ENVIRONMENTAL PRODUCT DECLARATION

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

Gyproc® Habito 12.5mm

Date of issue: 2022-04-25
Validity: 5 years
Valid until: 2027-04-24
Version: 1
Scope of the EPD®: India

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.

Registration number
The International EPD® System:
S-P-06087

Manufacturers address:
Saint-Gobain India Pvt. Ltd. Plot No. 901/A, Jhagadia Industrial Estate,
Dist. Bharuch – 393110. Gujarat, India

General information

Company information

Manufacturer: Saint-Gobain India Pvt. Ltd
Programme used: International EPD System **http://www.environdec.com/**
EPD registration number/declaration number: S-P-06087
PCR identification: EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declaration - core rules for the product category of construction product and The International EPD® System PCR 2012:01 version 2.34 for Construction products and Construction services.
Site of manufacture: Saint-Gobain India Pvt. Ltd. Plot No. 901/A, Jhagadia Industrial Estate, Dist. Bharuch – 393110. Gujarat, India
Owner of the declaration: Saint-Gobain India Pvt. Ltd. - Gyproc Business; Plot No. 901/A, Jhagadia Industrial Estate, Dist. Bharuch – 393110. Gujarat, India
Product / product family name and manufacturer represented: Standard Plasterboard 12.3 kg/m^2 – 12,5 mm produced by Saint-Gobain India Pvt. Ltd in Jhagadia
UN CPC code: 37530 Articles of plaster or of composition based on plaster
Declaration issued: 2022-0'-25 **Valid until:** 2027-0'-24
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.
UN CPC code: 37530 Articles of plaster or of composition based on plaster
EPD Prepared by: LCA Central Team, Saint-Gobain.
Contact: Gujar, Niharika (Niharika.Gujar@saint-gobain.com**),** Sandra Perez Jimenez (Sandra.Perez-Jimenez@saint-gobain.com**).**

The Functional Unit is: 1m^2 of installed* plasterboard 12,5mm with a weight of 12.3 kg/m^2 with a useful life of 50 years
*Installed in interior dry wall systems, suspended ceiling, partition wall and curtain wall applications

Declaration of Hazardous substances: (Candidate list of Substances of Very High Concern): none
Geographical scope of the EPD®: India

The intended use of this EPD is for B2B communication.

Programme	**International EPD System- India Regional Hub**
Adress:	EPD© International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	**www.environdecindia.com; www.environdec.com**
E-mail:	info@environdec.com

CEN standard UNE-EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 Construction Products, version 1.1
PCR review was conducted by: El Comité Técnico del Sistema Internacional EPD© President: Claudia A. Peña. Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: Marcel Gomez Marcel Gómez Consultoria Ambiental Tlf 0034 630 64 35 93 - info@marcelgomez.com In case of recognized individual verifiers: Approved by: The International EPD© System

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

Product description

Product description and use:
This Environmental Product Declaration (EPD®) describes the environmental impacts of 1 m² of installed plasterboard 12,5 mm with a weight of 12.3 kg/m² and an expected average service life of 50 years.

Standard plasterboard – is a 12.5 mm thick plasterboard with a weight of 12.3 kg.

Gyproc® Habito Board consists of Calcium sulphate dihydrate encased in paper liners, with glass fibers and other additives. Produced with high technology and covered with ivory on one side and brown on the other side. Gyproc® Habito Board is suitable for applications where high impact resistant, planned & unplanned loading combined

Technical data/physical characteristics:

EN classification	EN 520:2004 Type A,D,R,I
Ignitability classification	P (BS-476 -Part-5)
Surface spread of flame	Class 1 (BS-476 -Part-7)
Thermal conductivity	0.25 W/(m.K) (EN 520: 2004)

Description of the main product components and/or materials:
All raw materials contributing more than 5% to any environmental impact are listed in the following table.

