EPD®

THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM EPD VERIFIED

ENVIRONMENTAL PRODUCT DECLARATION

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

EPD VERIFIED

Habito Rigips 12.5mm

Date of issue: 2017/10/09
Update : 2023/05/04
Validity: 5 years
Valid until: 2028/01/30
Version: 3
Scope of the EPD®: Europe

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 01395

rigips
SAINT-GOBAIN

General information

Manufacturer: Saint-Gobain Construction Products Hungary
Programme used: International EPD System http://www.environdec.com/
EPD registration number/declaration number: S-P 01395
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 2019:14 Construction Products, version 1.1.
Site of manufacture: Saint-Gobain Construction Products Hungary Kft. Plasterboard Plant, 3273, Halmajugra, Külterület, 047/3 hrsz. Hungary
Owner of the declaration: Saint-Gobain Construction Products Hungary
Product / product family name and manufacturer represented: Saint Gobain Rigips Habito 12.5mm plasterboard
UN CPC code: 37530 Articles of plaster or of composition based on plaster
Declaration issued: 2017-06-10 Declaration Update : 2023-05-04 **Valid until:** 2028-01-30
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.
EPD Prepared by: LCA Central Team, Saint-Gobain.
Contact: Filomena Berecz (Filomena.Berecz@saint-gobain.com); Yves Coquelet (Yves.coquelet@saint-gobain.com)

The Functional Unit is: 1 m2 of Saint Gobain Rigips Habito 12.5 mm plasterboard board with a weight of 12 kg /m2 and a useful life of 50 years.

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

Geographical scope of the EPD®: Europe

The intended use of this EPD is for B2B communication.

Programme	The international EPD© System
Adress:	EPD© International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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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: Andrew Norton Renuables http://renuables.co.uk 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 Saint-Gobain Rigips Habito 12.5 mm plasterboard board with a weight of 12 kg /m2 and a useful life of 50 years.

Habito is engineered to support the way you live. The secret of its effectiveness lies in its innovative board technology which provides a considerably enhanced performance compared with standard plasterboard Habito gives homeowners the freedom to make walls their own, installing or removing fixings depending on their own needs

Technical data/physical characteristics from DOP:

Essential characteristics	Performance	Harmonised technical specifications
Product type	DFRI	EN 520
Reaction to fire	A2-S1, dO	EN 520
Nominal thickness	12.5 mm	EN 520
Density	>920 kg/m3	EN 520
Thermal conductivity	0.25 W/mK	EN 520
Water vapour diffusion resistance factor μ	6-10	EN 520
Flexural strength (longitudinal)	min. 1000 N	EN 520
Flexural strength (transverse)	min. 500 N	EN 520
Shear strength	1364 N	EN 520
Dangerous substance	NPD*	EN 520
VOC emission	A+	ISO 16000-9:2006,CEN/TS 16516:2013

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 (%)	Renewable material weight (%)
Habito product	100%	0%
Gypsum (DSG)	90% – 92%	0%
Fibres	1% – 2%	0%
Paper (cellulose)	2% – 3%	100%
Additives	7 – 3%	0%

Packaging materials	Weight (kg/m²)
Pallet	0,38kg

Product	Weight (kg/m²)
Total weight	12

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 Saint-Gobain Rigips Habito 12.5 mm plasterboard board with a weight of 12 kg /m2 and a useful 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 criteria are based on mass. The polluter pays as well the modularity principles have been followed.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope includes: Europe Data is collected from one production site Halmajugra, Külterület, 047/3 hrsz. Hungary, RIGIPS Hungary Data collected for the year 2021. Cradle to grave study. Background data: The databases, thinkstep 8.7 or ecoinvent v.3.6
PRODUCT 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

