SLOVENSKI STANDARD
SIST-TS CEN/TS 15397:2006

01-december-2006

Zaģ itna sredstva za les - Metoda za naravno pripravo zaģ itnega vzorca lesa brez stika s tlemi pred biološkim laboratorijskim preskuąanjem

Wood preservatives - Method for natural preconditioning out of ground contact of treated wood specimens prior to biological laboratory test

Holzschutzmittel - Verfahren zur natürlichen Vorkonditionierung ohne Erdkontakt für behandelte Holz-Prüfkörper vor biologischer Laborprüfung

Produits de préservation du bois - Méthode de préconditionnement naturel d'éprouvettes de bois traité, sans contact avec le sol, avant essai biologique en laboratoire

Ta slovenski standard je istoveten z: **CEN/TS 15397:2006**

ICS:

71.100.50 Kemikalije za zaģ ito lesa Wood-protecting chemicals

SIST-TS CEN/TS 15397:2006 **en**

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 15397

May 2006

ICS 71.100.50

English Version

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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

Ref. No. CEN/TS 15397:2006: E

Contents

Page

Foreword

This Technical Specification (CEN/TS 15397:2006) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and wood-based products”, the secretariat of which is held by AFNOR.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this CEN Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

For use of class 3 according to EN ISO 335-1 field tests, like those described in EN 330 and ENV 12037, are a valuable means of studying the performance of a wood preservative. However, they are questionable as a basis of approvals of wood preservatives for some reasons:

The abiotic factors of outdoor exposure, such as wind, temperatures, UV radiation and rain can in combination with biotic factors change or depreciate the applied wood preservative to such an extent as to allow decay. A low frequency of precipitation and the duration of temperatures below or slightly above the freezing point can, however, in some areas of Europe hinder the development of fungi and a resulting visible deterioration. Likewise the effectiveness against wood-boring beetles can also be reduced although infestation of the timber can not occur because the weather conditions in a particular field will not promote cracking of the timber - a prerequisite for oviposition of for instance the house longhorn beetle. Furthermore under natural conditions fungal attack and insect infestation can be quite accidental, leading to remarkable variations and therefore possible misinterpretations of the test results.

Therefore - in a project supported by the Commission of the European Communities [1] to preclude such disadvantages - a method was developed and tested with a number of the most commonly used wood preservatives. In this method the treated wood specimens were exposed without soil contact to the natural abiotic and biotic ageing factors, the complexity of which cannot - or only incompletely - be simulated with the available artificial ageing methods EN 73 and EN 84. After defined periods of outdoor exposure, attack of wood-destroying fungi and/or insects were examined under controlled laboratory conditions according to the relevant European Standards. The applicability of this principle to a number of typical European climates was confirmed in a further project also supported by the Commission of the European Communities[2]. With some amendments to the method used in the projects, this document is based on this principle.

1 Scope

This CEN Technical Specification specifies a method of natural preconditioning for wood specimens treated with a wood preservative either by penetrating processes or by surface application that can be used in conjunction with existing European Standards on testing of the preventive action of wood preservatives against basidiomycetes and/or insects.

2 Normative references

Not applicable

3 Principle

Wood test specimens treated with a wood preservative according to relevant biological test methods are exposed to natural outdoor conditions in a test field. The test specimens are fixed on a rack facing the prevailing weather under 45°. If brush treatment, dipping, steeping or double vacuum treatment is recommended, instead of the test specimens described in the relevant European Standards, end-sealed wood stakes with a cross section equal to the cross section of the test specimens in the relevant test methods can be used. After different periods of outdoor exposure the standard test specimens and end-sealed test specimens derived from the stakes by cutting to a length of 50 mm are exposed to biological laboratory tests as for instance those described in EN 46-1,EN 46-2, EN 47, EN 113 or ENV 839 respectively.

4 Materials

4.1 End-seal compounds

4.1.1 Preservative resistant end-seal

A material resistant to the penetration of the test preservative solutions.

NOTE Polyvinyl acetate (PVAc) glues have been found to be suitable for many organic solvent formulations. For water-borne formulations the weatherproof end-seal (4.1.2) may be used.

4.1.2 Weatherproof end-seal

A material which prevents water entry as well as microbial infection and remains effective during long term exposure to the weather.

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

5 Apparatus

5.1 Sawing equipment

A sawing machine capable of producing a fine sawn finish.

