SLOVENSKI STANDARD
SIST-TS CEN/TS 12037:2005

01-julij-2005

Nadomeġļa:
SIST-TS ENV 12037:2004

Zaġļitna sredstva za les - Terenska preskusna metoda za ugotavljanje relativne preventivne uļinkovitosti zaġļitnega sredstva za les izven stika z zemljo

Wood preservatives - Field test method for determining the relative protective effectiveness of a wood preservative exposed out of ground contact - Horizontal lap-joint method

Holzschutzmittel - Freilandversuche zur Bestimmung der relativen Schutzwirkung eines Holzschutzmittels ohne Erdkontakt - Verfahren mit horizontaler Überplattung (Lap-joint)

Produits de préservation du bois - Essais de champ pour déterminer l'efficacité protectrice d'un produit de préservation du bois hors de contact avec le sol - Méthode avec un assemblage a joint superposé

Ta slovenski standard je istoveten z: **CEN/TS 12037:2003**

ICS:

71.100.50 Kemikalije za zaġļito lesa Wood-protecting chemicals

SIST-TS CEN/TS 12037:2005 **en**

TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN/TS 12037

December 2003

ICS 71.100.50

Superscedes ENV 12037:1996

English version

Wood preservatives – Field test method for determining the relative protective effectiveness of a wood preservative exposed out of ground contact – Horizontal lap-joint method

Produits de préservation du bois – Essais de champ pour déterminer l'efficacité protectrice d'un produit de préservation du bois hors de contact avec le sol – Méthode avec un assemblage à joint superposé

Holzschutzmittel – Freilandversuche zur Bestimmung der relativen Wirksamkeit eines Holzschutzmittels ohne Erdkontakt – Verfahren mit horizontaler Überlappung (Lap-joint)

This Technical Specification (CEN/TS) was approved by CEN on 8 October 2003 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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

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 12037:2003 E

Contents

Page

Foreword

This document (CEN/TS 12037:2003) 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 document supersedes ENV 12037:1996.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: 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

The main objective of the method is to evaluate the relative effectiveness of the preservative, applied to jointed specimens of Scots pine sapwood by a treatment method relevant to its intended practical use and as such does not necessarily accelerate decay but reflects probable performance in service.

The method is concerned with the protection against decay after exposure to a wide range of micro-organisms occurring out of ground contact under natural conditions. It takes into account also physico-chemical effects of weathering on the performance of the preservative treated wood.

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

NOTE The procedures described in this Technical Specification are intended to be carried out by suitably trained and/or supervised specialists. Appropriate safety precautions should be observed throughout the use of the Technical Specification.

1 Scope

This Technical Specification describes a method of test for wood preservatives that are intended for use in wood to be exposed to the weather out of contact with the ground without the additional protection of a surface coating.

The method is applicable to the testing of commercial or experimental preservatives applied by techniques appropriate to commercial practice. The method is applicable to chemical products used individually or in combination to prevent the development of decay and/or – optional – the development of disfiguring organisms in wood and, where suitable, in wood-based products.

NOTE 1 The method may also be used to test other treated wood species and naturally durable timbers. It may be adapted for testing the field performance of other wood based systems and treatments designed to enhance durability, for example treated or untreated wood based composites, timber treated with non-biocidal systems, chemically modified or heat treated timber.

NOTE 2 Although the test is used to assess decay, it is possible to use the method to additionally assess stain or each separately when relevant.

2 Normative reference

This Technical Specification 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 Technical Specification only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 212, *Wood preservatives — Guide to sampling and preparation for analysis of wood preservatives and treated timber.*

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of this Technical Specification, the following definitions, symbols and abbreviations apply :

3.1.1
active ingredient(s)
individual chemical compound or compounds included in the wood preservative product to give it specific activity against the particular biological agencies of deterioration

3.1.2
additional process
any process or application of a product, as defined by the supplier, designed to improve the effectiveness of the preservative

3.1.3
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.

3.1.4
superficial application process
process which does not include particular 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 brush and spray techniques and short-term immersion (dipping) processes in which wood normally has only a few minutes contact time with the preservative.

3.1.5
representative sample
sample having its physical or chemical characteristics identical with the volumetric average characteristics of the total volume being sampled (see EN 212)

3.1.6
supplier
sponsor of the test

3.1.7
target retention
retention recommended by the supplier

3.1.8
application rate
amount of preservative product per square metre to be applied in superficial processes recommended by the supplier

3.2 Symbols and abbreviations

3.2.1
V^{nUD}
nominal median rating for the upper side of the lap-joints for sets of replicates at the assessment of the extent of decay

3.2.2
V^{nLD}
nominal median rating for the lower side of the lap-joints for sets of replicates at the assessment of the extent of decay

3.2.3
V^{nJD}
nominal median rating for surfaces within the joint areas of the lap-joints for sets of replicates at the assessment of the extent of decay

NOTE For symbols for the optional assessment of attack by staining fungi see Annex C.

