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SIST EN 351-1:2004

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EUROPEAN STANDARD

EN 351-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

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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 1995-04-14. 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.

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CEN 2004

European Committee for Standardization
Comité Européen de Normalisation
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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 38 "Durability of wood and wood-based products" of which the secretariat is held by AFNOR.

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of an identical text or by endorsement, at the latest by November 1995, and conflicting national standards shall be withdrawn at the latest by November 1995.

This European Standard 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 and Part 2 gives guidance on the general procedures to be followed in the sampling for analysis of preservative-treated solid wood.

According to the CEN/ CENELEC Internal Regulations, 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.

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Introduction

This part of EN 351 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 biological hazard class conditions to which the solid wood product will be exposed (see EN 335-1). In addition, it provides the basis on which treatments for timber in European product standards are to be defined. No attempt has been made to quantify the working life that could be expected from a particular preservative treatment as this will 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 European standards exist specifically for this purpose. As a consequence the penetration and retention of a preservative in treated wood are used to define quality of treatment. 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 hazard classes might be unnecessary owing to their natural durability (see EN 350-2 and EN 460). If preservative treatment is necessary the specification for appropriate preservatives is defined in pr EN 599-1.

1 Scope

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

This part of EN 351 includes clauses on factory production control and marking.

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 hazard classes in EN 335-1. It does not apply to any subsequent examination of treated wood in service.

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

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

This part of EN 351 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.

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 part of EN 351, only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 335-1	1992	Durability of wood and wood-based products - Definition of hazard classes of biological attack - Part 1 : General
EN 350-2	1994	Durability of wood and wood-based products - Natural durability of solid wood - Part 2 : Guide to natural durability and treatability of selected wood species of importance in Europe
pr EN 351-2		Durability of wood and wood-based products - Preservative-treated solid wood - Part 2 : Guidance on sampling for the analysis of preservative-treated wood
pr EN 599-1		Durability of wood and wood-based products - Performance of preventive wood preservatives as determined by biological tests - Part 1 : Specification according to hazard class
EN 29002	1987	Quality systems - Model for quality assurance in production and installation and servicing
ISO 2859-1	1989	Sampling procedures for inspection by attributes - Part 1 : Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection

3 Definitions

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

3.1 active ingredient(s)

The individual chemical compound or compounds included in the wood preservative product to give it specific activity against the respective biological agencies of deterioration.

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3.2 analytical zone

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That part of the treated wood which is analysed for assessing the 'retention requirement' (see 3.16).

NOTE : 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 comply with the same defined penetration and retention requirements.

3.4 biological reference value

Amount in grams per square metre or kilograms per cubic metre of the wood preservative product found to be effective in the test in preventing attack by the particular biological agency being tested.

3.5 charge

All the wood treated together in a single operation.

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.

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 pr EN 599-1 for any given hazard class. It is the minimum amount of the wood preservative product required for effectiveness for that hazard class according to the tests carried out.

NOTE : The critical value will vary according to hazard 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.

3.8 exposed heartwood

Heartwood of a timber component that is not enclosed by sapwood.

3.9 glued laminated timber (glulam)

Structural member formed by bonding together timber laminations with the grain running essentially parallel.

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3.10 incising

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

3.11 lamination

A 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 penetration requirement

Minimum depth to which the active ingredient(s) (see 3.1) of the preservative formulation is (are) required to penetrate the wood.

3.13 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 : Such processes include for example currently practised technologies of diffusion treatments, double-vacuum and vacuum-pressure methods.

3.14 permeable wood

Timber comprising sapwood and/or heartwood of treatability class 1 as defined in EN 350-2.

3.15 resistant wood

All timber not defined as permeable in 3.14.

3.16 retention requirement

Loading of the wood preservative product that is required in the analytical zone.

NOTE : 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 3.13). It is derived from the critical value in different ways depending upon the particular test involved.

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