ENVIRONMENTAL PRODUCT DECLARATION

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

weberfloor base

Version 2
Publication date: 2022-02-02
Revision date: 2022-07-20
Validity: 5 years
Valid until: 2027-02-01
Scope of the EPD®: Portugal

The environmental impacts of this product have been assessed over its whole life cycle. Its Environmental Product Declaration has been verified by an independent third party.

Registration number
The International EPD® System:
S-P-05575

Production plants:
Aveiro
Rua da Carreira Branca, Zona Industrial de Taboeira, 3800-055 Aveiro
(Portugal)
Carregado
Quinta dos Cónegos, 2580-465 Carregado
(Portugal)

We care about people and their environment

At Weber, we believe that what matters most in the construction industry is to care about people and their environment. Weber develops, produces and sells solutions based on industrial mortars and construction chemicals for building construction and renovation. Weber is made up of 10,000 people in 64 countries supported by almost 200 production units. Weber's services and solutions aim to help customers save time, feel confident and comfortable, be successful in their work and grow their business.

Our brand promises:

- **Well-being:** We care for the safety and benefit of all. Making lives easier, more convenient and more comfortable.
- **Empathy:** We care about people. Listening to what matters to people and taking into account theirs needs. Helping everyone to grow. Responding to the multiplicity of challenges in today's world, and adapting to the diversity of the lives that populate it.
- **Long-lasting:** We care about today. But also for the future. Taking responsibility to lead the change and build a tomorrow that is in harmony with its environment.

Weber, a Saint-Gobain brand

Saint-Gobain designs, manufactures and distributes materials and solutions for the construction, mobility, healthcare and other industrial application markets. Developed through a continuous innovation process, they can be found everywhere in our living places and daily life, providing wellbeing, performance and safety, while addressing the challenges of sustainable construction, resource efficiency and the fight against climate change.

This strategy of responsible growth is guided by the Saint-Gobain purpose, “MAKING THE WORLD A BETTER HOME”, which responds to the shared ambition of all the women and men in the Group to act every day to make the world a more beautiful and sustainable place to live in.

Saint-Gobain Portugal S.A. represents three brands

isover SAINT-GOBAIN	placo SAINT-GOBAIN	weber SAINT-GOBAIN
Solutions in mineral wool for thermal and acoustic insulation and fire protection solutions.	Products and solutions in plaster for new buildings or rehabilitation.	Reference in mortars for different application in construction.

Company certifications

ISO 9001 - Quality management system
ISO 14001 - Environment management system
ISO 45001 - Occupational health and safety management system

TOP EMPLOYER - Human Resource Management Best Practices

weber SAINT-GOBAIN

General information

Company information

Manufacturer: Saint-Gobain Portugal, S.A.
Rua da Carreira Branca, Zona Industrial de Taboeira, 3800-055 Aveiro (Portugal)
Tel.: (+351) 234 10 10 10 / e-mail: info.portugal@saint-gobain.com / web: https://construir.saint-gobain.pt/

Production plants:
Aveiro: Rua da Carreira Branca, Zona Industrial de Taboeira, 3800-055 Aveiro (Portugal)
Carregado: Quinta dos Cónegos, 2580-465 Carregado (Portugal)

CPC code: 37510 Non-refractory mortars and concretes

Geographical scope: Portugal

Program used: The International EPD® System. More information at www.environdec.com

PCR identification : PCR 2019 :14 Construction products (EN 15804 : A2) (1.11)

Prepared by: IVL Swedish Environmental Research Institute, EPD International Secretariat

Owner of the declaration: Saint-Gobain Portugal, S.A.

Product / product family name and manufacturer represented: This EPD describes the environmental impacts of 1 kg of a mixture of weberfloor base delivered in powder form.

EPD® prepared by:	Sara, Lacerda (Saint-Gobain Portugal, S.A.) Sandra, Perez-Jimenez (Saint-Gobain LCA central team)
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EPD registration number/declaration number: **S-P-05575**

Declaration issued: 2022-02-02, **Revision:** 2022-07-20, **Valid until:** 2027-02-01

Demonstration of verification: an independent verification of the declaration was made, according to EN ISO 14025:2010. This verification was external and conducted by a third party, based on the PCR mentioned above (see information below).

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

CEN standard UNE-EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 Construction Products, version 1.1
PCR review was conducted by: El Comité Técnico del Sistema Internacional EPD© President: Claudia A. Peña. Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier : Marcel Gomez Marcel Gómez Consultoria Ambiental Tlf 0034 630 64 35 93 - info@marcelgomez.com In case of recognized individual verifiers: Approved by: The International EPD© System

Procedure for follow-up of data during EPD validity involves third part verifier:
☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs 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 EN 14025.

