

**Amorim Cork Insulation**  
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|           |               |
|-----------|---------------|
| IT        | Corkpan       |
| ES        | Aglocork      |
| RU        | Izora         |
| AUT DE CH | Corktherm 040 |
| FR        | Corkisol      |
| EUA       | Thermacork    |

# AMORIM CORK INSULATION



AMORIM CORK INSULATION

OUR WORLD IS CORK

CORK HAS A SOUL



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# 100% Natural

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The Insulation Business Unit (Amorim Cork Insulation) is dedicated to the production of insulation agglomerates with excellent technical performance and strictly 100% natural. Amorim Cork Insulation is integrated in Corticeira Amorim and has a strong foothold in the world market, arising from a rigorous commitment to compliance with the quality standards and demands required primarily by the sustainable construction sector.

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# AMORIM CORK INSULATION

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## History

In 1987 Corticeira Amorim S.A., as part of a strategic plan for the Group about insulation cork products, created Expocor, a company of Portuguese-British capital devoted to the production and marketing of expanded insulation cork whose goal was to promote and disseminate a product from which new markets and applications would arise, by customizing the expanded insulation cork, a natural product of unmatched features.

Its history dates back to 1963, having appeared this year as a test tube for the agglomerates industry, proving it is an industry that survives per se.

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## Brands

Amorim Cork Insulation appears in 1997 as a business unit Amorim Group, to produce expanded insulation cork and is market leader with brands Amorim (corporate brand), Corkpan (Italy), Aglocork (Spain), Izora (Russia), Corktherm 040 (Austria, Germany and Switzerland), Corkisol (France) and Thermacork (USA).

In order to achieve certification and total quality, Amorim Cork Insulation is a company seeking high levels of quality and productivity, where the protection of the environment and the preservation of natural resources are a constant, clearly demonstrating its position in the community in which it operates.

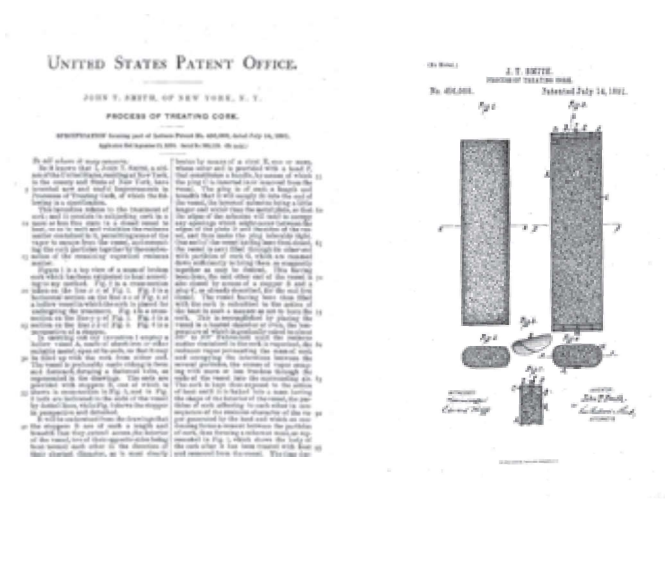
# Why should we use cork in construction

## The origin of the material

As early as 1891, U.S. Imports of cork were substantial. The cork was used for the manufacture of many materials: cork stoppers, buoys, life jackets, and other materials. One day in New York a discovery was made in the buoys and life jacket factory of John T. Smith. At that time, the filling of life jackets was done using a metal cylinder to keep the life jacket open while the worker filled the cylinder with granulated cork. One of the cylinders was clogged and was set aside and inadvertently rolled over a hot brazier. It went unnoticed until the next morning.

The next day, Smith with the help of a worker while cleaning the ash from the brazier noticed that the cork inside the cylinder had not been burned, and the heat was sufficient to bind the entire mass in a single form—brown chocolate.

The original process was repeated intentionally to be able to prove that the material could bind without any additive or foreign substance and thus registering a patent on the manufacturing process.



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# Cork is the outer bark of *Quercus Suber* L. (cork oak tree)

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A noble tree that can live up to 200 years, during which time it may be harvested 15 to 18 times. The process of natural cork extraction is called harvesting, a highly specialized process that does not harm the tree. The bark renews itself.

