EPD®

THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM EPD VERIFIED

ENVIRONMENTAL PRODUCT DECLARATION

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

Gyproc® DuraLine 13mm

Date of revision: 2023-10-10
Validity: 5 years
Valid until: 2028-10-09
Date of issue: 2018-10-10
Version: 2
Scope of the EPD®:Global

EPD VERIFIED

The environmental impacts of this product have been assessed over its whole life cycle. Its Environmental Product Declaration has been verified by an independent third party.

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: The International EPD® System, www.environdec.com
Programme Operator: EPD International AB
EPD Registration Number: S-P-01401

Manufacturers address:
Thailand gypsum product Pcl. : Laem Chabang Plant 38/10 Moo 5, Laem Chabang Industrial Estate,Thung Sukhla, Sriracha, Chonburi 20230

Gyproc SAINT-GOBAIN

General information

Company information

Manufacturer: Saint-Gobain Gyproc Thailand
Programme used: International EPD System **http://www.environdec.com/**
EPD registration number/declaration number: S-P-01401
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 version 1.2.5 for Construction products.
Site of manufacture: Thai gypsum product Pcl: Laem Chabang Plant. 38/10 Moo 5, Laem Chabang Industrial Estate,Thung Sukhla, Sriracha, Chonburi 20230
Owner of the declaration: Saint-Gobain (Thailand) Co.,Ltd. Gypsum Metropolitan Tower 14th Floor 539/2 Si-Ayutthaya Rd, Thanonphayathai, Ratchathewi, BKK 10400 Thailand (The EPD owner has the sole ownership, liability, and responsibility for the EPD)
Product / product family name and manufacturer represented: Standard Plasterboard 11.5 kg/m^2 – 13 mm produced by Saint-Gobain Gyproc Thailand in Laem Chabang
UN CPC code: 37530 Articles of plaster or of composition based on plaster
Declaration issued: 2018-10-10 **Revision:** 2023-10-10 **Valid until:** 2028-10-09
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: Saint-Gobain Research (Shanghai) LCA Team.
Contact: Mongkol Tirakanogsathit (**Mongkol.Tirakanogsathit**@saint-gobain.com**),** Lin Zhao (Lin.zhao@saint-gobain.com**).**
The Declared Unit is: 1m^2 plasterboard
Declaration of Hazardous substances: (Candidate list of Substances of Very High Concern): none
Geographical scope of the EPD®: Global
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
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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 1.2.5
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: Dandan Li (dandan.li@startalers.cn), Star Talers Environmental Technology In case of recognized individual verifiers: Approved by: The International EPD© System
Procedure for follow-up of data during EPD validity involves third party 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 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.

Product description

Product description and use:
This Environmental Product Declaration (EPD®) describes the environmental impacts of 1 m² of installed plasterboard 13 mm with a weight of 11.5 kg/m² and an expected average service life of 50 years.

Standard plasterboard – is a 13 mm thick plasterboard with a weight of 11.5 kg.

Gyproc DuraLine is a high impact resistant plasterboard with glass fibre and other additives for enhanced sound insulation and impact resistance.

Technical data/physical characteristics:

EN classification	EN 520: 2004
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 15283-1)

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% – 85%	0%	0%
Gypsum (Synthetic DSG)	10% - 15%	100%	100%
Gypsum recycled (External recycling)	0% - 5%	100%	100%
Fast hardener	0% – 0.2%	0%	0%
Glass fiber	0% – 0.5%	0%	0%
Plasticizer	0% – 0.2%	0%	0%
Starch	0% – 0.3%	0%	0%
Ink	0% – 0.1%	0%	0%
Recycled paper (Top/Bottom)	1% – 3%	100%	100%
Edge glue	0% – 0.1%	0%	0%
Edge Tape	0% – 0.1%	0%	0%

Product	Weight (kg/m²)
Total product weight	**11.5**

Packaging materials	Weight (kg)	Weight (%)
Polyester plastic	0.01	0% – 0.1%
Culls	0.60	0% – 4%
Cardboard	0.03	0% – 0.2%
Wooden pallet	0.04	0% – 0.3%

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 gate with options, modules C1-C4, module D and with optional modules (A1-A3+C+D and A4-A5+B1-B7) Product-specific (one product, one manufacturing site)
DECLARED UNIT	1 m² of installed board with a weight of 11.5 kg/m² and an expected average service life of 50 years
SYSTEM BOUNDARIES	Cradle to gate with options, modules C1-C4, module D and with optional modules (A1-A3+C+D and A4-A5+B1-B7)
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: Global Data is collected from one production site in Laem Chabang, Thailand, Saint-Gobain Gyproc Thailand Data collected for the year 2022. Background data: Ecoinvent 3.8 and GaBi ts 10.7
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

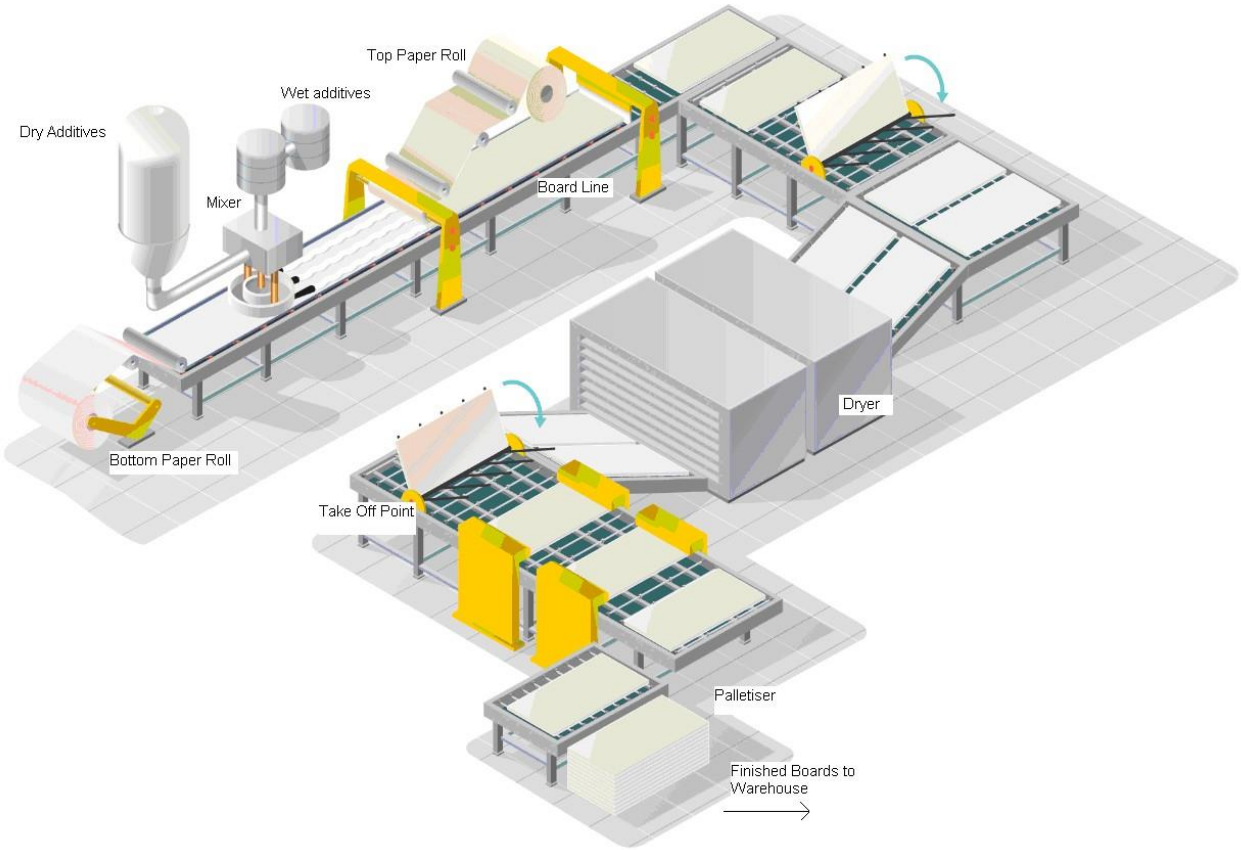
Description of the stage: the product stage of plaster products is subdivided into 3 modules A1, A2 and A3 respectively “Raw material supply”, “transport to manufacturer” and “manufacturing”.

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 declared 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 Container ship ocean with 27500 t, and consumption of 109 liters per km
Distance	Truck: 503 km Container ship: 1159 km
Capacity utilisation (including empty returns)	85% (30% empty returns) : default values in dataset thinkstep
Bulk density of transported products	885 kg/m^3
Volume capacity utilisation factor	2447 kg of boards / 8 kg of culls (11 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 declared 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: 0.575 kg (5%) Jointing Compound: 0.33 kg Jointing Tape: 0.004182 kg Gypsum culls: 0.6 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: 0.575 kg (5%) to landfill Screws: 0.001 kg to landfill Jointing Compound: 0.33 kg to landfill Jointing Tape: 0.004182 kg to landfill Paper label: 0.00001 kg/m2 to landfill Cardboard: 0.034 kg/m2 Polypropylene strapping: 0.002 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.

End-of-life, C1-C4

The stage includes the different modules of end-of-life C1-C4 detailed below.

- **C1. de-construction, demolition;**

The de-construction and/or dismantling of plaster product takes part of the demolition of the entire building.

The de-construction and/or dismantling processes mainly use energy for mechanical operations.
The data from the table below (the heavy fuel oil consumption is retrieved from Debacker et al.. 2012 and the data used for energy consumption of heavy fuel oil derive from GaBi 10.7) gives the quantity of heavy fuel oil consumption. This source was consulted as it is suggested in PEFCRs for products in buildings, such as *Product Environmental Footprint Category Rules (PEFCRs)* for thermal insulation, 2019.

Assumptions for the demolition at EoL	Amount per kg of demolished material	Unit	Dataset	Database
Thermal energy from heavy fuel oil	0.0437	MJ/kg	Thermal energy from heavy fuel oil {GLO}	GaBi 10.7

- **C2. transport to waste processing;**

The model used for the transportation is detailed as follows.

Transportation type	Distance travelled	Unit	Dataset	Database
Truck	50	km	Truck-trailer, Euro 0-6 mix, 34-40t {GLO}	GaBi 10.7

- **C3. waste processing for reuse, recovery and/or recycling;**

Country of sale	Recycling rate	Landfill rate	Incineration rate	Source of information
Global	0%	100%	0%	Saint-Gobain Gyproc Thailand

This is a conservative assumption made at the time of the projectable gypsum plasterboard manufacture. The building's life time is 50 years.

The end-of-life stage of the construction product starts when it is replaced, dismantled or deconstructed from the building or construction works and does not provide any further functionality. It can also start at the end-of life of the building, depending on choice of the product's end-of-life scenario.

During the end-of-life stage of the product or the building, all output from dismantling, deconstruction or demolition of the building, from maintenance, repair, replacement or refurbishing processes, including all debris, all construction products, materials or construction elements, etc. leaving the building, are at first considered to be a waste. This output, however, reaches the recovered material. Product or construction element is commonly used for specific purposes. There is a market or demand identified e.g. by a positive economic value exists for such a recovered material. Product or construction element, the recovered material or construction element fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products. The use of the recovered material, product or construction element will not lead to overall adverse environmental or human health impacts.

- **C4. disposal;**

At its end of life. Gyproc plasterboard 100% landfilled at end of life.

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 globally, manufactured in Thailand and marketed globally.

All figures refer to a declared unit of 1 m² of plasterboard.

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	GLO	GLO	TH	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO
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- 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 -Total [kg CO2 eq.]	**2.49E+00**	**6.76E-01**	**4.78E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5.34E-02**	**3.62E-02**	**0**	**8.71E-01**	**0.00E+00**
	Climate Change (fossil) [kg CO2 eq.]	**3.24E+00**	**6.78E-01**	**3.37E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5.34E-02**	**3.64E-02**	**0**	**1.79E-01**	**0.00E+00**
	Climate Change (biogenic) [kg CO2 eq.]	**-7.57E-01**	**-6.21E-03**	**1.40E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5.07E-05**	**-5.37E-04**	**0**	**6.91E-01**	**0.00E+00**
	Climate Change (land use change) [kg CO2 eq.]	**4.74E-03**	**4.03E-03**	**5.93E-04**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9.50E-07**	**3.37E-04**	**0**	**5.25E-04**	**0.00E+00**
	GWP-GHG [kg CO2 eq.]	**3.24E+00**	**6.82E-01**	**3.38E-01**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5.34E-02**	**3.67E-02**	**0**	**1.80E-01**	**0.00E+00**
	Ozone depletion [kg CFC-11 eq.]	**6.15E-08**	**5.48E-14**	**3.07E-09**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4.02E-15**	**4.74E-15**	**0**	**6.76E-16**	**0.00E+00**
	Acidification terrestrial and freshwater [Mole of H+ eq.]	**7.13E-03**	**1.12E-02**	**1.27E-03**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1.55E-04**	**2.19E-04**	**0**	**1.31E-03**	**0.00E+00**
	Eutrophication freshwater [kg P eq.]	**1.63E-04**	**1.64E-06**	**1.01E-05**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1.19E-08**	**1.33E-07**	**0**	**3.13E-07**	**0.00E+00**
	Eutrophication marine [kg N eq.]	**2.54E-03**	**3.32E-03**	**3.99E-04**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2.96E-05**	**1.07E-04**	**0**	**3.37E-04**	**0.00E+00**
	Eutrophication terrestrial [Mole of N eq.]	**2.70E-02**	**3.65E-02**	**4.28E-03**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3.25E-04**	**1.18E-03**	**0**	**3.70E-03**	**0.00E+00**
	Photochemical ozone formation - human health [kg NMVOC eq.]	**5.85E-03**	**8.19E-03**	**9.82E-04**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9.31E-05**	**2.01E-04**	**0**	**1.02E-03**	**0.00E+00**
	Resource use, mineral and metals [kg Sb eq.]	**4.56E-06**	**3.05E-08**	**1.26E-06**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5.03E-10**	**2.41E-09**	**0**	**1.64E-08**	**0.00E+00**
	Resource use, energy carriers [MJ]	**5.22E+01**	**8.90E+00**	**4.13E+00**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6.59E-01**	**4.96E-01**	**0**	**2.39E+00**	**0.00E+00**
	Water deprivation potential [m³ world equiv.]	**6.00E-01**	**5.42E-03**	**7.20E-02**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9.16E-05**	**4.40E-04**	**0**	**1.91E-02**	**0.00E+00**

Resources Use

	Resources Use indicators	Product stage	Construction stage		Use stage							End of life stage				Reuse, recovery, recycling
		A1 - 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]	1.75E+00	4.32E-01	4.48E-01	0	0	0	0	0	0	0	3.04E-03	3.61E-02	0	3.13E-01	0.00E+00
	Primary energy resources used as raw materials (PERM) [MJ]	8.58E+00	0	4.29E-01	0	0	0	0	0	0	0	0	0	0	0	0
	Total use of renewable primary energy resources (PERT) [MJ]	1.03E+01	4.32E-01	8.76E-01	0	0	0	0	0	0	0	3.04E-03	3.61E-02	0	3.13E-01	0.00E+00
	Use of non-renewable primary energy (PENRE) [MJ]	5.21E+01	8.92E+00	4.13E+00	0	0	0	0	0	0	0	6.60E-01	4.98E-01	0	2.39E+00	0.00E+00
	Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	1.27E-01	0	6.33E-03	0	0	0	0	0	0	0	0	0	0	0	0
	Total use of non-renewable primary energy resources (PENRT) [MJ]	5.22E+01	8.92E+00	4.14E+00	0	0	0	0	0	0	0	6.60E-01	4.98E-01	0	2.39E+00	0.00E+00
	Input of secondary material (SM) [kg]	8.11E-01	0	4.20E-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]	1.77E-02	4.79E-04	1.98E-03	0	0	0	0	0	0	0	3.95E-06	3.95E-05	0	6.03E-04	0.00E+00

*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 - 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]	1.20E-07	3.17E-11	1.08E-08	0	0	0	0	0	0	0	3.16E-12	2.04E-12	0.00E+00	3.65E-08	0
	Non-hazardous waste disposed (NHWD) [kg]	4.81E-02	8.85E-04	1.21E+00	0	0	0	0	0	0	0	1.57E-04	6.29E-05	0.00E+00	1.20E+01	0
	Radioactive waste disposed (RWD) [kg]	1.69E-04	8.35E-06	2.58E-05	0	0	0	0	0	0	0	7.64E-07	7.16E-07	0.00E+00	2.72E-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]	3.08E-02	0	7.63E-02	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 -A3
	Biogenic carbon content in product [kg]	1.87E-01
	Biogenic carbon content in packaging [kg]	3.20E-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 declared unit of 1 m² of installed plasterboard 13 mm with a weight of 11.5 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 more than 50% of the contribution. Emissions from

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.

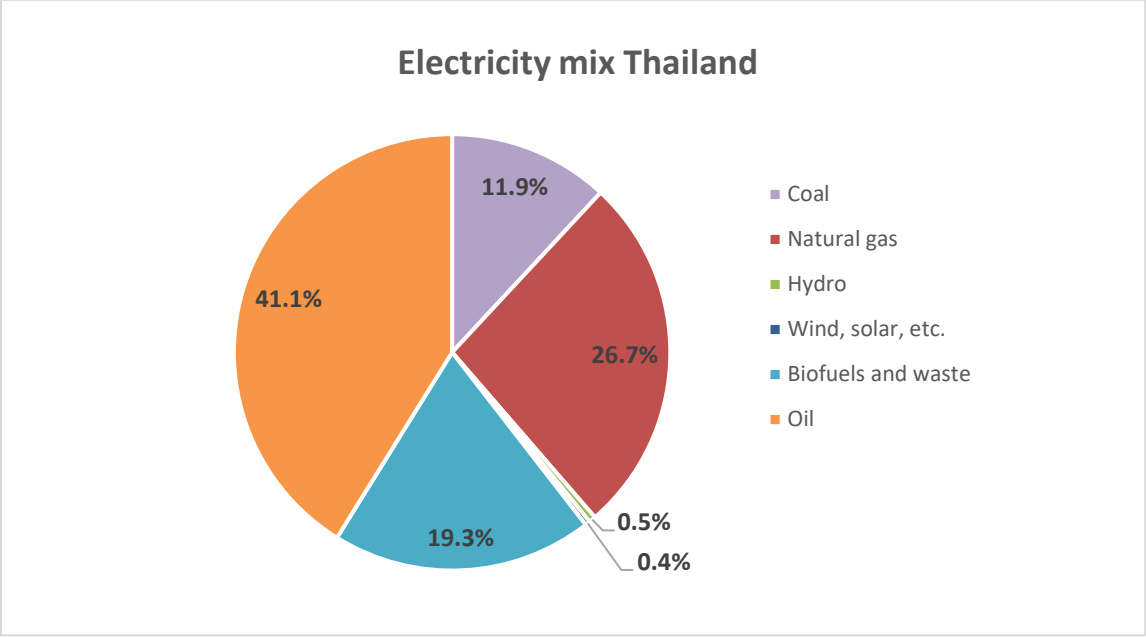
Water Consumption
Water is used within the manufacturing facility and therefore we see the highest contribution in the production phase. The second highest contribution occurs in the installation site due to the water used on the joint components.

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 Gyproc Thailand Thailand
Geographical representativeness description	Split of energy sources in Thailand - Hard coal 11.9% - Natural gas 26.7% - Heavy fuel oil 41.1% - Biofuels and waste 19.3% - Hydro 0.5% - Wind, solar etc: 0.4%
Reference year	2018
Type of data set	Cradle to gate from Ecoinvent 3.8 database
Source	Ecoinvent 3.8 database from International Energy Agency
CO2 emissions	0.74 kg CO2 eq. / kWh (GWP-GHG)



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 Gyproc Thailand. 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.

Differences with previous versions of the EPD

This EPD was updated according to EN 15804+A2 and the data collected for the year 2022.

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