



ENVIRONMENTAL PRODUCT DECLARATION

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



webertec BTcalceG
webertec BTcalceF

Version 1
2023-03-24

Validity: 5 years

Valid until: 2028-03-01

Scope of the EPD®: Italy



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**.



Production plants:

Aquino

Contrada San Marco, 1, 03031 Aquino (FR) (Italy)

Registration number
The International EPD® System:
S-P-08332

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 their 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.

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 Italia S.p.A. represents three brands

 SAINT-GOBAIN	 SAINT-GOBAIN	 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 systems
ISO 14001 - Environment management systems
ISO 45001 - Occupational health and safety management systems



TOP EMPLOYER - Human Resource Management Best

General information

Manufacturer: Saint-Gobain Italia, S.p.A
Via Giovanni Bensi 8, 20152 Milano, (Italy)
Tel. (+39) 02 611151/ mail: sg.ppc@legalmail.it / web: <https://www.saint-gobain.it/>

Production plants: Aquino: Contrada San Marco, 1, 03031 Aquino (FR) (Italy)

CPC code: 37510 Non-refractory mortars and concretes

Geographical scope: Italy

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

PCR identification: The International EPD System PCR 2019:14 version 1.11 Construction products

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

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

Product / product family name and manufacturer represented: This EPD describes the environmental impacts of 1 m² of a mixture of **webertec BTcalceF** delivered in powder form.

As their environmental impact (Climate change – total) differs less than 10%, this EPD also covers the following product:

webertec BTcalceG

EPD® prepared by: Fiorenza, Rubini (Saint-Gobain Italia, S.p.A)
Patricia Jimenez Diaz (Saint-Gobain LCA central team)

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EPD registration number/declaration number: S-P-08332

Declaration issued: 2023-03-24, **valid until:** 2028-03-01

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
Address:	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: Andrew Norton Renueables http://renueables.co.uk	
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 observed within the scope of this study is the webertec BTcalceF. This product is a structural mortar based on natural hydraulic lime for the consolidation and reinforcement of structural masonry elements, also for improvements and seismic adjustment.

This EPD applies for one specific product manufactured by Saint-Gobain Italia, S.p.A. in the plants located in Aquino.

All technical characteristics and properties for any product could be find on the website:

<https://www.it.weber/malte-il-ripristino-del-cls-il-consolidamento-e-il-rinforzo-delle-strutture/ripristino-e-consolidamento-strutturale/malte-il-consolidamento/webertec-btcalcef>

Technical data/physical characteristics		
Reaction to fire	A1	
Adhesion @ 28 days (MPa)	> 1,0	UNI EN 13501
Thermal conductivity (W/mK)	0,83	EN 998-1
Modulus of elasticity (GPa)	9	EN 998-2
Compressive strength @28 days (MPa)	> 15	
Thickness (mm)	10 - 60	
Mass of declared unit (kg/m ²)	59,5	

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 (%)
Product	100%	0%	0%
Cement	5% – 15%	0%	0%
Hydraulic lime	5 – 15%		
Limestone and aggregates	60% –80%	0%	0%
Water for installation	20– 22 %	0%	0%
Packaging materials	Weight (%) (versus the product)		
Polyethylene low density	1,0% – 3,5%		
Paper + PE bag	2,0% – 4,0%		
Pallet	0,3% – 0,8%		
Paper label	0,1% – 0,5%		

During the life cycle of the product any hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) for 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.

LCA calculation information

EPD TYPE	Cradle to grave and module D
DECLARED UNIT	1 m ² of repair mortars for masonry hydraulic lime based, with a density of 59,5 kg/m ² per 35 mm of thickness
SYSTEM BOUNDARIES	Mandatory Stages = A1-A3 ; B1-B7 ; C1-C4 and D
REFERENCE SERVICE LIFE (RSL)	50 years (EN 16757 – Product Category rules for concrete and concrete elements)
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 Italy Production year from 2021 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 Italia, S.p.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

	Year	Location country	Data record, source, year of collection, representativeness
A1-A3 Product	2021	Italy	Collected at plants in 2022
A4-A5 Construction process	2021	Italy	Transport data supplied by logistics team at sites in 2022. Installation materials data supplied by Weber SG Italy.
B1-B5 Use	2021	Italy	No data required.
C1-C4 End-of-life	2021	Italy	Data supplied by sites in 2022

