SLOVENSKI STANDARD
oSIST prEN 927-10:2017

01-november-2017

Barve in laki - Premazi in premazni sistemi za zaščito lesa za zunanjo uporabo - 10. del: Odpornost filmov premazov proti medsebojnemu zlepljanju

Paints and varnishes - Coating materials and coating systems for exterior wood - Part 10: Resistance to blocking of paints and varnishes on wood

Beschichtungsstoffe - Beschichtungsstoffe und Beschichtungssysteme für Holz im Außenbereich - Bestimmung der Blockfestigkeit

Peintures et vernis - Produits de peinture et systèmes de peinture pour le bois en extérieur - Résistance au blocage des peintures et vernis sur bois

Ta slovenski standard je istoveten z: **prEN 927-10**

ICS:

71.100.50	Kemikalije za zaščito lesa	Wood-protecting chemicals
87.040	Barve in laki	Paints and varnishes

oSIST prEN 927-10:2017 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 927-10

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ICS 87.040 | Will supersede CEN/TS 16499:2013

English Version

Paints and varnishes - Coating materials and coating systems for exterior wood - Part 10: Resistance to blocking of paints and varnishes on wood

Peintures et vernis - Produits de peinture et systèmes de peinture pour le bois en extérieur - Résistance au blocage des peintures et vernis sur bois

Beschichtungsstoffe - Beschichtungsstoffe und Beschichtungssysteme für Holz im Außenbereich - Bestimmung der Blockfestigkeit

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 139.

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.

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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.

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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 927-10:2017) has been prepared by Technical Committee CEN/TC 139 “Paints and varnishes”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede CEN/TS 16499:2013.

1 Scope

This European Standard specifies a test method for determining, under standard conditions, whether a single-coat film or a multi-coat system of paints and varnishes on wood after a specified drying period is sufficiently dry to avoid damage when two painted surfaces or one painted surface and another surface are placed in contact under pressure and subsequently separated. The method is intended to simulate the conditions when painted articles come into contact which each other. In comparison to EN ISO 9117-2, the conditioning and parameters which influence the behaviour of wood coatings are more specific.

NOTE In some countries, the test is called a “block or blocking resistance” test.

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 927-1, *Paints and varnishes - Coating materials and coating systems for exterior wood - Part 1: Classification and selection*

EN 23270, *Paints and varnishes and their raw materials - Temperatures and humidities for conditioning and testing (ISO 3270)*

EN ISO 1513, *Paints and varnishes - Examination and preparation of test samples (ISO 1513)*

EN ISO 2808, *Paints and varnishes - Determination of film thickness (ISO 2808)*

EN ISO 15528, *Paints, varnishes and raw materials for paints and varnishes - Sampling (ISO 15528)*

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:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
blocking
unwanted adhesion between two surfaces, at least one of which has been coated, when they are left in contact under load after a given drying period

Note 1 to entry: Blocking does not apply to bonding of coated surfaces after insufficient drying.

Note 2 to entry: In practice, blocking can occur if coated wood panels are stacked on each other or on windows and doors if the frames are in direct contact with the faces. Blocking depends on temperature and load (pressure).

Note 3 to entry: The term blocking is also sometimes used to describe agglomerated caked powder.

Note 4 to entry: Unwanted adhesion can lead to damage upon separation.

[SOURCE: EN ISO 4618:2014, 2.30, modified – added Notes to entry.]

3.2
load
mass needed to achieve a suitable test pressure

Note 1 to entry: High temperature and humidity increase the challenge at a given load. The application method, film thickness, drying conditions and climatic conditions should also be taken into account.

3.3
after tack
property of a film to remain sticky after normal drying or curing

Note 1 to entry: The term after tack can also mean a subjectively stickiness of the surface ("finger tack" or "surface tack"). This effect however might not necessarily be related to blocking.

[SOURCE: EN ISO 4618:2014, 2.10, modified – added Note 1 to entry.]

3.4
stable mass
mass achieved when the difference between two subsequent weighings within 24 h does not exceed 0,2 %

[SOURCE: EN 927-5:2006, 3.3]

3.5
stackability
resistance to damage due to unwanted adhesion between adjacent surfaces of articles that develops when these articles are left in contact

[SOURCE: EN ISO 9117-2:2010, 3.1]

4 Principle

The coating material or the coating system under test is applied on test panels or cut strips under specified conditions. After specified drying time and under specified climatic conditions, the two test panels or cut stripes are placed crosswise in contact with each other. This assembly is subsequently placed in a test apparatus to be subjected to a specified load under specified climatic conditions. After a specified period of time, the load is removed and the test panels manually separated under specific climatic conditions and the contact areas examined for any damage to the coating in the area of contact.

5 Apparatus

5.1 Weights, of a mass which correspond to the requirements of 12.1.

5.2 Oven or conditioning chamber, depending on the selected climatic conditions during load (see Clause 11 or 12.3):

— Oven of appropriate size, controlled at a temperature of (50 ± 2) °C or (60 ± 2) °C;

— climatic conditioning chamber where the selected climatic conditions can be achieved.

5.3 Inert substrate for application on Specimen s3.

5.3.1 Test panels ("strips") made of polyvinyl chloride film free of migrating plasticizers, of sufficient rigidity to ensure a flat surface, impervious to and unaffected by water or aliphatic organic solvents and of nominal thickness 0,25 mm. Other types of plastics film might be used where the coating material contains solvents which may adversely affect the PVC film. If the coating delaminates from the substrate before or during the test, another, more suitable substrate should be used.

