

English Version

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

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

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

This Technical Specification (CEN/TS) was approved by CEN on 30 July 2012 for provisional application.

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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.

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.

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.