Life cycle stages

Flow diagram of the Life Cycle

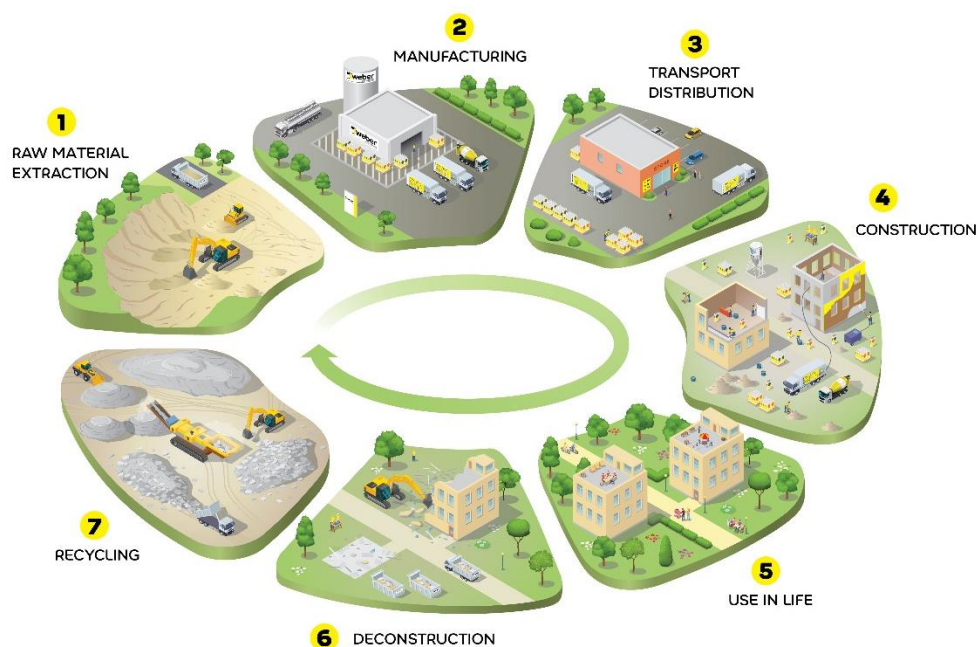


Figure 1: Life Cycle illustration of a product for construction

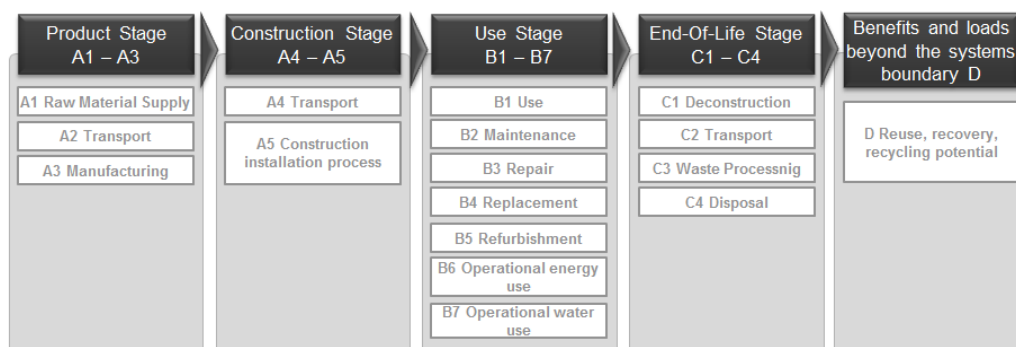


Figure 2: Cradle to grave analysis taking into account all stages of the Life Cycle product

