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SWEDISH STANDARDS INSTITUTE

Skodon – Kvantitativ metod för att bedöma effekten på antimögel behandling: challenge test (ISO 20150:2019)

Footwear and footwear components – Quantitative challenge test method to assess antifungal activity (ISO 20150:2019)

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Europastandarden EN ISO 20150:2019 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 20150:2019.

The European Standard EN ISO 20150:2019 has the status of a Swedish Standard. This document contains the official version of EN ISO 20150:2019.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Läder och skodon, SIS/TK 158.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 20150

February 2019

ICS 61.060

English Version

Footwear and footwear components - Quantitative challenge test method to assess antifungal activity (ISO 20150:2019)

Chaussures et composants de chaussure - Méthode de test d'épreuve quantitatif pour évaluer l'activité antifongique (ISO 20150:2019)

Schuhe und Schuhbestandteile - Quantitatives Challengetestverfahren zur Bestimmung der antimykotischen Wirksamkeit (ISO 20150:2019)

This European Standard was approved by CEN on 28 December 2018.

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN ISO 20150:2019) has been prepared by Technical Committee ISO/TC 216 "Footwear" in collaboration with Technical Committee CEN/TC 309 “Footwear” the secretariat of which is held by UNE.

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 2019, and conflicting national standards shall be withdrawn at the latest by August 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 20150:2019 has been approved by CEN as EN ISO 20150:2019 without any modification.

Footwear and footwear components — Quantitative challenge test method to assess antifungal activity

CAUTION — Test methods specified herein require the use of micro-fungi. These tests are only to be carried out in facilities with containment techniques for handling microorganisms and by persons with training and experience in the use of microbiological techniques.

1 Scope

This document specifies quantitative challenge test methods for evaluating the antifungal activity of footwear and footwear components.

This document is applicable only to footwear and components that claim to have antifungal (antimycotic) properties or antimicrobial properties.

Two methods can be applied. The choice of method depends on the material properties and test microorganisms. Dynamic challenge test method can be applied to all types of materials. For single absorbent materials, static challenge test method is recommended. Brief descriptions of each method are given in 11.2 and 11.3.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 7218, *Microbiology of food and animal feeding stuffs — General requirements and guidance for microbiological examinations*

ISO 19952, *Footwear — Vocabulary*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
antifungal activity
antimycotic activity
efficacy of a material or finish used to prevent or mitigate the growth of micro-fungi, to reduce the number of micro-fungi or to kill micro-fungi

3.2
control specimen
material identical to the test material but without antifungal treatment

Note 1 to entry: If no control specimen is available, sterilized conical flask can be used as control specimen.

3.3
neutralizer
chemical agents used to inactivate, neutralize, or quench the antifungal properties of antifungal agents

[SOURCE: ISO 20743:2013, 3.7, modified — “antibacterial” has been replaced with “antifungal”.]

4 Principle

The test specimens and control specimens are inoculated with a spore suspension of a selected test strain of micro-fungi specified or claimed. Two test methods are available to assess antifungal activity.

Antifungal performance is quantitatively determined by counting the number of viable micro-fungi and calculating the antifungal activity ratio.

5 Safety

The handling of microorganisms which are potentially hazardous requires a high degree of technical competence and can be subject to current national legislation and regulations. Only personnel trained in microbiological techniques should carry out such tests.

NOTE: Refer to country-specific codes of practice for personal hygiene, disinfection and sterilization.

It is recommended that the person who perform the test should consult IEC 60068-2-10:2005, Appendix A, and ISO 7218.

6 Apparatus

6.1 General

Disposable apparatus is an acceptable alternative to re-usable glassware and plastic if it has suitable specifications.

Usual microbiological laboratory equipment in accordance with ISO 7218 and in particular the following.

6.2 Biological safety cabinet.

6.3 Incubator, capable of maintaining a temperature of (28 ± 2) °C.

6.4 Autoclave, capable of maintaining a temperature of (121 ± 2) °C and a pressure of (103 ± 5) kPa, for wet sterilization, used in accordance with ISO 7218.

6.5 Humidity chamber, capable of maintaining a temperature of (28 ± 2) °C and a relative humidity of (85 ± 5) %.

6.6 Ultraviolet lamp.

6.7 Wide mouth jars, with cap, 100 ml, capable of being used with an autoclave (6.4).

6.8 Vortex mixer.

6.9 Centrifugal machine, 2 000 × *g*.

6.10 Dimensional shaker, two dimensional or three dimensional, capable of adjusting to 50 r/min.

6.11 Shaking incubator, capable of maintaining a temperature of (28 ± 2) °C and a rotational frequency of (120 ± 10) r/min.

6.12 Glass beads, 2 mm to 3 mm in diameter, 10 beads to 15 beads per conical flask, for preparation of fungal spore solutions.

6.13 Glass wool or medical gauze (double layers), for preparation of fungal spore solutions.

6.14 Oven, for dry sterilization.

6.15 pH-meter, capable of measuring to ±0,2 units.

6.16 Balance, capable of weighing to ±0,01 g.

6.17 Spectrophotometer, capable of measuring at 500 nm to 660 nm wavelength, or McFarland's nephelometer.

6.18 Petri dishes, that have been sterilized, made of glass or plastic, in diameter sizes of 90 mm to 100 mm or 55 mm to 60 mm.

6.19 Pipette, having the most suitable volume for each use.

7 Reagents and culture medium

7.1 General

The preparation and test shall be freshly prepared in order to ensure the culture quality.

NOTE This could be done according to ISO 11133, or according to national standards or regulations.

Reagents used in tests shall be of analytical grade and/or suited for microbiological purposes.

7.2 Water

Water used in tests shall be analytical-grade water for microbiological media preparation, which is freshly distilled and/or ion-exchanged and/or ultra-filtered and/or filtered with reverse osmosis.

It shall be free from all toxic or microorganism inhibitory substances.

7.3 Malt medium

7.3.1 Composition

Malt extract	30,0 g
Soya peptone	3,0 g
Water	1 000 ml

7.3.2 Preparation

Dissolve the designated amounts of components in distilled water, stir and adjust pH to (5,5 ± 0,2) at room temperature, sterilize at (121 ± 2) °C for 15 min in an autoclave (6.4) with saturated water vapour.