

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

DESSO AirMaster Sphere

from

TARKETT



Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-11798
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Programme information

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

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): <i>PCR 2019:14 version 1.3.1 and c-PCR-004 Resilient, textile and laminate floor coverings (EN 16810)</i>
PCR review was conducted by: <i>The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. The review panel may be contacted via info@environdec.com.</i>
Independent third-party verification of the declaration and data, according to ISO 14025:2006: <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification
Third party verifier: <i>Damien Prunel from LCIE Bureau Veritas</i>
Procedure for follow-up of data during EPD validity involves third party verifier: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Tarkett

Contact: Sandy Bentmim (sandy.bentmim@tarkett.com)

Description of the organisation:

With an international coverage and a wide range of products, Tarkett has over 130 years of experience in providing integrated solutions for floorings to professionals and end users. Many of the most important architectural firms in the world and building professionals have chosen Tarkett for the value of its products and for its consultation and service abilities. Therefore, Tarkett floorings and sport surfaces are present in several prestigious architectural reference points. Tarkett offers integrated solutions for floorings, able to meet the particular needs of customers. Our wide range of designs, colours and models provides an infinite series of possibilities, contributing to create a positive environment and a better quality of life for people.

Tarkett operates with the utmost respect for the environment towards the realization of eco-friendly products.

Tarkett's commitment to the environment is woven throughout its business. Cradle-to-Cradle principles are, in fact, the basis of the design and production of every solution. Particularly, the lifecycle analysis is used to continuously improve the production process, and so the products until their use stage, disposal and recycling. The development of products that can be reused within internal production cycles, or external ones in case of other individuals, has been an integral part of the business strategy aimed at sustainability for many years. The WCM (World Class Manufacturing) management system has been developed in 2009, and it includes the environmental pillar aimed to the elimination of losses and to the growth of process efficiency.

Product-related or management system-related certifications: ISO 14001, ISO 45001, WCM manufacturing site

Name and location of production site(s): Dendermonde (Belgium) and Waalwijk (Netherlands)

Product information

Product name: DESSO AirMaster Sphere

Product identification: Carpet tiles with a 100% recyclable DESSO EcoBase[®]¹ backing and a 100% regenerated solution dyed Nylon yarn (Econyl)

Product description: Loose-lay carpet tiles (EN 1307) with DESSO EcoBase[®] backing developed by Tarkett. The service lifetime recommended by Tarkett is 10 years.

UN CPC code: 27230

LCA information

Functional unit / declared unit: 1m² of floor covering with a reference service life (RSL) of 1 year for specified characteristics application and use areas according to ISO 1307 and EN ISO 10874.

Reference service life: 1 year

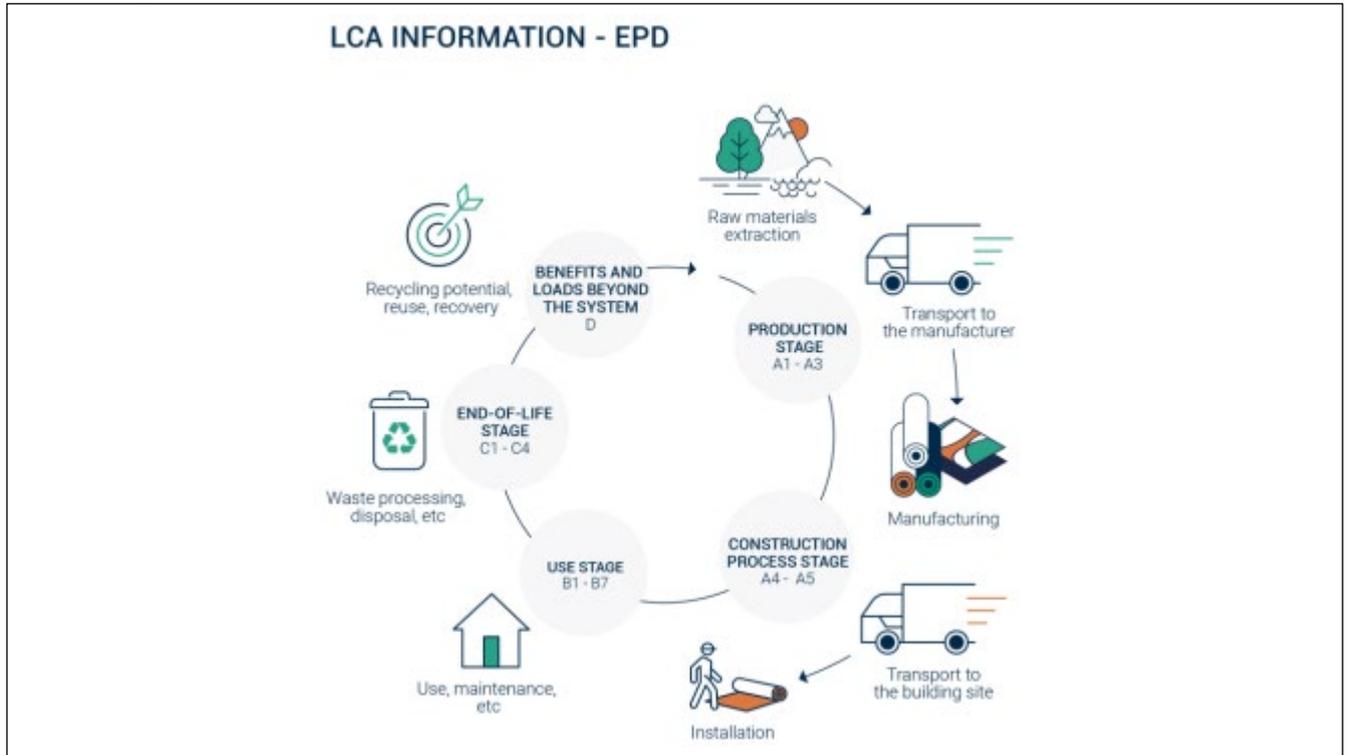
Time representativeness: 2022

¹ Assured by Lloyds Register

Database(s) and LCA software used: Ecoinvent 3.9.1, Simapro 9.5.0.2

Description of system boundaries: Cradle to grave and module D (A + B + C + D)

System diagram:



More information: The products are classified in accordance with EN ISO 10874, (previously EN 685) and in reference to the FCSS (Floor Covering Standard Symbols) to be used in all professional areas which require class 33 or less.

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage	
	Raw material supply	Transport	Manufacturing	Transport	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	X	ND	ND	ND	ND	ND	X	X	X	X	X	
Geography	European technology and process coverage																European	
Specific data used	-	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	100% for recycling process	100% for recycling process	
Variation – products	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Characteristics	Product Thickness [mm]	Product Weight [kg/m ²]	Dimension stability [%]
DESSO AirMaster Sphere	6.00E+00	3.90E+00	<0.2

Chemical composition for above mentioned product is presented in the following table:

Product components	Weight [%]	Post-consumer material, weight-%	Renewable material, weight-%
Non-woven (PET/PP)	4	0	0
Yarn PA6 (100% recycled)*	18	50	0
SBR-compound	5	0	0
Aluminium trihydrate	13	0	0
Primary chalk	3	0	0
Glass scrim	1	0	0
EcoBase (w. recycled chalk)	56	0	9
Packaging materials	Weight, kg	Weight-% (versus the product)	
Cardboard box	1.09E-01	3	
Wooden pallet	1.00E-01	2	

* The yarn is manufactured from 50% pre-consumer and 50% post-consumer materials. The environmental impact of the yarn is based on the EPD-S-P-08203 compliant to EN 15804+A2.

Material Health

DESSO AirMaster Sphere is C2C-Silver certified.

Raw materials are assessed against 'Material Health' criteria as defined by the C2C product certification standard v3.1 and the C2C Material Health Assessment methodology (see www.c2ccertified.org).

Recycled content (third-party verified)

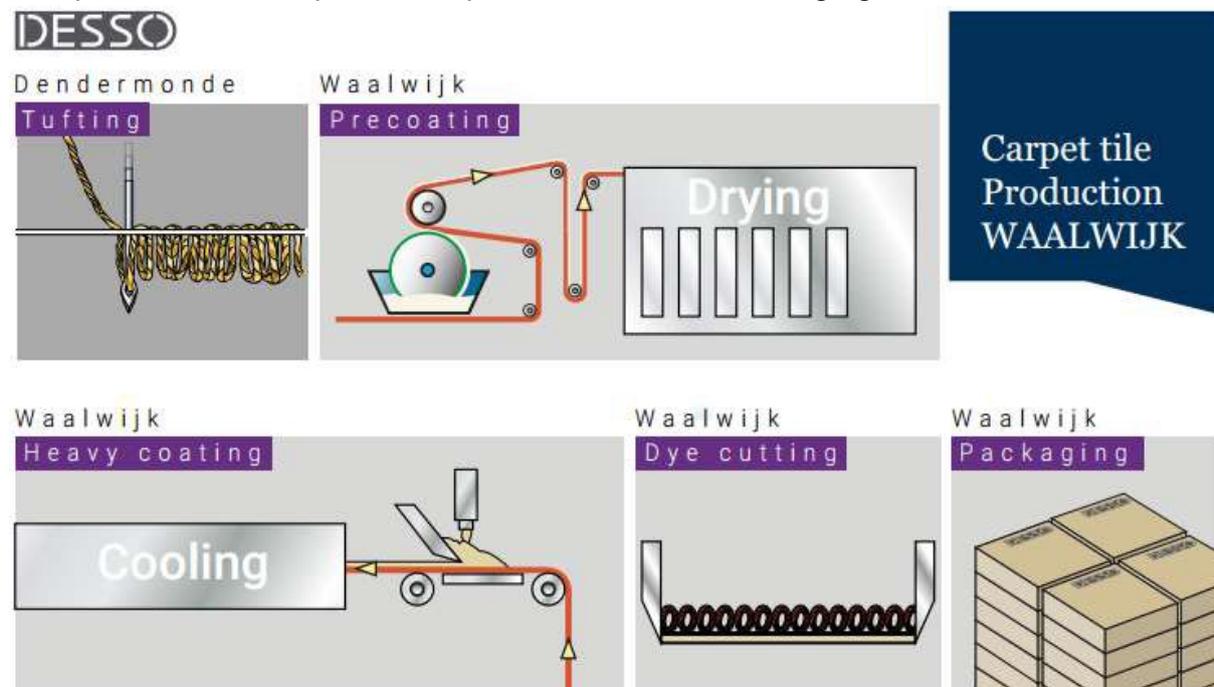
DESSO AirMaster Sphere contains 69% recycled content and bio-based content². The product is delivered with the Cradle to Cradle® Gold-certified DESSO EcoBase® backing, which is 100% recyclable³ and designed with 100% positively defined⁴ ingredients, including chalk upcycled from the Dutch drinking water industry, as the raw material in our DESSO EcoBase carpet backing.

The product is made with ECONYL yarn which is a 100% regenerated nylon upcycled from post-consumer carpet yarn and discarded fishing nets.

Product manufacturing

Production process

The production of carpet tiles is presented in the following figure:



Renewable energy

Our carpet tiles are produced with energy from 100% renewable sources. The electricity is coming from renewable sources with Guarantees of Origin⁵.

² This includes 5% bio-based content based on the total product weight

³ Assured by Lloyds Register

⁴ Positively defined means all ingredients have been assessed as either Green (optimal) or Yellow (tolerable) according to the Cradle to Cradle® assessment criteria. As described in Cradle to Cradle® Certified Product Standard Version 3.1

⁵ A mix of mainly wind and a small part of solar and hydro energy reflecting 0,04kgCO₂eq/kWh

Production waste

Waste type	DESSO AirMaster Sphere
Non-hazardous waste to incineration in the cement industry [kg/m ²]	2.29E-01
Non-hazardous wastewater to external treatment [kg/m ²]	2.63E-02

Delivery and installation

Delivery

The average distribution distance between the factories and the installation site is presented in the following table. The distribution is made by truck.

	DESSO AirMaster Sphere
Average distance of delivery [km]	7.00E+02

Installation

Carpet flooring do not use any electric tools for their installation. If a cut is necessary, it could be done with a manual tool.

Waste

During the installation approximately 3% of the flooring is lost as off-cuts. All flooring losses are sent to incineration.

Packaging

50% of the packaging materials goes to incineration and 50% goes to landfill except for wooden pallet which are recycled.

Use Stage

Reference Service Life (RSL)

For this product, the stated RSL is 1 year. It should be noted, however, that the service life of a carpet flooring may vary depending on the amount and nature of floor traffic and the type and frequency of maintenance. The manufacturer has provided this service life on the basis of his experience of flooring manufacture and supply. This RSL is applicable as long as the product use complies with that defined by ISO 14041 and ISO 10874 in accordance with the product's classification. The service lifetime recommended by Tarkett is 10 years.

Cleaning and maintenance

The maintenance step concerns the cleaning of the floor. Tarkett has provided the recommended maintenance routine for the product throughout the reference life. Water, detergent and electricity consumption of the cleaning machine are considered in the LCA study:

- Common maintenance: 2 times / week
- Periodical maintenance: 2 times / year

Description	Amount	Unit
Electricity consumption	4.42E-01	kWh/year/m ²
Water consumption	5.70E-02	L/year/m ²
Detergent consumption	3.00E-03	L/year/m ²

Prevention of structural damage

To avoid excessive wear, usage should be restricted to the stated areas of application as outlined by the norm ISO 10874.

End of Life

Our circular approach to carpet tiles enables us to reduce the emission of greenhouse gases like carbon dioxide, a major contributor to global warming. Tarkett has implemented a take-back and recycling program called ReStart⁶. Via Tarkett's Sales Network and with the help of logistic partners, post-use carpet tiles are collected and returned to Tarkett's carpet recycling centre in Waalwijk, the Netherlands⁷. DESSO's EcoBase products have been designed with disassembly and recycling in mind, which allows for recovery of yarn and backing materials in a closed-cycle and without loss of quality. The recycling process⁸ is developed by Tarkett and unique in the market.

The only carpet tile manufacturer with a closed-loop recycling system, we limit the use of virgin raw materials for new products, and avoid common, carbon-emitting options such as incineration and the landfill at product end-of-life. This closed-loop system ensures that our carpet tiles record an **impressively low circular carbon footprint of 0.66 kgCO₂/m² (Modules A-D)⁹**.

Transport

Carpets are recycled in the same factory where they are produced. So, the distance of transport between installation sites and recycling site is the same as for the module A4 (average delivery distance to customer).

DESSO AirMaster Sphere	
Transport distance to Tarkett's carpet recycling centre [km]	7.00E+02

⁶ https://professionals.tarkett.com/en_EU/node/restart-recycling-take-back-programme-9721

⁷ https://professionals.tarkett.com/en_EU/node/recycling-carpet-tile-materials-closing-loop-10207

⁸ Recyclability has been verified by Lloyds Register.

⁹ The sum from the modules A to D take into account a value of B2 (1.64E-01 kg CO₂) valid for 1 year.

Waste processing

Basically, the process separates yarn and EcoBase® backing and makes these main material streams available for the next carpet cycle, without loss of value and/or material properties (closed-loop recycling).

A small rest stream (mainly tuft cloth and SBR-compound) cannot be reused yet at the desired quality level. At this moment in time those streams will be considered as fuels and raw material (chalk and ATH) for the cement industry, until other outlets will be found.

Resource recovery

Module D has been considered for this study in order to evaluate the possible environmental benefits obtainable through the re-use of secondary materials in other production cycles. Particularly, the module clearly describes the benefits and the environmental charges deriving from reusable products exiting from the system, such as secondary materials or secondary fuels.

Three outlets have been considered:

- Yarn
- DESSO EcoBase® backing
- Others compounds

PA6 yarn will be sent back to Tarkett's yarn supplier Aquafil for depolymerization and reuse in new carpet yarns. This post-use material stream can be used for 100% and without quality loss for the production of new carpet yarns.

DESSO EcoBase® backing is 100% recyclable in Tarkett's own production process. Post-use material can be directly recovered in Tarkett's production for the same purpose and avoids the production and use of primary material.

A small rest fraction is recycled in the cement industry. The chalk and ATH content substitutes primary chalk, which is a raw material for the production of cement. Organic residues substitute primary fuel for processing.

Interpretation of results

The environmental impact of DESSO EcoBase products should be considered over the whole life cycle and beyond, including all module A-D. DESSO EcoBase consists of a novel recipe, specially designed to enable post-consumer recycling on a high level, which means, for the same purpose and without quality loss.

The new recipe was introduced in 2011. Because of the relatively long service lifetime (10 years), the majority of current products are still in their first cycle, meaning that recycled content is still very minimal and not included in the calculations.

Environmental Information

Potential environmental impact

Results per functional or declared unit - (End of Life -> Recycling)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq	3.74E+00	1.35E-01	3.88E-01	0.00E+00	1.64E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-01	7.09E-01	7.28E-01	-5.34E+00
GWP-fossil	kg CO2 eq	4.25E+00	1.35E-01	2.89E-01	0.00E+00	1.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-01	1.28E-01	7.28E-01	-5.36E+00
GWP-biogenic	kg CO2 eq	-5.18E-01	5.50E-05	9.86E-02	0.00E+00	1.14E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.51E-05	5.83E-01	5.99E-05	2.12E-02
GWP-Luluc	kg CO2 eq	7.64E-03	6.45E-05	2.38E-04	0.00E+00	6.33E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.45E-05	1.51E-04	5.55E-06	-4.39E-03
AP	kg CFC11 eq	1.25E-06	2.86E-09	3.80E-08	0.00E+00	2.93E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-09	3.39E-09	7.48E-10	-2.25E-08
ODP	mol H+ eq	1.97E-02	4.23E-04	6.80E-04	0.00E+00	8.06E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.30E-04	9.65E-04	1.66E-04	-1.07E-02
EP-freshwater	kg P eq	9.26E-04	9.22E-06	2.98E-05	0.00E+00	1.44E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.22E-06	6.65E-05	2.17E-06	-4.76E-04
EP-marine	kg N eq	5.24E-03	1.44E-04	2.91E-04	0.00E+00	1.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-04	1.58E-04	9.46E-05	-1.17E-03
EP-terrestrial	mol N eq	4.81E-02	1.52E-03	1.78E-03	0.00E+00	1.28E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-03	1.66E-03	8.07E-04	-1.70E-02
POCP	kg NMVOC eq	1.58E-02	6.32E-04	6.11E-04	0.00E+00	4.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.42E-04	5.46E-04	2.03E-04	-8.39E-03
ADP-minerals&metals*	kg Sb eq	2.31E-05	4.24E-07	7.37E-07	0.00E+00	3.35E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.24E-07	6.51E-06	3.50E-08	-9.55E-06
ADP-fossil*	MJ	7.57E+01	1.86E+00	2.48E+00	0.00E+00	3.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E+00	1.18E+00	1.34E-01	-1.22E+02
WDP	m3 depriv.	4.89E+00	7.44E-03	1.55E-01	0.00E+00	3.99E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.45E-03	3.52E-02	3.29E-02	5.55E+00
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															

* Disclaimer: 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.

Use of resources

Results per functional or declared unit - (End of Life -> Recycling)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ, net CV	4.22E+01	2.90E-02	2.85E+00	0.00E+00	6.87E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-02	1.81E+01	5.50E-03	1.78E+01
PERM	MJ, net CV	3.61E+00	0.00E+00	-1.47E+00	0.00E+00	4.50E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
PERT	MJ, net CV	4.59E+01	2.90E-02	1.38E+00	0.00E+00	6.87E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-02	1.81E+01	5.50E-03	1.78E+01
PENRE	MJ, net CV	5.19E+01	1.86E+00	1.76E+00	0.00E+00	3.64E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E+00	1.18E+00	1.34E-01	-1.04E+02
PENRM	MJ, net CV	4.64E+01	0.00E+00	1.39E+00	0.00E+00	2.53E-02	0.00E+00	0.00E+00	0.00E+00	1.83E+01						
PENRT	MJ, net CV	9.83E+01	1.86E+00	3.16E+00	0.00E+00	3.64E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E+00	1.18E+00	1.34E-01	-8.59E+01
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, net CV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.38E-25
NRSF	MJ, net CV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.11E-23
FW	m3	-1.04E-01	-8.88E-04	-3.31E-03	0.00E+00	-2.24E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.89E-04	-1.83E-03	-9.05E-05	1.94E-01
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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste production and output flows

Results per functional or declared unit - (End of Life -> Recycling)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	5.20E-01	1.78E-03	1.96E-02	0.00E+00	3.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-03	2.02E-02	1.74E-02	-3.50E-01
Non-hazardous waste disposed	kg	1.56E+00	1.06E-01	1.86E-01	0.00E+00	4.32E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-01	3.19E-01	6.70E-03	-3.45E-01
Radioactive waste disposed	kg	1.69E-04	6.06E-07	5.24E-06	0.00E+00	2.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.07E-07	1.17E-06	6.81E-08	-7.24E-04
Components for re-use	kg	0.00E+00														
Material for recycling	kg	3.59E-01	0.00E+00	1.11E-01	0.00E+00	2.97E+00	6.52E-01	2.43E-01								
Materials for energy recovery	kg	8.39E-02	0.00E+00	1.21E-01	0.00E+00	3.06E-01	0.00E+00									
Exported energy, electricity	MJ	2.18E+00	0.00E+00	6.53E-02	0.00E+00	3.83E+00										
Exported energy, thermal	MJ	0.00E+00	4.44E-01													

Information on biogenic carbon content

Results per functional or declared unit		
BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	1.46E-01
Biogenic carbon content in packaging	kg C	1.09E-03

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO2 eq	4.26E+00	1.35E-01	2.89E-01	0.00E+00	1.63E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-01	1.26E-01	7.28E-01	-5.36E+00

This 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 CO₂ is set to zero.

References

General Programme Instructions of the International EPD® System. Version 4.0.

PCR 2019:14. Version 1.3.1 c-PCR-004 Resilient, textile and laminate floor coverings (EN 16810).

