



**AcoustiCORK®**  
by Amorim

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# **BUILDING COMFORT WITH SUSTAINABILITY**

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VIBRATION ISOLATION SOLUTIONS

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AMORIM CORK SOLUTIONS





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## CORK, AN EXCEPTIONAL RAW MATERIAL

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Cork is the outer bark of the cork oak tree (*Quercus Suber* L.), the 100% natural plant tissue covering the trunk and branches.

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It consists of a honeycomb-like structure of microscopic cells filled with an air-like gas and composed mainly with suberin, lignin, and polysaccharides. One cubic centimetre of cork contains about 40 million cells.

Cork is also known as "nature's foam" due to its alveolar cellular structure. It has a closed-cell structure making it lightweight.

It is sustainably harvested by specialised professionals without damaging the trunk, thus enabling the tree to grow another layer of outer bark that, in time, will be re-harvested. Over the course of the cork oak tree's life, that lasts 200 years on average, the cork may be stripped around 17 times. This means that cork is not only a natural raw material, it is also renewable and recyclable.

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### KEY FEATURES



Excellent  
acoustic insulator



Excellent  
thermal insulator



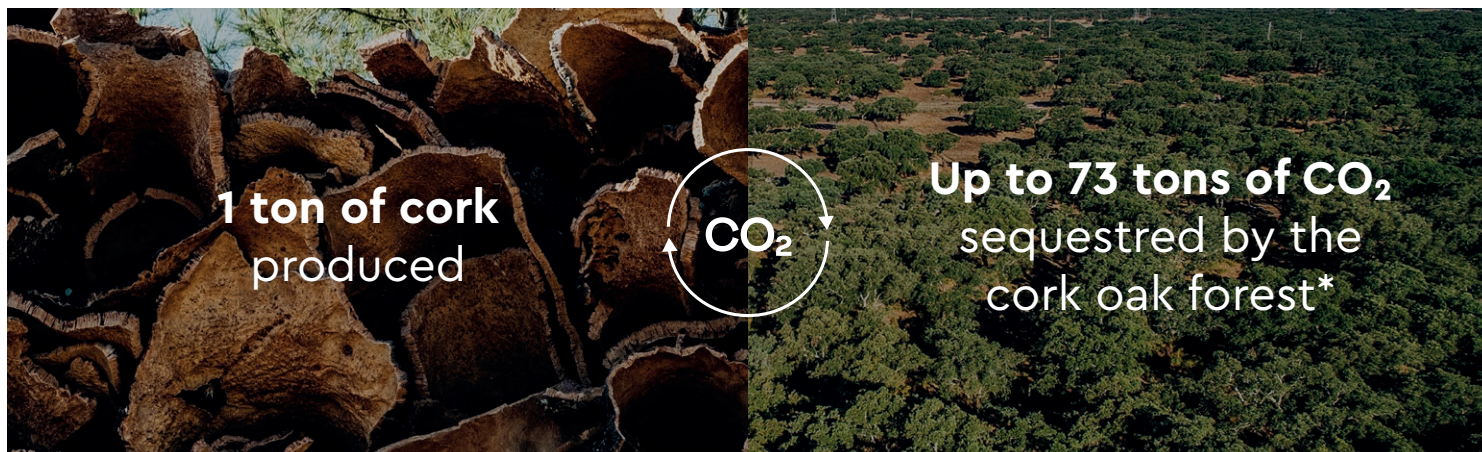
Good resilience  
Excellent compressibility  
and recovery



