ENVIRONMENTAL PRODUCT DECLARATION

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

Gyproc®
Gyp finisher

Version: 1.1
Date of publication: 2023/12/14
Validity: 5 years
Valid until: 2028/12/13
Scope of the EPD®: Ireland

The International EPD®
Program operator: EPD international AB
System Registration number:
S-P: 11765

Manufacturer address: Saint-Gobain Placoplatre, Tour Saint-Gobain 12, place de l'Iris, 92400 Courbevoie, FRANCE

General information

Company information

Manufacturer: Saint-Gobain Placoplatre, Tour Saint-Gobain 12, place de l'Iris, 92400 Courbevoie, FRANCE
Production plant: Optiroc SA Rue de Grezan, 30000 Nîmes, FRANCE
Program used: International EPD System For more information see www.environdec.com
PCR identification EN 15804:2012+A2:2019-10 Sustainability of construction works – Environmental product declaration - core rules for the product category of construction product and The International EPD® System PCR 2019:14 version 1.2.5 for Construction products and Construction services §5.4 for more information. In addition, EPD Ireland PCR Part A version 2.1, issued 05/03/2022 has been considered to adjust to geographical scope of distribution of the product. All related assumptions are mentioned below and compliant to International EPD system.
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: Gypsum Industries Ltd. U14 Park West Ind Pk 12 Co. Dublin
Product name and manufacturer represented: Gyproc Gypfinisher manufactured by Optiroc (France)
EPD® prepared by: Saint-Gobain Placoplatre, Tour Saint-Gobain 12, place de l'Iris, 92400 Courbevoie, FRANCE
Contact: Sandrine Jacquet (Sandrine.jacquet@saint-gobain.com), Valentin Rousseau (valentin.rousseau@sant-gobain.com)
Geographical scope of the EPD®: Ireland
EPD® registration number: S-P-11765
Declaration issued: 2023/12/14 valid until: 2028/12/13
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.

Program information

PROGRAM:	The International EPD® System
ADRESS:	EPD International AB - Box 210 60 - SE-100 31 Stockholm - Sweden
WEBSITE:	www.environdec.com
E-MAIL:	info@environdec.com

CEN standard EN 15804:2012+A2:2019-10 serves as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14 Construction Products, version 1.2.5

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: Yannick LE GUERN - ELYS Consulting
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 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.

Product description

Product description, declared unit and description of use

This Environmental Product Declaration (EPD®) describes the environmental impacts of 1m^2 of jointing plaster, with surface mass 0.35 kg/m^2 with a reference service life of 50 years.

Gypfinisher is a lightweight ready mixed plasterboard jointing material formulated and designed for the final stage of plasterboard jointing.

Technical data/physical characteristics according to EN13963 type 2A :

Reaction to fire	A2, s1-d0
Thermal conductivity	NPD
Nominal density	1.53

Declaration 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. Data is based on specific bill of material from the reference year of production. No additives used are classed as substance of concern; substances are not listed specifically to protect proprietary
information.

Product components	**Weight (%)**	**Post-consumer recycled material weight (%)**	**Biogenic material weight in kg C/kg**
Calcium carbonate based filler	>60%	0%	See information on biogenic carbon content
Water	>30%	0%	
Additives	<10%	0%	
Packaging materials	**Weight (kg/DU)**		**Biogenic material weight in kg C/kg**
Wooden pallet	0.00795		0.518
Polyethylene film	0.00002		
Cardboard box	0.00109		0.436
Polypropylene bucket	0.01085		
Steel handle (bucket)	0.0008		
Sum	**0.02072**		

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 not 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.

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LCA calculation information

TYPE OF EPD	Cradle to grave and module D
DECLARED UNIT	1 m² of installed board with a weight of 0.35 kg/m² and an expected average service life of 50 years
SYSTEM BOUNDARIES	Cradle to grave = A1-C4 (D)
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	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. 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	Allocation criteria are based on mass. The polluter pays as well the modularity principles have been followed.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope: France/Ireland/EU Data is collected from one production site located in Nîmes, France Data collected for the year 2021
BACKGROUND DATA SOURCE	The databases GaBi 2021 and ecoinvent v.3.6
SOFTWARE	GaBi 10.6.1.35

According to EN 15804:2012+A2:2019, EPDs of construction products may not be comparable if they do not comply with this standard. According to ISO 21930: 2017 EPDs might not be comparable if they are from different programs.

