



# SLOVENSKI STANDARD

## oSIST prEN 14323:2020

01-junij-2020

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**Lesne plošče - Z melaminom oplemenitene plošče za notranje prostore -  
Preskusne metode**

Wood-based panels - Melamine faced boards for interior uses - Test methods

Holzwerkstoffe - Melaminbeschichtete Platten zur Verwendung im Innenbereich -  
Prüfverfahren

Panneaux à base de bois - Panneaux surfacés mélaminés pour usages intérieurs -  
Méthodes d'essais

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oSIST prEN 14323:2020

**Ta slovenski standard je istoveten z: prEN 14323**

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**ICS:**

79.060.01

Lesne plošče na splošno

Wood-based panels in  
general

**oSIST prEN 14323:2020**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 14323**

April 2020

ICS 79.060.20

Will supersede EN 14323:2017

English Version

## Wood-based panels - Melamine faced boards for interior uses - Test methods

Panneaux à base de bois - Panneaux surfacés  
mélaminés pour usages intérieurs - Méthodes d'essais

Holzwerkstoffe - Melaminbeschichtete Platten zur  
Verwendung im Innenbereich - Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 112.

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

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

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## European foreword

This document (prEN 14323:2020) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14323:2017.

Compared to EN 14323:2017 the following modifications have been made:

- a) spatially resolved spectral measurement technology added as an option in 5.8.2 to determine colour matching.

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## prEN 14323:2020 (E)

### 1 Scope

This document specifies test methods for the determination of characteristics of melamine faced boards (MFB) as defined in EN 14322.

### 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 324-1, *Wood-based panels — Determination of dimensions of boards — Part 1: Determination of thickness, width and length*

EN 438-2:2016+A1:2018, *High-pressure decorative laminates (HPL) — Sheets based on thermosetting resins (usually called laminates) — Part 2: Determination of properties*

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

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

EN ISO 4892-2:2013, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps (ISO 4892-2)*

ISO 9352, *Plastics — Determination of resistance to wear by abrasive wheels*

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### 3 Terms and definitions

No terms and definitions are listed in this document.

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/>

### 4 Test pieces

The test pieces for the following tests shall be taken at least 150 mm from the edge of the product. When needed, the longitudinal or transverse direction of the decorative surface shall be specified by the manufacturer for the tests on the products.

### 5 Conditioning of test pieces

Unless specified otherwise for the individual tests, the test pieces shall be tested in the received state.

In cases of dispute or for type approval, the test pieces shall be conditioned in an atmosphere of  $(23 \pm 2)$  °C and  $(50 \pm 5)$  % relative humidity to constant mass prior to testing.

### 6 Test methods

#### 6.1 Dimensions (thickness, length and width)

These properties shall be determined in accordance with EN 324-1.

## 6.2 Flatness

### 6.2.1 Principle

Flatness is determined by measuring the maximal deviation of the board surface from a metal straight edge placed at two selected positions parallel to the long and short edges of the board or panel.

### 6.2.2 Apparatus

Straight edge, of  $(1\ 000 \pm 1)$  mm length, with dial indicator gauge (comparator) graduated to permit a reading accuracy of 0,1 mm.

### 6.2.3 Test pieces

The test piece shall be the complete board under test, as received, stored in the conditions recommended by the manufacturer.

### 6.2.4 Procedure

Place the board in a vertical position free from restraint with one long edge resting on an essentially horizontal floor. Place the flatness gauge on the concave surface at various positions. At each position, measure the greatest distance between board surface and the flatness gauge with an accuracy of 0,1 mm.

### 6.2.5 Expression of results

The result of the test is the highest recorded reading on the dial gauge in millimetres to the nearest 0,1 mm.

## 6.3 Edge damage

### 6.3.1 Principle

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Edge damage is determined by placing a graduated mask or tape measure on the board or panel under test and measuring the size of chips of paper removed from the edges.

### 6.3.2 Apparatus

A metal tape measure or mask graduated in divisions of 1 mm.

### 6.3.3 Test pieces

The test piece is the board or panel as received.

### 6.3.4 Procedure

The test piece is laid level on a protective surface. Loose surface contamination is to be removed using a soft brush. Using the metal tape measure or the mask the size of the chip is measured at right angles to the board edge, across the chip towards the centre of the board.

### 6.3.5 Expression of results

Record the dimensions of the largest chip of paper removed to the nearest millimetre (mm).

**prEN 14323:2020 (E)****6.4 Surface defects****6.4.1 Principle**

Inspection of boards for surface appearance under standardized conditions of lighting and viewing.

Surface defects are larger than 0,8 mm<sup>2</sup> and those that can be identified when the surface texture is viewed from a distance of 0,7 m and at an angle about of 45°.