Product components	Weight (%)	Post-consumer material weight (%)	Renewable material weight (%)
Standard product	**100%**	**0%**	**0%**
Gypsum (Natural)	80% – 95%	0%	0%
Foaming agent (stable)	0% – 0.1%	0%	0%
Glass fiber	0% – 3%	0%	0%
Starch	0% – 0.8%	0%	100%
Dispersing agent PNS	0% – 3%	0%	0%
PVA polymers	1% – 10%	0%	0%
Retarder	0% – 0.1%	0%	0%
Ink	0% – 0.1%	0%	0%
Recycled paper (Top/Bottom)	1% – 4%	100%	100%
Edge glue	0% – 0.1%	0%	0%
Edge Tape	0% – 0.1%	0%	0%

Product	Weight (kg/m²)
Total product weight	**12.3**

Packaging materials	Weight (kg)	Weight (%)
Paper label	0,00299	0% – 0.1%
Cardboard	0,00001	0.1% – 0.4%
Polypropylene strapping	0,00013	0% – 0.1%
Cullets	0,00985	0.5% – 2%

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.

LCA calculation information

EPD TYPE DECLARED	Cradle to grave and module D Product-specific (one product, one manufacturing site)
FUNCTIONAL UNIT	1 m² of installed board with a weight of 12.3 kg/m² and an expected average service life of 50 years
SYSTEM BOUNDARIES	Cradle to grave + Module D = (A + B + C) +D
REFERENCE SERVICE LIFE (RSL)	The Reference Service Life (RSL) of the Gypsum product is considered to be 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 has been avoided when possible. For the energy, the auxiliaries used and wastes generated during manufacturing a physical allocation based on mass was applied. Allocation criteria are based on mass. The polluter pays as well the modularity principles have been followed.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope includes: India Data is collected from one production site in Jhagadia, India, Saint-Gobain India Pvt. Ltd Data collected for the year 2021. Cradle to grave study. Background data: Ecoinvent 3.6 and GaBi ts 9.2
PRODUCT UN CPC CODE	37530 Articles of plaster or of composition based on plaster

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, EPDs might not be comparable if they are from different programmes.

Life cycle stages

Flow diagram of the Life Cycle

Product stage, A1-A3

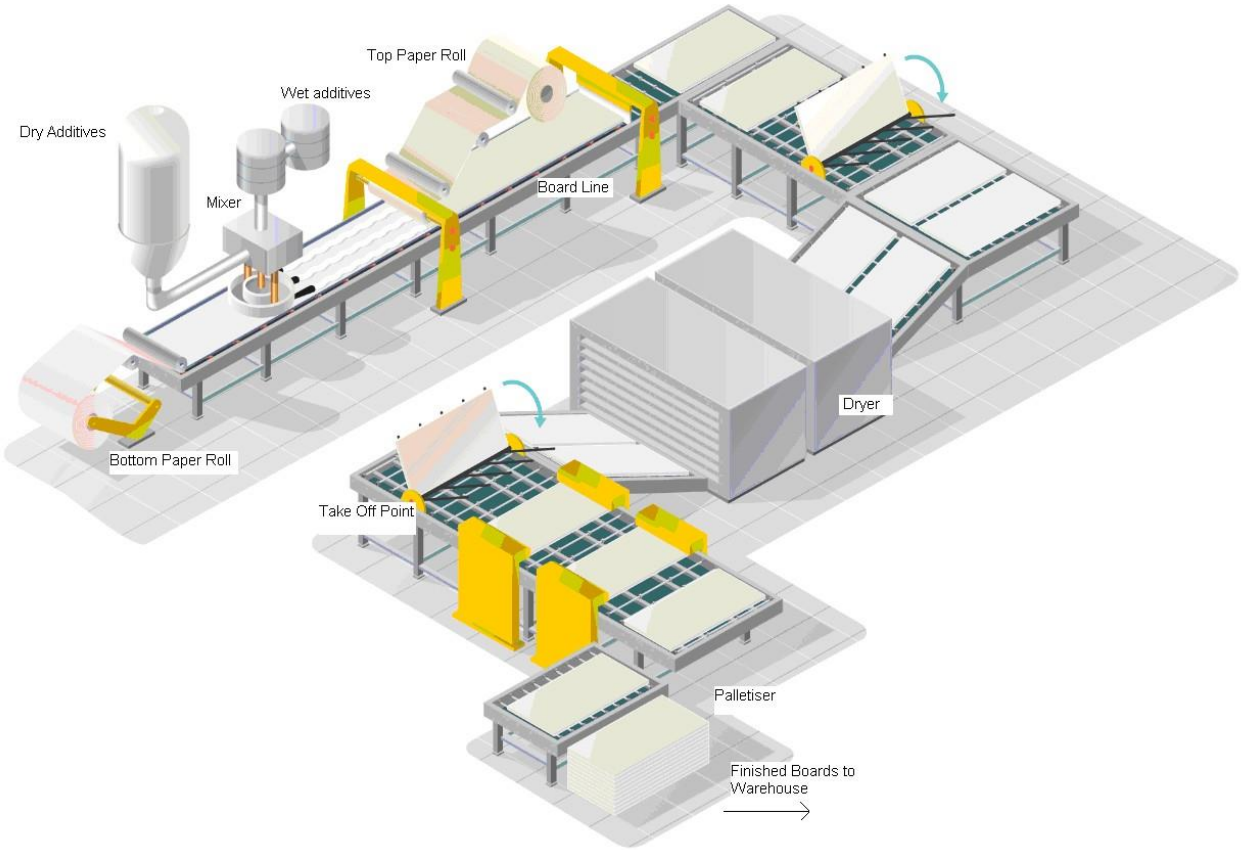
Description of the stage: the product stage of plaster products is subdivided into 3 modules A1, A2 and A3 respectively “Raw material supply”, “transport to manufacturer” and “manufacturing”.

