

Environmental Product Declaration



According to ISO 14025 and EN 15804:2012+A2:2019

DANOCRET PROTECT 1C, HYDRO 1C, FLEX 1C and FLEX 2C waterproofing mortars.

Danosa, Normalized Asphaltic Derivatives, SA .

Program:	The International EPD® System , www.environdec.com
Program Administrator:	EPD International AB
EPD registration number:	SP-03332
Publication date:	2022-05-31
Valid until:	2027-05-27

An EPD should contain current information and be updated if conditions change. Therefore, the indicated validity is subject to continued registration and publication on www.environdec.com



General information

Program information

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

CEN EN 15804 serves as the basis for the Product Category Rules (PCR)
Product Category Rule (PCR): Construction Products, PCR 2019:14. Version 1.11.
The PCR review was Performed by: The Technical Committee of the International EPD® System. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel can be contacted via www.environdec.com/contact
Independent verification of the declaration and information, according to ISO 14025:2010 ☐ EPD process certification ☒ EPD verification
Third Party Verifier : TECNALIA R&I SL Certification Auditor: Cristina Gazulla Santos Accredited by: ENAC. Accreditation no.125/C-PR283
The data tracking procedure during the validity of the EPD involves a third party verifier: ☒ yes ☐ no

Construction product EPDs may not be comparable if they do not comply with EN 15804.

Environmental claims for products within the same product category from different programs may not be comparable.

The verifier and the operator of the program have no responsibility for the legality of the product.

Company information

Owner of the EPD: DANOSA, Derivados Asfálticos Normalizados, SA

Contact: DANOSA SPAIN
+34 949 888 210
info@danosa.com

Description of the organisation: DANOSA is a manufacturing company specialising in integral solutions for sustainable construction. It is considered one of the leading companies in the Spanish and European market, with a presence in more than 100 countries, thanks to the manufacture and marketing of products and systems for waterproofing, thermal and acoustic insulation, as well as technical mortars for new construction, refurbishment and civil works.

In recent years, it has been fully involved in the development of innovation and sustainability projects, adapting its solutions to comply with sustainable construction standards, maximising the energy efficiency of buildings.

Many of its products have Environmental Product Declarations (EPD) and are also integrated in the materials platform of the Green Building Council Spain, which allows them to score in projects with GREEN, LEED and BREEAM certification.

The company has also strengthened its business line dedicated to the recovery of materials and its commitment to the circular economy, which allows it to introduce recycled materials in production processes, enabling these wastes to become useful raw materials for the manufacture of new products.

This document will be used for B2B communication with a global scope.

Name and location of production site: A44, Exit 144, Padul 18640 Granada, Spain.

Product Information

Product name: DANOCRET family of products includes four types of mortars for the construction sector: Protect 1C, Protect Hydro 1C, Protect Flex 1C and Protect Flex 2C.

Product description: DANOCRET® Protect 1C is a one-component waterproof PCC cementitious mortar for surface protection and waterproofing of concrete and mortar. Formulated based on hydraulic binders, selected aggregates and polymers that provide excellent elasticity, adherence and waterproofing capacity.

DANOCRET® Protect Flex 1C is a one-component, flexible, waterproof PCC cementitious mortar for surface protection and waterproofing of concrete and mortar. Formulated based on hydraulic binders, selected aggregates and polymers that provide excellent elasticity, adherence and waterproofing capacity.

DANOCRET® Protect Hydro 1C is a one-component modified polymer mortar PCC for waterproofing concrete and mortar structures by clogging the capillary network, formulated based on a mixture of hydraulic binders, selected aggregates and hydrosensitive agents that provide an excellent adhesion and waterproof capacity.

DANOCRET® Protect Flex 2C is a flexible waterproofing mortar with excellent adherence to the bearing structure. Recommended for open roofs on different bearing structures.



Danocret Protect 1C



Danocret Protect Flex 1C



Danocret Protect Hydro 1C



Danocret Protect Flex 2C

These products are suitable for waterproofing and protection of concrete structures and can be installed in:

Waterproofing of terraces and balconies.

Waterproofing of bathrooms, kitchens and swimming pools before the placement of the final coating.

Suitable for reducing humidity by capillarity in buried structures and elevator pits.

Suitable for contact with drinking water, in accordance with the requirements established in the Spanish Royal Decree R.D. 140.

Effective as a waterproof and flexible barrier for renders with microcracks .

Protection of concrete surfaces, for protection from seawater and salts.

Waterproofing of planters without arboreal plants.

CPC code: "375 Articles of concrete, cement and plaster"

LCA information

Functional unit:

- 1 kg of waterproofing mortar installed for 50 years.

Reference service life: The service life of the product is considered to be the same as that of the building since it is incorporated into the building's facilities, that is, 50 years.

Time representativeness: The primary data has been obtained from the production center and corresponds to the year 2020.

