EPD®

THE INTERNATIONAL EPD® SYSTEM

# ENVIRONMENTAL PRODUCT DECLARATION

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

## Calsimo X Plaster Range

Date of issue: 2022-10-05
Validity: 5 years
Valid until: 2027-10-05
Version 1.0
Scope of the EPD®: Israel


EPD VERIFIED

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.

SAINT-GOBAIN

Registration number
The International EPD® System:
S-P-06995

ECO PLATFORM EPD VERIFIED

formula SAINT-GOBAIN

# General information

Manufacturer: Saint-Gobain Formula GmbH

Program used: International EPD System http://www.environdec.com/

EPD registration number/declaration number: S-P-06995

PCR identification: The International EPD® System PCR 2019:14 version 1.11 for Construction Products. EN 15804:2012+A2:2019 Sustainability of construction works.

Site of manufacture: The production site is a Saint-Gobain Formula plant located in Walkenried, Germany.

Owner of the declaration: Saint-Gobain Formula GmbH

Product / product family name and manufacturer represented: Calsimo X Plaster Range

Declaration issued: 2022-10-05 Valid until: 2027-10-05

Demonstration of verification: An independent verification of the declaration was made, according to ISO 14025:2010. This verification was external and conducted by the following third party: Andrew Norton, Renuables, based on the PCR mentioned above.

EPD Prepared by: Rosiana Aguiar (Saint-Gobain Formula, rosiana.aguiar@saint-gobain.com) and Galdric Sibiude (Saint-Gobain LCA central TEAM, galdric.sibiude@saint-gobain.com).

Scope: The LCA is based on 2020 production data for one site in Germany.
This EPD covers information modules A1 to A5 and C1 to C4 and D as defined in EN 15804:2012+A2:2019 (cradle-to-gate with options and end-of-life).

**The declared unit is 1 kg of Calsimo X Plaster Range.**

Declaration of Hazardous substances (Candidate list of Substances of Very High Concern): none

| | |
|---|---|
| **EPD® program operator** | **The International EPD® System. Operated by EPD® International AB.**<br>**www.environdec.com**<br>Box 210 60, SE-100 31 Stockholm, Sweden<br>E-mail: info@environdec.com |
| **PCR review conducted by** | **The Technical Committee of the International EPD® System** |
| CEN standard EN 15804+A2 serves as the core PCR[a] | |
| PCR: | **EN 15804+A2 Sustainability of construction works – Environmental product declaration - core rules for the product category of construction product.** |
| Independent verification of the declaration, according to EN ISO 14025:2010<br>Internal ☐ External ☒ | |
| Third party verifier: | Andrew Norton<br>**Renuables** |
| Accredited or approved by | **The International EPD System** |
| Procedure for follow-up during EPD validity involves third party verifier:<br>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+A2. For further information about comparability, see EN 15804+A2 and ISO 14025.

# Product description

## Product description and use:

This Environmental Product Declaration (EPD®) describes the environmental impacts of 1 kg of Calsimo X Plaster Range, also called Calsiboard, used as plaster primer in buildings.

Formula plasters are made up of calcium sulfate hemihydrate and additives/aggregates which provide the product specific characteristic of performance.

The packaging used is a paper and polyethylene bag that contains 1 or 5 kg.

The EPD describes the environmental impacts of 1 kg of Calsimo X Plaster Range delivered in powder.

Calsimo X plaster delivered in powder are recyclable and efficiently packaged to reduce cost and minimize the generation of waste at the customer site.

Technical data/physical characteristics:

| | |
|---|---|
| Apparent Bulk Density | 800 kg/m³ |

Description of the main components and/or materials for 1 kg of product for the calculation of the EPD®:

| PARAMETER | VALUE (expressed per declared unit) |
|---|---|
| **Quantity for 1 kg of product (plaster + additives)** | 1 kg |
| **Packaging for the transportation and distribution** | Pack of 4 of 5kg bags is wrapped in plastic and then put on a pallet.<br><br>Composed kraft bag: 0.01 kg/kg<br>Cardboard: 1.7e-3 kg/kg<br>Wooden pallet: 0.02 kg/kg<br>PE foil: 2.6e-3 kg/kg<br>Paper label: 7.2e-4 kg/kg |

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 program operator do not make any claim nor have any responsibility of the legality of the product.