**6.4.2 Apparatus**

The light source shall provide a diffused illumination of (1 200 ± 400) lx over the whole area. This may either be diffused daylight or be diffused artificial light. The daylight shall be unaffected by surrounding trees, etc. When artificial daylight is used, it shall have a correlated colour temperature of (5 000 to 6 500) K and a *Ra* greater than 92, by using a colour matching booth in accordance with EN ISO 3668.

A convenient distance of the lights from the inspection table is approximately 1,5 m.

**6.4.3 Test pieces**

The test piece shall be the board under test, as received.

**6.4.4 Procedure**

Place the board, decorative face uppermost, on the inspection table and wipe it free of any loose contamination, if necessary, with a soft cloth and any suitable cleaning agent if necessary. Inspect it from the distance required (specified in 6.4.1) for defects such as smudges, smears, finger-prints, scratches, foreign particles, damage or any other form of blemish evident within the decorative surface.

In case of cut to size panels the inspection shall be performed on the edges too.

The evaluation of the total area of spot-type defects in square millimetres and of the total length of hair-like defects in millimetres may be carried out with the help of the Tappi Size Estimation Chart<sup>1)</sup> or with an equivalent system. In case of dispute the inspection shall be carried out by three observers using the Tappi Chart or an equivalent system.

The inspector shall have normal vision, corrected if necessary. No magnifying glass shall be used in viewing the sheet. In cases of doubt or dispute, three observers are required for the visual assessment. All observers shall have good colour vision. In case of three observers, the reported rating for the test surface shall be the average to the nearest nominal value.

**6.4.5 Expression of results**

Record all defects identifying type, number and size of defects and sum up surfaces and length.

The admissible size of defects is based on a maximum contamination area equivalent to a unit of defects and is proportional to the standard delivery size of the manufacturer. The total admissible area of contamination may be concentrated in one spot or dispersed over an amount of smaller defects.

In case of pre-cut panels the cumulative defect is referred to the standard delivery sizes of the manufacturers or amount of delivery.

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1) "Tappi Size Estimation Chart" is the trade name of a product supplied by TAPPI, Technology Park, P.O. Box 105113, Atlanta, GA 30348-5113, USA, tel. +1 770 446 1400, fax +1 770 446 6947. The article reference is: TAPPI - Dirt size estimation chart. "Tappi size estimation chart" is an example of a suitable product available commercially. This information is given for the convenience of users of this European Standard and does not constitute an endorsement by CEN-CENELEC of this product.



EXAMPLE Permitted unit of defect (see EN 14322) in this sample is  $2 \text{ mm}^2/\text{m}^2$   
Standard delivery size of the manufacturer:  $5\,000 \text{ mm} \times 2\,000 \text{ mm}$

Points:

The permissible total error (TE) is calculated as follows:

$$\text{TE} = \text{Board length} \times \text{Board width} \times \text{Permitted unit of defect} = 5\,000 \text{ mm} \times 2\,000 \text{ mm} \times 2 \text{ mm}^2/\text{m}^2 = 20 \text{ mm}^2$$

The following errors are therefore permitted:

- 1 × 20 mm<sup>2</sup> defect, or
- 2 × 10 mm<sup>2</sup> defect, or
- 3 × 6,6 mm<sup>2</sup> defect etc.

Length:

The permissible total error (TE) is calculated as follows:

$$\text{TE} = \text{Board length} \times \text{Board width} \times \text{Permitted unit of defect} = 5000 \text{ mm} \times 2000 \text{ mm} \times 20 \text{ mm}/\text{m}^2 = 200 \text{ mm}$$

The following errors are therefore permitted:

- 1 × 200 mm defect
- 2 × 100 mm defect
- 3 × 66 mm defect etc.

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## 6.5 Resistance to scratching

### 6.5.1 Principle

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Increasing loads are applied in specified steps to a diamond scratching point of defined geometry.

The resistance to scratching of the melamine faced board under test is expressed as a numerical rating which defines the minimum applied load which is producing a continuous surface scratch. The test result is verified by visually confirming that the next higher load-step produces a continuous scratch.

### 6.5.2 Apparatus

Scratch testing apparatus and viewing enclosure as described in EN 438-2:2016+A1:2018, 25.3.

### 6.5.3 Test pieces

Cut a test piece  $100 \text{ mm} \times 100 \text{ mm}$  from the board under test. Wipe the surface using cotton fabric impregnated with a solvent such as acetone. It is important that, once cleaned, the surface is not fingered in the test area. Before making the scratch test store the test piece for 4 days in the standard atmosphere according to Clause 5.

### 6.5.4 Procedure

Follow the procedure in EN 438-2:2016+A1:2018, 25.6 with the following modifications.

Start the test by making two scratches at 1,0 N with a spacing of approximately 1 mm between the scratch marks. On the same test piece repeat this procedure with loads in increment of 0,5 N up to a load of 4 N leaving a space of approximately 3 mm between each pair of scratches. Place the scratched samples in the standard atmosphere, defined in Clause 5, for 24 h before final inspection.

