Mobility

Reinventing the mobility sector

Cork solutions for interior components

AMORIM CORK COMPOSITES

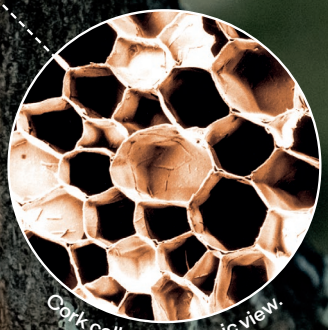
Cork, an exceptional raw material

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.

Thermal insulation

Acoustic insulation

Resistance to fire and high temperatures

CO_2 reduction

Vibration control

Easy process

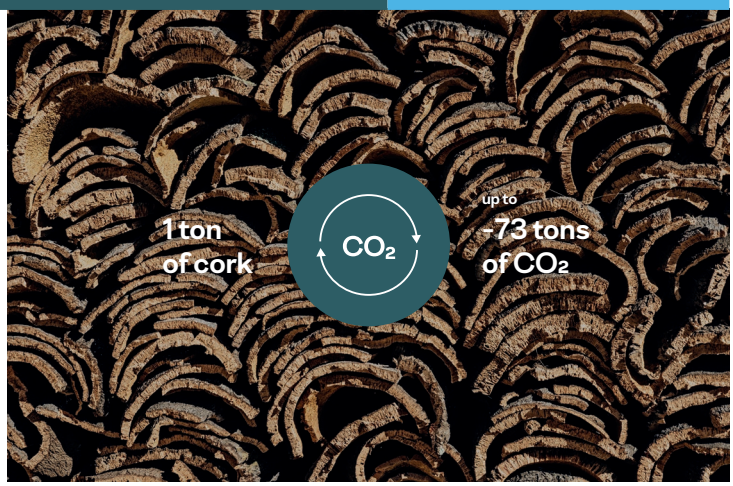
Lightweight

Eco-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 CO_2*.

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.

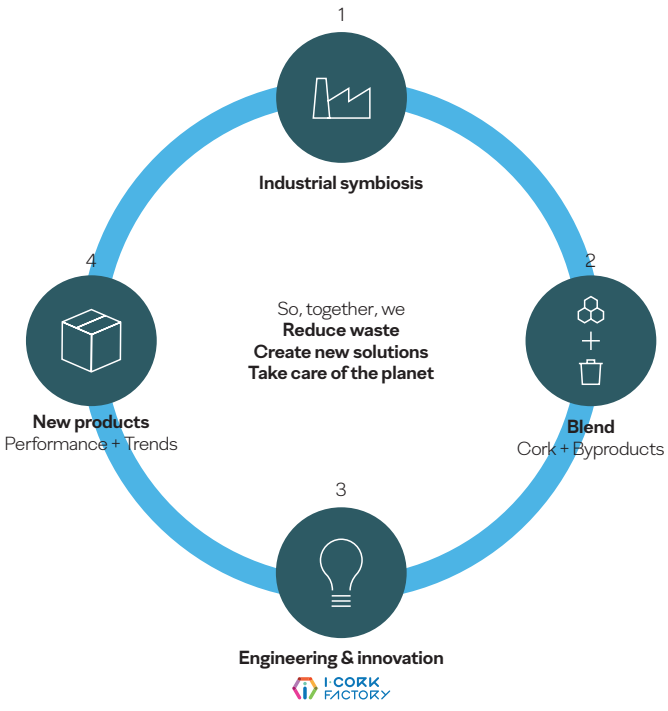


* Source: Instituto Superior de Agronomia (ISA), 2016

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.



CORK INSIDE®

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.

Mobility

With an attractive look and warm and soft touch, cork is an innovative option for interior vehicle components, which combines the beauty of a natural material with passenger comfort and well-being.

Cork's unique properties, together with Amorim Cork Composites' expertise in highly technological and specialized sectors, enable us to develop sustainable and innovative solutions for the mobility sector.

Cork can take on many different shapes, from the simplest to the most complex, to meet manufacturers' design requirements and create sophisticated and elegant interiors, using, for example, molding, lamination, extrusion, and injection processes.

General applications

Automotive
Interior trims, dashboards, consoles, flooring and accessories

Trains
Interior trims, flooring, wall partitions and accessories (ex: tables, seats...)

Buses
Interior trims, flooring, wall partitions and accessories (ex: tables, seats...)

Ships
Interior trims, flooring, wall partitions and accessories (ex: tables, seats...)

Main advantages

Sustainable
Cork can partially offset plastic's carbon footprint
1 ton of cork retains up to 73tons of CO_2

Weight reduction
Reduction of final product weight due to introduction of cork

Shock absorption
Cork permits better shock absorption

Customization
We offer customized products according to our client's needs

Mobility Cork Veneers

Cork veneers are natural materials that are combined with different backings (like paper, textile, non-woven, leather or others) to provide resistance and compatibility with several substrates.

These materials can be processed by back-injection and compression molding. The color of the surface can be adjusted in function of the customer's requests.

Mobility Cork Veneers can be used as a decorative element for interior parts, in order to give a natural and disruptive look to the vehicle.

