



ENVIRONMENTAL PRODUCT DECLARATION

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

Fire Protection Moisture Resistant Plasterboard RFI (DFH2) 15 mm



THE INTERNATIONAL EPD® SYSTEM

The International EPD®
Programme operator: EPD international AB
Registration number: EPD-IES-0021483

Version: 01

Date of publication: 2025/04/01

Validity: 5 years

Valid until: 2030/03/31

Scope of the EPD®: Czech Republic



An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



Programme information

| | |
|-------------------|--|
| 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 EN 15804:2012+A2:2019/AC:2021 as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14 Construction Products, version 1.3.2

PCR review was conducted by: The Technical Committee of the International EPD® System
See www.environdec.com for a list of members.

President: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact - 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: Technický a zkušební ústav stavební Praha, s.p.
Prosecká 811/76a, Prague 9, 190 00 - info@tzus.cz

The certification body is accredited by: *Českým institutem pro akreditaci, o.p.s., Certificate No. 4562024*

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

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same version number up to the first two digits) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical DU/FU); 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 15804:2012+A2:2019/AC:2021 and ISO 14025:2006.

| | |
|---|---|
| CEN standard EN 15804+A2 serves as the core PCR | |
| Independent verification of the declaration and data, according to EN ISO 14025:2010: <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External |  |
| Third party verifier: Technický a zkušební ústav stavební Praha, s.p. Prosecká 811/76a, Praha 9, 190 00 Czech Republic Certification Body for EPD, accredited by CAI - Czech Accreditation Institute, under No. 456/2024 | |

Product information

Company information

Manufacturer: Saint-Gobain Construction Products CZ, a.s., Rigips, Smrčková 2485/4, 180 00 Prague 8, Czech Republic

Production plant(s): Rigips, Horní Počaply 254, 277 03, Czech Republic

Management system-related certification: ISO 14001:2015, ISO 50001:2018, ISO 9001:2015

Programme used: EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works – Environmental product declaration - core rules for the product category of construction product and The International EPD® System

PCR identification: PCR 2019:14 version 1.3.2 for Construction products

c-PCR identification: c-PCR version:2024-08-06 for Gypsum-based construction products (EN 17328)

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

UN CPC CODE: 37530 Articles of plaster or of composition based on plaster

Owner of the declaration: Saint-Gobain Construction Products CZ, a.s., Rigips

Product name and manufacturer represented: Fire Protection Moisture Resistant Plasterboard RFI (DFH2) 15 mm

EPD® prepared by: Ing. arch. Tomáš Truxa (tomas.truxa@saint-gobain.com) and Saint-Gobain LCA central team (joffrey.martin@saint-gobain.com)

The intended use of this EPD is for B2B communication.

Geographical scope of the EPD®: Czech Republic

EPD® registration number: EPD-IES-0021483

Declaration issued: 2025/04/01 **valid until:** 2030/03/31.

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 based on the PCR mentioned above.

The EPD owner has the sole ownership, liability, and responsibility for the EPD.



Product description

Product description and description of use

This Environmental Product Declaration (EPD®) describes the environmental impacts of 1m² of installed gypsum board Fire Protection Moisture Resistant Plasterboard RFI (DFH2) 15 mm with a weight of 12,5 kg/m² with a useful life of 50 years.

Fire Protection Moisture Resistant Plasterboard RFI (DFH2) 15 mm is gypsum plasterboard type DFH2 according to EN 520. Board has water repellent additives in the core. Board is intended for interior applications with intermittent moisture such as kitchens, bathrooms. Board provides significantly improved fire protection properties compared to a Standard gypsum plasterboard.

Board shrinks less during a fire and sustains its properties better thanks to a gypsum core reinforced with glass fibres and other additives for dimensional stability and improved core cohesion at high temperatures. Board provides increased fire resistance as part of a system and it is ideal for lining walls, partitions, ceilings and for protection to structural steel. It is available in 1200 mm and 1250 mm width.

