ENVIRONMENTAL PRODUCT DECLARATION

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

Piano® range frame insulation

Version date: 2026/01/14
Validity: 5 years
Validity date: 2031/01/13
EPD of multiple products, based on a representative product

The International EPD® System
Programme operator: EPD international AB
Registration number: EPD-IES-0028142:001

Isover, Saint-Gobain

General information

Programme information

PROGRAMME:	The International EPD® System
ADDRESS:	EPD International AB - Box 210 60 - SE-100 31 Stockholm - Sweden
WEBSITE:	www.environdec.com
E-MAIL:	support@environdec.com

PCR information

Product Category Rules (PCR)

CEN standard EN 15804:2012 + A2:2019/AC:2021 serves as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14 Construction Products, version 2.0.1
Complementary PCR: (c-PCR-005), 2019-12-20. Thermal insulation products (EN 16783:2017)

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

Chairs of the PCR review: Rob Rouwette (chair), Noa Meron (co-chair).

Verification

External and independent ('third-party') verification of the declaration and data, according to ISO 14025:2006, via EPD verification through:

☒ Individual EPD verification without a pre-verified LCA/EPD tool
☐ Individual EPD verification with a pre-verified LCA/EPD tool
☐ EPD process certification* without a pre-verified LCA/EPD tool
☐ EPD process certification* with a pre-verified LCA/EPD tool
☐ Fully pre-verified EPD tool

Independent third-party verification of the declaration and data, according to ISO 14025:2006:
☒ EPD verification by individual verifier

Third party verifier: Martin Erlandsson, Carbonzero AB
Approved by: The International EPD© System

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

Ownership and limitation on use of EPD

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

EPDs within the same product category but published 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 first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterization factors); and be valid at the time of comparison.

Information about EPD owner

Address and contact information of the EPD owner: Saint-Gobain Sweden AS, Isover, EPD Specialist Team (EPDNordic@saint-gobain.com)
Description of the organization of the EPD owner: Saint-Gobain Sweden AS Isover is producing insulation solutions for roofs, walls and floors. They have one production site in Sweden: Billesholm.
Management system-related certification: ISO 9001 (Certificate no. SE008631)
ISO 14001 (Certificate no. SE008526)
ISO 50001 (Certificate no. SE0085516)
LCA Practitioner: Amy Stockwell, amy.stockwell@saint-gobain.com
Communication: The intended use of this EPD is for B2B communication.

Product information

Product name: Piano® range frame insulation

Piano® Ljudskiva	Piano® Ljudrulle
Regellängd 41	Skillevægsfilt Formstykker

The products come in standard thickness of 45mm, 70mm, 95mm, 120mm, as well as custom sizes

UN CPC CODE: 37990 Non-metallic mineral products n.e.c. (including mineral wool, expanded mineral materials, worked mica, articles of mica, non-electrical articles of graphite or other carbon and articles of peat)

Manufacturing site(s): Storgatan 29, 267 73 Billesholm, Sweden

Visual representation of the product:

Product description

Piano® range frame insulation has many uses in buildings, e.g. between frames in interior and exterior walls, between rafters in roofs, in between or over joists in floors and attic floors. The product's function is suitable as sound and heat insulation.

To calculate the impact of the range of thicknesses, see the table “Conversion to specific thickness" in the additional information section.

The production site uses natural raw materials and fusion and fiberizing techniques to produce glass wool. The products are obtained in the form of a "glass wool mat" characterized by a soft and airy structure.

For more information: https://www.isover.se/produkter/isover-piano-ljudskiva-stal-c450

Technical data/physical characteristics:

TECHNICAL ASPECT	VALUE / DESCRIPTION
Thermal resistance	Not applicable
Thermal conductivity	Not applicable
Reaction to fire	A1 (UNE EN 12667)
Density	14.9 kg/m^3

APPLICATION	VALUE / DESCRIPTION
Intended use and key functionalities	The product's function is suitable as sound insulation between frames.
Expected influence on the operational aspects and impact of the building or other construction work	None
Restrictions to a type of construction or building	Piano® range frame insulation is intended for internal application within the building envelope.
Lifespan	50 years. Isover range of frame insulation products are used between wooden joists, wooden beams and roof trusses. Correctly installed glass wool products and solutions do not require maintenance and last throughout the lifetime of the building (which is set at 50 years), or as long as the insulated building component is a part of the building.

Content declaration

This EPD uses 45 mm thickness as a reference. The content declaration is representative of this thickness.

