
AMORIM NRT®

Flooring



Reinventing flooring technology

Noise reduction
and walking comfort



AMORIM CORK COMPOSITES

Cork, an exceptional raw material

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

It consists of a honeycomb-like structure of microscopic cells filled with an air-like gas and coated mainly with suberin and lignin. One cubic centimeter 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, airtight and watertight, resistant to acids, fuels and oils, and impervious to rot.

It is sustainably harvested by specialized 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 harvested around 17 times. This means that cork is not only a natural raw material, it is also renewable and recyclable.



Cork cell microscopic view.

Excellent thermal insulator



Walking & thermal comfort



Good resilience, excellent compressibility and recovery



Hypoallergenic



Easy to maintain



Noise reduction



100% natural, reusable and recyclable



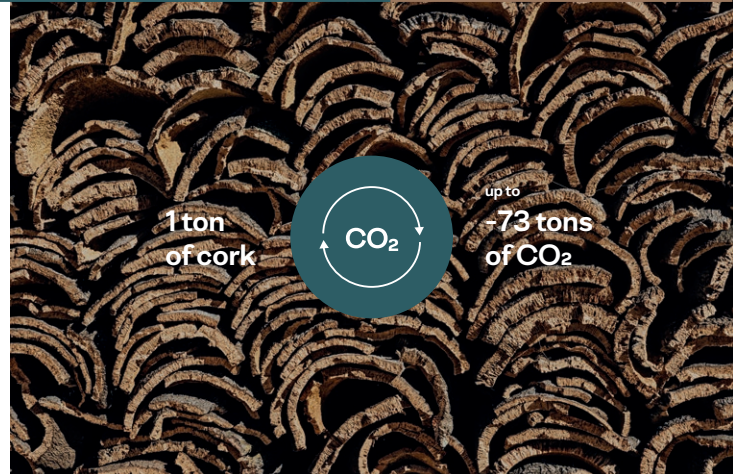
Freedom of design



Cork, sustainable by nature

Cork forests are important natural carbon sinks. It is estimated that for each ton of cork produced, the cork oak forest sequesters up to 73 tons of CO₂*.

These forests, which have a recognized protection status, contribute to climate regulation, are the driving force of sustainable development and play a central role in the ecological balance of the planet. In this way, cork is a naturally sustainable raw material, like no other.

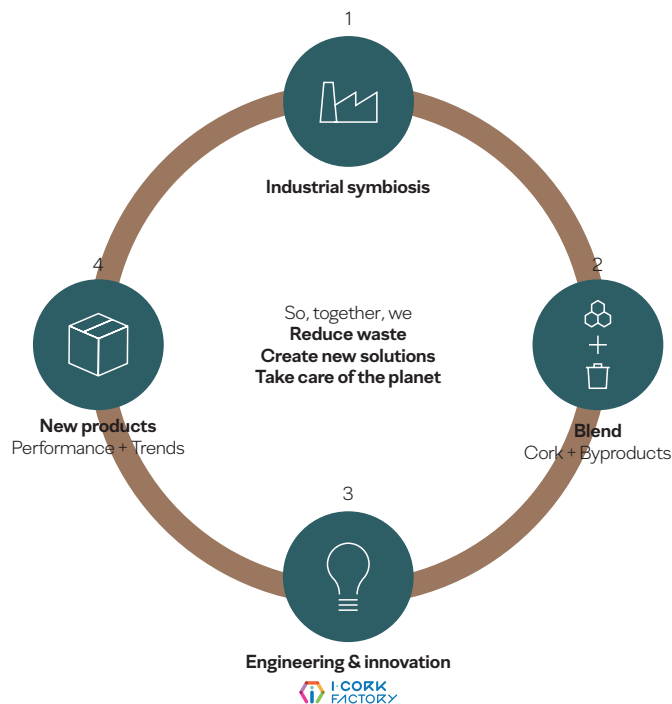


* Source: Instituto Superior de Agronomia (ISA), 2016

The circular economy at the heart of innovation

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

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 that leverage cork's attributes while taking care of the planet.



When cork isn't so visible, the Cork Inside seal guarantees that the product contains cork in its 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 the application.

NRT® Noise Reduction Technology

Innovative solutions fulfilling the market requirements.



