SLOVENSKI STANDARD
SIST EN 15534-6:2015+A1:2018

01-februar-2018

Kompoziti iz materialov na osnovi celuloze in plastomerov (navadno imenovani lesno-polimerni kompoziti (WPC) ali kompoziti iz naravnih vlaken (NFC)) - 6. del: Specifikacije za profile ograj in elementov

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 elements

Verbundwerkstoffe aus cellulosehaltigen Materialien und Thermoplasten (üblicherweise Holz-Polymer-Werkstoffe (WPC) oder Naturfaserverbundwerkstoffe (NFC) genannt) - Teil 6: Anforderungen an Zaunprofile und -elemente

Composites à base de matières cellulosiques et de thermoplastiques (communément appelés composites bois-polymères (WPC) ou composites fibres d'origine naturelle (NFC)) - Partie 6 : Spécifications relatives aux profilés et éléments pour clôtures

Ta slovenski standard je istoveten z: **EN 15534-6:2015+A1:2017**

ICS:

79.080	Polizdelki iz lesa	Semi-manufactures of timber
83.140.99	Drugi izdelki iz gume in polimernih materialov	Other rubber and plastics products

SIST EN 15534-6:2015+A1:2018 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 15534-6:2015+A1

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English Version

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 elements

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This European Standard was approved by CEN on 15 August 2015 and includes Amendment 1 approved by CEN on 9 August 2017.

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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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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 15534-6:2015+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 April 2018, and conflicting national standards shall be withdrawn at the latest by April 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 EN 15534-6:2015.

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▐.

EN 15534 comprises 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*

— 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*

— EN 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 fencing elements*

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.

1 Scope

This part of EN 15534 specifies the characteristics of fencing profiles and elements made from cellulose-based materials and thermoplastics, usually called wood-polymer composites (WPC) or natural fibre composites (NFC).

It is applicable to fencing profiles and elements for non-structural fencing systems.

The security systems, perimeter protections, handrails and load bearing applications are out of the scope of this part of EN 15534.

Any systems made from profiles in the scope of this part of EN 15534 that are affected by regulations are under the responsibility of the system supplier.

EN 15534-1 specifies some of the test methods relevant to this part of EN 15534.

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

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 927-6, *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 16472, *Plastics — Method for artificial accelerated photoageing using medium pressure mercury vapour lamps*

EN 15534-1:2014, *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*

EN ISO 4892-1:2000, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance (ISO 4892-1:1999)*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15534-1:2014 and the following apply.

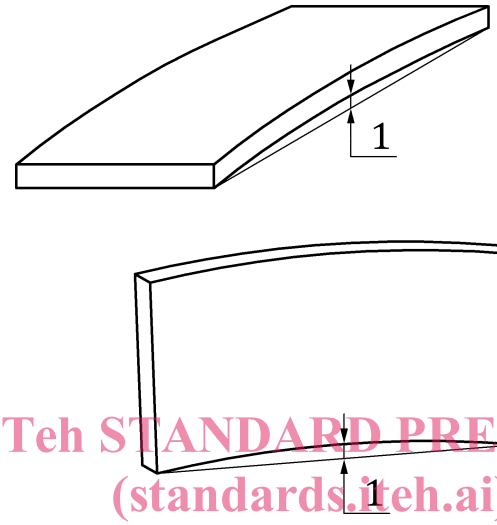
3.1
fencing profile
single profile intended to be assembled in a fencing element

3.2
fencing element
assembly of two posts and one or several fencing profile(s) and possibly, fastenings and accessories

3.3
fencing system
several assembled fencing elements

3.4
bow
curvature of a fencing profile across its length

Note 1 to entry: see Figure 1.



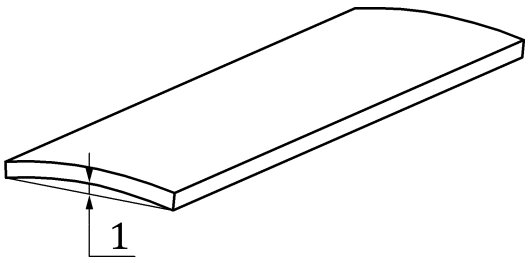
Key

1 bow

Figure 1 — Illustration of bow

3.5
cupping
curvature of a fencing profile across its width

Note 1 to entry: see Figure 2.



Key

1 cupping

Figure 2 — Illustration of cupping

4 Requirements for fencing profiles

4.1 General

Initial type testing shall be performed to demonstrate compliance with the requirements specified in Clause 4 of this part of EN 15534. The tests according to 4.5.6 shall be carried out if the performance is to be declared by the manufacturer. Initial type testing shall be repeated, whenever a change occurs in the composition of the product, its geometry or in the production process. In case of a minor change, only the properties which could be influenced by this change shall be tested.

