

ENVIRONMENTAL PRODUCT DECLARATION

Corkeen Products

In accordance with: ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021

Products included in the EPD:

Corkeen 50mm, Corkeen 40mm, Corkeen 70mm, Corkeen 90mm, Corkeen 110mm, Corkeen 135mm

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

EPD of multiple products based on a representative product

EPD Owner

Amorim Cork Solutions

Programme

International EPD System
www.environdec.com

Programme operator

EPD International AB

Registration number

EPD-IES-0031046:001

Version date

2026-05-08

Validity date

2031-05-08



GENERAL INFORMATION

Programme information

Programme	International EPD System
Address	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website	www.environdec.com
E-mail	support@environdec.com

Product category rules

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product Category Rules (PCR)	2019:14 Construction products (EN 15804+A2) (version 2.0.1) 2.0.1
PCR review was conducted by	The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via the Secretariat www.environdec.com/support .

Verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via	<input checked="" type="checkbox"/> EPD verification through an individual EPD verification <input type="checkbox"/> EPD verification through EPD Process Certification* <input type="checkbox"/> EPD verification through a fully pre-verified tool
Third-party verifier	Elisabet Amat (Greenize Projects S.L.)
Approved by	International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

*EPD Process Certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.environdec.com.

Ownership and limitations on use of EPD

Limitations

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.

Ownership

The EPD Owner has the sole ownership, liability, and responsibility for the EPD.

INFORMATION ABOUT EPD OWNER

EPD Owner	Amorim Cork Solutions
Contact person name	João Queirós
Contact person e-mail	info.as@amorim.com
Organisation address	Portugal Mozelos, Santa Maria da Feira 4535-186 Rua Comendador Américo Ferreira Amorim, 260
LCA Practitioner	mariaines.santos@itecons.uc.pt, mariaines.santos@itecons.uc.pt

Description of the organisation of the EPD Owner

At Amorim Cork Solutions, we develop solutions that incorporate high-performance cork composites, combining innovation and sustainability.

We reuse cork - a 100% natural, renewable and recyclable raw material - to develop ground-breaking solutions for various industries such as aerospace, maritime, mobility, sealing, energy, construction, flooring, sports surfaces, playgrounds, toys, home, office and leisure. Each product we create represents a strategic response to current market needs and our commitment to sustainability. At Amorim Cork Solutions, each innovation reinforces the promise of a future where nature and technology coexist in perfect harmony.

ACS favors innovation projects that enhance the added value of its products, the safety of people and goods, as well as efficiency in all its aspects.

Within the scope of its sustainability strategy, ACS assumes the following environmental management commitments, as well as compliance with legal compliance obligations or others: "We assess the environmental aspects of our activities, with the aim of protecting the Environment, adopting practices that potentiate the prevention of pollution, as well as the improvement of our environmental performance."

The sustainability of the business involves the integration in the strategic planning of the different aspects of management, which is why the approach to Quality, Environment, Safety, Energy, Forestry Chain of Custody and System code Management is carried out in an integrated manner in the ACS management system.

ACS has a management system that integrates the different normative references:

- Quality according to the NP EN ISO 9001 standard;
- Environment according to the NP EN ISO 14001 standard;
- Security according to the ISO 450001 standard;
- Energy according to the NP EN ISO 50001 standard
- Forest sustainability (chain of custody) according to Standard FSC-STD-40-004;
- Forest sustainability (chain of custody) According to Norm PEFC ST 2002.

The management system, its planning, revision and improvement, is carried out in accordance with the methodology of the PR 101 process - Strategic Management.

PRODUCT INFORMATION

Product name	Corkeen 50mm
Product identification	Playground surface system with 50mm of thickness.
Product description	Corkeen is a shock absorption surfacing system made from cork and a polyurethane binder, developed by Amorim Cork Solutions (ACS). Due to cork characteristics, Corkeen is characterized by high impact absorption, high drainage capacity and lower surface temperatures than comparable materials, providing a safe and stable solution for playgrounds.
Product information from external sources	https://corkeen.com/en/
Technical purpose of product	Corkeen functions as an impact absorption surface for playgrounds, where safety of children is key. Corkeen offers a range of thicknesses to comply with CFH (Critical Fall Height) requirements of that market. Cork properties not only are the basis for the shock absorption function but also contribute to other key characteristics of the system, such as high drainage capacity and low surface temperatures, resulting in a safe, comfortable and reliable solution for playgrounds.
Manufacturing or service provision description	The manufacturing process includes the following processes: cork grinding, mixing (top layer only), drying (top layer only), and packaging
Material properties	Area density: 8.16 kg/m ² Thickness: 0.05 m
Manufacturing site	Amorim Cork Solutions, S.A. Portugal Mozelos, Santa Maria da Feira 4535-186 Rua Comendador Américo Ferreira Amorim, 260
UN CPC code	31922. Articles of natural cork; agglomerated cork and articles thereof
Geographical scope(s)	Europe
Actual or technical lifespan	20 year(s)