# LCA calculation information

| | |
|---|---|
| EPD TYPE | Cradle to gate with options, modules A4-A5, modules B, modules C1–C4, and module D |
| DECLARED UNIT | 1 kg of Calsimo X Plaster Range delivered in powder. |
| SYSTEM BOUNDARIES | Mandatory Stages = A1 to C4 and D |
| REFERENCE SERVICE LIFE (RSL) | Not applicable |
| CUT-OFF RULES | Life Cycle Inventory data for a minimum of 99% of total inflows to the upstream and core module shall be included.<br>Flows related to human activities such as employee transport are excluded.<br>The construction of plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the production of the building product when compared at these systems lifetime level. |
| ALLOCATIONS | Production data, recycling, energy and waste data have been calculated on a mass basis. |
| GEOGRAPHICAL COVERAGE AND TIME PERIOD | Scope includes: production in Germany with delivery in Israel.<br>Data collected for the year 2020.<br>Background data: GaBi ts 2020. |
| PRODUCT CPC CODE | 37410 Plaster |

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

# Life cycle stages

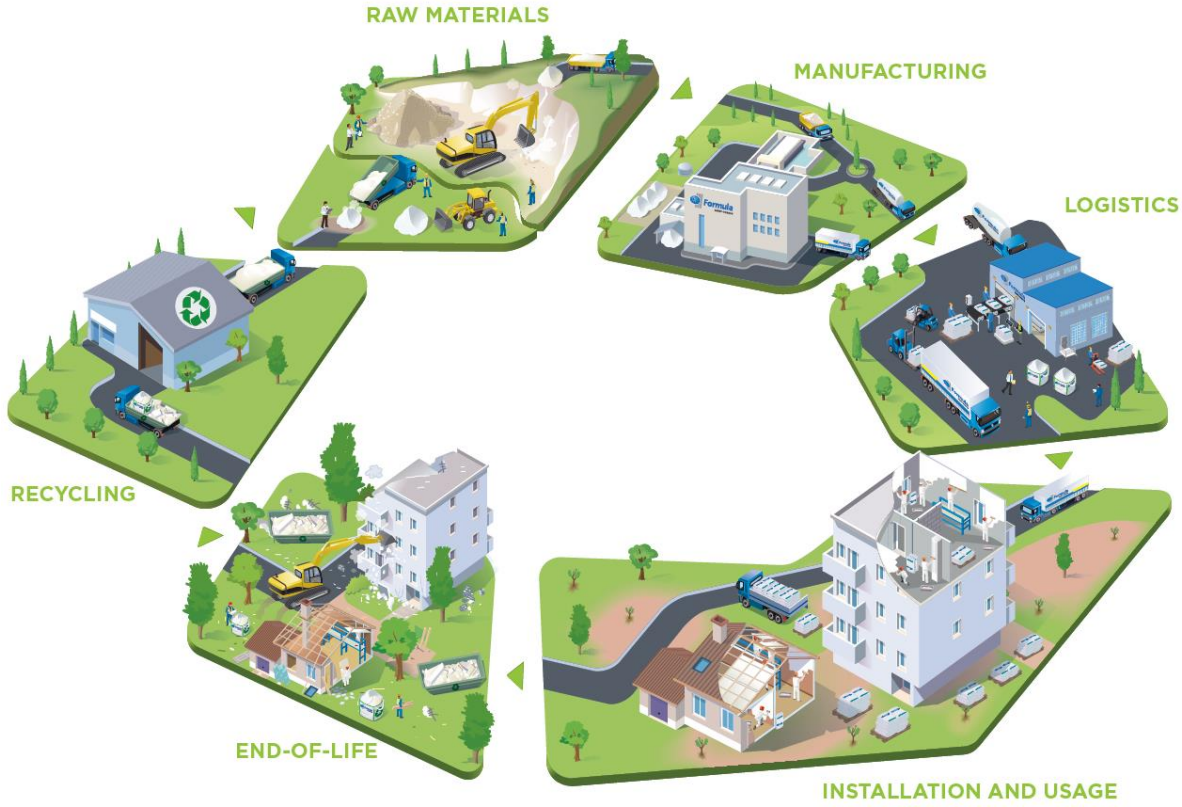



*Figure 1: Flow diagram of the product life cycle. The process of the product life cycle is described below.*

## Product stage, A1-A3

Description of the stage: the product stage of plaster products is subdivided into 3 modules A1, A2 and A3 respectively “Raw material supply”, “transport to manufacturer” and “manufacturing”.

