

SLOVENSKI STANDARD

SIST EN 438-5:2016

01-april-2016

Nadomešča:
SIST EN 438-5:2005

Dekoratívni visokotlačni laminati (HPL) - Plošče na osnovi duromernih smol - 5. del: Razvrstitev in specifikacije za manj kot 2 mm debele talne laminatne, namenjene za vezavo na nosilne materiale

High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (Usually called Laminates) - Part 5: Classification and specifications for flooring grade laminates less than 2 mm thick intended for bonding to supporting substrates

Dekorative Hochdruck-Schichtpressstoffplatten (HPL) - Platten auf Basis härtbarer Harze (Schichtpressstoffe) - Teil 5: Klassifizierung und Spezifikationen für Schichtpressstoffe für Fußböden mit einer Dicke kleiner 2 mm, vorgesehen zum Verkleben auf ein Trägermaterial

Stratifiés décoratifs haute pression (HPL) - Plaques à base de résines thermodurcissables (communément appelées stratifiés) - Partie 5: Classification et spécifications des stratifiés pour revêtement de sols d'épaisseur inférieure à 2 mm destinés à être collés sur des supports

Ta slovenski standard je istoveten z: EN 438-5:2016

ICS:

83.140.20 Laminatne plošče Laminated sheets

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EUROPEAN STANDARD

EN 438-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 83.140.20

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English Version

High-pressure decorative laminates (HPL) - Sheets based
on thermosetting resins (usually called laminates) - Part 5:
Classification and specifications for flooring grade
laminates less than 2 mm thick intended for bonding to
supporting substrates

Stratifiés décoratifs haute pression (HPL) - Plaques à
base de résines thermodurcissables (communément
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Dekorative Hochdruck-Schichtpressstoffplatten (HPL)
- Platten auf Basis härtdarbarer Harze (Schichtpressstoffe)
- Teil 5: Klassifizierung und Spezifikationen für
Schichtpressstoffe für Fußböden mit einer Dicke
kleiner 2 mm, vorgesehen zum Verkleben auf ein
Trägermaterial

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This European Standard was approved by CEN on 13 December 2015.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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This European Standard exists 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.

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 438-5:2016) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

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 2016, and conflicting national standards shall be withdrawn at the latest by August 2016.

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

This document supersedes EN 438-5:2005.

EN 438, *High-pressure decorative laminates (HPL) — Sheets based on thermosetting resins (usually called laminates)*, consists of the following parts:

- *Part 1: Introduction and general information*
- *Part 2: Determination of properties*
- *Part 3: Classification and specifications for laminates less than 2 mm thick intended for bonding to supporting substrates*
- *Part 4: Classification and specifications for Compact laminates of thickness 2 mm and greater*
- *Part 5: Classification and specifications for flooring-grade laminates less than 2 mm thick intended for bonding to supporting substrates*
- *Part 6: Classification and specifications for Exterior-grade Compact laminates of thickness 2 mm and greater*
- *Part 7: Compact laminate and HPL composite panels for internal and external wall and ceiling finishes*
- *Part 8: Classification and specifications for design laminates*
- *Part 9: Classification and specifications for alternative core laminates*

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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.

EN 438-5:2016 (E)**1 Scope**

This European Standard applies to six classes of flooring grade laminates less than 2 mm thick produced by using a high pressure process, intended for bonding to supporting substrates, to produce HPL flooring elements. For laminate floor covering applications they meet the surface property requirements specified in EN 13329.

High-pressure decorative flooring laminates are characterised by their high resistance to abrasion, aesthetic qualities and durability. They have good hygienic and anti-static properties and are easy to clean and maintain.

The requirements in this document apply only to the high-pressure laminate, and additional properties will need to be specified in order to define the functional performance of the finished flooring product.

This European Standard applies only to decorative laminates as defined in Clause 3.

EN 438-2 specifies the methods of test relevant to this European Standard.

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 316, *Wood fibre boards — Definition, classification and symbols*

EN 438-2:2016, *High-pressure decorative laminates (HPL) — Sheets based on thermosetting resins (usually called laminates) — Part 2: Determination of properties*

EN 12721, *Furniture — Assessment of surface resistance to wet heat*

EN 13329, *Laminate floor coverings — Elements with a surface layer based on aminoplastic thermosetting resins — Specifications, requirements and test methods*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13722, *Furniture — Assessment of the surface gloss*

EN 16094, *Laminate floor coverings — Test method for the determination of micro-scratch resistance*

EN 61340-4-1, *Electrostatics — Part 4-1: Standard test methods for specific applications — Electrical resistance of floor coverings and installed floors (IEC 61340-4-1)*

EN ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1)*

EN ISO 9239-1, *Reaction to fire tests for floorings — Part 1: Determination of the burning behaviour using a radiant heat source (ISO 9239-1)*

EN ISO 10874, *Resilient, textile and laminate floor coverings — Classification (ISO 10874)*

EN ISO 11664-2, *Colorimetry — Part 2: CIE standard illuminants (ISO 11664-2)*

EN ISO 11925-2, *Reaction to fire tests - Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2)*

3 Terms and definitions, symbols and abbreviations

3.1 Terms and definitions

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

3.1.1

high-pressure decorative laminate(s)

HPL

sheet(s) consisting of decorative surface layer(s) and core layers bonded together by an high pressure process

Note 1 to entry: Typical values for the high pressure process are a temperature of ≥ 120 °C and a pressure of ≥ 5 MPa.

