SOPREMA

ENVIRONMENTAL PRODUCT DECLARATION

Polyester geotextile

Rooftex V
Geotextile PET/TT
Geotextile PET
Geotextile PES

DAPcons®.100.151

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

According to the standards:
ISO 14025 y EN 15804 + A2:2020

cateb Arquitectura Tècnica Barcelona

ECO PLATFORM EPD VERIFIED

dapcons®

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

DAPcons®.100.151

According to the standards:

ISO 14025 y EN UNE 15804 + A2:2020

GENERAL INFORMATION

Product

POLYESTER GEOTEXTILE (PES)

Company

Product description

Polyester geotextile (PES) composed of recycled polyester fibers, used as a separating, filtering, draining and protective layer in buildings. The brands that make up this product are: ROOFTEX V, GEOTEXTILE PET/TT, GEOTEXTILE PET, GEOTEXTILE PES and other private labels.

Reference RCP

RCP 100 (version 3 - 27/05/2021) Construction products in general

Production plant

SOPREMA polyester geotextile (PES) manufacturing plant is the following: Soprema Iberia SLU. Av. de l'Alta Ribagorça, 8, 25200 Cervera, Lleida, Spain.

Validity

From: 07/08/2023 Until: 07/08/2028

The validity of DAPcons®.100.151 is subject to the conditions of the regulation DAPcons®. The current edition of this DAPcons® is the one that appears in the registry maintained by Cateb; for informational purposes, it is included on the Program website www.csostenible.net

EXECUTIVE SUMMARY

POLYESTER GEOTEXTILE (PES)

	DAPconstruction® Programme Operator Environmental Product Declarations in the Construction sector www.csostenible.net
	Programme Manager Colegio de la Arquitectura Técnica de Barcelona (Cateb) Bon Pastor, 5 · 08021 Barcelona www.apabcn.cat
	Owner of the declaration SOPREMA IBERIA SLU CALLE FERRO, 7 - POLIGONO IND CAN PELEGRI 08755 - BARCELONA (España) www.soprema.es
	Author of the Life cycle assessment: ITeC - Institut de Tecnologia de la Construcció de Catalunya C. Wellington, 19, 08018 - BARCELONA, España

Declared product

POLYESTER GEOTEXTILE (PES)

Geographic representation

Production: Spain.

End of life: Spain, France and Portugal.

Variability between different products

This document states the results of polyester geotextiles with a grammage of 0.150 kg/m2. Declared values are for an average product with 1.98% of variability for "Global Warming Potential - Total (GWP-Total)" environmental indicator in A1-A3 modules.

Declaration number

DAPcons®.100.151

Issue date

23/02/2023

Validity

This verified declaration authorizes its holder to carry the logo of the operator of the ecolabelling program DAPconstruction®. The declaration is applicable exclusively to the mentioned product and for five years from the date of registration. The information contained in this statement was provided under the responsibility of: **SOPREMA IBERIA SLU**

Programme Administrator Signature

Celestí Ventura Cisternas. President of Cateb

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36548201M CELESTINO VENTURA (R: Q0875009C) 07.08.2023 16:29:30 +0200

Programme Verifier Signature

HELIOS POMAR BLANCO. ReMa-INGENIERÍA, S.L.. Verifier accredited by the administrator of the DAPcons® Programme

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POMAR BLANCO, HELIOS (FIRMA) 07.08.2023 16:29:22 +0200

ENVIRONMENTAL PRODUCT DECLARATION

1. DESCRIPTION OF THE PRODUCT AND ITS USE

Non-woven geotextile made of recycled polyester fibers, mechanically needle-punched with subsequent heat treatment and calendering.

It is used as a separating, filtering, draining and protective layer in building construction.

It is manufactured in different weights depending on the application for which it is intended. The reference grammage of this group of products is 150 g/m2, being an average based on all the products with the same grammage as reference product, certified with CE marking No. 0099/CPR/A42/0097, in compliance with UNE EN 13252:2016. The product brands included are the following.
-ROOFTEX V
-GEOTEXTILE PET/TT
-GEOTEXTILE PET
-GEOTEXTILE PES
-Other own-brand products.