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 process flow diagram



Manufacturing in detail:
The initial materials are homogenously mixed to form a gypsum slurry that is spread via multiple hose outlets 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 finished, dried, and cut to size.

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, maximum load weight of 27 t and consumption of 0.38 liters per km
Distance	954 km
Capacity utilisation (including empty returns)	85% (30% empty returns) : default values in dataset thinkstep
Bulk density of transported products	984 kg/m^3
Volume capacity utilisation factor	1097 kg of boards / 10.8 kg of culls (18 culls)

A5, installation into the building.
The accompanying table quantifies the parameters for installing the product at the building site. All installation materials and their waste processing are included.

PARAMETER	VALUE (expressed per functional unit)
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	0.165 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: 0,50 kg (5%) Jointing Compound: 0,017 kg Jointing Tape: 0.0002 kg Gypsum culls: 0.01 kg
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: 0.50 kg (5%) to landfill Screws: 0.001 kg to landfill Jointing Compound: 0.017 kg to landfill Jointing Tape: 0.0002 kg to landfill Paper label: 0.00001 kg/m2 to landfill Cardboard: 0.003 kg/m2 Polypropylene strapping: 0.0001 kg/m^2
Direct emissions to ambient air, soil and water	None

Use stage (excluding potential savings), B1-B7

Description of the stage:
The use stage, related to the building fabric includes:

B1, use or application of the installed product;
B2, maintenance;
B3, repair;
B4, replacement;
B5, refurbishment;
B6, operational energy use
B7, operational water use

Description of 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.

Maintenance:

PARAMETER	VALUE (expressed per functional unit)
Maintenance process	None required during product lifetime
Maintenance cycle	None required during product lifetime
Ancillary materials for maintenance (e.g. cleaning agent, specify materials)	None required during product lifetime
Wastage material during maintenance (specify materials)	None required during product lifetime
Net fresh water consumption during maintenance	None required during product lifetime
Energy input during maintenance (e.g. vacuum cleaning), energy carrier type, (e.g. electricity) and amount, if applicable and relevant	None required during product lifetime

Repair:

PARAMETER	VALUE (expressed per functional unit)
Repair process	None required during product lifetime
Inspection process	None required during product lifetime
Repair cycle	None required during product lifetime
Ancillary materials (e.g. lubricant, specify materials)	None required during product lifetime
Wastage material during repair (specify materials)	None required during product lifetime
Net fresh water consumption during repair	None required during product lifetime
Energy input during repair (e.g. crane activity), energy carrier type, (e.g. electricity) and amount if applicable and relevant	None required during product lifetime

Replacement:

PARAMETER	VALUE (expressed per functional unit)
Replacement cycle	None required during product lifetime
Energy input during replacement (e.g. crane activity), energy carrier type, (e.g. electricity) and amount if applicable and relevant	None required during product lifetime
Exchange of worn parts during the product's life cycle (e.g. zinc galvanized steel sheet), specify materials	None required during product lifetime

Refurbishment:

PARAMETER	VALUE (expressed per functional unit)
Refurbishment process	None required during product lifetime
Refurbishment cycle	None required during product lifetime
Material input for refurbishment (e.g. bricks), including ancillary materials for the refurbishment process (e.g. lubricant, specify materials)	None required during product lifetime
Wastage material during refurbishment (specify materials)	None required during product lifetime
Energy input during refurbishment (e.g. crane activity), energy carrier type, (e.g. electricity) and amount	None required during product lifetime
Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants)	None required during product lifetime