A1, raw material supply.
This includes the extraction and processing of all raw materials and energy which occur upstream from the manufacturing process.

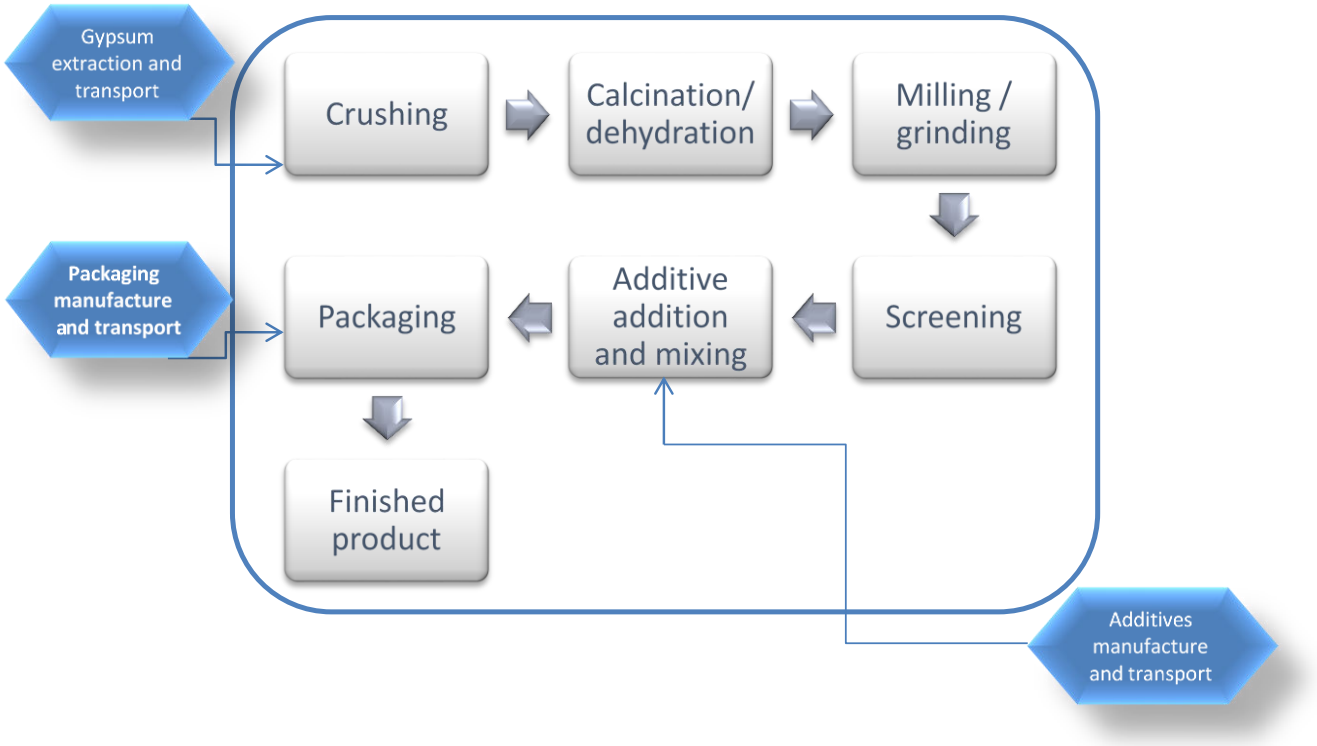
A2, transport to the manufacturer.
The raw materials are transported to the manufacturing site. The modelling includes road, boat and/or train transportations of each raw material.

A3, manufacturing.
This module includes the manufacture of products and the manufacture of packaging. The production of packaging material is taken into account at this stage. The processing of any waste arising from this stage is also included.