Technical data

| Parameter | Value / Description |
|---------------------------------------|---------------------|
| EN Classification | EN 520:2004+A1:2009 |
| Reaction to fire | A2-s1, d0 |
| Water vapour resistance factor, μ | 10 |
| Thermal conductivity | 0,25 W/mK |

Declaration of the main product components and/or materials

Description of the main components and/or materials:

| Product components | Weight (kg) | Post-consumer recycled material weight (%) | Biogenic material, weight-% and kg C/DU |
|---------------------|----------------|--|---|
| Gypsum | >85 % | 0 % | 0 % - 0 kg C/DU |
| Paper | 1-5% | 90 % | 41 % - 0,143 kg C/DU |
| Additives | 1-15 % | 0 % | <1 % - 0,023 kg C/DU |
| Sum | 12,5 kg | 2 % | 1 % - 0,17 kg C/DU |
| Packaging materials | Weight (kg) | Weight versus the product (%) | Weight biogenic carbon, kg C/DU |
| Wooden pallet | 0,3125 | 2,5 % | 43 % - 0,128 kg C/DU |
| Cardboard | 0,0005 | 0,004 % | 41 % - 2,04E-04 kg C/DU |

At the date of issue of this declaration, there is no “Substance of Very High Concern” (SVHC) in concentration above 0.1% by weight, and neither do their packaging, following the European REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals).

The verifier and the program 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 and optional modules (A+B+C+D) |
| DECLARED UNIT | 1 m ² of installed board with a weight of 12,5 kg/m ² |
| SYSTEM BOUNDARIES | Mandatory stages = A1-A3; C1-C4 and D; Optional stages = A4-A5; B1-B7 |
| REFERENCE SERVICE LIFE (RSL) | The Reference Service Life (RSL) of the Gypsum product is 50 years. This 50-year value is the amount of time that we recommend our products last for without refurbishment and corresponds to standard building design life. |
| CUT-OFF RULES | <p>In the case that there is not enough information, the process energy and materials representing less than 1% of the whole energy and mass used can be excluded (if they do not cause significant impacts). The addition of all the inputs and outputs excluded cannot be bigger than the 5% of the whole mass and energy used, as well of the emissions to environment occurred. Flows related to human activities such as employee transport are excluded.</p> <p>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.</p> |
| ALLOCATIONS | <p>Allocation has been avoided when possible and when not possible a mass allocation has been applied.</p> <p>The polluter pays and the modularity principles as well have been followed.</p> |
| GEOGRAPHICAL COVERAGE AND TIME PERIOD | <p>Scope: Czech Republic</p> <p>Data is collected from one production site Rigips - Horní Počaply located in Czech Republic</p> <p>Data collected for the year 2023</p> |
| BACKGROUND DATA SOURCE | The databases Sphera 2023.2 and ecoinvent v.3.9.1 |
| SOFTWARE | Sphera LCA for experts (GaBi) 10 |

LCA scope

System boundaries (X=included. 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 | |
| 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 | CZ | CZ | CZ | CZ | CZ | - | - | - | - | - | - | - | CZ | CZ | CZ | CZ | - |
| Specific data used | > 75 % GWP- GHG | | | | | | | | | | | | | | | | |
| Variation products | 0% | | | | | | | | | | | | | | | | |
| Variation sites | 0% | | | | | | | | | | | | | | | | |

Life cycle stages



A1-A3. Product 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 materials supply

This module includes the extraction and transformation of raw materials.

A2. Transport to the manufacturer

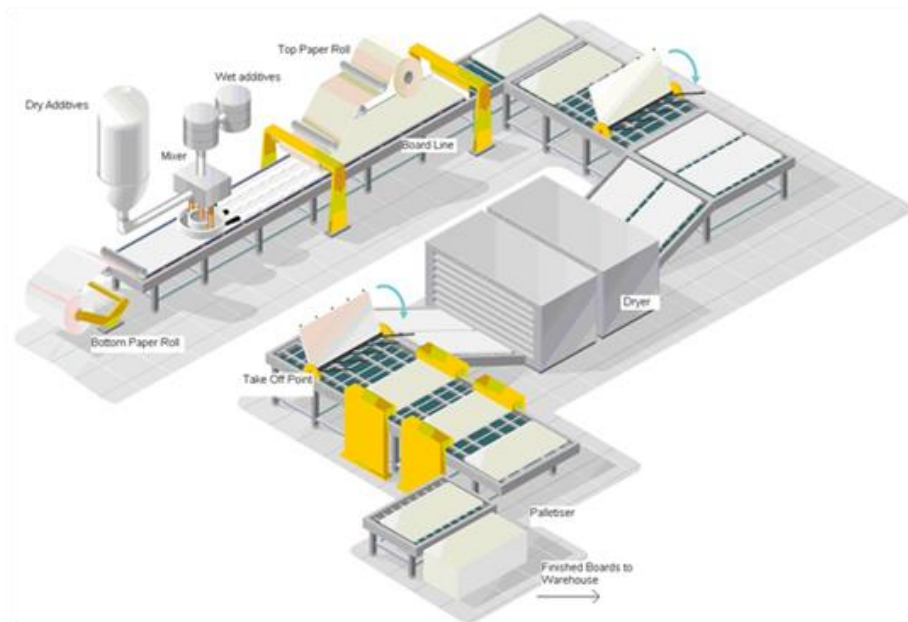
This module includes the transportation of raw materials and packaging to the manufacturing site. The modelling includes road, boat and/or train transportations.