Use of energy and water:

PARAMETER	VALUE (expressed per functional unit)
Ancillary materials specified by material	None required during product lifetime
Net fresh water consumption	None required during product lifetime
Type of energy carrier (e.g. electricity, natural gas, district heating)	None required during product lifetime
Power output of equipment	None required during product lifetime
Characteristic performance (e.g. energy efficiency, emissions, variation of performance with capacity utilisation etc.)	None required during product lifetime
Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants)	None required during product lifetime

End-of-life stage C1-C4

Description of the stage: This stage includes the next modules:

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.

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 (including paper liner, board, screws and jointing tape) 12.81 kg (board weight + ancillary)
Recovery system specified by type	0 kg recycled 100 % is sent municipal landfill
Disposal specified by type	12.81 kg to landfill
Assumptions for scenario development (e.g. transportation)	Gypsum board waste is transported 100 km by truck from deconstruction/demolition sites to landfill

Reuse/recovery/recycling potential, D

100% of wastes are landfilled. There is no reuse nor recovery nor recycling of this product. Hence, no recycling benefits are reported on stage D.

LCA results

As specified in EN 15804:2012+A2:2019 and also the Product-Category Rules, the environmental impacts are declared and reported using the baseline characterization factors 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 declared product is mined. manufactured and marketed (99%) in India.

All figures refer to a functional unit of 1 m² of installed plasterboard 12,5 mm with a weight of 10 kg/m² and an expected average service life of 50 years.

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

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	IN	IN	IN	IN	IN	-	-	-	-	-	-	-	IN	IN	IN	IN	IN
Specific data used	>90% GWP- GHG																
Variation products	Only one product is reported in this EPD																
Variation sites	Only one site is reported for this product																

Notice: 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

Environmental Impacts

		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
	Climate Change [kg CO2 eq.]	**8,02E+00**	**5,66E-01**	**5,73E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,73E-02**	**6,22E-02**	**0**	**8,33E-01**	**0**
	Climate Change (fossil) [kg CO2 eq.]	**8,29E+00**	**5,62E-01**	**4,95E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,72E-02**	**6,18E-02**	**0**	**1,94E-01**	**0**
	Climate Change (biogenic) [kg CO2 eq.]	**-2,94E-01**	**-9,64E-04**	**7,64E-02**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,55E-05**	**-1,04E-04**	**0**	**6,38E-01**	**0**
	Climate Change (land use change) [kg CO2 eq.]	**2,45E-02**	**4,58E-03**	**1,56E-03**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,26E-06**	**5,01E-04**	**0**	**5,59E-04**	**0**
	Ozone depletion [kg CFC-11 eq.]	**2,60E-07**	**6,11E-12**	**1,30E-08**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6,08E-18**	**1,14E-17**	**0**	**7,21E-16**	**0**
	Acidification terrestrial and freshwater [Mole of H+ eq.]	**5,11E-02**	**3,23E-03**	**2,93E-03**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,69E-04**	**3,59E-04**	**0**	**1,39E-03**	**0**
	Eutrophication freshwater [kg P eq.]	**1,94E-03**	**1,75E-06**	**9,72E-05**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,27E-08**	**1,89E-07**	**0**	**3,34E-07**	**0**
	Eutrophication freshwater [kg (PO4)3 eq.]	**5,95E-03**	**5,36E-06**	**2,98E-04**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,88E-08**	**5,79E-07**	**0**	**1,02E-06**	**0**
	Eutrophication marine [kg N eq.]	**7,21E-03**	**1,56E-03**	**4,99E-04**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,13E-05**	**1,73E-04**	**0**	**3,59E-04**	**0**
	Eutrophication terrestrial [Mole of N eq.]	**7,32E-02**	**1,73E-02**	**5,17E-03**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,43E-04**	**1,92E-03**	**0**	**3,94E-03**	**0**
	Photochemical ozone formation - human health [kg NMVOC eq.]	**4,39E-02**	**2,95E-03**	**2,51E-03**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,85E-05**	**3,28E-04**	**0**	**1,09E-03**	**0**
	Resource use, mineral and metals [kg Sb eq.]	**1,97E-05**	**4,06E-08**	**2,80E-06**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,49E-09**	**5,01E-09**	**0**	**1,75E-08**	**0**
	Resource use, energy carriers [MJ]	**1,22E+02**	**7,54E+00**	**7,05E+00**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6,99E-01**	**8,26E-01**	**0**	**2,55E+00**	**0**
	Water deprivation potential [m³ world equiv.]	**1,97E+00**	**5,07E-03**	**1,09E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,19E-04**	**6,04E-04**	**0**	**2,04E-02**	**0**