PRODUCT IMAGES



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PRODUCT INFORMATION

Product name	Corkeen 40mm
Product identification	Playground surface system with 40mm of thickness.
Product description	Corkeen is a shock absorption surfacing system made from cork and a polyurethane binder, developed by Amorim Cork Solutions (ACS). Due to cork characteristics, Corkeen is characterized by high impact absorption, high drainage capacity and lower surface temperatures than comparable materials, providing a safe and stable solution for playgrounds.
Product information from external sources	https://corkeen.com/en/
Technical purpose of product	Corkeen functions as an impact absorption surface for playgrounds, where safety of children is key. Corkeen offers a range of thicknesses to comply with CFH (Critical Fall Height) requirements of that market. Cork properties not only are the basis for the shock absorption function but also contribute to other key characteristics of the system, such as high drainage capacity and low surface temperatures, resulting in a safe, comfortable and reliable solution for playgrounds.
Manufacturing or service provision description	The manufacturing process includes the following processes: cork grinding, mixing (top layer only), drying (top layer only), and packaging
Material properties	Area density: 7.11 kg/m ² Thickness: 0.04 m
Manufacturing site	Amorim Cork Solutions, S.A. Portugal Mozelos, Santa Maria da Feira 4535-186 Rua Comendador Américo Ferreira Amorim, 260
UN CPC code	31922. Articles of natural cork; agglomerated cork and articles thereof
Geographical scope(s)	Europe
Actual or technical lifespan	20 year(s)

PRODUCT IMAGES



PRODUCT INFORMATION

Product name	Corkeen 70mm
Product identification	Playground surface system with 70mm of thickness.
Product description	Corkeen is a shock absorption surfacing system made from cork and a polyurethane binder, developed by Amorim Cork Solutions (ACS). Due to cork characteristics, Corkeen is characterized by high impact absorption, high drainage capacity and lower surface temperatures than comparable materials, providing a safe and stable solution for playgrounds.
Product information from external sources	https://corkeen.com/en/
Technical purpose of product	Corkeen functions as an impact absorption surface for playgrounds, where safety of children is key. Corkeen offers a range of thicknesses to comply with CFH (Critical Fall Height) requirements of that market. Cork properties not only are the basis for the shock absorption function but also contribute to other key characteristics of the system, such as high drainage capacity and low surface temperatures, resulting in a safe, comfortable and reliable solution for playgrounds.
Manufacturing or service provision description	The manufacturing process includes the following processes: cork grinding, mixing (top layer only), drying (top layer only), and packaging
Material properties	Area density: 10.36 kg/m ² Thickness: 0.07 m
Manufacturing site	Amorim Cork Solutions, S.A. Portugal Mozelos, Santa Maria da Feira 4535-186 Rua Comendador Américo Ferreira Amorim, 260
UN CPC code	31922. Articles of natural cork; agglomerated cork and articles thereof
Geographical scope(s)	Europe
Actual or technical lifespan	20 year(s)

PRODUCT IMAGES



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PRODUCT INFORMATION

Product name	Corkeen 90mm
Product identification	Playground surface system with 90mm of thickness.
Product description	Corkeen is a shock absorption surfacing system made from cork and a polyurethane binder, developed by Amorim Cork Solutions (ACS). Due to cork characteristics, Corkeen is characterized by high impact absorption, high drainage capacity and lower surface temperatures than comparable materials, providing a safe and stable solution for playgrounds.
Product information from external sources	https://corkeen.com/en/
Technical purpose of product	Corkeen functions as an impact absorption surface for playgrounds, where safety of children is key. Corkeen offers a range of thicknesses to comply with CFH (Critical Fall Height) requirements of that market. Cork properties not only are the basis for the shock absorption function but also contribute to other key characteristics of the system, such as high drainage capacity and low surface temperatures, resulting in a safe, comfortable and reliable solution for playgrounds.
Manufacturing or service provision description	The manufacturing process includes the following processes: cork grinding, mixing (top layer only), drying (top layer only), and packaging
Material properties	Area density: 12.53 kg/m ² Thickness: 0.07 m
Manufacturing site	Amorim Cork Solutions, S.A. Portugal Mozelos, Santa Maria da Feira 4535-186 Rua Comendador Américo Ferreira Amorim, 260
UN CPC code	31922. Articles of natural cork; agglomerated cork and articles thereof
Geographical scope(s)	Europe
Actual or technical lifespan	20 year(s)

PRODUCT IMAGES



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PRODUCT INFORMATION

Product name	Corkeen 110mm
Product identification	Playground surface system with 110mm of thickness.
Product description	Corkeen is a shock absorption surfacing system made from cork and a polyurethane binder, developed by Amorim Cork Solutions (ACS). Due to cork characteristics, Corkeen is characterized by high impact absorption, high drainage capacity and lower surface temperatures than comparable materials, providing a safe and stable solution for playgrounds.
Product information from external sources	https://corkeen.com/en/
Technical purpose of product	Corkeen functions as an impact absorption surface for playgrounds, where safety of children is key. Corkeen offers a range of thicknesses to comply with CFH (Critical Fall Height) requirements of that market. Cork properties not only are the basis for the shock absorption function but also contribute to other key characteristics of the system, such as high drainage capacity and low surface temperatures, resulting in a safe, comfortable and reliable solution for playgrounds.
Manufacturing or service provision description	The manufacturing process includes the following processes: cork grinding, mixing (top layer only), drying (top layer only), and packaging
Material properties	Area density: 14.67 kg/m ² Thickness: 0.11 m
Manufacturing site	Amorim Cork Solutions, S.A. Portugal Mozelos, Santa Maria da Feira 4535-186 Rua Comendador Américo Ferreira Amorim, 260
UN CPC code	31922. Articles of natural cork; agglomerated cork and articles thereof
Geographical scope(s)	Europe
Actual or technical lifespan	20 year(s)

