ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Gyproc® Normal GN/GNE – Standard Plasterboard

THE INTERNATIONAL EPD® SYSTEM

The International EPD®
Programme operator: EPD international AB
Registration number: EPD-IES-0017752

Version: 1
Date of publication: 2024/12/06
Validity: 5 years
Valid until: 2029/12/05
Scope of the EPD®: Norway and other Nordic and Baltic countries

ECO PLATFORM EPD VERIFIED

Programme information

Progamme:	The International EPD®
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CEN standard EN 15804:2012+A2:2019/AC:2021 as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14 Construction Products, version 1.3.2

PCR review was conducted by: The Technical Committee of the International EPD® See www.environdec.com for a list of members.

An independent third part verification of the declaration and data was made according to ISO 14025:2006. This verification was external and conducted by the following third party based on the PCR mentioned above.

☐ EPD process certification ☒ EPD verification

Third party verifier: Martin Erlandsson IVL Svenska Miljöinstitutet
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Approved by: The International EPD©

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

The EPD owner has the sole ownership, liability and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same version number up to the first two digits) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical DU/FU); 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 characterization factors); have equivalent content declarations; and be valid at the time of Comparison. For further information about comparability, see EN 15804:2012+A2:2019/AC:2021 and ISO 14025:2006.

Product information

Product name: Gyproc® GN/GNE13 Normal - Standard Board

Declared unit: 1 m² of installed plasterboard of 12,5 mm with a weight of 9,0 kg/m².

UN CPC CODE: 37530 Articles of plaster or of composition based on plaster

Main GTIN number: 6438127033122, 6438127033207, 6438127033221, 7318931922012, 7318931922067, 7318931922197, 7318931922289

Company information

Manufacturer: Saint-Gobain Gyproc, Ojangontie 23, PL 44 02401Kirkkonummi, Finland Oy

Website: https://www.gyproc.fi/

Production plant(s): Gyproc Kirkkonummi, Finland Oy

Product- and Management system-related certification: ISO 9001 and 14001 (Certificate No.: EUFI29- 23001898-S1/EN and EUFI29- 23001898-S2)

LCA & EPD Information

Owner of the declaration: Gyproc Finland Oy

Contact person: Anne Kaiser (anne.kaiser@saint-gobain.com)

EPD® prepared by: Malin Dalborg (malin.dalborg@saint-gobain.com)

Type of EPD: Cradle to gate with options, including all stages A+B+C+D

Geographical scope of the EPD®: Norway and other Nordic and Baltic countries

Year of data collection: 2023

Product description

Product description and description of use

This Environmental Product Declaration (EPD®) describes the environmental impacts of 1 m² installed Gyproc® Normal GN/GNE – Standard Plasterboard and an expected average service life of 50 years.

Gyproc® Normal GN/GNE – Standard Plasterboard is suitable for most interior building applications where normal levels of fire resistance, structural strength and sound insulation are specified. Gyproc® Normal GN/GNE – Standard Plasterboard can be used in light weight building systems of 1 – 3 layers on a steel or timber framing. The tapered edge allows the use of joint filler to produce a durable joint reinforcement and a smooth, continuous, crack-resistant surface ready for priming and final decoration. The smooth surface of the paper lining is an ideal base for decoration with wallpaper or by painting. It is 12.5 mm thick, available in 900 mm (GNE 13) and 1200 mm (GN 13).

Gyproc® Normal GN/GNE – Standard Plasterboard is a specific product produced at one specific plant, Gyproc Kirkkonummi located in Finland. The data is collected at Gyproc Kirkkonummi and is representative of the year 2023.