3.1.2

surface layer

upper decorative layer consisting in one or more sheets of fibrous material (usually paper) impregnated with aminoplastic thermosetting resins (usually melamine based resins)

Note 1 to entry: The surface layer(s) on one side, having decorative colours or designs, are impregnated typically with melamine based resins and may contain special surface additives to improve abrasion resistance.

Note 2 to entry: The back of the sheet(s) is made suitable for adhesive bonding to a substrate.

3.1.3

core layer

fibrous material (usually paper) impregnated with thermosetting resins (usually phenolic based resins)

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3.2 Symbols

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For the purpose of this document, the following symbol applies.

t nominal thickness

4 Classification system

The classification system makes reference to EN ISO 10874 (level of use) in combination with the abrasion class (AC) given by a numerical rating of 1 to 6 defining the level of abrasion resistance, 6 being the highest and 1 the lowest performance.

Table 1 shows how the six abrasion classes of flooring grade laminate relate to level of use and some examples of typical applications.

Flooring grade laminates are specified according to abrasion class e.g. HPL/EN 438-5/AC1.

Table 1 — Classification system and typical applications

EN ISO 10874 classification	Level of use	Description	Examples of applications	Abrasion class
21	Moderate domestic	Residential areas with low or intermittent use	Bedrooms	AC1
22	General domestic	Residential areas with medium use	Living rooms, entrance halls	AC2
23	Heavy domestic	Residential areas with intense use	Living rooms, entrance halls	AC3
31	Moderate commercial	Commercial areas with low or intermittent use	Hotel rooms, small offices, hotels boutiques	
32	General commercial	Commercial areas with medium use	Classrooms, small offices, hotel boutiques	AC4
33	Heavy commercial	Commercial areas with heavy use	Corridors, department stores, schools, multipurpose halls, open plan offices	AC5
34	Very heavy commercial	Commercial areas with very heavy use	Airports, multi-purpose halls, counter halls, department stores	AC6

5 Requirements

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5.1 Compliance

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Laminates classified in Table 1 shall meet all appropriate requirements specified in 5.2, 5.3, and 5.4. This applies to both full-size sheets and cut-to-size panels.

5.2 Inspection requirements

5.2.1 General

Inspection shall be carried out in accordance with EN 438-2:2016, Clause 4 at a distance of 1,5 m.

5.2.2 Colour and pattern

When inspected in daylight or D65 standard illuminant, as specified in EN ISO 11664-2, and also under tungsten filament lightning illuminant A as specified in EN ISO 11664-2, a slight difference between the corresponding colour reference sample held by the supplier and the specimen under test is acceptable.

NOTE Where colour and surface finish are critical, it is advised that sheets be checked for colour and surface-finish compatibility before fabrication or installation.

5.2.3 Surface finish

When inspected at different viewing angles, there shall be no significant difference between the corresponding surface-finish reference sample held by the supplier and the specimen under test.

The maximum permitted deviations for the gloss value determined according to EN 13722 are:

Gloss surface > 70 GU maximum deviation ± 15 GU

Semi Gloss surface 30 – 70 GU maximum deviation ± 10 GU

Semi Matt surface	10 – 30	GU	maximum deviation \pm 5 GU
Matt surface	< 10	GU	maximum deviation \pm 3 GU

GU= gloss units

The measurement shall be carried out with the same device as comparison between reference sample and specimen or between different lots of specimen.

NOTE Where colour and surface finish are critical, it is advised that sheets be checked for colour and surface-finish compatibility before fabrication or installation.

5.2.4 Reverse side

The reverse side of sheets shall be suitable for adhesive bonding (e.g. sanded). In the case of sanded backs, slight chatter marks are permitted.

5.2.5 Visual inspection

5.2.5.1 General

The following inspection requirements are intended as a general guide, indicating the minimum acceptable quality for laminates. It should be noted that only a small percentage of sheets in a batch (the level to be agreed with the customer) should contain defects of the minimum acceptable level.

5.2.5.2 Surface quality

The following surface defects are permissible:

a) dirt, spots and similar surface defects.

The admissible size of such defects is based on a maximum contamination area equivalent to 1,0 mm²/m² of laminate and is proportional to the sheet size under inspection.

The total admissible area of contamination may be concentrated in one spot or dispersed over an unlimited amount of smaller defects.

b) fibres, hairs and scratches.

The admissible size of defects is based on a maximum contamination length equivalent to 10 mm/m² of laminate and is proportional to the sheet size under inspection.

The total admissible length of contamination may be concentrated in one defect or dispersed over an unlimited amount of smaller defects.

5.2.5.3 Edge quality

Visual defects (e.g. moisture marks, lack of gloss, corner damage, etc.) can be present on all four edges of the laminate, providing the defect-free length and width are at least the nominal size minus 10 mm.

5.3 Dimensional tolerance requirements

Dimensional tolerance requirements are specified in Table 2.