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## Favourable impact on cork forests

- Total area 2.1 million hectares (5.2 million acres) of cork oak forests.
- The cork tree produces cork every nine years (a renewable raw material).
- Cork forests improve soil's organic matter and help regulate the hydrological cycle
- Provides local employment in the forestry sector hence prevent population desertification.
- Important in maintaining biodiversity (unique in Europe) - One of the 36 Biodiversity Hotspots.
- Cork oak forests are natural CO<sub>2</sub> retainers (Up to 14 million tons of CO<sub>2</sub>/year), the major cause of global warming.

## 100% natural industrial process

- Only cork as a raw material.
- No additives, agglomeration with its own resins (suberin).
- 93% of energy consumption is biomass (waste of its own industrial process).
- The waste from the industrial process is 100% reusable (expanded cork granules + powder).

## Natural Sustainability

- Practically unchanging thermal conductivity on temperature variations.
- Compared to other insulation products with declining performance values, maintains a steady insulation value overtime.

## In General

- 100% natural product
- Carbon Negative
- Very low embodied energy
- Promotes thermal Lag
- High level of stability, coping with major thermal variations.
- Deals with temperatures of between: -180C and +120C (-292 F and 248 F).
- In case of fire, cork does not release toxic gases.
- Unlimited durability, maintaining its technical characteristics (official tests demonstrate between 45 and 50 years).

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# Manufacturing process

## 100% natural

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Expanded insulation corkboard is derived from falca cork, a unique type of cork that is periodically harvested from the upper branches of the cork oak tree. Once removed, the falca cork is stored at the factory yard.



It is industrially produced without use of any additives. The process begins by grinding the cork into smaller cork granules.



Once placed into an autoclave and exposed to super-heated steam at 350 °C (662F) the cork granules expand and release their own suberin, a natural binder within the cork. No binders or chemicals are added, since the cork is agglomerated into blocks using its own resin.



The blocks are then removed and subjected to a stabilization period.



The blocks are sawn-cut into expanded insulation corkboard, packed and shipped.



Any waste produced during the industrial process is 100% reusable. In fact, over 90% of energy consumption is obtained from biomass – as a by-product of the industrial process itself – which makes expanded insulation corkboard a very low-embodied energy material.

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# Quest for excellence and innovation

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Amorim Cork Insulation is recognized by the constant search of excellence and innovation and has the support of and accreditation by the relevant authorities.

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Certificate. ISO 9001 – APCER / IQNET

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FSC Certificate

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Sustainable Habitat Cluster . Gold Seal of Sustainability

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# Product quality control according to EN 13170 and consequent CE marking



By **Centrohabitat**. Associação Plataforma para a Construção Sustentável - Environmental Product Declaration.



**Natureplus**. The International Association for Future - Oriented Building and Accommodation (Germany) - The label identifies the best products for sustainable building.



**Acermi**. Association Pour La Certification Des Matériaux Isolants (France) - certifies specific insulation materials, assessing their technical performance.



**ICEA**. Istituto per la Certificazione Etica e Ambientale (Italy) certification of environmental and ethical aspects of products.



**ARGE kdR Positivlisten (Germany)**. Certifies energy consumption throughout the life cycle, resource depletion and emissions of materials.



**MPA**. Materials Testing Institute University of Stuttgart (Germany) - certification of construction materials in terms of their suitability and production process in accordance with existing standard.



**LQAI**. Laboratory of Indoor Air Quality (Portugal) Certifies the non-emissions of VOCs, formaldehyde and other compounds for the product.



**LBC**. International Living Future Institute's Living Building Challenge (USA) - the label certifies Living Building Challenge Red List Free products.



**PCS**. Portuguese Platform for Sustainable Construction (Portugal) - Certificate of Product Sustainability.

**Ecologic Certification**. Japan Environment Association (Japan) Certifies the environmental impacts of products.

# Products

On the market with brands Amorim  
(corporate brand)

|           |               |
|-----------|---------------|
| IT        | Corkpan       |
| ES        | Aglocork      |
| RU        | Izora         |
| AUT DE CH | Corktherm 040 |
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**Expanded insulation corkboard.** Solution with high performance in thermal, acoustic and anti-vibration insulation, especially suitable for use in external, internal and cavity walls, slabs and floors, roofs and ceilings



**MDFacade.** Special range of Expanded Insulation Corkboard with high technical performance for exterior wall cladding, Interior walls and ceilings – cork at sight.