**prEN 14323:2020 (E)****6.5.5 Expression of results**

During the examination, the operator shall ensure that the double circle of scratch marks selected is truly > 90 % continuous.

The examination of the surface should take no longer than 10 s.

Record the minimum load giving a continuous mark visible after 24 h in the standard atmosphere. In cases of dispute, three observers shall view the test piece and report their results independently; the final result shall be the average of the three reported values, rounded to the next 0,1 N.

**6.6 Resistance to staining****6.6.1 Principle**

Test pieces are left in contact with a series of staining agents which are likely to be encountered in everyday use. The time and conditions of contact are specified for each staining agent. At the end of the specified contact period the test pieces are washed and examined for residual surface marks.

**6.6.2 Staining agents**

The test is carried out with the two representative staining agents: acetone and black coffee. Acetone is applied at ambient temperature; black coffee of normal drinking strength is applied at approximately 80 °C. If the product under test meets specification requirements then it is deemed to comply with the specification for stain resistance. Other staining agents are included in Table A.1 (see Annex A) for information only and can be used after agreement between supplier and customer.

**6.6.3 Apparatus**

- glass covering (e.g. watch glass) to prevent evaporation;
- cleaning agent; <https://standards.iteh.ai/catalog/standards/sist/f028074e-c967-43d8-9ab9-e1709230f369/osist-pren-14323-2020>
- diffuse light source.

Light source providing evenly diffused light giving an illumination on the test surface of (1 200 ± 400) lx. This may either be diffused daylight or be diffused artificial daylight.

The daylight should be unaffected by surrounding trees, etc. When artificial daylight is used it is recommended that it should have a correlated colour temperature of (5 000 to 6 500) K and a *R<sub>a</sub>* greater than 92, by using a colour matching booth in accordance with EN ISO 3668.

**6.6.4 Test pieces**

Individual test pieces of any suitable size shall be used cut from the board under test. Where surface finishes are different, state the side to be tested.

Alternatively a single piece test specimen, large enough to allow the staining materials to be applied side by side, can be used. Keep the test piece flat during the test. An area of about 100 mm × 100 mm is required for each test.

**6.6.5 Procedure**

The pieces shall be initially at room temperature. Apply a small quantity (for example 2 or 3 drops) of staining agent to the test area. Cover the staining agents with a glass cover.

After 16 h contact time has elapsed remove the staining agents completely. Then wash the test areas with any suitable cleaning agent.

Leave the test pieces 24 h in normal ambient conditions. Then view from various angles at a distance of 400 mm using normal eyesight, corrected where necessary.

NOTE If agreed, another examination can be made after a further specified period of time.

### 6.6.6 Expression of results

Use following rating scale for evaluation:

- rating 5: No visible change; test area indistinguishable from adjacent surrounding area;
- rating 4: Minor change; test area distinguishable from adjacent surrounding area, only when the light source is mirrored on the test surface and is reflected towards the observer's eye, e.g. discoloration, change in gloss and colour;
- rating 3: Moderate change; test area distinguishable from adjacent surrounding area, visible in several viewing, directions, e.g. discoloration, change in gloss and colour;
- rating 2: Significant change; test area clearly distinguishable from adjacent surrounding area, visible in all viewing directions, e.g. discoloration, change in gloss and colour, and/or structure of the surface slightly changed, e.g. cracking, blistering;
- rating 1: Strong change; the structure of the surface being distinctly changed and/or discoloration, change in gloss and colour, and/or the surface material being totally or partially delaminated.

## 6.7 Resistance to cracking

### 6.7.1 Principle

To determine the ability of the decorative surfaces of melamine faced board to resist to cracking under dry heat at 70 °C.

### 6.7.2 Apparatus

- electrically heated oven, provided with air circulation capable of being controlled at  $(70 \pm 2)$  °C;
- hand-lens with approximately 6x magnification;
- lighting of intensity (800 to 1 000) Lux.

### 6.7.3 Test pieces

A 250 mm × 250 mm test piece shall be cut out of the product. The edges which define decorative sides shall be chamfered about 3 mm wide at an angle of about 45° to avoid any notch effect from the edge.

### 6.7.4 Procedure

The test piece shall be stored in an oven with air turbulence controlled at  $(70 \pm 2)$  °C for 24 h. After subsequent cooling in standard reference atmosphere 23 °C/50 % relative humidity for 24 h, a magnifier with 6x magnification shall be used to determine whether, and to what extent, cracks have appeared, when examined under a light intensity of (800 to 1 000) Lux.

### 6.7.5 Expression of results

Cracks are divided into 2 classes. Hairline cracks that are difficult to see by eye and surface cracks that may cut into the surface finish and may reach the board. These can be clearly seen and felt.