SLOVENSKI STANDARD
SIST EN 14128:2004

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Trajnost lesa in lesnih proizvodov ï Merila za kakovost farmakoloġkih zaġļ itnih sredstev za les, ugotovljeno z bioloġkimi preskusi

Durability of wood and wood-based products - Performance criteria for curative wood preservatives as determined by biological tests

Dauerhaftigkeit von Holz und Holzprodukten - Anforderungen an bekämpfend wirkende Holzschutzmittel, wie sie durch biologische Prüfungen ermittelt werden

Durabilité du bois et des matériaux dérivés du bois - Critères de performances des produits curatifs de préservation du bois établis par des essais biologiques

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ICS:

71.100.50	Kemikalije za zaġļ ito lesa	Wood-protecting chemicals
79.040	Les, hlodovina in žagan les	Wood, sawlogs and sawn timber

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English version

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Foreword

This document (EN 14128:2003) 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of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

This European Standard gives the performance criteria for curative wood preservatives as determined by biological tests. A further European Standard (at present still in preparation) is concerned with criteria for hot air processes for curative uses against wood destroying organisms.

This European Standard is valid for products to eradicate beetles in infested wood and for products to be used in the course of curative actions against the dry rot fungus to prevent its growth through masonry and beyond.

The annexes B and C are normative.

The annexes A, D, E and F are informative.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European Standard should be used in conjunction with prEN WI 00038084 (at present still in preparation) and with EN 599-1 which describes the performance requirements for preventive wood preservatives as determined by biological tests.

The need to use curative products against wood destroying organisms depends upon a careful diagnosis by expert, qualified specialists to determine the precise causes of the damage to be rectified. This should include the type of wood attacking organisms involved and whether they are active, the environmental circumstances, especially the source and nature of any wetting, the type of wood involved, the nature of the building or construction, and the structural and physical significance of the timber which is damaged or at risk of being damaged.

Curative treatment can be achieved either by chemical wood preservatives as specified in this European Standard or by specific curative processes without using chemicals, like hot air processes, as given in prEN WI 00038084.

Curative wood preservative products should be used in an integrated way as part of a carefully prescribed strategy involving a series of actions appropriate to the particular circumstances of each case. Associated physical measures involving appropriate building works to remedy ingress of moisture and to dry out any dampness can be an essential prerequisite for the use of any curative products. Expert diagnosis should take into account all regional, practical, environmental, economical, safety and any other factors which can be relevant to the prescriptive decisions to be taken.

It is not the purpose of this European Standard to provide a specification, or even guidance in developing specifications for remedial work to eradicate wood destroying organisms. This European Standard also does not give guidance on the methods of application or the precise amounts of products that might be appropriate to apply in specific practical circumstances. It is intended to guide specifiers, users and others in selecting and specifying products on the basis of their effectiveness as demonstrated in accordance with the criteria given.

1 Scope

This European Standard specifies the minimum performance requirements in biological tests for products for curative uses against specific wood destroying organisms. It specifies the biological tests required together with the performance criteria to be achieved in each test.

Chemicals against insects can act according to their specific properties within a short time (fast acting) or only after a long period (slow acting or with a deferred effect). Different tests and performance requirements are needed for these various types of curative wood preservatives.

This European Standard is applicable to all wood preservative products supplied for application in liquid form for curative uses against attack by wood attacking insects, excluding termites. This European Standard is also applicable for products applied to prevent growth of dry rot fungus through masonry.

This European Standard is also applicable to products for curative uses supplied for application as pastes, solids or in capsule form but only where appropriate biological methods of test exist as published European Standards or as normative annexes to this European Standard.

NOTE 1 The nature of the laboratory tests required in this European Standard is such that the time required to generate data is many months sometimes more than one year, depending upon the type of product and the organism(s) it is intended to be used against.

Therefore, at the date of publication of this European Standard, for many products covered under its scope already placed on the market and used lawfully in accordance with local technical traditions, the minimum data specified in this standard may not be available. Accordingly, for a period not exceeding 3 years from the date of publication of this European Standard, national standards organisations, or an organisation nominated by them may declare interim effective values for use within their territories, to apply to products already placed on the market and used lawfully in accordance with local traditions at the date of use of this European Standard.

NOTE 2 For re-testing after making variations in product formulation, guidance is given in annex A.

This European Standard is not applicable to products used as fumigants.