Databases and software used: Ecoinvent v3.6 (allocation, cut-off by classification) and SimaPro 9.1.

Description of system boundaries: From Cradle to Grave and module D. The EPD covers modules A1-A3, A4-A5, B1-B7, C1-C4 and D.

Modularity and "polluter-payer" principles have been followed. The following processes have been excluded:

- Manufacture of equipment used in production, in buildings or any other capital good
- Transportation of personnel to the plant
- Transportation of personnel within the plant
- Research and development activities
- Long-term emissions

95% of all the inputs and outputs of mass and energy of the central system that are identified in the life cycle inventory have been included. Those inputs and outputs, for which data are not available, which together represent less than 5% of the mass, such as packaging waste from auxiliary materials, have not been considered.

Wherever possible, allocation has been avoided. Where necessary (energy, waste generation) a mass allocation has been used, according to the weight in kg of the product.

All primary data has been obtained from Danosa's production plant. Secondary data has been obtained from the Ecoinvent 3.6 database.

The included scenarios are currently in use and are representative of one of the most likely alternatives.

A1. Extraction of raw materials

Extraction and processing of natural resources and manufacture of raw materials: limestone filler, calcium carbonate, silica, cement, resins, cellulose, rheological material and water repellents.

This stage includes the production of energy consumed in the manufacturing stage (A3).

A2. Transport

Transport of all the raw materials considered in module A1, from extraction, production and treatment sites to factory gate.

A3. Manufacturing

This module considers all the mortar manufacturing processes, including the consumption of packaging materials, as well as the treatment of the waste generated.

The mortars are distributed packaged in paper bags and plastic containers.

The primary data used has been obtained from the production plant itself and is representative of the production of Danosa's mortar products.

A4. Distribution

Transportation of the product, from the production plant to the place of installation.

The included scenarios are currently in use and are representative of one of the most likely alternatives. An additional declaration of representative mixtures for the corresponding region is allowed.

PARAMETER	VALUE (expressed in functional unit)			
Type of fuel and consumption of the vehicle or type of means of transport used	National distribution: Truck of 16-32 tn Euro 4 and a diesel consumption of 0,38 liters per km.		International distribution: Truck of 16-32 tn Euro 4 and a diesel consumption of 0,38 liters per km and Transoceanic Ship	
Distance	National distribution: 612,57 km (on highway)		National distribution: 285,71 km (by boat)	
Capacity utilization (include the return of transport without load)	% assumed in Ecoinvent			
Bulk density of transported product: Mortar	1,80 ± 0,05 kg/dm3 1C	1,50 ± 0,05 kg/dm3 Hydro 1C	1,50 ± 0,05 kg/dm3 Flex 1C	1,04 ± 0,01 kg/dm3 Flex 2C
Volume Usage Capacity Factor	1 (default)			

A5. Installation:

This module includes the consumption of auxiliary materials (in addition to the product), as well as the management of possible waste generated during this information module.

PARAMETER	VALUE (expressed in functional unit)			
Secondary materials for installation: Tap water	1,40E+00 m3 1C	2,00E-01 m3 Hydro 1C	7,40E-01 m3 Flex 1C	7,40E-01 m3 Flex 2C
Consumption of other resources	None			
Quantitative description of type of energy (regional mix) and its consumption during the installation process	-			
Waste of materials on the construction site, before the processing of waste generated during the installation of the product (packaging and installation losses)	3,50E-01 kg 1C	5,00E-02 kg Hydro 1C	1,85E-01 kg Flex 1C	1,85E-01 kg Flex 2C
Direct emissions to air, soil or water	Inconsiderable			

B. Stage of use

As it is a passive product within a construction, the stage of use (including modules B1 to B7) is considered negligible.

Demolition (C1)

A joint demolition of the building is considered, thus the contribution of demolition of the product is considered irrelevant.

Transportation (C2)

Once the product has been uninstalled, it is transported 50 km in 7,5-16 ton trucks from the construction site to the landfill.

Waste treatment for reuse, recovery or recycling (C3)

Waste from the system is considered to be unprocessed prior to disposal.