**Lambourdé.** Quick application system designed for low thickness insulation solutions and buildings renovations. For mechanical fixing to the floor or wall, ensuring excellent thermal and acoustic insulation and subsequent a wood finish or plasterboard.



**Expanded cork granules.** Solution of lightweight filling with acoustic insulation properties for use in screeds, flooring and interior cavity walls.



**Corkoco.** Solution that uses two natural products with unique characteristics, cork and coconut, ensuring high performance acoustic insulation. It is especially suited for application in ceilings, walls and floors.



**Coco.** Natural solution of the family of the hard fibers with unmatched stiffness and hardness. It is a versatile product given its strength durability and resilience that ensures high performance in sound insulation.

# Technical characteristics

| ICB STANDARD | Unit              | Value                     |
|--------------|-------------------|---------------------------|
| Density      | Kg/m <sup>3</sup> | ± 110                     |
| Sizes        | mm                | 1000x500/1200x600/915x610 |
| Thicknesses  | mm                | 10-300/40-300/12,5-300    |

| Essential features (EN 13170)   | Performance   | Result             |
|---|---|--------------------|
| Reaction to fire  | Fire reaction   | Euroclass E        |
| Thermal resistance  | Thermal Conductivity  | 0,039 W/m.K        |
| Water Permeability  | Water Absorption  | WS                 |
| Permeability to water vapor   | Water vapor transmission  | MU20               |
| Compressive strength  | Compressive strength at 10% deformation                                   | CS(10)100          |
| Durability of the reaction to fire with heat, weather agents, aging / degradation | Durability characteristics  | Satisfy            |
| Durability of thermal resistance to heat, weather agents, aging / degradation     | Thermal resistance and thermal conductivity<br>Durability characteristics | Satisfy<br>Satisfy |
| Tensile strength/bending  | Tensile strength Perpendicular to surface                                 | TR50               |
| Compressive strength durability with aging / degradation                          | Fluency by compression  | CC(0,8/0,4/10)5    |
| Specific Heat   | J/kg.°C   | 1560               |
| Global warming potential (GWP)  | kg CO2 equiv./1m <sup>3</sup> of ICB                                      | -1,98E+02          |
| Total use of renewable primary energy resources (TRR)                             | MJ, P.C.I./1m <sup>3</sup> of ICB   | 6,79E+03           |

| ICB MD FACADE | Unidade           | Value     |
|---------------|-------------------|-----------|
| Density       | kg/m <sup>3</sup> | 140 +/-10 |
| Sizes         | mm                | 1000x500  |
| Thicknesses   | mm                | 10-200    |

| Essential features   | Performance                             | Result                 |
|----------------------|---|------------------------|
| Reaction to fire     | Fire reaction                           | Euroclass E            |
| Thermal resistance   | Thermal Conductivity                    | 0,043 W/m.K            |
| Compressive strength | Compressive strength at 10% deformation | 220 kPa                |
| Water permeability   | Water Absorption                        | 0,17 kg/m <sup>2</sup> |

| ICB HD      | Unidade           | Value               |
|-------------|-------------------|---------------------|
| Density     | kg/m <sup>3</sup> | 140-160/170-190     |
| Sizes       | mm                | 1000x500 or 915x610 |
| Thicknesses | mm                | 10-220              |

| Essential features   | Performance                             | Result                  |
|----------------------|---|-------------------------|
| Reaction to fire     | Fire reaction                           | Euroclass E             |
| Thermal resistance   | Thermal Conductivity                    | 0,043 W/m.K/0,045 W/m.K |
| Compressive strength | Compressive strength at 10% deformation | 223 Kpa/332 kPa         |
| Compressive strength | Compression modulus of elasticity       | 3506 Kpa/6747 kPa       |

| EXPANDED CORK GRANULES | Unit              | Value             |
|------------------------|-------------------|-------------------|
| Density                | Kg/m <sup>3</sup> | 60-70             |
| Sizes                  | mm                | 0-3/3-5/3-10/3-15 |