¹ Included Transport

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

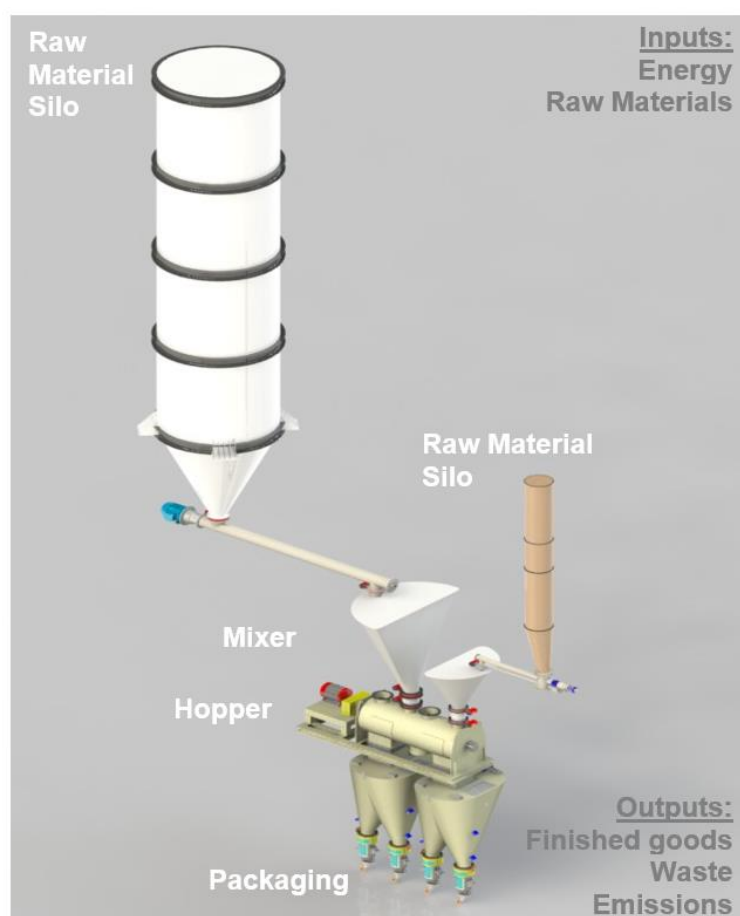
This module includes manufacturing of products but also besides on-site activities such as grinding, drying, storing, mixing, packing and internal transportation.

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.



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)
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	Average truck trailer 30 t payload, diesel consumption 38 liters for 100 km
Distance	400 km
Capacity utilisation (including empty returns)	83 % for lorries 30% of empty returns
Bulk density of transported products	1500 kg/m ³
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 are considered as landfilled in module A5.

PARAMETER	VALUE (expressed per declared unit)
secondary materials for installation (specified by materials)	none
Water use	webertec BTcalceF 12,50 l/m ²
Other resource use	none
Quantitative description of energy type (regional mix) and consumption during the installation process	0,4284 MJ/m ²
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	5% losses during installation
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)	Paper label: 0,298 kg/ m ² to landfill Paper+PE bag: 1,904 kg/ m ² to landfill Polyethylene film: 2,053 kg/ m ² to landfill Wooden pallet: 0,279 kg/ m ² to landfill
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, a small amount of energy is considered 0.05 MJ/m²

C2, Transport to waste processing

The model use for the transportation is applied.

C3, Waste processing

The product is considered to be landfilled without reuse, recovery or recycling. No environmental loads are attributed to this stage.

C4, Disposal

The product is considered to be landfilled

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 m ² collected with mixed construction waste.
Recovery system specified by type	0% of waste
Disposal specified by type	100% (1 m ²) product to municipal landfill
Assumptions for scenario development (e.g. transportation)	Average truck trailer with 27t payload, diesel consumption 38L/100km ; 100km distance to landfill

Carbonation occurs during the end of life of mortar the CO₂ uptake from air however it has not been calculated in compliance with FprEN 16757:2016, has not been included in the assessment.

Reuse/recovery/recycling potential, D

100% of wastes are landfilled, so no 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 from EC-JRC..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 m² of repair mortars for masonry hydraulic lime based, with a density of 59,5 kg/m² per 35 mm of thickness.

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
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	IT	IT	IT	IT	IT	-	-	-	-	-	-	-	IT	IT	IT	IT	-
Specific data used	>90% GWP- GHG					-	-	-	-	-	-	-	-	-	-	-	-
Variation products	< 10%					-	-	-	-	-	-	-	-	-	-	-	-
Variation sites	< 10%					-	-	-	-	-	-	-	-	-	-	-	-

