SLOVENSKI STANDARD
oSIST prEN 15187:2023

01-januar-2023

Pohištvo - Ugotavljanje vpliva izpostavljenosti svetlobi

Furniture - Assessment of the effect of light exposure

Möbel - Bestimmung der Lichtbeständigkeit von Oberflächen

Ameublement - Evaluation de la tenue de la surface à la lumière

Ta slovenski standard je istoveten z: **prEN 15187**

ICS:

97.140	Pohištvo	Furniture

oSIST prEN 15187:2023 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 15187

December 2022

ICS 97.140

Will supersede EN 15187:2006

English Version

Furniture - Assessment of the effect of light exposure

Ameublement - Evaluation de la tenue de la surface à la lumière

Möbel - Bestimmung der Lichtbeständigkeit von Oberflächen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 207.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. prEN 15187:2022 E

Contents

Page

European foreword

This document (prEN 15187:2022) has been prepared by Technical Committee CEN/TC 207 “Furniture”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15187:2006.

In comparison with the previous edition, the following technical modifications have been made:

- revised scope: surfaces that were not affected by light as additional specification for the test;
- normative references updated;
- revised Table 1 for general conditions for the apparatus with humidity control;
- revised Table 2 for general conditions for the apparatus without humidity control;
- new sub clauses: “Specimen holders”, “Deionized or distilled water”, “Cleansing solution”, “Cleansing agent” added to Clause 5;
- revision of 7.3 “Duration”;
- revision of Clause 9 “Test report”;
- document editorially revised in its entirety.

1 Scope

This document specifies a method for the assessment of the effects of light in indoor conditions, by exposure to artificial radiation and applies to rigid surfaces of all finished products regardless of material.

It does not apply to finishes on leather and fabrics.

The test is intended to be carried out on a part of the 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.

The test should be carried out on unused surfaces or surfaces that were not affected by light.

This document describes the most important parameters, such as the colour change when a surface is exposed and specifies the conditions to be used in the exposure apparatus.

The light resistance of a surface can be assessed by using two apparatus as specified in Clause 4, one as a reference test method, and the other for in-company testing.

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.

EN ISO 105-B02:2014, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test (ISO 105-B02:2014)*

EN ISO 3668:2020, *Paints and varnishes — Visual comparison of colour of paints (ISO 3668:2017)*

EN ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance (ISO 4892-1:)*

EN ISO 4892-2:2013/A1:2021, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps — Amendment 1: Classification of daylight filters (ISO 4892-2:2013/Amd 1:2021)*

ISO 105-A02:1993, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

3 Terms and definitions

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

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

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

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

3.1
test panel
panel including the test surface (see 3.2)

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

3.2
test surface
part of the test panel including an exposed as well as a control section (see Figure 1 and Figure 2)

4 Principle

4.1 General

Accelerated exposure to light of furniture surfaces to filtered xenon-arc radiation is carried out in order to assess the behaviour of the surface area and the degree of colour change. The properties of the surfaces exposed are compared with those of masked, unexposed sections from the same test surface.

4.2 Choice of methods

The apparatus described in Clause 5.1 shall be used as a reference method in cases where the influence of humidity cannot be excluded.

The apparatus described in Clause 5.2 can be used for in-company testing in cases where the influence of humidity can be excluded.

5 Apparatus and materials

5.1 Apparatus with humidity control

A test device as specified in EN ISO 4892-1 and EN ISO 4892-2:2013/A1:2021 with xenon lamp using window glass filters according to method B in EN ISO 4892-2:2013/A1:2021, and test parameters, as specified in Table 1.

Table 1 — General conditions for the apparatus with humidity control

Irradiance		Black-standard temperature	Chamber temperature	Relative humidity
Broadband (300 nm to 400 nm)	Narrowband (420 nm)			
W/m²	**W/(m² × nm)**	**°C[a]**	**°C**	**%**
50 ± 2	1,10 ± 0,02	55 ± 3	38 ± 3	50 ± 10

[a] A black-standard sensor according to EN ISO 4892-1 shall be used (with insulation on the backside of the black metal sheet).

5.2 Apparatus without humidity control

A test device as specified in EN ISO 4892-1 and EN ISO 4892-2:2013/A1:2021 with xenon lamp using window glass filters according to method B in EN ISO 4892-2:2013/A1:2021, and test parameters as specified in Table 2.