Resources Use

	Resources Use 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
	Use of renewable primary energy (PERE) [MJ]	2,05E+01	4,24E-01	1,27E+00	0	0	0	0	0	0	0	2,44E-03	4,78E-02	0,00E+00	3,34E-01	0
	Primary energy resources used as raw materials (PERM) [MJ]	7,57E+00	0,00E+00	3,78E-01	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0
	Total use of renewable primary energy resources (PERT) [MJ]	2,81E+01	4,24E-01	1,65E+00	0	0	0	0	0	0	0	2,44E-03	4,78E-02	0,00E+00	3,34E-01	0
	Use of non-renewable primary energy (PENRE) [MJ]	1,08E+02	7,54E+00	6,39E+00	0	0	0	0	0	0	0	7,00E-01	8,30E-01	0,00E+00	2,55E+00	0
	Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	1,33E+01	0,00E+00	6,63E-01	0	0	0	0	0	0	0	0	0	0	0	0
	Total use of non-renewable primary energy resources (PENRT) [MJ]	1,22E+02	7,54E+00	7,05E+00	0	0	0	0	0	0	0	7,00E-01	8,30E-01	0	2,55E+00	0
	Input of secondary material (SM) [kg]	3,97E-01	0	2,14E-02	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) [m^3]	5,27E-02	4,91E-04	2,97E-03	0	0	0	0	0	0	0	4,34E-06	5,57E-05	0,00E+00	6,43E-04	0

*For this study, both the product and its packaging are reported in the indicators "Use of renewable primary energy resources used as raw materials" ("PERM") and "Use of non-renewable primary energy resources used as raw materials" ("PENRM"). PERM and PENRM are reported as negative values were materials are recycled or recovered, but not when landfilled.

Waste Category & Output flows

	Waste Category & Output Flows	Product stage	Construction stage		Use stage							End of life stage				Reuse, recovery, recycling
		A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
	Hazardous waste disposed (HWD) [kg]	1,86E-07	3,51E-07	3,46E-08	0	0	0	0	0	0	0	7,09E-11	3,84E-08	0,00E+00	3,89E-08	0
	Non-hazardous waste disposed (NHWD) [kg]	2,69E-01	1,16E-03	7,79E-01	0	0	0	0	0	0	0	1,73E-04	1,32E-04	0,00E+00	1,28E+01	0
	Radioactive waste disposed (RWD) [kg]	1,68E-04	9,34E-06	2,09E-05	0	0	0	0	0	0	0	8,03E-07	1,53E-06	0,00E+00	2,90E-05	0
	Components for re-use (CRU) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Materials for Recycling (MFR) [kg]	2,46E-03	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exported electrical energy (EEE) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exported thermal energy (EET) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

