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**Lesno-polimerni kompoziti (WPC) - 2. del: Karakterizacija WPC materialov**

Wood-plastics composites (WPC) - Part 2: Characterisation of WPC materials

Holz-Polymer-Werkstoffe (WPC) - Teil 2: Beschreibung von WPC-Werkstoffen

Composites bois-plastiques (WPC) - Partie 2 : Caractérisation des matériaux WPC

**Ta slovenski standard je istoveten z: CEN/TS 15534-2:2007**[SIST-TS CEN/TS 15534-2:2007](https://standards.iteh.ai/catalog/standards/sist/d5631d23-faa9-46bf-9821-30c909172841/sist-ts-cen-ts-15534-2-2007)<https://standards.iteh.ai/catalog/standards/sist/d5631d23-faa9-46bf-9821-30c909172841/sist-ts-cen-ts-15534-2-2007>**ICS:**

79.060.01 Š•}^Á [[ z ^Á æÁ ] [[ z} [ Wood-based panels in general

**SIST-TS CEN/TS 15534-2:2007****en,fr,de**

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English Version

## Wood-plastics composites (WPC) - Part 2: Characterisation of WPC materials

Composites bois-plastiques (WPC) - Partie 2 :  
Caractérisation des matériaux WPC

Holz-Kunststoff-Verbundstoffe (WPC) - Teil 2:  
Beschreibung von WPC-Werkstoffen

This Technical Specification (CEN/TS) was approved by CEN on 29 December 2006 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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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## Foreword

This document (CEN/TS 15534-2:2007) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

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.

CEN/TS 15534 consists of the following parts, under the general title *Wood plastics composites (WPC)*:

- *Part 1: Test methods for characterisation of WPC materials and products*
- *Part 2: Characterisation of WPC materials*
- *Part 3: Characterisation of WPC products*

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.

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## 1 Scope

This Technical Specification identifies the required and optional properties of wood-plastics composite (WPC) materials. It is intended to be used as a basis for the specifications of WPC materials.

## 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 117, *Wood preservatives — Determination of toxic values against Reticulitermes species (European termites) (laboratory method)*

EN 317, *Particleboards and fibreboards — Determination of swelling in thickness after immersion in water*

EN 1534, *Wood and parquet flooring — Determination of resistance to indentation (Brinell) — Test method*

ENV 12038, *Durability of wood and wood-based products — Wood-based panels — Method of test for determining the resistance against wood-destroying basidiomycetes*

CEN/TS 15083-2, *Durability of wood and wood-based products — Determination of the natural durability of solid wood against wood-destroying fungi, test methods — Part 2: Soft rotting micro-fungi*

prEN 15458, *Paints and varnishes — Laboratory method for testing the efficacy of film preservatives in a coating against algae*

CEN/TS 15534-1:2007, *Wood-plastics composites (WPC) — Part 1: Test methods for characterisation of WPC materials and products*  
<https://standards.iteh.ai/catalog/standards/sist/d5631d23-faa9-46bf-9821-30c909172841/sist-ts-cen-ts-15534-2-2007>

EN ISO 75-1, *Plastics — Determination of temperature of deflection under load — Part 1: General test method (ISO 75-1:2004)*

EN ISO 75-2, *Plastics — Determination of temperature of deflection under load — Part 2: Plastics, ebonite and long-fibre-reinforced composites (ISO 75-2:2004)*

EN ISO 178, *Plastics — Determination of flexural properties (ISO 178:2001)*

EN ISO 179-1, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test (ISO 179-1:2000)*

EN ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1:1993 including Corr 1:1994)*

EN ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2:1993 including Corr 1:1994)*

EN ISO 899-2, *Plastics — Determination of creep behaviour — Part 2: Flexural creep by three-point loading (ISO 899-2:2003)*

EN ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1:2004)*

EN ISO 1183-3, *Plastics — Methods for determining the density of non-cellular plastics — Part 3: Gas pycnometer method (ISO 1183-3:1999)*