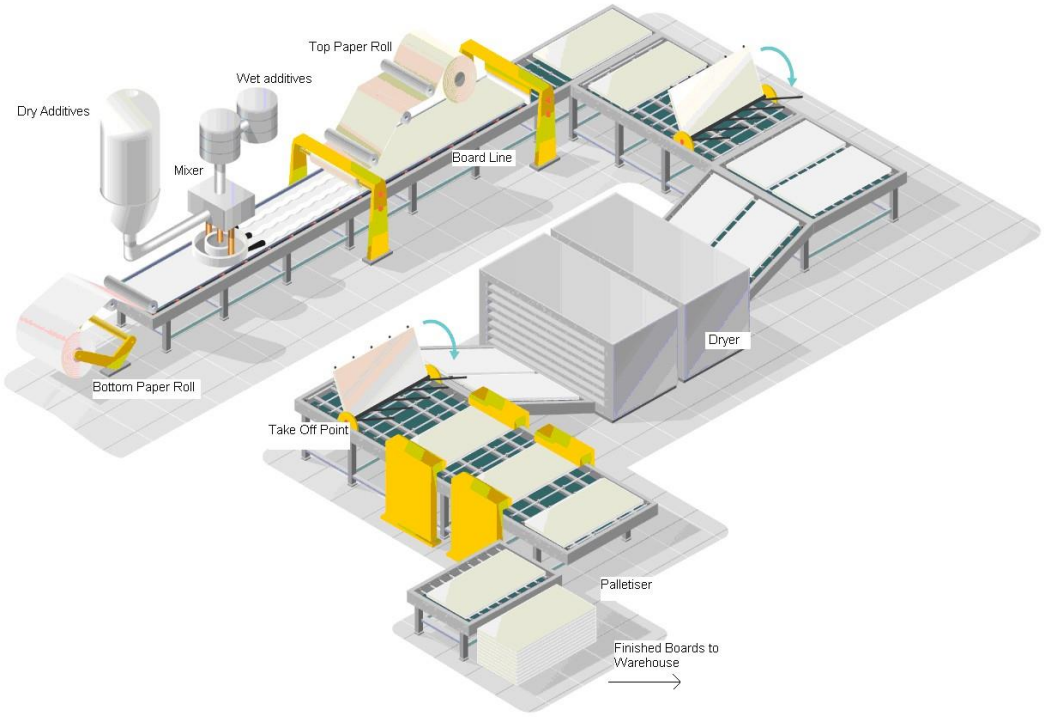
Description of the stage: the product stage of plaster products is subdivided into 3 modules A1, A2 and A3 respectively “Raw material supply”, “transport to manufacturer” and “manufacturing”.

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.	35,2l per truck with payload 24t per 100 km and forward real load 20,0t and empty return equal to 30 %
Distance	300 km
Capacity utilisation (including empty returns)	66% (30% empty returns)
Bulk density of transported products	>920 kg/m^3
Volume capacity utilisation factor	1616 m2 of board per truck (44 pallets)

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 0.3 kg/m^2 board, jointing tape 1.6 m/m^2 board, screws 11 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: 0.815 (5%) Jointing Compound: 0.15 kg Jointing Tape: 0.0005 kg Pallet: 0.38kg
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: 0,815 kg (5%) to landfill Screws: 0.026 kg to landfill Jointing Compound: 0.15 kg to landfill Jointing Tape: 0.0005 kg to landfill Pallet: 0.38 kg to landfill
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:
None required during product lifetime

Repair:
None required during product lifetime

Replacement:
None required during product lifetime

Refurbishment:
None required during product lifetime

Use of energy and water:
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	12 kg collected with mixed waste for landfill
Recovery system specified by type	0 kg collected with construction waste for recycling
Disposal specified by type	12.kg collected with mixed waste for landfill
Assumptions for scenario development (e.g. transportation)	34 - 40t gross weight / 27t payload capacity

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.

Differences with previous version of the EPD

Compared to the previous version of this EPD, the main changes are related to the primary data of the production data in addition to the updated of Gabi and Ecoinvent database such as LCA software version.
And changes linked to EN15804+A2 vs EN15804+A1
Change from V2 to V3: Correction date of validity

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.

All figures refer to a functional unit of 1 m² of installed board with a weight of 16.3 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 boundary (X = Included in LCA, MNA = Module Not Assessed)

	PRODUCT STAGE			CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	Raw material supply	**Transport**	**Manufacturing**	**Transport**	**Construction-Installation process**	**Use**	**Maintenance**	**Repair**	**Replacement**	**Refurbishment**	**Operational energy use**	**Operational water use**	**De-construction demolition**	**Transport**	**Waste processing**	**Disposal**	**Reuse-recovery**
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	HU	HU	HU	EU	EU	-	-	-	-	-	-	-	EU	EU	EU	EU	-
Specific data used	>90% GWP- GHG					-	-	-	-	-	-	-	-	-	-	-	-
Variation products	One site one product					-	-	-	-	-	-	-	-	-	-	-	-
Variation sites	One site one product					-	-	-	-	-	-	-	-	-	-	-	-