Product description

Product description and description of use:

The product family observed within the scope of this study is cement based screed to use in the regularization of pavements.

This product can be also used for (non-exhaustive list):

- Filling and regularizing pavements for new construction or renovation projects.
- Indoor and outdoor applications.

This EPD applies for one specific product manufactured by Saint-Gobain Portugal, S.A. in the plant located in Aveiro.

All technical characteristics and properties for any product could be find on the website:
https://construir.saint-gobain.pt/Produtos/weber/weberfloor-base#descriptions

During the life cycle of the product, no hazardous substances listed on the "Candidate List of Substances of Very High Concern (SVHC) Authorization" has been used in a percentage higher than 0.1% of the weight of the product. The verifier and the program operator do not make any claim nor have any responsibility of the legality of the product.

Technical data/physical characteristics		
Reaction to fire	$A1_{FL}$	EN13813 CT-C12-F2
Release of corrosive substances	CT	
Compressive strength	12 MPa	
Flexural strength	2 MPa	

Description of the main product components and/or materials:

All raw materials contributing more than 5% to any environmental impact are listed in the following table.

Product components	Weight (%)	Post-consumer material weight (%)	Renewable material weight (%)
Standard product	**100%**	**0%**	**0%**
Cement	**10 – 20%**	**0%**	**0%**
Sand	**30 – 40%**	**0%**	**0%**
Recycled Sand (from paper mill industry waste)	**30 – 40%**	**0%**	**0%**
Limestone	**10% – 20%**	**0%**	**0%**
Water for installation	**7% – 15 %**	**0%**	**0%**
Packaging materials	**Weight (%) (versus the product)**		
Polyethylene low density	**0,05% – 0,2%**		
Paper bag	**0,3% – 0,5%**		
Pallet	**0,05% – 0,15%**		

The reported values are the actual quantities reported in SAP. These are the net masses consumed to produce the product that was sell to the clients in 2020. These values were calculated considering the total raw material consumed in 2020 and dividing this quantity by the total annual sold production in 2020.

LCA calculation information

EPD TYPE	Cradle to grave and module D
DECLARED UNIT	1 kg of cement based screed to use in the regularization of pavements
SYSTEM BOUNDARIES	Mandatory Stages = A1-A3 ; B1-B7 ; C1-C4 and D
REFERENCE SERVICE LIFE (RSL)	50 years
CUT-OFF RULES	Life Cycle Inventory data for a minimum of 99% of total inflows to the upstream and core module shall be included. Flows related to human activities such as employee transport are excluded. Transportation in-site is excluded The construction of plants, production of machines and transportation systems are excluded
ALLOCATIONS	Allocation has been avoided when possible. For those cases, when recycled material has been used, a physical allocation based on mass is used. The polluter pays and modularity principles have been followed
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Data included is collected from 1 production site in Portugal Production year from 2020 Background data: Ecoinvent v3.6 and GaBi ts 2020
UN CPC CODE	37510 Non-refractory mortars and concretes

EPD of construction products may not be comparable if they do not comply with EN 15804. Environmental product declarations within the same product category from different programs may not be comparable.

Data quality assessment

The data quality level is evaluated following as criteria the: Temporal relevance (TR), Geographical relevance (GR), and Technological relevance (TeR).

Geographical relevance - The data collected is based as close as possible to manufacturing site. All data was taken from sources from Portugal (e.g. Electricity production model), however if this was not possible then European sources were used.

Technological relevance - All the technological data gathered is current and for most materials it is generally industry averages.

Temporal relevance - Our data sets are updated as often as possible to ensure they are at least within the last 10 years for generic data and within the last 5 years for producer specific data. The databases, Gabi or Ecoinvent, listed in appendix II may be outside of the 10-year limit for generic data, however

The data is provided by Saint-Gobain Portugal, S.A. through the data collection file. The data is checked against available annual environment reports for the site by Saint-Gobain LCA Central Team before the LCA project begins.

The following data was the source of primary and secondary data used, the data used in this EPD is representative of the production process and the product itself.

Table 1 - Specific data quality assessment

Stage	Year	Location country	Data record, source, year of collection, representativeness
A1-A3 Product	2020	Portugal	Collected at plants in 2020
A4-A5 Construction	2020	Portugal	Transport data supplied by logistics team at sites in 2020. Installation materials data supplied by Weber SG Portugal.
B1-B5 Use	2020	Portugal	No data required.
C1-C4 End-of-life	2020	Portugal	Data supplied by sites in 2020.