Technical specifications of 150g/m2 Polyester geotextiles range:
- Thickness under load 2 kPa: 1.35 mm
- Tensile strength DM: 1,52 kN/m
- Tensile strength DT: 1,88 kN/m
- Elongation at maximum load DM: 30%.
- Elongation at maximum load DT: 40%
- Static punching (CBR): 335 N
- Dynamic perforation 42 mm
- Aperture size: 85 µm
- Water permeability: 5.3E-02 m/s
- In-plane water flow capacity: 9.7E-07 m2/s
- Durability (soils 4 < pH < 9 and T<25ºC): 25 years

1.1 Content information

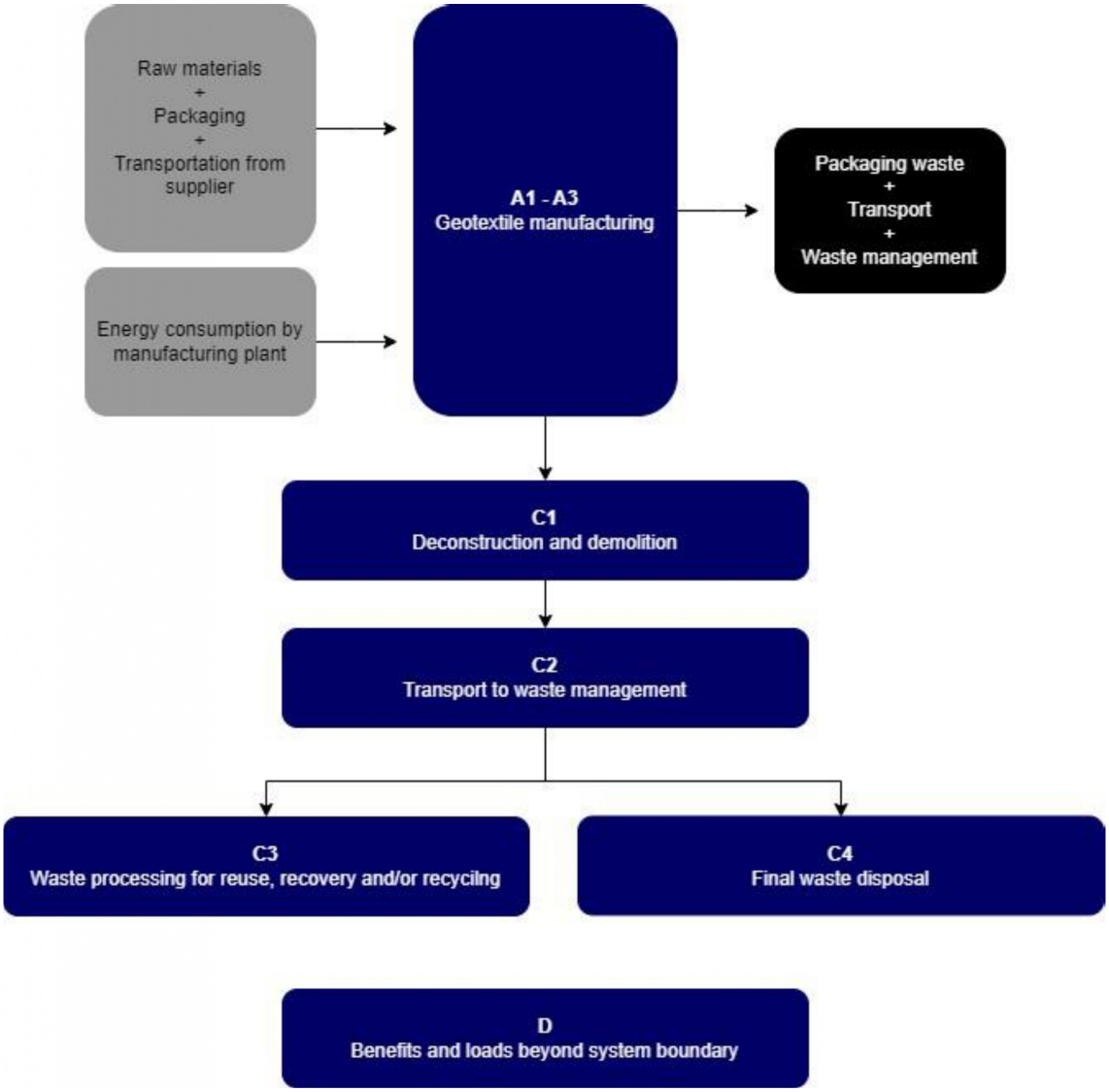
Product components

The raw material used in manufacturing process is polyester, using recycled polyester chips (mostly from waste).

Packaging materials

The materials used in the packaging are polypropylene and polyethylene for bags and film, cardboard for mandrels and separators, and wood for pallets.

