

Thermal Modified Timber — Definitions and characteristics

ICS 01.040.79; 79.040

National foreword

This Draft for Development is the UK implementation of CEN/TS 15679:2007.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature. It should be applied on this provisional basis, so that information and experience of its practical application can be obtained.

Comments arising from the use of this Draft for Development are requested so that UK experience can be reported to the European organization responsible for its conversion to a European standard. A review of this publication will be initiated not later than three years after its publication by the European organization so that a decision can be taken on its status. Notification of the start of the review period will be made in an announcement in the appropriate issue of *Update Standards*.

According to the replies received by the end of the review period, the responsible BSI Committee will decide whether to support the conversion into a European Standard, to extend the life of the Technical Specification or to withdraw it. Comments should be sent to the Secretary of the responsible BSI Technical Committee at British Standards House, 389 Chiswick High Road, London W4 4AL.

The UK participation in its preparation was entrusted to Technical Committee B/543, Round and sawn timber.

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.

This Draft for Development was published under the authority of the Standards Policy and Strategy Committee on 29 February 2008

© BSI 2008

ISBN 978 0 580 58601 9

Amendments/corrigenda issued since publication

Date	Comments

English Version

Thermal Modified Timber - Definitions and characteristics

Bois Modifié Thermiquement - Définitions et
caractéristiques

Thermisch modifiziertes Holz - Definitionen und
Eigenschaften

This Technical Specification (CEN/TS) was approved by CEN on 15 November 2007 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 way 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, 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

Page

Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	7
4 Symbols and abbreviations	8
5 Characteristics	8
5.1 General.....	8
5.2 Equilibrium moisture content.....	10
5.3 Dimensional stability	10
5.4 Durability : resistance to attack by fungi	10
5.5 Density	11
5.6 Mechanical properties	11
5.6.1 Bending strength and modulus of elasticity.....	11
5.6.2 Impact strength	11
5.6.3 Surface hardness.....	11
5.6.4 Tension perpendicular to grain	11
5.6.5 Compression strength	12
5.6.6 Strength of mechanical fasteners	12
5.7 Thermal conductivity.....	12
5.8 Adhesive bonding of TMT	12
5.9 Adhesion of coating to TMT	12
5.10 Emissions	12
5.11 Reaction to fire.....	12
5.12 Durability : resistance to attack by insects.....	12
5.13 Colour	12
6 Assessment of characteristics	13
6.1 General.....	13
6.2 Sampling	13
6.3 Factory production control.....	13
6.3.1 General.....	13
6.3.2 Characteristics of the TMT product to be controlled	14
7 Marking	15
Annex A (informative) Examples of characteristics	16
A.1 Equilibrium moisture content.....	16
A.2 Dimensional stability	16
A.3 Biological durability	17
Bibliography	18

Foreword

This document (CEN/TS 15679:2007) has been prepared by Technical Committee CEN/TC 175 “Round and sawn timber”, the secretariat of which is held by AFNOR.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The principal changes on thermal modification of timber - compared with untreated wood – are improved dimensional stability and increased resistance to decay by wood destroying fungi, and in some cases changed colours..

Due to the treatment, equilibrium moisture content of thermally modified timber is reduced.

Because of altered strength properties comparing to untreated wood, for the use of TMT, it is essential that the relevant requirements of European and national Standards be taken into consideration.

Thermal modification may have an influence on reaction to fire properties of timber.

The properties of thermally modified timber and the degree that the property changes is dependent of the wood species, the type of technology and the process parameters, particularly the treatment temperature level.

The altering of acoustic properties can be of interest particularly for musical instruments.

Some tests have shown an increased resistance of TMT against some insects. Improved resistance against termites has not been proved. Requirements on resistance against termites in some EU member states are to be taken into consideration.

The technologies for manufacturing thermally modified timber are mainly characterized by the way they reduce the oxygen concentration during treatment. The currently applied, industrial scale processes are using atmospheres of heated air and or steam or heated nitrogen or in a bath of heated oil.

1 Scope

This Technical Specification gives definitions and characteristics for Thermally Modified Timber. TMT is used in interior (dry, humid) and exterior conditions.

NOTE 1 TMT is usually a semi-finished product; applications are e.g. flooring, panelling, cladding, decking, windows, doors, furniture and other internal and external joinery. Where product standard exist, the given requirements and test methods are to be taken into consideration.

NOTE 2 Use in load bearing applications – reference to relevant EN standards should be made.

2 Normative references

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

EN 20-2, *Wood preservative – Determination of the protective effectiveness against Lyctus brunneus (Stephens) – Part 2: Application by impregnation (Laboratory method)*

EN 47, *Wood preservatives – Determination of the toxic values against larvae of Hylotrupes bajulus (Linnaeus) – (Laboratory method)*

EN 84, *Wood preservatives – Accelerated ageing of treated wood prior to biological testing – Leaching procedure*

EN 113, *Wood preservatives – Test method for determining the protective effectiveness against wood destroying basidiomycetes – Determination of the toxic values*

EN 117, *Wood preservatives – Determination of toxic values against Reticulitermes species (European termites) (Laboratory method)*

EN 204, *Classification of thermoplastic wood adhesives for non-structural applications*

EN 252, *Field test method for determining the relative protective effectiveness of a wood preservative in ground contact*

EN 275, *Wood preservatives – Determination of the protective effectiveness against marine borers*

EN 301, *Adhesives, phenolic and aminoplastic, for load-bearing timber structures – Classification and performance requirements*

EN 335-1, *Durability of wood and wood-based products – Definition of use classes – Part 1: General*

EN 335-2, *Durability of wood and wood-based products – Definition of use classes – Part 2 : Application to solid wood,*

EN 350-1, *Durability of wood and wood-based products – Natural durability of solid wood – Part 1: Guide to the principles of testing and classification of the natural durability of wood*

EN 383, *Timber Structures – Test methods – Determination of embedment strength and foundation values for dowel type fasteners*

EN 408, *Timber structures – Structural timber and glued laminated timber – Determination of some physical and mechanical properties*