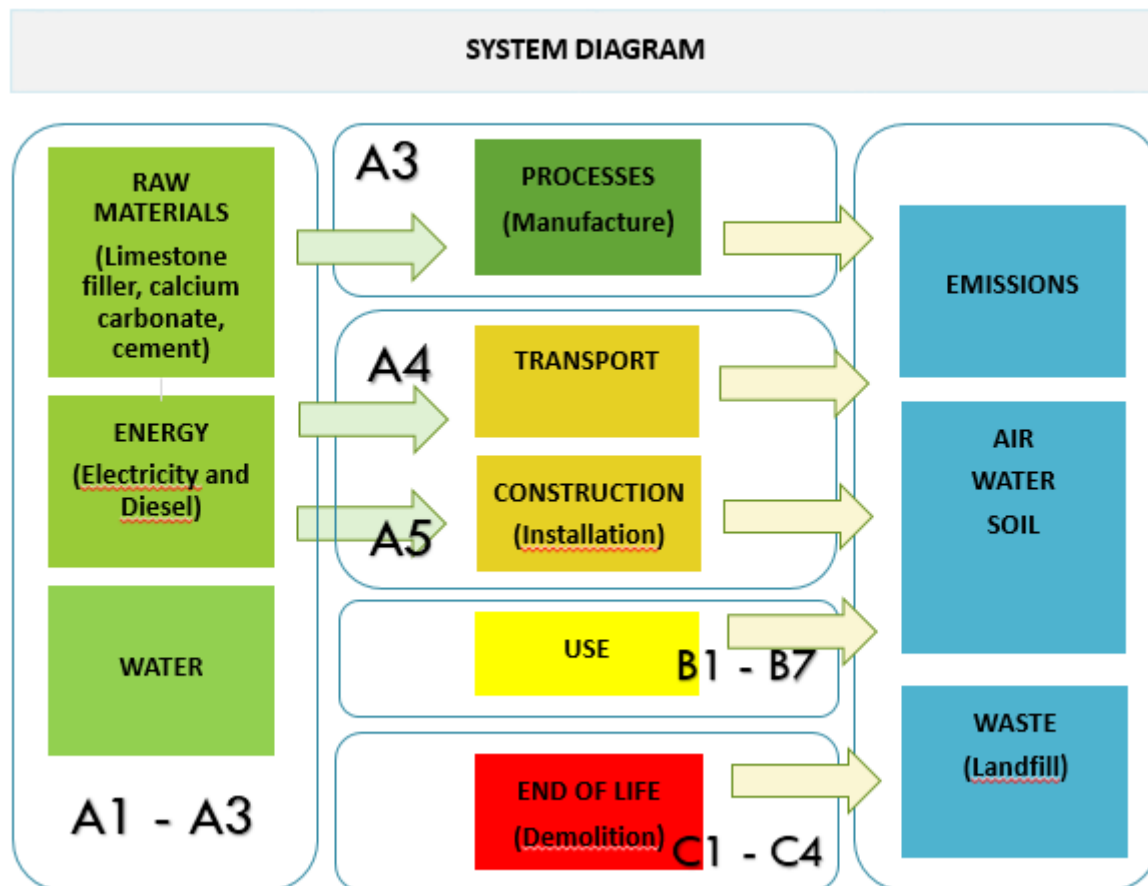
Final Elimination (C4)

All the waste from the system is disposed in a landfill.

PARAMETER	VALUE (expressed in functional unit)
Waste collection process specified by type	100% to landfill, collected and mixed with the rest of the construction waste
Recovery System specified by type	0% recycling of mortars.
Disposal specified by type	100% landfill
Assumptions for the development of the scenario	Product demolition waste is transported 50 km by means of 7,5-16 t Euro 4 trucks, to final treatment or deposit site.

Benefits of recycling (module D)

Although module D has been calculated, there are no recycling benefits since all the product is disposed of in a landfill as a mixture of construction products. 100% of the weight is sent to landfill.



Additional Information

- The Life Cycle Analysis study has been carried out by DANOSA with the technical support of Marcel Gómez Consultoría Ambiental.
- 95% of all the mass and energy inputs and outputs of the central system have been included, identified in the life cycle inventory included in this report and at least 99% for the total life cycle.
- More product information: www.danosa.es
- The quality of the input data has been evaluated according to its technological, temporal and geographical coverage. It is considered that the representativeness of the selected processes is good, resulting in a value of 3.75 out of 5.

Declared modules, geographical scope, specific data and data variation

	Product Stage					Usage Stage							end of life stage				Resource recovery stage
	Supply of Raw Materials	Transport	Manufacturing	Transport	Construction - Installation	Use	Maintenance	Repair	Substitution	Rehabilitation	Operational Energy Use	Operational Water Use	Deconstruction – demolition	Transport	Waste Treatment	Waste Disposal	Potential for Reuse – Recovery – Recycling.
Module	A1	A2	A3	A4	TO 5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Declared Modules	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geographic location	ES	EU	ES	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU
Specific data	>90% GWP-GHG					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Variation of declared impact products <10% - for each group of products					-	-	-	-	-	-	-	-	-	-	-	-

Content information

Protect 1C

Product Components	Weight, kg	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Limestone Filler	0,15 to 0,20	0	0
Calcium Carbonate_01_08	0,40 to 0,50	0	0
CEM_I_SR_5 CEM_BL_52	0,20 to 0,30	0	0
Redispersible Resin	0,015 to 0,020	0	0
Cellulose	0,0005	0	0
Hydrophobic 1	0,001	0	0
Hydrophobic 2	0,001	0	0
Rheological Material	0,001	0	0
Total weight per m2	1,00	0	0
Packaging materials	Weight, kg	Weight (% with respect to the product)	
Pallet	0,00125	0,92%	
Paper Bag	0,008	0	

