



SLOVENSKI STANDARD

SIST EN 927-1:1997

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Barve in laki - Premazi in premazni sistemi za zunanjo zaščito lesa - 1. del: Razvrstitev in izbor

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

Lacke und Anstrichstoffe - Beschichtungsstoffe und Beschichtungssysteme für Holz im
Außenbereich - Teil 1: Einteilung und Auswahl

Peintures et vernis - Produits de peinture et systèmes de peinture pour le bois en
extérieur - Partie 1: Classification et sélection

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ICS:

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

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EUROPEAN STANDARD

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English version

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

Peintures et vernis - Produits de peinture et
systèmes de peinture pour le bois en extérieur
- Partie 1: Classification et sélection

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und Beschichtungssysteme für Holz im
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This European Standard was approved by CEN on 1996-08-04. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by CEN/TC 139 "Paints and varnishes", the secretariat of which is held by DIN.

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 March 1997, and conflicting national standards shall be withdrawn at the latest by March 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This is one of a number of Parts of prEN 927. The present intention is to develop further Parts relating to test methods and performance requirements.

The names used today to describe coating materials and coating systems pay little regard to technical, functional and end use categories. This makes it difficult to devise an unequivocal simple terminology applicable to all product types. This Part of prEN 927 attempts to address this problem by separately defining categories of appearance and end use, but with no assumptions as to whether or not a given product, by its appearance alone, will be suitable for a particular use. The objective is to avoid misuse of coating systems by the misunderstanding or over-statement of performance claims. Current experience of characteristic coating behaviour is explained in annex A so that users may be forewarned of situations requiring specific assurances.

The treatment of exterior wood surfaces has aesthetic and protective functions. The result of such treatments

- protection against aesthetic deterioration;
- protection against deterioration due to weathering influences;
- control of dimensional change;
- protection against blue stain attack;
- maintaining the function of wood components (including the possibility of renovation).

This Part of prEN 927 identifies criteria that need to be considered when assessing the suitability of a coating system for a particular end use and provides a framework for communicating this information between manufacturer and user. This should assist in the removal of technical barriers to trade. It is the responsibility of the manufacturer of a coating system to designate the appropriate categories for end use and appearance.

1 Scope

This European Standard specifies a system for the classification of coating materials and coating systems for exterior wood surfaces by categories of end use, appearance and exposure conditions.

It is applicable to all coating materials and coating systems intended for decoration and protection of exterior wood surfaces including those which contain biologically protective ingredients for the protection of coatings and at their interface with the wood surface (film preservation). The coating materials may include biologically active ingredients for the protection of the liquid coating material, for example during storage (in-can preservation). This European Standard is not applicable to wood preservatives.

Guidance on selection criteria and the procedures for users selection are given for information in annex A.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies. (standards.iteh.ai)

EN 971-1	1996	Paints and varnishes - Terms and definitions for coating materials - Part 1: General terms
ISO 2808	1991	Paints and varnishes - Determination of film thickness
ISO 2813	1994	Paints and varnishes - Determination of specular gloss of non-metallic paint films at 20°, 60° and 85°

3 Definitions

For the purposes of this Standard, the following definitions apply:

- 3.1 ageing:** Irreversible changes in the properties of a film which occur with the passage of time.
- 3.2 blocking:** Unwanted adhesion between two painted surfaces when they are left in contact under load after their specified drying period.
- 3.3 blue stain in service:** Surface staining of timber in service by fungi causing blue to black discoloration often causing disruption of surface finishes.
- 3.4 build:** The visual impression of the thickness of a dried film.

NOTE: For the purpose of 4.2.1 the measured film thickness is used for classifying build.

- 3.5 coating material:** A product, in liquid or in paste or powder form, that, when applied to a substrate, forms a film possessing protective, decorative and/or other specific properties.

NOTE: The German term "Beschichtungsstoff" as defined in this standard is the general term for "Lacke", "Anstrichstoffe" and similar products. [EN 971-1 : 1996]

- 3.6 coating system:** The sum total of the coats of coating materials which are to be applied or which have been applied to a substrate.

NOTE: The German term "Beschichtung" as defined in this standard is the general term for "Lackierungen", "Anstriche", "Kunstharpzputze" (organic binder renderings) etc. [EN 971-1 : 1996]

3.7 exterior wood stain (lasure): A liquid product producing a transparent or semi-transparent film, for the decoration and protection against weathering which enables maintenance to be carried out easily. Such products may contain biocide(s) to protect the film and/or wood interface against blue stain or mould.

NOTE: In some countries the term "opaque wood stain" is also used for a paint applied such that the wood surface structure remains visible.

3.8 finishing coat; top coat: The final coat of a coating system. [EN 971-1 : 1996]

3.9 flexibility: The ability of a dried film to follow without damage the deformations of the substrate to which it is applied.

NOTE: The use of the term "elasticity" to describe the flexibility of a film is incorrect. [EN 971-1 : 1996]

3.10 gloss: The optical property of a surface, characterized by its ability to reflect light specularly. [EN 971-1 : 1996]

3.11 hiding power: The ability of a coating material to obliterate the colour or the colour differences of a substrate. [EN 971-1 : 1996]

3.12 paint: A pigmented coating material, in liquid or in paste or powder form, which when applied to a substrate, forms an opaque film having protective, decorative or specific technical properties.

