

AMORIM NRT

Flooring



Reinventing flooring technology

Noise reduction
and walking comfort



AMORIM CORK SOLUTIONS

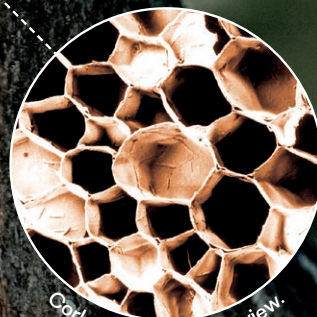
Cork, an exceptional raw material

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.



Excellent thermal insulator



Walking & thermal comfort



Good resilience, excellent compressibility and recovery



Resistance to fire and high temperatures



Easy to maintain



Noise reduction



100% natural, reusable and recyclable



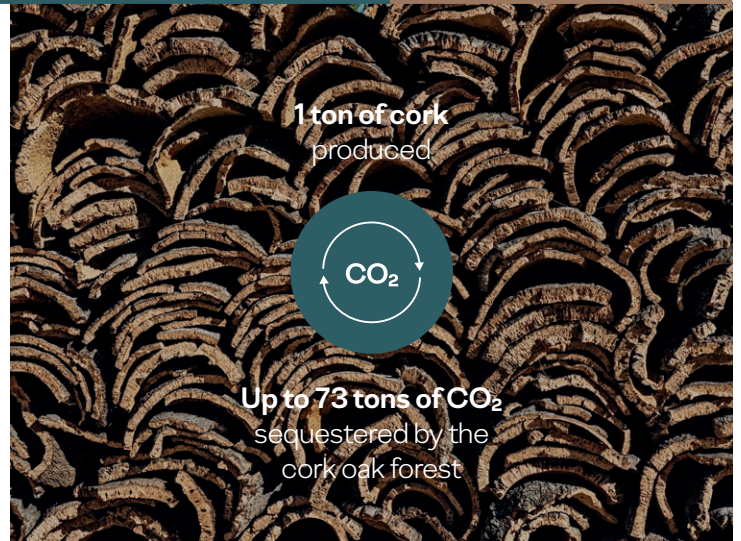
Freedom of design



Cork, a natural CO₂ retainer

Cork oak forests are important natural carbon sinks. They make a key contribution to the air we breathe because they capture CO₂ and it is estimated that for every ton of cork produced, cork oak forests can sequester 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.

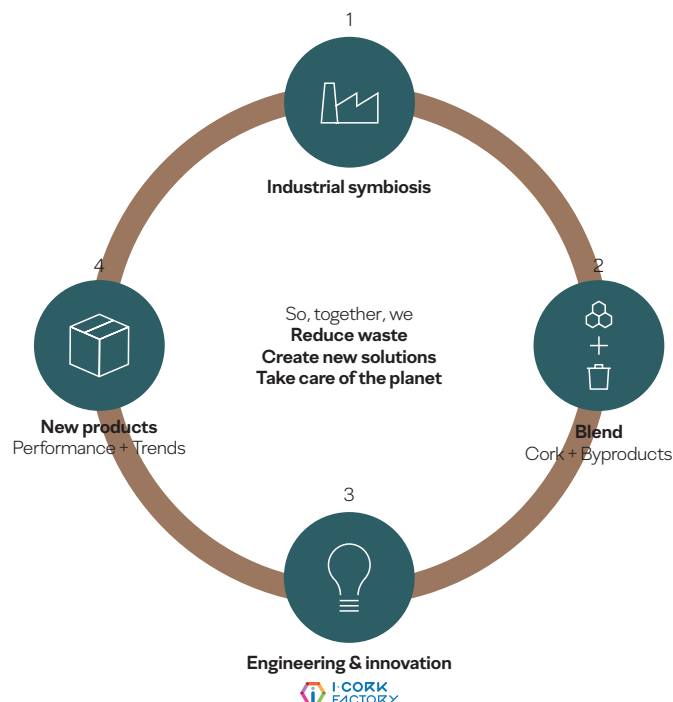


* Source: www.apcor.pt/wp-content/uploads/2015/10/Brochura_Ambiente__EN.pdf

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 byproducts from other industries (industrial symbiosis) – we give materials a new life by creating new products while taking care of the planet.