A3. Manufacturing

This module includes the manufacture of products and the manufacture of packaging. The production of packaging material is considered at this stage. The processing of any waste arising from this stage is also included.

Manufacturing process flow diagram

System diagram:



Manufacturing in detail:

The initial materials are homogeneously mixed to form a gypsum slurry that is spread onto a paper liner on a moving conveyor belt. A second paper liner is fed onto the production line from above to form the plasterboard. The plasterboard continues along the production line where it is dried, cut to size, and finished.

A4-A5. Construction process 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 based on 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, maximum load weight of 27 t, real load is 24 t and consumption of 0.38 liters per km |
| Distance | 130 km |
| Capacity utilisation (including empty returns) | 68 % (30% empty returns) |
| Bulk density of transported products* | 833 kg/m ³ |
| Volume capacity utilisation factor | 1 |

A5. Installation in the building:

This module includes the parameters for installing the product at the building site. All installation materials and their waste processing are included.

| PARAMETER | VALUE |
|---|---|
| Ancillary materials for installation (specified by materials) | Jointing compound 0,33 kg/m ² board, jointing tape 1,23 m/m ² board, screws 8 units /m ² board |
| Water use | 0,158 liters/m ² |
| Other resource use | None |
| Quantitative description of energy type (regional mix) and consumption during the installation process | None |
| Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type) | Plasterboard: 0,625 kg / m ² Jointing Compound: 0,0165 kg / m ² Jointing Tape: 0,0002 kg / m ² Pallet: 0,3125 kg / m ² Cardboard: 0,0005 kg/m ² |
| 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) | Plasterboard/ plaster: <ul style="list-style-type: none"> • 100% landfilled • 0% recycled Ancillaries: 100% landfilled Packaging: <ul style="list-style-type: none"> • Carboard: 100% landfilled • Pallet :100% landfilled |
| Direct emissions to ambient air, soil, and water | None |

B1-B7. Use stage (excluding potential savings)

The use stage is divided into the following modules:

- **B1:** Use
- **B2:** Maintenance
- **B3:** Repair
- **B4:** Replacement
- **B5:** Refurbishment
- **B6:** Operational energy use
- **B7:** Operational water use

The product has a reference service life of 50 years. This assumes that the product will last in situ with no requirements for maintenance, repair, replacement, or refurbishment throughout this period. Therefore, it has no impact at this stage.

C1-C4. End of Life Stage

This stage includes the next 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, the energy is considered is 0.05 MJ/m².

C2: Transport to waste processing

C3: Waste processing for reuse, recovery and/or recycling

C4: Waste disposal; including physical pre-treatment and site management.

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

| PARAMETER | VALUE/DESCRIPTION |
|---|--|
| Collection process specified by type | 100 % collected with mixed deconstruction and demolition waste sent to landfill (including board, screws and jointing tape/compound) |
| Recovery system specified by type | 0 kg recycled |
| Disposal specified by type | 12,5 kg to landfill |
| Assumptions for scenario development (e.g. transportation) | Gypsum waste is transported 50 km by truck from deconstruction/demolition sites to landfill |

D. Reuse/recovery/recycling potential

There is inclusion of secondary materials in the product and packaging.

100 % of wastes are landfilled. There is no reuse, nor recycling, nor incineration with energy recovery for the for the product nor its packaging.

