SLOVENSKI STANDARD
oSIST prEN 15618:2021

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Gumirane ali plastificirane tekstilije - Dekorativni in tapetniški materiali - Klasifikacija in preskusne metode

Rubber- or plastic-coated fabrics - Upholstery fabrics - Classification and methods of test

Mit Kautschuk oder Kunststoff beschichtete Textilien - Möbelstoffe - Klassifizierung und Prüfverfahren

Supports textiles revêtus de caoutchouc ou de plastique - Etoffes d'ameublement - Classification et méthodes d'essai

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English Version

Rubber- or plastic-coated fabrics - Upholstery fabrics - Classification and methods of test

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Mit Kautschuk oder Kunststoff beschichtete Textilien - Möbelstoffe - Klassifizierung und Prüfverfahren

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

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European foreword

This document (prEN 15618:2021) has been prepared by Technical Committee CEN/TC 248 “Textiles and textile products”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15618:2009+A1:2012.

The main changes compared to the previous edition are as follows:

— in the Introduction, the term “categories” has been changed to “requirement levels”;

— in Clause 2, the reference to ISO 5981 has been deleted and EN ISO 26082 has been replaced by EN ISO 26082-1;

— in Clause 4, the former Table 1 has been split into separate Tables including a change to a new requirement level format to avoid misunderstanding of product categories. Supplementary properties have been added (colour fastness to water spotting, to domestic and commercial laundering, determination of dimensional change in washing and drying). The requirements of resistance to soil detailed according to EN ISO 26082-1 are mandatory (the former Table 2 of optional properties has been deleted).

Introduction

This document introduces a system of categories. It is not possible to divide upholstery fabrics into just a few performance classes, because of the enormous variety of conditions of use. In addition, the type of upholstery (firm or soft) influences the abrasion of the upholstery fabric and hence the requirements to the abrasion resistance. There is, for example, a tremendous difference between furniture used in a room without windows and furniture which is directly exposed to sunlight, or between furniture used by elder people and furniture used by a family with small children. These differences in conditions and severity of use necessitate a flexible approach. This is done by defining a requirement level for each property. This allows to choose the appropriate category for each parameter and so to compose a “product profile”, adapted to each specific type of use. This means that high resistance to abrasion can be combined with, for example, low colour fastness. However, due to the interrelation of some parameters, not all combinations will be possible.

Contrary to EN 14465, the fire behaviour of the coated fabrics has been taken into account.

1 Scope

This document specifies a set of properties relevant to the assessment of upholstery coated fabrics for indoor furniture and the appropriate test methods to determine these properties. It also describes a matrix system to express the material properties of an upholstery fabric.

This document applies to upholstery fabrics both in domestic and public use, except when used for the seats of road or railway vehicles, boats or aeroplanes.

This document applies to upholstery fabrics with a coating on the wear face.

This document does not apply to textile upholstery fabrics covered by EN 14465.

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 1021-1, *Furniture — Assessment of the ignitability of upholstered furniture — Part 1: Ignition source smouldering cigarette*

EN 1021-2, *Furniture — Assessment of the ignitability of upholstered furniture — Part 2: Ignition source match flame equivalent*

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

EN ISO 105-C06, *Textiles — Tests for colour fastness — Part C06: Colour fastness to domestic and commercial laundering (ISO 105-C06:2010)*

EN ISO 105-E16, *Textiles — Tests for colour fastness — Part E16: Colour fastness to water spotting on upholstery fabrics (ISO 105-E16:2006)*

ISO 105-F09, *Textiles — Tests for colour fastness — Part F09: Specification for cotton rubbing cloth*

EN ISO 105-X12, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing (ISO 105-X12)*

EN ISO 1421, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break (ISO 1421)*

EN ISO 2411, *Rubber- or plastics-coated fabrics — Determination of coating adhesion (ISO 2411)*

EN ISO 3303-2, *Rubber- or plastics-coated fabrics — Determination of bursting strength — Part 2: Hydraulic method (ISO 3303-2)*

EN ISO 4674-1, *Rubber- or plastics-coated fabrics — Determination of tear resistance — Part 1: Constant rate of tear methods (ISO 4674-1)*

EN ISO 5077, *Textiles — Determination of dimensional change in washing and drying (ISO 5077)*

EN ISO 5470-2, *Rubber- or plastics-coated fabrics — Determination of abrasion resistance — Part 2: Martindale abrader (ISO 5470-2)*

EN ISO 26082-1, *Leather — Physical and mechanical test methods for the determination of soiling - Part 1: Rubbing (Martindale) method (ISO 26082-1)*

EN ISO 32100, *Rubber- or plastics-coated fabrics — Physical and mechanical tests — Determination of flex resistance by the flexometer method (ISO 32100)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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 https://www.electropedia.org/

3.1
coated fabric
fabric with an adherent, discrete continuous layer of rubber and/or plastic based material on one or both surfaces

[SOURCE: EN 13360:2002, 3.1.3]

3.2
stain
result of the type of soiling by particles or liquids

3.3
cleanability
property of the coated fabric to be restored to its original appearance after cleaning

4 Requirements

This document proposes different levels of performance for each characteristic. This allows to choose the appropriate level for each characteristic and so to compose a “product profile”, adapted to each specific type of use. The levels indicated by shaded boxes in Table 6 and Table 8 are not applicable, e.g. a colour fastness to light less than 4 is considered insufficient.

