

**UNDERLAYMENTS**





## ➤ Cork, shapping the future through sustainability

Cork comes from the bark of the cork oak tree (*Quercus Suber L.*). It is a plant tissue, 100% natural, which covers the trunk and branches.

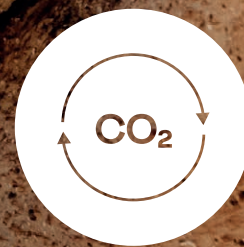
One cubic centimeter of cork contains about 40 million cells. Cork is known as “nature’s foam” due to its alveolar structure.

Cork is sustainably harvested by specialized professionals without damaging the trunk. The cork oak tree re-grows the outer bark layer and is harvested once ever 9 years over the course of its lifetime, which is about 200 years. Cork is a natural material which is both renewable and recyclable.

### **Cork, a natural CO<sub>2</sub> retainer**

Cork oak forests are important natural carbon sinks. They make a key contribution to the air we breathe because they capture CO<sub>2</sub> and it is estimated that for every ton of cork produced, cork oak forests can sequester up to 73 tons of CO<sub>2</sub>.

**1 ton of cork**  
produced



**Up to 73 tons of CO<sub>2</sub>\***  
sequestered by the  
cork oak forest

\* Source: [https://www.apcor.pt/wp-content/uploads/2015/10/Brochura\\_Ambiente\\_\\_EN.pdf](https://www.apcor.pt/wp-content/uploads/2015/10/Brochura_Ambiente__EN.pdf)