Table 2 — General conditions for the apparatus without humidity control

Irradiance			Black-standard temperature	Chamber temperature	Relative humidity
Broadband (300 nm to 400 nm)	Narrowband (420 nm)	Wideband (300 nm to 800 nm)			
W/m²	W/(m² × nm)	W/m²	° C [a]	° C	%[b]
50 ± 2	1,10 ± 0,02	550 ± 55	55 ± 3	Not controlled	Not controlled

[a] A black-standard sensor according to EN ISO 4892-1 shall be used (with insulation on the backside of the black metal sheet).

[b] For instruments without chamber air temperature or relative humidity control these parameter are allowed to find their own level.

5.3 Specimen holders

Specimen holders can be in the form of an open frame or may provide the specimen with a solid backing as described in EN ISO 4892-2:2013/A1:2021, 4.6. The backing used can affect the test results and shall be reported in the test report.

5.4 Conditioning chamber

A chamber with a standard atmosphere of (23 ± 2) °C, relative humidity (50 ± 5) %.

5.5 Cleaning cloth

White soft absorbent cloth.

5.6 Deionized or distilled water

5.7 Cleansing solution

Solution containing 15 ml/l of the cleansing agent (5.8) in water (5.6). The solution shall be discarded after one day.

5.8 Cleansing agent

Cleansing agent of the following composition:

a) 12,5 % (m/m) of a sodium primary C_{10} to C_{14} polymer alkyl aryl sulphonate;

b) 12,5 % (m/m) polyethoxylated derivatives of primary or secondary C_8 to C_{16} alcohols with 5 to 15 ethoxylated groups having a cloud point of 25 °C to 75 °C in 1 % (m/m) aqueous solution (determination of cloud point is described in ISO 1065:1991);

c) 5,0 % (m/m) ethanol;

d) 70 % (m/m) water (5.6).

The cleansing agent shall be stored in a glass bottle in a cool dark place and shall be used within one year of the day of preparation.

5.9 Aluminium foil or stainless steel

Aluminium foil with a thickness of at least 0,03 mm or stainless steel (both up to 1 mm thickness).

5.10 Blue wool scale

Blue wool scale according to EN ISO 105-B02:2014, 4.3.

Fixed on a card board in an opened frame sample holder.

6 Preparation and conditioning

6.1 Storing and conditioning

The test panel shall be kept without direct exposure to light.

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.

6.2 Test surface

One test surface shall be prepared.

The test surface shall be substantially flat.

The test surface shall be taken at least 20 mm from the edge (see Figure 1).

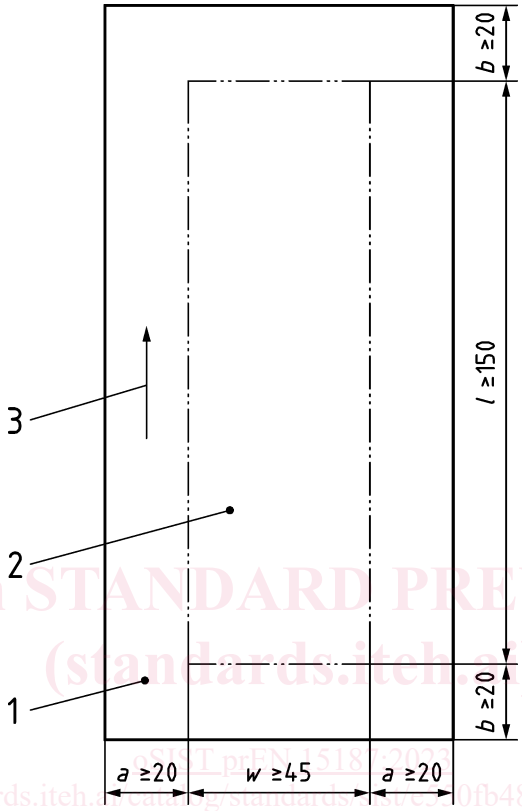
The minimum size of the test surface is 150 mm × 45 mm (see Figure 2).

The test surface shall be carefully wiped with the cleaning cloth, see 5.5, by use of the cleaning solution, see 5.6, before the test.

7 Procedure

7.1 Preparation of test surface

Dimensions in millimetres



Key

1 test panel
2 test surface
3 direction of the grain
l length of the test surface
w width of the test surface
a distance between the edge of the test panel and the longest side of the test surface
b distance between the edge of the test panel and the shortest side of the test surface

Figure 1 — Test panel – Instruction for cutting of the test surface