To calculate the result for 1 kg of Gyproc® Normal GN/GNE – Standard Plasterboard, divide the result with the weight of the plasterboard: 9,0 kg/m^2 (conversion factor 1/9,0 = 0,111)

Product specifications

Product components	Value / Description
Weight of 1 m^2 plasterboard	9,0 kg
Thickness	12,5 mm
Width	1200/900 mm
Surfacing	Paper liner: 0,33 kg/m^2
Packaging material	Wooden pallet: 0,14 kg/m^2 PE film: 0,007 kg/m^2 PP stripes: 0,0003 kg/m^2
Products used for installation	Jointing compounds: 0,33 kg/m^2 Jointing tape: 1,23 m/m^2 Screws: 8 per m^2 plasterboard

Technical data

Parameter	Value / Description
EN Classification	A-12,5 (EN 520:2004+A1:2009)
Reaction to fire	A2-s1, d0 (EN 520:2004+A1:2009)
Water vapour resistance factor, μ	< 0,10 (EN 10456:2007)
Thermal conductivity	0,21 W/mK (EN 10456:2007)

Declaration of the main product components and/or materials

Description of the main components and/or materials:

Product components	Weight (%)	Post-consumer recycled material weight (%)	Biogenic material, (kg C/DU)
Gypsum Natural	60 – 80%	0%	0 kg
Gypsum Recycled	20 – 30%	100%	0 kg
Additives	1 – 5%	0%	0,017 kg
Liners	2 – 5%	100%	0,149 kg
Sum	**100%**		**0,166 kg**
Packaging materials	**Weight (kg/DU)**	**Weight versus the product and packaging (%)**	**Weight biogenic carbon, (kg C/DU)**
PE film	0,007 kg	0,080%	0 kg
PP stripes	0,0003 kg	0,003%	0 kg
Wooden pallet (one pallet used one time)	0,14 kg	1,477%	0,055 kg
Sum	0,1473 kg		0,055 kg

At the date of issue of this declaration, there is no “Substance of Very High Concern” (SVHC) in concentration above 0.1% by weight, and neither do their packaging, following the European REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals).

The verifier and the program operator do not make any claim nor have any responsibility of the legality of the product.

LCA calculation information

Parameter	Value / description
TYPE OF EPD	Cradle to gate with options, including all stages A+B+C+D (one product, one manufacturing site)
DECLARED UNIT	1 m² of installed plasterboard of 12,5 mm with a weight of 9,0 kg/m^2.
SYSTEM BOUNDARIES	Cradle to gate with options, including all stages A+B+C+D
REFERENCE SERVICE LIFE (RSL)	The Reference Service Life (RSL) of the plasterboard is 50 years. This 50-year value is the amount of time that we recommend our products last for without refurbishment and corresponds to standard building design life.
CUT-OFF RULES	In the case 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 in the manufacturing site (A3) is based on mass. The polluter pays and the modularity principles as well have been followed.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope: Norway Data is collected from one production site, Kirkkonummi, located in Finland Data collected for the year 2023
BACKGROUND DATA SOURCE	The databases Sphera 2023.2 and ecoinvent v.3.9.1
SOFTWARE	Sphera LCA for experts (GaBi) 10.7

LCA scope

	Product stage			Construction stage		Use stage							End of life stage				Benefits and loads beyond the system boundary
	Raw material supply	Transport	Manufacturing	Transport	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	FI	NO	NO	-	-	-	-	-	-	-	NO	NO	NO	NO	NO
Specific data used	>77% GWP- Fossil																
Variation products	0%, One site one product																
Variation sites	0%, One site one product																

Life cycle stages

A1-A3. Product stage

The product stage of plasterboard products is subdivided into 3 modules A1, A2 and A3:

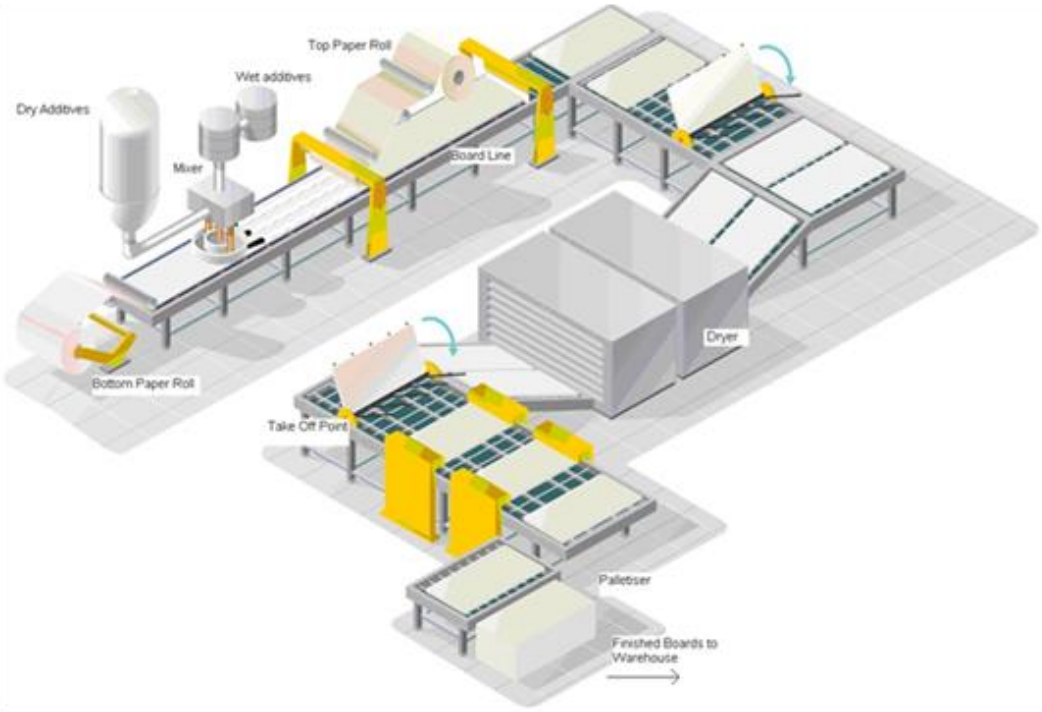
A1. Raw materials supply
This module includes the extraction and processing of all raw materials (gypsum, additives, paper…) and packaging which occur upstream to the manufacturing site.

A2. Transport to the manufacturer
This module includes the transportation of raw materials and packaging to the manufacturing site.

A3. Manufacturing
This module includes the manufacturing of products. The processing of any waste arising from this stage is also included.

Manufacturing process flow diagram

System 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.

A4-A5. Construction process stage

The construction process is divided into 2 modules: A4, Transport to the building site and A5, Installation in the building.

A4. Transport to the building site: This module includes transport from the production gate to the building site. Transport is calculated based on a scenario with the parameters described in the following table.

Parameter	Value / Description
Fuel type and consumption of vehicle or vehicle type used for transport e.g., long distance truck, boat, etc.	Freight truck, maximum load weight of 27 t and consumption of 0,38 liters diesel per km. Real 24 t payload
Distance	580 km by truck 375 km by boat
Capacity utilization (including empty returns)	68 % of the capacity in weight 30 % of empty returns
Bulk density of transported products	656 kg/m^3
Volume capacity utilization factor	< 1

A5. Installation in the building:
This module includes the parameters for installing the product at the building site. All installation materials and their waste processing are included.

Parameter	Value / Description
Ancillary materials for installation (specified by materials)	Jointing compound: 0,33 kg/m^2 plasterboard Jointing tape: 1,23 m/m^2 plasterboard Screws: 8 per m^2 plasterboard
Water for on-site mixing of jointing compound	0,165 liters/m^2 plasterboard (added to the jointing compound during installation)
Electricity for on-site mixing of jointing compound	0,001 MJ/m^2 plasterboard
Scrap rate at installation	5% for plasterboard and for ancillary materials 100% for packaging
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	Plasterboard: 0,45 kg (5% scrap rate) Jointing Compound: 0,0165 kg (5% scrap rate) Jointing Tape: 0,0002 kg (5% scrap rate) Screws: 0,0005 kg (5% scrap rate) Wooden pallet: 0,14 kg (100% scrape rate) PE and others: 0,008 kg (100% scrape rate)
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: 0,45 kg to 10% landfill, 90% energy recovery Jointing Compound: 0,0165 kg to 10% landfill, 90% energy recovery Jointing Tape: 0,0002 kg to 10% landfill, 90% energy recovery Screws: 0,0005 kg to 10% landfill, 90% energy recovery Wooden pallet: 0,14 kg to 10% landfill, 90% energy recovery PE and others: 0,008 kg to 10% landfill, 90% energy recovery
Use of pallet	Re-used 7 times before End-of-life
Distance to waste treatment facilities	50 km by truck