NRT® Noise Reduction Technology

Innovative solutions fulfilling market requirements, showcasing up to a 70% enhancement in acoustic performance through the integration of a cork backing.



Amorim NRT® top layer

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



Amorim 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.



Amorim NRT® backing 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 compressive strength and consequent durability.

Available options with paper carrier or PP/PE Foil, with improved speed on the industrial process for flooring manufacturers. It also provides vapor resistance for the 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® 96 · NRT® inlay

	Test Method	Units	
Range thickness	ASTM F 104	mm in	0.8–8.0 0.03–0.3
Range width	EN 822:2013	mm in	100–2100 3.9–82.7
Range length (rolls)	EN 822:2013	m ft	Up to 600 Up to 1969
Range length (sheets)	EN 822:2013	mm in	600–3000 23.6–118.1
Density	ASTM F 1315	Kg/m ³ lb/ft ³	450–550 28–33.4
Tensile Strength	ASTM F 152	kPa psi	> 1400 > 203

All values in the table refer to results for a product with a thickness of 1.0.



NRT® 92 · NRT® inlay

	Test Method	Units	
Range thickness	ASTM F 104	mm in	1–6.0 0.03–0.3
Range width	EN 822:2013	mm in	100–1300 3.9–59.1
Range length (rolls)	EN 822:2013	m ft	Up to 600 Up to 1969
Range length (sheets)	EN 822:2013	mm in	600–3000 23.62–118.11
Density	ASTM F 1315	Kg/m ³ lb/ft ³	250–350 15.6–21.8
Tensile Strength	ASTM F 152	kPa psi	> 500 > 72

All values in the table refer to results for a product with a thickness of 1.0.



NRT® 94 · NRT® top layer



	Test Method	Units	
Range thickness	ASTM F 104	mm in	0.8–8.0 0.03–0.3
Range width	EN 822:2013	mm in	100–2100 3.9–82.7
Range length (rolls)	EN 822:2013	m ft	Up to 600 Up to 1969
Range length (sheets)	EN 822:2013	mm in	600–3000 23.6–118.1
Density	ASTM F 1315	Kg/m ³ lb/ft ³	450–550 28–33.4
Tensile Strength	ASTM F 152	kPa psi	> 1400 > 203

All values in the table refer to results for a product with a thickness of 1.0.





NRT® 31 · NRT® pre-attached underlayment

	Test Method	Units	
Range thickness	ASTM F 104	mm in	1.0–4.0 0.04–0.16
Range width	EN 822:2013	mm in	1300–2100 51.2–82.7
Range length (rolls)	EN 822:2013	m ft	Up to 700 Up to 2297
Range length (sheets)	EN 822:2013	mm in	600–3000 23.6–118.1
Impact Sound*	ISO 1625-1	dB	15
Density	ASTM F 1315	Kg/m³ lb/ft³	250–350 15.6–21.8
Tensile Strength	ASTM F 152	kPa psi	> 1000 > 145
Compressive strength	EN 826	kPa psi	> 400 > 58
Punctual Conformability	EN ISO868 / EN16534	mm in	> 0.7 > 0.03
Creep	EN 1606: 2013 (adapted)	mm in	< 0.07 < 0.003
Indentation	EN 433	mm in	< 0.15 < 0.006

* test made with an MMFA laminate floor All values in the table refer to results for a product with a thickness of 1.0.