Life cycle stages

Flow diagram of the Life Cycle

Figure 1: Life Cycle illustration of a product for construction

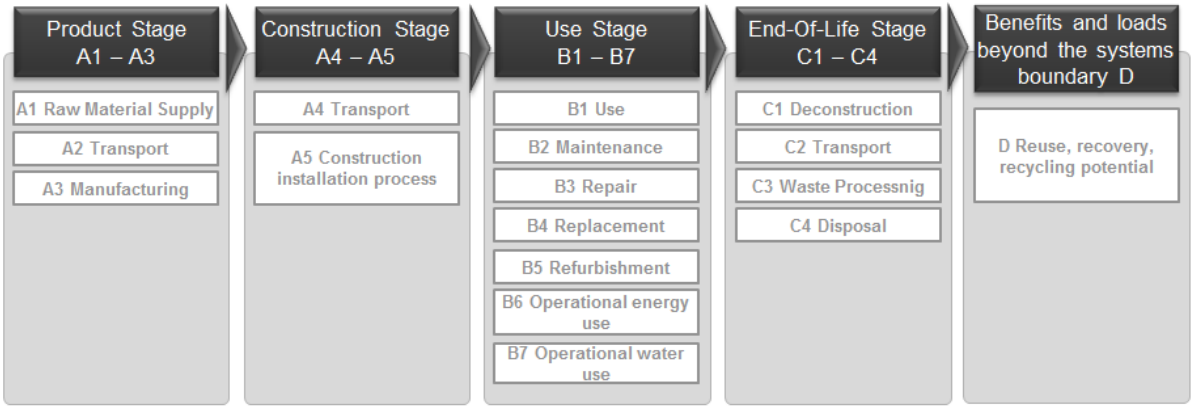


Figure 2. Cradle to grave analysis taking into account all stages of the Life Cycle product

Product stage, A1 - A3

Description of the stage:

The product stage of the Weber products is subdivided into 3 modules A1, A2 and A3 respectively “Raw material supply”, “transport” and “manufacturing”.

The aggregation of the modules A1, A2 and A3 is a possibility considered by the EN 15804 standard. This rule is applied in this EPD.

A1, Raw material and energy supply

This part takes into account the extraction and processing of all raw materials and energy which occurs upstream to the studied manufacturing process.

Specifically, the raw material supply covers sourcing (quarry) and production of all binder components and additives (e.g. sand, cement, rheology agent and others).

Use of electricity, fuels and auxiliary materials in the production is taken into account too. The environmental profile of these energy carriers is modeled for local conditions.

A2, Transport to manufacturer

The raw materials are transported to the manufacturing site. In this case, the modelling includes road and boat transportations (average values) of each raw material.

A3, Manufacturing

This module includes manufacturing of products but also besides on-site activities such as storing, mixing, packing and internal transportation.

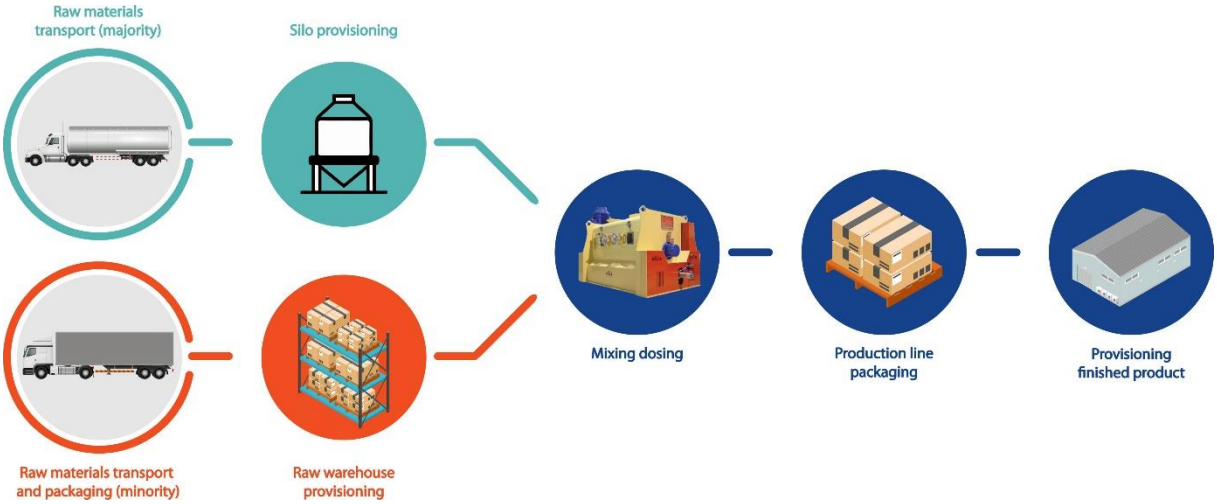
The manufacturing process also collect data on the combustion of refinery products, such as diesel and gasoline, related to the production process.

