SLOVENSKI STANDARD
SIST EN 330:2015

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Nadomešča:
SIST EN 330:2004

Zaščitna sredstva za les - Terenska preskusna metoda za ugotavljanje relativne preventivne učinkovitosti zaščitnega sredstva za les, ki je pokrit in ni v stiku z zemljo – Terenski preskus: metoda vezi L

Wood preservatives - Determination of the relative protective effectiveness of a wood preservative for use under a coating and exposed out-of-ground contact - Field test: L-joint method

Holzschutzmittel - Bestimmung der relativen Wirksamkeit eines Holzschutzmittels zur Anwendung unter einem Anstrich und ohne Erdkontakt - Freilandprüfung: L-Verbindungsmethode

Produits de préservation du bois - Détermination de l'efficacité protectrice d'un produit de préservation du bois pour employ un revetment et hors de contact avec le sol - Essais de champ: méthode avec un esemblage en L

Ta slovenski standard je istoveten z: **EN 330:2014**

ICS:

71.100.50	Kemikalije za zaščito lesa	Wood-protecting chemicals

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EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 330

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ICS 71.100.50

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English Version

Wood preservatives - Determination of the relative protective effectiveness of a wood preservative for use under a coating and exposed out-of-ground contact - Field test: L-joint method

Produits de préservation du bois - Détermination de l'efficacité protectrice d'un produit de préservation du bois pour emploi sous un revêtement et hors de contact avec le sol - Essai de champ: méthode avec un assemblage en L

Holzschutzmittel - Bestimmung der relativen Wirksamkeit eines Holzschutzmittels zur Anwendung unter einem Anstrich und ohne Erdkontakt - Freilandprüfung: L-Verbindungsmethode

This European Standard was approved by CEN on 30 August 2014.

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.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword

This document (EN 330:2014) 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 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 May 2015 and conflicting national standards shall be withdrawn at the latest by May 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 330:1993.

Compared to EN 330:1993 the following changes have been made:

— The scope of the standard clarifies that the effectiveness is evaluated to a reference material;

— The grading system for the assessment of decay has been modified in Table1;

— Modifications have been made to the duration (Clause 14) and validity (Clause 15) of the test;

— In Annex B information has been added that the reference wood preservatives stated in the document may only be used for research purposes in accordance with the Biocidal Products Regulations (Regulation (EU) No. 528/2012);

— An informative Annex D covering environmental, health and safety precautions has been added.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard describes a method of test for wood preservatives that are intended for use under a surface coating in timber to be exposed to the weather and out of contact with the ground (Use Class 3, EN 335).

The main objective of the test is to evaluate the relative effectiveness of the preservative applied to jointed samples of *Pinus sylvestris L* sapwood by a treatment technique relevant to its intended practical use.

Effectiveness is evaluated relative to a reference material.

The method is concerned with protection against attack by the complete sequence of microorganisms occurring under natural conditions, including those basidiomycete fungi that eventually cause decay. It takes into account the effects of weathering (light, rain and heat) on the effectiveness of a wood preservative under a coating.

The method does not accelerate the rate of decay (see Note), however the coating failure occurs immediately at the test start, that is even sooner than in badly designed and poorly maintained joinery exposed under the same conditions.

The method may be used, after modification, for other purposes including evaluating the effectiveness of a test preservative as follows:

— in protecting timbers of a different wood species;

— under different types of coating.

Since the L-joints are exposed to natural outdoor conditions during the test period, variations in test conditions from one location to another have to be expected. Differences in climate, especially rainfall, will influence the general rate of development of decay fungi. However, by comparing the results obtained for the test preservative with those obtained with the reference material and with those for untreated, control L-joints, the relative protective effectiveness of the preservative under test can be evaluated.

NOTE The coating is intended to make the technique relevant to the end use – albeit the test pieces are badly maintained and designed in order to accelerate the test.

1 Scope

This European Standard specifies a method for determining the relative protective effectiveness against fungal decay of a wood preservative applied to wood in combination with a subsequent surface coating, exposed to the weather and out of contact with the ground. The effectiveness is evaluated relative to a reference wood preservative.