This European Standard is also not applicable for determining whether specific curative products, used alone or in combination, are effective in conferring long-term preventive action against attack by wood destroying organisms in the future. Preventive effectiveness can be determined using EN 599-1 but only for products whose nature allow them to be tested using the methods and interpretative procedures defined in EN 599-1. Amendments of existing test methods cited in EN 599-1 may be used but only when defined in normative annexes to this European Standard.

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).

EN 22, *Wood preservatives – Determination of eradicant action against Hylotrupes bajulus (Linnaeus) larvae (Laboratory method)*.

EN 48, *Wood preservatives – Determination of the eradicant action against larvae of Anobium punctatum (De Geer) (Laboratory method)*.

EN 73, *Wood preservatives – Accelerated ageing tests of treated wood prior to biological testing – Evaporative ageing procedure*.

EN 370, *Wood preservatives – Determination of eradicant efficacy in preventing emergence of Anobium punctatum (De Geer)*.

EN 599-1:1996, *Durability of wood and wood-based products – Performance of preventive wood preservatives as determined by biological tests – Part 1: Specification according to hazard class*.

ENV 1390, *Wood preservatives – Determination of the eradicant action against Hylotrupes bajulus (Linnaeus) larvae – Laboratory method.*

ENV 12404, *Durability of wood and wood-based products – Assessment of the effectiveness of a masonry fungicide to prevent growth into wood of Dry Rot Serpula lacrymans (Schumacher ex Fries) S.F Gray – Laboratory method.*

3 Terms and definitions

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

3.1
active ingredient
individual chemical compound or compounds included in the wood preservative product to give it a specific activity against the particular biological agencies of deterioration

3.2
barrier treatment
treatment of masonry in case of dry rot fungus to avoid its growth beyond the treated zone

3.3
biological reference value (brv)
amount in grams per square meter or kilograms per cubic meter of the wood preservative product found to be effective in test in eradicating attack by the particular biological agency being tested

3.4
curative efficacy
specific property of a wood preservative to act as an eradicant in infested timber

3.5
deferred effect insecticidal products
insect curative products which are not designed to have an immediate effect on the target organisms but which are designed to have their full eradicant effect at a later stage in the life cycle e.g. at the time of emergence from the wood

3.6
effective value
amount of wood preservative in millilitres per square meter obtained from all biological tests carried out in accordance with this European Standard. It is the highest of the brvs for the curative effectiveness of the product from all the tests carried out to support the claimed activity of the product

3.7
fast acting insecticidal products
insect curative products which achieve the required level of effectiveness within a period of three months using the appropriate standard test method

3.8
maximum application limit
maximum amount in millilitres per square meter of the wood preservative product permitted for application to the wood specimens in the particular biological test

3.9
performance
behaviour of the wood preservative product in terms of its effectiveness in the test

NOTE The term 'performance' applies also to the behaviour in terms of its effectiveness in practice against individual or collective effects of particular biological agencies of deterioration.

3.10
preventive efficacy
property of a wood preservative to avoid infestation of the wood by the particular biological agencies of deterioration

3.11
product
formulated wood preservative product in the form as supplied for sale by the manufacturer

3.12
slow acting insecticidal products
insect curative products which achieve the required level of effectiveness in a period longer than three months but not more than one year using the appropriate standard test method

3.13
wood preservative
active ingredient(s) or preparations containing active ingredient(s) in the form in which they are placed on the market, which are, on the basis of the properties of their active ingredient(s), intended either to prevent wood destroying or wood disfiguring organisms (fungi, insects and marine borers) from attacking wood and wood-based products or to combat an attack by those organisms

NOTE For the purpose of this European standard, the term wood preservatives includes also these products to eradicate an existing infection.

4 Wood destroying organisms

4.1 Insects

Amongst the wood attacking insects considered in this European Standard the following are the most common:

Beetles: *Hylotrupes bajulus* (house longhorn beetle) in the sapwood of softwoods;

Anobium punctatum (common furniture beetle) in softwoods and hardwoods;

Xestobium rufovillosum (deathwatch beetle) in hardwoods and softwoods, mainly in oak;

Lyctus brunneus (powderpost beetle) in the starch containing sapwood of hardwoods;

Hesperophanes cinnereus in the sapwood of hardwoods (occurs only in Mediterranean countries).

4.2 Dry rot fungus

The dry rot fungus (*Serpula lacrymans* = true dry rot fungus) occurs in buildings, causing brown rot in timber. The fungus can develop at relatively low wood moisture contents and is able to penetrate damp masonry over long distances in order to infect further timber or to develop its fruit-bodies.

