



**CORECORK<sup>®</sup>** is a natural and sustainable core material, compatible with existing sandwich core applications offering excellent FST (fire, smoke and toxicity) properties with good mechanical and processing characteristics.

**CORECORK<sup>®</sup> NL11** has been specifically developed to meet fire regulations in rolling stock applications.

The low density of **CORECORK<sup>®</sup>** materials, their flexibility and excellent conformability make them possible to be easily integrated into fast cycles of production.

**CORECORK<sup>®</sup>** can be processed by hand layup, vacuum bagging and infusion processes and will withstand process temperatures up to 150°C.

The unique properties of **CORECORK<sup>®</sup>** such as: a structure of closed air cells, low water absorption, rot resistance, excellent fire resistance and a high level of attenuation of noise and vibrations make it an excellent core alternative to the composites industry - perfectly aligned with the new green classifications.

#### Mechanical Properties Of The Core Material

Property	Method	Unit	NL 11
Density	ASTM C271	Kg/m <sup>3</sup> lb/ft <sup>3</sup>	160 10.0
Compressive Strength	ASTM C365	MPa psi	0.3 29
Compressive Modulus	ASTM C365	MPa psi	5.1 740
Tensile Strength	ASTM C297	MPa psi	0.6 87
Shear Strength	ASTM C273	MPa psi	0.9 130
Shear Modulus	ASTM C273	MPa psi	5.9 856
Thermal conductivity	ASTM E1530	W/mK	0.042
Loss Factor (at 1KHz)	ASTM E756	—	0.022

#### Mechanical Properties Of The Core Material In A Sandwich (\*)

Property	Method	Unit	NL 11
Flexural Strength at yield	ASTM D790	MPa	37
Flexural Modulus	ASTM D790	GPa	3.5
Shear Strength at yield	ASTM C392	MPa	0.8
Shear Modulus	ASTM C392	MPa	44
Compressive Strength at yield	ASTM C365	MPa	1.2
Compressive Modulus	ASTM C365	MPa	19
Water absorption (%)	ASTM C272	%	< 4
Panel density	—	Kg/m <sup>3</sup>	605

(\*) Samples made by Infusion (0.6 bar) with epoxy resin ref.SR8100/cat ref.SD 8824 and two layers of 300kg/m<sup>2</sup> glass fiber roving, on each side, sandwich thickness: 6,5 mm; cure at 60°C; samples tested after 5 days of manufacturing.



#### Fire, Smoke and Toxicity Properties

Property	Standard	Method	NL 11	Obs.
Flammability	NF F16-101	NF 92-501	M1	3 mm thick
Toxicity	NF F16-101	NFX 10-702	F1	
Smoke	NF F16-101	NFX 10-100	F1	

#### Process Guidelines

Resin uptake (*) (per m <sup>2</sup> at 1mm)	270 g
Maximum Processing Temperature	180°C
Vacuum Bag Processing	up to 150°C
Autoclave Cure Processing	Possible
Coefficient of Thermal Expansion (ASTM E831-06)	aprox. $110 \times 10^{-6} / ^\circ\text{C}$ at RT

#### Resin Compatibility

Epoxy	Excellent
Polyester	Excellent
Phenolic	Excellent
Vynilester	Excellent
Polyurethane	Excellent

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**AMORIM** Amorim Cork Composites

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