Environmental Impacts

		Product stage	Constructi on stage		Use stage							End of life stage				Reuse, Recovery Recycling
	Environmental indicators	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 CO ₂ eq.]	1,81E+01	1,13E+00	5,40E+00	0	0	0	0	0	0	0	2,69E-01	2,92E-01	0	9,30E-01	0
	Climate Change (fossil) [kg CO ₂ eq.]	2,16E+01	1,10E+00	1,61E+00	0	0	0	0	0	0	0	2,69E-01	2,90E-01	0	9,13E-01	0
	Climate Change (biogenic) [kg CO ₂ eq.]	-3,49E+00	2,75E-02	3,79E+00	0	0	0	0	0	0	0	3,55E-04	-4,89E-04	0	1,40E-02	0
	Climate Change (land use change) [kg CO ₂ eq.]	9,43E-03	6,41E-05	9,75E-04	0	0	0	0	0	0	0	5,91E-06	2,36E-03	0	2,63E-03	0
	Ozone depletion [kg CFC-11 eq.]	8,38E-07	1,62E-16	4,62E-08	0	0	0	0	0	0	0	2,86E-17	5,34E-17	0	3,39E-15	0
	Acidification terrestrial and freshwater [Mole of H ⁺ eq.]	5,31E-02	1,81E-03	4,45E-03	0	0	0	0	0	0	0	7,92E-04	1,69E-03	0	6,55E-03	0
	Eutrophication freshwater [kg P eq.]	2,09E-03	2,11E-07	2,35E-04	0	0	0	0	0	0	0	5,94E-08	8,86E-07	0	1,57E-06	0
	Eutrophication freshwater [kg (PO ₄) ₃ eq.]	6,43E-03	6,48E-07	7,21E-04	0	0	0	0	0	0	0	1,82E-07	2,72E-06	0	4,81E-06	0
	Eutrophication marine [kg N eq.]	2,52E-02	7,56E-04	2,13E-03	0	0	0	0	0	0	0	1,47E-04	8,13E-04	0	1,69E-03	0
	Eutrophication terrestrial [Mole of N eq.]	1,14E-01	8,34E-03	1,13E-02	0	0	0	0	0	0	0	1,61E-03	9,00E-03	0	1,85E-02	0
	Photochemical ozone formation - human health [kg NMVOC eq.]	4,91E-02	1,63E-03	4,05E-03	0	0	0	0	0	0	0	4,63E-04	1,54E-03	0	5,11E-03	0
	Resource use, mineral and metals [kg Sb eq.]	9,42E-04	1,31E-08	4,75E-05	0	0	0	0	0	0	0	7,02E-09	2,35E-08	0	8,20E-08	0
	Resource use, energy carriers [MJ]	3,08E+02	1,51E+01	2,10E+01	0	0	0	0	0	0	0	3,29E+00	3,88E+00	0	1,20E+01	0
	Water scarcity [m ³ world equiv.]	5,73E+00	1,07E-03	8,56E-01	0	0	0	0	0	0	0	5,58E-04	2,84E-03	0	9,57E-02	0

Resources Use

		Product stage	Construction stage		Use stage							End of life stage				Reuse, recovery, recycling
Resources Use indicators		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]	7,70E+01	3,67E-01	3,82E+00	0	0	0	0	0	0	0	1,15E-02	2,25E-01	0	1,57E+00	0
	Primary energy resources used as raw materials (PERM) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total use of renewable primary energy resources (PERT) [MJ]	7,70E+01	3,67E-01	3,82E+00	0	0	0	0	0	0	0	1,15E-02	2,25E-01	0	1,57E+00	0
	Use of non-renewable primary energy (PENRE) [MJ]	3,56E+02	1,52E+01	2,34E+01	0	0	0	0	0	0	0	3,29E+00	3,90E+00	0	1,20E+01	0
	Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total use of non-renewable primary energy resources (PENRT) [MJ]	3,56E+02	1,52E+01	2,34E+01	0	0	0	0	0	0	0	3,29E+00	3,90E+00	0	1,20E+01	0
	Input of secondary material (SM) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Use of net fresh water (FW) [m³]	2,52E+00	6,67E-05	1,39E-01	0	0	0	0	0	0	0	2,04E-05	2,62E-04	0	3,02E-03	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]	1,94E-04	9,78E-10	9,72E-06	0	0	0	0	0	0	0	3,33E-10	1,80E-07	0	1,83E-07	0
	Non-hazardous waste disposed (NHWD) [kg]	1,64E-01	3,07E-04	7,07E+00	0	0	0	0	0	0	0	8,14E-04	6,18E-04	0	6,03E+01	0
	Radioactive waste disposed (RWD) [kg]	1,51E-03	1,72E-05	-8,24E-05	0	0	0	0	0	0	0	3,77E-06	7,19E-06	0	1,36E-04	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]	7,26E-02	0	3,63E-03	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]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exported thermal energy (EET) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Additional voluntary indicators from EN 15804 (according to ISO 21930:2017)

