ICS 79.080, 83.080.01, 83.140.99

SLOVENSKÁ TECHNICKÁ NORMA

Máj 2018

STN	**Kompozity vyrobené z materiálov na báze celulózy a termoplastov (drevoplastové kompozity (WPC) alebo kompozity s prírodnými vláknami (NFC)) Časť 1: Skúšobné metódy na charakterizáciu zmesí a výrobkov**	**STN EN 15534-1+A1** 64 5001

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/18

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EUROPEAN STANDARD

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EN 15534-1:2014+A1

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ICS 79.080; 83.080.01; 83.140.99 Supersedes EN 15534-1:2014

English Version

Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) - Part 1: Test methods for characterisation of compounds and products

Composites à base de matières cellulosiques et de thermoplastiques (communément appelés composites bois-polymères (WPC) ou composites fibres d'origine naturelle (NFC)) - Partie 1: Méthodes d'essai pour la caractérisation des compositions et des produits

Verbundwerkstoffe aus cellulosehaltigen Materialien und Thermoplasten (üblicherweise Holz-Polymer-Werkstoffe (WPC) oder Naturfaserverbundwerkstoffe (NFC) genannt) - Teil 1: Prüfverfahren zur Beschreibung von Compounds und Erzeugnissen

This European Standard was approved by CEN on 9 November 2013 and includes Amendment 1 approved by CEN on 9 August 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

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European foreword

This document (EN 15534-1:2014+A1:2017) has been prepared by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2018, and conflicting national standards shall be withdrawn at the latest by May 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes ▌A1⟩ EN 15534-1:2014 ⟨A1▌.

This document includes Amendment 1 approved by CEN on 09 August 2017.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▌.

The significant changes that have been made since the previous edition are the following:

— change of the status from Technical Specification to European Standard;

— complete technical review of the test methods.

EN 15534 consists of the following parts:

— EN 15534-1, *Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) — Part 1: Test methods for characterization of compounds and products*

— prEN 15534-2, *Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) — Part 2: Characterization of compounds*[1)]

— EN 15534-4, *Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) — Part 4: Specifications for decking profiles and tiles*

— EN 15534-5, *Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) — Part 5: Specifications for cladding profiles and tiles*

— prEN 15534-6, *Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) — Part 6: Specifications for fencing profiles and systems*[1)]

[1)] In preparation.

— prEN 15534-7, *Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) — Part 7: Specifications for general purpose profiles in external applications*[1)]

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The denomination “wood-polymer composites”, WPC, is usually used to designate materials or products consisting of one or more natural fibres or flours and one or a mixture of polymer(s). Natural fibres and flours come from different plant sources (e.g. wood, hemp, flax, sisal, coconut, cotton, kenaf, jute, abaca, banana leaf fibres, bamboo, rice, wheat straw or other fibrous material) and different polymers, virgin or recycled, are used. Currently, the most commonly used polymers are poly(vinyl chloride) (PVC), polypropylene (PP) and polyethylene (PE).

WPC materials can be processed by different techniques, as extrusion for profiles, calendering for films and sheets, injection moulding or compression moulding. The contents of natural fibres and polymers depend on the application and the processing techniques.

WPC materials may be considered neither as filled plastics nor as a special kind of wood. They should be considered as different materials having their own characteristics.

For the moment, the main applications of WPC products are decking, cladding, panelling and fencing and furniture.

1 Scope

This European Standard specifies test methods for the determination of properties of composites made from cellulose-based materials and thermoplastics, usually called wood-polymer composites (WPC) or natural fibre composites (NFC).

NOTE For editorial reasons, in EN 15534 the abbreviation "WPC" is used for "composites made from cellulose-based materials and thermoplastics".

This part of EN 15534 is applicable to cellular or non-cellular compounds and products, made from cellulose-based materials and thermoplastics, intended to be or being processed through plastics processing techniques, without threshold for the cellulose-based material content.

All the properties listed in this part of EN 15534 are not necessarily assessed for a given application. Test parameters and requirements of the test methods for a given application are specified in the relevant part of EN 15534.

Profiles for the management of electrical power cables, communication cables and power track systems used for the distribution of electrical power, profiles for windows or doors and profiles for guttering are not covered by EN 15534[2)].