Manufacturing in detail:

Gypsum rock is open pit quarried by drilling and blasting, then transported to a crushing plant where it is crushed, screened and stockpiled according to its quality. The stockpiled ore transported by trucks to manufacturing factory is first crushed to reduce rocks size and further dehydrated in autoclaves and calcining kettles to produce hemihydrate (stucco). Stucco is further ground to obtain a specific surface area and then screened to remove any particles that are too large. In the manufacture of plasters, stucco is batch mixed with additives and aggregates to produce finished product. The thoroughly mixed plaster is fed to a bagging operation.

Gypsum waste is reintegrated back into the manufacturing process wherever possible.




## 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 functional unit) |
|---|---|
| Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc. | Long distance truck: 27 t payload capacity<br>Euro 0 - 6 mix<br>Fuel type: Diesel<br><br>Container Ship: 43000 t payload capacity<br>Fuel type: Heavy fuel oil |
| Distance | 441 km by truck and 7543 km by ship.<br>Values based on weighted average values for 2020 of transport to customer sites in Israel. |
| Capacity utilisation (including empty returns) | 85% for truck (30% of empty return) |
| Bulk density of transported products | 800 kg/m3 |

A5, installation into the building.
The installation in the building is not consider in this EPD.
However, this stage will model the end-of-life of the packaging to get the proper balance of biogenic carbon. The product itself does not include biogenic carbon.

## Use stage (excluding potential savings), B1-B7

Description of the stage:
B1, use or application of the installed product
This model represents any emissions to the environment of the installed product. Emissions to the environment are not attributable to plaster products.

B2, maintenance; B3, repair; B4, replacement; B5, refurbishment
The declared product performances assume a product working life of 50 years. Once installation is complete, no actions or technical operations are required during the use stage until the end of life stage. Therefore, plaster products have no impact on these modules.

B6, operational energy use; B7, operational water use
Plaster products are not related to any electricity or water use during the operation of the building.

## End-of-life stage C1-C4

Description of the stage:
C1, de-construction, demolition;
C2, transport to waste processing;
C3, waste processing for reuse, recovery and/or recycling;
C4, disposal, including provision and all transport, provision of all materials, products and related energy and water use.

The de-construction and/or dismantling processes mainly use energy for mechanical operations.

| Assumptions for the demolition at EoL | Amount per kg of demolished material | Unit | Dataset | Database |
|---|---|---|---|---|
| Diesel consumption in construction machine | 0.0437 | MJ/ kg | EU-28: Thermal energy from light fuel | Gabi, data from 2020 |

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

| PARAMETER | VALUE (expressed per functional unit) |
|---|---|
| Collection process specified by type | 100% collected with mixed deconstruction and demolition waste to landfill. |
| Recovery system specified by type | 0 kg recycled. |
| Disposal specified by type | 1 kg disposed in landfill. |
| Assumptions for scenario development (e.g. transportation) | Plaster primer waste is transported 70 km by truck from deconstruction/demolition sites to landfill. |

## Reuse/recovery/recycling potential, D

The scenario at the end-of-life is landfilling of the total quantity as the plaster primer is hardly separable from its support during the demolition. Therefore, no specific valorization is expected beyond the life-cycle boundaries.

# LCA results

As specified in EN 15804+A2, 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 database. 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. They refer to a functional unit of 1 kg of Calsimo X plaster delivered in powder.

Description of the system boundary (X = Included in LCA, MNA = Module Not Assessed)

| | 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 | FI/ SE/ GLO | EU-28/ GLO | EU-28/ GLO | EU-28/ GLO | EU-28/ GLO | - | - | - | - | - | - | - | EU-28/ GLO | EU-28/ GLO | EU-28/ GLO | EU-28/ GLO | GLO |
| Specific data used | 67% | | | | | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – products | 0% as EPD refers to 1 product expressed in kg | | | | | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation - sites | 0% as only one route of production is in the scope | | | | | - | - | - | - | - | - | - | - | - | - | - | - |