PRODUCT IMAGES



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PRODUCT INFORMATION

Product name	Corkeen 135mm
Product identification	Playground surface system with 135mm of thickness.
Product description	Corkeen is a shock absorption surfacing system made from cork and a polyurethane binder, developed by Amorim Cork Solutions (ACS). Due to cork characteristics, Corkeen is characterized by high impact absorption, high drainage capacity and lower surface temperatures than comparable materials, providing a safe and stable solution for playgrounds.
Product information from external sources	https://corkeen.com/en/
Technical purpose of product	Corkeen functions as an impact absorption surface for playgrounds, where safety of children is key. Corkeen offers a range of thicknesses to comply with CFH (Critical Fall Height) requirements of that market. Cork properties not only are the basis for the shock absorption function but also contribute to other key characteristics of the system, such as high drainage capacity and low surface temperatures, resulting in a safe, comfortable and reliable solution for playgrounds.
Manufacturing or service provision description	The manufacturing process includes the following processes: cork grinding, mixing (top layer only), drying (top layer only), and packaging
Material properties	Area density: 17.19 kg/m ² Thickness: 0.135 m
Manufacturing site	Amorim Cork Solutions, S.A. Portugal Mozelos, Santa Maria da Feira 4535-186 Rua Comendador Américo Ferreira Amorim, 260
UN CPC code	31922. Articles of natural cork; agglomerated cork and articles thereof
Geographical scope(s)	Europe
Actual or technical lifespan	20 year(s)

PRODUCT IMAGES



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TECHNICAL CHARACTERISTICS AND PERFORMANCE

Technical performance

Product name	Area density (kg/m ²)	thickness (mm)
Corkeen 50mm	8.16	50
Corkeen 40mm	7.11	40
Corkeen 70mm	10.36	70
Corkeen 90mm	12.53	90
Corkeen 110mm	14.67	110
Corkeen 135mm	17.19	135

CONTENT DECLARATION

Content declaration of multiple products	Representative product Corkeen 50mm
Hazardous and toxic substances	The product does not contain any substances from the SVHC candidate list in concentrations exceeding 0.1% of its weight.

PRODUCT CONTENT

Content name	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material ¹ , kg C/declared unit
Cork	4.07	1.61	100	2.27
Binder	4.09	0	0	0
Total	8.16	1.61	100	2.27
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂			

PACKAGING MATERIALS

Material name	Mass, kg	Mass-% (versus the product)	Biogenic material ¹ , kg C/declared unit
Big Bag	0.01	0.13	0
Polypropylene plastic strap	0.0001	0.001	0
Paper bag	0.054	0.663	0.02
Plastic film	0.003	0.035	0
Wooden pallet	0.57	6.958	0.23
IBC	0.07	0.879	0
Total	0.7071	8.666	0.25
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂		

LCA INFORMATION

EPD based on declared or functional unit	Declared unit
Declared unit and reference flow	Corkeen Area: 1 m ²
Conversion factor to mass	8.16
Are infrastructure or capital goods included in any upstream, core or downstream processes?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Do infrastructure and capital goods contribute more than 10% to the A1-A3 (A1-A5 for services) results of any environmental impact indicator declared in the EPD?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Data sources used for this EPD	ecoinvent database (general) ecoinvent 3.11 database Other database EF database v2.0
LCA Software	SimaPro 10.2
Additional information about the underlying LCA-based information	<p>Cut-off rules: Criteria for the exclusion of inputs and outputs follow the requirements of EN 15804: 2012+A2 2019. Where there was insufficient data for a unit process in the LCA study, the cut-off criteria were set at 1% of renewable and non-renewable primary energy usage and 1% of the total mass input of that process, with a maximum of 5% of energy usage and mass per module, ensuring that at least 95% of the environmental impact per module is considered. Based on this cut-off criteria, no material or energy flows were excluded from the analysis. Personnel-related processes, such as transportation of employees to and from work, production and end-of-life processes of infrastructure and capital goods used in the product system as well as in upstream and downstream processes, and consumption and emissions in administrative areas and laboratories were not considered (except capital goods related to on-site energy generation equipment, such as photovoltaic panels and boilers).</p> <p>Allocation: During the production of the Corkeen products, no co-products are produced; therefore, co-product allocation does not apply. All products sent to recycling are treated under the "polluter pays" principle.</p>
Version of the EN 15804 reference package	EF Reference Package 3.1
Characterisation methods	EN 15804+A2 (version 1.01), LHV Cumulative Energy Demand (CED) (version 1.01), Selected LCI results, additional (version 1.07), EDIP 2003 (version 1.07)
Technology description including background system	<p>The products considered are surface systems for playground applications.</p> <p>They are composed of cork granules and a binding agent.</p> <p>The production of Corkeen comprises four stages: cork grinding, mixing, drying and packaging.</p>