Packaging-related flows in the production process and all up-stream packaging are included in the manufacturing module, i.e. wooden pallets, paper sack and LDPE film.

Apart from production of packaging material, the supply and transport of packaging material are also considered in the LCA model. They are reported and allocated to the module where the packaging is applied. Data on packaging waste created during this step are then generated.

It is assumed that packaging waste generated in the course of production and up-stream processes is 100% collected and either recycled or incinerated with energy recovery.

Manufacturing process flow diagram: Basic scheme of a Mortar Production line



Construction process stage, A4 - A5

Description of the stage:

The construction process is divided into 2 modules: A4, transport to the building site and A5, installation in the building

A4, Transport to the building site

This module includes transport from the production gate to the building site. Transport is calculated on the basis of a scenario with the parameters described in the following table.

PARAMETER	VALUE (expressed per declared unit) / DESCRIPTION
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	38 l / 100km for 26t load
Distance	349 km
Capacity utilisation (including empty returns)	85 % for lorries 30% of empty returns
Bulk density of transported products	1200 kg/m3
Volume capacity utilisation factor	1 (by default)

A5, Installation into the building.

For the implementation of the product, mixer pump equipment is generally used for high volume purposes. Smaller volumes are mixed and applied according to local circumstances. A pump is generally used. The energy to run different equipment has been accounted for in relation to the product type and different uses.

Packaging materials and leftovers are considered as landfilled in module A5 and C4 accordingly.

PARAMETER	VALUE (expressed per declared unit) / DESCRIPTION
secondary materials for installation (specified by materials)	none
Water use	weberfloor base 0,10 l/kg
Other resource use	none
Quantitative description of energy type (regional mix) and consumption during the installation process	0,0058 MJ/kg
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	During application the product is fully used
Output materials (specified by type) as results of waste processing at the building site e.g. of collection for recycling, for energy recovering, disposal (specified by route)	weberfloor base Paper bag: 0,004 kg/kg Polyethylene bag: 0,001 kg/kg Polyethylene film: 0,002 kg/kg Wooden pallet: 0,001 kg/kg
Direct emissions to ambient air, soil and water	none

Use stage (excluding potential savings), B1 - B7

Description of the stage:

The use stage is divided into the following modules: **Use – B1, Maintenance – B2, Repair – B3, Replacement – B4, Refurbishment – B5, Operational energy and water use – B6 and B7**

Once installation is complete, no actions or technical operations are required during the use stages until the end of life stage. The product does not require any energy, water or material input to keep it in working order. Furthermore, it is not exposed to the indoor atmosphere of the building, nor is it in contact with the circulating water or the ground.

The product covered by this EPD does not require any maintenance as it is aimed for pavements regularization. In addition, due to the product durability; maintenance, repair, replacement or restoration are irrelevant in the specified applications. Declared product performances therefore assume a working life that equals the building's lifetime. For this reason, no environmental loads are attributed to any of the modules between B1 and B5.

End-of-life stage C1 - C4

Description of the stage:

Landfill is considered to be the worst scenario.

The end-of-life stage is divided into the following modules:

C1, Deconstruction

The de-construction and/or dismantling of the product take part of the demolition of the entire building. In our case, the environmental impact is assumed to be very small and can be neglected.

C2, Transport to waste processing

This module includes transportation of wastes from the demolished building to landfill.

C3, Waste processing

The product is considered to be landfilled without reuse, recovery or recycling. It is classified as 'non-hazardous waste' in the European list of waste products.

C4, Disposal

Includes provision and all transport, provision of all materials, products and related energy and water use.

Description of the scenarios and additional technical information for the end-of-life:

PARAMETER	VALUE (expressed per declared unit) / DESCRIPTION
Collection process specified by type	1 kg collected with mixed construction waste.
Recovery system specified by type	0% of waste
Disposal specified by type	100% (1 kg) product to municipal landfill
Assumptions for scenario development (e.g. transportation)	Average truck trailer with 27t payload, diesel consumption 38L/100km ; 50km distance to landfill

Reuse/recovery/recycling potential, D

100% of wastes are landfilled, so not recycling, recovery or reuse has been considered

LCA results

As specified in EN 15804:2012+A2:2019 and also the Product-Category Rules. The environmental impacts are declared and reported using the baseline characterization factors are from the ILCD. Specific data has been supplied by the plant, and generic data come from GABI and Ecoinvent databases.

