

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC 2021 for:

weberpas silikát

Version 1
Date of publication: 2024/10/01
Validity: 5 years
Valid until: 2029/10/01

Registration number
3013EPD-24-0327

EPD type : Multiple products (based on average results)
Scope of the EPD: Cradle to gate with options, modules C1-C4 and module D / Czech Republic
Programme used: National Environmental Labelling Program



EPD VERIFIED

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Production plant: Prague

SAINT-GOBAIN

General information

Company information

Manufacturer: Saint-Gobain Construction Products CZ a.s., Smrčkova 2485/4, 180 00 Prague 8

Production plant: Prague - Radiová 3, 102 00 Prague 10, Czech Republic
Management system - related certifications: ISO 14001 [1], ISO 45001 [2], ISO 9001 [3], ISO 50001 [4]

Programme used: National Environmental Labelling Program, www.cenia.cz
PCR identification: EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works, serves as the core Product Category Rules (PCR)
Prepared by: CEN - European Committee for Standardization
UN CPC CODE : 3753 – Articles of plaster or of composition based on plaster

Owner of the declaration: Saint-Gobain Construction Products CZ a.s., Radiová 3, 102 00 Prague 10
Product name and manufacturer represented: This EPD describes the environmental impact of silicate colored facade pasty plaster **weberpas silikát**
EPD prepared by: Dr. Miroslav Šilar, (miroslav.silar@saint-gobain.com)
Geographical scope of the EPD: Czech Republic
EPD registration number: 3013EPD-24-0327
Declaration issued: 2024/10/01, valid until: 2029/10/01

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 information

PROGRAMME:	National Environmental Labelling Program
ADDRESS:	Moskevská 1523/63, Prague 10, 101 00, Czech Republic
WEBSITE:	www.cenia.cz
E-MAIL:	info@cenia.cz

CEN standard EN 15804:2012 + A2:2019 serves as the Core Product Category Rules (PCR)
Independent third-party verification of the declaration and data, according to ISO 14025:2006:
☐ EPD process certification ☒ EPD verification
Third party verifier: Building Research Institute – Certification Company Ltd., Pražská 810/16, 102 00 Prague 10, Czech Republic
Telephone : +420 281 017 216 email : info@vups.cz
Approved by: Czech Accreditation Institute (CAI), Hajkova 2747/22, 130 00 Prague 3
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 14025.

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Product description

Product description and description of use

Weberpas silikát (OP 2) is easy-to-process silicate colored facade pasty plaster containing a water glass (sodium silicate). The plaster is ready for direct use with system penetration weberpas UNI or weberpas podklad S. This EPD applies for one product line manufactured by Saint-Gobain Construction Products CZ a.s.in the plant located in Prague.

The product line includes all specific weberpas silikát mixes produced in 2022. They differ in graininess and color (pigment content). This EPD is made for a product with an average composition resulting from the total consumption of materials for the annual production of weberpas silikát line. The product with an average composition based on weight was modeled and assessed.
The product line includes these products: OP 210 Z, OP 215 Z, OP 220 Z, OP 230 Z and OP 220R. The second double digit in the name indicates the size of the sand grain (10 mm – 30 mm) and the last letter the structure (Z = granular; R = grooved).

All technical characteristics and properties for any product could be find on the website https://www.cz.weber/

Use of silicate plaster
To protect the building and its color and structural rendering during the creation of new facades, their reconstructions, modernizations and renovations. It is also intended for the final treatment of the Weber Terranova insulation system and also in 1.0 mm and 1.5 mm grain sizes for the final surface treatment of remediation systems on damp masonry. It is suitable for both exterior and interior use.

Technical data/physical characteristics:

Technical data/physical characteristics		
Reaction to fire	A2 s1 d0	EN 15824:2009
Water permeability	W3	
Water vapor permeability	V2	
Cohesion	≥ 0,3 MPa	
Durability	NPD	
Thermal conductivity (W/mK)	λ =0,75	

Declaration of the main product components and/or materials

PRODUCT	WEIGHT (kg)	Post-consumer recycled material, weight %	Biogenic material weight kg C/kg
weberpas silikát	1.00	0	0
PRODUCT COMPONENTS	**WEIGHT (%)**	**Post-consumer recycled material, weight %**	**Biogenic material weight kg C/kg**
Lime	78 %	0 %	0 %
Additives	10 %	0 %	0 %
Water	12 %	0 %	0 %
PACKAGING MATERIALS	**WEIGHT (g/kg)**	**WEIGHT (%) Vs the product**	**Biogenic material weight kg C/kg**
PE foils	1.39	0.14	0
PP bucket	25.25	2.55	0
Steel handle	2.60	0.26	0

During the life cycle of the product no 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 PROGRAMME operator do not make any claim nor have any responsibility of the legality of the product.