NRT® 32 · NRT® pre-attached underlayment

	Test Method	Units	
Range thickness	ASTM F 104	mm in	1.0–4.0 0.04–0.16
Range width	EN 822:2013	mm in	1300–2100 51.2–82.7
Range length (rolls)	EN 822:2013	m ft	Up to 700 Up to 2297
Range length (sheets)	EN 822:2013	mm in	600–3000 23.6–118.1
Impact Sound*	ISO 1625-1	dB	14
Density	ASTM F 1315	Kg/m³ lb/ft³	250–350 15.6–21.8
Tensile Strength	ASTM F 152	kPa psi	> 1000 > 145
Compressive strength	EN 826	kPa psi	> 200 > 29
Punctual Conformability	EN ISO868 / EN16534	mm in	> 0.7 > 0.03
Creep	EN 1606: 2013 (adapted)	mm in	< 0.05 < 0.002
Indentation	EN 433	mm in	< 0.16 < 0.006

* test made with an MMFA laminate floor All values in the table refer to results for a product with a thickness of 1.0.



NRT® 33 · NRT® pre-attached underlayment

	Test Method	Units	
Range thickness	ASTM F 104	mm in	1.0–4.0 0.04–0.16
Range width	EN 822:2013	mm in	1300–2100 51.2–82.7
Range length (rolls)	EN 822:2013	m ft	Up to 700 Up to 2297
Range length (sheets)	EN 822:2013	mm in	600–3000 23.6–118.1
Impact Sound*	ISO 1625-1	dB	15
Density	ASTM F 1315	Kg/m³ lb/ft³	250–350 15.6–21.8
Tensile Strength	ASTM F 152	kPa psi	> 500 > 72
Compressive strength	EN 826	kPa psi	> 200 > 29
Punctual Conformability	EN ISO868 / EN16534	mm in	> 0.7 > 0.03
Creep	EN 1606: 2013 (adapted)	mm in	< 0.08 < 0.003
Indentation	EN 433	mm in	< 0.20 < 0.008

* test made with an MMFA laminate floor All values in the table refer to results for a product with a thickness of 1.0.





NRT® 34 · NRT® pre-attached underlayment

	Test Method	Units	
Range thickness	ASTM F 104	mm in	1.0–4.0 0.04–0.16
Range width	EN 822:2013	mm in	1300–2100 51.2–82.7
Range length (rolls)	EN 822:2013	m ft	Up to 700 Up to 2297
Range length (sheets)	EN 822:2013	mm in	600–3000 23.6–118.1
Impact Sound	ISO 1625-1	dB	TBD
Density	ASTM F 1315	Kg/m³ lb/ft³	TBD
Tensile Strength	ASTM F 152	kPa psi	TBD
Compressive strength	EN 826	kPa psi	TBD
Punctual Conformability	EN ISO868 / EN16534	mm in	TBD
Creep	EN 1606: 2013 (adapted)	mm in	TBD
Indentation	EN 433	mm in	TBD

All values in the table refer to results for a product with a thickness of 1.0.



NRT® 45 · NRT® pre-attached underlayment

	Test Method	Units	
Range thickness	ASTM F 104	mm in	0.8–8.0 0.03–0.3
Range width	EN 822:2013	mm in	100–1500 3.9–49.2
Range length (rolls)	EN 822:2013	m ft	Up to 600 Up to 1969
Range length (sheets)	EN 822:2013	mm in	600–3000 23.6–118.1
Impact Sound*	ISO 1625-1	dB	14*
Density	ASTM F 1315	Kg/m³ lb/ft³	150–210 9.4–13.1
Tensile Strength	ASTM F 152	kPa psi	> 300 > 43.5
Compressive strength	EN 826	kPa psi	TBD
Punctual Conformability	EN ISO868 / EN16534	mm in	TBD
Creep	EN 1606: 2013 (adapted)	mm in	TBD
Indentation	EN 433	mm in	TBD

* test made with an MMFA laminate floor

All values in the table refer to results for a product with a thickness of 1.0.