5.2 Drilling machine and drills

5.3 Conditioning chamber, well ventilated and controlled at (20 ± 2) °C and (65 ± 5) % relative humidity.

5.4 Ventilated drying oven, capable of being maintained at (103 ± 3) °C.

5.5 Desiccators, with efficient desiccant (silica gel for example).

5.6 Equipment, suitable for carrying out the treatment specified by the supplier.

5.7 Balance, capable of weighing to the nearest 0,01 g.

5.8 Safety equipment and protective clothing, appropriate for the test product, to ensure the safety of the operator.

5.9 System for fixing stakes in the exposure rack: tubular copper rivets, plastic sticks and spiral springs of stainless steel.

5.10 Labels, inert, long-lasting labels and corrosion resisting fixing pins.

5.11 Exposure racks: Aluminium racks (see Figures 1 and 2) that allow test specimens or stakes to face the prevailing weather[1] under 45°, approximately 1 m above ground level.

5.12 Ordinary laboratory equipment.

6 Wood test specimens

6.1 Specimens according to the relevant biological test methods

6.1.1 General

The test specimens and their preparation including treatment and post treatment conditioning are defined in the documents concerning the biological tests to which they are intended to be subjected. The relevant test standards are those standards where the test specimens have the dimensions 15 mm x 25 mm x 50 mm. These include EN 46-1,EN 46-2, EN 47, EN 113 or ENV 839.

The natural preconditioning procedure shall be carried out at the end of the conditioning period that follows the treatment of the specimens described in the relevant biological test standard.

6.1.2 Number of test specimens

The number of test specimens shall allow the relevant biological tests to be carried out in accordance with the instructions in the appropriate documents, bearing in mind that the natural preconditioning procedure shall be applied both to treated specimens that are subjected to biological agents and to control test specimens. The control test specimens are of the following kinds:

- treated test specimens that will not be subjected to attack by biological agents after natural preconditioning. These will serve as controls for changes in mass in those tests in which this factor is taken into consideration. One set of control test specimens will be needed for each concentration and period of exposure;

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[1] In most of the European areas this would normally be south-west

- untreated control test specimens which, after natural preconditioning, are subjected to the biological tests to check any variation in the behaviour of untreated wood. One single set of test specimens shall be provided for each exposure period;

- control test specimens treated with the solvent or diluent for each period of exposure if necessary.

6.2 Stakes

6.2.1 General

If superficial treatment is recommended by the supplier of the test preservative, stakes can be used as an alternative. If so, the stakes shall have a cross section of (25 ± 0,5) mm x (15 ± 0,5) mm and an appropriate length which can be a multiple of (50 ± 0,5) mm (the length of the test specimens in these include EN 46-1,EN 46-2, EN 47, EN 113 or ENV 839).

6.2.2 Species of wood for stakes

The reference species are the species mentioned in the relevant documents for the subsequent biological laboratory tests.

If no requirements are given, e.g. in the case of intended double vacuum treatment, the reference species are

Scots pine, *Pinus sylvestris* Linnaeus, and

beech (*Fagus sylvatica* Linnaeus).

Additional tests can be undertaken using other species but, if so, this shall be stated in the test report.

6.2.3 Quality of wood

The wood shall be free from visible cracks, stain, decay, insect damage and other defects. The wood shall not have been water-stored, floated, chemically treated or steamed. The wood shall originate from trees preferably felled in winter.

NOTE Wood that has been kiln dried at temperatures below 60 °C may be used.

The Scots pine shall be exclusively sapwood containing little resin and having between 2,5 and 8 annual rings per 10 mm. The proportion of latewood in the annual rings shall not exceed 30 % of the whole.

The beech shall be even-grained, free from tyloses and discoloration. It shall have between two and six annual rings per 10 mm. Use only sound sapwood, straight-grained and without knots.

6.2.4 Provision of stakes

Prepare planed strips having a cross-section of (25 ± 0,5) mm x (15 ± 0,5) mm removing a minimum of 2 mm from any surfaces exposed during drying. The longitudinal faces shall be parallel to the direction of the grain. The annual rings shall run in a direction specified in the European Standards to be used after the natural preconditioning periods. Make transverse cuts, neatly to give sharp edges and a fine-sawn finish to the end-grain surfaces, to give test longitudinal dimensions specified in 6.2.5.

Avoid using stakes directly from the butt or crown of the tree.

The stakes required for one test shall originate from a minimum of three lots, each from a different tree, and at random from within each of these lots.