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Möbler – Bedömning av ytors motståndskraft mot mikroskopisk repning

Furniture – Assessment of the surface resistance to microscratching

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Dokumentet ersätter CEN/TS 16611:2014.

This Technical Specification is not a Swedish Standard. This document contains the English version of CEN/TS 16611:2016.

The document replaces CEN/TS 16611:2014.

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Dokumentet är framtaget av kommittén för Möbler, SIS/TK 391.

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TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN/TS 16611

March 2016

ICS 97.140

Supersedes CEN/TS 16611:2014

English Version

Furniture - Assessment of the surface resistance to microscratching

Ameublement - Évaluation de la résistance des surfaces aux micro-rayures

Möbel - Bestimmung der Mikrokratzbeständigkeit von Möbeloberflächen

This Technical Specification (CEN/TS) was approved by CEN on 18 January 2016 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Ref. No. CEN/TS 16611:2016 E

Contents

Page

European foreword

This document (CEN/TS 16611:2016) has been prepared by Technical Committee CEN/TC 207 “Furniture”, the secretariat of which is held by UNI.

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This document supersedes CEN/TS 16611:2014.

Compared to CEN/TS 16611:2014, the following modification has been made:

— in 8.2.2.1 “2 or 3” is replaced by “3 or 4”.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This Technical Specification specifies a method for the assessment of the surface resistance to microscratching and relates to rigid surfaces of all finished products regardless of materials.

Method A is suitable for all types of surface coatings and coverings except for lacquers with pearly or metallic effects.

Method B is suitable for all types of surface.

It does not apply to finishes on leather and fabrics.

The test is intended to be carried out on a part of finished furniture, but can be carried out on test panels of the same material, finished in an identical manner to the finished product, and of a size sufficient to meet the requirements of the test.

It is essential that the test is carried out on unused surfaces.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 2813, *Paints and varnishes - Determination of gloss value at 20°, 60° and 85° (ISO 2813)*

EN ISO 12945-2, *Textiles - Determination of fabric propensity to surface fuzzing and to pilling - Part 2: Modified Martindale method (ISO 12945-2)*

EN ISO 12947-1, *Textiles - Determination of the abrasion resistance of fabrics by the Martindale method - Part 1: Martindale abrasion testing apparatus (ISO 12947-1)*

3 Terms and definitions

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

3.1
test surface
part of the test panel

3.2
test panel
panel including the test surface

Note 1 to entry: It can be cut from a finished item of furniture or it can be a separate panel produced in the same manner as the finished item of furniture.

3.3
test area
part of the test surface effected by the scrub material (5.6)

3.4
rub
one revolution of the two outer drives of the Martindale tester

3.5
cycle
completion of all the translational movements tracing a Lissajous figure comprising 16 rubs

Note 1 to entry: This comprises of 16 revolutions of the two outer drives and 15 revolutions of the inner drive of the Martindale tester.

3.6
lissajous figure
figure created by movement which ranges changes from a circle gradually narrowing ellipses, until it becomes a straight line, from which progressively widening ellipses develop, in a diagonally opposite direction before the pattern is repeated

4 Principle

The test surface shall be fixed on a horizontal table. A circular scrub material fixed on a holder impacts on the test surface with a defined load. Table and holder shall be moved perpendicular to each other, in a translational movement, with defined frequencies, tracing a Lissajous figure. The holder is additionally freely rotatable around its own axis perpendicular to the horizontal plane.

The test surface is exposed to the scrub material for a predetermined number of rubs. The changes of the surface are determined by gloss measurement or visual assessment.

5 Apparatus and materials

5.1 Martindale tester

The Martindale tester shall be as described in EN ISO 12947-1 with the following exceptions:

— the “Abrading table” is the table for the test surface;

— the “clamping ring and mechanism” is not necessary;

— the “specimen holder” is the holder for the scrub material;

— the “loading pieces” are not necessary.

5.2 Holder for scrub material

The holder for scrub material shall be as described in EN ISO 12945-2, with the following exceptions:

— consists of a guide plate with an inner diameter of (90 ± 0,5) mm, a large ring weight and a spindle with an overall weight (612 ± 2) g (nominally called 6 N).

5.3 Diffuse light source

Light source providing evenly diffused light giving an illumination on the test surface of (1200 ± 400) lx. This may either be diffuse daylight or be diffuse artificial daylight.

The daylight should be unaffected by surrounding trees, buildings, etc. When artificial light is used it is recommended that it can have a correlated colour temperature of (6500 ± 50) K and an R_a greater than 92, by using a colour matching booth in accordance with EN ISO 3668:2001[1].

