SLOVENSKI STANDARD
oSIST prEN 351-2:2020

01-september-2020

Trajnost lesa in lesnih proizvodov - Naravna trajnost masivnega lesa - 2. del: Navodilo za vzorčenje zaščitenega lesa za analizo

Durability of wood and wood-based products - Preservative-treated solid wood - Part 2: Guidance on sampling for the analysis of preservative-treated wood

Dauerhaftigkeit von Holz und Holzprodukten - Mit Holzschutzmitteln behandeltes Vollholz - Teil 2: Leitfaden zur Probenahme für die Untersuchung des mit Holzschutzmitteln behandelten Holzes

Durabilité du bois et des matériaux dérivés du bois - Bois massif traité avec produit de préservation - Partie 2 : Guide d'échantillonnage pour l'analyse du bois traité avec un produit 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 2: Guidance on sampling for the analysis of preservative-treated wood

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 38.

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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 351-2:2020) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and wood-based products”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association.

This document will supersede EN 351-2:2007.

Significant technical differences between this edition and EN 351-2:2007 are as follows:

— the sampling procedure for determination of longitudinal penetration has been deleted;

— a new clause on retention measurements has been introduced;

— the sampling plans in Annex A have been updated;

— a new annex showing examples on retention measurements has been introduced.

This document consists of two parts. Part 1 is concerned with defining the penetration requirements and gives guidance on the retention requirements for preservatives in preservative-treated solid wood. Part 2 gives guidance on the general procedures to be followed in the sampling and analysis of preservative-treated solid wood.

1 Scope

This part of EN 351 gives guidance on the general procedures to be used in obtaining samples of preservative-treated wood for the determination of penetration and retention of wood preservative. It also gives guidance on how to measure the penetration and retention of a wood preservative in the treated wood.

This part of EN 351 is applicable to the production of preservative-treated solid wood, including glued laminated timber, suitable for use in those service conditions defined by the use classes in EN 335.

This part of EN 351 is not applicable to preservative-treated wood in service. However, the sampling guidance provided within this part of EN 351 may be applied for the subsequent examination of treated wood in service.

Annex A (informative) provide a selection of number of sampling units.

Annex B (informative) provides examples of retention measurements.

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 1001-2:2005, *Durability of wood and wood based products — Terminology — Part 2: Vocabulary*

EN 12490, *Durability of wood and wood-based products — Preservative-treated solid wood — Determination of the penetration and retention of creosote in treated wood*

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 1001-2:2005 and the following 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
active ingredient(s)
individual chemical compound or compounds included in a wood preservative product to give it specific activity against biological agents of deterioration

Note 1 to entry: Adapted from EN 1001–2:2005, 4.01.

3.2
analytical zone
that part of the treated wood which is analysed for assessing compliance with the retention requirement (see 3.8)

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

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 species of wood being analysed and the treatment level concerned.

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
charge
all the wood treated together in a single operation

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

3.5
composite sample
collection of all test samples derived from the sampling units (3.9) taken from the batch (3.3) in accordance with the chosen sampling plan for the determination of retention

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

3.6
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]

3.7
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]

3.8
retention requirement
loading of the wood preservative product that is required in the analytical zone

[Source: EN 1001-2:2005, 4.73]

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

3.9
sampling 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]

4 Selection of batch

For the selection of batch the following shall be considered:

— The batch shall be selected with respect to the aim of the subsequent sampling and analysis;

NOTE 1 In practice the selection of a batch is the result of a compromise between the aim of the inspection and the quality of the analysis in terms of technical and financial considerations.

— The batch shall be selected in such a way that the subsequent selection of sampling units is representative for the batch;

— A batch may consist of one charge or several charges treated on different occasions;

If sampling is to be carried out from the same commodity manufactured at different plants at the same site, the batch should be selected in such a way that commodities from the different plants, treated according to the same specification, are represented in the batch.

NOTE 2 For continuous processes, e.g. treating wood components in a spray tunnel, a batch can be defined by the number of components treated during a defined period.

— A batch may not consist of different commodities;

A batch may not consist of a mixture of round and sawn wood.

— The way the batch has been selected shall be described in the report from the sampling and analysis of the preservative-treated wood.

NOTE 3 E.g. a batch can be identified by wood treated during a certain time period or by charge numbers.

5 Selection of sampling units from a batch

Sampling units shall be selected to be representative of the entire batch being considered. In order to be representative, sampling units shall be selected to take account the sources of variation that occur in the batch.

This can include variation in cross-section in treated components and their relative proportions in the batch. Selection should also take into account the number of packages of treated wood that make up the batch, where relevant.

The number of sampling units shall be in accordance with the guidance in ISO 2859-1. See Annex A for guidance.

If sapwood penetration is to be determined, units consisting entirely of heartwood should be avoided.

A true random sampling is difficult to achieve, but it should be as random as reasonably practical; see also Clause 4, NOTE 1.

Individual techniques for the determination of penetration and retention could impose special requirements for sampling and subsequent handling which shall be reported.

6 Selection of test samples from a sampling unit

Test samples shall be selected from the sampling units according to the following principles:

— If penetration and retention can be determined from a single test sample, only one test sample per sampling unit is necessary. Otherwise two test samples shall be taken persampling unit for the separate determination of penetration and retention;

— For assessment of retention and lateral penetration, test samples shall be taken from clear, straight-grained wood, away from splits, checks or other defects and at least 100 mm away from knots, midway between ends or at least 300 mm from the end;

NOTE 1 For superficial treatments, the requirement on sampling > 300 mm from the end does not apply when determining the retention unless an erroneous value can be expected owing to end grain penetration.