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	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	RER	RER	FR	RER	IE	-	-	-	-	-	-	-	-	IE	-	IE	IE
Specific data used	GWP-GHG 81%																
Variation products	N/A																
Variation sites	N/A																

Life cycle stages

A1-A3, Product stage

Description of the stage:
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”.

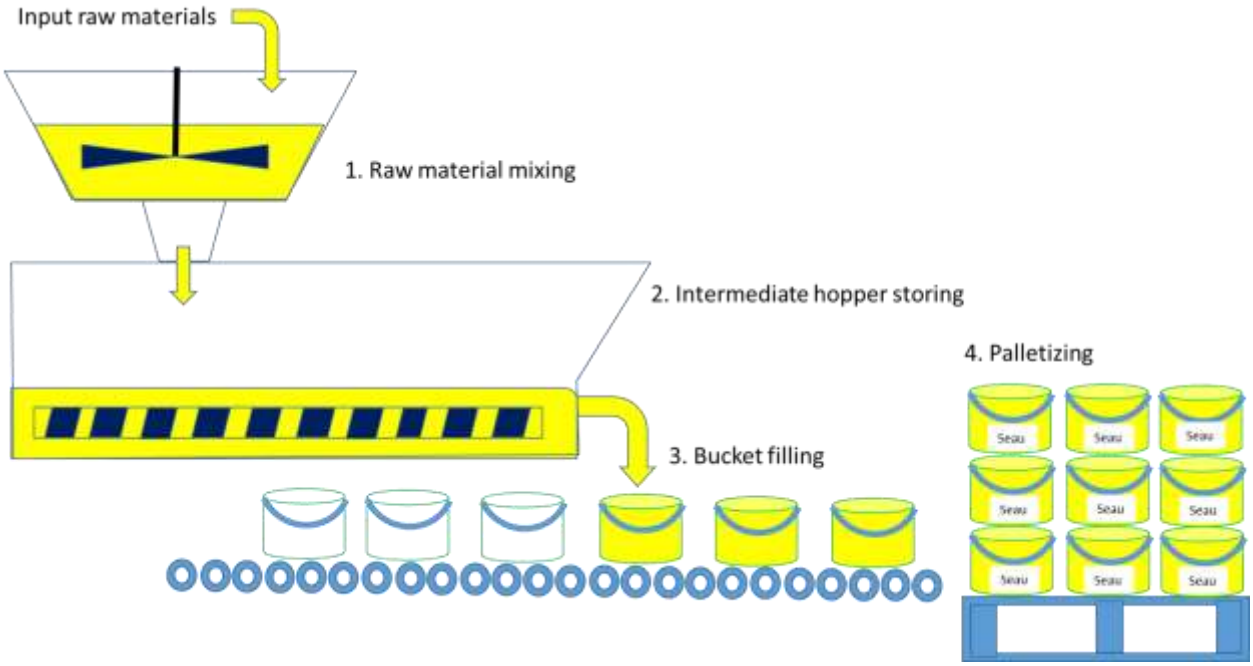
A1, Raw materials supply
This includes the extraction and processing of all raw materials and energy which occur upstream from the manufacturing process. Carbon dioxide uptake as biogenic carbon in raw materials is taken into account here.

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 considered at this stage. The processing of any waste arising from this stage is also included. Carbon dioxide uptake as biogenic carbon in packaging materials is taken into account here.

Manufacturing process flow diagram

System diagram:



Manufacturing in detail:
The initial materials are homogenously mixed and fed into a hopper. The latter conveys the mixed plaster down to a nozzle into the buckets. The last step consists in the preparation of pallets with an automatic handler. No heating energy is required.

A4-A5, Construction process stage

Description of the 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 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 26 t, real load is 22.4 t and consumption of 0.38 liters per km
Distance	1 000 km by truck on EU mainland 1 041 km by ship 95 km by truck in Ireland
Capacity utilisation (including empty returns)	100% (30% empty returns)
Bulk density of transported products	1.53
Volume capacity utilisation factor	1

A5, Installation in the building: this module includes:
The accompanying table quantifies the parameters for installing the product at the building site. All instalation materials and their waste processing are included.