Considering all the above, benefits or loads are reported on stage D.

LCA results

As specified in EN 15804:2012+A2:2019/AC:2021 and the Product-Category Rules, the environmental impacts are declared and reported using the baseline characterization factors are from the ILCD. Raw materials and energy consumption, as well as transport distances have been taken directly from the manufacturing plant. Characterisation factors EN15804 based on EF 3.1.

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.

The results of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological, and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.

This EPD including module C, we strongly advise against using the results of modules A1-A3 without considering the results of module C.











Results refer to a declared unit of 1m² of installed gypsum board 15 mm with a weight of 12,5 kg/m². The following results refer to a single product manufactured in a single plant: Rigips – Horní Počaply, Czech Republic

Environmental Impacts

| | | PRODUCT STAGE | CONSTRUCTION STAGE | | USE STAGE | | | | | | | END OF LIFE STAGE | | | | BENEFITS AND LOADS BEYOND THE LIFE CYCLE |
|---|---|---------------|--------------------|--------------|-----------------|--------|----------------|-----------|----------------|------------------|---------------------------|--------------------------|--------------------------------|--------------|---------------------|--|
| | | | 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 | |
|  | Climate Change [kg CO2 eq.] | 2,31E+00 | 1,17E-01 | 7,18E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,74E-02 | 5,01E-02 | 0,00E+00 | 1,20E+00 | -1,81E-02 |
| | Climate Change (fossil) [kg CO2 eq.] | 3,26E+00 | 1,16E-01 | 2,23E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,74E-02 | 4,95E-02 | 0,00E+00 | 1,02E-01 | -2,32E-02 |
| | Climate Change (biogenic) [kg CO2 eq.] | -9,72E-01 | 3,01E-04 | 4,94E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,24E-06 | 1,29E-04 | 0,00E+00 | 1,10E+00 | 4,13E-03 |
| | Climate Change (land use change) [kg CO2 eq.] | 3,05E-02 | 1,07E-03 | 1,65E-03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,46E-06 | 4,58E-04 | 0,00E+00 | 1,26E-04 | 9,82E-04 |
|  | Ozone depletion [kg CFC-11 eq.] | 3,06E-05 | 1,01E-14 | 1,53E-06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,12E-10 | 4,33E-15 | 0,00E+00 | 2,18E-09 | 5,06E-09 |
|  | Acidification terrestrial and freshwater [Mole of H+ eq.] | 6,42E-03 | 1,31E-04 | 5,10E-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,32E-04 | 5,69E-05 | 0,00E+00 | 7,90E-04 | 9,07E-04 |
|  | Eutrophication freshwater [kg P eq.] | 1,70E-04 | 4,21E-07 | 1,20E-05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,76E-06 | 1,80E-07 | 0,00E+00 | 8,25E-06 | 2,32E-04 |
| | Eutrophication marine [kg N eq.] | 1,96E-03 | 4,46E-05 | 2,05E-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,47E-04 | 1,96E-05 | 0,00E+00 | 8,58E-04 | 3,54E-04 |
| | Eutrophication terrestrial [Mole of N eq.] | 1,90E-02 | 5,27E-04 | 1,54E-03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,68E-03 | 2,31E-04 | 0,00E+00 | 2,89E-03 | 2,47E-03 |
|  | Photochemical ozone formation - human health [kg NMVOC eq.] | 5,14E-03 | 1,13E-04 | 4,37E-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,93E-04 | 4,95E-05 | 0,00E+00 | 1,16E-03 | 8,75E-04 |
|  | Resource use, mineral and metals [kg Sb eq.] ¹ | 3,19E-06 | 7,50E-09 | 8,44E-07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,00E-08 | 3,21E-09 | 0,00E+00 | 1,24E-07 | 6,02E-07 |
| | Resource use, energy carriers [MJ] ¹ | 5,47E+01 | 1,57E+00 | 3,55E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,49E-01 | 6,72E-01 | 0,00E+00 | 2,24E+00 | -6,90E-02 |
|  | Water deprivation potential [m³ world equiv.] ¹ | 8,47E-01 | 1,33E-03 | 8,05E-02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,53E-03 | 5,70E-04 | 0,00E+00 | 9,05E-02 | 9,14E-02 |









