SLOVENSKI STANDARD
SIST EN 12465:2002

01-julij-2002

Leseni drogovi za nadzemne vode - Zahteve za trajnost

Wood poles for overhead lines - Durability requirements

Holzmaste für Freileitungen - Anforderungen an die Dauerhaftigkeit

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Poteaux en bois pour lignes aériennes - Exigences de durabilité

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Ta slovenski standard je istoveten z: **EN 12465:2001**

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ICS:

29.240.20	Daljnovodi	Power transmission and distribution lines
79.080	Polizdelki iz lesa	Semi-manufactures of timber

SIST EN 12465:2002 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12465

November 2001

ICS 29.240.20; 79.080

English version

Wood poles for overhead lines - Durability requirements

Poteaux en bois pour lignes aériennes - Exigences de durabilité

Holzmaste für Freileitungen - Dauerfestigkeitsanforderungen

This European Standard was approved by CEN on 13 October 2001.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 124 "Structural timber", the secretariat of which is held by DS.

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 2002, and conflicting national standards shall be withdrawn at the latest by May 2002.

This standard includes an informative annex A on a scheme for sampling preservative-treated timber.

This standard contains a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, 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 standard is one of five standards covering requirements for visual or machine grading, test methods, determination of characteristic values, methods of specifying durability and sizes.

This standard is concerned with the durability characteristics of wood poles for overhead power and telecommunication lines. It assumes that all such poles will be constructed from round timber in which the finished product comprises either a central core of heartwood surrounded by a zone of sapwood or the heartwood only. Such assumptions dictate that where sapwood is present preservative treatment is normally required in order to provide the poles with sufficient enhanced durability unless the amount of sapwood present is such that its loss would not compromise the integrity of the pole during its service life, and the heartwood has sufficient natural durability as required in this standard.

NOTE Some timbers (e.g. Fir and Spruce) do not allow a ready differentiation between heartwood and sapwood. EN 351-1 specifies how such timbers should be treated when preservation is required.

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1 Scope

This European Standard specifies the requirements for durability and preservative treatment of wood poles for overhead transmission and telecommunication lines.

This standard covers only single poles under cantilever or compression loading. For example, this standard does not cover poles used as beams.

The provision of poles for use in any overhead line or cable infrastructure shall take into account a range of factors not covered by this standard which will necessitate the specification by the end user of complementary and synonymous attributes to those defined in this standard. This refers to requirements for a number of factors including safety, overhead plant, handling, fittings, installation machinery and working practices including climbing.

No attempt has been made to quantify the service life that may be expected from a pole as this will depend on its geographical location, the associated climate of its service environment and either the natural durability of the heartwood of the species selected, or the combination between selection of species, preservative type, and requirements of penetration and retention and any incised zones, any of which may be specified by the purchaser.

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 (including amendments).

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EN 252, *Field test method for determining the relative protective effectiveness of a wood preservative in ground contact.*

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EN 350-1, *Durability of wood and wood-based products. Natural durability of solid wood - Part 1: Principles of testing and classification of the natural durability of wood.*

EN 350-2, *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.*

EN 351-1:1995, *Durability of wood and wood-based products. Preservative-treated solid wood - Part 1: Classification of preservative penetration and retention.*

EN 351-2:1995, *Durability of wood and wood-based products. Preservative-treated solid wood - Part 2: Guidance on sampling for analysis of preservative-treated wood.*

EN 599-1, *Durability of wood and wood-based products. Performance of wood preservatives determined by biological tests - Part 1: Specification according to hazard class.*

ISO 2859-1, *Sampling procedures for inspection by attributes - Part 1: Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection.*

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3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
charge
all the wood treated together in one treatment at one time

3.2
direct testing
testing the preservative treatment achieved by the direct measurement of the penetration and retention of preservative

3.3
incised zone
area of the lateral surface of the pole which has undergone an incising process as an aid to securing deeper and more uniform penetration of preservative. The minimum limit of the incised zone should be 400 mm above and 400 mm below the specified ground line for the pole in service

3.4
indirect testing
testing the preservative treatment achieved by measurement of a property found to exhibit a correlation between itself and the penetration and retention of preservative

3.5
pole
long round timber for use in a free standing application

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3.6
sampling unit
single preservative-treated pole taken from a charge

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4 Symbols and abbreviations

None.