	Product stage	Construction stage		Use stage							End of life stage				D 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
GWP-GHG (kg CO ₂ eq.)	2,10E+01	1,09E+00	1,56E+00	0	0	0	0	0	0	0	2,65E-01	2,86E-01	0	8,96E-01	0

Information on biogenic carbon content

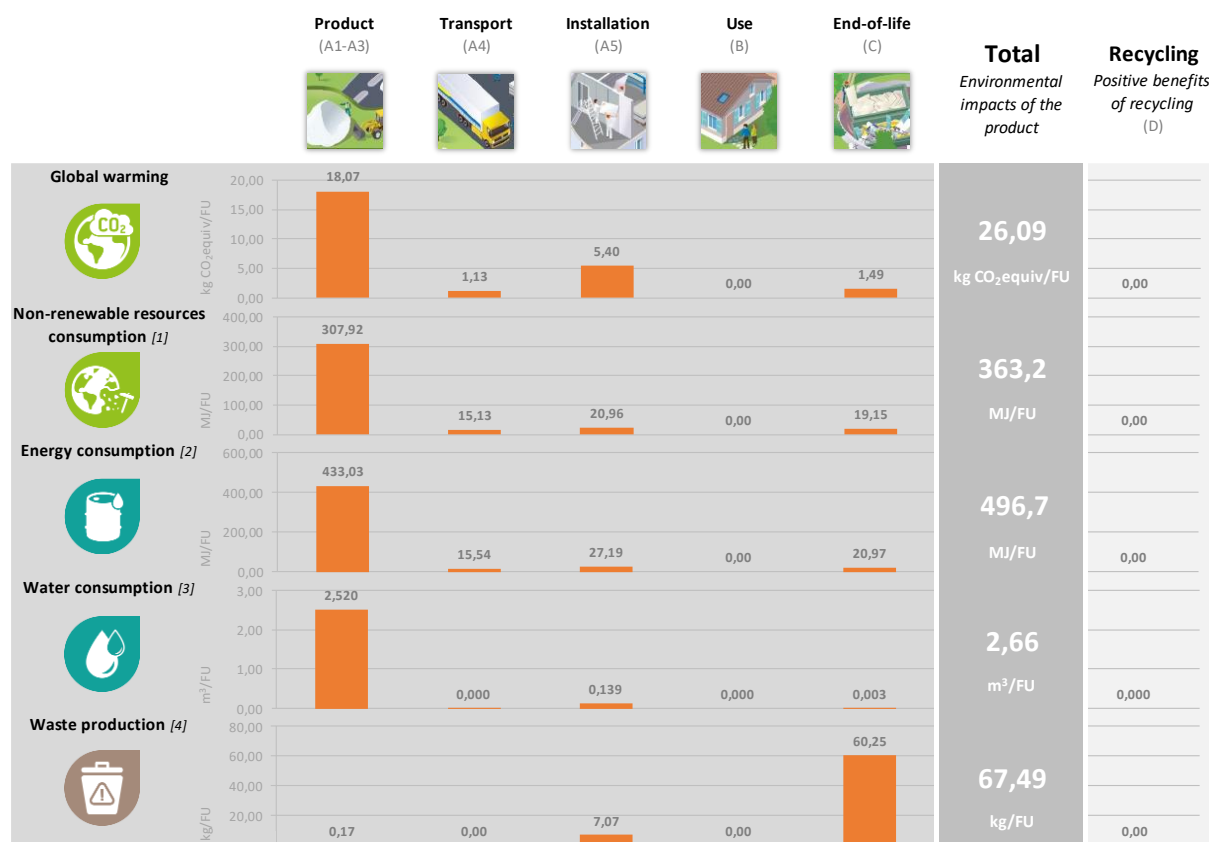
	Biogenic Carbon Content	Product stage
		A1 / A2 / A3
	Biogenic carbon content in product [kg]	3,56E-02
	Biogenic carbon content in packaging [kg]	9,54E-01

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

The product contains a small quantity of biogenic carbon due to the additives used. Regarding packaging, wooden pallets and paper bag production is accounted for.

LCA results interpretation

The following figure refers to a declared unit of 1 m² of repair mortars for masonry hydraulic lime based, with a density of 59,5 kg/m² per 35 mm of thickness.



[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.