| Essential features  | Performance               | Result                     |
|---------------------|---------------------------|----------------------------|
| Reaction to fire    | Fire reaction             | Euroclass E                |
| Thermal resistance  | Thermal Conductivity      | 0,041 W/m.K                |
| Acoustic Insulation | Airborne Sound Insulation | Rw (C;Ctr) = 51 (-2;-6) dB |

| LAMBOURDÉ   | Unit              | Value    |
|-------------|-------------------|----------|
| Density     | Kg/m <sup>3</sup> | ± 110    |
| Sizes       | mm                | 1000x500 |
| Thicknesses | mm                | 40-100   |

| Essential features | Performance          | Result      |
|--------------------|----------------------|-------------|
| Reaction to fire   | Fire reaction        | Euroclass E |
| Thermal resistance | Thermal Conductivity | 0,041 W/m.K |

| CORKOCO                          | Unit              | Value    |
|----------------------------------|-------------------|----------|
| Density                          | Kg/m <sup>3</sup> | 100-140  |
| Sizes                            | mm                | 1000x500 |
| Thicknesses                      | mm                | 40       |
| Lines                            | -                 | -        |
| Cork10/Coco20/<br>Cork10 (2A+1C) | m m               | 10+20+10 |
| Coco10/Cork20/<br>Coco10 (2C+1A) | mm                | 10+20+10 |
| Cork20/Coco20 (1+1)              | mm                | 20+20    |

| Essential features  | Performance                                    | Result                     |
|---------------------|--|----------------------------|
| Thermal resistance  | Thermal Conductivity                           | 0,044 W/m.K                |
| Acoustic Insulation | Airborne Sound Insulation (false ceiling)      | Rw (C;Ctr) = 58 (-2;-9) dB |
| Acoustic Insulation | Airborne Sound Insulation (interior partition) | 55 dB                      |

| COCO         | Unit              | Value                                |
|--------------|-------------------|--------------------------------------|
| Density      | Kg/m <sup>3</sup> | 100-140                              |
| Lines        | -                 | -                                    |
| Coco stripes | mm                | 1250x60/80/100/<br>120x [10-13]      |
| Coco boards  | mm                | 1250x625x<br>[variable thickness]    |
| Coco reels   | mm                | 10.000x1000x<br>[variable thickness] |

| Essential features  | Performance          | Result      |
|---------------------|----------------------|-------------|
| Thermal resistance  | Thermal Conductivity | 0,045 W/m.K |
| Acoustic Insulation | Impact noise         | ΔLW=32 dB   |

# Roofs Applications

Thermal insulation  
Anti-vibration insulation  
Acoustic insulation

100% natural choice. Expanded insulation corkboard is a sustainable material for a sustainable insulation.



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**Roofs** Green roof



**Roofs** Traditional flat roof



**Roofs** Pitched roof with corrugated roofing system



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**Roofs** Pitched roof with roof membrane



**Roofs** Pitched roof with rigid insulation over slab



**Roofs** Pitched roof with loose fill insulation between joists



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**Roofs** Pitched roof with internal insulation between rafters



**Roofs** Pitched roof with above rafter insulation



**Roofs** Flat tapered roof



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# External walls Applications

Thermal insulation  
Anti-vibration insulation  
Acoustic insulation

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100% natural choice. Expanded insulation corkboard is a sustainable material for a sustainable insulation.



**External walls** ETICS / EIFS



**External walls** Double wall with insulation partially filling the cavity



**External walls** Ventilated facade



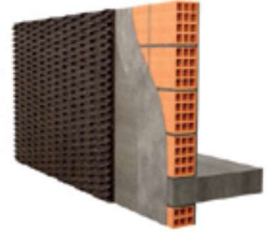
**External walls** Exterior cladding - cork at sight



**External walls** Exterior cladding with shiplap system - cork at sight



**External walls** Exterior cladding - cork at sight wave facade s1



**External walls** External cladding over insulation - cork at sight



**External walls** Exterior cladding over wooden substrate - cork at sight



**External walls** Standard lap siding with exterior rigid insulation



**External walls** Standard lap siding with cavity insulation



**Interior solutions for exterior walls**  
Support for gypsum board



**Interior solutions for exterior walls**  
Support for wooden wainscot



**Interior solutions for exterior walls**  
Internal insulation for external walls



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# Internal partitions

## Applications

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Thermal insulation  
Anti-vibration insulation  
Acoustic insulation

100% natural choice. Expanded insulation corkboard is a sustainable material for a sustainable insulation.