Scrap (recycled material) inputs contribution level	Less than 10% of the GWP-GHG results in modules A1-A3 come from scrap inputs
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Data quality assessment

Description of data quality assessment and reference years	Primary data was provided by ACS and was based on the average production of Corkeen products in 2024. For processes which the producer had no influence on or no specific information about, such as extraction of raw materials, production of customised products and electricity generation, literature and generic data from ecoinvent database v3.11 and EF database 2.0 was used, considering technological, geographical and temporal significance.
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DATA QUALITY ASSESSMENT					
Process name	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Production of cork	Database	ecoinvent v3.11	2024	Secondary data	
Production of binder	Database	ecoinvent v3.11	2024	Secondary data	
Manufacturing data (e.g. electricity, heat, steam)	Collected data, Database	EDP owner, ecoinvent v3.11	2024	Primary and secondary data	7.64%
Total share of primary data, of GWP-GHG results for A1-A3					7.64%
Note	The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.				

Comment on the data sources and other information in the table	The data quality assessment has been carried out in accordance with EN 15804:2012+A2, EN 15941, and PCR 2019:14 Construction Products.
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ELECTRICITY USED IN THE MANUFACTURING PROCESS IN A3 (A5 FOR SERVICES)		
Type of electricity mix	Residual electricity mix on the market	
Energy sources	Hydro	4%
	Wind	7%
	Solar	9%
	Biomass	0%
	Geothermal	0%
	Waste	0%

	Nuclear	6%
	Natural gas	46%
	Coal	27%
	Oil	0%
	Peat	0%
	Other	2%
Climate impact (GWP-GHG):	0.6 kg CO ₂ eq./kWh	

Method used to calculate residual electricity mix	<p>Residual electricity mix on the Portuguese market based on ecoinvent dataset "Electricity, low voltage {PT} electricity, low voltage, residual mix EN15804, U" has been used.</p> <p>ACS has a solar photovoltaic installation that accounts for about 9% of the company's annual energy consumption.</p>
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SYSTEM BOUNDARY

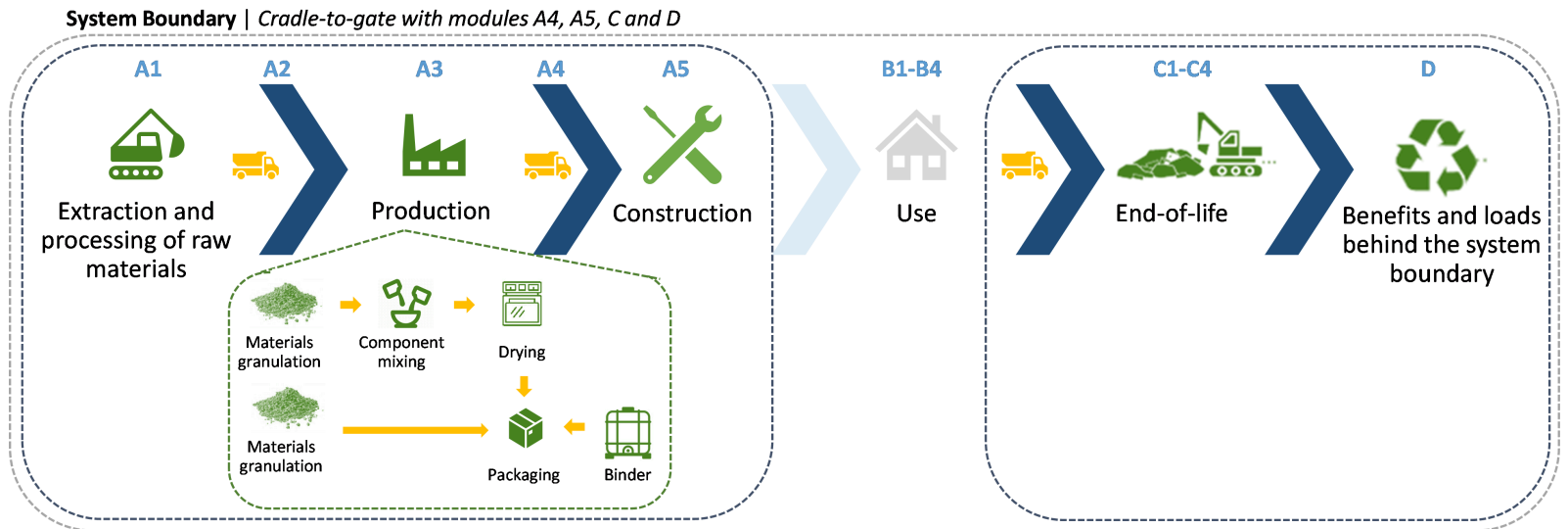
Description of the System boundary	b) Cradle to gate with options, modules C1-C4, module D and with optional modules (A1-A3 + C + D and additional modules).
Excluded modules	Yes, there is an excluded module, or there are excluded modules
Justification for omission of modules	The use stage is not included.

	Product stage			Construction process stage		Use stage							End of life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport to site	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	Europe	Europe	Portugal	Europe	Europe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Europe	Europe	Europe	Europe	Europe
Share of specific data	7.64%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	69.89%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disclaimer	The share of specific/primary data and both variations (products and sites) refer to GWP-GHG results only.																

