

BIOPAN

TECHNICAL DATA SHEET



DESCRIPTION

100% natural product, recyclable, reusable and biodegradable, obtained from cork oak.

This product comes from a **renewable and sustainable raw material**. The cork is in fact extracted **without cutting or damaging the tree**, furthermore the decortication and maintenance of the cork oak forest is an activity with low environmental impact, which safeguards and protects a very fragile and unique ecosystem in the world.

The Biopan insulation panel is obtained with thermal roasting process with the aid of steam which causes the expansion of the granules themselves, improving the characteristics of insulation, resistance and dimensional stability.

During this phase the fusion of the waxy substances present in the cork (suberin) takes place, which act as a natural glue allowing the aggregation of the cork granules, making the panel solid and compact and coating the granules themselves with a protective waterproof film, but permeable to steam, and guaranteeing the **total absence of synthetic substances such as adhesives or solvents** in our Biopan panels

All the properties of natural cork are transferred into an elastic product, permeable to steam, with exceptional **thermo-acoustic and anti-vibration insulation characteristics**. A long-lasting panel that keeps its performance unaltered over time.

PHYSICAL CHARACTERISTICS

Material	selfgled expanded cork brown panel
Dimensions	1000 x 500 mm / 900 x 500 mm
Available thickness	from 10 to 300 mm
Packaging:	during storage, transport and handling, the product is protected by a retractable polyethylene film. Once this protection is removed, the product must be sheltered from the rain until application.
Panels for pack:	from 1 to 30 panels (depending on thickness)
Weight for pack:	About 18 kg



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TECHNICAL CHARACTERISTICS

Density	from 105 to 125 kg/m ³
Heat transmission coefficient declared at 10 °C	from 0,036 to 0,040 W/mk
Specific heat	1900 J/kgK
Resistance to the diffusion of water vapour	$\mu = 7 - 14$
Steam permeability	386 ng/Pa.sm ²
Reaction to fire	Euroclasse E
Reaction to fire - ETICS system	B-s1,d0
Elongation at break	from 1,4 to 2,0 Kgf/cm ²
Compressive strenght (10% deformation)	≥ 100 Kpa
Thermal insulation values (R e m ² k/W e Kem W/m ² k)	Thickness 40 mm / R 1,000 / W 1,000 Thickness 50 mm / R 1,250 / W 0,800 Thickness 60 mm / R 1,500 / W 0,667 Thickness 80 mm / R 2,000 / W 0,500

Thermal lag = shift of 13 hours (for 20 cm)

It's the time delay between the time of the maximum temperature outside and the time of the maximum temperature inside. The greater the phase-shift is, the longer the time for heat to pass through the building. This delay must be more than 9 hours, which is the average daily sun exposure time in summer. A longer delay time prevents the wall from overheating during the day and promotes cooling in the evening, so the cycle can start again next morning.

Excellent performance in impact and airborne noises insulation

FOOTFALL NOISE ABATEMENT

Test description	Isolation
Test floor without coating.	Ln,o,w = 80 dB
Floating floor, made by an armoured concrete slab of 4 cm, covered with pine floor plates, on a concrete lightweight screed with 7 cm of thickness, made with granulated expanded cork with a grain size between 2 and 9 mm, installed with 1cm of levelling mortar and expanded cork panels with 2cm of thickness with density between 90 and 110 kg/m ³ .	Ln,o,w = 55 dB
Floating floor, made by an armoured concrete slab of 4 cm, covered with pine floor plates, on a concrete lightweight screed with 7 cm of thickness, made with granulated expanded cork with a grain size between 2 and 9 mm, installed with 1cm of levelling mortar	Ln,o,w = 62 dB

Tests made by LNEC as per NP EN 140-8:1997 and results as per EN ISO 717-1:1996 – (Boletín n.º 67/68/2007)

High elasticity



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SOUND ISOLATION AND SOUND ABSORBING

Test description	Isolation
Partition wall made by hollow briks with 22 cm thickness laid with cement mortar (not levelled)	RW = 44 dB (0,-2)
Partition wall made by hollow briks with 22 cm thickness laid with cement mortar . On the receiving side are applied plasterboards panels with 12 mm of thickness. On the other side are applied boards of expanded polystyrene with 50 mm of thickness and 20 kg/m³ of density. On the expanded polystyrene boards is applied a plaster between 6 and 8 mm of thickness, consisting of cement mortar and organic binders with two interposed 10mmx10mm mesh glass fiber nets.	RW = 45 dB (-1,-4)
Partition wall made by hollow briks with 22 cm thickness laid with cement mortar . On the receiving side are applied plasterboards panels with 12 mm of thickness. On the other side are applied expanded cork panels - ICB with 50 mm of thickness and density between 90 and 110 kg/m ³ . On Expanded cork panels- ICB is applied a plaster between 6 and 8 mm of thickness, consisting of cement mortar and organic binders with two interposed 10mmx10mm mesh glass fiber nets.	RW = 45 dB (-1,-5)
Partiton wall made by a double perforated brick planking, each one with 11 cm of thickness, and interposed inner tube of 6 cm thickness. On external sides of walls is applied a plaster of 15 mm thickness. On the internal side of the wall is applied a plaster with 10 mm of thickness on wich are applied Expanded Cork panels - ICB with 40 mm of thickness and density between 90 and 110 kg/m ³	RW = 53 dB (-1,-5)