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.]	**3,78E+00**	**2,40E-01**	**6,30E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,60E-02**	**3,04E-02**	**0**	**7,45E-01**	**0**
	Climate Change (fossil) [kg CO2 eq.]	**4,71E+00**	**2,39E-01**	**3,19E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,59E-02**	**3,02E-02**	**0**	**1,90E-01**	**0**
	Climate Change (biogenic) [kg CO2 eq.]	**-9,28E-01**	**-4,10E-04**	**3,10E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,37E-05**	**-5,08E-05**	**0**	**5,54E-01**	**0**
	Climate Change (land use change) [kg CO2 eq.]	**2,16E-03**	**1,94E-03**	**3,21E-04**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,23E-06**	**2,45E-04**	**0**	**5,46E-04**	**0**
	Ozone depletion [kg CFC-11 eq.]	**1,05E-07**	**2,88E-17**	**5,24E-09**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,94E-18**	**5,55E-18**	**0**	**7,04E-16**	**0**
	Acidification terrestrial and freshwater [Mole of H+ eq.]	**1,16E-02**	**1,41E-03**	**9,18E-04**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,65E-04**	**1,75E-04**	**0**	**1,36E-03**	**0**
	Eutrophication freshwater [kg P eq.]	**2,45E-04**	**7,29E-07**	**1,44E-05**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,24E-08**	**9,21E-08**	**0**	**3,26E-07**	**0**
	Eutrophication freshwater [kg (PO4)3 eq.]	**7,51E-04**	**2,24E-06**	**4,42E-05**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,81E-08**	**2,83E-07**	**0**	**1,00E-06**	**0**
	Eutrophication marine [kg N eq.]	**2,73E-03**	**6,82E-04**	**2,51E-04**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,06E-05**	**8,45E-05**	**0**	**3,50E-04**	**0**
	Eutrophication terrestrial [Mole of N eq.]	**2,86E-02**	**7,55E-03**	**2,60E-03**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,35E-04**	**9,36E-04**	**0**	**3,85E-03**	**0**
	Photochemical ozone formation - human health [kg NMVOC eq.]	**8,97E-03**	**1,29E-03**	**7,21E-04**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,62E-05**	**1,60E-04**	**0**	**1,06E-03**	**0**
	Resource use, mineral and metals [kg Sb eq.]*	**1,68E-05**	**1,72E-08**	**3,29E-06**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,46E-09**	**2,45E-09**	**0**	**1,70E-08**	**0**
	Resource use, energy carriers [MJ]*	**8,52E+01**	**3,19E+00**	**5,28E+00**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6,83E-01**	**4,04E-01**	**0**	**2,49E+00**	**0**
	Water deprivation potential [m³ world equiv.]	**1,70E+00**	**2,14E-03**	**1,20E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,16E-04**	**2,95E-04**	**0**	**1,99E-02**	**0**

* 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

Resources Use

		Product stage	Construction stage		Use stage							End of life stage				Reuse, recovery, recycling
	Resources Use 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
	Use of renewable primary energy (PERE) [MJ]	4,86E+00	1,79E-01	5,34E-01	0	0	0	0	0	0	0	2,38E-03	2,33E-02	0	3,26E-01	0
	Primary energy resources used as raw materials (PERM) [MJ]*	9,24E+00	0	4,62E-01	0	0	0	0	0	0	0	0	0	0	0	0
	Total use of renewable primary energy resources (PERT) [MJ]	1,41E+01	1,79E-01	9,96E-01	0	0	0	0	0	0	0	2,38E-03	2,33E-02	0	3,26E-01	0
	Use of non-renewable primary energy (PENRE) [MJ]	7,61E+01	3,20E+00	4,83E+00	0	0	0	0	0	0	0	6,84E-01	4,05E-01	0	2,49E+00	0
	Non-renewable primary energy resources used as raw materials (PENRM) [MJ]*	9,03E+00	0	4,51E-01	0	0	0	0	0	0	0	0	0	0	0	0
	Total use of non-renewable primary energy resources (PENRT) [MJ]	8,52E+01	3,20E+00	5,28E+00	0	0	0	0	0	0	0	6,84E-01	4,05E-01	0	2,49E+00	0
	Input of secondary material (SM) [kg]	3,51E-01	0	1,91E-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]	4,14E-02	2,08E-04	2,99E-03	0	0	0	0	0	0	0	4,24E-06	2,72E-05	0	6,28E-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]	1,34E-07	1,49E-07	2,22E-08	0	0	0	0	0	0	0	6,93E-11	1,87E-08	0	3,80E-08	0
	Non-hazardous waste disposed (NHWD) [kg]	8,63E-02	4,89E-04	6,36E-01	0	0	0	0	0	0	0	1,69E-04	6,42E-05	0	1,25E+01	0
	Radioactive waste disposed (RWD) [kg]	9,00E-04	3,96E-06	6,04E-05	0	0	0	0	0	0	0	7,84E-07	7,47E-07	0	2,84E-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]	8,05E-05	0	2,19E-01	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

