



SLOVENSKI STANDARD

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Trajnost lesa in lesnih proizvodov - Masivni les, zaščiten z biocidnimi proizvodi - 1. del: Razvrščanje biocidnih proizvodov glede na penetracijo in navzem

Durability of wood and wood-based products - Preservative-treated solid wood - Part 1: Classification of preservative penetration and retention

Durabilité du bois et des matériaux dérivés du bois - Bois massif traité avec produit de préservation - Partie 1 : Classification des pénétrations et rétentions des produits de préservation

Durabilité du bois et des matériaux dérivés du bois - Bois massif traité avec produit de préservation - Partie 1 : Classification des pénétrations et rétentions des produits de préservation

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ICS:

71.100.50	Kemikalije za zaščito lesa	Wood-protecting chemicals
79.040	Les, hlodovina in žagan les	Wood, sawlogs and sawn timber

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EUROPEAN STANDARD

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English Version

Durability of wood and wood-based products - Preservative-treated solid wood - Part 1: Classification of preservative penetration and retention

Durabilité du bois et des matériaux dérivés du bois -
Bois massif traité avec produit de préservation - Partie
1 : Classification des pénétrations et rétentions des
produits de préservation

Dauerhaftigkeit von Holz und Holzprodukten - Mit
Holzschutzmitteln behandeltes Vollholz - Teil 1:
Klassifizierung der Schutzmitteleindringung und -
aufnahme

This European Standard was approved by CEN on 17 July 2022.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



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

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European foreword

This document (EN 351-1:2023) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and wood-based products”, the secretariat of which is held by SIS.

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 October 2023, and conflicting national standards shall be withdrawn at the latest by October 2023.

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 351-1:2007.

The main changes compared to the previous edition are listed below:

- a new penetration class has been introduced;
- optional requirement on longitudinal penetration has been deleted;
- compliance with penetration and retention requirements have been further elaborated;
- clause on marking has been updated;
- Figure A.1 has been updated;
- Annex C, showing penetration classes according to EN 351-1:1995, has been deleted.

The EN 351 series consists of two parts. Part 1 gives guidance on the specification of penetration and retention requirements for preservatives in preservative-treated solid wood. Part 2 gives guidance on the general procedures to be followed in the sampling for analysis of preservative-treated solid wood.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 351-1:2023 (E)**Introduction**

This part of the EN 351 series allows a specifier or user to choose a preservative treatment for a solid wood product taking into account its intended service or the needs of different regional or traditional practices throughout Europe and the use class conditions to which the solid wood products will be exposed (see EN 335). In addition, it provides the basis on which treatments for timber in European product standards are to be specified. No attempt has been made to quantify the working life that could be expected from a particular preservative treatment as this will also depend on the geographical location and the associated climate of the service environment. The performance of treated wood cannot be assessed directly, for example by field tests or bioassay, as no agreed documents exist specifically for this purpose. As a consequence, the quality of treatment is specified using the penetration and retention of a preservative in treated wood. The penetration and retention values are measured by analysis of the active ingredient(s) in the treated wood.

Preservative treatment for certain wood species used in the different use classes might be unnecessary owing to their natural durability (see EN 350 and EN 460). If preservative treatment is necessary, preservatives with appropriate efficacy against wood destroying organisms as specified in EN 599-1 need to be chosen.

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1 Scope

This part of the EN 351 series establishes a classification of preservative-treated wood in terms of preservative penetration and gives guidance on a classification of retention. These can be used as a basis for specifying preservative treatments for particular products.

This part of the EN 351 series defines terminology to be used by the specifier when preparing a preservative treatment specification or product standard. It is not a treatment specification in itself.

This part of the EN 351 series is applicable to the production of preservative-treated solid wood, including glued laminated timber, suitable for use in those service conditions defined within the use classes in EN 335. It does not apply to any subsequent examination of treated wood in service.

NOTE 1 Glued laminated timber is not suitable for use in fresh or sea water.

This part of the EN 351 series is applicable to the protection of wood against attack by wood-destroying and wood-disfiguring fungi, insects and marine organisms.

NOTE 2 Protection against wood-disfiguring fungi is an optional property verified by testing in accordance with EN 599-1.

This part of the EN 351 series does not consider other properties of treated wood, for example odour, compatibility with other materials, such as corrosivity of fasteners. Nor does it consider any properties from the health, safety and environmental point of view.

This part of the EN 351 series does not apply to wood to be treated with formulations which are applied to timber in service to eliminate or control an existing fungal or insect infestation, or the prevention of attack by sapstain fungi, or insects in green timber.

Annex A (informative) provides a decision process for specifying preservative treatment requirements.

Annex B (informative) gives an example of the marking system.