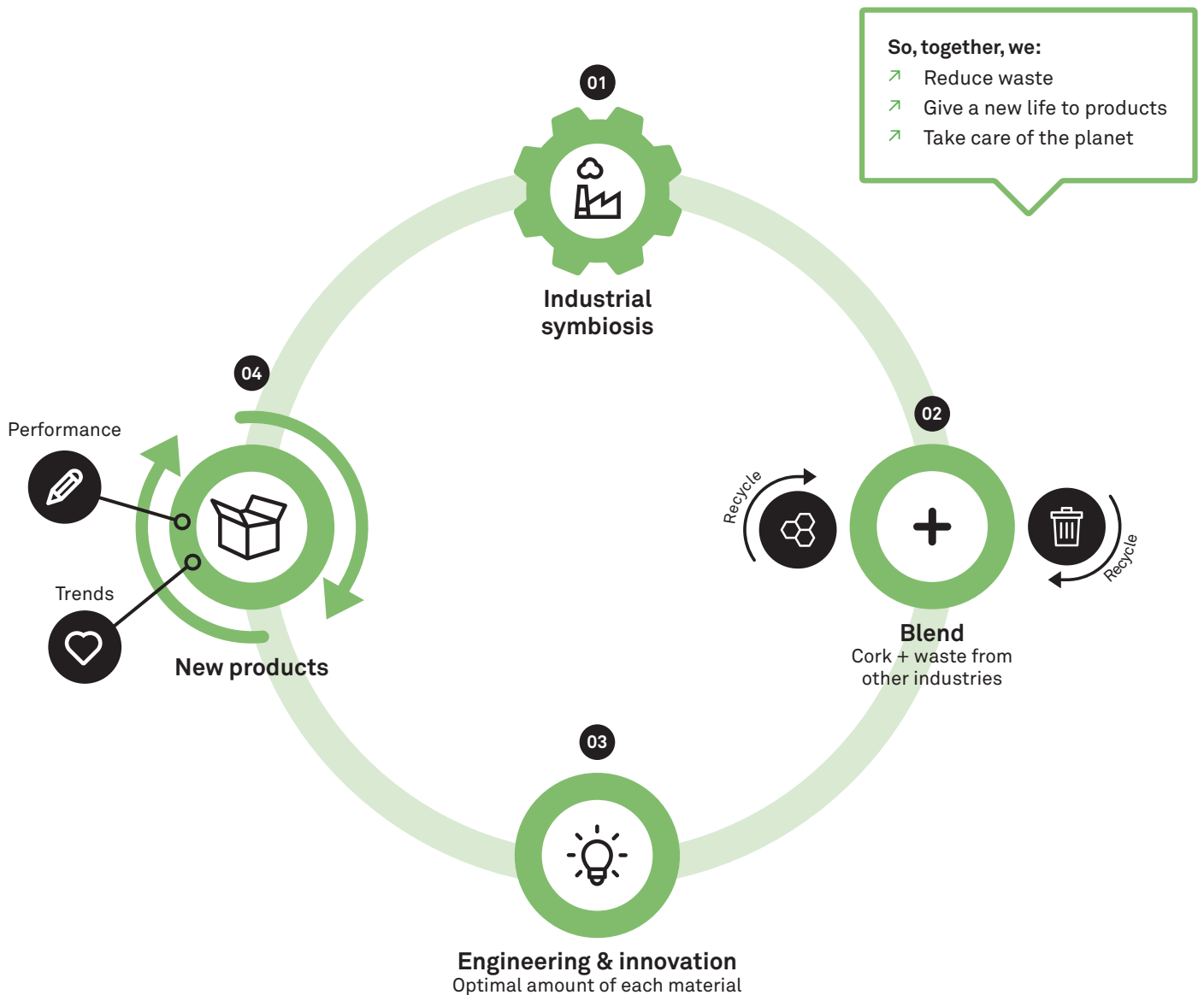


# We have always been circular.

Amorim Cork Composites - a Corticeira Amorim company - was founded in 1963 to add value to cork not used in the cork stoppers industry and to cork stoppers at the end of their life.

Since then, in the framework of our innovation culture, we have discovered and identified other materials from other industries (industrial symbiosis) to blend with cork and leverage its attributes.

For this purpose, we use different materials from the footwear, automotive and packaging industries. We give a new life to materials that otherwise would be wasted.








## Underlayments

# Sustainable and recycled accessories for flooring systems

Cork is a common denominator in the production of our accessories and supporting materials for floorings, such as, underlayment. When applied under a floor, an underlayment provides more comfort, protection and longevity to the final floor, guaranteeing even greater energy efficiency and acoustic insulation.

Underlayment may consist only of cork agglomerate or contain other recycled materials, such as Rubber, PU and EVA foams. Compared to synthetic materials, cork is the right choice when looking for a solution that guarantees performance but is also sustainable from an environmental point of view.

Our underlayments are a great solution for new construction applications and for renovations of existing spaces.

TYPE OF FLOOR	RECOMMENDED UNDERLAYMENT	MAIN FEATURE	
LVT / SPC	<b>Unique</b>	<ul style="list-style-type: none"> <li>➤ <b>Vinyl</b></li> <li>➤ Helps to protect LVT flooring from damage to the click-system joints.</li> <li>➤ Maximize the service level of the joining system connecting the laminate boards.</li> <li>➤ Anti-slip with long-term physical properties, excellent load absorption capacity and also for heated floors.</li> </ul>	
	<b>Protection</b>	<ul style="list-style-type: none"> <li>➤ <b>Shelter</b></li> <li>➤ 100% cork, 100% natural. Ecological, sustainable and recyclable.</li> <li>➤ Designed for protection of the click of LVT floors, for impact, noise and thermal insulation.</li> </ul>	
	<b>Protection Vapor Barrier</b>	<ul style="list-style-type: none"> <li>➤ 2 in 1 solution: Pre-attached vapor barrier for moisture protection.</li> <li>➤ Recommended for floating installations.</li> </ul>	
Wood	<b>Nature</b>	<ul style="list-style-type: none"> <li>➤ <b>Green</b></li> <li>➤ 100% cork, 100% natural. Ecological, sustainable and recyclable.</li> <li>➤ High durability anti-slip underlayment. Suitable for heated floors.</li> </ul>	
	<b>Nature Vapor Barrier</b>	<ul style="list-style-type: none"> <li>➤ 2 in 1 solution: Pre-attached vapor barrier for moisture protection.</li> <li>➤ Recommended for floating installations.</li> </ul>	
	<b>Plus</b>	<ul style="list-style-type: none"> <li>➤ <b>Acoustic</b></li> <li>➤ The most versatile underlayment with high durability and good performance.</li> <li>➤ Excellent acoustic performance and load absorption capacity.</li> <li>➤ Suitable for heated floors. Anti-slip.</li> </ul>	
	<b>Plus Vapor Barrier</b>	<ul style="list-style-type: none"> <li>➤ 2 in 1 solution: Pre-attached vapor barrier for moisture protection.</li> <li>➤ Recommended for floating installations.</li> </ul>	
	<b>Fusion</b>	<ul style="list-style-type: none"> <li>➤ <b>Endurance</b></li> <li>➤ Excellent compensation for uneven floors.</li> <li>➤ Good acoustic, thermal insulation, and also load absorption capacity.</li> <li>➤ Suitable for heated floors. Anti-slip.</li> </ul>	
	<b>Fusion Vapor Barrier</b>	<ul style="list-style-type: none"> <li>➤ 2 in 1 solution: Pre-attached vapor barrier for moisture protection.</li> <li>➤ Recommended for floating installations.</li> </ul>	
	<b>Profile</b>	<ul style="list-style-type: none"> <li>➤ <b>Thermal</b></li> <li>➤ Anti-slip underlayment with excellent thermal performance.</li> <li>➤ High comfort when walking because of the profile format.</li> </ul>	
Ceramic/ natural stone	<b>LC+</b>	<ul style="list-style-type: none"> <li>➤ <b>Compensation</b></li> <li>➤ Excellent compensating ability on uneven surfaces and made to prevent crack supression on ceramic.</li> <li>➤ Provides cushioning underfoot as well as reducing sound transmission and impact sound, such as footsteps.</li> <li>➤ Anti-slip underlayment with excellent load absorption capacity. Suitable for heated floors.</li> </ul>	