Protect Hydro 1C

Product Components	Weight, kg	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Limestone Filler	0,20 to 0,26	0	0
Silica	0,10 to 0,20	0	0
CEM_I_SR_5	0,50 to 0,60	0	0
Redispersible Resin	0,01 to 0,02	0	0
Cellulose	0,00025	0	0
Hydrophobic 1	0,002	0	0
Sodium hexametaphosphate	0,001	0	0
Rheological Material	0,001	0	0
Total weight per m2	1,00	0	0
Packaging materials	Weight, kg	Weight (% with respect to the product)	
Pallet	0,0013	0,88%	
Paper Bag	0,0075	0	

Protect Flex 1C

Product Components	Weight, kg	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Limestone Filler	0,20 to 0,25	0	0
Silica	0,35 to 0,40	0	0
CEM_I_SR_5	0,15 to 0,20	0	0
Redispersible Resin	0,15 to 0,20	0	0
Cellulose	0,0005	0	0
Hydrophobic 1	0,001	0	0
Hydrophobic 2	0,001	0	0
Fiber	0,0015	0	0
Sodium hexametaphosphate	0,002	0	0
Rheological Material	0,001	0	0
Super plasticizer	0,001	0	0
Total weight per m2	1,00	0	0
Packaging materials	Weight, kg	Weight (% with respect to the product)	
Pallet	0,010	1,74%	
Paper Bag	0,0075	0	

Protect Flex 2C

Product Components	Weight, kg	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Limestone Filler	0,15 to 0,20	0	0
Silica	0,50 to 0,60	0	0
CEM_I_SR_5 CEM_BL_52	0,25 to 0,30	0	0
Cellulose	0,01	0	0
Rheological Material	0,001	0	0
Super plasticizer	0,001	0	0
Total weight per m2	1,00	0	0
Packaging materials	Weight, kg	Weight (% with respect to the product)	
Pallet	0,0016	0,96%	
Plastic bucket	0,008	0	

The product does not include in its life cycle any dangerous substances included in the "Very High Impact Candidate List for Authorization (SVHC)" in a percentage greater than 0.1% of the weight of the product.

Environmental information

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks. Calculation and impact methodologies are in accordance with UNE 15804:A2 and PCR, described at <https://www.environdec.com/resources/indicators>.

Protect Virtual (1C and Flex 1C)

Environmental impacts

Indicator	Unit	Results per functional unit														
		Manufacturing	Construction		Use							End of life				Module
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global warming total (GWP-total)	kg CO ₂ eq	2,44E+00	2,46E-01	2,11E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,67E-02	0,00	2,91E-02	0,00
Global warming fossil fuels (GWP-fossil)	kg CO ₂ eq	3,10E+00	2,46E-01	2,43E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,67E-02	0,00	2,86E-02	0,00
Global warming - biogenic (GWP-biogenic)	kg CO ₂ eq	-9,26E-01	8,28E-05	-4,54E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,21E-05	0,00	4,34E-04	0,00
Global warming land use and land use change (GWP-luluc)	kg CO ₂ eq	2,74E-01	2,18E-06	1,35E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,97E-07	0,00	1,04E-05	0,00
Ozone layer depletion (ODP)	kg CFC11 eq	8,80E-06	6,02E-08	4,55E-07	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	8,72E-09	0,00	5,09E-09	0,00
Acidification (AP)	mol H ⁺ eq	1,13E-02	9,58E-04	9,39E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	7,30E-05	0,00	2,67E-04	0,00
Eutrophication - freshwater (EP-freshwater)	kg PO ₄ ³ eq	2,49E-04	4,03E-07	1,29E-05	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	5,77E-08	0,00	1,06E-06	0,00
Eutrophication - freshwater (EP-freshwater)	kg P eq	8,10E-05	1,31E-07	4,20E-06	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,88E-08	0,00	3,45E-07	0,00
Eutrophication - marine (EP-marine)	kg N eq	3,67E-03	1,97E-04	2,77E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,21E-05	0,00	1,11E-04	0,00
Eutrophication - terrestrial (EP-terrestrial)	mol N eq	3,05E-02	2,18E-03	2,57E-03	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,35E-04	0,00	1,21E-03	0,00
Photochemical ozone formation	kg NMVOC eq	9,60E-03	6,42E-04	7,82E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	4,75E-05	0,00	3,35E-04	0,00
Abiotic depletion for fossil resources (ADP-fossil) *	MJ	5,11E+01	3,60E+00	3,83E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	5,21E-01	0,00	3,81E-01	0,00
Abiotic depletion for non-fossil resources (ADP-minerals&metals) *	kg Sb eq	1,31E-06	1,06E-08	6,84E-08	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,59E-09	0,00	1,30E-09	0,00
Water user deprivation (WDP)	m3 depriv.	1,21E+00	-6,09E-04	1,07E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-8,77E-05	0,00	9,39E-04	0,00

* Disclaimer: The results of this Environmental Impact Indicator should be used with caution as uncertainties in these results are high or as experience with the Indicator is limited.

