

English version

**Durability of wood and wood-based products - Estimation of emissions from preservative treated wood to the environment - Wood held in the storage yard after treatment and wooden commodities exposed in Use Class 3 (not covered, not in contact with the ground), and 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 dérivés - Estimation des émissions dans l'environnement du bois traité avec des produits de préservation - Bois stocké en dépôt après traitement et articles en bois exposés en classe d'emploi 3 (non couverts, non en contact avec le sol) et 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 - Laborverfahren für Holz auf dem Lagerplatz nach der Behandlung und Holzprodukte in Gebrauchsklasse 3 (nichtabgedeckt, ohne Erdkontakt) sowie in den Gebrauchsklassen 4 und 5 (im Kontakt mit Erde, Süßwasser oder Meerwasser)

This Technical Report was approved by CEN on 3 April 2005. It has been drawn up by the Technical Committee CEN/TC 38.

CEN members are the national standards bodies of 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 United Kingdom.



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

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

## Contents

Foreword .....	3
Introduction.....	4
1 Scope .....	5
2 Method for wood held in the storage yard after treatment and for wooden commodities exposed in Use Class 3 (not covered, not in contact with the ground) .....	5
3 Method for wooden commodities exposed in Use Class 4 or 5 (in contact with the ground, fresh water or sea water) .....	10
4 Precision.....	13
Annex A (informative) Recording forms .....	15
Bibliography.....	18

## Foreword

This document (CEN/TR 15119:2005) has been prepared by Technical Committee CEN/TC 38 "Durability of wood and derived materials", the secretariat of which is held by AFNOR.

This Technical Report has been submitted to OECD as a draft Test Guideline, following a request from OECD for the development of an OECD wide environmental exposure scenario document for wood preservatives in the framework of the EU Biocides Directive 98/8/EC. The status of this document as Technical Report has been chosen because this document is still in development in the frame of OECD.

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.

## 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 two cases

The first case is the case where the preservative treated wood is not covered and not in contact with the ground or the water. There are two situations in this case where emissions could enter the environment:

- 1) emissions from preservative treated wood stored outside in the storage yard of a preservative treatment site. Rain falling on the treated wood could produce emissions which run off into surface water and/ or soil;
- 2) emissions from treated wood used in commodities exposed in Use Class 3. This is the situation in which the wood or wood-based product is not covered and not in contact with the ground. It is either continually exposed to the weather or is protected from the weather but subject to frequent wetting. Use classes are defined in EN 335-1 and categorise the biological hazard to which the treated commodity will be subjected. The Use Classes also define the situation in which the treated commodity is used and determine the environmental compartments (air, water, soil) which are potentially at risk from the preservative treated wood. Rain falling on treated wood in Use Class 3 could produce emissions that run off into surface water and/ or soil.

The second case is the case where the preservative treated wood is not covered and is in contact with the ground, fresh water or sea water. There are three situations in this case where emissions could enter the environment:

- 3) Emissions from preservative 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.
- 4) Emissions from treated wood in contact with fresh water. Use Class 4B. Emissions from the surface of the treated wood could enter the water.
- 5) 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 methods are laboratory procedures for obtaining water samples (emissate) from treated wood exposed out of ground contact and treated wood exposed in contact with ground, surface water or sea water, at increasing time intervals after exposure. The quantities of emissions in the emissate are related to the surface area of the wood and the length of exposure, to estimate a flux in milligrams per square meter per day. The flux after increasing periods of exposure (e.g. 1 year, 10 years) can be estimated. The emissate can also be tested for ecotoxicological effects

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

## 1 Scope

This Technical Report specifies two laboratory methods for obtaining water samples: one from preservative treated wood exposed out of ground contact (wood held in the storage yard after treatment and Use Class 3) and the other from treated wood which has been in continuous contact with ground or water (Use Class 4 or 5), at increasing time intervals after exposure.

## 2 Method for wood held in the storage yard after treatment and for wooden commodities exposed in Use Class 3 (not covered, not in contact with the ground)

### 2.1 General considerations

The principal agent for causing emissions from wood during open-air storage in the yard and in Use Class 3 is rainfall. Wood exposed in above ground situations is subjected to the intermittent wetting of rainfall and the drying of the wood surface between the rainfall events. This wetting and drying cycle is simulated in this document. It is assumed that emissions obtained by exposure to rainfall are identical to emissions obtained by immersion in 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 test can be applied to wood treated using a penetrating process or superficial application, and to wood which has an additional surface treatment (e.g. paint).

The wood samples used shall be representative of the commodities used.

The composition, amount, pH value and the physical form of rainfall is important in determining the quantity, content and nature of emissions from wood. However, simulating a realistic rainfall regime in the laboratory is time-consuming, expensive and is likely to lack reproducibility, accuracy, precision and reliability. This method uses a 1 min immersion in water to simulate exposure to a rainfall event. There are three rainfall events per day and days of rainfall events are separated by at least two days without rainfall events.

The duration of the test shall be sufficient to enable a flux profile against time to be determined, (e.g. time necessary to reach steady state or maximum of 30 days) to allow extrapolations of flux for longer periods (e.g. 1 year, 10 years and more).

### 2.2 Principle

For obtaining water samples from treated wood exposed out of ground contact, at increasing time intervals after exposure, preservative treated wood test specimens are immersed in water for 1 min. The mass of water taken up by the test specimen is equivalent to 720 mm of rain per year. The test specimen is allowed to dry between immersions, simulating the wetting and drying cycle of natural exposure situations. Immersion is repeated at intervals over at least 30 days. The water (emissate) is collected and chemically analysed or tested for ecotoxicity at seven or more sample times over the 30 days. Tests with untreated samples can be discontinued if there is no background detected in the first three data points. Emission rates in milligrams per square meter per day are calculated from analytical results.

A system with untreated wood specimens provides background levels for emissates from wood.

### 2.3 Product and reagent

#### 2.3.1 Water

Deionized water is recommended. The pH value of the water shall be in the range 5 to 7. The pH value shall not be adjusted unless special conditions might justify setting the pH value to a specified value, between 5 and 7.

NOTE 1 Water complying with grade 3 of EN ISO 3696 is ideal but not necessary.