## NATURE AND NATURE VAPOR BARRIER\*



Density	220–280 Kg/m <sup>3</sup>
Tensile Strength	≥ 200 kPa   ≥ 550 kPa*
Thickness	2 mm
<b>Acoustic Performance</b>	
Impact Sound (IS) <sup>1</sup>	19 dB
<b>Thermal Performance</b>	
Thermal Resistance (TR)	0.039 (m <sup>2</sup> .°C/W)
<b>Floor Durability</b>	
Punctual Conformability (PC)	≥ 1.3 mm
Compressive Strength (CS)	≥ 200 kPa
Compressive Creep (CC)	> 50 kPa
Dynamic Load (DL)	≥ 100 000
<b>Vapor Barrier *</b>	
Water Vapor Resistance (SD)	75 m

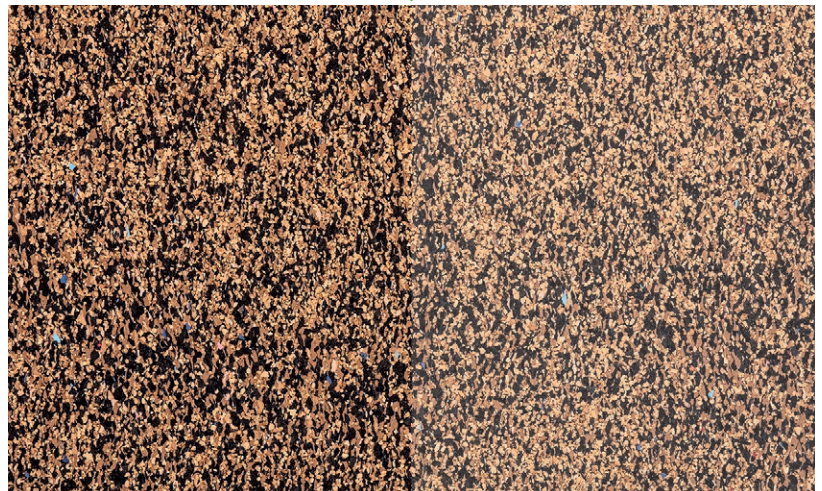


\* With vapor barrier

## PLUS AND PLUS VAPOR BARRIER\*



Density	250–300 Kg/m <sup>3</sup>
Tensile Strength	≥ 200 kPa   ≥ 550 kPa*
Thickness	2 mm
<b>Acoustic Performance</b>	
Impact Sound (IS) <sup>1</sup>	20 dB
<b>Thermal Performance</b>	
Thermal Resistance (TR)	0.031 (m <sup>2</sup> .°C/W)
<b>Floor Durability</b>	
Punctual Conformability (PC)	≥ 1.3 mm
Compressive Strength (CS)	≥ 200 kPa
Compressive Creep (CC)	> 50 kPa
Dynamic Load (DL)	≥ 10 000
<b>Vapor Barrier *</b>	
Water Vapor Resistance (SD)	75 m