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 599-1, *Durability of wood and wood-based products - Efficacy of preventive wood preservatives as determined by biological tests - Part 1: Specification according to use class*

EN 1001-2, *Durability of wood and wood based products - Terminology - Part 2: Vocabulary*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1001-2 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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

EN 351-1:2023 (E)

3.1
active ingredient
chemical compound or compounds included in a wood preservative to give it specific activity against biological agents of deterioration

[SOURCE: EN 1001-2:2005, 4.01]

3.2
analytical zone
part of the treated wood which is analysed for assessing compliance with the retention requirement (see 3.16)

Note 1 to entry: The analytical zone is taken from the lateral surfaces of the treated wood. The depth to which sampling is required will depend upon the penetration class according to Table 1.

[SOURCE: EN 1001-2:2005, 4.03]

3.3
batch
clearly identifiable collection of units of preservative-treated wood manufactured to conform to the same defined penetration and retention requirements

[SOURCE: EN 1001-2:2005, 4.04]

3.4
biological reference value
amount in grams per square metre or kilograms per cubic metre of a wood preservative (as product) found to be effective in the test in preventing attack by the particular biological agent being tested

[SOURCE: EN 1001-2:2005, 4.06]

3.5
charge
all the wood treated together in a single operation

[SOURCE: EN 1001-2:2005, 4.13]

3.6
composite sample
collection of all test samples derived from the sampling units taken from the batch in accordance with the chosen sampling plan for the determination of retention

[SOURCE: EN 1001-2:2005, 4.15]

3.7
critical value
value equivalent to the highest biological reference value (in grams per square metre or kilograms per cubic metre) obtained from all the biological tests carried out in accordance with EN 599-1 for any given use class

Note 1 to entry: The critical value will vary according to use class, method of application, and organisms against which the preservative is to provide protection and whether it is to be applied to softwood or hardwood.

[SOURCE: EN 1001-2:2005, 4.18, modified]

3.8**exposed heartwood**

heartwood of a timber component that is not enclosed by sapwood

[SOURCE: EN 1001-2:2005, 1.14]

3.9**glued laminated timber****glulam**

structural member formed by the lateral surfaces of timber laminations with the grain running essentially parallel

3.10**incising**

procedure of puncturing the lateral surfaces of wood as an aid in securing deeper and more uniform penetration of wood preservative

[SOURCE: EN 1001-2:2005, 4.38]

3.11**lamination**

layer of wood in glued laminated timber (see 3.9) formed from one or several boards, usually end jointed, but sometimes side jointed or both so as to extend to the full width and length of the member

3.12**penetrating treatment process**

process which includes features or procedures intended to overcome the natural resistance of wood to penetration by a wood preservative product in its ready for use form

Note 1 to entry: *ss* Such processes include, for example, currently practised technologies of diffusion treatment, the double vacuum process and the vacuum/pressure process.

[SOURCE: EN 1001-2:2005, 4.58]

3.13**penetration requirement**

minimum depth to which the active ingredient(s) (3.1) of the wood preservative is (are) required to penetrate the wood

[SOURCE: EN 1001-2:2005, 4.59]

3.14**permeable wood**

wood comprising of sapwood or both sapwood and heartwood of treatability class 1

Note 1 to entry: Classes defined in EN 350.

[SOURCE: EN 1001-2:2005, 4.61, modified]

3.15**resistant wood**

wood not of treatability class 1 as defined in EN 350

[SOURCE: EN 1001-2:2005, 4.72, modified]

EN 351-1:2023 (E)**3.16****retention requirement**

loading of product that is required in the analytical zone

Note 1 to entry: The retention requirement is expressed in grams of product per square metre for superficial application processes (see 3.19) and kilograms of product per cubic metre for penetrating treatment processes (see 3.12). It is derived from the critical value in different ways depending upon the particular test involved.

[SOURCE: EN 1001-2:2005, 4.73, modified]

3.17**sample unit**

one unit (for example a pole, a board, a fence post) of preservative-treated wood taken from a batch (see 3.3) of preservative-treated wood

[SOURCE: EN 1001-2:2005, 4.75, modified]

3.18**solid wood**

wood which has been sawn or otherwise machined

Note 1 to entry: It may include finger jointed and/or laminated wood.

[SOURCE: EN 1001-2:2005, 1.39]

3.19**superficial application process**

process which does not include particular features or procedures intended to overcome the natural resistance of wood to penetration of a wood preservative product in its ready to use form

Note 1 to entry: Such processes include for example brush and spray techniques and short-time immersion (dipping) processes in which the wood normally has only a few minutes contact with the wood preservative.

[SOURCE: EN 1001-2:2005, 4.82]

3.20**transition wood**

wood in a zone between the true sapwood and the true heartwood

Note 1 to entry: This is only distinguishable in very few wood species. In general, its durability is intermediate between that of sapwood and heartwood, whereas its treatability is similar to that of heartwood.

[SOURCE: EN 1001-2:2005, 1.45]