LCA calculation information

TYPE OF EPD	Cradle to gate with options, modules C1-C4 and module D
DECLARED UNIT	1 kg of pasty plaster *Data for conversion to m^2 is in Additional information of this EPD*
SYSTEM BOUNDARIES	Mandatory Stages = A1-A3; C1-C4 and D Optional Stages = A4, A5
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. The construction of plants, production of machines and transportation systems are excluded Research and development activities are excluded
ALLOCATIONS	Allocation criteria are based on weight. The polluter pays and modularity principles have been followed.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope: Czech Republic Data is collected from single production site Prague located in Czech Republic Data collected for the year 2022 Cradle to gate with options, modules C1-C4 and module D
BACKGROUND DATA SOURCE	The database ecoinvent v.3.9
SOFTWARE	SimaPro 9.5

According to EN 15804:2012+A2:2019, EPDs of construction products may not be comparable if they do not comply with this standard.

LCA scope

System boundaries (X=included. ND=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	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	Czech Republic					-	-	-	-	-	-	-	Czech Republic				

Specific data used	11 % GWP- GHG (A3)
Variation products	< 10%
Variation sites	0 (1 site)

Notice: It is not recommended to use the results of modules A1-A3 without considering the results of module C.

Life cycle stages

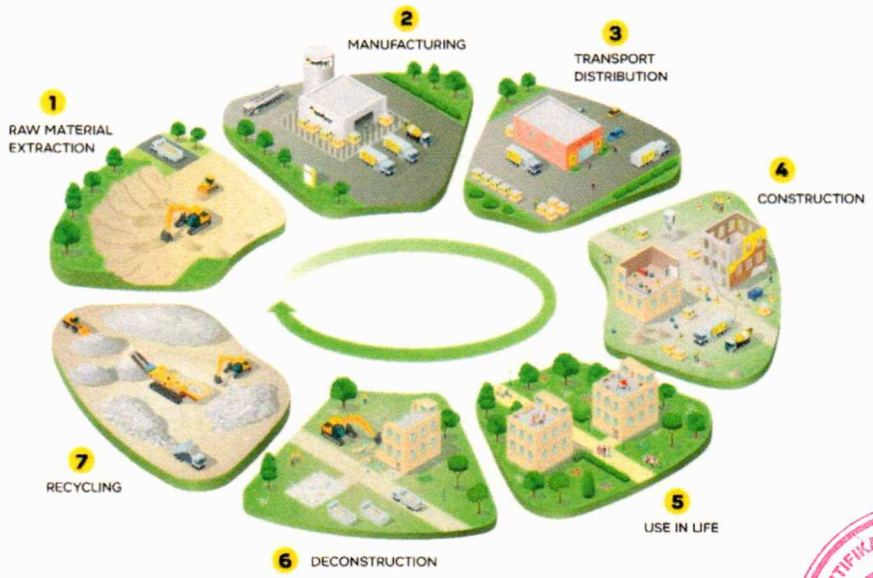


Figure 1. Flow diagram of the Life Cycle

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A1-A3, Product stage

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.

Description of the scenarios and other additional technical information:
A1, Raw materials 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 components and additives (e.g. lime, additives 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.

GWP-GHG from the production of electricity: 0.656 $kgCO_2eq/kWh$
(Czech residual mix, contains: 53,6 % of fossil fuels, 41 % of nuclear, 5,4 % of renewable sources)

A2, Transport to the manufacturer
The raw materials are transported to the manufacturing site. In this case, the modelling includes road transportations (specific values) of each raw material.