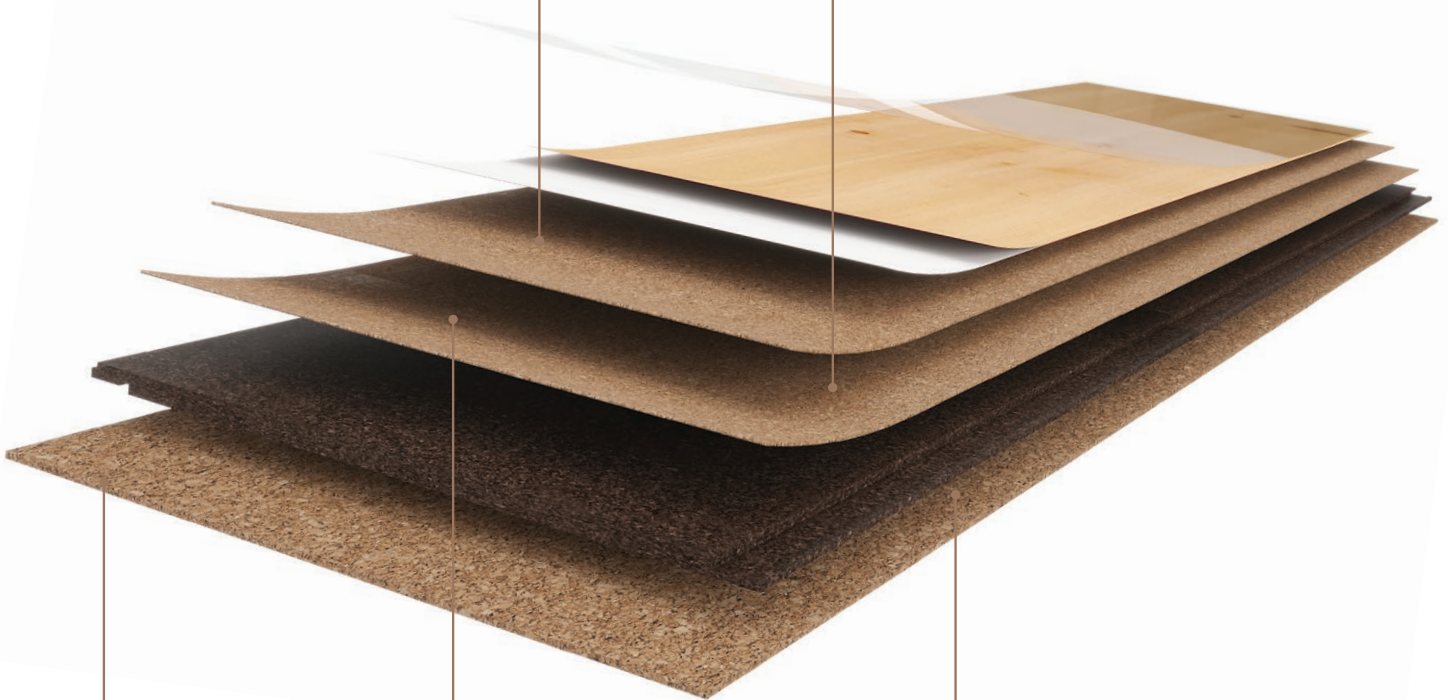
NRT® top layer

High density and printable layer that allows freedom of design and walking, cushioning and thermal comfort with reduced thickness.



NRT® inlay

Layer placed underneath a paper, a vinyl or a veneer-facing layer that allows energy dissipation in perfect balance with the right indentation acceptance criteria.



NRT® inlay with paper carrier

With improved industrial process of flooring manufacturer.



NRT® pre-attached underlayment

Attached layer that acts like the traditional underlayment, preventing the transmission of mechanical energy through the slab (improving impact noise reduction), with high durability.



NRT® backing pre-attached underlayment

With Paper Carrier or PP/PE foil, with improved industrial process of flooring manufacturer, and provides vapor barrier for final floor.

Floor components for a sustainable future

The **Negative Carbon Balance seal** certifies that when taking into account the carbon sequestration from cork oak forests, the manufacture of Amorim NRT® products sequesters more CO₂ than it emits.

The Top Layer NRT® 94 and the Pre-attached Underlay NRT® 62 with and without vapor barrier have, respectively, a negative carbon balance of -39.3 kg CO₂/m²*, -11.8 kg CO₂/m²* and -10.5 kg CO₂/m²*, when taking into account the CO₂ sequestered by cork oak forests and the emissions associated with the industrial process.