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks

All emissions to air, water, and soil, and all materials and energy used have been included.

LCA data results are detailed on the following tables and they refer to a declared unit of 1 kg of cement based screed to use in the regularization of pavements.

Description of the system boundary, X = Included in LCA, MND = Module Not Declared

PRODUCT STAGE			CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-recovery
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

a. Specific data used: > 85% GWP
b. Variation products: - 3%
c. Variation – Sites: The weighted average was calculated upstream (in the data collection file), so the values entered in Gabi were already weighted

Environmental Impacts

	Environmental indicators	Product stage	Construction stage		Use stage							End of life stage				Reuse, Recovery Recycling
		A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
	Climate Change [kg CO2 eq.]	1,51E-01	2,63E-02	2,89E-02	0	0	0	0	0	0	0	4,47E-03	4,85E-05	0	1,33E-02	0
	Climate Change (fossil) [kg CO2 eq.]	1,71E-01	2,56E-02	5,89E-03	0	0	0	0	0	0	0	4,47E-03	4,82E-05	0	1,52E-02	0
	Climate Change (biogenic) [kg CO2 eq.]	-2,07E-02	6,41E-04	2,30E-02	0	0	0	0	0	0	0	5,89E-06	-8,12E-08	0	-1,95E-03	0
	Climate Change (land use change) [kg CO2 eq.]	5,64E-05	1,49E-06	8,98E-08	0	0	0	0	0	0	0	9,82E-08	3,91E-07	0	4,37E-05	0
	Ozone depletion [kg CFC-11 eq.]	5,00E-09	3,77E-18	-8,12E-18	0	0	0	0	0	0	0	4,75E-19	8,87E-21	0	5,63E-17	0
	Acidification terrestrial and freshwater [Mole of H+ eq.]	3,92E-04	4,65E-05	3,50E-06	0	0	0	0	0	0	0	1,32E-05	2,80E-07	0	1,09E-04	0
	Eutrophication freshwater [kg P eq.]	1,61E-05	4,91E-09	3,01E-07	0	0	0	0	0	0	0	9,87E-10	1,47E-10	0	2,61E-08	0
	Eutrophication freshwater [kg (PO4)3 eq.]	4,93E-05	1,51E-08	9,25E-07	0	0	0	0	0	0	0	3,03E-09	4,52E-10	0	8,00E-08	0
	Eutrophication marine [kg N eq.]	1,05E-04	1,99E-05	3,30E-06	0	0	0	0	0	0	0	2,45E-06	1,35E-07	0	2,80E-05	0
	Eutrophication terrestrial [Mole of N eq.]	7,77E-04	2,19E-04	1,42E-05	0	0	0	0	0	0	0	2,68E-05	1,50E-06	0	3,08E-04	0
	Photochemical ozone formation - human health [kg NMVOC eq.]	2,19E-04	4,20E-05	4,44E-06	0	0	0	0	0	0	0	7,69E-06	2,56E-07	0	8,48E-05	0
	Resource use, mineral and metals [kg Sb eq.]	4,72E-07	3,06E-10	-7,64E-11	0	0	0	0	0	0	0	1,17E-10	3,91E-12	0	1,36E-09	0
	Resource use, energy carriers [MJ]	1,30E+00	3,52E-01	3,58E-03	0	0	0	0	0	0	0	5,46E-02	6,45E-04	0	1,99E-01	0
	Water scarcity [m³ world equiv.]	1,79E-02	2,49E-05	4,68E-03	0	0	0	0	0	0	0	9,27E-06	4,72E-07	0	1,59E-03	0