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**Internal partitions** Internal partitions with insulation lined on both sides



**Internal partitions** Double wall with insulation fully filling the cavity



**Internal partitions** Metal stud over masonry wall with insulation



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**Internal partitions** Metal stud over masonry wall with corkoco insulation



**Internal partitions** Metal stud partition wall with insulation



**Internal partitions** Filling the internal double walls with expanded cork granules



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**Internal partitions** Metal-stud wall and slab discontinuity



**Internal partitions** Masonry wall and slab discontinuity



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# Decorative Solutions Applications

Thermal insulation  
Anti-vibration insulation  
Acoustic insulation

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100% natural choice. Expanded insulation corkboard is a sustainable material for a sustainable insulation.



**Decorative Solutions**

Decorative board cork at sight



**Decorative Solutions**

Decorative cork at sight taper



**Decorative Solutions**

Decorative cork at sight wave S1



**Decorative Solutions**

Decorative cork at sight wave L1



**Decorative Solutions**

Decorative cork at sight wave L2



**Decorative Solutions**

Decorative cork at sight circle



**Decorative Solutions**

Decorative cork at sight barcode



**Decorative Solutions**







Decorative cork at sight point cloud



**Decorative Solutions**

Decorative ceiling



| Product  | Reference              | Dimension                          | Boards | Packing (m <sup>2</sup> ) | Packing (m <sup>3</sup> ) |
|--|------------------------|------------------------------------|--------|---------------------------|---------------------------|
|  | <b>Wave S1</b> 40mm    | 1.000x500mm<br>x40mm Min.Thickness | 8      | 4                         | 0,16                      |
|  | <b>Wave L1</b> 50mm    | 1.000x500mm<br>x50mm Min.Thickness | 6      | 3                         | 0,15                      |
|  | <b>Wave L2</b> 70mm    | 1.000x500mm<br>x70mm Min.Thickness | 4      | 2                         | 0,14                      |
|  | <b>Pointcloud</b> 50mm | 1.000x500mm<br>x50mm Min.Thickness | 6      | 3                         | 0,15                      |
|  | <b>Circle</b> 40mm     | 1.000x500mm<br>x40mm Min.Thickness | 8      | 4                         | 0,16                      |
|  | <b>Barcode</b> 50mm    | 1.000x500mm<br>x50mm Min.Thickness | 6      | 3                         | 0,15                      |

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# Slab and Floors Applications

Thermal insulation  
Anti-vibration insulation  
Acoustic insulation

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100% natural choice. Expanded insulation corkboard is a sustainable material for a sustainable insulation.



**Slab and Floors** Floating slab with wood flooring



**Slab and Floors** Floating slab with mosaic flooring



**Slab and Floors** Floating slab with coco fiber



**Slab and Floors** Support for nailed flooring



**Slab and Floors** Flooring joists cavity filling



**Slab and Floors** Between joists loose fill



**Slab and Floors** Lightweight concrete - screed filling



**Slab and Floors** Unlinking screed filler to the wall



**Slab and Floors** Traditional underfloor heating



**Slab and Floors** Electric underfloor heating



**Slab and Floors** Resilience on nailed hardwood floor over coconut fiber



**Slab and Floors** Rustic decorative floor



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# Ceilings + Others Applications

Thermal insulation  
Anti-vibration insulation  
Acoustic insulation

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100% natural choice. Expanded insulation corkboard is a sustainable material for a sustainable insulation.



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**Ceilings + Other Applications**

Formwork insulation



**Ceilings + Other Applications**

Acoustic false ceiling



**Ceilings + Other Applications**

Expansion joints



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**Ceilings + Other Applications**

Pipe section



**Ceilings + Other Applications**

Heavy machinery vibration control



**Ceilings + Other Applications**

HVAC Vibration control



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**Ceilings + Other Applications**

Door core insulation



**Ceilings + Other Applications**

Decoupling layer for window frames and core