NRT® 45 · NRT® pre-attached underlayment ⁽³⁾

	Units	
Density ⁽²⁾	kg/m ³ (lb/ft ³)	150–210 (9.4–13.1)
Compressibility at 0.7MPa ⁽²⁾	%	30–50
Recovery at 0.7MPa ⁽²⁾	%	≥ 70
Tensile Strength ⁽²⁾	kPa (psi)	≥ 300 (43.5)
Availability	-	Rolls & Sheets
Width (minimum - maximum)	mm (in)	100–1250 (3.9–49.2)
Length (minimum - maximum)	mm (in)	sheets: 600–3000 (23.62–118.11) rolls: 600 (23.62) - equivalent Ø1000 (47.24)
Thickness (minimum - maximum)	mm (in)	0.8–8 (0.03–0.3)
Finish	-	NA

(2) Test method ISO 7322



This NRT® 45 pre-attached underlayment has a laminated kraft paper carrier.

NRT® 62 · NRT® pre-attached underlayment ⁽³⁾



	Units	
Density ⁽²⁾	kg/m ³ (lb/ft ³)	360–450 (22.5–28.1)
Compressibility at 0.7MPa ⁽²⁾	%	10–30
Recovery at 0.7MPa ⁽²⁾	%	> 70
Tensile Strength ⁽²⁾	kPa (psi)	> 600 (87)
Availability	-	Rolls & Sheets
Width (minimum - maximum)	mm (in)	100–2100 (3.9–82.7)
Length (minimum - maximum)	mm (in)	sheets: 600–3000 (23.62–118.11) rolls: 600 (23.62) - equivalent to Ø1200 (47.24)
Thickness (minimum - maximum)	mm (in)	0.8–8 (0.03–0.3)
Finish	-	Calibrated 1 side
Carbon balance	kg/eqCO ₂ per m ²	-11.8 -10.5 with vapor barrier

(2) Test method ISO 7322



This NRT® 62 pre-attached underlayment has a laminated PP carrier.

*EY Study: Top Layer NRT®94 and Pre-attached underlay NRT®62 and NRT®62 VB Carbon Footprint Analysis, 2020 (cradle-to-gate)

NRT® 49 · NRT® pre-attached underlayment ⁽³⁾

	Units	
Density ⁽²⁾	kg/m ³ (lb/ft ³)	200–270 (12.5–16.9)
Compressibility at 0.7MPa ⁽²⁾	%	15–35
Recovery at 0.7MPa ⁽²⁾	%	≥ 70
Tensile Strength ⁽²⁾	kPa (psi)	≥ 200 (29)
Availability	-	Rolls & Sheets
Width (minimum - maximum)	mm (in)	100–1250 (3.9–49.2)
Length (minimum - maximum)	mm (in)	sheets: 600–3000 (23.62–118.11) rolls: 600 (23.62) - equivalent Ø1000 (47.24)
Thickness (minimum - maximum)	mm (in)	0.8–8 (0.03–0.3)
Finish	-	NA

(2) Test method ISO 7322



NRT® 96 · NRT® inlay

	Units	
Density ⁽²⁾	kg/m ³ (lb/ft ³)	450–550 (28–33.4)
Compressibility at 0.7MPa ⁽²⁾	%	< 20
Recovery at 0.7MPa ⁽²⁾	%	> 70
Tensile Strength ⁽²⁾	kPa (psi)	> 1400 (203)
Availability	-	Rolls & Sheets
Width (minimum - maximum)	mm (in)	100–2100 (3.9–82.7)
Length (minimum - maximum)	mm (in)	sheets: 600–3000 (23.62–118.11) rolls: 600 (23.62) - equivalent to Ø1200 (47.24)
Thickness (minimum - maximum)	mm (in)	0.8–8 (0.03–0.3)
Finish	-	GR180

(2) Test method ISO 7322



NRT® 94 · NRT® top layer



	Units	
Density ⁽²⁾	kg/m ³ (lb/ft ³)	450–550 (28–33.4)
Compressibility at 0.7MPa ⁽²⁾	%	< 20
Recovery at 0.7MPa ⁽²⁾	%	> 70
Tensile Strength ⁽²⁾	kPa (psi)	> 1400 (203)
Availability	-	Rolls & Sheets
Width (minimum - maximum)	mm (in)	100–2100 (3.9–82.7)
Length (minimum - maximum)	mm (in)	sheets: 600–3000 (23.62–118.11) rolls: 600 (23.62) - equivalent to Ø1200 (47.24)
Thickness (minimum - maximum)	mm (in)	0.8–8 (0.03–0.3)
Finish	-	GR180
Carbon balance	kg/eqCO ₂ per m ²	-39.3

(2) Test method ISO 7322



(3) A laminated carrier is available to add to the backing, improving the client production process efficiency (it will increase the speed of the line), the product tensile strength and the final floor value proposition. Two options are available: paper (as a sustainable solution) and PE/PP (for a water resistant solution). The addition of a laminated kraft paper to the NRT® 45 with a 0,9 mm thickness, for example, will increase 1MPa of tensile strength.