* The additional environmental indicators of EN 15804:2012+A2:2019 are not declared in this EPD.

Indicator	Unit	Results per functional unit															
		Manufacturing	Construction		Use								End of life				Module
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
Global Warming Potential GWP-GHG ¹	kg CO2eq	3,31E+00	2,45E-01	2,53E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,65E-02	0,00	2,84E-02	0,00	

Use of resources

Indicator	Unit	Results per functional unit														
		Manufacturing	Construction		Use							End of life				Module
		A1-A3	A4	TO 5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Use of renewable primary energy, excluding the resources of non-renewable primary energy used as a raw materials	MJ, net calorific value	1,87E+01	5,48E-03	9,31E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	7,98E-04	0,00	9,00E-03	0,00
Use of renewable primary energy used as raw materials	MJ, net calorific value	1,55E-01	0,00E+00	3,87E-03	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Total use of renewable primary energy (primary energy and resources of renewable primary energy used as raw materials)	MJ, net calorific value	1,89E+01	5,48E-03	9,35E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	7,98E-04	0,00	9,00E-03	0,00
Use of non-renewable primary energy, excluding the resources of non-renewable primary energy used as a raw materials	MJ, net calorific value	5,50E+01	3,82E+00	4,10E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	5,53E-01	0,00	4,05E-01	0,00
Use of non-renewable primary energy used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Total use of non-renewable primary energy (primary energy and resources of renewable primary energy used as raw materials)	MJ, net calorific value	5,50E+01	3,82E+00	4,10E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	5,53E-01	0,00	4,05E-01	0,00
Use of secondary materials	kg	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Use of renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Use of non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Net use of fresh water	m3 –	1,22E+00	-6,05E-04	1,07E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-8,71E-05	0,00	9,53E-04	0,00

¹ The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Waste generation and outflows

Residuous generation

Indicator		Unit	Results per functional unit														
			Manufacturing	Construction		Use							End of life				Module
			A1-A3	A4	TO 5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste arranged	kg	2,52E-05	9,10E-06	4,47E-06	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,37E-06	0,00	8,16E-07	0,00	
Non-hazardous waste arranged	kg	2,07E-01	1,50E-04	1,89E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,15E-05	0,00	5,44E+00	0,00	
Radioactive waste arranged	kg	1.08E-04	2.58E-05	1.46E-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.72E-06	0.00	2.40E-06	0.00	

Outflows

Indicator	Unit	Results per functional unit														
		Manufacturing	Construction		Use							End of life				Module
		A1-A3	A4	TO 5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re use	kg	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00	0.00E+00	0.00
Materials for recycling	kg	1.71E-02	0.00E+00	4.28E-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00	0.00E+00	0.00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00	0.00E+00	0.00
Exported energy	MJ per vector	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00	0.00E+00	0.00

Information on biogenic carbon content

Results per functional unit		
Biogenic carbon content	Unit	Quantity
Biogenic carbon content in the product	kgC	2,06E-02
Biogenic carbon content in accompanying packaging	kgC	1.82E-01

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

Most of the impacts occur during the **product stage**. In fact, this stage is where occur 79% of the impacts associated with global warming, 86% of the impacts associated with the consumption of non-renewable resources, 89% of the impacts associated with energy consumption and 92% of the impacts associated with water consumption.



For the rest of the cementitious mortars , the impact results maintain the same trend.