Resources Use

	Resources Use indicators	Product stage	Construction stage		Use stage							End of life stage				Reuse, recovery, recycling
		A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
	Use of renewable primary energy (PERE) [MJ]	3,37E-01	8,54E-03	-2,72E-03	0	0	0	0	0	0	0	1,91E-04	3,73E-05	0	2,61E-02	0
	Primary energy resources used as raw materials (PERM) [MJ]	1,72E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total use of renewable primary energy resources (PERT) [MJ]	5,09E-01	8,54E-03	-2,72E-03	0	0	0	0	0	0	0	1,91E-04	3,73E-05	0	2,61E-02	0
	Use of non-renewable primary energy (PENRE) [MJ]	1,14E+00	3,53E-01	3,58E-03	0	0	0	0	0	0	0	5,46E-02	6,48E-04	0	1,99E-01	0
	Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	1,55E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total use of non-renewable primary energy resources (PENRT) [MJ]	1,30E+00	3,53E-01	3,58E-03	0	0	0	0	0	0	0	5,46E-02	6,48E-04	0	1,99E-01	0
	Input of secondary material (SM) [kg]	3,55E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Use of renewable secondary fuels (RSF) [MJ]	7,31E-02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Use of non-renewable secondary fuels (NRSF) [MJ]	1,08E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Use of net fresh water (FW) [m3]	4,48E-04	1,55E-06	1,08E-04	0	0	0	0	0	0	0	3,39E-07	4,35E-08	0	5,02E-05	0

Waste Category & Output flows

	Waste Category & Output Flows	Product stage	Construction stage		Use stage							End of life stage				Reuse, recovery, recycling
		A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
	Hazardous waste disposed (HWD) [kg]	6,61E-05	2,28E-11	4,56E-11	0	0	0	0	0	0	0	5,54E-12	3,00E-11	0	3,035E-09	0
	Non-hazardous waste disposed (NHWD) [kg]	3,69E-03	7,15E-06	1,17E-02	0	0	0	0	0	0	0	1,35E-05	1,03E-07	0	1,001	0
	Radioactive waste disposed (RWD) [kg]	1,28E-05	4,01E-07	-1,08E-06	0	0	0	0	0	0	0	6,27E-08	1,19E-09	0	2,266E-06	0
	Components for re-use (CRU) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Materials for Recycling (MFR) [kg]	4,11E-04	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exported electrical energy (EEE) [MJ]	8,56E-05	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exported thermal energy (EET) [MJ]	1,95E-05	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

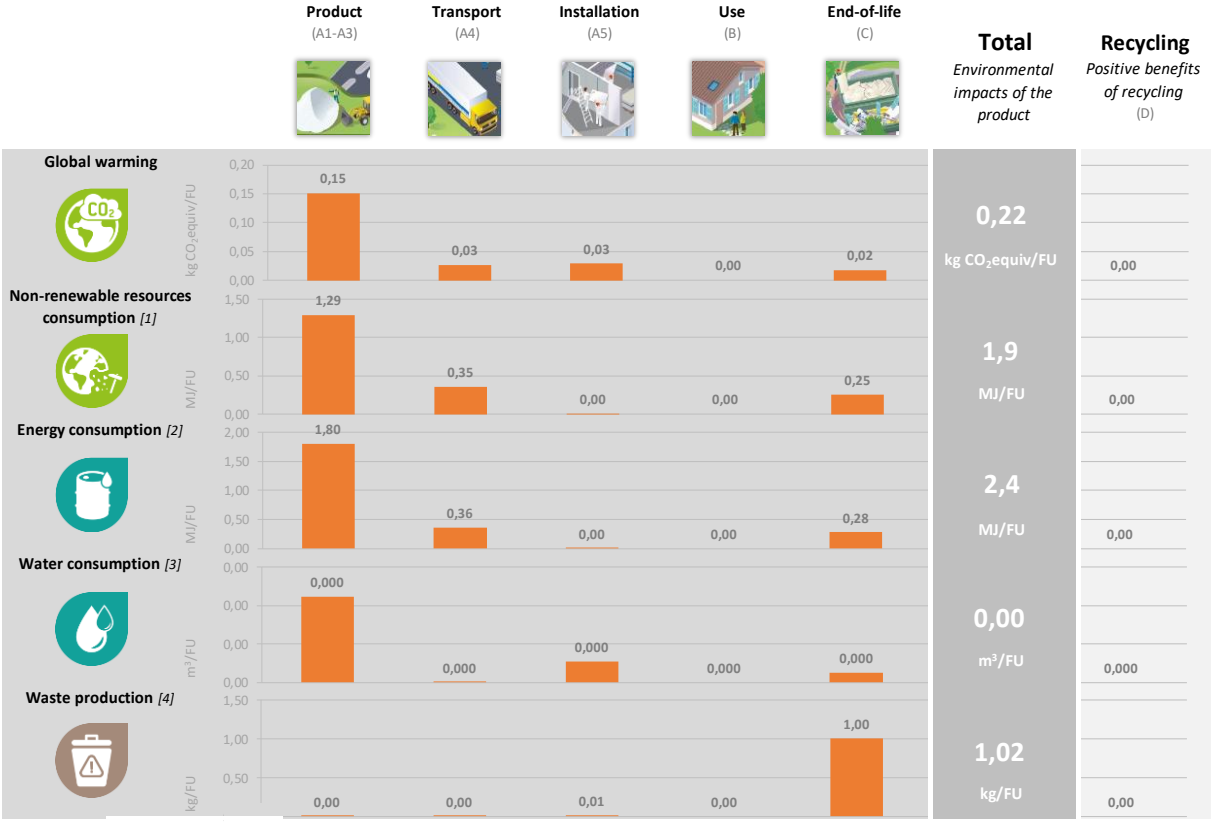
		Product stage
	Biogenic Carbon Content	**A1 / A2 / A3**
	Biogenic carbon content in product [kg]	**0,00E+00**
	Biogenic carbon content in packaging [kg]	**5,61E-03**