The method is applicable to the testing of commercial or experimental preservatives applied to non-durable timbers by methods appropriate to commercial practice and subsequently coated with a specified coating system. The method is applicable to products and processes used individually or in combination to prevent the development of decay in the wood.

The method is also appropriate for factory finishing systems which include wood protection and wood preservation claims.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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, *Durability of wood and wood based products - Terminology - Part 2: Vocabulary*

EN 335, *Durability of wood and wood-based products - Use classes: definitions, application to solid wood and wood-based products*

3 Terms and definitions

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

4 Principle

Jointed samples (L-joints) are treated, assembled, coated and placed out of contact with the ground and exposed to the normal environmental and ecological factors which affect coated wood so exposed in practice. The organisms that colonize such units invade in their natural sequence of moulds, blue stain fungi, soft rot fungi and basidiomycetes. Colonization by basidiomycetes, as shown by the presence of visible decay, is assessed at least annually by visual inspection of the L-joints after they have been dismantled. In addition, periodically, sets of samples are examined after dismantling and sawing along the grain of the L-joint assemblies to reveal their internal condition. These data are compared with those generated using a reference material and untreated samples to assess relative performance.

It is recommended that the replicates for non-destructive inspection continue to be exposed beyond the minimum 5 year period, preferably until failure.

NOTE Inspection after sawing is necessary because application by processes such as double vacuum and superficial (surface) application does not result in complete penetration of the L-joint members. The untreated core of the samples, therefore, can show internal decay before it becomes visible on the surface within the joint.

5 Materials

5.1 End-seal compounds

5.1.1 Preservative resistant end-seal

A material resistant to the penetration of the reference and test preservative solutions (or separate materials for each).

5.1.2 Weatherproof end-seal

A material that prevents water entry into the test specimen and remains effective for the duration of exposure of the test specimen to the weather.

NOTE Two coats of an epoxy-resin / pitch compound have been found to be suitable.

5.2 Reference coating

Opaque high gloss, gloss or semi-gloss solvent borne alkyd paint applied in 2 or 3 coats to give a dry film build of (50 ± 5) µm or an opaque water borne acrylic paint applied in 1 or 2 coats to give a dry film build of 110 µm -120 µm when measured by method 4A (microscope method) of ISO 2808.

If a particular coating system is specified by the supplier of the test preservative to be an integral part of the protection system, this shall be used in conjunction with the test preservative, instead of the reference coating.

Details of the coating system used shall be given in the test report including the number of coats and the contribution each coat makes to the coating system used, e.g. primer function.

5.3 Reference preservative

Containing hexabutyldistannoxane (bis(tri-*n*-butyltin) oxide) as the active ingredient and with the following composition:

— Hexabutyldistannoxane minimum mass fraction of 1 % (mass fraction 95 % active ingredient);

— Aliphatic neutral hydrocarbon resin mass fraction of 5 %;

— Hydrocarbon solvent mass fraction of 94 %, (distillation range 160 °C to 215 °C; aromatic content mass fraction < 17 %).

If an alternative wood preservative product is used the concentration of the product used should provide a performance equivalent to the specified concentration of the reference wood preservatives referred to in this standard. Evidence of equivalence shall be recorded in the test report.

NOTE See informative Annex B on alternative reference preservatives.

5.4 Wood test specimens

5.4.1 Wood species

Sapwood of *Pinus sylvestris* (Scots Pine, redwood) shall be used. Some heartwood is permitted in the mortise member but none in the joint area (5.4.3).

Optionally, other wood species may be chosen that are in use or proposed for exterior use. They should include a hardwood if the preservative is expected to be used in hardwoods, for example beech *(Fagus sylvatica L)*. Specimens should be cut exclusively from sapwood or heartwood.

5.4.2 Quality of wood

Use sound, straight-grained wood without knots. Material of a resinous appearance shall be avoided.

Use wood with between 2,5 annual growth rings per 10 mm and 8 annual growth rings per 10 mm in the case of Scots pine sapwood. The proportion of latewood in the annual rings shall not exceed 30 % of the whole for Scots pine sapwood.

The wood shall not have been floated, stored in water, or heated above 60 °C or treated with chemical agents.

If additional wood species are used, the density and the number of annual rings for each species should be recorded in the report.

