footwear used as personal protective equipment. It does not address safety aspects.

2 Normative references

The following referenced documents are indispensable for the application 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 19952, *Footwear — Vocabulary*

ISO 20344:2011, *Personal protective equipment — Test methods for footwear*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19952 and the following apply.

3.1
thermal insulation
temperature difference on the inner surface of the vamp or insocks, or both, under specific test conditions

4 Apparatus and material

4.1 General

The following apparatus and material shall be used.

4.2 Insulation against cold

Equipment in accordance with ISO 20344:2011, 5.13.1, shall be used.

The internal temperature of the insulated cold box can be regulated between (−5 ± 2) °C and (−20 ± 2) °C, depending on the intended use of the footwear.

4.3 Insulation against heat

Equipment in accordance with ISO 20344:2011, 5.12.1, shall be used.

For this method, the temperature of the hot plate (T_{hp}) shall be between (50 ± 5) °C and (100 ± 5) °C, depending on the intended use of the footwear.

5 Sampling and conditioning

5.1 Insulation against cold

A minimum of two test pieces shall be used.

Use the complete item of footwear as the test piece.

Prepare the test piece in accordance with ISO 20344:2011, 5.13.2.

5.2 Insulation against heat

A minimum of two test pieces shall be used.

Use the complete item of footwear as the test piece.

Prepare the test piece in accordance with ISO 20344:2011, 5.12.2.

6 Test method

6.1 Cold insulation

Perform the test procedure in accordance with ISO 20344:2011, 5.13.3.

6.2 Heat insulation

Perform the test procedure in accordance with ISO 20344:2011, 5.12.3.

7 Test report

The test report shall include at least the following information:

a) a reference to this International Standard (ISO 20877:2011);

b) the type of insulation determination (heat or cold);

c) the temperature at which the test has been performed;

d) any alterations of the shoe caused by the temperature;

e) the difference in temperatures at the measuring point on insock;

f) the average of the values;

g) a full description of the samples tested, including commercial style codes, colours, nature, etc.;

h) a description of the sampling procedure, where relevant;

i) any deviations from this test method.