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

Resource Use


| Resources Use indicators | PRODUCT STAGE | CONSTRUCTION STAGE | | USE STAGE | | | | | | | END OF LIFE STAGE | | | | BENEFITS AND LOADS BEYOND THE LIFE CYCLE |
|---|---------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------------------|--------------------------|--------------------------------|--------------|---------------------|-------------|--|
| | 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] ² | 1,05E+01 | 1,11E-01 | 5,00E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,28E-03 | 4,76E-02 | 0,00E+00 | 8,84E-02 | 1,57E+00 |
|  Primary energy resources used as raw materials (PERM) [MJ] ² | 9,17E+00 | 0,00E+00 | -3,75E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  Total use of renewable primary energy resources (PERT) [MJ] ² | 1,93E+01 | 1,11E-01 | 1,23E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,28E-03 | 4,76E-02 | 0,00E+00 | 8,84E-02 | 1,57E+00 |
|  Use of non-renewable primary energy (PENRE) [MJ] ² | 5,42E+01 | 1,58E+00 | 3,53E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,49E-01 | 6,74E-01 | 0,00E+00 | 2,24E+00 | -7,03E-02 |
|  Non-renewable primary energy resources used as raw materials (PENRM) [MJ] ² | 4,94E-01 | 0,00E+00 | 3,89E-02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  Total use of non-renewable primary energy resources (PENRT) [MJ] ² | 5,48E+01 | 1,58E+00 | 3,57E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,49E-01 | 6,74E-01 | 0,00E+00 | 2,24E+00 | -6,80E-02 |
|  Input of secondary material (SM) [kg] | 2,99E-01 | 0,00E+00 | 1,49E-02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  Use of renewable secondary fuels (RSF) [MJ] | 2,45E-24 | 0,00E+00 | 1,23E-25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  Use of non-renewable secondary fuels (NRSF) [MJ] | 2,88E-23 | 0,00E+00 | 1,44E-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  Use of net fresh water (FW) [m3] | 2,28E-02 | 1,23E-04 | 2,09E-03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,90E-05 | 5,24E-05 | 0,00E+00 | 2,13E-03 | -4,96E-04 |

² From EPD International Construction Product PCR 1.3.2 (Annex 3). The option B was retained to calculate the primary energy use indicators.

Waste Category & Output flows



| Waste Category & Output Flows | PRODUCT STAGE | CONSTRUCTION STAGE | | USE STAGE | | | | | | | END OF LIFE STAGE | | | | BENEFITS AND LOADS BEYOND THE LIFE CYCLE |
|---|---------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------------------|--------------------------|--------------------------------|--------------|---------------------|-------------|--|
| | 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] | 1,67E-03 | 5,83E-12 | 8,40E-05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,06E-06 | 2,49E-12 | 0,00E+00 | 9,86E-06 | 8,37E-06 |
|  Non-hazardous waste disposed (NHWD) [kg] | 8,27E-01 | 2,27E-04 | 7,76E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,63E-03 | 9,71E-05 | 0,00E+00 | 1,40E+01 | 8,26E-02 |
|  Radioactive waste disposed (RWD) [kg] | 2,02E-03 | 2,04E-06 | 1,11E-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,23E-08 | 8,72E-07 | 0,00E+00 | 4,49E-06 | -5,23E-05 |
|  Components for re-use (CRU) [kg] | 0,00E+00 | 0,00E+00 | 2,81E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  Materials for Recycling (MFR) [kg] | 7,01E-02 | 0,00E+00 | 3,51E-03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  Material for Energy Recovery (MER) [kg] | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  Exported electrical energy (EEE) [MJ] | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  Exported thermal energy (EET) [MJ] | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

Additional voluntary indicators from EN 15804

| | 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 |
| Environmental indicators | | | | | | | | | | | | | | | |
|  GWP-GHG [kg CO2 eq.] ³ | 3,29E+00 | 1,17E-01 | 2,24E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,74E-02 | 5,00E-02 | 0,00E+00 | 1,02E-01 | -2,22E-02 |

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

Information on biogenic carbon content

| | | PRODUCT STAGE |
|---|---|---------------------|
| Biogenic Carbon Content | | A1 / A2 / A3 |
|  | Biogenic carbon content in product [kg] | 1,66E-01 |
|  | Biogenic carbon content in packaging [kg] | 1,28E-01 |

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

The product contains biogenic carbon due to the additives and paper liner used. Regarding packaging, biogenic carbon is quantified due to wooden pallets and cardboard production.

Additional information:

Electricity information

The factory based in Rigips – Horní Počaply uses electricity with Guarantee of Origin certificate (GO's).

Hence, the electricity mix considered for the manufacturing of the studied product is modelled according to the electricity mix described in the Guarantee of Origin certificate. The amount of electricity purchased with GO's covers 100 % of the electricity consumption on the manufacturing site.

| Type of information | Description |
|---|---|
| Location | Electricity purchased by Saint-Gobain |
| Share of electricity covered by Guarantee of Origin | 100% of the energy consumption is covered by the GO |
| Energy sources for electricity | Share of energy sources: 100% nuclear |
| Type of dataset | Cradle to gate from GaBi and ecoinvent databases |
| Source | Cradle to gate from Gabi and ecoinvent databases Guarantee of Origin certificate: ČEZ ESKO, reg. number: 004642023 |
| CO ₂ emission kg CO ₂ eq. / kWh | 0,0047 kg of CO ₂ eq/kWh 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 Rigips – Horní Počaply. After evaluating the inventory, according to the defined ranking in the LCA report, the assessment reflects good inventory data quality.

Environmental impacts according to EN 15804:2012 + A1

The following tables presents results for 1m² of installed gypsum board 15 mm with a weight of 12,5 kg/m².

| Environmental impacts | PRODUCT STAGE | CONSTRUCTION STAGE | | USE STAGE | | | | | | | END OF LIFE STAGE | | | | BENEFITS AND LOADS BEYOND THE LIFE CYCLE |
|---|---------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------------------|--------------------------|--------------------------------|--------------|---------------------|-------------|--|
| | 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 |
| Global Warming Potential (GWP) [kg CO ₂ eq.] | 3,26E+00 | 1,16E-01 | 2,23E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,74E-02 | 4,95E-02 | 0,00E+00 | 1,02E-01 | -2,32E-02 |
| Ozone depletion (ODP) [kg CFC 11eq.] | -9,72E-01 | 3,01E-04 | 4,94E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,24E-06 | 1,29E-04 | 0,00E+00 | 1,10E+00 | 4,13E-03 |
| Acidification potential (AP) [kg SO ₂ eq.] | 3,05E-02 | 1,07E-03 | 1,65E-03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,46E-06 | 4,58E-04 | 0,00E+00 | 1,26E-04 | 9,82E-04 |
| Eutrophication potential (EP) [kg (PO ₄) ₃ -eq.] | 3,06E-05 | 1,01E-14 | 1,53E-06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,12E-10 | 4,33E-15 | 0,00E+00 | 2,18E-09 | 5,06E-09 |
| Photochemical ozone creation (POCP) - [kg Ethylene eq.] | 6,42E-03 | 1,31E-04 | 5,10E-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,32E-04 | 5,69E-05 | 0,00E+00 | 7,90E-04 | 9,07E-04 |
| Abiotic depletion potential for non-fossil resources (ADP-elements) [kg Sb eq.] | 1,70E-04 | 4,21E-07 | 1,20E-05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,76E-06 | 1,80E-07 | 0,00E+00 | 8,25E-06 | 2,32E-04 |
| Abiotic depletion potential for fossil resources (ADP-fossil fuels) [MJ] | 1,96E-03 | 4,46E-05 | 2,05E-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,47E-04 | 1,96E-05 | 0,00E+00 | 8,58E-04 | 3,54E-04 |

References

1. EN 15804:2012+A1:2013 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
2. EN 15804:2012+A2:2019/AC:2021 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
3. EPD International. General Program Instructions (GPI) for the International EPD® System (version 4.0) www.environdec.com.
4. The International EPD System PCR 2019:14 Construction products and Construction services. Version 1.3.2
5. c-PCR-031 Gypsum-based construction products (EN 17328) (PCR 2019:14-c-PCR-031 version: 2024-08-06)
6. European Chemical Agency, Candidate List of substances of very high concern for Authorization. <https://echa.europa.eu/candidate-list-table>
7. LCA report Rigips – Horní Počaply 2024