B1-B7. Use stage (excluding potential savings)

The use stage is divided into the following modules:

- **B1:** Use
- **B2:** Maintenance
- **B3:** Repair
- **B4:** Replacement
- **B5:** Refurbishment
- **B6:** Operational energy use
- **B7:** Operational water use

The product has a reference service life of 50 years. This assumes that the product will last in situ with no requirements for maintenance, repair, replacement, or refurbishment throughout this period. Therefore, it has no impact at this stage.

C1-C4. End of Life Stage

This stage includes the next modules:
C1: Deconstruction, demolition: The de-construction and/or dismantling of the product take part of the demolition of the entire building.
C2: Transport to waste processing
C3: Waste processing for reuse, recovery and/or recycling
C4: Waste disposal; including physical pre-treatment and site management.

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

Parameter	Information
C1: Energy for de-construction / demolition	0,045 MJ/kg diesel
C1: Collection process specified by type	9,37 kg of plasterboard including paper liner and ancillary materials used for installation is collected with mixed deconstruction and demolition waste 35% landfill 65% recycling Other deconstruction waste, such as screws, is 100% collected with mixed deconstruction and demolition waste for landfill
C2: Assumptions for scenario development (e.g. transportation)	The waste will be transported by truck with 24 t payload, using diesel as a fuel consuming 38 liters per 100 km Distance to waste treatment facilities 50 km
C3: Recovery system specified by type	5,84 kg recycled
C4: Disposal specified by type	3,53 kg to landfill

D. Reuse/recovery/recycling potential

In end of life recycling 65% (35% of wastes are landfilled) has been assumed using local demolition waste data and adjusted considering the recyclability of the product.

In the module D is declared the environmental benefits and loads from reusable products, recyclable materials, or energy recovery.

Module D considers:
- Inputs of secondary materials: recycled raw materials for product
- Outputs of secondary materials: product and/or packaging sent to recycling,
- Exported energy (electric or thermal): packaging sent to incineration with energy recovery.

LCA results

As specified in EN 15804:2012+A2:2019/AC:2021 and the Product-Category Rules, the environmental impacts are declared and reported using the baseline characterization factors EF 3.1. Raw materials and energy consumption, as well as transport distances have been taken directly from the manufacturing plant.

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

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

The results of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological, and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.

Since this EPD includes module C, we strongly advise not to use the results of modules A1-A3 without considering the results of module C.

Results refer to a declared unit of 1m2 of installed plasterboard 12,5 mm with a weight of 9,0 kg/m². The following results refer to a single product manufactured in a single plant: Gyproc Kirkkonummi, Finland Oy.

