

SLOVENSKI STANDARD

SIST-TS CEN/TS 15119-2:2013

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Nadomešča:

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Trajnost lesa in lesnih izdelkov - Določanje emisij iz zaščenega lesa v okolje - 2. del: Lesni izdelki, izpostavljeni 4. ali 5. razredu uporabe (v stiku z zemljo, sladko ali morsko vodo) - Laboratorijska metoda

Durability of wood and wood-based products - Determination of emissions from preservative treated wood to the environment - Part 2: Wooden commodities exposed in Use Class 4 or 5 (in contact with the ground, fresh water or sea water) - Laboratory method

Dauerhaftigkeit von Holz und Holzprodukten - Abschätzung von Emissionen von mit Holzschutzmitteln behandeltem Holz an die Umwelt - Teil 2: Holzprodukte in Gebrauchsklasse 4 und 5 (im Kontakt mit Erde, Süßwasser oder Meerwasser) - Laborverfahren

Durabilité du bois et des matériaux à base de bois - Estimation des émissions dans l'environnement du bois traité avec des produits de préservation - Partie 2 : Articles en bois exposés en classe d'emploi 4 ou 5 (en contact avec le sol, l'eau douce ou l'eau de mer) - Méthode de laboratoire

Ta slovenski standard je istoveten z: CEN/TS 15119-2:2012

ICS:

13.020.30	Ocenjevanje vpliva na okolje	Environmental impact assessment
71.100.50	Kemikalije za zaščito lesa	Wood-protecting chemicals

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English Version

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This Technical Specification (CEN/TS) was approved by CEN on 30 July 2012 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 promptly at national level in an appropriate form. 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.

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Foreword

This document (CEN/TS 15119-2:2012) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and wood-based products”, the secretariat of which is held by AFNOR.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document will supersede CEN/TR 15119:2005 and CEN/TS 15119-2:2008.

CEN/TS 15119 is composed of the following parts:

- *Part 1: Wood held in the storage yard after treatment and wooden commodities exposed in Use Class 3 (not covered, not in contact with the ground) — Laboratory method;*
- *Part 2: Wooden commodities exposed in Use Class 4 or 5 (in contact with the ground, fresh water or sea water) — Laboratory method.*

This document is a revision of Technical Specification published in 2008 in order to consider the OECD 313 which covers the same topic.

Compared to CEN/TS 15119-2:2008 the following modifications have been made:

- a) quality criteria for accuracy and reproducibility added in 2.3;
- b) provisions for properties of the sea water used for the test added in 2.4.2;
- c) procedure for sealing of end grain specified in more detail in 2.7.2;
- d) in 2.7.5.2 time intervals for replacement of the water specified and total testing time increased from 19 days to 29 days;
- e) reference to extrapolation of results to 1 year or 10 years deleted;
- f) recording forms in Annex A modified;
- g) Annex B for general recommendations added;
- h) Bibliography extended.

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

CEN/TS 15119-2:2012 (E)**Introduction**

The emissions from preservative treated wood to the environment need to be quantified to enable an environmental risk assessment of the treated wood. This document describes a laboratory method for the estimation of emissions from preservative treated wood in the case where the preservative treated wood is not covered by a physical protection and is in contact with the ground, fresh water or seawater. There are three situations in this case where emissions could enter the environment:

- a) emissions from treated wood in contact with the ground. Use Class 4A. Emissions from the surface of the treated wood could enter the soil via the soil water;
- b) emissions from treated wood in contact with fresh water. Use Class 4B. Emissions from the surface of the treated wood could enter the water;
- c) emissions from treated wood in contact with sea water. Use Class 5. Emissions from the surface of the treated wood could enter the sea.

The method is a laboratory procedure for obtaining water samples (leachate) from treated wood in contact with water, at increasing time intervals (complete duration of 29 days). The quantities of emissions in the leachate are related to the surface area of the wood and the length of exposure, to estimate a flux in milligrams per square metre per day.

The quantity of emissions can be used in an environmental risk assessment of the treated wood.

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1 Scope

This Technical Specification specifies a laboratory method for obtaining water samples from treated wood which has been in conditions designated to simulate continuous contact with the ground or with water (use Class 4 or 5), at time intervals after exposure.

2 Description of the test method

2.1 General considerations

The principal agent for causing emissions from wood exposed to soil is the soil water. The mechanism of leaching at the wood surface by the soil water is assumed to be identical in nature and severity to leaching from a wood surface in continuous contact with water.

The mechanism of leaching at the wood surface by fresh water is assumed to be identical in nature and severity to leaching from a wood surface by seawater.

The wood, in the case of wood treated with a wood preservative, shall be representative of commercially used wood. It shall be treated in accordance with the preservative manufacturer's instructions and in compliance with appropriate standards and specifications. The parameters for the post-treatment conditioning of the wood prior to the commencement of the test shall be stated.

The composition, amount and pH value of the water used in the test are important in determining the quantity, content and nature of emissions from wood.

2.2 Principle

Water samples are collected after continuous contact with treated wood at increasing time intervals. To simulate the emission of wood preservatives from wood that is exposed to continuous contact with water test specimens are immersed in water and samples of the water are collected at different intervals. The volume of water relative to the surface area exposed to the water is equivalent to the ratio found in wood exposed in service in some Use Class 4 situations (1 m³ per 40 m² or 25 l per m²). The water (leachate) is collected and is chemically analysed at seven or more sample times over the 29 days; it is suitable for ecotoxicity testing. Emission rates in milligrams per square metre per day are calculated from analytical results. The sampling periods are recorded. Tests with untreated samples can be discontinued if there is no background detected in the first three data points.