| Environmental impacts | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Impacts Indicators | Product stage (Aggregated) | Construction process stage | | Use stage | | | | | | | End-of-life stage | | | | D Reuse, recovery, recycling |
| | **A1 Raw material A2 Transport A3 Manufacturing** | **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** | |
| Climate Change [kg CO2 eq.] / FU | 1,89E-01 | 1,30E-01 | 7,13E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,47E-03 | 3,40E-03 | 0,00E+00 | 2,15E-02 | 0,00E+00 |
| Climate Change (fossil) [kg CO2 eq.] / FU | 2,29E-01 | 1,30E-01 | 2,12E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,47E-03 | 3,38E-03 | 0,00E+00 | 1,30E-02 | 0,00E+00 |
| Climate Change (biogenic) [kg CO2 eq.] / FU | -4,02E-02 | 0,00E+00 | 5,01E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Climate Change (land use change) [kg CO2 eq.] / FU | 1,80E-04 | 1,80E-04 | 2,06E-05 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 9,82E-08 | 2,74E-05 | 0,00E+00 | 7,91E-06 | 0,00E+00 |
| Ozone depletion [kg CFC-11 eq.] / FU | 6,80E-09 | 1,28E-17 | 5,56E-10 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,75E-19 | 6,21E-19 | 0,00E+00 | 3,46E-09 | 0,00E+00 |
| Acidification terrestrial and freshwater [Mole of H+ eq.] / FU | 4,25E-04 | 4,25E-03 | 2,38E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,32E-05 | 1,96E-05 | 0,00E+00 | 3,22E-02 | 0,00E+00 |
| Eutrophication freshwater [kg P eq.] / FU | 1,80E-05 | 9,11E-08 | 1,66E-06 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 9,87E-10 | 1,03E-08 | 0,00E+00 | 3,10E-06 | 0,00E+00 |
| Eutrophication marine [kg N eq.] / FU | 1,27E-04 | 1,11E-03 | 1,79E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,45E-06 | 9,45E-06 | 0,00E+00 | 3,40E-05 | 0,00E+00 |
| Eutrophication terrestrial [Mole of N eq.] / FU | 1,25E-03 | 1,22E-02 | 6,86E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,68E-05 | 1,05E-04 | 0,00E+00 | 3,70E-04 | 0,00E+00 |
| Photochemical ozone formation - human health [kg NMVOC eq.] / FU | 3,48E-04 | 3,06E-03 | 1,74E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 7,69E-06 | 1,79E-05 | 0,00E+00 | 2,09E-03 | 0,00E+00 |
| Resource use, mineral and metals [kg Sb eq.] / FU | 6,67E-07 | 4,35E-09 | 4,06E-08 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,17E-10 | 2,74E-10 | 0,00E+00 | 1,21E-07 | 0,00E+00 |
| Resource use, energy carriers [MJ] / FU | 3,66E+00 | 1,60E+00 | 2,83E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,46E-02 | 4,52E-02 | 0,00E+00 | 2,96E-01 | 0,00E+00 |
| Water scarcity [$m^3$ world equiv.] / FU | 6,65E-02 | 3,90E-04 | 1,14E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 9,27E-06 | 3,30E-05 | 0,00E+00 | 1,24E-02 | 0,00E+00 |

Disclaimer: the results of Resource use, mineral and metals; Resource use, energy carriers; Water scarcity shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

| Resources Use indicators | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Resources Use indicators | Product stage (Aggregated) | Construction process stage | | Use stage | | | | | | | End-of-life stage | | | | D Reuse, recovery, recycling |
| | **A1 Raw material A2 Transport A3 Manufacturing** | **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** | |
| Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE) [MJ] / FU | 5,98E-01 | 2,07E-02 | 3,32E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,91E-04 | 2,61E-03 | 0,00E+00 | 9,87E-03 | 0,00E+00 |
| Use of renewable primary energy used as raw materials (PERM) [MJ] / FU | 4,10E-01 | 0,00E+00 | 2,05E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 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] / FU | 1,01E+00 | 2,07E-02 | 5,37E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,91E-04 | 2,61E-03 | 0,00E+00 | 9,87E-03 | 0,00E+00 |
| Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE) [MJ] / FU | 3,65E+00 | 1,60E+00 | 2,83E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,46E-02 | 4,53E-02 | 0,00E+00 | 2,96E-01 | 0,00E+00 |
| Use of non-renewable primary energy used as raw materials (PENRT) [MJ] / FU | 1,11E-02 | 0,00E+00 | 5,53E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT) [MJ] / FU | 3,66E+00 | 1,60E+00 | 2,83E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,46E-02 | 4,53E-02 | 0,00E+00 | 2,96E-01 | 0,00E+00 |
| Use of secondary material (SM) [kg] / FU | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of renewable secondary fuels (RSF) [MJ] / FU | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of non-renewable secondary fuels (NRSF) [MJ] / FU | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of net fresh water (FW) [$m^3$] / FU | 1,70E-03 | 2,68E-05 | 2,75E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,39E-07 | 3,04E-06 | 0,00E+00 | 2,89E-04 | 0,00E+00 |