Extremely light



Natural, reusable  
and recyclable

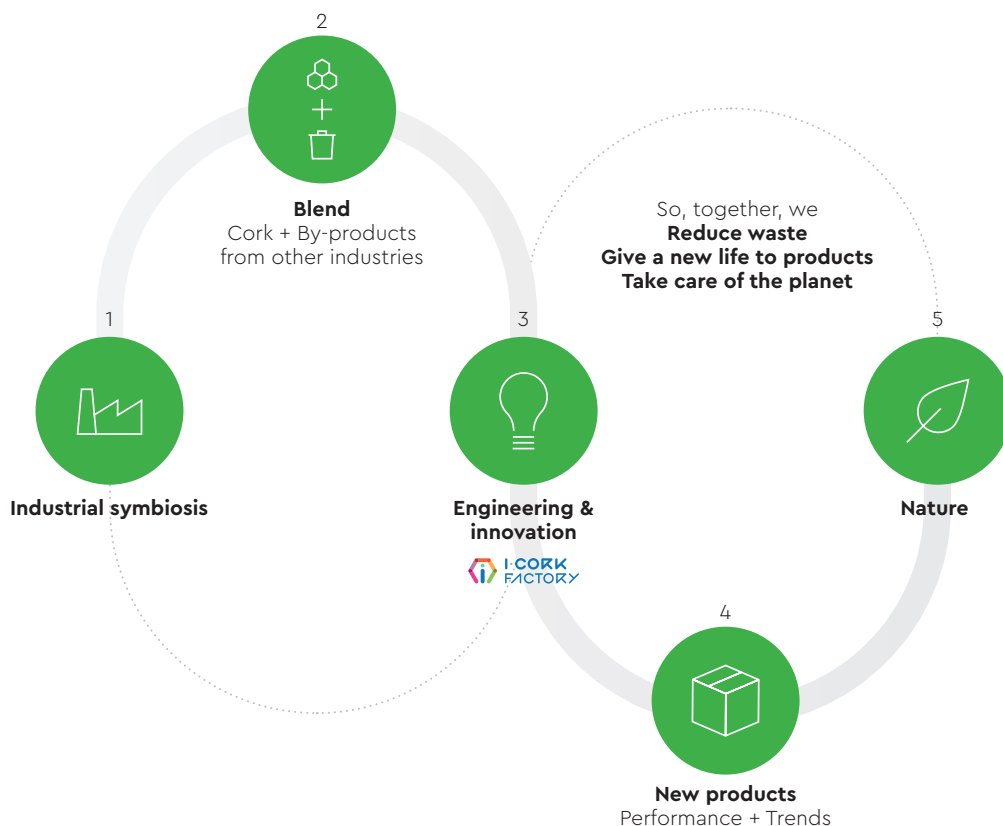


## THE COMMITMENT TO CREATE A POSITIVE IMPACT ON THE PLANET

Cork products maintain the CO<sub>2</sub> storage capacity throughout their life cycle, which makes it possible to reduce the carbon footprint of various cork-based products.

With cork at the core, blended with other materials that are by-products from other industries (industrial symbiosis), we give materials a new life by creating new products leveraging cork's attributes while taking care of the planet.

At the i.cork factory, our innovation hub, we achieve the perfect match between performance and sustainability. New, innovative and high performance products from circular economy are arising.



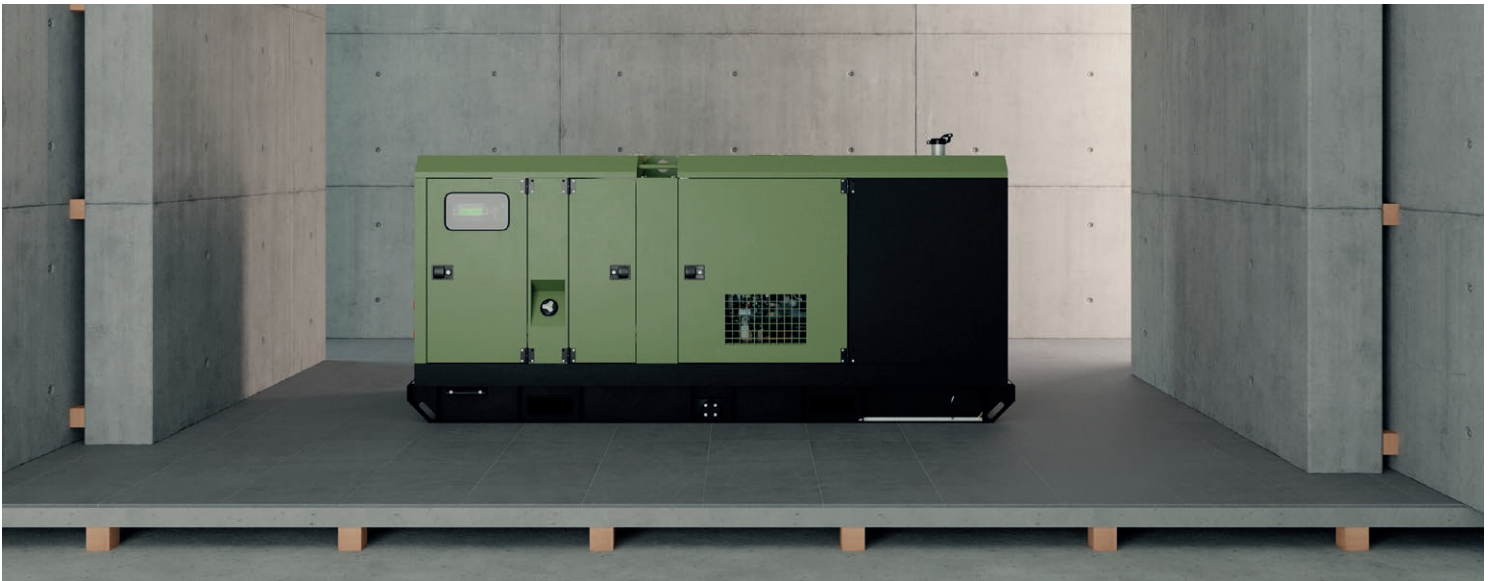
\* Source: Instituto Superior de Agronomia (ISA), 2016 (<http://uaonline.ua.pt/pub/detail.asp?lg=pt&c=45245>)



