



BSI Standards Publication

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

This is a preview of "BS EN 15534-1:2014+A...". [Click here to purchase the full version from the ANSI store.](#)

National foreword

This British Standard is the UK implementation of EN 15534-1:2014+A1:2017. It supersedes BS EN 15534-1:2014, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by A1 A1.

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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.

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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of an identical text or by endorsement, at the latest by May 2018, and conflicting national standards shall be withdrawn at the latest by May 2018.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 compounds¹⁾*
- 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 systems¹⁾*

¹⁾ In preparation.

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— 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 applications¹⁾*

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.

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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, calendaring 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.

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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 15534²⁾.

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*

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