

SLOVENSKI STANDARD

SIST EN 438-9:2018

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Nadomešča:

SIST EN 438-9:2010+A1:2014

Dekoratívni visokotlačni laminati (HPL) - Plošče na osnovi duromernih smol (laminati) - 9. del: Razvrstitev in specifikacije za izbrane glavne laminatne

High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 9: Classification and specifications for alternative core laminates

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Dekorative Hochdruck-Schichtpressstoffplatten (HPL) - Platten auf Basis härtbarer Harze (Schichtpressstoffe) - Teil 9: Klassifizierung und Spezifikationen für Schichtpressstoffe mit alternativem Kernaufbau

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Stratifiés décoratifs haute pression (HPL) - Plaques à base de résines thermodurcissables (communément appelées stratifiés) - Partie 9 : Classification et spécifications relatives aux stratifiés avec autres types d'âmes

Ta slovenski standard je istoveten z: EN 438-9:2017

ICS:

83.140.20 Laminatne plošče Laminated sheets

SIST EN 438-9:2018

en,fr,de

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EUROPEAN STANDARD

EN 438-9

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2017

ICS 83.140.20

Supersedes EN 438-9:2010+A1:2013

English Version

High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 9: Classification and specifications for alternative core laminates

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This European Standard was approved by CEN on 29 October 2017.

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.

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.

CEN members are the national standards bodies of 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 438-9:2017) 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 June 2018, and conflicting national standards shall be withdrawn at the latest by June 2018.

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.

This document supersedes EN 438-9:2010+A1:2013.

The following technical changes have been made in comparison to EN 438-9:2010+A1:2013, in Table 6 and in Table 7:

- test methods, have been updated;
- the Resistance to surface wear, has been modified and the Laminate grades corrected;
- for the Resistance to immersion in boiling water, the Appearance has been improved for the Laminate grades;
- the Tensile strength, has been deleted to be in line with EN 438-4:2016;
- in Table 6, for the Resistance to crazing, the Appearance of the Laminate grade has been corrected.

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*

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According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This European Standard specifies performance requirements for alternative core laminates intended for interior use, the core layer compositions of which are not covered by EN 438-3 [1], EN 438-4 [2], EN 438-5 [3], EN 438-6 [4] and EN 438-8 [5]. The core layer types (coloured core layer and metal reinforced core layer) are defined in this part of EN 438.

EN 438-2 specifies the test methods 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 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 ISO 178, *Plastics - Determination of flexural properties (ISO 178)*

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 12572, *Hygrothermal performance of building materials and products - Determination of water vapour transmission properties - Cup method (ISO 12572)*

EN ISO 11664-2, *Colorimetry - Part 2: CIE standard illuminants (ISO 11664-2)*
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3 Terms, 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 alternative core laminate(s)

alternative core laminate(s)

HPL

sheet(s) consisting of decorative surface layer(s) and alternative 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 layers appear on one or both side(s) of the laminate(s). In case of one-sided laminates, the back of the sheet(s) can be made suitable for adhesive bonding to a substrate.

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3.1.3

alternative core layer

3.1.3.1

coloured core layer

coloured fibrous materials (usually paper) impregnated with aminoplastic thermosetting resins (usually melamine based resins) or fibrous materials (usually paper) impregnated with coloured aminoplastic thermosetting resins (usually melamine based resins)

Note 1 to entry: A translucent laminate is achieved by using clear resins and bleached fibres.

Note 2 to entry: The surface layer and the coloured core layers can have the same colour producing a uniformly coloured laminate or be different colours to achieve a succession of coloured layers.

3.1.3.2

metal reinforced core layer

metal layer(s) or mesh(es) and cellulosic fibrous layers (usually paper) impregnated with phenolic thermosetting resins or aminoplastic thermosetting resins (usually melamine based resins)

Note 1 to entry: The purpose of including the metal layers is to improve the mechanical, fire or permeability performances of the laminate. Additionally the metal layers can give aesthetic improvements to edge.

3.2 Symbols

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

t nominal thickness of the alternative core laminate

4 Material types and classification system

Alternative core laminates are defined using a three-letter classification system as shown in Table 1.

Table 1 — Alternative core laminate classification system

First letter	Second letter	Third letter
B (Coloured core layer laminate)	C (Compact)	S (Standard grade)
R (Metal reinforced core layer laminate)	T (Thin laminate < 2 mm)	or F (Flame retardant grade)

Type S – Standard grade high-pressure decorative alternative core laminates.

Type F – High-pressure decorative alternative core laminates with improved fire retardance, similar to type S but also complying with special requirements of specified tests which may vary according to the application (e.g. construction, marine, transport) and the country of use (see 5.4.3).

NOTE These types of laminate are normally not postformable.

In addition to the abbreviation “HPL” and the number of this European Standard, materials are specified by the alphabetical classification system.

EXAMPLE “Coloured core Standard Grade Thin high-pressure decorative laminate” is designated as HPL/EN 438-9 BTS.

5 Requirements

5.1 Compliance

Alternative core layer laminates classified in Table 1 shall comply with 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 between 750 mm and 1 500 mm.

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.

When colour and surface finish are critical, it is recommended that sheets are checked for colour and surface-finish compatibility without protective film 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.

When colour and surface finish are critical, it is recommended that sheets are checked for colour and surface-finish compatibility without protective film before fabrication or installation.

5.2.4 Reverse side

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

Cut-to-size panels and certain applications involving full-size sheets may call for special quality requirements which can be negotiated between supplier and purchaser; in such cases the following requirements may be used as a basis for agreement.

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.

It may be agreed between purchaser and supplier that the visual quality standard applies to one decorative face only.

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.