PARAMETER	VALUE/DESCRIPTION
Ancillary materials for installation (specified by materials)	None
Water use	Tool cleaning: 0.1 liter
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)	None
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)	Plaster: 5% loss rate sent to landfill (see C4) Packaging: 100% treated for recycling and disposal. Waste scenarios are based on default Ireland/European Union recycling rates from the PEF LCA methods. The table below provides applied recycling and disposal rates for each packaging stream.
Direct emissions to ambient air, soil, and water	None

End of life scenario are based on EPD Ireland:

- Waste transport distance to landfill/incineration and treatment site respectively 50 km and 250 km
- Recycling rate according to PEF (Annex C): “R2” factor

	Material recycling	Incineration (with energy recovery*)	Landfill
Wooden pallet	30%	21%*	49%
Polyethylene film	28%	21%	51%
Cardboard box	75%	7%	18%
Polypropylene bucket	0%	29%	71%
Steel handle (bucket)	0%	0%	100%

B1-B7, Use stage (excluding potential savings)

Description of the stage: 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

Description of the scenarios and additional technical information:
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

Description of the 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 demolition energy is neglected as it is already taken into account into the plasterboard life cycle.
C2: Transport to waste treatment and/or disposal site
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 100% landfill scenario based on EPD Ireland program as “mixed material”.

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

PARAMETER	VALUE/DESCRIPTION
Collection process specified by type	100% waste plaster collected and sent to landfill as mixed construction and demolition waste
Recovery system specified by type	0 kg plaster recycled
Disposal specified by type	0.35 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

Module D applies to any material flow recovery from A5 to C4.

Since 100% of the product is landfilled (C4), no module D applies. However, some of the packaging disposed of at the installation stage (A5) is recovered:

Flow	Processes beyond the system boundary	Avoided material/energy	Quantity leaving the system boundary (kg/DU)
Wooden pallet	Sorting and cutting wood chips for material recovery (e.g. particle board)	Primary wood chips	2.39E-03
Wooden pallet	Thermal/Electrical energy recovery in incineration plant (23% yield)	Substitution to elctricity and thermal energy from natural gas on national energy networks	1.63E-03
Polyethylene film	Sorting and reprocessing of PE pellets	Primary PE pellet	1.26E-05
Cardboard box	Chemical pulp paper recovery	Primary paper pulp from chemical process	8.12E-04

Wood energy recovery modelling based on EPD Ireland program.

LCA results

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

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

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 figures refer to a declared unit of 1m^2 as per the declared unit. Since the declaration covers the whole life cycle results shall be intended as total module A to C, and not just A1-A3 for instance.

The following results corresponds to a single product manufactured in a single plant:

Environmental Impacts from EN15804+A2[1]

Environmental indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Climate Change [kg CO2 eq.]	1,39E-01	2,97E-02	3,39E-02	0	0	0	0	0	0	0	0	1,48E-03	0	1,85E-03	-1,11E-03
Climate Change (fossil) [kg CO2 eq.]	1,43E-01	2,97E-02	1,84E-02	0	0	0	0	0	0	0	0	1,48E-03	0	1,84E-03	4,63E-04
Climate Change (biogenic) [kg CO2 eq.]	-4,11E-03	8,03E-06	1,59E-02	0	0	0	0	0	0	0	0	5,19E-07	0	3,65E-06	-1,57E-03
Climate Change (land use change) [kg CO2 eq.]	6,70E-05	3,64E-06	3,63E-06	0	0	0	0	0	0	0	0	6,32E-08	0	5,51E-07	3,00E-07
Ozone depletion [kg CFC-11 eq.]	1,02E-08	6,63E-09	9,81E-10	0	0	0	0	0	0	0	0	3,35E-10	0	7,59E-10	7,17E-11
Acidification terrestrial and freshwater [Mole of H+ eq.]	5,55E-04	2,08E-04	4,27E-05	0	0	0	0	0	0	0	0	5,08E-06	0	1,75E-05	6,44E-06
Eutrophication freshwater [kg P eq.]	2,80E-06	5,09E-08	1,48E-07	0	0	0	0	0	0	0	0	2,05E-09	0	2,07E-08	1,22E-07
Eutrophication freshwater [kg $(PO_4)^3$ eq.]	1,58E-04	2,48E-05	6,29E-05	0	0	0	0	0	0	0	0	7,96E-07	0	3,10E-06	3,93E-06
Eutrophication marine [kg N eq.]	1,14E-04	5,72E-05	1,12E-05	0	0	0	0	0	0	0	0	1,60E-06	0	6,02E-06	3,11E-06
Eutrophication terrestrial [Mole of N eq.]	1,17E-03	6,32E-04	1,10E-04	0	0	0	0	0	0	0	0	1,76E-05	0	6,63E-05	1,54E-05
Photochemical ozone formation - human health [kg NMVOC eq.]	4,16E-04	1,69E-04	3,54E-05	0	0	0	0	0	0	0	0	4,84E-06	0	1,93E-05	1,73E-06
Resource use, mineral and metals [kg Sb eq.][2]	7,94E-07	4,60E-08	4,45E-08	0	0	0	0	0	0	0	0	1,08E-09	0	1,69E-08	1,66E-08
Resource use, energy carriers [MJ][1]	3,12E+00	4,05E-01	1,86E-01	0	0	0	0	0	0	0	0	2,04E-02	0	5,17E-02	1,15E-02
Water deprivation potential [m^3 world equiv.][1]	1,36E-01	2,64E-04	1,15E-02	0	0	0	0	0	0	0	0	9,10E-06	0	2,36E-03	-8,59E-05