System limits



2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

Raw materials are received at the manufacturing plant from external manufacturers. Impacts produced by raw materials have been considered, considering the manufacturing yield, and impacts produced by the packaging of raw materials.

For the transport of raw materials, a generic EURO VI truck of 16-32 Tn has been considered, and a generic transoceanic container ship if the origin of the raw material requires this type of transport.

Manufacturing (A3)

The first manufacturing phase is the homogenization of the fibers, the purpose of this phase is to prepare the fibers to be used in the production line. The raw material arrives to the plant with the correct mixing ratio formula, then it starts the process of opening the fibers, and after that is carried out the veil formation phase through the carding process, and compiling layers depending on the product weight.

After those processes, the following treatments are carried out:
- Mechanical: Punching of the fleeces using needles.
- Thermal (oven and calender): In order to obtain the performance according to the product.

Finally, quality control is carried out and the product is packed.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

Undeclared

Product installation process and construction (A5)

Undeclared

2.3. Product use (B1-B7)

Use (B1)

Undeclared

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

Operational energy use (B6)

Undeclared

Operational water use (B7)

Undeclared

2.4. End of life (C1-C4)

Deconstruction and demolition (C1)

The environmental impact attributed to the product deconstruction at the end of its lifetime is negligible, as they constitute a very small part in a building demolition.

Transport to waste processing (C2)

Product residues created in the previous phase are transported by 16-32 Tn EURO VI truck at a distance of 50 km to the waste management place.

Waste processing for reuse, recovery and/or recycling (C3)

The environmental impacts of waste separation management are accounted for in this information module. The scenario contemplates 41.9% for recycling, 19.3% for energy recovery and 38.8% for landfill.

Disposal (C4)

The environmental impacts of 38.8% of the product waste disposal management are accounted for in this information module.

2.5. Reuse/recovery/recycling potential (D)

The environmental charges and benefits generated by recycling in phase C3 and by the energy recovery due to the incineration of the geotextile have been accounted for.

3. LIFE CYCLE ASSESSMENT

The life cycle analysis model on which this statement is based has been performed according to ISO 14040:2006, ISO 14044+A1:2018, ISO 14025:2010 and EN 15804:2012+A2:2020 and the RCP 100 Product Category Rules document for general construction products. Ecoinvent v3.6 (2019) database has been used to obtain the inventory data for generic processes.

The declaration is Cradle to Gate type with modules C1 - C4 and module D. Life Cycle Analysis covers from geotextile manufacturing until it leaves the plant, considering the end-of-life stage and benefits and loads beyond system boundary.

Specific data for 2021 production of quantity and raw materials used, origin and transport required, type of packaging and energy consumption during manufacture were taken from Soprema Iberia S.L.U. plant at Av. de l'Alta Ribagorça, 8, 25200 Cervera, Lleida, Spain.

3.1. Declared Unit

The declared unit is: 1 m2 of SOPREMA Polyester Geotextile 1m long, 1m wide and 1.35 mm thick (weight: 0.150 kg/m2).

Additional comments

The reference grammage for this product grouping is 150 g/m2, applicable for the declared unit described.

The results of all grammages of the product grouping can be expressed from conversion factors related to the declared reference unit. Conversion factors table is attached in the EPD annex, applicable for the following products:

- 1 m2 of SOPREMA Polyester Geotextile 1m long, 1m wide and 1.21 mm thick (weight: 0.120 kg/m2).
- 1 m2 of SOPREMA Polyester Geotextile 1m long, 1m wide and 1.70 mm thick (weight: 0.200 kg/m2).
- 1 m2 of SOPREMA Polyester Geotextile 1m long, 1m wide and 2.00 mm thick (weight: 0.250 kg/m2).
- 1 m2 of SOPREMA Polyester Geotextile 1m long, 1m wide and 2.30 mm thick (weight: 0.300 kg/m2).
- 1 m2 of SOPREMA Polyester Geotextile 1m long, 1m wide and 2.80 mm thick (weight: 0.400 kg/m2).
- 1 m2 of SOPREMA Polyester Geotextile 1m long, 1m wide and 3.20 mm thick (Weight: 0.500 kg/m2).