Description of the main components and/or materials:

Quantity for 1 functional unit	0.67 kg of finished product

Product components	**Mass (kg)**	**Post-consumer recycled material (mass - % of product)**	**Biogenic material (mass - % of product)**	**Biogenic material (kg C/DU)**
Mineral materials	90-99 %	-	0%	0%
> Recycled glass	50-60 %	50-55%	0%	0%
Additives	1-5 %	0%	0%	0%
Binder	1-10 %	0%	3.4%	0.023
Sum	100%			
Packaging materials	**Mass (kg)**	**Mass - % (vs the product)**	**Biogenic material, weight- kg C/DU**	
LDPE film	0.023	2.6%	0	
Paper	0.00046	0.05%	0.00019	
Pallet	0.11	12.3%	0.045	

Hazardous substances

During the life cycle of the product, one or more hazardous substances listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” have been used in a percentage higher than 0.1% of the weight of the product.

Hazardous substances from the candidate list of SVHC	Ec No.	CAS No.	Mass-% (per DU)
Glass wool	01-2119472313-44-0041	65997-17-3	90-99%

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

LCA Information

TYPE OF EPD	Cradle to grave and module D
FUNCTIONAL UNIT	Providing a sound insulation on 1 m² of product with a thickness of 45 mm for 50 years.
CONVERSION FACTOR TO MASS	0.67 kg/DU
SYSTEM BOUNDARIES	Cradle to grave and module D
REFERENCE SERVICE LIFE (RSL)	The Reference Service Life (RSL) of the insulation product is 50 years, provided that the product is installed correctly into the building. This 50-year value is the amount of time that we recommend our products last 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 5% of the whole mass and energy used, as well as the emissions to the 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, and when not possible, a mass allocation has been applied. The polluter pays and the modularity principles as well have been followed. **Allocation of materials for recycling:** **- Post-consumer:** When a flow enters the manufacturing process (A1-A3), it is treated with waste allocation (as defined in EN15804+A2). All the steps after its “End of Waste” status are quantified. The incoming flow contributes to module D and Secondary Materials indicator. Post-consumer cullet end-of-waste state is considered to be reached after sorting at jobsite. All further transformation activities are included in the EPD. **- Pre-consumer:** When a flow enters the manufacturing process (A1-A3), it is considered as an incoming coproduct that bears a fraction of the impact of the original manufacturing process where it was generated (which might be 0, e.g. in case of an economic allocation with a negligible (<1%) economic value). The incoming flow does not contribute to module D nor Secondary Materials indicator. Pre-consumer cullet is considered a product with

	0 impact following an economic allocation (the value of cullet is <1% of that of the glass).
DATA QUALITY ASSESSMENT	Data quality of primary and secondary data had been judged by its precision (measured, calculated, or estimated), completeness (e.g., unreported emissions), consistency (degree of uniformity of the methodology applied), and representativeness (geographical, technological, and temporal).
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope: Sweden, Denmark, Norway and Finland Data is collected from Billesholm production site located in Sweden Data collected for the year 2023 Guarantees of Origin for 2025
BACKGROUND DATA SOURCE	Databases Sphera CUP2024.2 and ecoinvent v.3.10 GWP100, EN 15804+A2. Version: EF 3.1, February, 2023
SOFTWARE	Sphera LCA for Experts (GaBi) 10

Data quality declaration

Data Collection	01/01/2023-31/12/2023
Sites used	Billesholm, Sweden
Geography	Produced in Sweden Sold in Sweden Use and disposal in Sweden
Technology	Mineral wool is made from high-temperature molten material that is blown away using centrifugal force to form fine cotton-like fibers. Then, a binder is sprayed on the material to form it, and the product is heated in an oven. Hereafter, the product is cut to size and packed.
Averaging	None
LCI/LCA database	Sphera CUP2024.2 and ecoinvent v.3.10
Data Quality Scheme	EN 15804:2012+A2:2019, Annex E, Table E.1
Use of Fair data with more than 30 % of a core impact	None
Use of Poor relevant data	None
Use of Very Poor relevant data	None
Comment on data quality	All datasets are considered good or very good for all factors apart from geographical representativeness. Here some datasets (30% GHG-GWP) may be considered only fair as they are global and not Europe specific.