[1] See disclaimers page 20

[2] 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

Optional indicators[3]

	PRODUCT STAGE	CONSTRUCTION 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
Particulate matter [Disease incidences]	5,48E-09	2,34E-09	4,67E-10	0	0	0	0	0	0	0	0	1,27E-10	0	3,40E-10	-1,20E-11
Ionising radiation, human health [kBq U235 eq.]	3,96E-02	1,86E-03	2,12E-03	0	0	0	0	0	0	0	0	9,38E-05	0	2,30E-04	3,42E-04
Ecotoxicity, freshwater [CTUe]	2,96E+00	2,66E-01	1,79E-01	0	0	0	0	0	0	0	0	1,34E-02	0	1,84E-01	5,01E-02
Human toxicity, cancer [CTUh]	6,50E-11	5,09E-12	5,40E-12	0	0	0	0	0	0	0	0	1,72E-13	0	1,31E-12	2,89E-13
Human toxicity, non-cancer [CTUh]	2,05E-09	2,84E-10	1,32E-10	0	0	0	0	0	0	0	0	1,48E-11	0	2,61E-11	1,95E-11
Land Use [Pt]	2,55E+00	4,99E-02	1,37E-01	0	0	0	0	0	0	0	0	2,49E-03	0	3,84E-02	-1,78E-01

[3] See disclaimers page 20

Resources Use

Resources Use indicators	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
Use of renewable primary energy (PERE) [MJ]	2,43E-01	1,26E-03	1,26E-02	0	0	0	0	0	0	0	0	5,36E-05	0	4,17E-04	-3,11E-01
Primary energy resources used as raw materials (PERM) [MJ]	2,73E-01	0,00E+00	-4,18E-02	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	7,82E-03
Total use of renewable primary energy resources (PERT) [MJ]	5,16E-01	1,26E-03	-2,92E-02	0	0	0	0	0	0	0	0	5,36E-05	0	4,17E-04	-3,03E-01
Use of non-renewable primary energy (PENRE) [MJ]	2,17E+00	4,05E-01	1,39E-01	0	0	0	0	0	0	0	0	2,04E-02	0	5,17E-02	1,19E-02
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	1,00E+00	0,00E+00	4,95E-02	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	2,08E-04
Total use of non-renewable primary energy resources (PENRT) [MJ]	3,18E+00	4,05E-01	1,88E-01	0	0	0	0	0	0	0	0	2,04E-02	0	5,17E-02	1,21E-02
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]	3,37E-03	6,14E-06	2,78E-04	0	0	0	0	0	0	0	0	2,12E-07	0	5,50E-05	-2,71E-06

Waste Category

Waste Category & Output Flows	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
Hazardous waste disposed (HWD) [kg]	4,89E-04	1,05E-06	2,45E-05	0	0	0	0	0	0	0	0	5,75E-08	0	7,70E-08	1,07E-08
Non-hazardous waste disposed (NHWD) [kg]	3,31E-02	9,19E-04	3,62E-02	0	0	0	0	0	0	0	0	3,31E-05	0	3,50E-01	2,45E-04
Radioactive waste disposed (RWD) [kg]	4,50E-05	2,94E-06	2,47E-06	0	0	0	0	0	0	0	0	1,49E-07	0	3,38E-07	7,08E-08

Output flows

Waste Category & Output Flows	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
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]	2,37E-03	0,00E+00	3,50E-03	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0,00E+00
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]	2,87E-03	0,00E+00	1,28E-02	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	4,31E-07
Exported thermal energy (EET) [MJ]	1,25E-02	0,00E+00	2,62E-02	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	9,70E-07

Additional voluntary indicators

	PRODUCT STAGE	CONSTRUCTION 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
GWP-GHG [kg CO2 eq.][4]	1,30E-01	2,95E-02	3,31E-02	0	0	0	0	0	0	0	0	1,47E-03	0	1,80E-03	-1,12E-03

[4] 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

Biogenic Carbon Content	PRODUCT STAGE A1 / A2 / A3
Biogenic carbon content in product [kg C/DU]	2,38E-03
Biogenic carbon content in packaging [kg C/DU]	3,77E-03

Note: 1 kg C = 44/12 kg CO_2.