4 Principle

Jointed specimens (lap-joints) consisting of two overlapping parts (joint members) held together mechanically are placed horizontally, out of contact with the ground and exposed to the weather. The lap-joints are dismantled and examined at intervals. The extent of microbiological attack on the external surfaces and within the joint areas is rated according to a specified rating system. Data for lap-joints treated with the test product are compared with those generated from untreated specimens to assess relative effectiveness.

5 Materials

5.1 Test specimens

5.1.1 Wood species

The reference species is Scots pine (*Pinus sylvestris* Linnaeus)

NOTE Additional tests may be carried out using other species.

5.1.2 Quality of wood

The wood shall be free from visible cracks, stain, decay, insect damage and other defects. Some knots are permitted. 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. Use wood without reaction wood or juvenile wood.

5.1.3 Provision of test specimens

The longitudinal faces shall be parallel to the direction of the grain. The annual rings shall have a contact angle of not greater than 10 ° to the broad faces of the test specimens. Make transverse cuts, neatly to give sharp edges and a fine-sawn finish to the end-grain surfaces.

All the wood used in the test shall have been handled and dried in the same way.

NOTE 1 If additional wood species are used, these should be mentioned in the test report together with their density and the number of annual rings per 10 mm of the timber used for the test specimens.

Wood from at least three trees shall be used and evenly distributed among the different groups of lap-joints.

Condition in a conditioning chamber (see 6.2) the timber stock to (12 ± 2) % (*m/m*) moisture content. Prepare lengths of timber with (38 ± 1) mm × (85 ± 1) mm cross section by sawing (see 6.1) and planning (see Figure 1). From the lap-joints subsequently machined from a single length of timber, not more than one shall be included in each set of replicates (see 5.1.5).

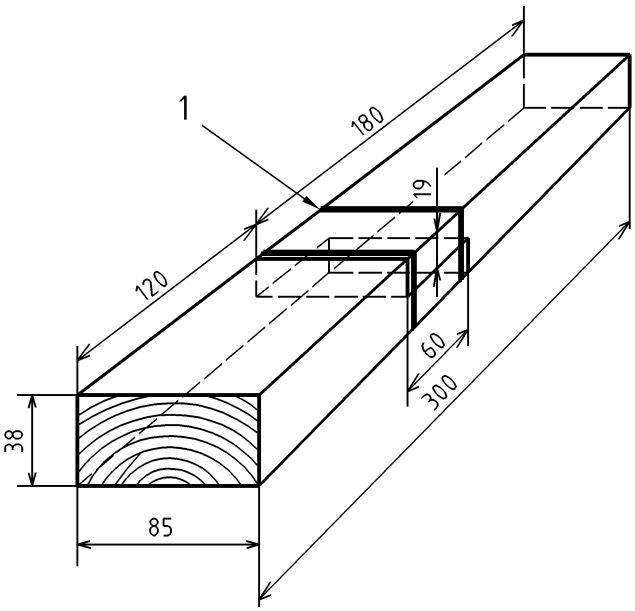
NOTE 2 A moisture meter of the two-pronged electrical conductivity type is suitable for assessing moisture content.

Each lap-joint shall be prepared from a single piece of wood as two members (180 ± 1) mm long and separated by no more than 100 mm, to allow for removal of knots and associated grain aberration, to ensure a tight fit during the test (see Figure 1). Within the overlapping part and the adjacent 50 mm there shall be no knots and in the rest of each member there are no more than 3 sound knots, the diameter of which shall not exceed 10 mm.

Machine the joint in a way that after assembly of the two members the pith faces are on the same side of the assembled joint (see Figure 1).

Store the joint members in the conditioning chamber (6.2) until required for treating.

Dimensions in millimetres



Key

1 Cable strap

Figure 1 — Lap-joint

NOTE The lap-joint members are held together by two cable straps (6.7). The lap-joint is shown without the weatherproof end seal.

5.1.4 Dimensions and density of test specimens

The dimensions of each lap-joint at (12 ± 2) % (m/m) moisture content shall be (300 ± 2) mm × (85 ± 1) mm × (38 ± 1) mm with an overlapping close fitting part at mid-length of (60 ± 1) mm (see Figure 1).

The wood shall have a density, at 12% (*m/m*) moisture content, in the range between 400 kg/m^3 and 550 kg/m^3 corresponding to a mass of each joint member ranging of about 190 g to 260 g.

In a batch of specimens to be treated, the density of an individual is permitted to differ from the mean value of the batch by ± 10 %. This tolerance is increased to ± 20 % for the untreated specimens. The mean density of the treated specimens used for the test shall be recorded in the test report.