5.3.2 Film applicator, preferably automatic, used at an application speed of 10 mm/s to 15 mm/s and fitted with a doctor blade (see 8.2) with an appropriate gap clearance and a gap width of at least 60 mm.

5.3.3 Use cutting knife, metal template or straight-edge ruler to cut the foils.

5.4 Tools for application on test specimen s1, s2, s4, (e.g. roller, brush, spray equipment) depending on the paint manufacturer's specification.

6 Sampling

Take a representative sample of the product to be tested (or of each product in the case of a multi-coat system), in accordance with EN ISO 15528. Examine and prepare each sample for testing in accordance with EN ISO 1513.

7 Test panels – substrate – test specimens

7.1 General

Depending on the specimens provided for use, different application methods can be required (see Table 1).

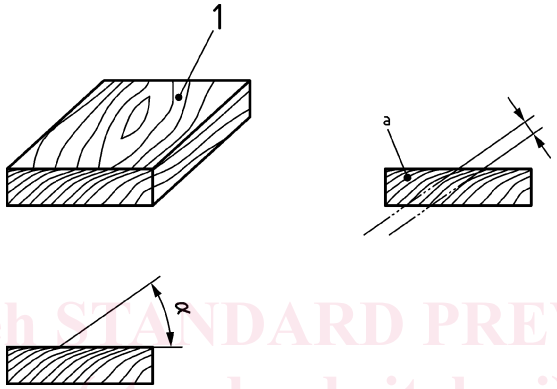
Table 1 — Substrate

Substrate (s)	Type	Description	Recommended use
s1	Wood	Spruce (*Picea abies*) (see 7.1)	Standard test method to check a coating system or an individual top coat.
s2	Other wood substrates	Any wood species (see 7.2)	Individual wood species on customer-specific requirement (e.g. a coated test specimen from which test panels can be cut)
s3	Inert substrate	PVC-foil (see 5.3)	Lab test method to compare different top coats (simulation of the blocking behaviour on not absorbing substrates)
s4	Other plane substrates	E.g. plywood according to EN 636	Lab test method to compare different coating materials or coating systems.

7.2 Substrate s1 – Spruce

The wood shall be spruce (*Picea abies*) that has been selected to be free from knots and cracks, to be straight-grained and of normal growth rate (i.e. between 3 and 8 annual rings per 10 mm).

The panels shall be planed all round to a smooth and uniform finish. The inclination of the growth rings to the test face shall be (45 ± 10)°. See Figure 1. The wood shall be free from blue stain and evidence of surface or bulk infection. Abnormal porosity shall be avoided. Condition the wood prior to conversion into test panels in accordance with EN 23270 at (23 ± 2) °C and a relative humidity of (50 ± 5) %. The density of the wood shall be between 0,4 g/cm³ and 0,5 g/cm³ when measured at an equilibrium moisture content at standard climate in accordance with EN 23270 at (23 ± 2) °C and a relative humidity of (50 ± 5) %.



Key

1 *f*ront of panel (test face)

a min. 3, max. 8 growth rings per 10 mm (applies for the whole panel)

α angle of growth rings to test face min. 35°, max. 55°

Figure 1 — Selection of wood

7.3 Substrate s2 – Other wood species

In case of customer-specific requirements or if it might be assumed that other types of wood might give a different result an alternative wood species should be used as substrate. It is also an option for manufacturers to provide an already coated test specimen from which test panels can be cut. The chosen panel shall be precisely described in the test report. The surface of the specimens provided shall be plane. The test substrate shall be conditioned until constant mass at standard conditions according to EN 23270 [(23 ± 2) °C and (50 ± 5) % relative humidity].

7.4 Substrate s3 – Inert substrate

See 5.3.

7.5 Substrate s4 – Other plane substrates

The selected substrate should be precisely described in the test report. Alternatives that may be used include absorbing substrates (e.g. plywood) as well as non absorbing substrates (e.g. glass, aluminium, coated paper, polymer panels). Absorbing substrates should be conditioned until achieving constant mass at standard conditions according to EN 23270 [(23 ± 2) °C and (50 ± 5) % relative humidity].

8 Application to the test specimens

8.1 General

Depending on the specimens provided for use, a different type of application might be required (see Table 2).

Table 2 — Type of application

Substrate (s)	Type	Description	Recommended application
s1	Wood	Spruce (*picea abies*) (see 7.1)	According to manufacturer's specification
s2	Other wood species	Any wood species (see 7.2)	According to manufacturer's specification or customer's specification Optional use of already coated test specimen from which test panels can be cut.
s3	Inert substrate	PVC-foil (see 5.3)	Application of the top coat to be investigated in a dry film thickness related to practice, by means of a film applicator
s4	Other plane substrates	E.g. plywood according to EN 636	According to manufacturer's specification, customer's specification or by application of the top coat to be investigated in a dry film thickness related to practice, by means of a film applicator

8.2 Application to substrate s1 – spruce, s2 – other wood substrates, or substrate s4 - other plane substrates

If nothing else is specified by the manufacturer of the coating system, the conditioned, planed wood specimens (test panels), shall be manually sanded with abrasive paper (180 grade) just before application. Dust shall be removed completely. The test panels are coated with the coating system to be tested, closely following manufacturer's instructions or specification. Examples of possible suitable application methods and their specification are given in Annex B.