NRT® 62 · NRT® pre-attached underlayment



	Test Method	Units	
Range thickness	ASTM F 104	mm in	0.8–8.0 0.03–0.3
Range width	EN 822:2013	mm in	100–2100 3.9–82.7
Range length (rolls)	EN 822:2013	m ft	Up to 700 Up to 2297
Range length (sheets)	EN 822:2013	mm in	600–3000 23.6–118.1
Impact Sound*	ISO 1625-1	dB	14
Density	ASTM F 1315	Kg/m³ lb/ft³	360–450 22.5–28.1
Tensile Strength	ASTM F 152	kPa psi	> 1000 > 145
Compressive strength	EN 826	kPa psi	> 1000 > 145
Punctual Conformability	EN ISO868 / EN16534	mm in	< 0.5 < 0.02
Creep	EN 1606: 2013 (adapted)	mm in	< 0.06 < 0.002
Indentation	EN 433	mm in	< 0.10 < 0.004

* test made with an MMFA laminate floor

All values in the table refer to results for a product with a thickness of 1.0.



Full experience in the flooring industry

Amorim Cork Solutions 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 Solutions tries to be aware of consumer trends and seeks to correspond to the expectations of markets and flooring manufacturers. Our team of technical and production specialists continues 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 Solutions 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 2.1 m
- Sheets up to 3 m long
- Thicknesses up to 5 mm
- Different types of finishing and carriers (paper, TNT of PP, TNT of PET, PP or PET foil)

No standard dimensions
No standard packaging, etc.

What to expect from a cork-based components?

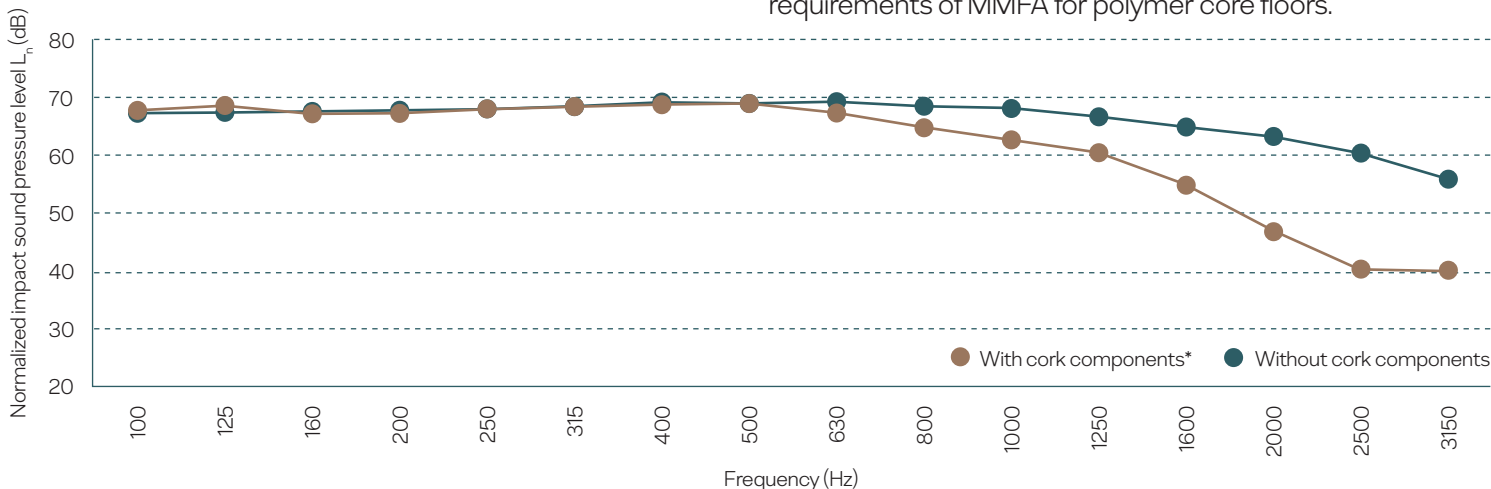
When compared to other solutions, our components perform better over time.

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 it is applied

We can achieve a 7dB improvement in acoustic performance with a 1mm backing solution.

Compressive strength above 400kPa assuring the higher requirements of MMFA for polymer core floors.



* Backing Amorim NRT®

Amorim Cork Solutions

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