

# MD Facade

## Natural materials for technical solutions

### Description

MDFACADE expanded insulation cork is a special expanded cork reference of Amorim Cork Insulation, recommended for exterior applications. The product was born, responding to the challenge launched by architects Álvaro Siza and Eduardo Souto Moura, to the project of Portugal Pavilion, at Expo Hannover in 2000. The project is now located in Coimbra since 2002, without any apparent anomaly.

### Advantages

- 100% natural and fully recyclable
- Excellent thermal and acoustic insulation
- Mechanical stability
- Healthier natural product
- CO<sub>2</sub> sink (Carbon Negative)
- Visual Cork

### Product lines

- Board dimension: 1000x500 (mm)
- Thickness up to 200 (mm)
- Option: Overlapping system

### Product specifications

- Density: 140 +/- 10 kg/m<sup>3</sup>
- Thermal Conductivity: 0,043 W/m.K
- Fire Reaction: Euroclass E



PHOTO: David Grandorge | PROJECT: Matthew Barnett Howland with Dido Milne and Oliver Wilton

# Mechanical characterization

Test	Standard	Results
Bending behaviour; $\sigma_b$ [kPa]	EN 12089: 2013	$\sigma_b$ : 227 kPa Bending at maxforce: 14,54 mm
Dimensional stability:	EN 1604: 2013	Length: $\Delta l$ (%) = 0.3 Width: $\Delta b$ (%) = 0.3 Thickness: $\Delta d$ (%) = 0.40
Tensile strength perpendicular to faces; $\sigma_{mt}$ [kPa]	EN 1607: 2013	$\sigma_{mt}$ = 67,81 kPa
Tensile strength perpendicular to faces; Wet conditions; $\sigma_{mt}$ [MPa]	ETAG 004: 2011 EN 1607: 2013	Set 1 - $\sigma_{mt}$ = 64.91 * E - 3 MPa Set 2 - $\sigma_{mt}$ = 64.15 * E - 3 MPa
Deformation under specified compressive load and temperature conditions; $\epsilon_1, \epsilon_2$ [%]	EN 1605: 2013	Relative deformation $\epsilon_1$ : 0,949 % Relative deformation $\epsilon_2$ : 4,63 %
Compressive stress at 10% strain; $\sigma_{10}$ [kPa]	EN 826: 2013	$\sigma_{10}$ = 185 kPa
Shear strength; $\tau$ [kPa]	EN 12090: 2013	$\tau$ = 110 kPa
Behaviour under point load; $F_p$ [kN]	EN 12430: 2013	$F_p$ = 0.93 kN
Dynamic stiffness; $S^*t$ [MN/m <sup>3</sup> ]	ISO 9052-1: 1989 ISO 7626-5: 1994	$S^*t$ = 90 MN/m <sup>3</sup>

## Application systems

Adhesive

Mechanical fixing



# Hygrothermal characterization

Test	Standard	Results
Thermal conductivity coefficient $\lambda$ [W/m.°C]	EN 12667: 2001	Mean value: $\lambda$ = 0,0426 W/m.°C
Declared value for thermal conductivity and thermal resistance $\lambda_D$ [W/(m.°C)] RD [(m <sup>2</sup> .°C)/W]	EN 13170: 2012 Annex A	$\lambda_D$ = 0.045 [W/(m.°C)] RD = 1.55 [(m <sup>2</sup> .°C)/W]
Short term water adsorption by partial immersion; $W_p$ [kg/m <sup>2</sup> ]	EN 1609: 2013	$W_p$ : 0,18 kg/m <sup>2</sup>

## Water vapour transmission properties [EN 12086: 2013]

### Mean value

Water vapour transmission rate $g$ [mg/(h.m <sup>2</sup> )]	455.54
Water vapour permeance $W$ [mg/(m <sup>2</sup> .h.Pa)]	0.3
Water vapour resistance $Z$ [(m <sup>2</sup> .h.Pa)/mg]	3.09
Water vapour permeability $\delta$ [mg/(m.h.Pa)]	0.01
Water vapour diffusion resistance factor $\mu$ [-]	54.61
Water vapour diffusion equivalent air layer thickness $S_d$ [m]	2.19

## Hygroscopic adsorption properties

● Adsorption

Moisture content (kg/kg)

● Desorption