5 General requirements

5.1 Requirements for raw materials

5.1.1 Wood poles

The poles shall be free from features, which would prevent a proper application of preservative and thus impair the function of the preservative-treated poles when in service.

NOTE All dressing, notching, pre-cutting and boring should be completed before preservative treatment. Prior to preservative treatment the moisture content of the pole should be at a level appropriate to the wood preservative and method of treatment used. When this moisture content has been reached and until the preservative treatment is carried out, poles should be protected against heavy and continuous precipitation.

The natural durability to wood-destroying fungi of the heartwood of a pole shall be specified by reference to the system defined in EN 350-1. Species in classes 1 and 2 (very durable and durable) may be specified for poles used without preservative treatment and for such poles, 5.1.2 to 6.2 do not apply.

The natural durability shall be established either

a) by testing the wood species concerned according to the principles laid down in EN 350-1.

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b) by reference to EN 350-2, where wood species are listed as complying with the various classes of natural durability to wood-destroying fungi. Timber species with a natural durability classification that includes a range (e.g. “4-5”) shall be regarded as having a natural resistance associated with the larger quoted number.

5.1.2 Wood preservative

Wood preservatives used shall conform to the performance requirements of hazard class 4 preservatives as defined in EN 599-1. For the purposes of this standard, determination of compliance with the performance requirements of EN 599-1 shall include data from the field test EN 252 and any of the additional local tests given in EN 599-1 and deemed necessary at the local, rather than pan-European, level.

5.2 Preservative-treated wood poles

5.2.1 General

Preservative treatment shall be defined in terms of depth of lateral penetration of preservative into the treated pole and retention of preservative within that treated zone according to the requirements of EN 351-1. For the purposes of verifying compliance with EN 351-1 a charge shall be considered.

The supplier shall agree with the user the processes and process limits which shall be used in the treatment.

NOTE The preservative treatment used should not result in a significant reduction in the strength properties of the pole. For example, creosote treatment at high pressure, especially in combination with a high creosote temperature, may cause deformation of resistant timbers, notably some species of softwood and lightweight hardwoods.

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5.2.2 Penetration requirement

The penetration requirement shall be defined in terms of the penetration classes listed in EN 351-1. Following completion of the preservation process, treated poles shall meet the requirements of the selected penetration class of EN 351-1. For permeable species, full sapwood penetration P8, is required. For resistant species, P7 is required in any incised zone and P5 is required elsewhere.

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NOTE Other penetration requirements may be specified but users should be aware that lesser penetrative requirements could lead to a shorter service life.

5.2.3 Retention requirement

Following completion of the preservation process, the retention requirement specified by the user for treated poles shall be equal to or greater than the critical value for hazard class 4 of the preservative used (see EN 559-1). This critical value shall be calculated from the prescribed biological tests defined in EN 599-1 including the field test in EN 252.

NOTE Multiples greater than one may be applied to the critical value to specify higher retentions as a means of increasing the service life. In the case of established preservatives where a critical value has not yet been determined, the retention should be specified by the user.

5.2.4 Tolerances for preservative-treated charges

5.2.4.1 Penetration tolerances

Sampling for penetration shall be as detailed in 6.1 and shall be subject to an acceptable quality level (AQL) of 4 % using inspection level II (see EN 351-2:1995, Table 1). By agreement between user and supplier a lower percentage AQL may be specified.

NOTE General information on the selection of AQL and inspection levels according to ISO 2859-1 is given in annex A of EN 351-1:1995.