The product contains biogenic carbon due some additives used. Regarding packaging, biogenic carbon is contained in wood and cardboard paper materials.

LCA interpretation

The following figure refers to a declared unit of 1 m² of installed plaster with a weight of 0.35 kg/m² and for specific application of external building for an expected average service life of 50 years.

LCA/Stages	Production (A1-A3)	Transport (A4)	Installation (A5)	Use (B1-B7)	End of life (C1-C4)	Total life cycle *Environmental impact of the product*	Benefits and loads beyond the system boundary (D)
Climate change (fossil)	1,4E-01	3,0E-02	1,8E-02	0	3,3E-03	1,9E-01 kg CO_2 eq/DU	4,6E-04
Abiotic resource depletion (minerals and metals)	3,1	4,0E-01	1,9E-01	0	7,2E-02	3,8 kg Sb eq/DU	1,1E-02
Total use of primary energy [1]	3,7	4,1E-01	1,6E-01	0	7,3E-02	4,3 MJ/DU	-2,9E-01
Water consumption	3,4E-03	6,1E-06	2,8E-04	0	5,5E-05	3,7E-03 m³/DU	-2,7E-06
Waste production [2]	3,4E-02	9,2E-04	3,6E-02	0	3,5E-01	4,2E-01 kg/DU	2,4E-04

[1] Total of renewable and non renewable primary energy
[2] Total of hazardous, non hazardous and radioactive waste

Relative to its whole life cycle, manufacturing of the product (A1-A3) is responsible for 50 % or more of all environmental impacts, and up to 90% regarding acidification, abiotic resource depletion (minerals and metals) and water scarcity.
Similarly, more than 80% resource use, both energy and water, as well as hazardous/radioactive waste production occur in A1-A3.
Second contribution is due to the product delivery from France to Ireland. Truck and ship transport stages (A4) account to 10% to 15% of overall life cycle impacts.
Thridly, waste production is mostly of non-hazardous nature arising from the landfilling of the product (C4).

Environmental benefit from module D is not consistent through all impact categories, specifically climate change and non-renewable primary energy. Wood and cardboard recycling being more energy intensive than the avoided impacts of virgin wood chips/paper pulp. Module D of polyethylene film is negative, meaning environmental benefit, but is marginal on total module D.

Climate Change Total
For climate change, most of the contribution to this environmental impact is from the production modules (A1 – A3). This is primarily due to the extraction and production of raw materials and packaging. Second contribution comes from A4 and A5 in similar proportion respectively due to fuel combustion and packaging end of life.

Energy resources
The consumption of non – renewable resources is correlatively found in same proportion as climate change contributors. This is due to raw materials embodied energy (as low heating value) and transformation energy.