## Waste categories

| Waste category | Product stage (Aggregated) | Construction process stage | | Use stage | | | | | | | End-of-life stage | | | | D Reuse, recovery, recycling |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A1 Raw material A2 Transport A3 Manufacturing | 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 | |
| Hazardous waste disposed (HWD) [kg] / FU | 2,85E-09 | 1,38E-08 | 9,86E-10 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,54E-12 | 2,10E-09 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Non-hazardous waste disposed (NHWD) [kg] / FU | 1,28E-03 | 1,79E-04 | 1,24E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,35E-05 | 7,19E-06 | 0,00E+00 | 1,00E+00 | 0,00E+00 |
| Radioactive waste disposed (RWD) [kg] / FU | 5,82E-05 | 1,82E-06 | 3,02E-06 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 6,27E-08 | 8,36E-08 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

## Output flows

| Output Flows | Product stage (Aggregated) | Construction process stage | | Use stage | | | | | | | End-of-life stage | | | | D Reuse, recovery, recycling |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A1 Raw material A2 Transport A3 Manufacturing | 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 | |
| Components for re-use (CRU) [kg] / FU | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Materials for Recycling (MFR) [kg] / FU | 1,41E-04 | 0,00E+00 | 2,22E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Material for Energy Recovery (MER) [kg] / FU | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported electrical energy (EEE) [MJ] / FU | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported thermal energy (EET) [MJ] / FU | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