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

There is no biogenic carbon in the product, this indicator only applies for packaging, due to wooden pallet and paper bag production.

LCA results interpretation

The following figure refers to a declared unit of 1kg cement based screed to use in the regularization of pavements



[1] This indicator corresponds to the abiotic depletion potential of fossil resources.
[2] This indicator corresponds to the total use of primary energy.
[3] This indicator corresponds to the use of net fresh water.
[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive waste disposed.

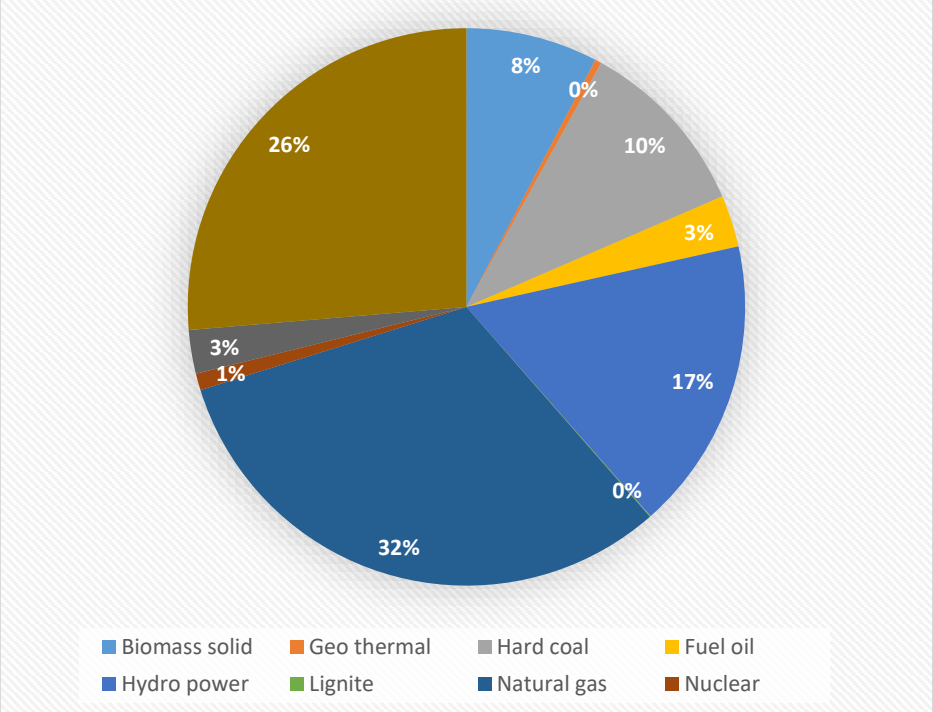
With the graphic views above, it is possible to assess which steps of the LCA are the most impacting for the chosen indicators

- The main environmental impacts of the product life cycle come from extraction and processing of raw materials (A1-A3). The Product stage is responsible for over 55% of the impact for following indicators: Climate Change, Ozone depletion, Acidification terrestrial and freshwater, Eutrophication freshwater, Eutrophication marine, Eutrophication terrestrial, Photochemical ozone formation - human health, Resource use, mineral and metals, Resource use, energy carriers and Water scarcity.
- As expected, waste production is mainly generated during installation due to products packaging and at the end-of-life stage with building demolition.