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 84:1997, *Wood preservatives - Accelerated ageing of treated wood prior to biological testing - Leaching procedure*

EN 117:2012, *Wood preservatives - Determination of toxic values against Reticulitermes species (European termites) (Laboratory method)*

EN 152:2011, *Wood preservatives - Determination of the protective effectiveness of a preservative treatment against blue stain in wood in service - Laboratory method*

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

EN 321:2001, *Wood-based panels - Determination of moisture resistance under cyclic test conditions*

EN 322:1993, *Wood-based panels - Determination of moisture content*

EN 477:1995, *Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors - Determination of the resistance to impact of main profiles by falling mass*

EN 479, *Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors - Determination of heat reversion*

EN 927-3, *Paints and varnishes - Coating materials and coating systems for exterior wood - Part 3: Natural weathering test*

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2) Profiles that are excluded are in the scopes of standards prepared by CEN/TC 33, CENELEC/TC 213 or CEN/TC 128.

EN 927-6, *Paints and varnishes - Coating materials and coating systems for exterior wood - Part 6: Exposure of wood coatings to artificial weathering using fluorescent UV lamps and water*

EN 1383, *Timber structures - Test methods - Pull through resistance of timber fasteners*

ENV 12038:2002, *Durability of wood and wood-based products - Wood-based panels - Method of test for determining the resistance against wood-destroying basidiomycetes*

EN 13446, *Wood-based panels - Determination of withdrawal capacity of fasteners*

EN 13823, *Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 13893, *Resilient, laminate and textile floor coverings - Measurement of dynamic coefficient of friction on dry floor surfaces*

CEN/TS 15083-2:2005, *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*

EN 16472, *Plastics - Method for accelerated photoageing using medium pressure mercury vapour lamps*

EN 20105-A02, *Textiles - Tests for colour fastness - Part A02: Grey scale for assessing change in colour (ISO 105-A02)*

CEN/TS 15676, *Wood flooring - Slip resistance - Pendulum test*

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

EN ISO 75-2, *Plastics - Determination of temperature of deflection under load - Part 2: Plastics and ebonite (ISO 75-2)*

EN ISO 178:2010, *Plastics - Determination of flexural properties (ISO 178:2010)*

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

EN ISO 291, *Plastics - Standard atmospheres for conditioning and testing (ISO 291)*

EN ISO 472:2013, *Plastics - Vocabulary (ISO 472:2013)*

EN ISO 527-2, *Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2)*

EN ISO 877-2, *Plastics - Methods of exposure to solar radiation - Part 2: Direct weathering and exposure behind window glass (ISO 877-2)*

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

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

EN ISO 2813, *Paints and varnishes - Determination of specular gloss of non-metallic paint films at 20°, 60° and 85° (ISO 2813)*

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

EN ISO 4628-6, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 6: Assessment of degree of chalking by tape method (ISO 4628-6)*

EN ISO 4892-2:2013, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2:2013)*

EN ISO 9227, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227)*

EN ISO 9239-1, *Reaction to fire tests for floorings - Part 1: Determination of the burning behaviour using a radiant heat source (ISO 9239-1)*

[A1] EN ISO 11664-1, *Colorimetry — Part 1: CIE standard colorimetric observers (ISO 11664-1)* [A1]

[A1] EN ISO 11664-2, *Colorimetry — Part 2: CIE standard illuminants (ISO 11664-2)* [A1]

[A1] EN ISO 11664-4, *Colorimetry — Part 4: CIE 1976 L*a*b* Colour space (ISO 11664-4)* [A1]

EN ISO 11925-2, *Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2)*

[A1] EN ISO 16474-3:2013, *Paints and varnishes - Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps (ISO 16474-3:2013)* [A1]

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*

[A1] ISO 18314-1, *Analytical colourimetry — Part 1: Practical colour measurement* [A1]

ASTM D3273–00(2005), *Standard Test Method for resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber*

CIE[3)] Publication 51, A method for assessing the quality of daylight simulators for colorimetry

3) Commission internationale de l'éclairage, Central Bureau, Kegelgasse 27, A-1030, Vienna, Austria.