\* With vapor barrier



The **Cork Inside** seal guarantees that this product contains, in its cork formulation, a 100% natural and recyclable material with unique technical properties.

**Cork Inside** formulations combine cork with other materials and are developed and rigorously tested by Amorim Cork Composites' innovation and engineering teams. **Cork Inside** responds to stringent requirements and guarantees the performance required for its application.



## PROTECTION AND PROTECTION VAPOR BARRIER\*



Density	250–350 Kg/m <sup>3</sup>
Tensile Strength	≥ 500 kPa   ≥ 550 kPa*
Thickness	1.1 mm
<b>Acoustic Performance</b>	
Impact Sound (IS) <sup>2</sup>	16 dB
<b>Thermal Performance</b>	
Thermal Resistance (TR)	- (m <sup>2</sup> .°C/W)
<b>Floor Durability</b>	
Punctual Conformability (PC)	> 0.5 mm
Compressive Strength (CS)	> 400 kPa
Compressive Creep (CC)	TBD
Dynamic Load (DL)	≥ 100 000
<b>Vapor Barrier *</b>	
Water Vapor Resistance (SD)	75 m

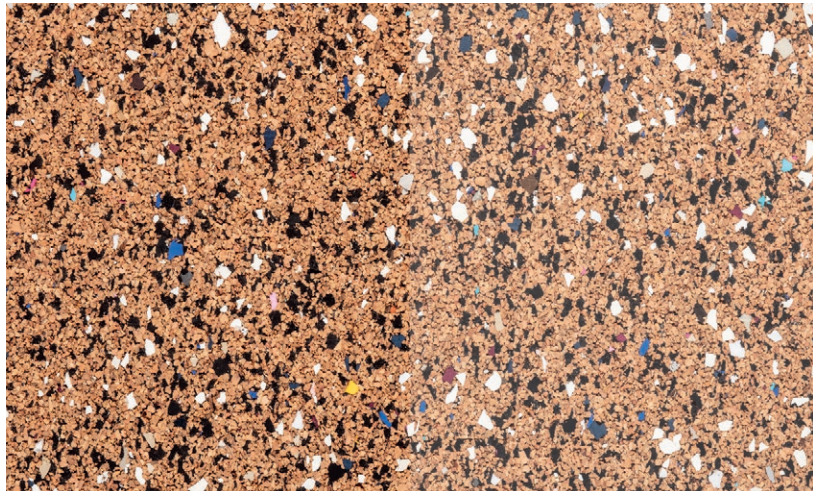


\* With vapor barrier

## FUSION AND FUSION VAPOR BARRIER\*



Density	200–280 Kg/m <sup>3</sup>
Tensile Strength	≥ 200 kPa   ≥ 550 kPa*
Thickness	2 mm
<b>Acoustic Performance</b>	
Impact Sound (IS) <sup>1</sup>	20 dB
<b>Thermal Performance</b>	
Thermal Resistance (TR)	0.033 (m <sup>2</sup> .°C/W)
<b>Floor Durability</b>	
Punctual Conformability (PC)	> 1.2 mm
Compressive Strength (CS)	> 200 kPa
Compressive Creep (CC)	> 50 kPa
Dynamic Load (DL)	≥ 100 000
<b>Vapor Barrier *</b>	
Water Vapor Resistance (SD)	75 m



\* With vapor barrier

\* Recommended for floating installations

- 1 Tested under a laminate floor
- 2 Tested under a LVT floor
- 3 Tested under a wood floor
- 4 Tested under a ceramic floor

The data provided in this brochure refers to typical figures. This information is not intended to be used as a purchasing specification and does not imply suitability for use in any specific application. Failure to select the proper product may result in either product damage or personal injury. Please contact Amorim Cork Composites regarding recommendations for specific applications. Amorim Cork Composites expressly disclaims all warranties, including any implied warranties of merchantability or of fitness for any particular purpose. Amorim Cork Composites shall not be liable for any indirect, special, incidental, consequential or punitive damages as a result of using the information listed in this brochure, any of its material specification sheets, its products or any future use or re-use of them by any person or entity. For contractual purposes, please request our Product Specifications Sheet (PDA). Product images are for illustrative purposes only.



