SLOVENSKI STANDARD
oSIST prEN ISO 17705:2018

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Obutev - Preskusne metode za zgornje dele, podloge in vrhnje vložke - Toplotna izolacija (ISO 17705:2003)

Footwear - Test methods for uppers, lining and insocks - Thermal insulation (ISO 17705:2003)

Schuhe - Prüfverfahren für Obermaterialien, Futter und Decksohlen - Wärmedämmung (ISO 17705:2003)

Chaussures - Méthodes d'essai des tiges, de la doublure et des premières de propreté - Isolation thermique (ISO 17705:2003)

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INTERNATIONAL STANDARD

ISO 17705

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Footwear — Test methods for uppers, lining and insocks — Thermal insulation

Chaussures — Méthodes d'essai des tiges, de la doublure et des premières de propreté — Isolation thermique

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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.

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 17705 was prepared by CEN (as EN 13521:2001) 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 13521 has been added as Annex ZZ.

Contents

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 May 2002, and conflicting national standards shall be withdrawn at the latest by May 2002.

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.

EN 13521:2001 (E)

1 Scope

This European Standard specifies a test method for determining the thermal conductivity of uppers, lining and insocks irrespective of the material, in order to assess the suitability for the end use.

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 (including amendments).

EN 12222 *Footwear - Standard atmospheres for conditioning and testing of footwear and components for footwear.*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
thermal insulation
thermal conductivity of a material under static conditions

3.2
upper
materials forming the outer surface of the footwear which is attached to the sole assembly and covers the upper dorsal surface of the foot. In the case of boots this also includes the outer face of the material covering the leg. Only the materials that are visible are included, no account should be taken of underlying materials

3.3
complete upper assembly
finished upper, fully seamed, joined or laminated as appropriate, comprising the centre material and any lining(s) together with all components such as interlinings, adhesives, membranes, foams or reinforcements, but excluding toe puffs and stiffeners

NOTE The complete upper assembly can be flat, 2-dimensional or comprise lasted upper in the final footwear.

4 Apparatus and material

The following apparatus and material shall be used:

4.1 "Lees' disc" apparatus, see Figure 1, including the following:

4.1.1 Cylindrical brass block, which will subsequently be referred to as block B1, with:

4.1.1.1 Diameter of approximately 75 mm which is known with an accuracy of 0,2 mm.

4.1.1.2 Height of approximately 25 mm which is known with an accuracy of 0,2 mm.

4.1.1.3 Hole of diameter 2 mm ± 0,1 mm drilled radially to its centre.

4.1.1.4 Type K thermocouple inserted into the hole until its junction is at the bottom of the hole.

4.1.1.5 Remaining volume of the hole shall be filled with a high thermal conductivity compound with a thermal conductivity of better than 0,8 W/(m °C), for example a metal oxide filled paste of the type used between high power semiconductor electronic devices and heat sinks.

4.1.2 Circular electrical heater element which:

4.1.2.1 Has a diameter the same as that of the blocks in 4.1.1, with a tolerance of ± 0,5 mm.

4.1.2.2 Is capable of dissipating a minimum power density of 400 W/m^2 from each of its circular faces.

4.1.2.3 Has a cylindrical brass block and thermocouple of the same dimensions as block B1 bonded to both its top and bottom faces with a high thermal conductivity adhesive compound. These two blocks will subsequently be referred to as B2 and B3.

4.1.3 A fourth cylindrical brass block fitted with a thermocouple as in 4.1.1 of the same diameter as block B1 but of height (8 ± 2) mm. This is for measuring the ambient temperature of the surrounding atmosphere and will subsequently be referred to as block B4.

4.1.4 A power supply unit connected to the heater element (4.1.2). The unit should be capable of supplying sufficient power to enable the heater element to dissipate a power density of 400 W/m^2 from each of its circular faces.

4.1.5 Means of measuring the power being supplied to the heater element to an accuracy of ± 4 mW.

4.1.6 Means of mounting the heater and block assembly so that air can circulate freely around all the outside edges of the assembly.

4.1.7 Device capable of measuring and displaying the temperatures of the thermocouples in the four brass cylindrical blocks to an accuracy of ± 0,2 °C.

4.2 Circular press knife or similar device for cutting circular test specimens of the same diameter as the block B1, with a tolerance of ± 0,5 mm.

4.3 Dial thickness gauge which applies a pressure of (2,0 ± 0,2) kPa to the test specimen and is capable of measuring to the nearest 0,01 mm.