Protect Hydro 1C

Environmental impacts

Indicator	Unit	Results per functional unit															
		Manufactu ring	Construction		Use									End of life			Modul e
			A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Climate change - total (GWP-total)	kg CO2eq	6,23E-01	4,60E-02	3,48E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	6,75E-03	0,00	5,35E-03	0,00	
Climate change - fossil (GWP- fossil)	kg CO2eq	6,27E-01	4,59E-02	3,50E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	6,74E-03	0,00	5,27E-03	0,00	
Climate change - biogenic (GWP-biogenic)	kg CO2eq	-2,26E-01	1,55E-05	-1,11E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,22E-06	0,00	7,97E-05	0,00	
Climate change - land use and land use changes (GWP-luluc)	kg CO2eq	2,22E-01	4,07E-07	1,09E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	5,46E-08	0,00	1,91E-06	0,00	
Ozone layer depletion (ODP)	kg CFC11 eq	1,20E-06	1,12E-08	5,99E-08	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,60E-09	0,00	9,36E-10	0,00	
Acidification (AP)	mole H+eq	2,26E-03	1,79E-04	1,30E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,34E-05	0,00	4,91E-05	0,00	
Freshwater eutrophication (EP-freshwater)	kg PO4 ³ eq	8,07E-05	7,53E-08	4,03E-06	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,06E-08	0,00	1,94E-07	0,00	
Freshwater eutrophication (EP-freshwater)	kg P eq	2,63E-05	2,45E-08	1,31E-06	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,46E-09	0,00	6,33E-08	0,00	
Eutrophication of marine water (EP-marine)	kgNeq	1,37E-03	3,67E-05	7,28E-05	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,23E-06	0,00	2,03E-05	0,00	
Terrestrial eutrophication (EP -terrestrial)	mole N eq	7,14E-03	4,08E-04	4,09E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,48E-05	0,00	2,23E-04	0,00	
Photochemical ozone formation (POCP)	kg NMVOC eq	1,75E-03	1,20E-04	1,03E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	8,73E-06	0,00	6,16E-05	0,00	
Depletion of abiotic resources - fossil fuels (ADP- fossil) *	MJ	5,21E+00	6,72E-01	3,17E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	9,57E-02	0,00	7,01E-02	0,00	
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals) *	kg Sb eq	3,56E-07	1,99E-09	1,78E-08	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,93E-10	0,00	2,40E-10	0,00	
Water consumption (WDP)	m3 depriv .	1,78E-01	-1,14E-04	1,75E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-1,61E-05	0,00	1,73E-04	0,00	

* Disclaimer: The results of this Environmental Impact Indicator should be used with caution as uncertainties in these results are high or as experience with the Indicator is limited.

* The additional environmental indicators of EN 15804:2012+A2:2019 are not declared in this EPD.

Indicator	Unit	Results per functional unit														Module
		Manufacturing	Construction		Use							End of life				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Potential GWP-GHG ²	kg CO2eq	8,40E-01	4,57E-02	4,55E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	6,71E-03	0,00	5,22E-03	0,00

Use of resources

Indicator	Unit	Results per functional unit														Module
		Manufacturing	Construction		Use							End of life				
		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	5,09E+00	1,02E-03	2,52E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,47E-04	0,00	1,65E-03	0,00
Use of renewable primary energy used as raw material	MJ, net calorific value	1,55E-01	0,00E+00	3,87E-03	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	5,24E+00	1,02E-03	2,56E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,47E-04	0,00	1,65E-03	0,00
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	5,82E+00	7,14E-01	3,50E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,02E-01	0,00	7,45E-02	0,00
Use of non-renewable primary energy used as raw material	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	5,82E+00	7,14E-01	3,50E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,02E-01	0,00	7,45E-02	0,00
Use of secondary materials	kg	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Use of renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Use of non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00

² The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Net use of freshwater resources	m3 -	1,80E-01	-1,13E-04	1,75E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-1,60E-05	0,00	1,75E-04	0,00
---------------------------------	------	----------	-----------	----------	------	------	------	------	------	------	------	------	------	-----------	------	----------	------

Waste generation and outflows

Residuous generation

Indicator	Unit	Results per functional unit															
		Manufacturing	Construction			Use							End of life				Module
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
Hazardous waste removed	kg	4,20E-06	1,70E-06	3,49E-07	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,52E-07	0,00	1,50E-07	0,00	
Non-hazardous waste eliminated	kg	4,44E-02	2,79E-05	1,42E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,95E-06	0,00	1,00E+00	0,00	
Radioactive waste disposed of	kg	1,71E-05	4,81E-06	1,27E-06	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	6,85E-07	0,00	4,42E-07	0,00	

Outflows

Indicator	Unit	Results per functional unit															
		Manufacturing	Construction			Use							End of life				Module
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00	
Materials for recycling	kg	1,71E-02	0,00E+00	4,28E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00	
Materials for energy recovery (energy recovery)	kg	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00	
Exported energy	MJ per vector	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00	

Information on biogenic carbon content

Results per functional unit		
Biogenic carbon content	Unit	Quantity
Biogenic carbon content in the product	kgC	1,38E-02
Biogenic carbon content in accompanying packaging	kgC	1.82E-01