— Test samples shall be taken as borings, cross-sections, or thin sections (see Clauses 7 and 8) as appropriate with respect to the commodities to be sampled and the methods to determine the penetration and retention;

— When sampling, it is particularly important that the wood preservative fixation process (for that type of preservatives) is completed.

Guidance on the fixation should be found in wood preservative manufacturers' data sheets.

NOTE 2 Borings are normally suited for round wood (poles, piles) and thicker dimensions of sawn wood (railway sleepers).

NOTE 3 For determination of the preservative retention, cross-sections will form a more reliable basis than borings, as the whole analytical zone will be available for examination for cross-sections.

— When sampling is carried out by borings, there is a need for a certain minimum mass for determination of the retention. Therefore, more than one boring taken adjacent to each other may have to be sampled. The same number of borings shall then be taken from all sampling units involved.

7 Test methods

7.1 General

For determining the penetration of preservative in a batch, test samples are sampled in accordance with a sampling plan in Annex A.

The penetration of wood preservative shall be determined for each sampling unit sampled from the batch.

Sampling of creosote-treated wood shall be carried out according to EN 12490.

7.2 Borings

7.2.1 General

Borings shall be taken with a sharp increment borer which extracts a core of minimum diameter of 5 mm.

If any part of the sample is lost the whole sample shall be rejected and a new one taken.

If material is incised, borings shall be taken at a point midway between adjacent incisions.

When borings are taken from poles, they shall be taken above the point that will be in ground contact.

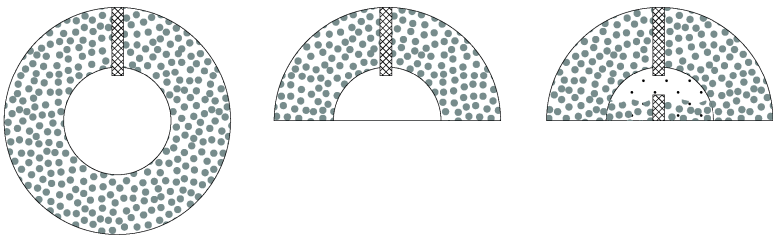
All borer holes should be promptly plugged with tight fitting wooden plugs pre-treated with an appropriate preservative.

7.2.2 Round and part-round wood

For round wood the borer shall be directed towards the pith from any point on the surface.

For part-round wood the borer shall be directed towards the pith (or the point where the pith would have been in the original log) from a point on the curved surface which is furthest away from the cut surface(s).

If a defined penetration depth, less than complete penetration, is required, the borer shall penetrate to a depth greater than the penetration measured (see Figure 1).



a) b) c)

Key to Figures 1 to 10

penetration of preservative
wood taken as sample
heartwood
no treatment required

Figure 1 — Sampling location in round and part-round wood if a defined penetration depth is required

If the requirement is for complete penetration, it is necessary for the borer to penetrate to the geometrical centre of the cross-section (see Figure 2).

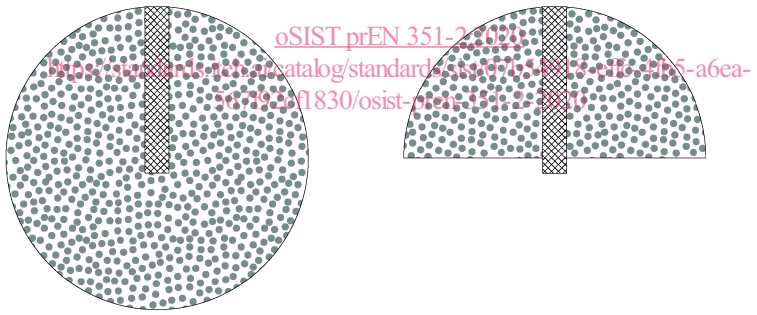
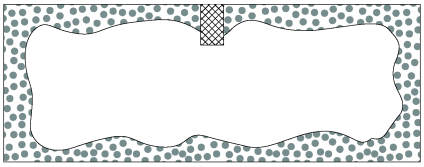


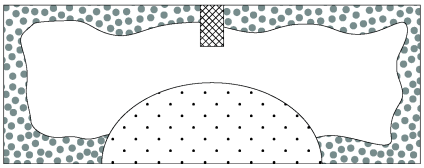
Figure 2 — Sampling location in round and part-round wood if complete penetration is required

7.2.3 Sawn and profiled wood

If a defined penetration depth, less than full sapwood penetration, is required, borings shall be taken, as far as possible, equidistant from the sides and perpendicular to the face being sampled to a depth greater than the penetration being measured (see Figure 3).



a) Sampling location in samples containing both sapwood and heartwood



b) Sampling location in samples consisting entirely of sapwood or if it is impossible to identify any heartwood before sampling

Figure 3 — Sampling location in sawn and profiled wood if a defined penetration depth is required

If full sapwood penetration is required, borings shall be taken, as far as possible, in the radial direction and where the depth of sapwood is greatest. From sampling units consisting entirely of sapwood or if it is impossible to identify any heartwood before sampling, the boring shall be taken equidistant from the sides and perpendicular to the face being sampled to a depth of half the thickness of the sampling unit (see Figure 4).