



SLOVENSKI STANDARD
SIST-TP CEN/TR 15046:2005

01-julij-2005

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Wood preservatives - Artificial weathering of treated wood prior to biological testing - UV-radiation and water-spraying procedure

Holzschutzmittel - Künstliche Bewitterung von behandeltem Holz vor biologischen Prüfungen - Beanspruchung mit UV-Strahlung und Wassersprühen

Produits de préservation du bois - Exposition artificielle aux intempéries des bois traités avant essais biologiques - Epreuves de rayonnement UV et de pulvérisation d'eau

Ta slovenski standard je istoveten z: CEN/TR 15046:2005

ICS:

71.100.50 S^ { ã ä å Á á ä æ ã Ä Å • æ Wood-protecting chemicals

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TECHNICAL REPORT
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CEN/TR 15046

March 2005

ICS 71.100.50

English version

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

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Foreword

This document (CEN/TR 15046:2005) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and derived materials”, 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 Technical Report: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

This document is based on the results of the S.M.T. Project: F.A.C.T, SMT 4 CT 96 2135 and in particular in accordance with the findings of Task 1 which consisted of a study of artificial weathering techniques for the conditioning of treated test blocks prior to biological test. (see the summary of the research in CEN/TR 14723)

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1 Scope

This document specifies a method for the artificial weathering of test specimens of treated wood, which are used in the testing of the biological efficacy of wood preservatives.

This method is applicable to:

- a) the pre-conditioning of test specimens prior to their being subjected to a biological test; or
- b) assessment of loss of effectiveness by comparing the performance in a biological test of treated test specimens subjected to this procedure with others that have not undergone any artificial weathering procedure.

NOTE The method can also be used for pre-conditioning of wood-based panel products, which may or may not have received preservative treatment.

2 Principle

Artificial weathering for a specified period in a device providing UV-radiation and spraying of demineralised water, of test specimens that have been prepared for biological testing of the efficacy of a wood preservative against fungi or insects, using the appropriate standard methods.

3 Material and apparatus

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3.1 Material

3.1.1 Water, demineralised

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NOTE For example water conforming to the grade 3 specified in EN ISO 3696 may be used.

3.1.2 End-sealing material, according to the specifications recommended in the standard test method to be applied after the artificial weathering.

3.2 Apparatus

3.2.1 Test chamber

The test chamber is made from corrosion resistant material in which are housed the lamps, a heated water tray, spray nozzles and test specimen racks.

3.2.1.1 Lamps

The UV lamp emits UV light from a low pressure mercury arc. The required spectral distribution is achieved by a careful selection of the type of phosphor coating on the inner surface of the lamp and the nature of the glass used in the construction of the tubes.

Unless otherwise specified or mutually agreed the lamp shall be of the following type:

Lamp, commonly called UVA 340, has a peak emission at 340 nm and the relative spectral irradiance is given in Table 1.

Table 1 — Relative spectral irradiance of lamp

Wavelength nm	Relative spectral irradiance ^a %
270 < λ ≤ 400	100
λ ≤ 270	0
270 < λ ≤ 280	0
280 < λ ≤ 300	0
300 < λ ≤ 320	7,8 ± 0,8
320 < λ ≤ 340	29,6 ± 3,0
340 < λ ≤ 360	34,4 ± 3,4
360 < λ ≤ 380	20,9 ± 2,1
380 < λ ≤ 400	7,3 ± 0,7

^a The spectral irradiance between 270 nm and 400 nm is defined as 100 %.

3.2.1.2 Device for wetting the test specimens

The test specimens shall be wetted by spray of water. To prevent spotting on to the test specimens water demineralised (3.1.1) shall be used.

The spray water shall not be used in a circulation system.

Note A spraying device could be capable to spray about 3 l/min. Intermittent spray, e.g. 5 s spray followed by 15 s rest should be programmable to save water.

3.2.1.3 Black panel thermometer

Set the apparatus to operate at the specified parameters, and the temperature shall be monitored by a remote sensor attached to the black panel. The black panel thermometer shall be exposed to the same exposure conditions as the specimens. The black panel thermometer shall be calibrated in accordance with the manufacturer's recommendations.

3.2.1.4 Irradiance control

Apparatus equipped with an irradiance control system shall be calibrated in accordance with the manufacturer's recommendations.

Lamps in apparatus without irradiance control system need to be rotated and replaced in accordance with the manufacturer's recommendations to compensate for lamp ageing.

3.2.2 Test specimens holder

The test specimens holder shall be of stainless steel. They shall guarantee a sufficient distance between the test specimens and the holder sheet in order not to hinder the runoff of the spray water and a fixed distance to the UV- lamps.

An example of a suitable test specimens holder is given in Annex A.

3.2.3 Deep-freezer controlled at a temperature of $(- 18 \pm 2)^\circ\text{C}$.

3.2.4 Conditioning chamber controlled at a temperature of $(20 \pm 2)^\circ\text{C}$ and $(65 \pm 5) \%$ relative humidity for conditioning the test specimens.

4 Test specimens

4.1 Definition and origin

The test specimens and their preparation are defined in the standards concerning the biological tests to which they are intended to be subjected.

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

4.2 Number of test specimens

The number of test specimens to be artificially weathered shall be as required by the standard describing the relevant biological tests, bearing in mind that the weathering procedure shall be applied both to treated test 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 are not be subjected to attack by biological agents after artificial weathering. These will serve as controls for changes in mass in those tests in which this factor is taken into consideration. One set of these control test specimens shall be provided for each concentration;
- untreated control test specimens, which, after artificial weathering, are subjected to the biological tests to check any variation in the behaviour of untreated wood. One set of these control test specimens shall be provided for the whole of one test;
- control test specimens of timber treated with solvent or diluent if necessary.

5 Procedure

5.1 Artificial weathering

Fix the test specimens in the test specimens holders (3.2.2 and Annex A) and insert the test specimens holders in the test chamber (3.2.1).

Expose the test specimens to the weathering programme given in Table 2.

NOTE The weathering procedure should start on a Tuesday.

The given programme lasts 336 h. Repeat the programme twice in continuation, which means to programme the total run of the weathering device to 672 h.