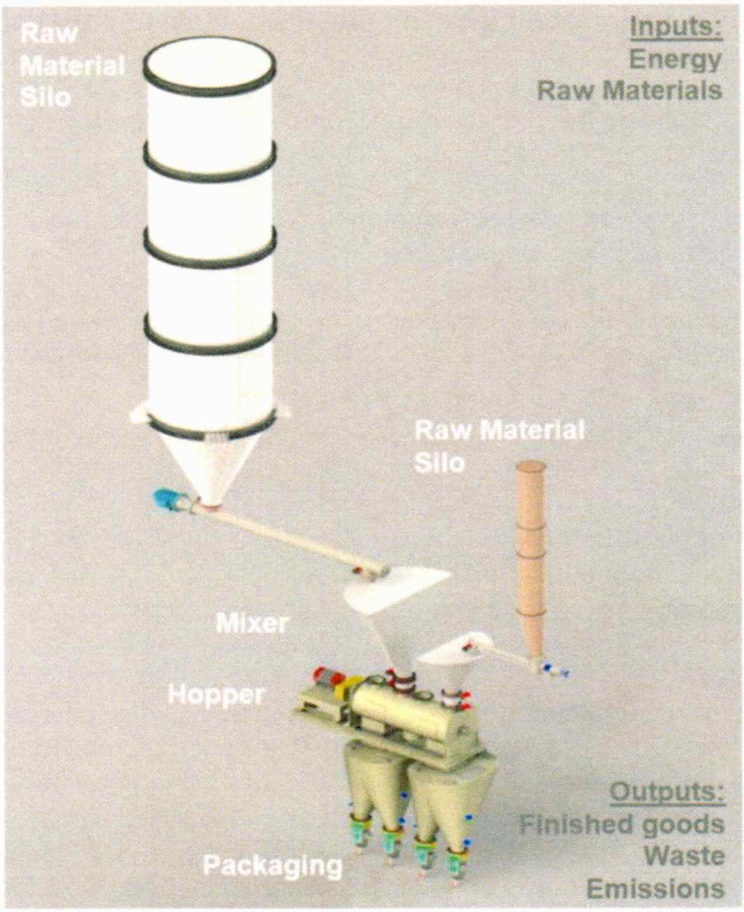
A3, Manufacturing
This module includes manufacturing of products but also besides on-site activities such as grinding, drying, storing, mixing, packing and internal transportation.
The manufacturing process also collect data on the combustion of refinery products, such as diesel and gasoline, related to the production process.
Packaging-related flows in the production process and all up-stream packaging are included in the manufacturing module, i.e. PP bucket with steel handle 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

System diagram:

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



A4-A5, Construction process stage

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
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	Freight truck trailer 24 t payload, diesel consumption 38 liters for 100 km
Distance	100 km
Capacity utilisation (including empty returns)	97% of the capacity in mass 30% of empty returns
Bulk density of transported products*	1250 kg / m³
Volume capacity utilisation factor	1 (by default)

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A5, Installation in the building: this module includes:

No additional accessory was taken into account for the implementation phase insulation product.
No energy is needed to install the product (manual installation without tool)

PARAMETER	VALUE (expressed per declared unit)
secondary materials for installation (specified by materials)	None
Water use	None
Other resource use	None
Quantitative description of energy type (regional mix) and consumption during the installation process	0.0035 kWh/kg
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)	PP bucket: 0.0255 kg/kg to recycle Polyethylene film: 0.0014kg/kg to recycle Steel handle: 0.0026 kg/kg to recycle Constr. Waste: 0.05 kg/kg to landfill
Direct emissions to ambient air, soil and water	None

B1-B7, *Use stage (excluding potential savings) – not declared*

Description of the stage: the use stage is divided into the following modules:

- 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

Use stage is not declared in this EPD due to uncertainty in B2 module. In B2 module, the facade can be washed with pressurized water. However, the implementation and frequency of such maintenance cannot be sufficiently determined.

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C1-C4, End of Life Stage

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, demolition
The de-construction and/or dismantling of the product take part of the demolition of the entire building. In our case, no energy is considered to be consumed for façade demolition.

C2, Transport to waste processing
The model applied for the transportation is in the table below.