## Information on biogenic carbon content

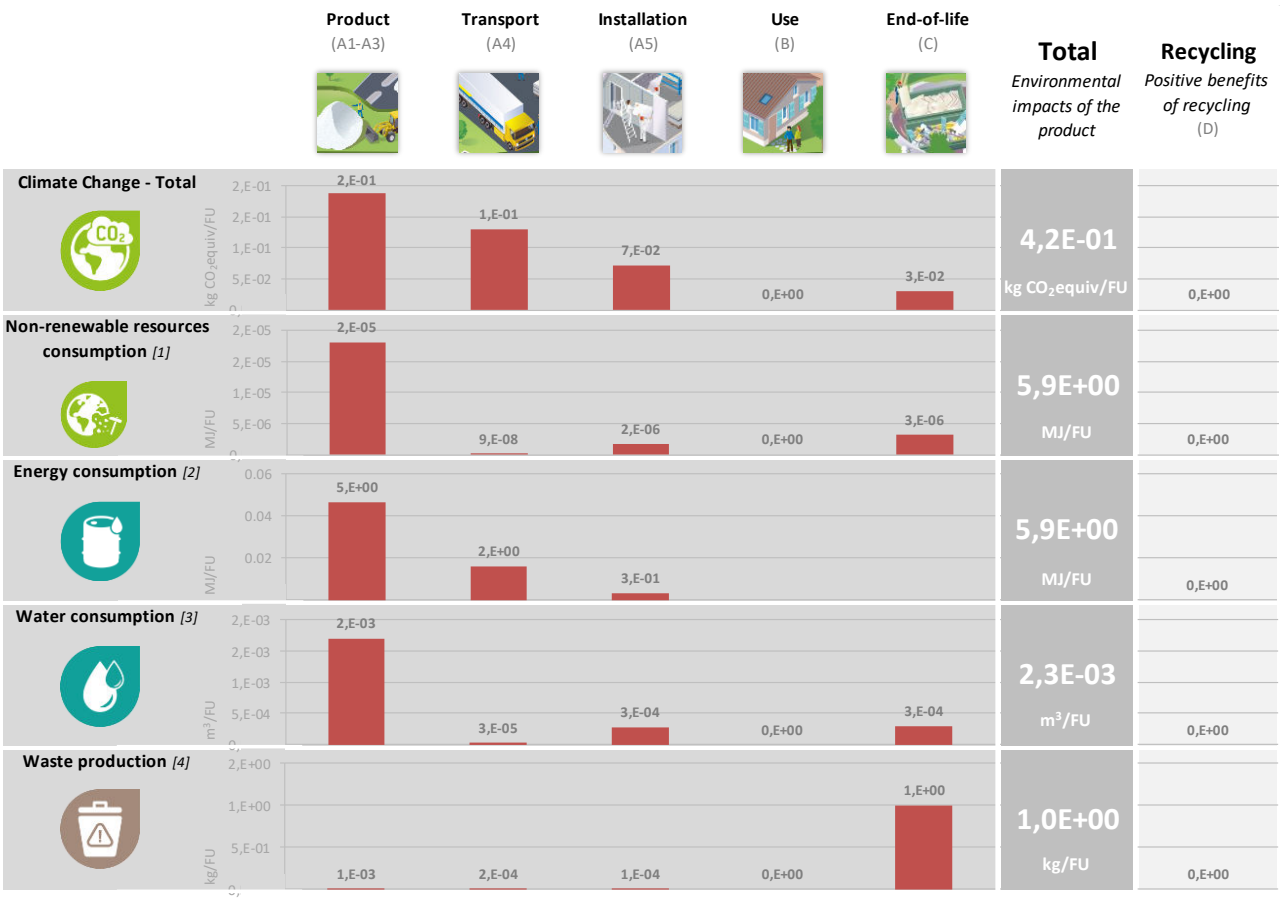
| Results per functional or declared unit | | |
|---|---|---|
| BIOGENIC CARBON CONTENT | Unit | QUANTITY |
| Biogenic carbon content in product | kg C | 0 |
| Biogenic carbon content in packaging | kg C | 0.01 |

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

There is no biogenic carbon in plaster product. Every plaster quantity assumed thanks to this EPD has the same value of biogenic carbon equal to 0 kg C. Small carbon content is included in packaging due to cardboard, paper and wood.

# LCA results interpretation

The following figure refers to a functional unit of 1 kg of Calsimo X plaster delivered in powder.



