



BSI Standards Publication

**Paints and varnishes —
Coating materials and coating
systems for exterior wood —
Assessment of tannin staining**

National foreword

This Published Document is the UK implementation of CEN/TS 16498:2013.

The UK participation in its preparation was entrusted to Technical Committee STI/28, Paint systems for non-metallic substrates.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2013. Published by BSI Standards Limited 2013

ISBN 978 0 580 78945 8

ICS 87.040

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 November 2013.

Amendments issued since publication

Date	Text affected
------	---------------

TECHNICAL SPECIFICATION
 SPÉCIFICATION TECHNIQUE
 TECHNISCHE SPEZIFIKATION

CEN/TS 16498

November 2013

ICS 87.040

English Version

**Paints and varnishes - Coating materials and coating systems
 for exterior wood - Assessment of tannin staining**

Peintures et vernis - Produits de peinture et systèmes de
 peinture pour le bois en extérieur - Évaluation des taches
 de tanin

Beschichtungsstoffe - Beschichtungsstoffe und
 Beschichtungssysteme für Holz - Außenbereich -
 Beurteilung von unerwünschten Verfärbungen aufgrund von
 Holzhaltsstoffen

This Technical Specification (CEN/TS) was approved by CEN on 12 February 2013 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same manner as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of 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 United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents		Page
Foreword.....		3
Introduction		4
1	Scope	5
2	Normative references	5
3	Terms and definitions	5
4	Apparatus and materials	5
5	Procedure	6
5.1	Preparation of wood extract	6
5.2	Wood panels, extract application and sealing.....	7
5.3	Coating application.....	8
5.4	Colour measurements after coating application	8
5.5	Cyclic climate exposure	9
5.6	Colour measurements after cyclic climate exposure	9
5.7	Calculation and assessment of colour differences.....	9
6	Test report	10
Bibliography		11

Foreword

This document (CEN/TS 16498:2013) has been prepared by Technical Committee CEN/TC 139 "Paints and varnishes", the secretariat of which is held by DIN.

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.

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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.

Currently in preview, click buy full version.

Introduction

Coatings on exterior wood surfaces have both decorative and protective functions. A valued function of the coating system is to protect against discoloration caused by the presence of wood extractives in the coating migrating from the wood material. Bleeding of extractives can occur at different stages, including shortly after coating application and at a later stages in use, when driving forces like fluctuating humidity are present.

Currently in preview, click buy full version

1 Scope

This Technical Specification specifies a test method for assessing the discoloration of coatings on wood by tannin staining due to wood extractives. The method uses an extract from Merbau wood as an indicator. Bleeding of wood extractives is assessed at two specified stages firstly after coating application and secondly after cyclic climate exposure. A qualification of colour differences that can be attributed to three different causes, bleeding of extractives, low opacity of the coating film or general yellowing in climate exposure, is included. This document does not specify acceptance values for colour differences that can be tolerated and is not applicable to staining caused by knots for which there is a different test method (e. g. CEN/TS 16353).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 927-5, *Paints and varnishes - Coating materials and coating systems for exterior wood - Part 5: Assessment of the liquid water permeability*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 3131, *Wood — Determination of density for physical and mechanical tests*

ISO 7724-2, *Paints and varnishes — Colorimetry — Part 2: Colour measurement*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

tannin staining

appearance of discoloration on coated surfaces caused by wood extractives in the substrate

3.2

knot staining

appearance of discoloration on coated surfaces caused by wood extractives in knots

3.3

wood extractives

low-molecular weight wood components soluble in organic solvents or water

4 Apparatus and materials

4.1 1 l measuring cylinder.

4.2 **Balance**, with an accuracy of 0,01 g.

4.3 **CIELAB Spectrophotometer**, with d/8 geometry, D65 light source and 10° standard observer.

4.4 **Chips of Merbau wood (*Intsia sp.*)**, produced by drilling.

4.5 **1 l round bottom flask with a water cooled condenser.**