Description of the process flow diagram(s)

Modules A1-A3 cover the extraction, production and acquisition of the main raw materials and pre-products, as well as electricity and fuel generation, transport of all raw materials considered in module A1 to the factory gate, and production of the final products, including waste management and emissions. In the manufacturing process (module A3) the following steps were considered: cork grinding, mixing (top layer only), drying (top layer only), and packaging.

Process flow diagram(s) related images



DEFAULT SCENARIO

Name of the default scenario	Representative scenario
Description of the default scenario	Most representative scenario of Module A4, A5, end-of-life (C1-C4) and Module D.

Module A4: Transport to the building site

Explanatory name of the default scenario in module A4	Transport
Description of the default scenario in module A4	For the transport of the final product, the distance from ACS to the brand master was calculated based on a weighted average considering the share of sales into the most representative markets (representing >80% of sales) and the respective transport distance. A distance of 300 km from the brand master to the installation site was also assumed.

Module A4 information	Value	Unit
Distance	2715	km
Transport type	Truck, Euro 6	N/A
Load factor	50	%

Module A5: Installation in the building

Explanatory name of the default scenario in module A5	Installation
Description of the default scenario in module A5	<p>The Corkeen system is installed through a controlled multi-stage process, including subbase preparation, primer application, and successive layers of cork granulate mixed with a binder. Installation requires appropriate equipment and controlled conditions to ensure quality and performance. This stage includes electricity consumption, an additional percentage of materials, the use of auxiliary materials, as well as waste transport, treatment of packaging and Corkeen waste, based on real data from ACS and estimates provided by the brand masters.</p>

Module A5 information	Value	Unit
Use of other resources Primer	1.01	kg
Energy consumption	0.58	kg
Additional consumption of Corkeen	1	%
Waste Recycling	0.73	kg
Waste Landfill	0.09	kg
Waste Transport	50	km
Other resources Transport	100	km

Module C: End-of-life

Explanatory name of the default scenario in module C	Default end-of-life
Description of the default scenario in module C	The default scenario considers 90% recycling and 10% landfilling of waste, according to ACS. Module C1 has been modelled considering diesel consumption for dismantling operations required to remove the product from the playground considering the default factors from PCR 2019:14. For transport at the end-of-life (Module C2), distances of 2415 km to the recycling plant (ACS facilities) and 80 km to landfill were assumed, according to PCR 2019:14. Module C3 was modelled using primary data from ACS, while Module C4 includes the environmental burdens associated with the landfilling of Corkeen products. The release of CO ₂ sequestered in the product during its useful life was also considered.

Module C information	Value	Unit
C1: Diesel consumption	0.03	MJ
C2: Transport to recycling plant	2415	km
C2: Transport to landfill	80	km
C3: Waste sent to recycling	7.34	kg
C3: Electricity consumption	2.99	MJ
C3: Other types of energy consumption	4.5	MJ
C4: Waste sent to landfill	0.82	kg

Module D: Beyond product life cycle

Explanatory name of the default scenario in module D	Default Module D
Description of the default scenario in module D	Module D was calculated for recycling flows in accordance with EN 15804:2012+A2:2019 – Annex D, corrected according to PCR 2019:14 (see Table 27 and Equation 1). Benefits and loads were assessed at the point of functional equivalence, where the substitution of cork takes place, and a recycling efficiency of 95% was considered.

ADDITIONAL SCENARIO 1

Name of the additional scenario	Alternative scenario 2 - 100% landfill
Description of the additional scenario	Alternative end-of-life scenario, considering 100% landfill.

Module A4: Transport to the building site

Description of the additional scenario in module A4	The transport is the same as in the representative scenario.
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Module A5: Installation in the building

Description of the additional scenario in module A5	The installation is the same as in the representative scenario.
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Module C: End-of-life

Description of the additional scenario in module C	The default scenario considers 100% landfilling of waste. Module C1 has been modelled considering diesel consumption for dismantling operations required to remove the product from the playground considering the default factors from PCR 2019:14. For transport at the end-of-life (Module C2), distance of 80 km to landfill were assumed, according to PCR 2019:14. Module C4 includes the environmental burdens associated with the landfilling of Corkeen products. The release of CO ₂ sequestered in the product during its useful life was also considered.
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Module C information	Value	Unit
C1: Diesel consumption	0.03	MJ
C2: Transport to landfill	80	km
C4: Waste sent to landfill	8.16	kg

Module D: Beyond product life cycle

Description of the additional scenario in module D	There are no benefits and loads beyond the system boundary.
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ADDITIONAL SCENARIO 2

Name of the additional scenario	Alternative scenario 1 - 100% recycling
Description of the additional scenario	Alternative end-of-life scenario, considering 100% recycling.