## PROFILE

Density	150–200 Kg/m <sup>3</sup>
Tensile Strength	≥ 200 kPa
Thickness	2.5 mm
<b>Acoustic Performance</b>	
Impact Sound (IS) <sup>3</sup>	20 dB
<b>Thermal Performance</b>	
Thermal Resistance (TR)	0.066 (m <sup>2</sup> .°C/W)
<b>Floor Durability</b>	
Punctual Conformability (PC)	≥ 0.5 mm
Compressive Strength (CS)	≥ 160 kPa
Compressive Creep (CC)	> 50 kPa
Dynamic Load (DL)	≥ 100 000



## LC+



Density	560–650 Kg/m <sup>3</sup>
Tensile Strength	≥ 500 kPa
Thickness	2 mm
<b>Acoustic Performance</b>	
Impact Sound (IS) <sup>4</sup>	18 dB
<b>Thermal Performance</b>	
Thermal Resistance (TR)	0.016 (m <sup>2</sup> .°C/W)
<b>Floor Durability</b>	
Punctual Conformability (PC)	≥ 1.7 mm
Compressive Strength (CS)	≥ 200 kPa
Compressive Creep (CC)	> 50 kPa
Dynamic Load (DL)	≥ 100 000



## UNIQUE



Density	550–650 Kg/m <sup>3</sup>
Tensile Strength	≥ 500 kPa
Thickness	1.6 mm
<b>Acoustic Performance</b>	
Impact Sound (IS) <sup>2</sup>	21 dB
<b>Thermal Performance</b>	
Thermal Resistance (TR)	0.015 (m <sup>2</sup> .°C/W)
<b>Floor Durability</b>	
Punctual Conformability (PC)	≥ 1 mm
Compressive Strength (CS)	≥ 400 kPa
Compressive Creep (CC)	> 50 kPa
Dynamic Load (DL)	≥ 100 000





## Go4Cork underlayments with negative carbon balance

# Cork as the starting point for a sustainable future

Go4cork is a brand of Amorim Cork Composites, which has always been committed to ensuring the transition from a linear economy of “take, make and dispose” to a circular economy.

Independent studies conducted by EY have concluded that all the products analyzed have a negative carbon balance when considering the carbon sequestration of cork oak forests and production-related emissions.

This means that the Go4Cork underlayments' carbon sequestration exceeds the CO<sub>2</sub> emissions resulting from their production.



### GO4CORK NATURE AND NATURE VB

-12.4 kg/eqCO<sub>2</sub> per m<sup>2</sup>\*  
-11.98 kg/eqCO<sub>2</sub> per m<sup>2</sup>\*

Up to 36 times less greenhouse gas emissions than PU Foam (Polyurethane) solutions\*\*

### GO4CORK FUSION AND FUSION VB

-14.2 kg/eqCO<sub>2</sub> per m<sup>2</sup>\*  
-13.45 kg/eqCO<sub>2</sub> per m<sup>2</sup>\*

Up to 20 times less greenhouse gas emissions than PU Foam (Polyurethane) solutions\*\*

### GO4CORK PLUS AND PLUS VB

- 8.1 kg/eqCO<sub>2</sub> per m<sup>2</sup>\*  
- 7.8 kg/eqCO<sub>2</sub> per m<sup>2</sup>\*

Up to 34 times less greenhouse gas emissions than PU Foam (Polyurethane) solutions\*\*



The **Negative Carbon Balance** seal certifies that when taking into account the carbon sequestration from cork oak forests, the manufacture of Go4Cork products sequesters more CO<sub>2</sub> than it emits.