## BUILDING COMFORT WITH SUSTAINABILITY

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## WHY ACOUSTICORK?

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Ensuring peace and quiet isn't a mere luxury. It's already a human need  
- to guarantee quality of life and work in our fast-moving era.

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### FAST-MOVING TIMES REQUIRE ACOUSTIC COMFORT

Growing urbanization and rising populations in urban areas are leading to more stringent noise and vibration standards and norms. As a result, is higher demand for high-quality and efficient sound insulation and vibration isolation (from internal or external sources in each building).

Every day, new buildings are being erected on plots of land subject to vibrations, in areas with dense infrastructures. Sources of disturbance are often located near railway lines, roads or industrial complexes. Unless appropriate action is taken, buildings are defenceless against such vibrations.

Many apartments blocks also have underground car parks, commercial establishments on the ground floor (such as a shopping mall) or even a gym on an intermediate floor. In these situations, various factors may subject buildings to shocks, which have an impact on their structure and are perceived by residents as noticeable vibrations or secondary airborne noise.

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### ACOUSTICORK NATURAL BASE MATERIALS FOR DEMANDING APPLICATIONS

Amorim Cork Solutions develops specific compound formulations, which offer highly insulation or damping materials in compliance with a wide range of environmental conditions.

Cork absorbs energy due to its unique compressibility and recovery characteristics, yielding higher loss factors that are essential for the damping function. Cork's extremely low Poisson Ratio improves the behaviour of such materials in dynamic loading applications. Cork also brings durability to the applied solution.

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### CORK INSIDE

When cork isn't so visible, this seal assures that cork is present in the optimal amount - guaranteeing the performance of the material.

Cork Inside formulations combine cork with other materials from other industries and are developed and rigorously tested by Amorim Cork Composite's innovation, quality and engineering teams. Cork Inside responds to stringent requirements and guarantees the needed performance required for the application.







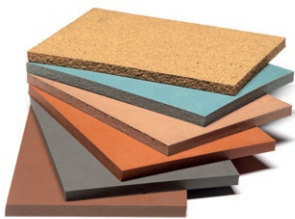
## VIBRATION ISOLATION

Acousticork's specific material formulations for vibration control combine performance with environmental concerns.

Isolating the source of the vibration is essential not only to protect the quality of life of people in both the immediate location and those in the surrounding environment, it also helps to protect equipment from the long term degenerative effects of vibration.

Acousticork Vibration Control materials are engineered compounds of cork, natural and/or recycled rubber. Having high loss factors which are essential to the damping function - due to cork's closed cell structure filled with air, it dissipates vibration energy into low grade heat in each vibration cycle, resulting in a low amplification at resonance, giving our materials operational effectiveness in a wide range of frequencies.