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

Protect Flex 2C

Environmental impacts

Indicator	Unit	Results per functional unit														
		Manufacturing	Construction		Use							End of life				Module
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global warming total (GWP-total)	kg CO2eq	1,00E+00	1,66E-01	9,15E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,50E-02	0,00	1,98E-02	0,00
Global warming fossil fuels (GWP-fossil)	kg CO2eq	1,18E+00	1,66E-01	1,00E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,50E-02	0,00	1,95E-02	0,00
Global warming - biogenic (GWP-biogenic)	kg CO2eq	-1,79E-01	5,57E-05	-8,74E-03	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	8,21E-06	0,00	2,95E-04	0,00
Global warming land use and land use change (GWP-luluc)	kg CO2eq	2,06E-03	1,47E-06	1,07E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,02E-07	0,00	7,06E-06	0,00
ozone layer depleted (ODP)	kg CFC11 eq	7,39E-08	4,05E-08	1,35E-08	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	5,93E-09	0,00	3,46E-09	0,00
Acidification (AP)	mole H+eq	3,67E-03	6,45E-04	3,61E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	4,97E-05	0,00	1,82E-04	0,00
Eutrophication - freshwater (EP - freshwater)	kg PO4 ³ eq	5,01E-05	2,71E-07	2,80E-06	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,93E-08	0,00	7,20E-07	0,00
Eutrophication - freshwater (EP - freshwater)	kg P eq	1,63E-05	8,84E-08	9,11E-07	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,28E-08	0,00	2,34E-07	0,00
Eutrophication -marine (EP-marine)	kgNeq	1,02E-03	1,32E-04	9,61E-05	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	8,24E-06	0,00	7,52E-05	0,00
Eutrophication - terrestrial (EP-terrestrial)	mole N eq	1,12E-02	1,47E-03	1,06E-03	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	9,17E-05	0,00	8,24E-04	0,00
Photochemical ozone formation	kg NMVOC eq	2,97E-03	4,32E-04	2,92E-04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,23E-05	0,00	2,28E-04	0,00
Abiotic depletion for fossil resources (ADP-fossil) *	MJ	7,25E+00	2,42E+00	9,69E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,54E-01	0,00	2,60E-01	0,00
Abiotic depletion for non-fossil resources (ADP-minerals&metals) *	kg Sb eq	4,98E-07	7,15E-09	2,64E-08	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,09E-09	0,00	8,87E-10	0,00
Toilet user deprivation (WDP)	m3 depriv .	1,43E-01	-4,10E-04	3,92E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-5,96E-05	0,00	6,39E-04	0,00

* Disclaimer: The results of this Environmental Impact Indicator should be used with caution as uncertainties in these results are high or as experience with the Indicator is limited.

* The additional environmental indicators of EN 15804:2012+A2:2019 are not declared in this EPD.

Indicator	Unit	Results per functional unit														Module
		Manufac	Construction		Use							End of life				
		turing A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Global warming Potential - GWP-GHG ³	kg CO2eq	1,18E+00	1,65E-01	9,98E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,48E-02	0,00	1,93E-02	0,00

Use of resources

Indicator	Unit	Results per functional unit														Module
		Manufacturing	Construction		Use							End of life				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Use of renewable primary energy, excluding the resources of non-renewable primary energy used as a raw materials	MJ, net calorific value	3,73E+00	3,69E-03	1,89E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	5,43E-04	0,00	6,12E-03	0,00
Use of renewable primary energy used as raw materials	MJ, net calorific value	1,55E-01	0,00E+00	3,87E-03	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Total use of renewable primary energy (primary energy and resources of renewable primary energy used as raw materials)	MJ, net calorific value	3,89E+00	3,69E-03	1,93E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	5,43E-04	0,00	6,12E-03	0,00
Use of non-renewable primary energy, excluding the resources of non-renewable primary energy used as a raw materials	MJ, net calorific value	7,70E+00	2,57E+00	1,03E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,76E-01	0,00	2,76E-01	0,00
Use of non-renewable primary energy used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Total use of non-renewable primary energy (primary energy and resources of renewable primary energy used as raw materials)	MJ, net calorific value	7,70E+00	2,57E+00	1,03E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3,76E-01	0,00	2,76E-01	0,00
Use of secondary materials	kg	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Use of renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00

³ The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Use of non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00
Net use of fresh water	m3 -	1,48E-01	-4,07E-04	3,94E-02	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00E+00	0,00	0,00E+00	0,00

Waste generation and outflows

Residuous generation

Indicator	Unit	Results per functional unit														
		Manufacturing	Construction		Use							End of life				Module
		A1-A3	A4	TO 5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
hazardous waste arranged	kg	9,85E-06	6,12E-06	1,99E-06	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	9,31E-07	0,00	5,55E-07	0,00
Non-hazardous waste arranged	kg	5,52E-02	1,01E-04	9,19E-01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,46E-05	0,00	3,70E+00	0,00
Radioactive waste arranged	kg	3,91E-05	1,73E-05	6,25E-06	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	2,53E-06	0,00	1,64E-06	0,00

Outflows

Indicator	Unit	Results per functional unit														
		Manufacturing	Construction		Use							End of life				Module
		A1-A3	A4	TO 5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re use	kg	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00	0.00E+00	0.00
Materials for recycling	kg	1.71E-02	0.00E+00	4.28E-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00	0.00E+00	0.00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00	0.00E+00	0.00
Exported energy	MJ per vector	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00	0.00E+00	0.00