5 Performance requirements for products against beetles (see Table 1)

5.1 Principle requirements for curative efficacy

The curative wood preservative product shall be tested in accordance with the tests specified in Table 1, taking into consideration the relevant organisms and the type of insecticidal product (see 5.2.2).

5.2 Supplementary requirements for curative efficacy

5.2.1 For *Lyctus brunneus, Xestobium rufovillosum* and *Hesperophanes cinnereus* no specific requirements are listed, as no relevant/valid test standards exist.

NOTE In the case of *Lyctus brunneus,* curative treatment takes place only exceptionally so that specific preservatives are placed only very rarely on the market. Due to economical reasons, no specific test procedure will be established. If curative treatment against *Lyctus brunneus* is demanded, a curative wood preservative "for *Hylotrupes* and *Anobium*" should be applied.

In the case of *Xestobium rufovillosum* see annex B.

In the case of *Hesperophanes cinnereus* see annex C.

5.2.2 The following types of insecticidal products have to be considered:

— fast acting products;

— slow acting products;

— products with deferred effect.

5.2.3 Tests of insecticidal activity shall be carried out against one of the following:

a) "*Hylotrupes bajulus* (C-H)" **and** "*Anobium punctatum* (C-A)" unless b) or c) is applicable and is selected;

or

b) the more tolerant beetle species, if the product is based on insecticide(s) for which data on curative efficacy already exist which show different activities against *Hylotrupes bajulus* and *Anobium punctatum*, that is the effective value for the less tolerant species is less than 80 % of the effective amount for the more tolerant species;

or

c) against "*Hylotrupes bajulus* (C-H)" **or** "*Anobium punctatum* (C-A)", if the product is based on insecticide(s) for which data on the curative efficacy already exist which show more or less equal activity against both beetle species, that is the effective value of the least tolerant beetle species is equal to or greater than 80 % of the effective value of the more tolerant beetle species.

5.2.4 New tests shall be carried out against *Hylotrupes bajulus* according to ENV 1390, however, former results from EN 22 tests shall remain valid.

5.2.5 At present no relevant test standards exist for deferred effect products.

5.2.6 The maximum application limit shall not exceed 300 ml per square meter.

NOTE 1 If the curative wood preservative is specified by the manufacturer to be used at a higher application in practice, the manufacturer should define how this amount is to be achieved under practical conditions.

NOTE 2 If the curative wood preservative is already placed on the market on the basis of results from biological tests conducted at a maximum application limit greater than 300 ml per square meter, these test results remain valid and no new tests should be demanded.

5.2.7 For tests according to EN 370 the duration can exceed 1 year.

5.2.8 If the curative wood preservative is designed to be used for the protection of items of cultural heritage for *Anobium punctatum* the mortality at the end of the test shall be 90 %.

5.3 Requirements for preventive efficacy

Where local conditions require the curative wood preservative product to have also preventive efficacy, or to support the claims of manufacturers or the demands of specifiers, the product shall have its preventive efficacy demonstrated from tests in accordance with EN 599-1 at an application limit equal to or lower than that at which test under this curative standard were conducted.

6 Performance requirements for barrier treatments against dry rot fungus

In tests according to ENV 12404 growth through mortar specimens and infection of the wood specimens shall have been prevented by the masonry fungicide. The application rate of the ready to use solution of the fungicide shall be not lower than 500 ml per square meter and not more than 750 ml per square meter.

7 Derivation of effective values

7.1 Effective value against beetles

The effective value is derived from the results of the biological tests and shall be equal to the application rate of the wood preservative tested according to the manufacturer's recommendation (see 5.2.6).

7.2 Effective value against dry rot fungus

The effective value is derived from the results of the biological tests and shall be equal to the application rate of the ready to use formulation of the wood preservative tested according to the manufacturer's recommendation, which prevented any growth through the mortar specimens.

8 Product identification and labelling

8.1 Product identification

Product identification and control shall be designated as described in EN 599-1:1996, clause 9.

8.2 Product classification

Curative wood preservative products shall be classified according to target organism(s) (see clause 4) against which they were tested in accordance with this European Standard and not according to their physical or chemical form and composition.

The classification shall comprise:

— minimum biological efficacy against the target organism(s);

— the application procedures;

— additional biological efficacy if any;

— effective value .