Environmental Impacts

Environmental indicators		Product stage	Construction stage		Use stage							End of life stage				Benefits and loads beyond the life cycle
		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 (total) [kg CO_2 eq.]	9,29E-01	4,18E-01	3,63E-01	0	0	0	0	0	0	0	4,17E-02	3,38E-02	3,80E-01	3,80E-01	-1,90E-02
	Climate Change (fossil) [kg CO_2 eq.]	1,70E+00	4,13E-01	1,63E-01	0	0	0	0	0	0	0	4,17E-02	3,34E-02	3,65E-02	2,56E-02	-2,13E-02
	Climate Change (biogenic) [kg CO_2 eq.]	-7,75E-01	9,95E-04	2,00E-01	0	0	0	0	0	0	0	5,27E-06	8,69E-05	3,44E-01	3,55E-01	1,82E-03
	Climate Change (land use change) [kg CO_2 eq.]	3,88E-03	3,41E-03	3,02E-04	0	0	0	0	0	0	0	4,70E-06	3,09E-04	1,61E-05	3,06E-05	3,98E-04
	Ozone depletion [kg CFC-11 eq.]	2,33E-09	3,53E-14	2,06E-10	0	0	0	0	0	0	0	6,64E-10	2,92E-15	6,89E-10	5,62E-10	1,62E-09
	Acidification terrestrial and freshwater [Mole of H+ eq.]	2,01E-03	1,99E-03	2,69E-04	0	0	0	0	0	0	0	3,87E-04	3,84E-05	1,84E-04	2,03E-04	3,57E-04
	Eutrophication freshwater [kg P eq.]	2,93E-05	1,35E-06	4,72E-06	0	0	0	0	0	0	0	1,28E-06	1,22E-07	4,09E-06	1,65E-06	9,42E-05
	Eutrophication marine [kg N eq.]	8,97E-04	5,12E-04	1,09E-04	0	0	0	0	0	0	0	1,79E-04	1,32E-05	7,35E-05	2,78E-04	1,56E-04
	Eutrophication terrestrial [Mole of N eq.]	8,18E-03	5,72E-03	9,21E-04	0	0	0	0	0	0	0	1,95E-03	1,56E-04	7,50E-04	7,35E-04	1,08E-03
	Photochemical ozone formation - human health [kg NMVOC eq.]	1,88E-03	1,41E-03	2,40E-04	0	0	0	0	0	0	0	5,77E-04	3,34E-05	2,64E-04	3,16E-04	3,69E-04
	Resource use, mineral and metals [kg Sb eq.][1]	8,00E-07	2,43E-08	7,30E-07	0	0	0	0	0	0	0	1,46E-08	2,16E-09	2,09E-07	3,35E-08	2,55E-07
	Resource use, energy carriers [MJ][2]	2,78E+01	5,55E+00	2,13E+00	0	0	0	0	0	0	0	5,45E-01	4,53E-01	5,42E-01	5,69E-01	-1,58E-01
	Water deprivation potential [m^3 world equiv.][2]	4,53E-01	4,31E-03	6,28E-02	0	0	0	0	0	0	0	1,84E-03	3,84E-04	1,42E-02	2,34E-02	3,86E-02

[1] Disclaimer 2: The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Resource Use

Resources Use indicators	Product stage	Construction stage		Use stage							End of life stage				Benefits and loads beyond the life cycle
	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]	1,81E+01	3,56E-01	2,98E+00	0	0	0	0	0	0	0	3,11E-03	3,21E-02	8,35E-02	2,30E-02	7,42E-01
Use of renewable primary energy resources used as raw materials (PERM) [MJ][3]	4,27E+00	0,00E+00	-1,88E+00	0	0	0	0	0	0	0	0,00E+00	0,00E+00	-2,39E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (PERT) [MJ] [3]	1,91E+01	3,56E-01	9,38E-01	0	0	0	0	0	0	0	3,11E-03	3,21E-02	-2,31E+00	2,30E-02	7,42E-01
Use of non-renewable primary energy (PENRE) [MJ] [3]	2,76E+01	5,56E+00	2,11E+00	0	0	0	0	0	0	0	5,45E-01	4,54E-01	5,42E-01	5,69E-01	-1,57E-01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ] [3]	4,70E-01	0	-9,15E-02	0	0	0	0	0	0	0	0,00E+00	0,00E+00	-2,67E-02	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ] [3]	2,79E+01	5,563	2,01E+00	0	0	0	0	0	0	0	5,45E-01	4,54E-01	5,15E-01	5,69E-01	-1,56E-01
Input of secondary material (SM) [kg]	1,74E+00	0	8,72E-02	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels (RSF) [MJ]	1,71E-24	0	8,55E-26	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels (NRSF) [MJ]	2,008E-23	0	1,004E-24	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW) [m^3]	1,36E-02	3,93E-04	1,68E-03	0	0	0	0	0	0	0	4,29E-05	3,53E-05	3,31E-04	5,49E-04	-2,19E-04

[2] From EPD International Construction Product PCR 1.3.2 (Annex 3). The option B was retained to calculate the primary energy use indicators.