C3, Waste processing for reuse, recovery and/or recycling
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 100 % landfilled

Description of the scenarios and additional technical information for the End of life:

PARAMETER	VALUE/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 % to municipal landfill
Assumptions for scenario development (e.g. transportation)	Average truck trailer with 27t payload, diesel consumption 38L/100km ; 50 km distance to landfill

D, Reuse/recovery/recycling potential

Packaging could be partly reused, recycled or landfilled, but D module does not contain the benefits or load linked to the future use of recycled packaging

100% of product waste are landfilled, so no recycling, recovery or reuse has been considered.

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LCA results

As specified in EN 15804:2012+A2:2019 the environmental impacts are declared and reported using the baseline characterization factors from EC-JRC (Reference package based on EF 3.1). Specific data has been supplied by the plant, and generic data come from Ecoinvent database.

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 weberpas silikát (OP 2), with an expected average service life of 50 years.

Environmental Impacts

EN 15804 reference package based on EF 3.1 was used as LCIA method.

Environmental indicators	PRODUCT STAGE	CONSTRUCTION STAGE		END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Climate Change [kg CO2 eq.]	5.23E-01	1.04E-02	2.68E-03	0	9.43E-03	0	1.03E-01	0
Climate Change (fossil) [kg CO2 eq.]	5.14E-01	1.04E-02	2.65E-03	0	9.42E-03	0	1.03E-01	0
Climate Change (biogenic) [kg CO2 eq.]	8.49E-03	7.99E-06	2.25E-05	0	8.51E-06	0	7.61E-05	0
Climate Change (land use change) [kg CO2 eq.]	4.78E-04	4.88E-06	3.37E-06	0	4.57E-06	0	8.65E-06	0
Ozone depletion [kg CFC-11 eq.]	2.11E-08	9.61E-03	2.56E-03	0	8.17E-03	0	4.62E-02	0
Acidification terrestrial and freshwater [Mole of H+ eq.]	4.66E-03	2.27E-10	2.57E-11	0	2.05E-10	0	2.78E-10	0
Eutrophication freshwater [kg P eq.]	1.59E-04	7.39E-07	3.71E-06	0	6.59E-07	0	1.53E-06	0
Eutrophication marine [kg N eq.]	6.18E-04	1.21E-05	3.17E-06	0	1.06E-05	0	3.13E-05	0
Eutrophication terrestrial [Mole of N eq.]	6.95E-03	1.28E-04	2.64E-05	0	1.11E-04	0	3.34E-04	0
Photochemical ozone formation - human health [kg NMVOC eq.]	2.81E-03	5.44E-05	8.25E-06	0	4.59E-05	0	1.38E-04	0
Resource use, energy carriers [MJ][1]	8.83E+00	1.52E-01	4.56E-02	0	1.33E-01	0	2.55E-01	0
Resource use, mineral and metals [kg Sb eq.][1]	5.82E-05	2.80E-08	1.57E-08	0	3.02E-08	0	2.43E-08	0
Water deprivation potential [m³ world equiv.][1]	3.58E-01	7.26E-04	7.38E-04	0	5.44E-04	0	1.08E-02	0

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

[1] The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

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Resources Use

Resources Use indicators	PRODUCT STAGE	CONSTRUCTION STAGE		END OF LIFE STAGE				D REUSE, RECOVERY, RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Use of renewable primary energy (PERE) [MJ]	6.63E-01	2.22E-03	2.65E-03	0	1.63E-03	0	4.60E-03	0
Primary energy resources used as raw materials (PERM) [MJ]	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0	0.00E+00	0
Total use of renewable primary energy resources (PERT) [MJ]	6.63E-01	2.22E-03	2.65E-03	0	1.63E-03	0	4.60E-03	0
Use of non-renewable primary energy (PENRE) [MJ]	8.83E+00	1.52E-01	4.56E-02	0	1.26E-01	0	2.55E-01	0
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0	0.00E+00	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	8.83E+00	1.52E-01	4.56E-02	0	1.26E-01	0	2.55E-01	0
Input of secondary material (SM) [kg]	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0	0.00E+00	0
Use of renewable secondary fuels (RSF) [MJ]	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0	0.00E+00	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0	0.00E+00	0
Use of net fresh water (FW) [m3]	1.07E-02	2.06E-05	3.02E-05	0	2,55E-05	0	2,57E-04	0

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Waste Category & Output flows