### CORK & NATURAL RUBBER ENGINEERED COMPOUND



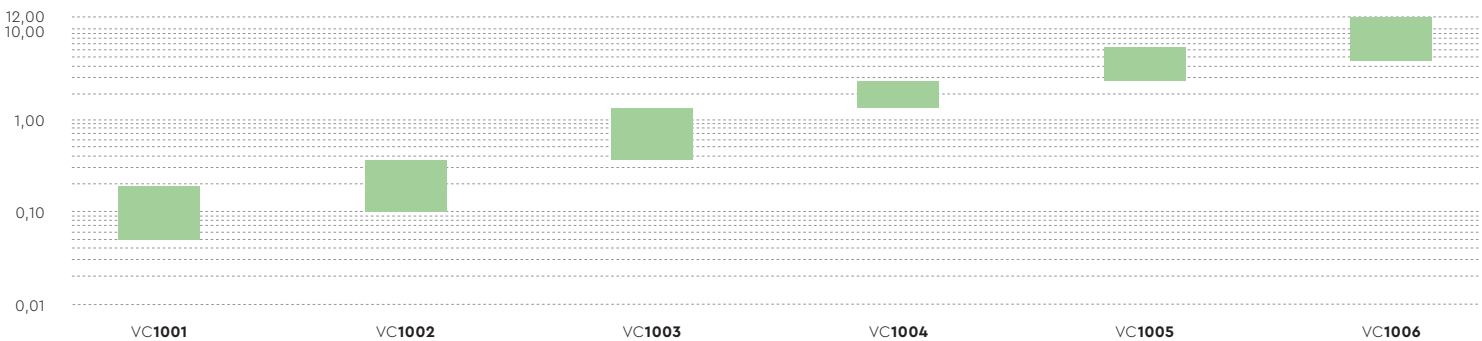
#### Features

- Dynamic-to-static stiffness ratio (1,3-2,5)
- Low damping
- Low creep
- Low water absorption

#### Benefits

- Low resonance frequency
- Long term durability
- Can be used in mats, strips or pads and with different backings, such as double-sided tape

### WORK LOAD RANGE [MPa]





### RESIN BONDED CORK & RECYCLED RUBBER



#### Features

- Dynamic-to-static stiffness ratio (2–3,5)
- High damping
- Low Poisson ratio (no shape factor dependency)
- Recycled products

#### Benefits

- Lower amplification at resonance
- Long term durability
- Good Quality/Value ratio
- Can be used in pads

### RESIN BONDED RECYCLED RUBBER



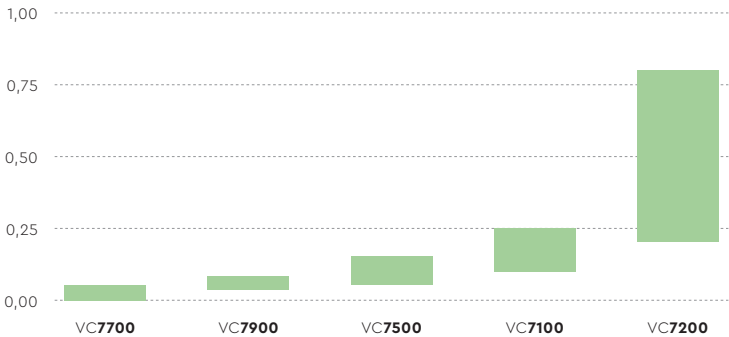
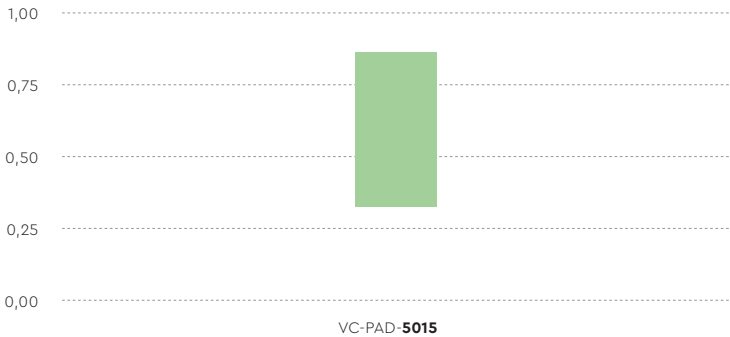
#### Features

- Dynamic-to-static stiffness ratio (2–3)
- Low damping
- Recycled products

#### Benefits

- Long term durability
- Good Quality/Value ratio
- Can be used in mats and strips

### WORK LOAD RANGE [MPa]





**Amorim Cork Solutions**

R. Comendador Américo Ferreira Amorim, 260  
4535-186, Mozelos VFR, Portugal

**T.** +351 22 747 5300

**F.** +351 22 747 5301

**E.** mail.acs@amorim.com

**Amorim Cork Solutions USA**

26112 110th Street  
Trevor, WI 53179, USA

**T.** +1 262 862 2311

**F.** +1 262 862 2500

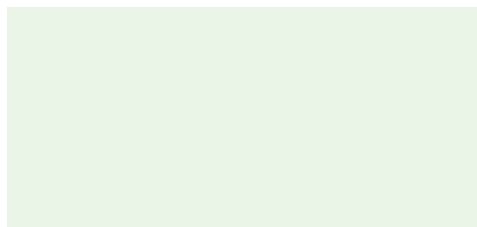
**E.** mail.acs.usa@amorim.com

**www.amorimcorksolutions.com**



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Representative



Acousticcork solutions are tested at highly qualified laboratories.

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