Waste Category & Output flows

	Product stage	Construction stage		Use stage							End of life stage				Benefits and loads beyond the life cycle
Waste Category & Output Flows	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]	2,32E-04	2,03E-11	1,20E-05	0	0	0	0	0	0	0	3,68E-06	1,68E-12	2,96E-06	2,53E-06	2,43E-06
Non-hazardous waste disposed (NHWD) [kg]	6,11E-02	7,73E-04	1,81E-01	0	0	0	0	0	0	0	3,37E-03	6,55E-05	3,18E-02	3,53E+00	1,98E-02
Radioactive waste disposed (RWD) [kg]	1,41E-04	7,13E-06	1,74E-05	0	0	0	0	0	0	0	5,99E-08	5,87E-07	1,21E-06	1,09E-06	2,37E-05
Components for re-use (CRU) [kg]	0	0	1,22E-01	0	0	0	0	0	0	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	6,62E-01	0	3,15E-01	0	0	0	0	0	0	0	0	0	5,84E+00	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	8,73E-02	0	0	0	0	0	0	0	0	0	0	0	0
Exported thermal energy (EET) [MJ]	0	0	1,56E-01	0	0	0	0	0	0	0	0	0	0	0	0

Additional indicators from EN 15804

	Product stage	Construction stage		Use stage							End of life stage				Benefits and loads beyond the life cycle
Environmental indicators	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
GWP-GHG / GWP-IOBC [kg CO_2 eq.][3]	1,74E+00	4,17E-01	1,64E-01	0	0	0	0	0	0	0	4,17E-02	3,37E-02	3,65E-02	2,57E-02	-2,09E-02

[3] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Information on biogenic carbon content

Biogenic Carbon Content		At factory gate A1 / A2 / A3
	Biogenic carbon content in product [kg]	1,66E-01
	Biogenic carbon content in packaging [kg]	5,54E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

The product contains biogenic carbon due to the additives and paper liner used.
Regarding packaging, biogenic carbon is quantified due to wooden pallets.

Additional information:

Electricity information

The factory based in Kirkkonummi use electricity with Guarantee of Origin certificate (GO's). Hence, the electricity mix considered for the manufacturing of the studied product is modelled according to the electricity mix described in the Guarantee of Origin certificate. The amount of electricity purchased with GO's covers 100% of the electricity consumption on the manufacturing site. Guarantee of Origin certificate (GOs) is bought from (Entelios) and a contract valid for the period 2023-2029 with the aim to be prolonged during the validity period of the EPD with the same energy mix.

Parameter	Information
Location	Electricity purchased by Saint-Gobain Finland Oy
Share of electricity covered by Guarantee of Origin	100% of the electricity consumption is covered by the GO 0% of electricity consumption is covered by residual mix
Geographical representativeness description	Split of electricity bought with Guarantee of Origin: Hydro 100%
Reference year	For residual mix: 2023 For GO: 2023 *The GO will be prolonged to be valid at least to the validity of this EPD.*
Type of dataset	Cradle to gate from Sphera and ecoinvent databases
Source	Residual mix: Sphera 2023 and ecoinvent 3.9.1 databases or International Energy Agency (IEA) Guarantee of Origin: Sphera dataset (2023) and Name of supplier of GO
CO_2 emission (kg CO_2 eq. / kWh) (Based on Climate Change Fossil Indicator)	Guarantee of Origin: 0,006 kg of CO_2 eq /kWh

Transport to other countries

The transport to building site (module A4) in the main result is based on Norway. For transport to other countries per declared unit, additional sets of results are provided below, based on the following data:

Country	Truck (km)	Ship (km)
Norway	580	375
Finland	205	0
Denmark	156	1160
Estonia	86	90
Lithuania	396	90
Latvia	689	90
Sweden	100	375

Country	Finland	Denmark	Estonia	Lithuania	Latvia	Sweden
	A4 Transport					
Environmental indicators						
Climate Change [kg CO2 eq.]	1,32E-01	2,39E-01	6,60E-02	2,65E-01	4,54E-01	1,09E-01
Climate Change (fossil) [kg CO2 eq.]	1,30E-01	2,38E-01	6,54E-02	2,62E-01	4,48E-01	1,08E-01
Climate Change (biogenic) [kg CO2 eq.]	3,39E-04	3,68E-04	1,51E-04	6,64E-04	1,15E-03	2,01E-04
Climate Change (land use change) [kg CO2 eq.]	1,20E-03	9,19E-04	5,05E-04	2,33E-03	4,05E-03	5,88E-04
Ozone depletion [kg CFC-11 eq.]	1,14E-14	1,81E-14	5,51E-15	2,27E-14	3,90E-14	8,62E-15
Acidification terrestrial and freshwater [Mole of H+ eq.]	1,47E-04	4,98E-03	4,39E-04	6,61E-04	8,71E-04	1,64E-03
Eutrophication freshwater [kg P eq.]	4,74E-07	3,92E-07	2,01E-07	9,18E-07	1,60E-06	2,41E-07
Eutrophication marine [kg N eq.]	5,02E-05	1,18E-03	1,10E-04	1,86E-04	2,57E-04	3,94E-04
Eutrophication terrestrial [Mole of N eq.]	5,93E-04	1,30E-02	1,22E-03	2,12E-03	2,96E-03	4,34E-03
Photochemical ozone formation - human health [kg NMVOC eq.]	1,28E-04	3,35E-03	3,06E-04	4,99E-04	6,81E-04	1,12E-03
Resource use, mineral and metals [kg Sb eq.]	8,44E-09	7,69E-09	3,64E-09	1,64E-08	2,85E-08	4,53E-09
Resource use, energy carriers [MJ]	1,77E+00	3,04E+00	8,73E-01	3,55E+00	6,07E+00	1,41E+00
Water deprivation potential [m³ world equiv.]	1,50E-03	1,37E-03	6,47E-04	2,91E-03	5,05E-03	8,06E-04
Resource Use Indicators						
Use of renewable primary energy (PERE) [MJ]	1,25E-01	1,03E-01	5,31E-02	2,42E-01	4,21E-01	6,34E-02
Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (PERT) [MJ]	1,25E-01	1,03E-01	5,31E-02	2,42E-01	4,21E-01	6,34E-02
Use of non-renewable primary energy (PENRE) [MJ]	1,77E+00	3,05E+00	8,75E-01	3,56E+00	6,09E+00	1,41E+00
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	1,772	3,047	0,8752	3,555	6,088	1,413
Input of secondary material (SM) [kg]	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	0	0	0	0	0	0
Use of net fresh water (FW) [m3]	1,38E-04	1,15E-04	5,86E-05	2,67E-04	4,64E-04	7,04E-05
Waste category & Output flows						
Hazardous waste disposed (HWD) [kg]	6,56E-12	1,03E-11	3,17E-12	1,31E-11	2,25E-11	4,93E-12

Non-hazardous waste disposed (NHWD) [kg]	2,55E-04	3,50E-04	1,19E-04	5,05E-04	8,71E-04	1,75E-04
Radioactive waste disposed (RWD) [kg]	2,29E-06	3,74E-06	1,12E-06	4,58E-06	7,86E-06	1,76E-06
Components for re-use (CRU) [kg]	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	0	0	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0
Supplementary climate indicator						
GWP-GHG / GWP-IOBC [kg CO2 eq.]	1,31E-01	2,39E-01	6,59E-02	2,65E-01	4,52E-01	1,09E-01

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