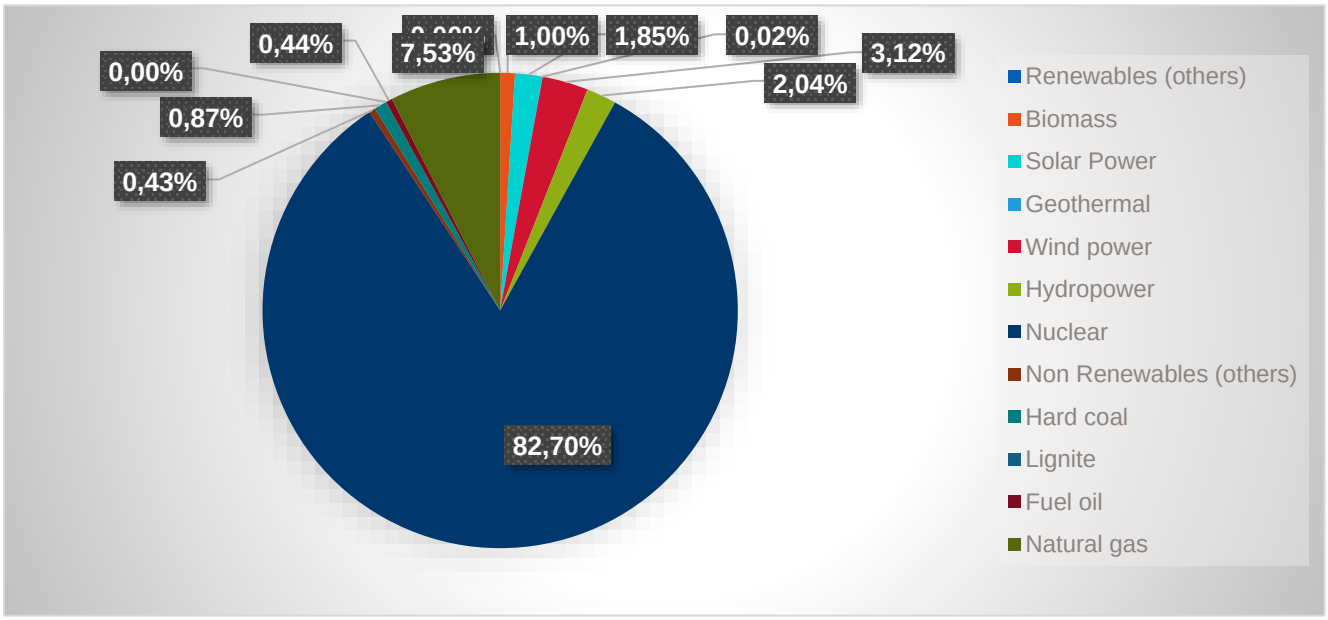
Water Consumption
Water is used within the manufacturing facility (A3) primarily as final constituent in the ready-mix plaster. However, a greater contribution comes from the process water of upstream raw material production (A1).

Waste Production
The largest contributor is the end-of-life module. This is because the 100% of the product is assumed to be sent to landfill once it reaches the end-of-life state.

Additional information:

Electricity information

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of Electricity purchased by Saint-Gobain
Geographical representativeness description	Share of energy sources in the **French residual grid mix** • **Nuclear: 82.7%** • **Hydropower: 2%** • **Natural gas: 7.5%** • **Wind power: 3.1%** • **Solar power: 1.8%** • **Coal: 0.9%** • **Fuel: 0.4%** • **Other: <2%**
Reference year	IEA national grid mix 2018 adapted to 2021 residual mix*
Type of dataset	Cradle to gate from Gabi databases
Source	IEA 2018 ; AIB 2021*
CO_2 emission kg CO_2 eq. / kWh	0.066 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 2021-2023. After evaluating the inventory, according to the defined ranking in the LCA report, the assessment reflects a good inventory data quality.

Specific data	67 % of data has an average rating « very good » 10 % of data has an average rating « good » 22 % of data has an average rating « fair » 1 % of data has an average rating « poor » 0 % of data has an average rating « very poor »
Generic data	37 % of data has an average rating « very good » 22 % of data has an average rating « good » 35 % of data has an average rating « fair » 5 % of data has an average rating « poor » 0 % of data has an average rating « very poor » Generic data validation: 100 % of secondary data are plausible 100 % of secondary data are complete 100 % of secondary data are consistent with EN 15804+A2

Disclaimers

Relevant core and additional environmental impact indicators are ranked based on ILCD and EN15804+A2:2019-10 (§7.2.3.3)

ILCD classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 – This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.		
Disclaimer 2 – 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.		

References

1. ISO 14040:2006 Environmental Management-Life Cycle Assessment-Principles and framework.
2. ISO 14044:2006 Environmental Management-Life Cycle Assessment-Requirements and guidelines.
3. ISO 14025:2006 Environmental labels and Declarations-Type III Environmental Declarations-Principles and procedures.
4. EN 15804:2019+A2 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
5. EPD International. General Program Instructions (GPI) for the International EPD® System (version 4.0) www.environdec.com.
6. The International EPD System PCR 2019:14 Construction products and Construction services. Version 1.2.5
7. European Chemical Agency, Candidate List of substances of very high concern for Authorization. http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.as
8. EPD Ireland, IGBC. PCR Part A version 2.1, issued 05/03/2022 https://www.igbc.ie/wp-content/uploads/2022/03/Product-Category-Rules-PCR-V-2.1-05.03.2022.pdf