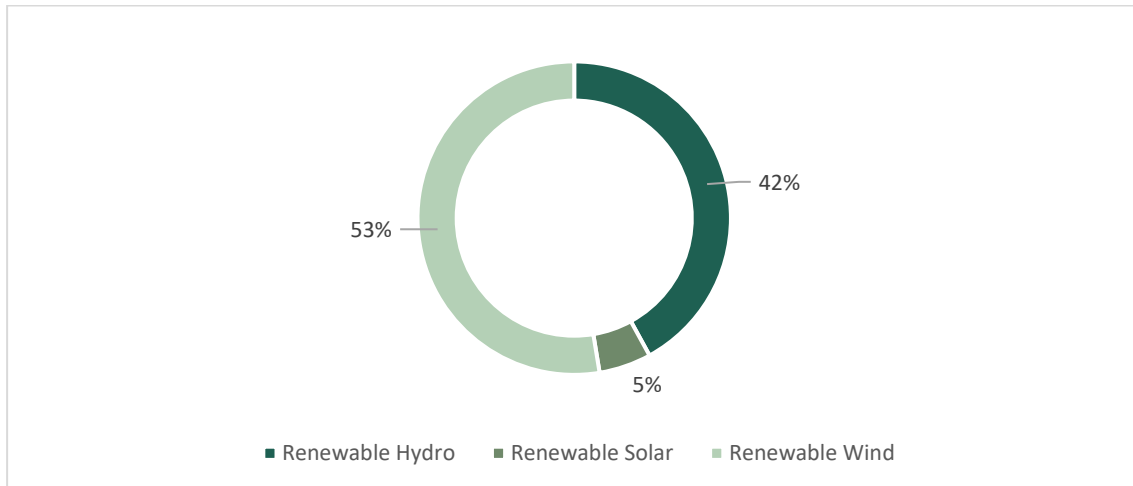
Information on biogenic carbon content

Results per functional unit		
Biogenic carbon content	Unit	Quantity
Biogenic carbon content in the product	kgC	4,58E-01
Biogenic carbon content in accompanying packaging	kgC	1.82E-01

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

Additional environmental information

The electricity mix used for the characterisation of electricity has been the 100% renewable mix of the company DANOSA for the year 2020.



Information related to the sector EPD

Individual EPD[®].

Differences versus previous versions

First version of EPD[®].

References

- General Programme Instructions of the International EPD[®] System. Version 3.01.
- PCR 2019:14 Construction products (EN 15804:A2) version 1.11.
- EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.
- Declarations – Basic category rules of Construction products.
- ISO 14020: 2000 Environmental labels and declarations — General principles.
- ISO 14025: 2010 Environmental labels and declarations – Type III environmental declarations – Principles and procedures.
- ISO 14040: 2006 Environmental management — Life cycle assessment — Principles and Framework.
- ISO 14044: 2006 Environmental management — Life cycle assessment — Requirements and Guidelines.
- LCA Danosa.

VERIFICATION STATEMENT CERTIFICATE CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD00417

TECNALIA R&I CERTIFICACION S.L., confirms that independent third-party verification has been conducted of the Environmental Product Declaration (EPD) on behalf of:

TECNALIA R&I CERTIFICACION S.L., confirma que se ha realizado verificación de tercera parte independiente de la Declaración Ambiental de Producto (DAP) en nombre de:

DERIVADOS ASFALTICOS NORMALIZADOS, S.A. (DANOSA)
Pol. Ind. Sector, 9
19290 - FONTANAR (Guadalajara) SPAIN

for the following product(s):
para el siguiente(s) producto(s):

DANOCRET PROTECT 1C, HYDRO 1C, FLEX 1C and FLEX 2C waterproofing mortars.
Morteros impermeabilizantes DANOCRET PROTECT 1C, HYDRO 1C, FLEX 1C y FLEX 2C.

with registration number **S-P-03332** in the International EPD® System (www.environdec.com).
con número de registro S-P-03332 en el Sistema Internacional EPD® (www.environdec.com).

it's in conformity with:
es conforme con:

- **ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations.**
- **General Programme Instructions for the International EPD® System v.3.01.**
- **PCR 2019:14 Construction products (EN 15804:A2) v.1.11.**
- **CPC 375 Articles of concrete, cement and plaster.**

Issued date / Fecha de emisión:	31/05/2022
Update date / Fecha de actualización:	31/05/2022
Valid until / Válido hasta:	27/05/2027
Serial Nº / Nº Serie:	EPD0041700-E

This certificate is not valid without its related EPD.
Este certificado no es válido sin su correspondiente EPD.

El presente certificado está sujeto a modificaciones, suspensiones temporales y retiradas por TECNALIA R&I CERTIFICACION.
This certificate is subject to modifications, temporary suspensions and withdrawals by TECNALIA R&I CERTIFICACION.

El estado de vigencia del certificado puede confirmarse mediante consulta en www.tecnaliacertificacion.com.
The validity of this certificate can be checked through consultation in www.tecnaliacertificacion.com.



Carlos Nazabal Alsua
Manager





www.environdec.com