Appendix

Electricity description

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of Electricity purchased by Saint-Gobain Portugal
Geographical representativeness description	Split of energy sources in Portugal Biomass solid 7,66 % Geo thermal 0,37 % Hard coal 10,48 % Fuel oil 3,0 % Hydro power 17,0 % Lignite 0,05 % Natural gas 31,61% Nuclear 0,97 % Photovoltaics 2,53 % Wind power 26,32 % Total: 100,00 %
Reference year	2020
Type of data set	Cradle to gate from Thinkstep and ecoinvent databases
Source	European Residual Mixes 2019. Association of Issuing Bodies 2020
Global warming potential (excluding biogenic Carbon)	0,312 kg of CO_2 eq./kWh



Environmental impacts according to EN 15804:2012 + A1

The following tables presents results of 1 kg of cement based screed to use in the regularization of pavements according to EN 15804 +A1.

		Product stage	Construction stage		Use stage							End of life stage				Reuse, recovery, recycling
		A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Environmental impacts	Global Warming Potential (GWP) [kg CO2eq.]	1,98E-01	2,44E-02	5,84E-03	0	0	0	0	0	0	0	0,00441	4,75E-05	0	1,49E-02	0,00E+00
	Ozone depletion (ODP) [kg CFC 11eq.]	5,60E-09	4,83E-18	-1,08E-17	0	0	0	0	0	0	0	6,33E-19	1,18E-20	0	7,50E-17	0,00E+00
	Acidification potential (AP) [kg SO2eq.]	5,97E-04	3,21E-05	2,51E-06	0	0	0	0	0	0	0	1,09E-05	1,92E-07	0	8,74E-05	0,00E+00
	Eutrophication potential (EP) [kg (PO4)3-eq.]	3,56E-05	7,03E-06	1,17E-05	0	0	0	0	0	0	0	8,7E-07	4,81E-08	0	9,84E-06	0,00E+00
	Photochemical ozone creation (POCP) - [kg Ethylene eq.]	1,42E-05	2,07E-06	8,25E-07	0	0	0	0	0	0	0	8,02E-07	6,75E-09	0	7,04E-06	0,00E+00
	Abiotic depletion potential for non-fossil resources (ADP-elements) [kg Sbeq.]	4,75E-07	3,07E-10	3,39E-11	0	0	0	0	0	0	0	1,23E-10	4,38E-12	0	5,25E-09	0,00E+00
	Abiotic depletion potential for fossil resources (ADP-fossil fuels) [MJ]	1,23E+00	3,38E-01	6,33E-03	0	0	0	0	0	0	0	0,0545	6,45E-04	0	1,93E-01	0,00E+00
Ressources Use indicators	Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE) [MJ]	5,06E-01	8,21E-03	-2,71E-03	0	0	0	0	0	0	0	0,000191	3,73E-05	0	2,61E-02	0,00E+00
	Use of renewable primary energy used as raw materials (PERM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0,00E+00
	Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT) [MJ]	5,06E-01	8,21E-03	-2,71E-03	0	0	0	0	0	0	0	0,000191	3,73E-05	0	2,61E-02	0,00E+00
	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE) [MJ]	1,30E+00	3,39E-01	3,63E-03	0	0	0	0	0	0	0	0,0546	6,48E-04	0	1,99E-01	0,00E+00
	Use of non-renewable primary energy used as raw materials (PENRT) [MJ]	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0,00E+00

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	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT) [MJ]	1,30E+00	3,39E-01	3,63E-03	0	0	0	0	0	0	0	0,0546	6,48E-04	0	1,99E-01	0,00E+00
	Use of secondary material (SM) [kg]	4,52E-01	1,49E-03	1,28E-01	0	0	0	0	0	0	0	0,000339	4,35E-05	0	5,02E-02	0,00E+00
	Use of net fresh water (FW) [m³]	2,62E-01	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0,00E+00
Output Flows and waste category	Hazardous waste disposed (HWD) [kg]	2,91E-07	2,19E-11	4,56E-11	0	0	0	0	0	0	0	5,54E-12	2,99E-11	0	3,03E-09	0,00E+00
	Non-hazardous waste disposed (NHWD) [kg]	2,43E-02	6,88E-06	1,17E-02	0	0	0	0	0	0	0	1,35E-05	1,03E-07	0	1,00E+00	0,00E+00
	Radioactive waste disposed (RWD) [kg]	5,40E-06	9,88E-09	-3,03E-08	0	0	0	0	0	0	0	1,76E-09	3,39E-11	0	6,81E-08	0,00E+00
	Materials for Recycling (MFR) [kg]	1,68E-05	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0,00E+00

Differences with previous versions of the EPD

The main change compared to previous version published on 2022-02-02 is related to the correction of the manufacturing process description.

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7. ISO 14020:2000 Environmental labels and Declarations - General principles
8. EN 15978 Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method