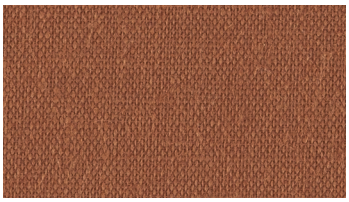
Product range

Visual	Material	Backing (1)	Thickness backing	Backing weight	Cork thickness	Product Total Weight
	**MCV110**	Leather	0,70 mm	290 gr/m	0,80 mm	350–380 gr/m²
	MCV210	Textile	0,25 mm	140 gr/m	0,40 mm	140 gr/m²
	MCV310	Non-woven	*	*	*	*
	MCV410	Paper	0,35/0,40 mm	*	*	150 gr/m²
	**MCV120**	Leather	0,70 mm	290 gr/m	0,80 mm	350–380 gr/m²
	MCV220	Textile	0,25 mm	140 gr/m²	0,40 mm	140 gr/m²
	MCV320	Non-woven	*	*	*	*
	MCV420	Paper	0,35/0,40 mm	*	*	150 gr/m²
	**MCV130**	Leather	0,70 mm	290 gr/m	0,80 mm	350–380 gr/m²
	MCV430	Non-woven	*	*	*	*
	**MCV450**	Paper	0,35/0,40 mm	*	*	150 gr/m²
	**MCV060**	None	—	—	—	—

(1) other backings under request *Information under request

Backing visual


Artificial leather


Textile


Non-woven fabric


Paper

Mobility Interior Compounds

Developed by Amorim Cork Composites' i.cork factory, Mobility Interior Compounds area a range of cork polymer compounds, offering the moldability of polymers and the lightness and sustainability of cork.

Cork polymer compounds replace conventional plastic with a sustainable alternative keeping the performance and aesthetics desired for the application.

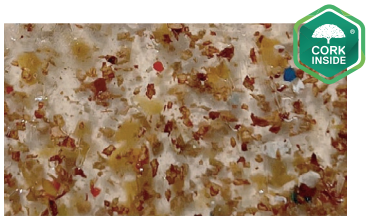
The result is a reduced carbon footprint, increased lightness, improved thermal and acoustic properties or grip performance.

Product range

	MIC203	MIC221	MIC222	MIC716	MIC716	MIC434	MIC303
Polymer	rPP	PP	PP (w/talco)	TPU	TPU (w/ embossing)	TPE	SBS
% w.cork	10%	25%	5%	15%	15%	10%	25%
Cork Particle Size (mm)	0.5 - 1	< 0.5	0.5 – 1	1 – 2	1 – 2	0.5 – 1	0.5 – 1
Appearance – Color	Black	Natural	Dark Grey	Black	Black	Beige	Multicolor
Density (kg/m^3) (1)	938*	830*	1070*	1148*	1148*	913*	900 – 100*
Hardness (Shore A) (2)	92*	77*	70*	87*	87*	64 – 70*	68*
Tensile Strength (MPa) (3)	20.1*	19.6*	53.0*	12.0*	12.0*	3.5*	> 0.75*
Elongation at Break (%) (3)	6.1*	7.9*	16.2*	390*	390*	287*	> 200*

(1) Based on DIN EN ISO 1183-1 (A) (2) DIN 53505-A (3) ISO 527-2 *Typical Values

Texture & colour examples



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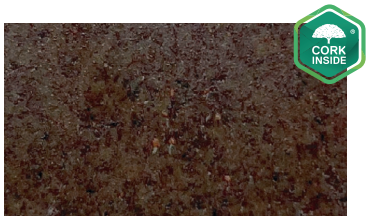

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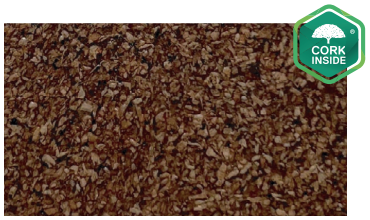

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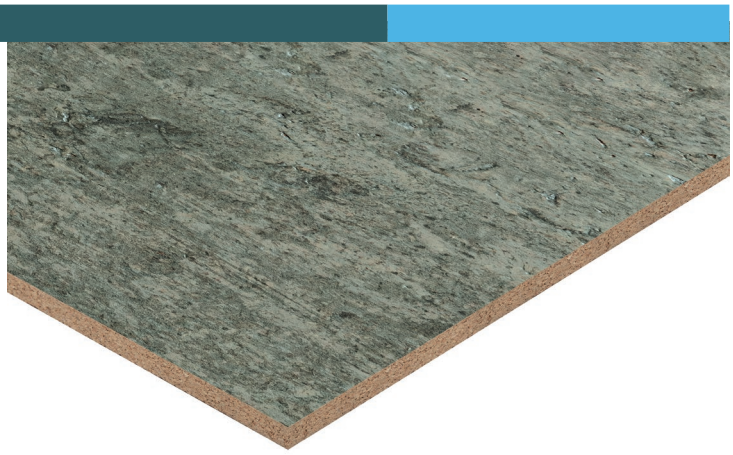
Mobility Digital Printing

Mobility Digital Printing is a cork agglomerated material with a special primer printing and digital printing with UV-ink.



This material increases thermal & acoustic performance, improves shock absorption and it's lighter when compared with wood.

More information under request.

Case studies

Renault Mobilize

Used inside the new Mobilize all-electric cars - the Renault Group's urban mobility brand, cork contributes to a unique, disruptive and innovative design, increasing sustainability levels and reinforcing circular economy practices.

The solution that combines cork with recycled materials was integrated into the seats of the Mobilize Duo and Mobilize Solo models and also the interior rear panel of the latter vehicle.

Monocab OWL

The MONOCAB-OWL, a project that aims to offer a second life to existing railway lines in Germany's rural areas, used cork on the floor of this new means of transport.

Cork endows lightness, comfort and thermal, acoustic and anti-vibration insulation to the vehicle. At the same time, it helps to reduce the environmental footprint of the Monocabs.

Did you know that we also develop solutions for structural parts?

Visit our website and discover how cork is changing the future of mobility.

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