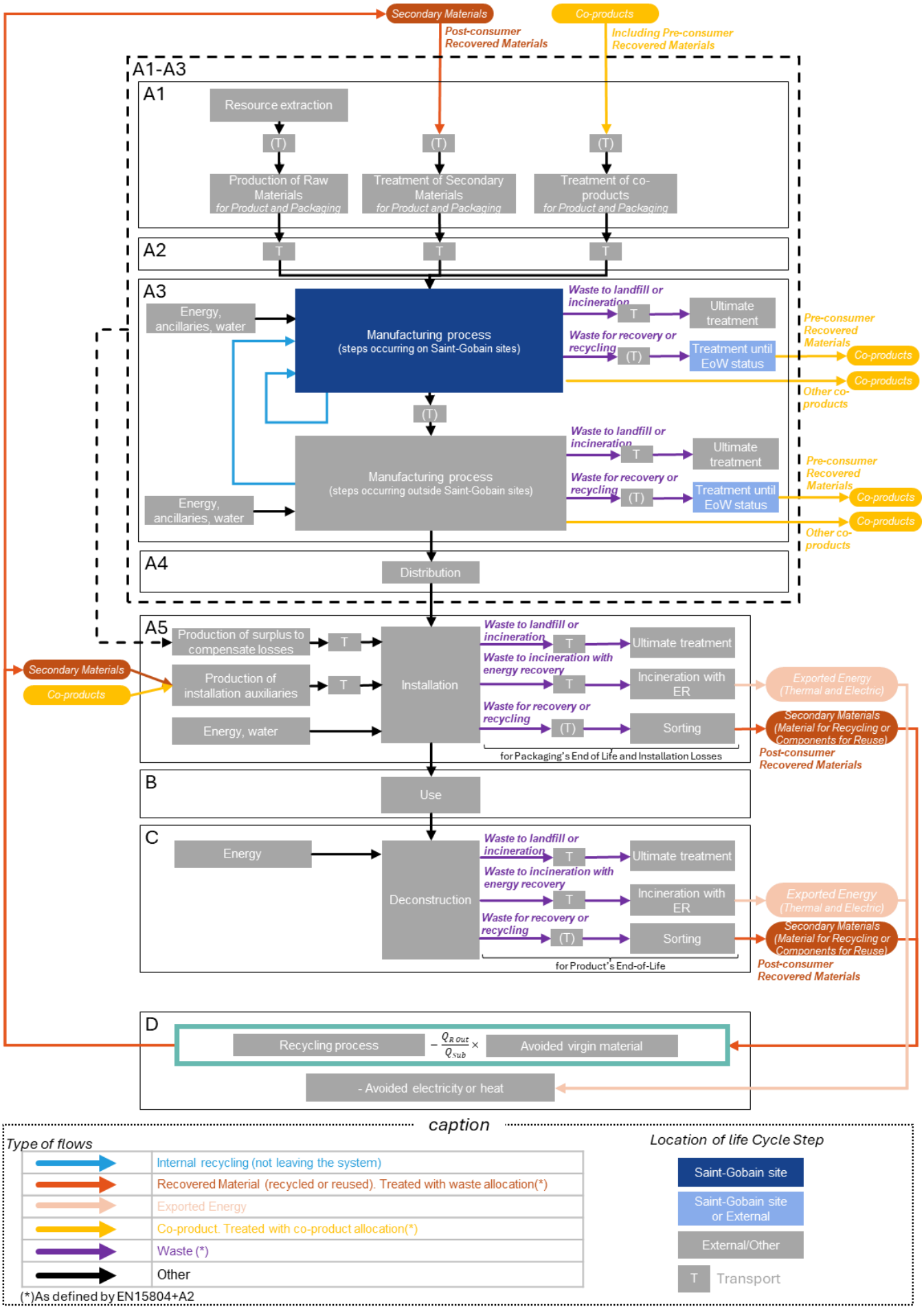
PROCESS	SOURCE TYPE	SOURCE	REFERENCE YEAR	DATA CATEGORY	SHARE OF PRIMARY DATA OF GWP-GHG RESULTS FOR A1-A3
Raw Material from EPD					
Raw materials	Database	Sphera 2024.2/ecoinvent 3.10	<5 years old	Secondary data	-
Packaging	Database	Sphera 2024.2/ecoinvent 3.10	<5 years old	Secondary data	-
Plant data					
Electricity	Database	Sphera 2024.2/ecoinvent 3.10	<5 years old	Primary data	1.1%
Emissions Specific	Collected data	EPD Owner	<5 years old	Primary data	10.8%
Thermal Energy	Database	Sphera 2024.2/ecoinvent 3.10	<5 years old	Primary data	43.1%
Transport of RM					
Transport of RM Packaging	Database	Sphera 2024.2	<5 years old	Secondary data	-
Transport of RM Product	Database	Sphera 2024.2	<5 years old	Secondary data	-
				Total share of primary data	59%

Description of system boundaries

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	EU	EU	SE	SE	SE	-	-	-	-	-	-	-	SE	SE	SE	SE	SE

Specific data used	59% GWP-GHG
Variation products	-5% to +0.4%
Variation sites	0%


Secondary Materials
Post-consumer Recovered Materials
Co-products
Including Pre-consumer Recovered Materials
A1-A3
A1
Resource extraction
(T)
Production of Raw Materials for Product and Packaging
Treatment of Secondary Materials for Product and Packaging
Treatment of co-products for Product and Packaging
A2
T
A3
Energy, ancillaries, water
Manufacturing process (steps occurring on Saint-Gobain sites)
Waste to landfill or incineration
Waste for recovery or recycling
Ultimate treatment
Treatment until EoW status
Pre-consumer Recovered Materials
Co-products
Other co-products
Manufacturing process (steps occurring outside Saint-Gobain sites)
A4
Distribution
A5
Production of surplus to compensate losses
Production of installation auxiliaries
Energy, water
Installation
Waste to incineration with energy recovery
Incineration with ER
Sorting
Exported Energy (Thermal and Electric)
Secondary Materials (Material for Recycling or Components for Reuse)
Post-consumer Recovered Materials
for Packaging's End of Life and Installation Losses
B
Use
C
Energy
Deconstruction
for Product's End-of-Life
D
Recycling process
Avoided virgin material
- Avoided electricity or heat
caption
Type of flows
Internal recycling (not leaving the system)
Recovered Material (recycled or reused). Treated with waste allocation(*)
Exported Energy
Co-product. Treated with co-product allocation(*)
Waste (*)
Other
(*)As defined by EN15804+A2
Location of life Cycle Step
Saint-Gobain site
Saint-Gobain site or External
External/Other
Transport

Life cycle stages

A1-A3. Product stage

The product stage of the mineral wool products is subdivided into 3 modules A1, A2 and A3 respectively “raw material supply”, “transport” and “manufacturing”.

A1. Raw materials supply

This module includes the extraction and transformation of raw materials.