\* EY Study: Underlayment Go4Cork Carbon Footprint Analysis, 2020 / 2021 (cradle to gate).

\*\* These Amorim Cork Composites conclusions (outside the scope of the EY study) were based on the ecoinvent version 3.5 database (2018) but have not been verified by a third party.





## Long-term durability cork vs foam underlayments

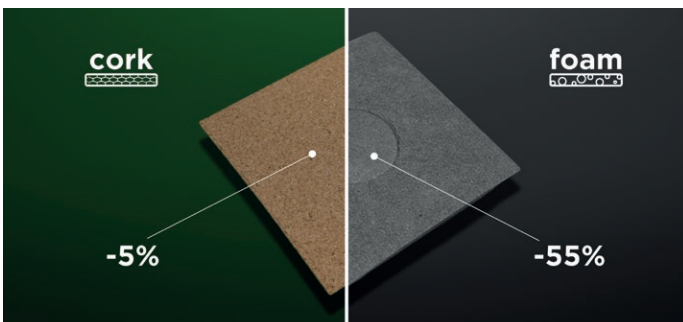
Installing a cork underlayment is the best option to ensure your floors' durability while improving buildings' comfort and efficiency.

This layer of material, applied between the concrete (or the previous flooring, in case of renovation work) and the final flooring, is essential to ensure the durability of the floor over time, and to prove this, we run the following tests:

### Test #01 - Dynamic Load Test (DL)\*

The dynamic load test is a laboratory test that simulates the pressure exerted on the floor by foot traffic, trolleys and office chairs with casters, among others.

#### DYNAMIC LOAD TEST (DL)\*



**Result: cork proved to be more resilient, with just 5% thickness loss after 100,000 charge cycles.**

To be effective, the underlayment must be able to withstand this pressure without losing its absorption characteristics.

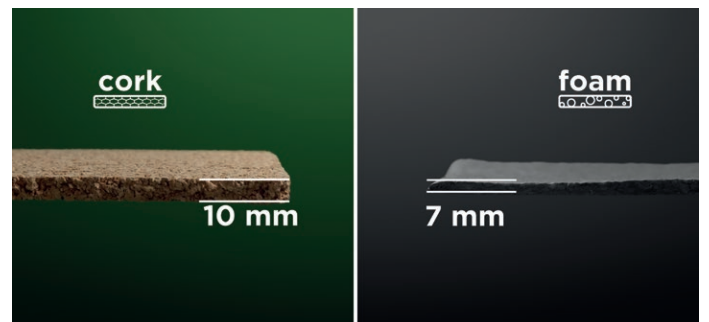
To assess the material performance, we submitted a sample of cork, and another composed entirely of foam, both 10 mm thick, to 100 000 cycles at 75 KPa pressure.

### Test #02 - Compressive Creep Test (CC)\*\*

The creep test determines the weight that can be placed on a given floor over time, using as reference a period of 10 years. We are talking about furniture weight, for example.

This means that, as it is compressed over the years, cork maintains its thickness and, consequently, the performance of the system where it is applied, whereas with foams (PE, XPS, or PP), whenever pressure results in cell breakage, the underlayment loses density and effectiveness.

#### COMPRESSIVE CREEP (CC)\*\*



**Result: cork delivers superior performance and shows almost the same thickness after being compressed. Less than 10% of thickness loss.**

#### TECHNICAL PROPERTIES



Reduction of impact noise



Reduction of footfall noise



Thermal resistance



Compensates for uneven floor



Protection from damage from falling objects



Resistance to diffusion of water vapor



Load resistance



Antislip

\*tested by a certified laboratory

\*\*test made at i.Cork Factory press (not in accordance with creep standard)



# AMORIM CORK COMPOSITES



**Nature**

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Klasse E+e2 (E1)  
(auch nach DIN EN 12512 auf  
Umgebungsgrenzfunktionstest)

Emissionsgeprüftes  
Bauprodukt nach  
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**Unique**

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R. Comendador Américo  
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**Plus**

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Emissionsgeprüftes  
Bauprodukt nach  
DIN EN 12518



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