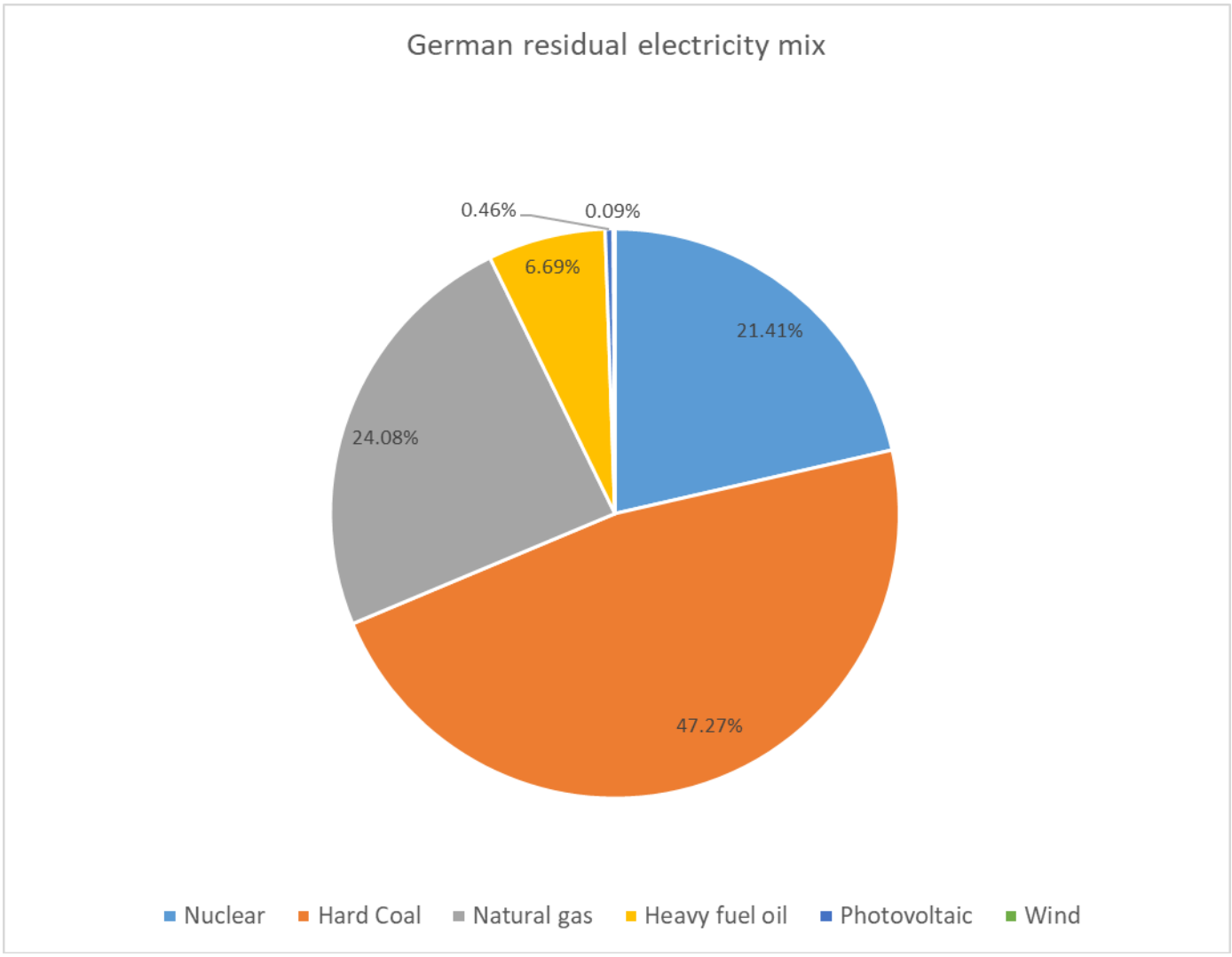

*[1] This indicator corresponds to the abiotic depletion potential of fossil resources.*
*[2] This indicator corresponds to the total use of primary energy.*
*[3] This indicator corresponds to the use of net fresh water.*
*[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive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

The product stage (A1-A3) as well as transport and installation (A4-A5) are responsible of the major part of the Calsimo X plaster impacts.

The main source of impact occurs in A3 (manufacturing) due to calcination of stucco in the plaster process. During the A4 stage, the occurring ship transportation leads to the greatest impacts.

# Electricity description

| TYPE OF INFORMATION | DESCRIPTION |
|---|---|
| Location | Representative of residual production in Germany after excluding certificates sold for Guarantee of Origin |
| Geographical representativeness description | Split of energy sources in Germany:<br>- **Hard Coal: 47.27%**<br>- **Natural gas: 24.08%**<br>- **Nuclear: 21.41%**<br>- **Heavy fuel oil: 6.69%**<br>- **Photovoltaic: 0.46%**<br>- **Wind: 0.09%** |
| Reference year | 2016 |
| Type of data set | Cradle to gate |
| Source | GaBi database from 2020 version |
| Climate Change - total (kg CO2 eq./kWh) | 0.642 (compared to 0.572 with national grid mix) |



# Bibliography


1. General Program Instructions for the International EPD® System. Version 3.01, dated 2019-09-18. www.environdec.com.
2. The International EPD® System PCR 2019:14 version 1.11 for Construction Products
3. EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
4. ISO 21930:2017 Sustainability in building construction – Environmental declaration of building products
5. ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures
6. ISO 14040:2006 Environmental management. Life cycle assessment. Principles and framework
7. ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines
8. European Chemical Agency, Candidate List of substances of very high concern for Authorization. https://echa.europa.eu/candidate-list-table
9. GaBi LCI databases, 2020: GaBi Product Sustainability Software: www.gabi-software.com