Tests made by LNEC as per NP EN 20140-3:1998 and results as per EN ISO 717-1:1996 – (Bulletin n.o 60/61/62/65/2007)

ECOLOGICALS INDICATORS

Energy demand

Supplied at 90% by the use of BIOMASS
(CO₂-neutral energy source)

Primary energy Very low

Absorbs CO₂

100% Recyclable

Reduces greenhouse effect

The production of Biopan expanded cork panels is characterized by a very low energy consumption levels, about 4 MJ/kg or four times less than rock wool and twenty times less than synthetic foams. (expanded polystyrene, extruded, polyurethane, etc.).

("Eco-Materials"- Ignasi Pérez Arnal)



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STANDARDS ADOPTED:

- **CE code:** ICB-EN 13170 – T2 – CS10 (90) Year of mark: 2004

Relevant regulation: EN 13170:2008

The regulation refers to expanded cork products used in the thermal insulation of buildings. It describes the characteristics of the product and includes indications regarding the tests to be carried out to determine the information necessary for conformity assessment, marking, labelling and packaging.

ACCREDITED LABS FOR THE BRAND



External control laboratory

LNEC - Laboratório Nacional de Engenharia Civil

ITT Laboratory

CSTB - Centre Scientifique et Technique du Bâtiment

LGAI - Technological Center AS

INDOOR AIR HEALTHINESS

Class: **A+**

(As per French Regulation and ISO 16000 (2006) in force)

Accredited Lab: LQAI – Laboratório da Qualidade ArInterior



Certificate N.o 92/2011 – Test report LQAI.MC.56/11

HYGIENE, SAFETY AND FIRE BEHAVIOR

- Adequate protection of the respiratory tract during cutting and application of the product is recommended.
- The combustion of the Expanded Cork Panel is slow and does not release toxic fumes, cyanides, or chlorates. The release of carbon monoxide and carbon dioxide is minimal.

DISPOSAL

- **Biopan** is a product 100% **recyclable, reusable** and **biodegradable**.

At the end of the period of use, which coincides with the useful life of the building, the Biopan panel should be separated from aggregates and other rubble, such as metal parts, directly on site. Subsequently it should be delivered to a waste management company that will re-introduce the panels into the production process, without any modification, thus ensuring a convenient recycling.

In some cases it is released and incorporated into the soil, without any problem, as it is a natural and biodegradable product.

- The **polyethylene film**, used in the packaging, must be collected and disposed on the appropriate recycling stations.

As the application methods are beyond our control, we do not take responsibility for the improper use of the product. It 's customer's responsibility to ensure that the product is appropriate for use. We don't take responsibility for any misuse. Our liability is limited to the value of the goods supplied by us. The information included in this MSDS can be changed at any time without notice. In case of doubt or additional information please contact our technical department.

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Applications	Thermal and acoustic insulation to be used in floors, roofs, ceilings, walls (Coatings both inside and outside, ventilated facades, cavities).
Covering	To make the best use of the Biopan expanded cork panel, during the application it's necessary to protect the surfaces to be insulated from rain, as the water triggers an increase in the thermal conductivity coefficient. However, a subsequent increase in temperature will result in a rapid elimination of excess moisture without a change in the thermal conductivity coefficient.
False ceilings and wall	When fixing ICB sheets using synthetic binders, i.e. in sound insulation with cork visible from the inside, adequate precautions must be taken to ensure proper ventilation.

LAYING METHOD

Biopan expanded cork sheets should preferably be applied with the edges well matched and staggered joints. Cutting can be done with a hand saw or an X-Act type knife for thin thicknesses (10 to 20 mm).

FIXING SYSTEMS

Wall	<ul style="list-style-type: none">• Cement adhesives (both for points and on the whole surface);• Polypropylene fixing plugs;• Contact glue (synthetic or water-based).
Ceiling and floor	<ul style="list-style-type: none">• Bitumen primers;• Polypropylene fixing plugs;• Cement adhesives (both for points and on the whole surface).
Special applications for exposed cladding system without protection	<ul style="list-style-type: none">• Mechanical (plugs + seals);• High performance adhesives (glue/waterproof).

Biopan is completely inert and is fully compatible with all building materials. Thanks to its natural origins, cork panels are completely insensitive to boiling water at 100°C, hydrochloric acid, sulphuric acid (and its salts) and bitumen-based products, thus allowing the waterproofing of roofs directly on the surface of the panel (both hot and cold).



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