Full experience in the flooring industry

Amorim Cork Composites is able to supply all the components of the floor, except the floor itself!

Our experience has led to the development of unique technical components for flooring industry – Noise Reduction Technology (NRT®).

Amorim Cork Composites tries to be aware of consumer trends and seeks to correspond to the expectations of markets and flooring manufacturers. We continue to work closely with our partners and clients, in order to meet their industrial and innovation needs. We have a vision based on innovation, uniqueness and technology.

Our mission on the flooring sector

Amorim Cork Composites is able to produce sheets or rolls to be used as: top layer, inlay and pre-attached.

To be a one shop for flooring manufacturers where they can find:

- Rolls or sheets
- Width up to 2 m
- Sheets up to 3 m long
- Thicknesses up to 20 mm
- Possibility to laminate foil (paper, PE, PP, textile, TNT)
- Different types of finishing

No standard dimensions
No standard packaging, etc.

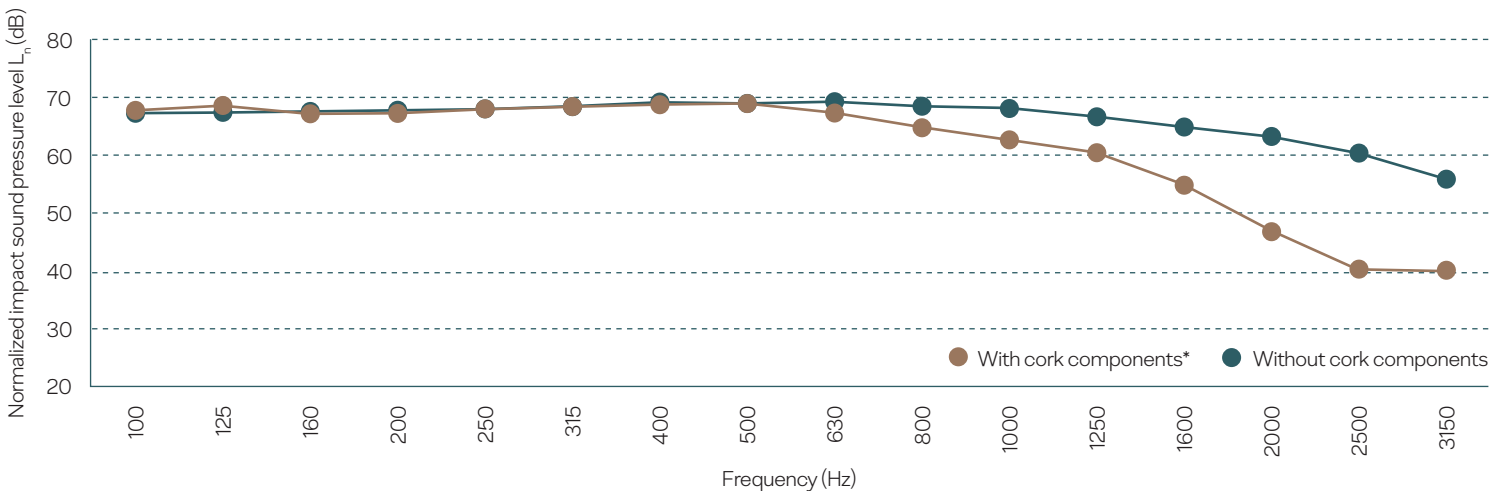
What to expect from a cork-based components?

When compared to other solutions, our components perform better over time.

In general, cork has a higher compressive strength and creep due to its resilience, which means that cork completely recovers its thickness after being compressed and preserves the technical properties where it is applied. Unlike some standard foams (PE, XPS, or PP) that break down their cells and completely lose their integrity and technical properties in a short time.

Cork improves acoustic performance where its applied

It was made an acoustic test to a MMFA laminate floor, and then the same floor with pre-attached cork backing. It was achieved 36% of improvement in the acoustic performance.



* Backing Amorim NRT®

Amorim Cork Composites

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