5.4 Reflectometer

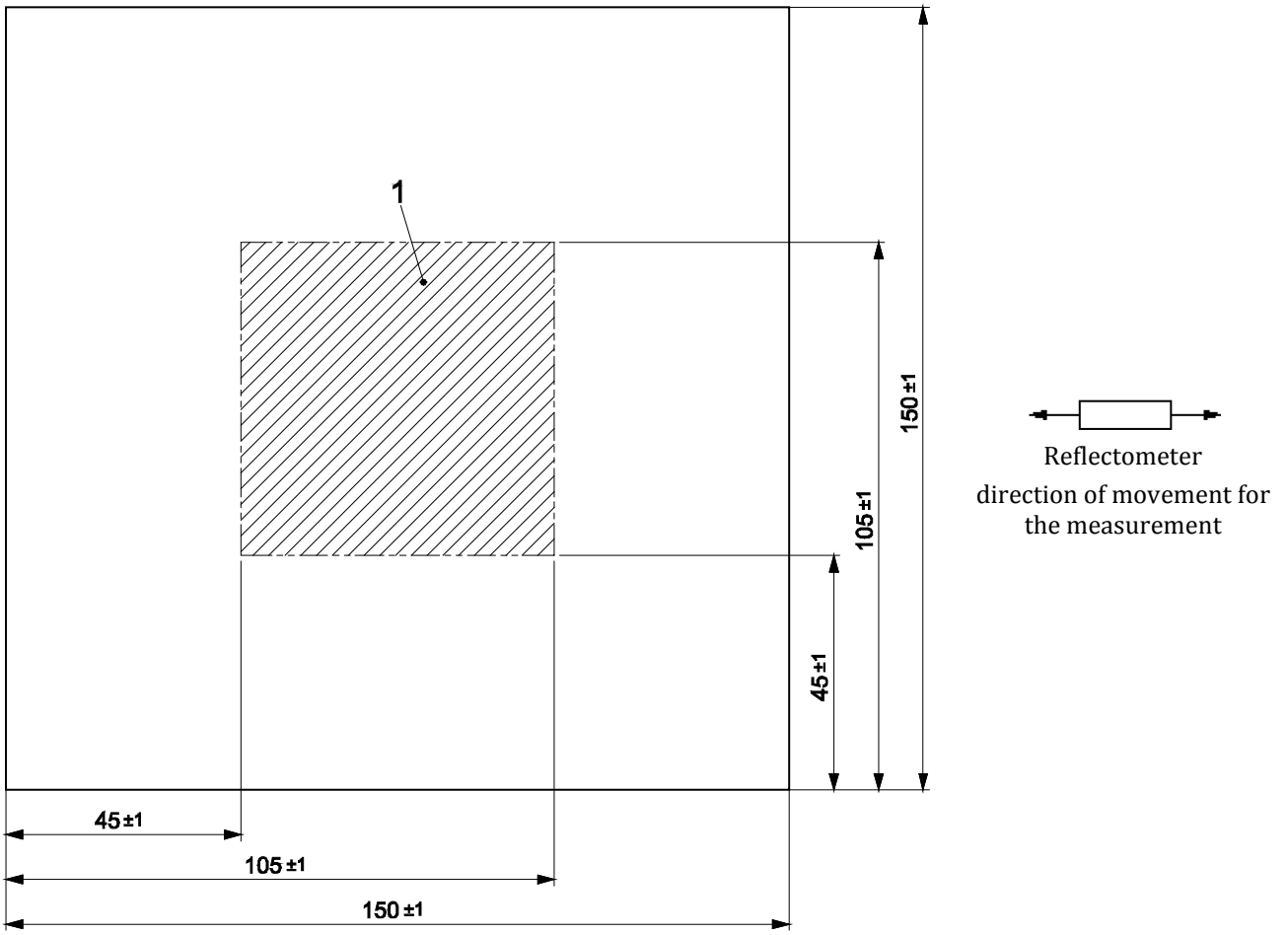
For gloss measurement with 3 angle measurement geometry as described in EN ISO 2813.

5.5 Positioning device

For gloss measurement on the same position before and after the test with 4 measurement points.

An example of a positioning device is shown in Figure 1.

Dimensions in millimetres



Key

1 measurement area

Figure 1 — Scheme of positioning device for the reflectometer on the shaded measurement area

5.6 Scrub materials

The scrub material shall be a nylon web imbedded with alumina abrasive. Two types of scrub materials (very fine and ultra fine) shall be used. The scrub materials shall be cut or stamped on a diameter of (89 ± 1) mm.

NOTE Scotch Brite fleece 7447+ (very fine) and 7448+ (ultra fine) are examples of a suitable product available commercially. This information is given for the convenience of users of this Technical Specification and does not constitute an endorsement by CEN of this product.

5.7 Double-sided tape

To attach the scrub material on the guide plate of the holder and the test surface on the table.

5.8 Cleaning cloth

White soft absorbent cloth.

5.9 Reference black high gloss HPL

Black high gloss lacquered HPL (Reflectometer value R' ≥ 100, measured with 20° geometry of a reflectometer according to 5.4 with antiscratch surface provided by corundum in the top lacquer.

NOTE James Heal Article Nr. JH701–501 is an example of a suitable product available commercially. This information is given for the convenience of users of this Technical Specification and does not constitute an endorsement by CEN of this product.

6 Assembly and maintenance of the Martindale tester

The assembly of the tester shall be carried out in accordance with the instructions of the apparatus manufacturer. For the described test, the outer position C shall be used for both axes to create the larger Lissajous figure as explained in EN ISO 12947-1 or the manufacture guidebook.

The checking of the Lissajous figure shall be done according to Annex A.

7 Preparation and conditioning

7.1 Conditioning

Conditioning of test surface shall begin at least one week before testing and shall be carried out in air at a temperature of (23 ± 2) °C and relative humidity of (50 ± 5) %.

The conditioning time shall be stated in the test report.

NOTE Some finishing systems cannot have achieved full cure after one week conditioning.

7.2 Test surface

Six test surfaces with dimensions of 150 mm x 150 mm shall be prepared.

The test surface shall be carefully wiped with a cleaning cloth (5.8) before the test without scratching the surface.

The test surface shall be substantially flat.

8 Test procedure

8.1 General

Two different procedures (A / B) are described. All the necessary parameters (scrub material, speed factor, number of cycles) are shown in Table 1.

Table 1 — Test procedures for determination of resistance to micro scratches

Test parameter	Procedure A	Procedure B
Scrub material	ultra fine	very fine
Speed factor	1	1
Number of rubs	80 rubs (= 5 Lissajous movements)	80 rubs (= 5 Lissajous movements)
Assessment	gloss change after 24 h	Visual assessment according to Annex B after 24 h