Module A4: Transport to the building site

Description of the additional scenario in module A4	The transport is the same as in the representative scenario.
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Module A5: Installation in the building

Description of the additional scenario in module A5	The installation is the same as in the representative scenario.
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Module C: End-of-life

Description of the additional scenario in module C	The default scenario considers 1000% recycling of waste. Module C1 has been modelled considering diesel consumption for dismantling operations required to remove the product from the playground considering the default factors from PCR 2019:14. For transport at the end-of-life (Module C2), distances of 2415 km to the recycling plant (ACS facilities). Module C3 was modelled using primary data from ACS The release of CO2 sequestered in the product during its useful life was also considered.
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Module C information	Value	Unit
C1: Diesel consumption	0.03	MJ
C2: Transport to recycling plant	2415	km
C3: Waste sent to recycling	8.16	kg
C3: Electricity consumption	3.33	MJ
C3: Other types of energy consumption	4.99	MJ

Module D: Beyond product life cycle

Description of the additional scenario in module D

Module D was calculated for recycling flows in accordance with EN 15804:2012+A2:2019 – Annex D, corrected according to PCR 2019:14 (see Table 27 and Equation 1). Benefits and loads were assessed at the point of functional equivalence, where the substitution of cork takes place, and a recycling efficiency of 95% was considered.

ENVIRONMENTAL PERFORMANCE

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Mandatory environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Variation ³
Climate change - total	GWP-total	kg CO ₂ eq.	1.56E+1	2.50E+0	5.16E+0	ND	ND	ND	ND	ND	ND	ND	3.06E-3	2.08E+0	8.03E+0	8.90E-1	1.07E+1	68.31%
Climate change - fossil	GWP-fossil	kg CO ₂ eq.	2.32E+1	2.50E+0	4.22E+0	ND	ND	ND	ND	ND	ND	ND	3.06E-3	2.08E+0	5.30E-1	7.07E-3	-1.71E+0	68.19%
Climate change - biogenic	GWP-biogenic	kg CO ₂ eq.	-7.69E+0	5.50E-4	9.34E-1	ND	ND	ND	ND	ND	ND	ND	5.37E-7	4.56E-4	7.50E+0	8.83E-1	1.24E+1	70.88%
Climate change - land use and land-use change	GWP-luluc	kg CO ₂ eq.	7.71E-2	4.00E-5	9.88E-3	ND	ND	ND	ND	ND	ND	ND	1.26E-7	3.32E-5	2.48E-5	7.14E-7	-9.07E-3	66.50%
Ozone depletion	ODP	kg CFC-11 eq.	9.59E-7	5.75E-8	1.77E-7	ND	ND	ND	ND	ND	ND	ND	4.65E-11	4.77E-8	1.01E-8	2.32E-10	-3.45E-8	62.56%
Acidification	AP	mol H ⁺ eq.	8.57E-2	3.12E-3	1.44E-2	ND	ND	ND	ND	ND	ND	ND	2.82E-5	2.59E-3	2.96E-3	4.83E-5	-7.38E-3	65.68%
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	7.13E-4	1.56E-6	1.04E-4	ND	ND	ND	ND	ND	ND	ND	2.88E-9	1.30E-6	2.28E-5	3.85E-8	-5.32E-5	63.66%
Eutrophication aquatic marine	EP-marine	kg N eq.	2.85E-2	6.92E-4	3.90E-3	ND	ND	ND	ND	ND	ND	ND	1.33E-5	5.75E-4	1.04E-3	3.58E-5	-2.91E-3	66.78%
Eutrophication terrestrial	EP-terrestrial	mol N eq.	2.18E-1	7.55E-3	3.13E-2	ND	ND	ND	ND	ND	ND	ND	1.46E-4	6.27E-3	1.14E-2	2.31E-4	-2.71E-2	69.77%
Photochemical ozone formation	POCP	kg NMVOC eq.	8.91E-2	6.12E-3	2.38E-2	ND	ND	ND	ND	ND	ND	ND	4.36E-5	5.08E-3	3.09E-3	1.00E-4	-1.21E-2	65.40%
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals ^{1, 2}	kg Sb eq.	5.04E-6	6.60E-8	6.53E-7	ND	ND	ND	ND	ND	ND	ND	1.07E-10	5.48E-8	9.14E-9	3.37E-9	-1.03E-7	66.06%
Depletion of abiotic resources - fossil fuels	ADP-fossil ¹	MJ, net calorific value	4.20E+2	3.37E+1	9.16E+1	ND	ND	ND	ND	ND	ND	ND	4.00E-2	2.79E+1	7.47E+0	1.76E-1	-2.38E+1	64.11%
Water use	WDP ¹	m ³ world eq. deprived	7.19E+0	2.67E-2	1.22E+0	ND	ND	ND	ND	ND	ND	ND	5.04E-5	2.22E-2	1.21E-1	-1.58E-1	-2.42E-1	59.41%
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption																	
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																	
Disclaimer 1	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator																	
Disclaimer 2	The results of the impact categories abiotic depletion of minerals and metals may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.																	
Disclaimer 3	The maximum variation in results between the included products for modules A-C.																	

Additional mandatory environmental performance indicators

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - GWP-GHG	GWP-GHG ¹	kg CO ₂ eq.	2.33E+1	2.50E+0	4.23E+0	ND	ND	ND	ND	ND	ND	ND	3.06E-3	2.08E+0	5.30E-1	7.07E-3	-1.71E+0
Acronyms	GWP-GHG = Global warming potential greenhouse gas.																
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																
Disclaimer 1	The GWP-GHG indicator is termed GWP-IOBC/GHG in the ILCD+EPD+ data format. The indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO ₂ is set to zero.																