NOTE: The German terms "Lack" and "Anstrichstoff" are used for pigmented and unpigmented coating materials. An unpigmented "Lack" should be designated "Klarlack". [EN 971-1 : 1996]

3.13 priming coat: The first coat of a coating system, applied to a substrate. [EN 971-1 : 1996]

3.14 rot: Decomposition of timber by fungi resulting in softening, progressive loss of strength and mass and often a change of texture and colour.

3.15 undercoat; intermediate coat: Any coat between the priming coat and the finishing coat. [EN 971-1 : 1996]

3.16 varnish/clear coating material: A coating material which when applied to a substrate forms a solid transparent film having protective, decorative or specific technical properties.

NOTE: A clear coating material drying exclusively by oxidation is known as a varnish. [EN 971-1:1996]

3.17 water absorption: The ability of a coated surface area to absorb water from liquid or vapour.

3.18 water permeability: The ability of a coating system to allow the transmission of water as liquid or vapour.

3.19 wood preservative: A product, containing a biocide, which is intended to inhibit the development of wood-destroying and/or wood-staining organisms in the wood to which it is applied.

4 Classification

Coating materials and coating systems for exterior wood shall be classified as specified in 4.1, 4.2 and 4.3.

4.1 Classification by end use

Classification of coating materials and coating systems shall be by end-use in categories related to the stability of the substrate on which they are suitable for use, as given in table 1.

NOTE: The suitability of a coating material for a given end use is determined by the extent to which dimensional movement of the wood in response to absorption or loss of water must be controlled. For softwood such as pine and spruce three broad end use categories are given. For those hardwoods not subject to high water absorption (e.g. meranti, mahogany) two or more of these categories can be combined provided the relevant performance requirements are met.

Table 1: Classification by end use

End-use category	Permitted dimensional movement of wood	Typical examples of end-use categories
Non-stable	Free movement permitted	Overlapping cladding, fencing, garden sheds
Semi-stable	Some movement permitted	Tongue and groove cladding, wooden houses and chalets, garden furniture
Stable	Minimum movement permitted	Joinery including windows and doors

4.2 Classification by appearance

Classification by appearance shall be by the following properties:

- a) build;
- b) hiding power;
- c) specular gloss.

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4.2.1 Build (film thickness)

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Classification by build shall be based on the measurement of the dry film thickness according to method 5A of ISO 2808 : 1991 by the following categories.

- a) minimal: mean thickness less than 5 μm ;
- b) low: mean thickness 5 μm up to 20 μm ;
- c) medium: mean thickness greater than 20 μm up to 60 μm ;
- d) high: mean thickness greater than 60 μm .

4.2.2 Hiding power

Classification by hiding power shall be by the following categories.

- a) opaque: Coating systems that obliterate all substrate colour and pattern but may not hide all surface profile.
- b) semi-transparent: Coating systems that do not totally obscure the wood surface.
- c) transparent: Coating systems that allow the wood surface to remain clearly visible.

4.2.3 Gloss

Classification by specular gloss shall be based on specular reflectance values when tested at 60° by the method described in ISO 2813 by the following categories.

- a) matt: reflectance up to 10;
- b) semi-matt: reflectance greater than 10 up to 35;
- c) semi-gloss: reflectance greater than 35 up to 60;
- d) gloss: reflectance greater than 60 up to 80;
- e) high gloss: reflectance greater than 80.

NOTE: In practice, the gloss level achieved will depend on the state and nature of the substrate, the type of system and method of application. See annex A for further information.

4.3 Classification by exposure conditions

Classification of coating materials and coating systems shall be based on exposure conditions that take into account constructional factors and climatic conditions. The categories shall be

- a) mild;
- b) medium;
- c) severe;

as given in table 2.

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Table 2: Classification by exposure conditions

Construction	Climate		
	Moderate	Hard	Extreme
Sheltered	Mild	Mild	Medium
Partly sheltered	Mild	Medium	Severe
Not sheltered	Medium	Severe	Severe

5 Manufacturer's product information

A manufacturer shall provide product information using the classification system specified in this European Standard.

NOTE: An example of how this information may be presented is shown in table 3. This table summarizes only the most basic information about the appearance and intended application of a given product. Normally additional information will be available in the form of the manufacturer's product data sheets.

Table 3: Example of presentation of manufacturer's product information

Trade name	Appearance	Build (category) Hiding power (category) Gloss (category)	
Product description	System recommendation		
Colour or colour range	System recommendations assume bare unweathered wood to be the substrate.		
Exposure	End use categories		
	Non-stable	Semi-stable	Stable
Mild			
Medium			
Severe			
The information is based on the classification system specified in EN 927-1.			
Substrate recommendations			
The manufacturer should indicate here any special recommendations relating to the substrate, e.g. applicability of the coating system to previously painted or degraded wood, or to wood-based panel products.			
<p>+ is the product recommended o is the product not recommended</p> <p>NOTE: In order to indicate specific advice the manufacturer may use the footnote sign (*).</p>			