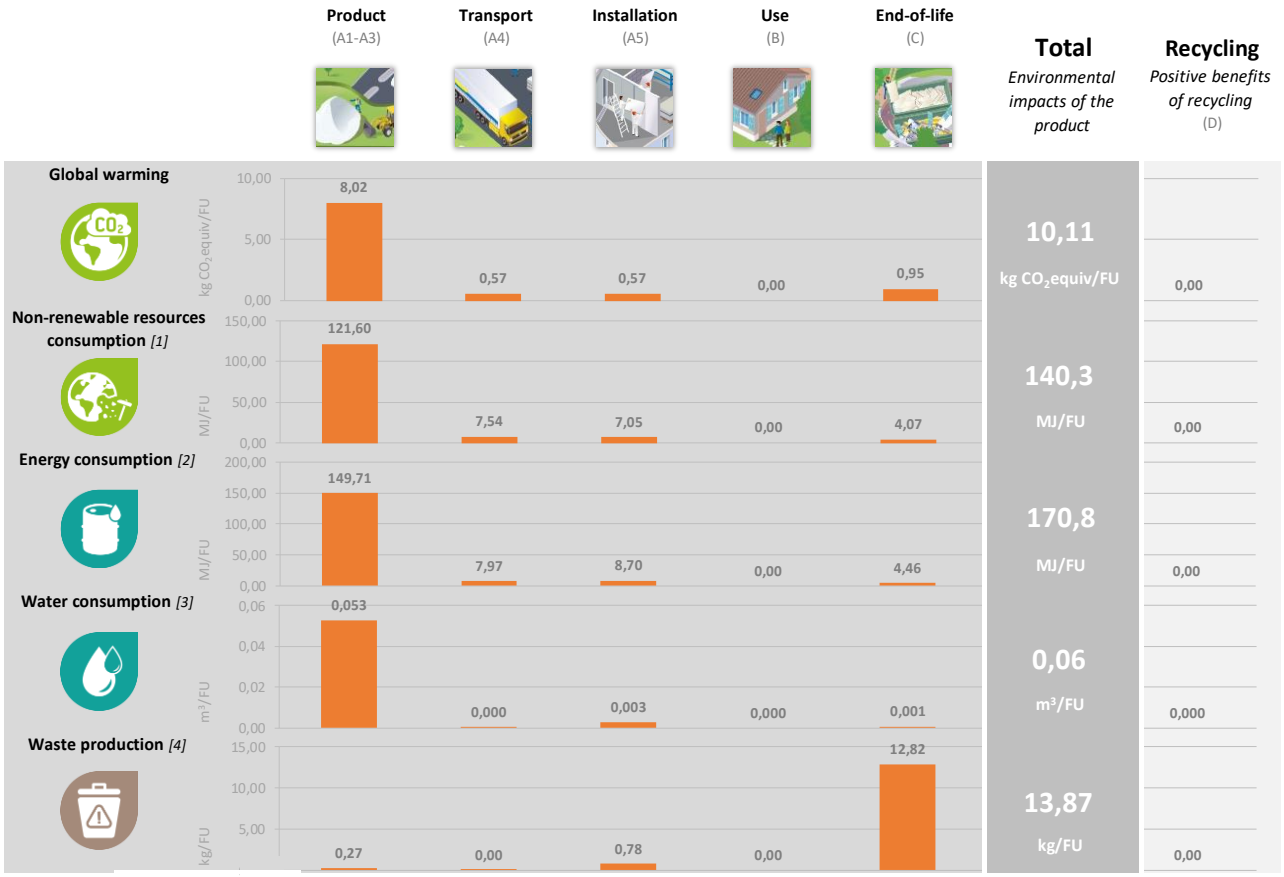
		Product stage
	Biogenic Carbon Content	A1 / A2 / A3
	Biogenic carbon content in product [kg]	1,78E-01
	Biogenic carbon content in packaging [kg]	1,64E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 (approx. 3.67) kg CO_2.

There is biogenic carbon content due to the production of: starch maize (as binder and paper liner (on board facing). There is cardboard and paper (for labelling) used in packaging.

LCA results interpretation

The following figure refers to a functional unit of 1 m² of installed plasterboard 12.5 mm with a weight of 12.3 kg/m² and for specific application of external building for an expected average service life of 50 years.



[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.

Global Warming Potential (Climate Change) (GWP)
For GWP, the majority of contribution to this environmental impact is from the production modules (A1 – A3). This is primarily because the sources of greenhouse gas emissions are predominant in this part of the life cycle. CO_2 is generated upstream from the production of electricity and is also released on site by the combustion of coke, diesel and natural gas. We can see that other sections of the life cycle also contribute to the GWP. However, the production modules contribute to over 40% of the contribution. Emissions from A4 (transport to clients), waste disposal transportation in A5 (disposal after installation) and C (transport and disposal at the end of life) generate the second highest percentage of greenhouse gas emissions.

Non-renewable resources consumptions
The consumption of non – renewable resources is once more found to have the highest value in the production modules. Due to coke, diesel and natural gas consumption within the factory. For non – renewable fuels such as coal and oil are used to generate electricity during manufacturing. The contribution to this impact from the other modules is very small and primarily due to the non – renewable resources consumed during installation.

Energy Consumptions
Modules A1 – A3 have the highest contribution to total energy consumption. Energy is consumed in the form of electricity, coke, diesel and natural gas during the manufacture of plasterboard.