3.2. Scope and modules that are declared

Table 2. Declared modules

Product stage			Construction Process Stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw materials supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Reuse, recovery, recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

X = Declared module **MND** = Undeclared module

3.3. LCA results of potential environmental impact referred to the declared unit (ACV)

Table 3. Parameters of environmental impact

Parameter	Unit	Life cycle stage														Module D
		Product stage	Construction Process Stage		Use stage							End of life stage				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Climate change - total (GWP-total)	kg CO2 eq	3,27E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,01E-03	6,94E-04	6,52E-03	-9,19E-02
Climate change - fossil (GWP-fossil)	kg CO2 eq	3,23E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,01E-03	6,89E-04	6,51E-03	-9,05E-02
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	4,30E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,16E-07	3,74E-06	4,88E-06	-1,39E-03
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	3,72E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,03E-09	7,22E-07	1,89E-07	-7,41E-05
Ozone layer depletion (ODP)	kg CFC 11 eq	3,42E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,35E-10	8,22E-11	5,69E-11	-6,21E-09
Acidification (AP)	mol H+ eq	1,39E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,00E-06	5,11E-06	3,29E-06	-6,26E-04
Eutrophication of fresh water (EP-freshwater)	kg P eq	7,73E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,08E-09	1,97E-07	5,29E-08	-3,28E-05
Eutrophication of sea water (EP-marine)	kg N eq.	3,48E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,33E-07	1,79E-06	1,24E-04	-1,23E-04
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	3,61E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,71E-06	1,92E-05	1,38E-05	-9,36E-04
Photochemical ozone formation (POCP)	kg NMVOC eq	1,11E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,31E-06	5,23E-06	5,21E-06	-8,04E-04
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	1,90E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,97E-11	3,79E-10	1,68E-10	-6,94E-07
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	5,13E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,44E-02	9,19E-03	4,58E-03	-4,06E+00
Water consumption (WDP)	m3 worldwide eq. private	1,25E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	-3,16E-06	6,16E-05	1,60E-05	-7,98E-02
The Indicador includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This Indicador is thus equal to the GWP Indicador originally defined in EN 15804:2012+A1:2013. Can be obtained from IPCC characterization factors.																
Global Warming Potential (GHG)	kg CO2 eq	3,23E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,01E-03	6,90E-04	6,51E-03	-9,05E-02

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 4. Parameters for the use of resources, waste and output material flows

Parameter	Unit	Life cycle stage														Module D
		Product stage	Construction Process Stage		Use stage							End of life stage				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ, net calorific value	5,77E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,01E-05	5,53E-04	1,48E-04	-7,92E-02
Use of renewable primary energy used as raw material	MJ, net calorific value	2,93E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	5,80E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,01E-05	5,53E-04	1,48E-04	-7,92E-02
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	5,52E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,52E-02	9,76E-03	4,87E-03	-4,36E+00
Use of non-renewable primary energy used as raw material	MJ, net calorific value	1,25E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	5,65E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,52E-02	9,76E-03	4,87E-03	-4,36E+00
Use of secondary materials	kg	1,47E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ, net calorific value	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	MJ, net calorific value	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of freshwater resources	m3	3,41E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,15E-08	2,88E-06	7,66E-07	-1,86E-03
Hazardous waste removed	kg	3,56E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,80E-08	1,21E-08	8,87E-09	-3,21E-04
Non-hazardous waste eliminated	kg	1,10E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,66E-07	1,89E-05	5,82E-02	-3,24E-03
Radioactive waste disposed of	kg	1,51E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,04E-07	4,53E-08	2,73E-08	-3,21E-06
Components for reuse	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,31E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	6,29E-02	0,00E+00	0,00E+00
Materials for energy recovery (energy recovery)	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,90E-02	0,00E+00	0,00E+00
Exported energy	MJ by energy vector	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,22E-01	0,00E+00	0,00E+00

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 5. Kg of biogenic carbon

Contenido Carbono (biogénico) - embalaje	1,00E-02
Contenido Carbono (biogénico) - producto	0,00E+00

3.4. Recommendations of this DAP

The environmental product declarations of different type III eco-labeling systems may not be directly comparable, as the calculation rules may be different. This declaration represents the performance of geotextiles manufactured by Soprema Iberia S.L.U.

3.5. Cut-off rules

More than 95% of all mass and energy inputs and outputs in the system have been included, leaving out, among others, diffuse emissions at the factory.

3.6. Additional environmental information

The product is defined as a non-hazardous substance according to legislation no. 1907/2006 (REACH) of June 1, 2007, although a SAFETY DATA SHEET (SDS) is not required, a use and handling sheet is available on the web: www.soprema.es.