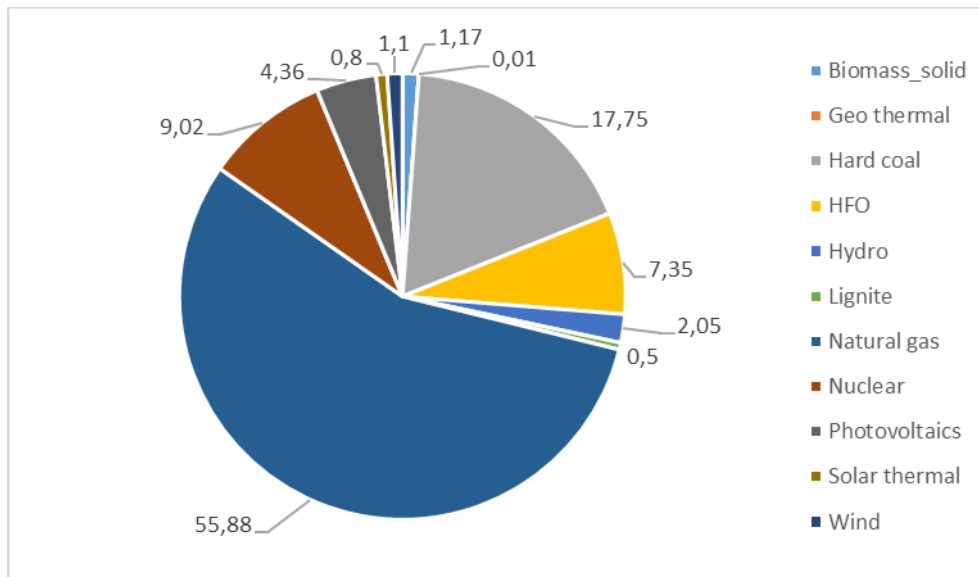
With the graphic views above, it is possible to assess which steps of the LCA are the most impacting for the chosen indicators

- 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.

Additional information

Electricity description

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of Electricity purchased by Saint-Gobain Italy
Geographical representativeness description	Split of energy sources in Italy - Biomass solid 1.17% - Geo thermal 0.01 % - Hard coal 17.75 % - Fuel oil 7.35 % - Hydro power 2.05 % - Lignite 0.5 % - Natural gas 55.88% - Nuclear 9.02 % - Photovoltaics 4.36 % - Solar thermal 0.8% - Wind power 1.1 %
Reference year	2020
Type of data set	Cradle to gate from Gabi database
Source	European Residual Mixes 2019. Association of Issuing Bodies 2020
Global warming potential (excluding biogenic Carbon)	0,592 kg of CO ₂ eq /kWh (based on Climate Change (fossil) indicator)



Environmental impacts according to EN 15804:2012 + A1

The following tables presents results of 1 m² of repair mortars for masonry hydraulic lime based, with a density of 59,5 kg/m² per 35 mm of thickness 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 CO ₂ eq.]	2,10E+01	1,09E+00	1,56E+00	0	0	0	0	0	0	2,65E-01	2,86E-01	0	8,96E-01	0
	Ozone depletion (ODP) [kg CFC 11eq.]	8,06E-07	2,16E-16	4,60E-08	0	0	0	0	0	0	3,81E-17	7,12E-17	0	4,51E-15	0
	Acidification potential (AP) [kg SO ₂ eq.]	4,54E-02	1,31E-03	3,69E-03	0	0	0	0	0	0	6,58E-04	1,16E-03	0	5,26E-03	0
	Eutrophication potential (EP) [kg (PO ₄) ₃ -eq.]	7,95E-03	2,80E-04	2,89E-03	0	0	0	0	0	0	5,24E-05	2,90E-04	0	5,93E-04	0
	Photochemical ozone creation (POCP) - [kg Ethylene eq.]	5,99E-03	9,05E-05	5,12E-04	0	0	0	0	0	0	4,83E-05	4,06E-05	0	4,24E-04	0
	Abiotic depletion potential for non-fossil resources (ADP-elements) [kg Sbeq.]	9,44E-04	1,37E-08	4,76E-05	0	0	0	0	0	0	7,38E-09	2,63E-08	0	3,16E-07	0
	Abiotic depletion potential for fossil resources (ADP-fossil fuels) [MJ]	2,80E+02	1,51E+01	1,95E+01	0	0	0	0	0	0	3,28E+00	3,88E+00	0	1,16E+01	0

References

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