

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (FprEN 15119-2:2024) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and wood-based products”, the secretariat of which is held by SIS.

This document is currently submitted to the Formal Vote.

This document will supersede CEN/TS 15119-2:2012 without major technical change. Test results obtained with earlier versions of this document from tests commissioned prior to the publication of this document are still valid.

Significant changes: EN ISO 3696 has been moved from the Normative References to the Bibliography.

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 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 4. 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 4. 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.

The results of this short-term test can be extrapolated to longer exposure periods using suitable projection estimation methods.

1 Scope

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

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

4 Description of the test method

4.1 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 comparable in nature and of equal or lesser severity to leaching from a wood surface in continuous contact with water.

The mechanism of leaching at the wood surface by the sea water is assumed to be comparable in nature and of equal or lesser severity to leaching from a wood surface in continuous contact with fresh water.

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.

4.2 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 was found to be a suitable ratio to allow active substances to be adequately analysed (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.

4.3 Products and reagents

4.3.1 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 $(20 \pm 2) ^\circ\text{C}$. The pH value and water temperature shall be stated in the test report.

4.3.2 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 $(20 \pm 2) ^\circ\text{C}$ and the measured pH and water temperature included in the test report.

4.3.3 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 specified in the EU regulation n°528/2012) or a generic description of co-formulates and the composition expressed in terms of the mass fraction of each of the ingredients.

4.4 Apparatus

4.4.1 Immersion container

The container shall be made of a material that is inert to water and the treated timber. It shall be 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 specimens to the volume of water to which it is exposed (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 $2,5 \text{ cm}^3$ 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 evaporation.

4.4.2 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 test specimens to be manoeuvred simultaneously and which allows free access of water to all surfaces.

4.5 Test specimens

4.5.1 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.

4.5.2 Quality of wood and wood moisture content

Test specimens shall consist of 100 % sapwood. Each test specimen is marked so that it can be identified throughout the test.

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