NOTE Minimum frequencies of testing for factory production control purposes are given in Annex A.

4.2 Material

The base polymer, from which the material is produced, and the type and content of cellulose-based material shall be declared by the manufacturer.

Reprocessable and/or recyclable materials may be used for manufacturing profiles provided that they satisfy to the provisions of this part of EN 15534.

WPC materials are recyclable materials which can be treated in a material recovery process intended to save resources while minimizing harmful emissions into air, water and soil as well as their impacts on human health.

NOTE A scheme for the characterization of plastics waste is given in EN 15347 [1] and guideline for the recovery and recycling are given in ISO 15270 [2].

4.3 Appearance

For production control purposes, the manufacturer shall compare three samples drawn at random from the same profile production batch with a control sample, under the illumination conditions defined in EN 15534-1:2014, 6.1.

The control samples shall be stored in a dark room and renewed every six months.

If a control sample is put in contact with water, it shall be renewed immediately.

4.4 Physical properties

When tested in accordance with the test methods as specified in Table 1, using the parameters indicated, the fencing profiles, as delivered to the customer, shall have properties conforming to the requirements given in Table 1.

Table 1 — Physical properties

Property	Requirements	Test method	Number of test specimens
Linear mass	Individual values ≥ 95 % declared value by the manufacturer. The linear mass and tolerances shall be declared by the manufacturer.	EN 15534–1:2014, 6.5	3 specimens
Thickness, width and length	The relevant dimensional values and their tolerances shall be declared by the manufacturer.	EN 15534–1:2014, 6.6.2	3 specimens
Deviation from straightness	The deviation of straightness and its tolerance shall be declared by the manufacturer.	EN 15534–1:2014, 6.6.3	3 specimens
Cupping (if relevant)	The cupping value and its tolerance shall be declared by the manufacturer.	EN 15534–1:2014, 6.6.4	3 specimens

4.5 Mechanical properties

4.5.1 Falling mass impact resistance

When tested in accordance with the test methods as specified in Table 2, using the parameters indicated, the fencing profiles, as delivered to the customer, shall have properties conforming to the requirements given in Table 2.

Table 2 — Falling mass impact resistance

Requirements	Test parameters	Test method	Number of test specimens
Non-cellular material profiles			
No more than one test specimen out of 10 test specimens shall show a failure.	H: (1 000 ± 5) mm M_s: (500 ± 2) g	EN 15534–1:2014, 7.1.2.2.1	10 specimens/face[a]
Cellular material profiles			
No more than one test specimen out of 10 test specimens shall show a failure.	H: (1 000 ± 5) mm M_s: (500 ± 2) g	EN 15534–1:2014, 7.1.2.2.2	10 specimens/face[a]
[a] On both faces of the fencing profile, if relevant.			

4.5.2 Flexural properties

When tested in accordance with the test method as specified in Table 3, using the parameters indicated, the fencing profiles, as delivered to the customer, shall have properties conforming to the requirement given in Table 3.

Table 3 — Flexural properties

Requirement	Test parameters	Test method	Number of test specimens
Declaration of the modulus of elasticity in bending and the bending strength	Span l_1: 20 times the thickness h of the test specimen, and Span $l_1 \geq 100$ mm.	EN 15534–1:2014, Annex A	4 specimens/face [a]
[a] On both faces of the fencing profile, if relevant.			

4.5.3 Durability of the material against biological agents

For the purpose of this part of EN 15534, use classes according to the environmental conditions are defined in Table 4.

Table 4 — Use class and occurrence of biological agents

Use class[a]	Service situation	Biological agents
3	External use, above ground	Basidiomycetes
4	External use, in ground contact	Soft rotting micro-fungi
NOTE Use classes 3 and 4 are derived from EN 335:2013 [3], Table 1.		
[a] A profile may be classified in use class 3 or 4 or both.		

When tested in accordance with the test methods as specified in Table 5, using the parameters indicated, the materials shall have properties conforming to the requirements given in Table 5.

Table 5 — Resistance against biological agents

Property	Requirements	Test method	Number of test specimens
Resistance against basidiomycetes	The test result shall be declared	EN 15534–1:2014, 8.5.2	See EN 15534–1:2014, Table 2
Resistance against soft rotting micro-fungi	The test result shall be declared	EN 15534–1:2014, 8.5.3	See EN 15534–1:2014, Table 3
NOTE At the date of publication of this part of EN 15534, there is a lack of experience to specify requirements for these properties.			

4.5.4 Durability of the fencing profiles against ageing and moisture

When tested in accordance with the test methods as specified in Table 6, using the parameters indicated, the fencing profiles, as delivered to the customer, shall have properties conforming to the requirements given in Table 6.