Additional voluntary environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter emissions	PM	Disease incidence	1.27E-6	1.60E-7	1.48E-7	ND	ND	ND	ND	ND	ND	ND	8.14E-10	1.33E-7	4.51E-8	1.22E-9	-6.00E-7
Ionizing radiation - human health	IRP ¹	kBq U235 eq.	4.47E-1	3.23E-3	1.49E-1	ND	ND	ND	ND	ND	ND	ND	3.32E-6	2.68E-3	1.49E-2	1.09E-4	-3.41E-2
Eco-toxicity - freshwater	ETP-fw ^{2, 3}	CTUe	9.71E+2	1.24E+0	1.25E+2	ND	ND	ND	ND	ND	ND	ND	1.15E-3	1.03E+0	5.49E-1	1.37E-2	-1.61E+0
Human toxicity - cancer effects	HTP-c ^{2, 3}	CTUh	4.12E-8	1.57E-10	5.23E-9	ND	ND	ND	ND	ND	ND	ND	1.64E-13	1.30E-10	4.34E-11	8.30E-13	-3.87E-10
Human toxicity - non-cancer effects	HTP-nc ^{2, 3}	CTUh	9.57E-8	1.78E-8	1.61E-8	ND	ND	ND	ND	ND	ND	ND	3.02E-12	1.48E-8	2.22E-9	1.27E-10	-5.46E-9
Land-use related impacts/soil quality	SQP ^{2, 3}	Dimensionless	1.62E+3	4.28E-2	1.97E+1	ND	ND	ND	ND	ND	ND	ND	6.79E-5	3.55E-2	3.84E-1	4.44E-1	-1.96E+3
Acronyms	PM = Potential incidence of disease due to particulate matter emissions; IRP = Potential human exposure efficiency relative to U235; ETP-fw = Potential comparative toxic unit for ecosystems; HTP-c = Potential comparative toxic unit for humans; HTP-nc = Potential comparative toxic unit for humans; SQP = Potential soil quality index.																
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																
Disclaimer 1	This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.																
Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.																
Disclaimer 3	The results of the impact categories land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.																

Resource use indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ, net calorific value	5.73E+2	8.39E-2	9.52E+0	ND	ND	ND	ND	ND	ND	ND	8.72E-5	6.97E-2	6.12E+0	4.03E-3	-8.20E+2
PERM	MJ, net calorific value	9.57E+1	0.00E+0	9.57E-1	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ, net calorific value	6.69E+2	8.39E-2	1.05E+1	ND	ND	ND	ND	ND	ND	ND	8.72E-5	6.97E-2	6.12E+0	4.03E-3	-8.20E+2
PENRE	MJ, net calorific value	2.78E+2	3.37E+1	9.02E+1	ND	ND	ND	ND	ND	ND	ND	4.00E-2	2.79E+1	7.47E+0	1.76E-1	-2.38E+1
PENRM	MJ, net calorific value	1.42E+2	0.00E+0	1.42E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ, net calorific value	4.20E+2	3.37E+1	9.16E+1	ND	ND	ND	ND	ND	ND	ND	4.00E-2	2.79E+1	7.47E+0	1.76E-1	-2.38E+1
SM	kg	3.39E+0	1.74E-5	3.71E-2	ND	ND	ND	ND	ND	ND	ND	8.05E-8	1.44E-5	2.44E-5	1.60E-5	-8.44E-4
RSF	MJ, net calorific value	1.36E+0	1.44E-6	2.95E-3	ND	ND	ND	ND	ND	ND	ND	1.39E-8	1.19E-6	9.81E-7	8.33E-7	-3.57E-6
NRSF	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m ³	1.75E-1	6.52E-4	3.05E-2	ND	ND	ND	ND	ND	ND	ND	1.21E-6	5.41E-4	2.76E-3	-3.68E-3	-5.68E-3
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

Waste indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	1.37E+0	1.28E-3	1.82E-1	ND	ND	ND	ND	ND	ND	ND	4.20E-6	1.06E-3	3.72E-2	7.91E-5	-8.36E-2
NHWD	kg	4.52E+1	1.09E-1	7.18E+0	ND	ND	ND	ND	ND	ND	ND	1.43E-4	9.02E-2	1.30E+0	4.64E+0	-1.75E+0
RWD	kg	3.11E-4	2.03E-6	1.18E-4	ND	ND	ND	ND	ND	ND	ND	1.86E-9	1.69E-6	1.11E-5	5.91E-8	-2.53E-5
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

Output flow indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
CRU	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	kg	8.89E-3	7.58E-7	7.26E-1	ND	ND	ND	ND	ND	ND	ND	1.07E-9	6.30E-7	1.58E-4	3.66E-6	-3.80E-3
MER	kg	7.65E-6	4.97E-9	9.86E-7	ND	ND	ND	ND	ND	ND	ND	3.34E-11	4.13E-9	2.94E-8	7.92E-10	-1.10E-7
EEE	MJ, net calorific value	3.84E-1	1.34E-3	6.68E-2	ND	ND	ND	ND	ND	ND	ND	7.13E-7	1.12E-3	9.23E-2	8.06E-5	-2.07E-1
EET	MJ, net calorific value	5.46E-2	3.19E-3	1.31E-2	ND	ND	ND	ND	ND	ND	ND	2.86E-7	2.65E-3	1.66E-4	1.24E-3	-8.05E-4
Acronyms	CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