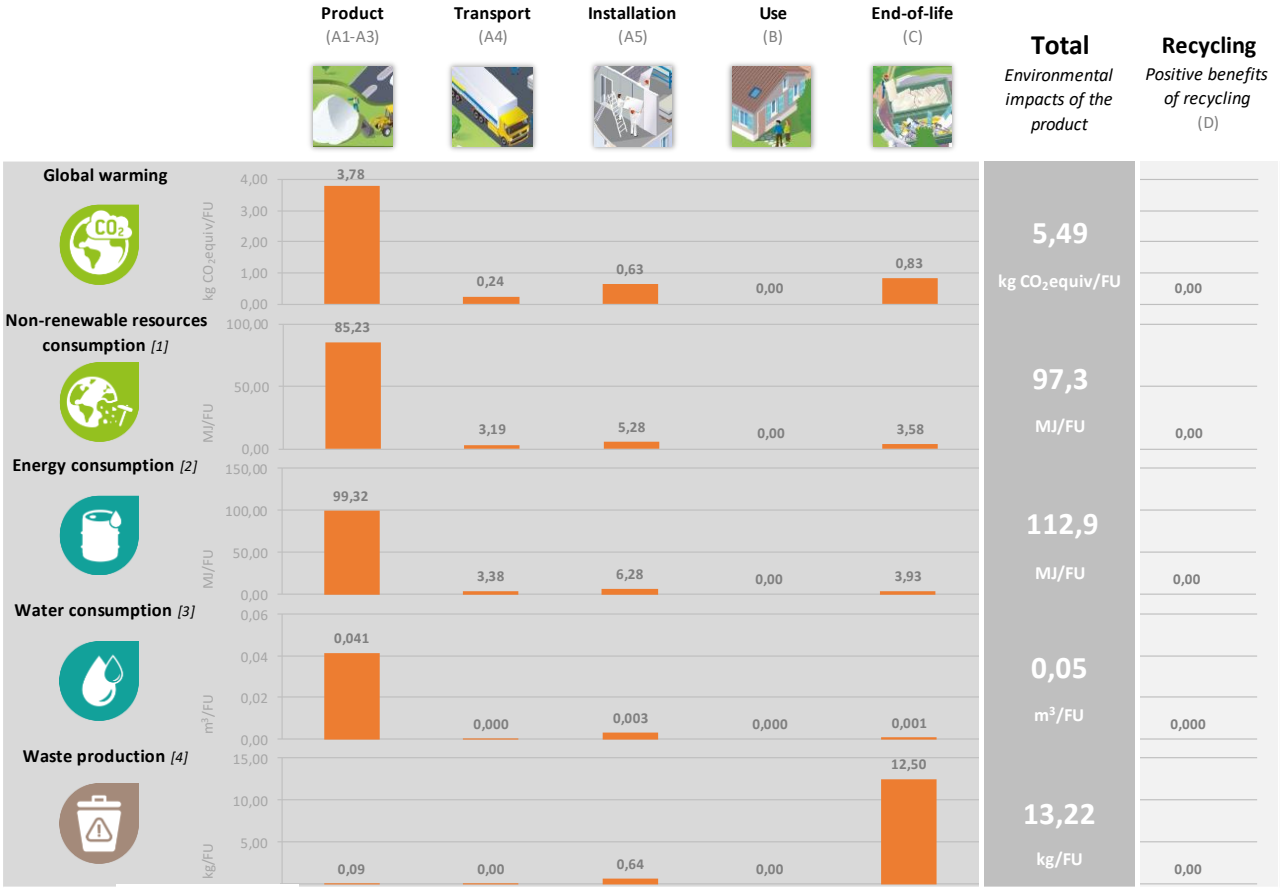
Information on biogenic carbon content

		Product stage
	Biogenic Carbon Content kg C	A1 / A2 / A3
	Biogenic carbon content in product [kg C]	1,53E-01
	Biogenic carbon content in packaging [kg C]	9,21E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 (approx. 3,67) kg CO_2.

LCA results interpretation

The following figure refers to a functional unit of 1 m² of installed plasterboard 12,5 mm with a weight of 10 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 fossil, 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 diesel and natural gas. We can see that other sections of the life cycle also contribute to the GWP fossil. However, the production modules contribute to over 57% of the contribution. Emissions from C (transport and disposal at the end of life) and waste disposal in A5 (disposal after installation) generate the second highest percentage of greenhouse gas emissions.
However, for GWP biogenic, the main figure is included in A1-A3, due to the amount of natural resources used in the recipe of the board. The biogenic carbon is stored in the product and at the end of the product life is release. This is the reason why the indicator GWP total A1-A3 present low impact.