5.1.5 Number of lap-joints

Prepare at least 10 lap-joints for each combination of test parameters [wood species (see 5.1.1), test preservative (see clause 7), retention level or application rate (see 8.3), and untreated control (see clause 10)].

NOTE It is normally necessary to treat a higher number of lap-joints so that the required number can be selected after treatment (see 8.2) and the inclusion of "abnormal" joints avoided. Optionally extra lap-joints may be prepared for chemical analyses during exposure.

5.1.6 Labelling of lap-joints

Individual members of each lap-joint shall be assigned unique identification numbers in such a way that these numbers are retained through all preparation operations. After preservative treatment an identification label or tag of long-lasting material shall be affixed to the lower side of each lap-joint

away from the joint area. The labels shall be of a material which is inert to the wood and the chemicals it contains after treatment and conditioning.

5.2 End-seal compounds

5.2.1 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 (5.2.2) may be used.

5.2.2 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.

6 Apparatus and equipment

6.1 Wood working equipment, including a saw capable of producing a fine sawn finish.

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

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

6.4 Balance, capable of weighing to the nearest 0,1 g.

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

6.6 Labels and fixing pins, both long-lasting, inert (see 5.2.6) and corrosion resistant with similar fixing pins.

6.7 Fixing material : cable straps, inert and weather resistant to be used for fixing the two members of each joint together.

NOTE A suitable material of the straps is clear or white polyamide with a dimension of ca 360 mm × 5 mm. These straps can easily be removed at the inspections and replaced by new straps when joints are returned to the exposure racks.

Alternatively custom designed stainless steel metal clips may be used. A suitable clip design is shown in Figure 2.

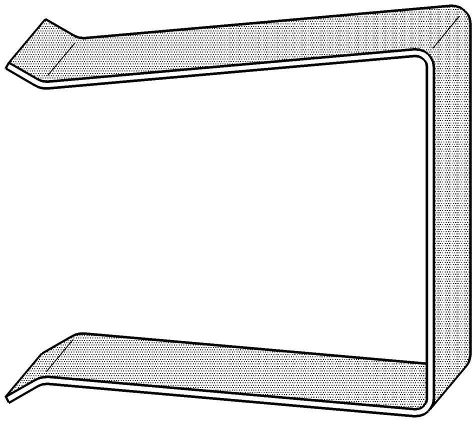
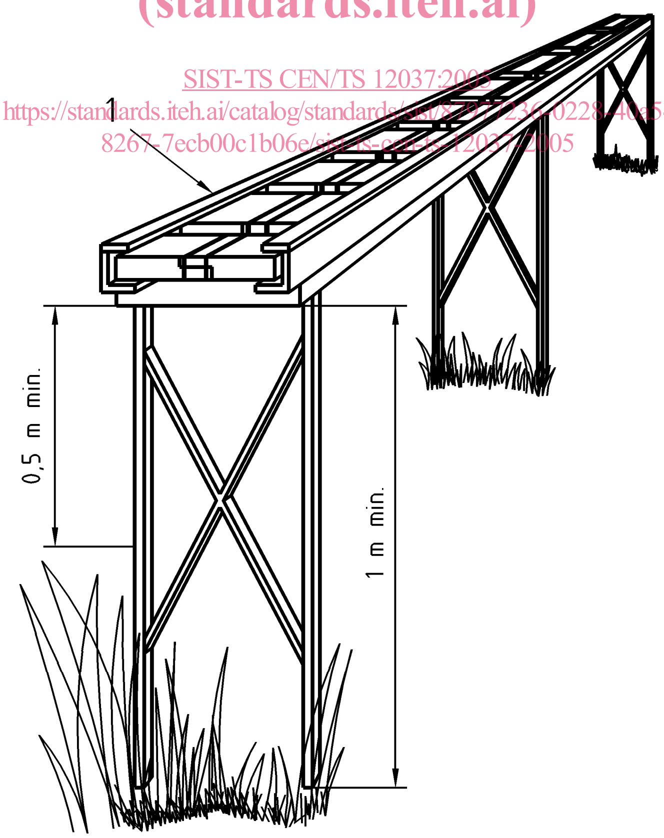


Figure 2 — Suitable clip fabricated out of stainless steel to hold lap-joint in place

NOTE Two clips are needed per test assembly.

6.8 Exposure rack, (see Figure 3) made of preservative treated wood, aluminium profiles or any other similar durable material and located at least 1 m above ground level and at least 0,5 m above any low vegetation (see Figure 3). The test specimens shall be separated from the rack by spacing pieces, cross-section, minimum 5 mm × 5 mm, maximum 10 mm × 10 mm, made of a long-lasting weather resistant material, that will not react with timber or treated lap-joints (see Figure 4).



Key

1 Test samples

Figure 3 — Example of an exposure rack (6.8)