Results for additional scenarios for modules A4-C4

Additional scenario	Alternative scenario 1 - 100% recycling
Description of the scenario/method	<p>Compared to the default scenario:</p> <p>C1 results are the same;</p> <p>C2 results are higher;</p> <p>C3 results are higher as 100% of the product is recycled;</p> <p>C4 results are zero as no waste is sent to landfill.</p> <p>D results are lower, as the quantity of recycled material arising from the product system is higher (for most categories)</p>

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global warming potential - total	GWP-total	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.06E-3	2.30E+0	8.92E+0	ND	1.19E+1
Global warming potential - fossil fuels	GWP-fossil	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.06E-3	2.30E+0	5.89E-1	ND	-1.90E+0
Global warming potential - biogenic	GWP-biogenic	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.37E-7	5.06E-4	8.33E+0	ND	1.38E+1
Global warming potential - land use and land use change	GWP-luluc	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.26E-7	3.68E-5	2.75E-5	ND	-1.01E-2
Depletion potential of the stratospheric ozone layer	ODP	kg CFC-11 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.65E-11	5.29E-8	1.12E-8	ND	-3.83E-8
Acidification potential, accumulated exceedance	AP	mol H+ eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.82E-5	2.87E-3	3.30E-3	ND	-8.20E-3
Eutrophication potential - freshwater	EP-freshwater	kg P eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.88E-9	1.44E-6	2.54E-5	ND	-5.91E-5
Eutrophication potential - marine	EP-marine	kg N eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.33E-5	6.37E-4	1.16E-3	ND	-3.23E-3
Eutrophication potential - terrestrial	EP-terrestrial	mol N eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.46E-4	6.95E-3	1.27E-2	ND	-3.01E-2
Photochemical ozone creation potential	POCP	kg NMVOC eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.36E-5	5.63E-3	3.44E-3	ND	-1.35E-2
Abiotic depletion potential - non-fossil resources	ADPE	kg Sb eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.07E-10	6.08E-8	1.02E-8	ND	-1.14E-7
Abiotic depletion potential - fossil resources	ADPF	MJ, net calorific value	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.00E-2	3.10E+1	8.29E+0	ND	-2.65E+1
Water (user) deprivation potential	WDP	m3 world eq. deprived	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.04E-5	2.46E-2	1.35E-1	ND	-2.70E-1
Acronyms																	
Disclaimers																	
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																

Results for additional scenarios for modules A4-C4

Additional scenario	Alternative scenario 2 - 100% landfill
Description of the scenario/method	<p>Compared to the default scenario:</p> <p>C1 results are the same;</p> <p>C2 results are lower;</p> <p>C3 results are zero as no waste is sent to recycling;</p> <p>C4 results are higher as all waste is sent to landfill;</p> <p>D results are zero, as there is no recycled material arising from the product system.</p>

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global warming potential - total	GWP-total	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.06E-3	7.63E-2	ND	7.67E+0	ND
Global warming potential - fossil fuels	GWP-fossil	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.06E-3	7.63E-2	ND	7.07E-2	ND
Global warming potential - biogenic	GWP-biogenic	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.37E-7	1.68E-5	ND	7.60E+0	ND
Global warming potential - land use and land use change	GWP-luluc	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.26E-7	1.22E-6	ND	7.14E-6	ND
Depletion potential of the stratospheric ozone layer	ODP	kg CFC-11 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.65E-11	1.75E-9	ND	2.32E-9	ND
Acidification potential, accumulated exceedance	AP	mol H+ eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.82E-5	9.51E-5	ND	4.83E-4	ND
Eutrophication potential - freshwater	EP-freshwater	kg P eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.88E-9	4.77E-8	ND	3.85E-7	ND
Eutrophication potential - marine	EP-marine	kg N eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.33E-5	2.11E-5	ND	3.58E-4	ND
Eutrophication potential - terrestrial	EP-terrestrial	mol N eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.46E-4	2.30E-4	ND	2.31E-3	ND
Photochemical ozone creation potential	POCP	kg NMVOC eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.36E-5	1.87E-4	ND	1.00E-3	ND
Abiotic depletion potential - non-fossil resources	ADPE	kg Sb eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.07E-10	2.01E-9	ND	3.37E-8	ND
Abiotic depletion potential - fossil resources	ADPF	MJ, net calorific value	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.00E-2	1.03E+0	ND	1.76E+0	ND
Water (user) deprivation potential	WDP	m3 world eq. deprived	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.04E-5	8.15E-4	ND	-1.58E+0	ND
Acronyms																	
Disclaimers																	
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																

INFORMATION RELATED TO EPDS OF MULTIPLE PRODUCTS

Justification for why this is representative	The product Corkeen 50 mm was selected as representative for this EPD because it accounts for approximately 40% of the total production volume during the reference period, reflecting its high market relevance. It is produced using the same raw materials and manufacturing processes as other thicknesses in the Corkeen product range.
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ABBREVIATIONS

EPD: Environmental product Category

ISO: International Organization for Standardization

PCR: Product Category Rules

ACS: Amorim Cork Solutions

LCA: Life Cycle Assessment

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VERSION HISTORY

2026-05-08, Original version of the EPD

