

DIN EN 15534-1:2018-02 (E)

Compo sites 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 (includes Amendment A1:2017)

Contents		Page
European foreword.....		5
Introduction		7
1 Scope.....		8
2 Normative references.....		8
3 Terms and definitions		10
4 Test specimens.....		11
5 Conditioning of test specimens		11
5.1 General.....		11
5.2 Reference conditioning.....		11
5.3 Conditioning for factory production control and testing under other conditions.....		12
5.4 Conditioning for tests performed by third-parties.....		12
6 Physical properties.....		12
6.1 Appearance (applicable to products)		12
6.2 Density		12
6.3 Moisture content		12
6.4 Slipperiness.....		13
6.4.1 General.....		13
6.4.2 Pendulum test		13
6.4.3 Inclination plan test		13
6.4.4 Dynamic coefficient of friction		14
6.5 Linear mass (applicable to profiles)		14
6.5.1 Apparatus.....		14
6.5.2 Test specimens.....		15
6.5.3 Procedure.....		15
6.5.4 Calculation and expression of results.....		15
6.6 Dimensional characteristics.....		15
6.6.1 Conditioning.....		15
6.6.2 Thickness, width and length (applicable to profiles, only).....		15
6.6.3 Deviation from straightness (applicable to profiles, only).....		15
6.6.4 Cupping.....		16
7 Mechanical properties.....		16
7.1 Impact resistance		16
7.1.1 Impact resistance (applicable to compounds)		16
7.1.2 Falling mass impact resistance (applicable to products).....		17
7.1.3 Extreme temperatures		20
7.2 Tensile properties (applicable to compounds).....		20
7.3 Flexural properties.....		20
7.3.1 Flexural properties (applicable to compounds).....		20
7.3.2 Flexural properties (applicable to non-load bearing products).....		20
7.4 Creep behaviour (applicable to finished products for non-load bearing applications).....		20
7.4.1 Known span in use		20
7.4.2 Unknown span in use.....		22
7.5 Resistance to indentation.....		23

7.5.1	Principle.....	23
7.5.2	Apparatus	23
7.5.3	Test specimens	23
7.5.4	Test method	23
7.6	Nail and screw withdrawal.....	24
7.7	Pull through resistance	24
8	Durability.....	25
8.1	Resistance to artificial weathering.....	25
8.1.1	Test methods for artificial weathering.....	25
8.1.2	Methods for assessing of the resistance to artificial weathering.....	25
8.1.3	Ⓐ) Determination of colorimetric coordinates Ⓐ)	25
8.2	Resistance to natural ageing (external use)	25
8.2.1	Test methods for natural ageing	25
8.2.2	Methods for assessing the resistance to natural ageing.....	26
8.3	Moisture resistance	26
8.3.1	Swelling and water absorption.....	26
8.3.2	Moisture resistance under cyclic conditions.....	28
8.3.3	Moisture resistance – Boiling test.....	29
8.4	Resistance against termites	29
8.5	Resistance against biological agents	30
8.5.1	Pre-treatment	30
8.5.2	Resistance against basidiomycetes.....	30
8.5.3	Resistance against soft rotting micro-fungi	33
8.5.4	Resistance against discolouring micro-fungi according to ASTM D 3273.....	34
8.5.5	Resistance against discolouring micro-fungi according to ISO 16869.....	36
8.5.6	Resistance against discolouring algae	37
8.6	Resistance to salt spray	38
9	Thermal properties.....	38
9.1	Heat deflection temperature (HDT).....	38
9.2	Linear thermal expansion	38
9.3	Heat reversion	38
9.4	Heat build-up (applicable to products)	38
9.4.1	Principle.....	38
9.4.2	Apparatus	39
9.4.3	Test specimens	40
9.4.4	Procedure	40
9.4.5	Expression of results	40
9.4.6	Test report	41
9.5	Oxygen index (OI)	42
9.6	Reaction to fire	42
9.6.1	Single flame source test.....	42
9.6.2	Single burning item (SBI) test (applicable to cladding only).....	42
9.6.3	Radiant heat source test (floorings)	48
10	Other properties	48
10.1	Degree of chalking (applicable to coated products, only)	48
10.2	Change of gloss.....	48
10.3	Peel strength (applicable to profiles with laminated foil).....	48
10.3.1	Principle.....	48
10.3.2	Apparatus	49
10.3.3	Preparation of test pieces.....	49
10.3.4	Conditioning.....	50
10.3.5	Procedure	50

10.3.6 Test report.....	50
Annex A (normative) Determination of the modulus of elasticity in bending and bending strength of profiles	52
A.1 Principle	52
A.2 Apparatus.....	52
A.3 Test specimens.....	53
A.4 Atmosphere for conditioning and testing	54
A.5 Procedure.....	54
A.6 Expression of results.....	55
A.6.1 Modulus of elasticity in bending.....	55
A.6.2 Bending strength.....	57
A.7 Test report.....	58
Bibliography.....	60