5.4.3 Preparation of test specimens

Use equipment capable of achieving and maintaining the condition of the timber stock at a moisture content of (12 ± 2) % mass fraction). Prepare sticks of cross-section (38 ± 1) mm x (38 ± 1) mm by sawing and planing the timber (5.4.1) with the grain parallel to the long axis and annual rings aligned parallel with one lateral face. This requirement can be relaxed for timber to be used to prepare the mortises.

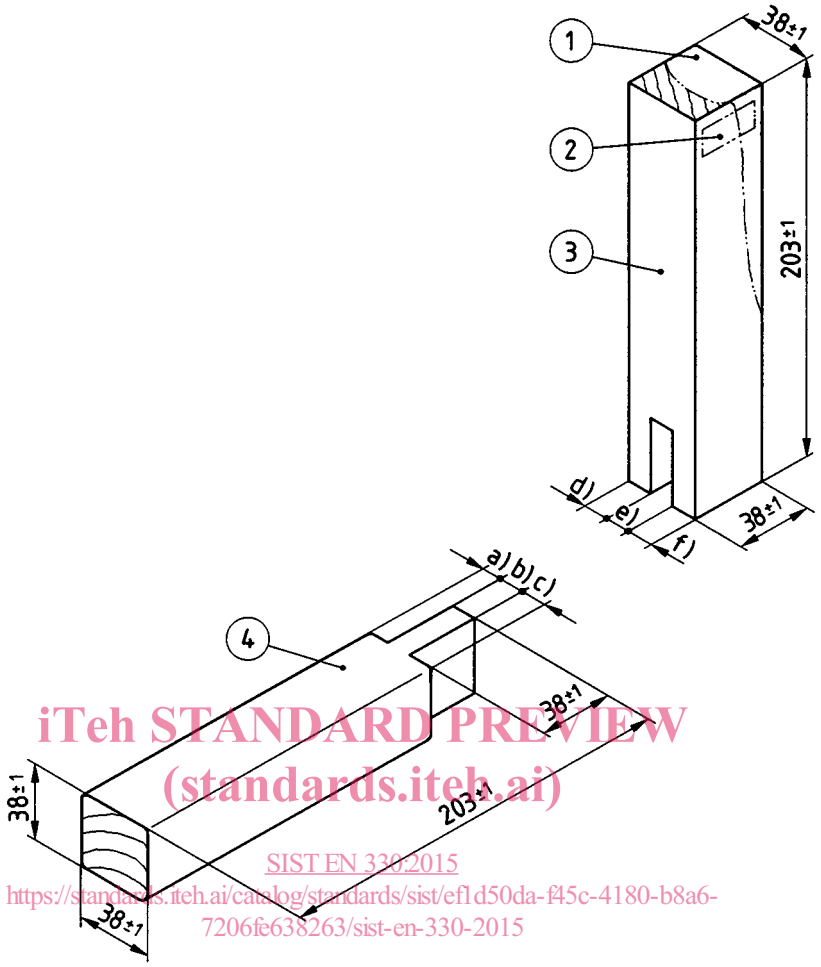
A moisture meter of the two-pronged conductivity type is suitable for assessing moisture content.

The L-joint is prepared as two members (Figure 1) both (203 ± 1) mm long. The tenon members shall be cut from the most accurately prepared and orientated sticks and the mortise members from the remaining material. The joint region shall be free from any minor defects.

Heartwood up to 20 % of the cross-section is permitted in the mortise member of sapwood specimens, except within the joint and heartwood shall not exceed 20 % at any point in the cross-section.

Machine the joints to the dimensions given in Figure 1, with a tolerance such that the two members provide a firm, but not tight, push-fit. Align the tenons and the mortises at 90° to the annual rings (Figure 1). Round the longitudinal edges of the tenon members exposed during the test to a radius of 2 mm, (Figure 1). Store the L-joints in the conditioning area (6.2) until required for treating.

Dimensions in millimetres



Key

1 heartwood permitted

2 label position

3 mortise member

4 tenon member (note rounding of the longitudinal edges)

Tolerances in the joint:

a) c) d) f)	13 ± 1
b) e)	12 ± 1

The two members shall provide a firm but not tight push-fit.

Figure 1 — The L-joint