2.3 Quality criteria

2.3.1 Accuracy

The performance of the analytical method should be determined before conducting the test:

- 1) Accuracy;
- 2) Specificity;
- 3) Limit of detection;
- 4) Limit of quantification.

The testing is carried out with untreated references and with controlled water.

CEN/TS 15119-2:2012 (E)**2.3.2 Reproducibility**

Two water samples are collected and analysed and the mean value is taken as the emission value. The reproducibility of the results within one laboratory and between different laboratories depends upon the immersion regime and the wood used as test specimens.

2.4 Product and reagent**2.4.1 Water**

Fresh water and soil leaching scenarios: Water complying with grade 3 of EN ISO 3696 or water especially designed for environmental investigations is ideal. Deionised water can also be used. The pH value shall normally be in the range 5 to 7. The pH value shall not be adjusted unless special conditions might justify setting the pH to a specified value between 5 and 7.

Water temperature shall be (20 ± 2) °C. The pH value and water temperature shall be stated in the test report.

2.4.2 Seawater

Seawater leaching scenarios: Synthetic seawater (e.g., ASTM D 1141 Substitute Ocean Water, without Heavy Metals) is recommended for use in the leaching test when wood exposed to seawater is to be evaluated. The water temperature shall be (20 ± 2) °C and the measured pH and water temperature included in the test report.

2.4.3 Preservative

The identity of the preservative product used to treat the wood samples shall be stated in the test report. It shall state the name and other designation of the preservative, and the trade or common name of the active ingredient(s), substances of concern (as defined in the EU Directive 98/8/EC) or a generic description of co-formulates and the composition expressed in terms of the mass fraction of each of the ingredients.

2.5 Apparatus**2.5.1 Immersion container**

The container shall be made of a material that is inert to water and the treated timber and large enough to allow the test specimens to have all their faces exposed to water and to contain sufficient water for the ratio of the exposed surface area of the test specimen to the volume of water to which it is exposed, to be 40 (i.e. $40 \text{ m}^2 \times \text{m}^{-3}$ or $0,4 \text{ cm}^2 \times \text{cm}^{-3}$). The volume of water required is therefore 25 l per m^2 of exposed surface area of the test specimen (this is equivalent to 2,5 cm^3 per cm^2).

EXAMPLE For example, for five wood test specimens 25 mm wide by 50 mm long, 15 mm thick, end sealed, where the surface area exposed to water is 200 cm^2 the volume of water required is 500 ml.

The container is covered in order to avoid water evaporations.

2.5.2 Assembly for test specimens

No equipment used to hold the test specimens below the level of the water shall be made of a material that will react with the water or the treated timber. The test samples should be restrained in a test frame which allows all 5 test specimens to be manoeuvred simultaneously and which allows free access of water to all surfaces.

2.6 Test specimens

2.6.1 Species of wood

The wood species shall be typical of the wood species used for the efficacy testing of wood preservatives e.g. *Pinus sylvestris* (Linnaeus) (Scots pine).

Additional tests may be made using other species but, if so, this should be stated in the test report.

2.6.2 Quality of wood and wood moisture content

Use straight grained wood without knots. Material of a resinous appearance shall be avoided.

The wood should be typical of wood that is available commercially.

The source, density with a defined humidity and number of annual growth rings per 10 mm shall be stated in the test report.

Regarding the moisture content before the treatment, the recommendations of the wood preservative manufacturer should be followed.

2.6.3 Size of test specimens

Wood test specimens have minimum dimensions of 25 mm wide by 50 mm in length, 15 mm thick, with the longitudinal faces parallel to the grain of the wood. Test specimens shall consist of 100 % sapwood. Each test specimen is marked so that it can be identified throughout the test.

The wood test specimens shall be plain sawn and the surfaces shall not be sanded.

2.6.4 Number of test specimens

Two sets of treated test specimens in two immersion containers (2.5.1) are used and the mean value taken as the emission value. One set of untreated test specimens in one immersion container is also used. The number of wood test specimens depends on the specimen's size. The total surface of wood test specimens to be immersed in one immersion container is at least 200 cm², and the minimum number of test specimens per immersion container is three. For one test there is at least nine (three sets of three) test specimens: six test specimens are treated with preservative, three test specimens are untreated. Sufficient test specimens are prepared to allow a selection of six which are within ± 5 % of the mean value of the retentions of the group of test specimens, and one for the estimation of the oven dry moisture content of the test specimens before treatment.

NOTE For the minimum size of specimens given in 2.6.3., the number of specimens to obtain 200 cm² is 5; the total number of specimens needed is therefore 16: 10 treated, 5 untreated and 1 for the estimation of the oven dry moisture content.

2.6.5 End seal

The end seal shall be a substance which, when applied to the end-grain of test specimens, prevents penetration of the preservative under test.

NOTE Two coats of a silicone sealant have been found to be suitable.

2.7 Procedure

2.7.1 General

The test shall be carried out in a room that has a temperature of (20 ± 2) °C.