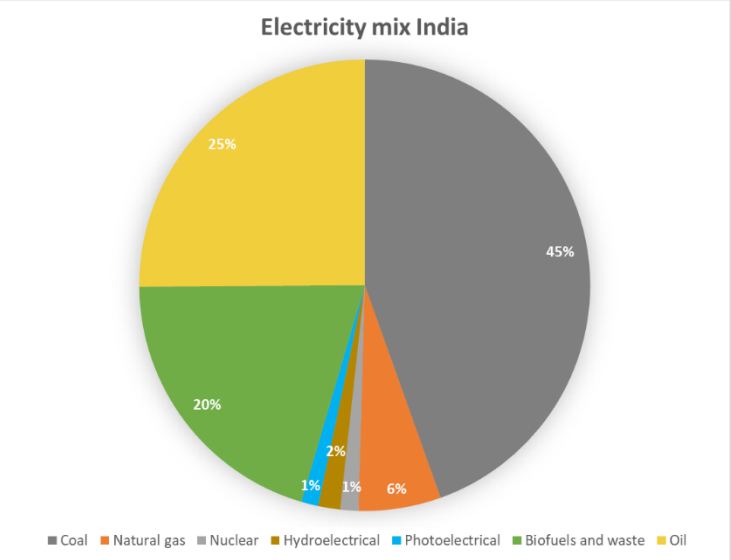
Water Consumption
Water is used within the manufacturing facility and therefore we see the highest contribution in the production phase. The second highest contribution occurs in the installation site due to the water used on the joint components.

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 description

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of Electricity purchased by Saint-Gobain India Pvt. Ltd India
Geographical representativeness description	Split of energy sources in India - Coal 45% - Oil 25% - Biofuels and waste 20% -Natural gas 6% - Nuclear1% - Hydro 2% - Photoelectrical 1%
Reference year	2019
Type of data set	Cradle to gate from Thinkstep database
Source	Gabi database from International Energy Agency - 2019
CO_2 emissions	1,1 kg CO_2 eq. / kWh



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 India Pvt. Ltd. After evaluating the inventory, according to the defined ranking in the LCA report, the assessment reflects good inventory data quality for the geographical, temporal and technological categories.

Environmental impacts according to EN 15804:2012 + A1

The following tables presents results of 1 m^2 of installed Gyproc® Normal – Standard Plasterboard, with a reference service life of 50 years according to EN 15804:2012 +A1.

	Product stage	Construction stage		Use stage							End of life stage				Reuse, recovery, recycling
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Global Warming Potential (GWP) [kg CO_2 eq.]	7,82E+00	5,54E-01	4,71E-01	0	0	0	0	0	0	0	5,65E-02	6,09E-02	0	1,90E-01	0
Ozone depletion (ODP) [kg R11 eq.]	3,04E-07	4,95E-12	1,52E-08	0	0	0	0	0	0	0	8,11E-18	1,52E-17	0	9,61E-16	0
Acidification potential (AP) [kg R11 eq.]	4,58E-02	2,21E-03	2,57E-03	0	0	0	0	0	0	0	1,40E-04	2,46E-04	0	1,12E-03	0
Eutrophication potential (EP) [kg Phosphate eq.]	1,05E-02	5,56E-04	5,79E-04	0	0	0	0	0	0	0	1,12E-05	6,16E-05	0	1,26E-04	0
Photochemical ozone creation [kg Ethene eq.]	9,52E-03	7,67E-05	4,97E-04	0	0	0	0	0	0	0	1,03E-05	8,64E-06	0	9,01E-05	0
Abiotic depletion potential for non-fossil resources (ADP-elements) [kg Sb eq.]	4,38E-04	4,59E-08	2,37E-05	0	0	0	0	0	0	0	1,57E-09	5,61E-09	0	6,73E-08	0
Abiotic depletion potential for fossil resources (ADP-fossil fuels) [MJ]	1,19E+02	7,52E+00	6,87E+00	0	0	0	0	0	0	0	6,98E-01	8,26E-01	0	2,48E+00	0

References

1. EPD International (2021) General Programme Instructions for the International EPD® System. Version 4.0, dated 2021-03-29. www.environdec.com.
2. The International EPD System PCR 2012:01 Construction products and Construction services, Version 2.34
3. EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
4. ISO 21930:2007 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. http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp