ENVIRONMENTAL PRODUCT DECLARATION

In accordance with EN 15804 and ISO 14025

12.5mm Gyproc Habito

Publication/issue date: 2017-09-29
Revision Date : 2019-09-25
Version : 3
Valid until : 2024-09-03

Gyproc
SAINT-GOBAIN

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.

Registration number

SP – 00944
ECO EPD 00000575

EPD®
THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM
EPD
EN 15804 VERIFIED

General information

Manufacturer: Saint-Gobain Construction Products Finland
Programme used: International EPD System **http://www.environdec.com/**
EPD registration number/declaration number: SP – 00944 ECO EPD 00000575
PCR identification: EN 15804 as the core PCR, International EPD System CPC Division CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES DATED 2015-03-03 Version 2 PCR + Saint Gobain Methodological Guide, which is used for reference but is not a PCR.

Site of manufacture: Saint-Gobain Construction Products Finland Oy, Ojangontie 23, 02400 KIRKKONUMMI, Finland

Product / product family name and manufacturer represented: Saint Gobain Gyproc Habito 12.5mm plasterboard
Publication/issue date: 2017/09/29,
Revision date: 2019-09-25
Valid until: 2024-09-16

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: Andrew Norton, Renuables based on the PCR mentioned above.

EPD Prepared by: Yves Coquelet (LCA Central TEAM gypsum and insulation) yves.coquelet@saint-gobain.com
Update by: Malin Dalborg malin.dalborg@saint-gobain.com

The Declared unit is 1 m2 of Saint Gobain Gyproc Habito 12.5 mm plasterboard board with a weight of 12.2 kg /m2.

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

Scope: Finland, Norway, Sweden and Denmark

CEN standard EN 15804 serves as the core PCR[a]	
PCR:	**PCR 2012:01 CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES DATED 2015-03-03 VERSION 2**
PCR review was conducted by:	The Technical Committee of the International EPD® System. Chair: Massimo Marino. Contact via info@environdec.com
Independent verification of the declaration, according to EN ISO 14025:2010 ☐ **Internal** ☒ **External**	
Third party verifier:	**Andrew Norton**
Approved by	The Technical Committee of the International EPD System

Product description

Product description and use:

Gyproc Habito consists of gypsum encased in paper liners. Gyproc Habito features a high strength engineered core which provides enhanced levels of strength, durability and fixability. Small quantities of chopped glass fibre, micro silica and vermiculite may be added with starch, foam and dispersants.

Designed for use in the residential sector, Gyproc Habito enables end users to fix heavy and difficult items such as shelves, curtain poles and TVs, into place without any need for drills or specialist fixings; simply screw straight into the wall surface.

Suitable for direct decoration or plaster finish.

LCA calculation information

EPD TYPE DECLARED	Cradle to Gate with options
DECLARED UNIT	The Declared unit is 1 m2 of Saint Gobain Gyproc Habito 12.5 mm plasterboard board with a weight of 12.2 kg /m2.
SYSTEM BOUNDARIES	Cradle to Gate with options: stages A1 – 3, A4 – A5, B1 – 7, C1 – 4 and D.
REFERENCE SERVICE LIFE (RSL)	50 years, as per the Saint Gobain Methodological Guide
CUT-OFF RULES	Life Cycle Inventory data for a minimum of 99% of total inflows to the upstream and core module shall be included
ALLOCATIONS	Production data. Recycling, energy and waste data have been calculated on a mass basis.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope includes Finland, Norway, Sweden and Denmark Data included is collected from one production site, Kirkkonummi. Cradle to gate with options. Specific data was collected at the site for the reference year 2018.
PRODUCT CPC CODE	37520
CONTENT DECLARATION	No substances of very high concern.

According to ISO 21930, EPDs might not be comparable if they are from different programmes. EPD of construction products may not be comparable if they do not comply with EN 15804

Life cycle stages

Flow diagram of the Life Cycle

Product stage, A1-A3

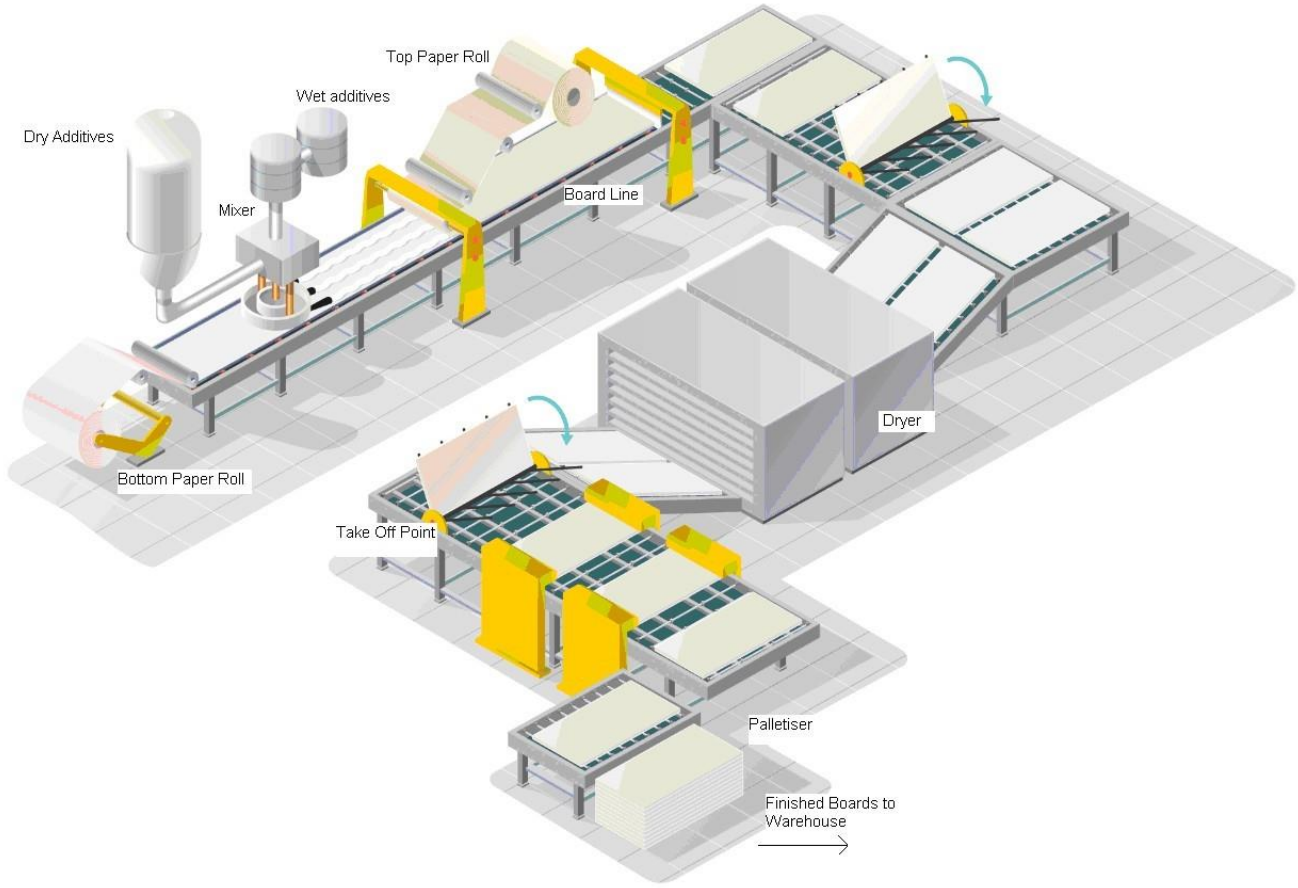
Description of the stage:
A1, raw material extraction and processing, processing of secondary material input (e.g. recycling processes. This includes the extraction and processing of all raw materials and energy, which occur upstream from the manufacturing process.

A2, transport to the manufacturer. The raw materials are transported to the manufacturing site. The modelling includes road, boat and/or train transportation of each raw material.

A3, manufacturing, including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state or disposal of final residues during the product stage. 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.

The LCA calculation has been made taking into account the fact that during the manufacturing process it is used 100% renewable electricity. This 100% renewable electricity bought is evidenced by Guarantee of Origin certificates (GOs) from LOS, valid for the period chosen in the calculation (2018).

Manufacturing process flow diagram



Manufacture:
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:
A4, transport to the building site,
A5, installation into the building, including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state or disposal of final residues during the construction process stage. These information modules also include all impacts and aspects related to any losses during this construction process stage (i.e. production, transport, and waste processing and disposal of the lost products and materials).

Transport to the building site:

PARAMETER	VALUE (expressed per functional/declared unit)
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	Truck, diesel , 0.33 liters per km
Distance	583 (km) by truck, 449 km by ship
Capacity utilisation (including empty returns)	100 %
Bulk density of transported products	976 (kg/m3)
Volume capacity utilisation factor	1

Installation in the building:

PARAMETER	VALUE (expressed per functional/declared unit)
Ancillary materials for installation (specified by materials)	Jointing tape: 1.25 linear meters Joint coumpound: 0.33kg Water: 0.041 liters. 8 Screws
Water use	0.00048 m^3
Other resource use	None
Quantitative description of energy type (regional mix) and consumption during the installation process	0 energy use at installation
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	Gyproc Habito: 0.60 kg Pallet: 0.35 kg Jointing tape: 0.0625 linear meters Joint filler: 0.0165kg 0.4 Screws
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)	Gyproc Habito: 0.12 kg to recycling Gyproc Habito: 0.48 kg to landfill Pallet: 0.35 kg to recycling Wastage of Installation materials (Joint filler+ tape + screws): 0.0172 kg to landfill
Direct emissions to ambient air, soil and water	No direct emissions during installation.

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, including provision and transport of all materials, products and related energy and water use, as well as waste processing up to the end-of-waste state or disposal of final residues during this part of the use stage. These information modules also include all impacts and aspects related to the losses during this part of the use stage (i.e. production, transport, and waste processing and disposal of the lost products and materials).

Maintenance:

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

Repair:

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

Replacement:

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

Refurbishment:

PARAMETER	VALUE (expressed per functional/declared unit) / DESCRIPTION

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

Use of energy and water:

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

End-of-life stage C1-C4

Description of the stage: The end-of-life stage includes:
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.

End-of-life:

PARAMETER	VALUE (expressed per functional/declared unit) / DESCRIPTION
Collection process specified by type	9.52 kg collected with mixed waste for landfill
Recovery system specified by type	2.38 kg collected with construction waste for recycling
Disposal specified by type	9.52 kg collected with mixed waste for landfill
Assumptions for scenario development (e.g. transportation)	34 - 40t gross weight / 27t payload capacity Diesel driven, Euro 0 - 5 mix, cargo, average sulfur content: EU = 10 ppm 32 km from construction/demolition site to landfill, 200 km from construction/demolition site to recycling processor.

Module D – Reuse and Recovery

An end of life recycling rate of 20% has been assumed using local Demolition waste data, and adjusted considering the recyclability of the Habito Product. Figures displayed in Module D account for this recycling.

LCA results

The Declared unit is 1 m2 of Gyproc Habito with a weight of 12.2 kg /m2.

Description of the system boundary (X = Included in LCA, MNA = Module Not Assessed)

CML 2001 has been used as the impact model. Specific data has been supplied by the plant during the manufacturing year 2017, and generic data come from the Thinkstep and Ecoinvent databases. The latest available modules have been used wherever possible, and all modules are linked to an Electricity factor for the year 2012.

All emissions to air, water, and soil, and all materials and energy used have been included, with the exception of long-term emissions (>100 years).

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
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

ENVIRONMENTAL IMPACTS

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage				Module D
	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 100) - *kg CO_2 equiv/FU*	2,26E+00	4,1E-01	2,3E-01	0	0	0	0	0	0	0	5,6E-02	1,8E-01	1,9E-03	1,6E-01	1,6E-02
Ozone Depletion (ODP) *kg CFC 11 equiv/FU*	5,0E-08	4,7E-14	2,5E-09	0	0	0	0	0	0	0	1,5E-14	8,7E-14	1,3E-14	1,6E-13	8,4E-14
Acidification potential (AP) *kg SO_2 equiv/FU*	1,2E-02	3,7E-03	1,1E-03	0	0	0	0	0	0	0	2,0E-04	1,2E-03	1,5E-05	9,7E-04	1,3E-04
Eutrophication potential (EP) *kg $(PO_4)^{3-}$ equiv/FU*	4,7E-03	5,6E-04	3,1E-04	0	0	0	0	0	0	0	1,1E-05	2,2E-04	5,8E-07	1,3E-04	3,0E-05
Photochemical ozone creation (POPC) *kg Ethylene equiv/FU*	1,8E-03	4,4E-04	5,8E-05	0	0	0	0	0	0	0	1,3E-05	2,5E-04	8,0E-07	7,6E-05	2,3E-05
Abiotic depletion potential for non-fossil resources (ADP-elements) - *kg Sb equiv/FU*	1,8E-05	6,2E-09	2,8E-06	0	0	0	0	0	0	0	1,5E-09	9,8E-09	2,6E-10	5,7E-08	1,3E-08
Abiotic depletion potential for fossil resources (ADP-fossil fuels) - *MJ/FU*	5,1E+01	5,5E+00	4,1E+00	0	0	0	0	0	0	0	7,0E-01	2,5E+00	2,4E-02	2,1E+00	2,4E-01

RESOURCE USE

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage				Module D
	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 excluding renewable primary energy resources used as raw materials *MJ/FU*	3,03E+01	1,1E-01	1,4E+00	0	0	0	0	0	0	0	2,1E-03	9,1E-02	9,2E-05	2,6E-01	2,5E+00
Use of renewable primary energy used as raw materials *MJ/FU*	1,31E-02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) *MJ/FU*	3,03E+01	1,1E-01	1,4E+00	0	0	0	0	0	0	0	2,1E-03	9,1E-02	9,2E-05	2,6E-01	2,5E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - *MJ/FU*	5,28E+01	5,5E+00	4,4E+00	0	0	0	0	0	0	0	7,0E-01	2,5E+00	2,4E-02	2,2E+00	1,9E-01
Use of non-renewable primary energy used as raw materials *MJ/FU*	1,31E+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - *MJ/FU*	5,41E+01	5,5E+00	4,4E+00	0	0	0	0	0	0	0	7,0E-01	2,5E+00	2,4E-02	2,2E+00	1,9E-01
Use of secondary material *kg/FU*	9,57E-01	0	4,8E-02	0	0	0	0	0	0	0	0	0	0	0	0
Use of renewable secondary fuels- *MJ/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of non-renewable secondary fuels - *MJ/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of net fresh water - *m^3/FU*	2,29E-02	4,3E-05	1,6E-03	0	0	0	0	0	0	0	4,5E-06	1,4E-04	3,0E-07	4,2E-04	2,7E-04

WASTE CATEGORIES

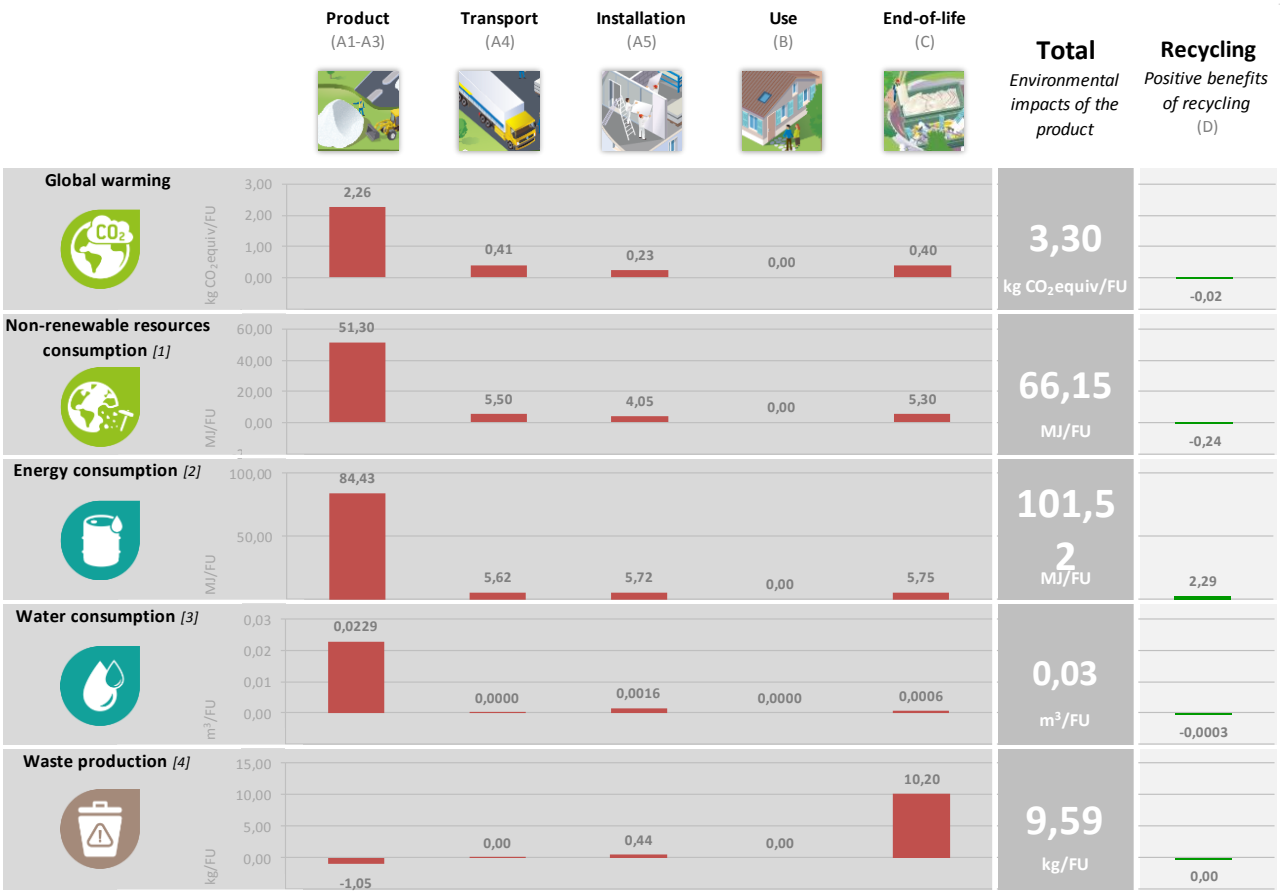
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage				Module D
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery , recycling
Hazardous waste disposed *kg/FU*	1,9E-07	1,9E-08	1,7E-08	0	0	0	0	0	0	0	8,5E-11	7,3E-08	8,6E-12	3,5E-08	1,2E-08
Non-hazardous (excluding inert) waste disposed *kg/FU*	1,1E+00	5,6E-05	4,4E-01	0	0	0	0	0	0	0	1,0E-04	1,2E-04	3,1E-06	1,0E+01	1,1E-03
Radioactive waste disposed *kg/FU*	5,0E-04	6,0E-06	1,1E-04	0	0	0	0	0	0	0	8,9E-07	4,0E-06	4,7E-08	3,0E-05	2,0E-05

OUTPUT FLOWS

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage				Module D
	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 *kg/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Materials for recycling *kg/FU*	6,59E-02	0	1,3E-01	0	0	0	0	0	0	0	0	0	2,5E+00	0	0
Materials for energy recovery *kg/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, detailed by energy carrier *MJ/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LCA results interpretation

The Declared unit is 1 m2 of Gyproc Habito plasterboard with a weight of 12.2 kg /m2.



[1] This indicator corresponds to the abiotic depletion potential of fossil resources.

[2] This indicator corresponds to the total use of primary energy.

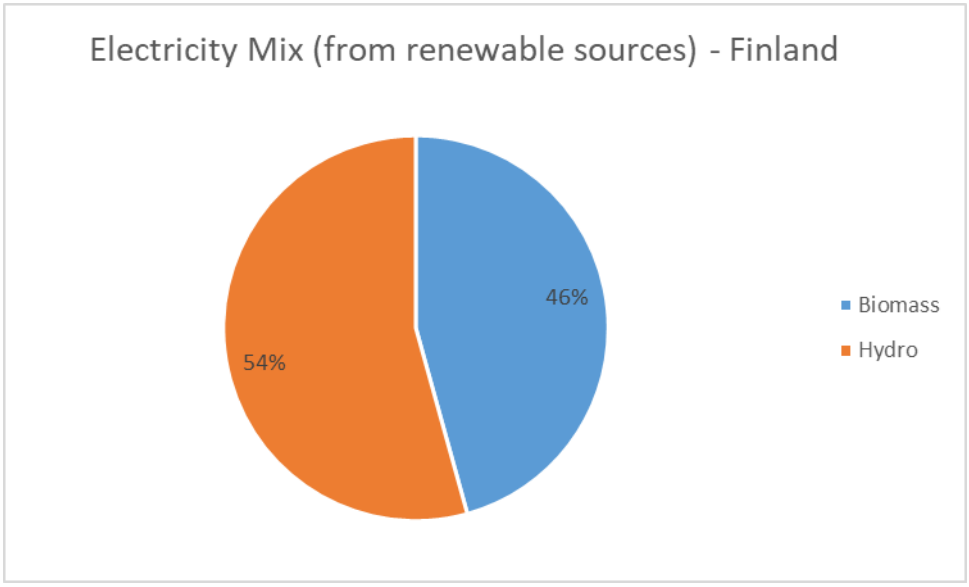
[3] This indicator corresponds to the use of net fresh water.

[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive waste disposed.

Additional Information

Electricity description

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of average production in Finland
Geographical representativeness description	**Split of energy sources in Finland** - hydro: 54% - Biomass: 46%
Reference year	2018
Type of data set	Cradle to gate from Thinkstep
Source	Gabi database from International Energy Agency -2013 Guarantee of Origin certificates (GOs) - 2018



Additional information on release of dangerous substances to indoor air, soil and water

Gyproc Habito Load-bearing plasterboard fulfills M1 criteria. Emission class M1 to the best quality and emission class M3 includes material with the highest emission rates.
The M1 certification is available in the following link:

https://www.gyproc.fi/materiaalipankki/tuotedokumentit/m1-luokitus

Comments

- Boards are bevelled during production to minimize material and water usage while jointing. The manufacturer's application instructions should be adhered to in order to attain maximum performance from systems built with this board and to maximize the lifetime of the product.
- Installed product needs no maintenance. Surface should be primed and/or plastered with gypsum based finishing plaster before applying paint or wall-paper on the surface. Surface can be painted several times during lifetime.
- Product should not be applied outdoor or in wet areas.
- Product shouldn't be mixed with communal waste when landfilling,
- There is an on-going project in the production plant to minimize water and energy consumption during production
- For further information, please refer to Safe Use Instruction Sheet Safety of the product.

References

General Program instructions of the International EPD System VERSION 2.5. DATE 2015-05-11

BS 15804: 2012 + A1 2013 Sustainability of construction works, - Environmental Product Declarations Core rules for the product category of construction products

Environmental Product Declaration: Saint Gobain Methodological Guide for Construction products. April 2013.

ISO 14025:2006 Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures

ISO 21930:2007 Sustainability in building construction -- Environmental declaration of building products

PCR 2012:01 CONSTRUCTION PRODUCTS AND CONSTRUCTION SERVICES DATED 2015-03-03 VERSION 2