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 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, diesel and natural gas during the manufacture of plasterboard.

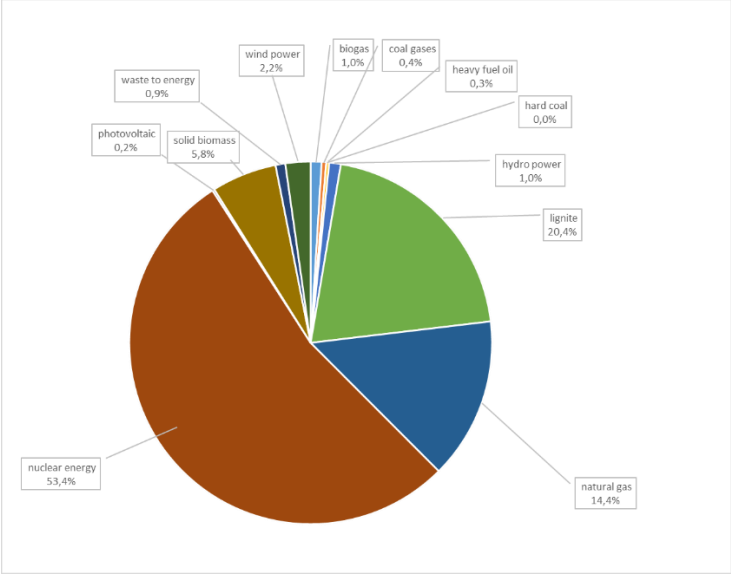
Water Consumption
Water is used within the manufacturing facility and therefore we see the highest contribution in the production phase. The second highest contribution occurs in the installation site due to the water used on the joint components.

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 Construction Products Hungary
Definition of the electricity	100% electricity grid mix of Hungary
Geographical representativeness description	Split of energy sources of electricity grid mix in Hungary nuclear energy 53,4% lignite 20,4% natural gas 14,4% solid biomass 5,8% wind power 2,2% hydro power 1,0% biogas 1,0% waste to energy 0,9% coal gases 0,4% heavy fuel oil 0,3% photovoltaic 0,2% hard coal 0,0%
Reference year	2019
Type of data set	Cradle to gate from Thinkstep database
Source	Gabi database from International Energy Agency - 2019
CO_2 emissions	1,27 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 Construction Products Hungary. 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 of 1 m² of installed plasterboard 12,5 mm with a weight of 10 kg/m² and for specific application of external building for an expected average 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.]	4,59E+00	2,35E-01	3,11E-01	0	0	0	0	0	0	0	5,52E-02	2,97E-02	0	1,86E-01	0
Ozone depletion (ODP) [kg R11 eq.]	9,41E-08	3,84E-17	4,72E-09	0	0	0	0	0	0	0	7,92E-18	7,40E-18	0	9,38E-16	0
Acidification potential (AP) [kg R11 eq.]	9,60E-03	9,63E-04	7,42E-04	0	0	0	0	0	0	0	1,37E-04	1,20E-04	0	1,09E-03	0
Eutrophication potential (EP) [kg Phosphate eq.]	3,01E-03	2,42E-04	2,04E-04	0	0	0	0	0	0	0	1,09E-05	3,01E-05	0	1,23E-04	0
Photochemical ozone creation [kg Ethene eq.]	9,97E-04	3,33E-05	7,38E-05	0	0	0	0	0	0	0	1,00E-05	4,22E-06	0	8,80E-05	0
Abiotic depletion potential for non-fossil resources (ADP-elements) [kg Sb eq.]	3,16E-05	1,94E-08	9,99E-06	0	0	0	0	0	0	0	1,53E-09	2,74E-09	0	6,57E-08	0
Abiotic depletion potential for fossil resources (ADP-fossil fuels) [MJ]	8,11E+01	3,19E+00	4,90E+00	0	0	0	0	0	0	0	6,82E-01	4,03E-01	0	2,42E+00	0

References

1. EPD International General Program Instructions for the International EPD® System. Version 4.0, dated 2021-03-29. www.environdec.com.
2. The International EPD System PCR 2019:14 Construction Products, version 1.1
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. EN520: Gypsum plasterboards - Definitions, requirements and tests methods
9. ISO 16000-9:2006,CEN/TS 16516:2013 : Indoor air emission
10. 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