3.7. Other data

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4. ADDITIONAL TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport to the building site (A4)

Undeclared

4.2. Installation processes (A5)

Undeclared

4.3. Reference life (B1)

Undeclared

4.4. Maintenance (B2), Repair (B3), Replacement (B4), or Rehabilitation (B5)

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

4.6. Operational energy use (B6) and operational water use (B7)

Undeclared

4.7. End of life (C1-C4)

	Process				
	Collection processes (specified by types)	Recovery systems (specified by type)			Elimination
	kg collected with mixed construction waste	kg for reuse	kg for recycling	kg for energy recovery	kg for final disposal
	1	0	0.419	0.193	0.388
Assumptions for scenario development	The scenario contemplates 41.9% for recycling, 19.3% for energy recovery and 38.8% for landfill.				

5. ADDITIONAL INFORMATION

Manufactured according to ISO:9001 Quality System, certificate no. FR18/81842815.
Environmental Management System according to ISO:14001, certificate no. FR18/81842816.
Certified with CE marking No. 0099/CPR/A42/0097, in conformity with the standard UNE EN 13252:2016.

6. RCP AND VERIFICATION

This statement is based on Document

RCP 100 (version 3 - 27/05/2021) Construction products in general

Independent verification of the declaration and data, in accordance with ISO 14025 and IN RCP 100 (version 3 - 27/05/2021)

☑ External

Third party Verifier

HELIOS POMAR BLANCO
Accredited by the administrator of the DAPcons® Programme

Verification date:

07/08/2023

References

- EN 15804:2012+A2:2020, Sustainability of construction works. Environmental product declarations. Basic rules for the product category of construction products.
- ISO 14025:2010, Environmental labels and declarations - Environmental declarations type III - Principles and procedures (identical to ISO 14025:2006).
- ISO 21930:2017, Sustainability of construction works - Environmental declaration for construction products (referenced by EN 15804).
- ISO 14040:2006, Environmental management - Life cycle assessment - Principles and framework.
- ISO 14044+A1:2018, Environmental management - Life cycle assessment - Requirements and guidelines.
- PD CEN/TR 16970:2016, Sustainability of construction works. Guidance for the implementation of EN 15804.
- Association of Issuing Bodies (2020). European Residual Mixes 2020.
- Luciano Antonio Gileno & Luiz Felipe Ramos Turci, 2021, Life cycle assessment for PET-bottle recycling in Brazil: B2B and B2F routes, Instituto de Ciencia e Tecnologia (ICT), Federal University of Alfenas (UNIFAL-MG), Poços de Caldas-MG, Brazil.
- Bressi, Sara & Santos, João & Giunta, Marinella & Lo Presti, Davide. (2018). A comparative life-cycle assessment of asphalt mixtures for railway sub-ballast containing alternative materials.
- Guía sobre la codificación, la clasificación y las vías de gestión de los residuos en Cataluña. Generalitat de Catalunya, departamento de territorio y sostenibilidad. Agencia de residuos de Cataluña.
- Plásticos – Situación en 2020. Un análisis de los datos sobre producción, demanda y residuos de plásticos en Europa. PlasticsEurope.
- Life Cycle Assessment: Polyester Geotextile (PES). LCA report by The Catalonia Institute of Construction Technology (ITeC), 2023.

Programme Manager

Colegio de la Arquitectura Técnica de Barcelona (Cateb)
Bon Pastor, 5 · 08021 Barcelona www.apabcn.cat

Factores de conversión
Conversion factors

Los valores declarados en esta DAP son aplicables para los productos con gramaje de 0,150kg/m2. El resto de los gramajes existentes para los Geotextiles de Poliéster SOPREMA se pueden expresar a partir de factores de conversión respecto a los resultados del gramaje de referencia, mostrados en la siguiente tabla:

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The stated values in this EPD are applicable for products with a grammage of 0.150kg/m2. The rest of the grammages for SOPREMA Polyester Geotextiles can be calculated from conversion factors related to the reference grammage results, as shown in the following table:

Gramajes de la agrupación de Geotextiles PES SOPREMA - SOPREMA PES Geotextiles grouping grammages	Factores de conversión de los resultados respecto al gramaje de referencia - Conversion factors in relation to the reference grammage
0,120 kg/m2	**0,800**
0,150 kg/m2	**1,000**
0,200 kg/m2	**1,333**
0,250 kg/m2	**1,667**
0,300 kg/m2	**2,000**
0,400 kg/m2	**2,667**
0,500 kg/m2	**3,333**