To ensure safe and durable performance, each characteristic of the coated fabric for upholstery shall comply with the value and class declared by the coated fabric producer in accordance with the requirements of Tables 1 to 10.

NOTE Detachable covers, as mentioned in EN 14465, can be made of coated fabrics, but no specification has been requested.

Table 1 — Fire behaviour requirements for coated fabrics intended for upholstery fabrics

Property	Test method	Requirements		Units
		level B_1	level B_2	
Fire behaviour [a]	EN 1021-1 and EN 1021-2	Pass (- 1) + Pass (- 2)	Pass (- 1) + Fail (- 2)	/
[a] Fire behaviour is based on a composite material made of the coated fabric and a filling material. The used filling material shall be reported, as different filling materials can lead to other fire behaviour performance.				

Table 2 — Tensile strength requirements for coated fabrics intended for upholstery fabrics

Property	Test method	Requirements			Units
		level F_1	level F_2	level F_3	
Tensile strength longitudinal transverse	EN ISO 1421 Method 1	≥ 380 ≥ 280	≥ 250 ≥ 180	≥ 200 ≥ 140	N/5 cm

Table 3 — Tear strength requirements for coated fabrics intended for upholstery fabrics

Property	Test method	Requirements			Units
		level T_1	level T_2	level T_3	
Tear strength longitudinal transverse	EN ISO 4674-1 Method A (double tears)	≥ 50 ≥ 50	≥ 44 ≥ 44	≥ 31 ≥ 31	N

Table 4 — Bursting strength requirements for coated fabrics intended for upholstery fabrics

Property	Test method	Requirements		Units
		level Bs_1	level Bs_2	
Bursting strength	EN ISO 3303-2	≥ 700	≥ 400	kPa

Table 5 — Abrasion resistance requirements for coated fabrics intended for upholstery fabrics

Property	Test method	Requirements			Units
		level W_1	level W_2	level W_3	
Abrasion resistance [a]	EN ISO 5470-2 Grade P180 silicon carbide paper No apparition of the foam layer	≥ 700	≥ 500	≥ 300	Number of cycles
Abrasion resistance of the finishing	EN ISO 5470-2 Wool abradant Grade 2 minimum (direct assessment, without magnification device)	at 102 400	at 51 200	at 38 400	Number of cycles

[a] Number of cycles without exposure of an intermediate layer under the outer skin.

Table 6 — Flexing requirements for coated fabrics intended for upholstery fabrics

Property	Test method	Requirements		Units
		level R_1	level R_2	
Flexing	EN ISO 32100 Grade 2 minimum	at 100 000	at 50 000	Number of cycles

Table 7 — Adhesion requirements for coated fabrics intended for upholstery fabrics

Property	Test method	Requirements					Units
		level A_1	level A_2	level A_3	level A_4	level A_5	
Coating adhesion longitudinal transverse	EN ISO 2411	≥ 35 ≥ 35	≥ 30 ≥ 30	≥ 25 ≥ 25	≥ 20 ≥ 20	≥ 15 ≥ 15	N

Table 8 — Colour fastness requirements for coated fabrics intended for upholstery fabrics

Property	Test method	Requirements			Units
		level C_1	level C_2	level C_3	
Colour fastness to light	EN ISO 105-B02 (method 2) [a]	≥ 6	≥ 5		grade 1 to 8
Colour fastness to rubbing (dry)	EN ISO 105-X12	≥ 4–5	≥ 4		grade 1 to 5
Colour fastness to rubbing (wet)	EN ISO 105-X12	≥ 4			grade 1 to 5
Colour fastness to water spotting	EN ISO 105-E16	≥ 4–5	≥ 4	≥ 3	grade 1 to 5
Colour fastness to domestic and commercial laundering [b]	EN ISO 105-C06 [c]	≥ 4	≥ 3		grade 1 to 5

[a] Method 3 may be used for quality control purposes.

[b] Only for machine washable fabrics. Testing conditions have to be set up according to the care instructions of the producer.

[c] Both staining and change in colour shall be assessed.

Table 9 — Soil resistance requirements for coated fabrics intended for upholstery fabrics

Property	Test method	Requirements		Units
		level S_1	level S_2	
Soil resistance before cleaning	EN ISO 26082-1 [a]	≥ 2	≥ 3	grade 1 to 5
Soil resistance after cleaning	EN ISO 26082-1 [a, b]	≥ 4	≥ 3	grade 1 to 5

[a] Use of Pilling specimen holder and a loading weight of 12 kPa; Standard soiled cloth (Jeans fabric, coloured with indigo and sulphur black, soiled with olive oil and carbon black).

[b] Cleaning solution: 0,5 % aqueous solution of sodium lauryl ether sulphate CAS-No. 9004–82–4. Cloth for the cleaning: Cotton fabric corresponding to ISO 105-F09. Cleaning process: Cleaning cloth is to be soaked with the cleaning solution and lightly squeezed out. The cleaning is done from the outside to the inside using light circulatory motions with a slight pressure. The intensity of the cleaning is to be adjusted to the material. The cleaning is repeated until the cleaning cloth no longer picks up any more dirt.