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English Version

Durability of wood and wood-based products - Determination of emissions from preservative treated wood to the environment - 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

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 1 : Bois stocké en dépôt après traitement et articles en bois exposés en classe d'emploi 3 (non couverts, non en contact avec le sol) - Méthode de laboratoire

Dauerhaftigkeit von Holz und Holzprodukten - Abschätzung von Emissionen von mit Holzschutzmitteln behandeltem Holz an die Umwelt - Teil 1: Holz auf dem Lagerplatz nach der Behandlung und Holzprodukte in Gebrauchsklasse 3 (nicht abgedeckt, ohne Erdkontakt) - Laborverfahren

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Foreword

This document (CEN/TS 15119-1: 2008) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and wood-based products”, the secretariat of which is held by AFNOR.

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This document is derived from a Technical Report (CEN/TR 15119), 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.

Introduction

The emissions from preservative treated wood into the environment need to be quantified to enable an environmental risk assessment to be made of the treated wood. This document describes a laboratory method for the determination of emissions from preservative treated wood 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 such emissions could enter the environment:

a) 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 that run off into surface water and / or soil;

b) 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 method is a laboratory procedure for obtaining water samples (emissate) from treated wood exposed out of ground contact, at 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 metre per day. The flux after increasing periods of exposure (e.g. 1 year, 10 years) can be estimated.

NOTE The emissate can also be tested for eco-toxicological effects.

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

1 Scope

This Technical Specification describes a laboratory method for obtaining water samples from preservative treated wood exposed out of ground contact (wood held in the storage yard after treatment and which has been in conditions designed to simulate outdoor, out of ground contact situations), at increasing time intervals after exposure.

2 Description of the test method

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 intermittent wetting by rainfall and drying of the wood surface between the rainfall events. These wetting and drying cycles are simulated by the method described in this document. It is assumed that emissions obtained by short-term immersion in water are indicative of the emissions which will occur during exposure to rainfall.

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

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

The composition, amount, pH value and the physical form of rainfall are 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 and has been developed to give the wood moisture content, which is relative to a rainfall event. There are three immersions per day and days of immersion are set at 1 days, 3 days, 5 days, 8 days, 10 days, 12 days, 15 days, 17 days and 19 days. This schedule allows sampling 3 times per week on Monday, Wednesday and Friday.

2.2 Principle

To simulate the emission of wood preservatives from wood exposed to rain water, a simulated wetting and drying process is employed. At each of the 9 "immersion days" stated in 2.1, the following process is applied : test specimens are immersed in water for 1 minute and then removed and allowed to dry; this cycle is repeated three times during an immersion day. This process is used to simulate the wetting and drying of natural exposure situations. The water (emissate) from each immersion day is collected and analysed chemically. It is suitable for ecotoxicity testing. Emission rates in milligrams per square metre per day are calculated from analytical results.

A system with untreated wood specimens provides background levels for emissates from wood. Tests with untreated samples can be discontinued if there is no background detected in the first three data points.

2.3 Product and reagent

2.3.1 Water

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.