Waste Category & Output Flows	PRODUCT STAGE	CONSTRUCTION STAGE		END OF LIFE STAGE				D REUSE, RECOVERY, RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Hazardous waste disposed (HWD) [kg]	8.80E-04	4.23E-06	2.96E-06	0	4.18E-06	0	7.45E-06	0
Non-hazardous waste disposed (NHWD) [kg]	2.30E-01	1.33E-02	5.02E-02	0	5.99E-03	0	1.00E+00	0
Radioactive waste disposed (RWD) [kg]	3.37E-05	4.63E-08	2.37E-07	0	8.54E-07	0	8.83E-08	0
Components for re-use (CRU) [kg]	0	0	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	2.95E-02	0	0	0	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0	0	0	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0	0	0

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

Environmental indicators	PRODUCT STAGE	CONSTRUCTION STAGE		END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Climate Change [kg CO2 eq.][2]	5.60E-01	1.05E-02	2.78E-03	0	9.49E-03	0	1.03E-01	0

[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.

Information on biogenic carbon content

	PRODUCT STAGE
Biogenic Carbon Content in kg C	**A1 / A2 / A3**
Biogenic carbon content in product [kg]	0
Biogenic carbon content in packaging [kg]	0

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

LCA interpretation

The following figure refers to a declared unit of 1 kg of pasty plaster



[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

Notice: It is not recommended to use the results of modules A1-A3 without considering the results of module C.

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 production stage is responsible for over 75 % 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.

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Additional information:

Electricity information

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of Electricity purchased by Saint-Gobain Czech Republic
Geographical representativeness description	- Fossil fuels 53.6% - Nuclear 41.0 % - Renewable sources 5.4 %
Reference year	2022
Type of dataset	Cradle to gate from Ecoinvent 3.9 database
Source	European Residual Mixes 2022. Association of Issuing Bodies 2024
CO_2 emission kg CO_2 eq. / kWh	0,656 kg of CO_2 eq /kWh (based on Climate Change (fossil) indicator)

Data quality

Inventory data quality is judged by geographical, temporal, and technological representativeness. To cover these requirements and to ensure reliable results, first-hand industry data crossed with LCA background datasets were used. The data was collected from internal records and reporting documents from Saint-Gobain Construction Products CZ a.s.. After evaluating the inventory, according to the defined ranking in the LCA report, the assessment reflects good inventory data quality.

Conversion results on 1 m^2 of plaster on facade

Conversion of the results to m2 is possible based on the weight of individual grain types:

Texture	**grainy**				**grooved**
Grain	**1,0**	**1,5**	**2,0**	**3,0**	**2,0**
Amount (kg/m^2)	1,8	2,5	3,3	4,6	2,7

Environmental impacts according to EN 15804:2012 + A1

The following tables presents results of 1 kg of weberpas silikát according to EN 15804 +A1.

	PRODUCT STAGE	CONSTRUCTION STAGE		END OF LIFE STAGE				REUSE, RECOVERY, RECYCLING
Environmental impacts	A1 / A2 / A3	A4 Transport	A5 Installation	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Global Warming Potential (GWP) [kg CO2eq.]	5.10E-01	1.02E-02	2.64E-03	0	9.29E-03	0	9.09E-02	0
Ozone depletion (ODP) [kg CFC 11eq.]	2.02E-08	1.86E-10	2.24E-11	0	1.68E-10	0	2.28E-10	0
Acidification potential (AP) [kg SO2eq.]	3.93E-03	2.66E-05	1.06E-05	0	2.34E-05	0	6.25E-05	0
Eutrophication potential (EP) [kg (PO4)3-eq.]	8.99E-04	6.56E-06	1.24E-05	0	5.78E-06	0	1.54E-05	0
Photochemical ozone creation (POCP) - [kg Ethylene eq.]	1.95E-04	1.61E-06	4.41E-07	0	1.46E-06	0	1.82E-05	0
Abiotic depletion potential for non-fossil resources (ADP-elements) [kg Sb eq.]	5.82E-05	2.80E-08	1.57E-08	0	3.02E-08	0	2.43E-08	0
Abiotic depletion potential for fossil resources (ADP-fossil fuels) [MJ]	7.76E+00	1.50E-01	3.70E-02	0	1.32E-01	0	2.55E-01	0

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