EN ISO 4589-2, *Plastics — Determination of burning behaviour by oxygen index — Part 2: Ambient-temperature test (ISO 4589-2:1996)*

ISO 11359-2, *Plastics — Thermomechanical analysis (TMA) — Part 2: Determination of coefficient of linear thermal expansion and glass transition temperature*

ISO 16869, *Plastics — Assessment of the effectiveness of fungistatic compounds in plastics formulations*

ISO 16979:2003, *Wood based panels — Determination of moisture content*

### 3 Characterisation of WPC materials

The characteristics of WPC materials, given in Table 1, are divided into two types:

- required characteristics needed to characterize WPC materials;
- optional characteristics needed to characterize WPC materials according to customer specifications and applications.

These characteristics shall be assessed by using the test methods given in CEN/TS 15534-1.

A technical data sheet, giving the characterisation of material shall be provided by the supplier to the purchaser. Examples of technical data templates are given in Annex A. The technical data sheets shall give the tolerances declared by the supplier for each characteristic.

To secure the legal use of the constituents of WPC materials, the supplier shall provide the necessary information, as specified by the purchaser.

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Table 1 — Characterisation of WPC materials

Characteristics	Ref. to CEN/TS 15534-1	Based test methods	External use	Internal use
Density	6.1	EN ISO 1183-1 EN ISO 1183-3	R	R
Moisture content	6.2	ISO 16979	O	O
Heat deflection temperature (HDT)	6.3	EN ISO 75-1 EN ISO 75-2	R	R
Flexural impact – Charpy	7.1.1	EN ISO 179-1/1fU	O	O
Tensile properties - Tensile strength - Tensile strain at break - Young's modulus	7.2	EN ISO 527-1 EN ISO 527-2 (T.1B)	O	O
Flexural properties - Flexural modulus - Flexural strain - Flexural stress	7.3	EN ISO 178	R	R
Creep behaviour - Flexural-creep modulus	7.4	EN ISO 899-2	O <sup>a</sup>	-
Resistance to indentation - Brinell hardness	7.5	EN 1534	O <sup>a</sup>	-
Swelling and water absorption	8.3	EN 317	R	R
Resistance against termites	8.6.2	EN 117 and Annex C of CEN/TS 15534-1:2007	O	O
Resistance against basidiomycetes	8.6.3.1	ENV 12038 and Annex D of CEN/TS 15534-1:2007	R	O
Resistance against soil inhabiting soft rotting micro-fungi	8.6.3.2	CEN/TS 15083-2 and Annex E of CEN/TS 15534-1:2007	R	O
Resistance against discolouring micro-fungi	8.6.3.3.1	ISO 16869	R	O
Resistance against discolouring algae	8.6.3.3.2	prEN 15458	R	O
Linear thermal expansion	9.1	ISO 11359-2	R	-
Limit oxygen index	10.1	EN ISO 4589-2	O	O
R : required characteristics to be assessed. O : optional characteristics to be assessed.				
<sup>a</sup> For decking, only.				



## Annex A (informative)

### Technical data templates

**Table A.1 — Template giving the required characteristics for external use**

Required characteristics	Test methods	Units	Values
Density	EN ISO 1183-1	g/cm <sup>3</sup>	
	EN ISO 1183-3	kg/m <sup>3</sup>	
Heat deflection temperature (HDT)	EN ISO 75-1	°C	
	EN ISO 75-2		
Flexural properties - Flexural modulus - Flexural strain - Flexural stress	EN ISO 178	MPa	
		%	
		MPa	
Swelling		%	
Water absorption	EN 317	%	
Resistance against termites	EN 117 and Annex C of CEN/TS 15534-1:2007		
Resistance against basidiomycetes	ENV 12038 and Annex D of CEN/TS 15534-1:2007		
Resistance against soil inhabiting soft rotting micro-fungi	CEN/TS 15083-2 and Annex E of CEN/TS 15534-1:2007		
Resistance to discolouring micro-fungi	ISO 16869		
Resistance against discolouring algae	prEN 15458		
Linear thermal expansion	ISO 11359-2	K <sup>-1</sup>	