

ICS 79.040

English version

**Durability of wood and wood-based products - Determination of  
treatability of timber species to be impregnated with wood  
preservatives - Laboratory method**

Durabilité du bois et des matériaux dérivés du bois -  
Détermination de l'imprégnabilité d'essences de bois par  
des produits de préservation - Méthode de laboratoire

Dauerhaftigkeit von Holz und Holzwerkstoffen -  
Laboratoriumsverfahren zur Bestimmung der Tränkbarkeit  
von Holzarten, die mit Holzschutzmitteln imprägniert  
werden sollen

This Technical Report was approved by CEN on 3 November 2003. It has been drawn up by the Technical Committee CEN/TC 38.

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| Contents                              |                     | Page |
|---------------------------------------|---------------------|------|
| 1                                     | Scope.....          | 5    |
| 2                                     | Principle.....      | 5    |
| 3                                     | Reagents.....       | 5    |
| 4                                     | Apparatus.....      | 5    |
| 5                                     | Test specimens..... | 6    |
| 6                                     | Procedure.....      | 7    |
| 7                                     | Data handling.....  | 9    |
| 8                                     | Test report.....    | 11   |
| Annex A Guidance on sampling.....     |                     | 12   |
| Annex B Example of a test report..... |                     | 14   |
| Bibliography.....                     |                     | 16   |

## Foreword

This document (CEN/TR 14734:2004) has been prepared by Technical Committee CEN/TC 98 "Durability of wood and wood-based products", the secretariat of which is held by AFNOR.

The status of this document as a Technical Report has been chosen because the method is useful but should be confirmed by experimentation.

This document includes a Bibliography.

## Introduction

The basis for this document was prepared as being part of the work for SMT project MAT-CT 94061 project number 3307: Improvement of CEN standards by short term methods for testing the natural durability and treatability of solid wood and wood based panel products.

It provides the means whereby the treatability of sapwood or heartwood of different wood species can be determined in order to determine likely reaction to impregnation with wood preservatives. Such an assessment provides data for use in EN 351-1 which establishes a system for specifying the treatment of wood with wood preservatives based upon the penetration and retention of preservatives achieved by the treatment process. EN 351-1 recognises that different wood species respond to treatment differently depending on their ability to absorb preservative, and requires a different level of compliance depending on the treatability of the wood concerned. While EN 350-2 includes a subjective classification of the treatability of different wood species using a four class system, the method described in this document provides the means to determine the treatability objectively.

Although the method described uses an aqueous solution as the impregnating liquid, the results can be used to give guidance on the treatability of the samples under test. Alternatively, the method can be modified using other preservative types, e.g. organic solvent or emulsion preparations, if the response of the wood to a specific preservative is required. However, it should be noted that the method does not take account of preservative formulations where the active ingredients are selectively adsorbed on to the wood substrate resulting in the solvent penetrating more deeply than the biocides.

## 1 Scope

This Technical Report describes a laboratory method for the determination of the treatability of wood in order to determine the likely reaction of different wood species to impregnation with wood preservatives. It can also be used to investigate variation between samples of the same species but of different origin.

## 2 Principle

After moisture and density determination of each of test specimens, a set of test specimens is impregnated with copper sulfate solution in accordance with a standard test procedure. After application of an indicator solution to the exposed cross-section and to one of the exposed longitudinal surfaces of each of test specimens, the lateral and axial penetration is measured and the treatability class is evaluated.

## 3 Reagents

### 3.1 Copper sulfate pentahydrate, solution, mass fraction of 5 %.

Dissolve 50 g of copper sulfate pentahydrate ( $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ) in 950 g water.

NOTE The volume of copper sulfate solution required will depend on the capacity of the impregnation apparatus.

### 3.2 Indicator solution

For the indication of the penetration an indicator solution, e.g. chrome azurol S, can be used. Dissolve 0,5 g chrome azurol S and 5 g sodium acetate in 100 ml water.

NOTE Other indicators can be used.

### 3.3 Sealing compound

A sealing compound which is inert to the copper sulfate solution (3.1) and unaffected by the test conditions.

## 4 Apparatus

Ordinary laboratory apparatus and:

### 4.1 Balance, capable of weighing to an accuracy of 0,01 g.

### 4.2 Conditioning chamber, well ventilated and controlled at $(20 \pm 2)^\circ\text{C}$ and $(65 \pm 5)\%$ relative humidity.

### 4.3 Measuring device, capable of measuring the dimensions of test samples of up to 40 mm in size and to an accuracy of 0,1 mm.

### 4.4 Drying oven, capable of being controlled at $(103 \pm 2)^\circ\text{C}$ .

### 4.5 Desiccator, with efficient desiccant (silica gel for example).