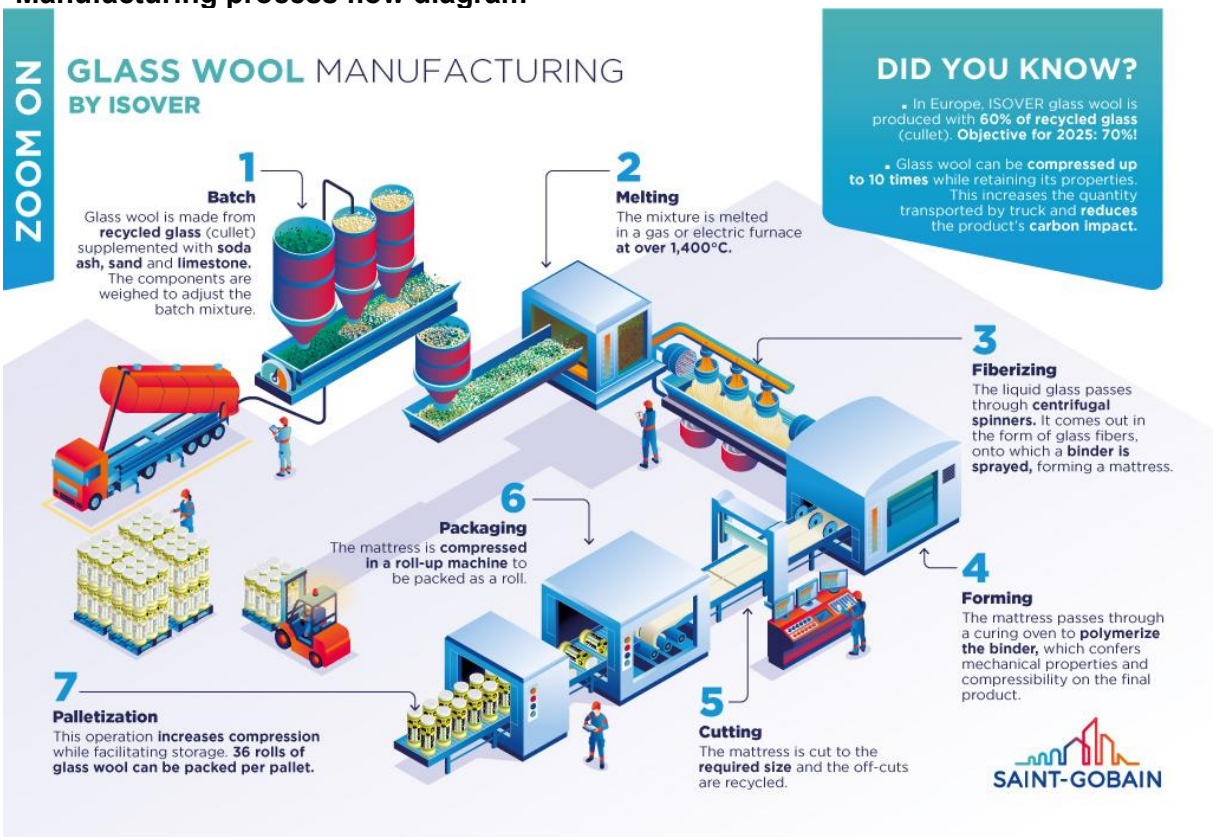
A2. Transport to the manufacturer

This module includes the transportation of raw materials and packaging to the manufacturing site. The modelling includes road, boat, and/or train transportation.

A3. Manufacturing

This module includes the manufacture of products (such as fusion, fiberizing, etc.) and the manufacture of packaging. The production of packaging material is considered at this stage. The processing of any waste arising from this stage is also included.

Manufacturing process flow diagram



Mineral wool is made from high-temperature molten glass that is blown away using centrifugal force to form fine cotton-like fibers. Then, a binder is sprayed on the material to form it, and the product is heated in an oven. Hereafter, the product is cut to size and packed.

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. Alternative transport distances to countries within the Nordics and Baltics are listed in the Additional Information section.

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, real load 8 t, and consumption of 0.38 liters per km
Distance	325 km by truck 140 km by rail
Capacity utilization (including empty returns)	100% of the capacity in volume 23% of the capacity in weight 30% of empty returns
Bulk density of transported products	49 kg/m^3
Volume capacity utilization factor	1 (by default)

A5. Installation in the building

This module includes: the installation of the product, the surplus of raw materials and packaging (cradle to gate) to compensate for the loss of product during the installation, the transport and management of packaging and product waste.

Assumption additional to those stated in PCR 2.0.1 table 4:

- A loss of 2% of the product is considered during the installation
- The wooden pallet is reused 8 times before end-of-life
- No additional accessory, water, or energy was considered for the installation of the insulation product.

PARAMETER	VALUE / DESCRIPTION
Waste of materials on the building site before waste processing, generated by the product's installation (specified by type)	Product: 0.013 kg/DU Pallet: 0.11 kg/DU PE film: 0.023 kg/DU Paper label: 0.00046 kg/DU
Transport of packaging waste	Landfill: 80 km Recycling: 80 km Incineration with energy recovery: 130 km
Output materials (specified by type) as results of waste processing at the building site, e.g., of collection for recycling, for energy recovery, disposal (specified by route)	Product losses: 0.013 kg/DU to landfill (100%) Pallet: 0.11 kg/DU to recycling (50%) and incineration with energy recovery (50%) PE film: 0.023 kg/DU to recycling (10%) and incineration with energy recovery (90%) Paper label:0.00046 kg/DU to landfill (100%)
Direct emissions to ambient air, soil, and water	None

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 following modules and processes according to PCR 2.0.1 Table 4:

- **C1**:**Deconstruction, demolition**. The deconstruction and/or dismantling of the product takes part of the demolition of the entire building. In our case, the energy considered for demolition is 1.1 kWh/tonne diesel.
- **C2: Transport to landfilling:** 80km by truck
- **C3: Waste processing for reuse, recovery, and/or recycling**: 0 kg
- **C4: Waste disposal**: 0.67 kg for landfilling including physical pre-treatment, compaction and site management.

Note that the landfill dataset includes compaction of waste, but the quantity of fuel used is not specified in the documentation.

D. Reuse/recovery/recycling potential

In module D, it's declared the environmental benefits and loads from reusable products, recyclable materials, or energy recovery. Module D considers:

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

Environmental performance

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 based on 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.
The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Disclaimer 1: 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 following indicators:

- Resource use, mineral and metals [kg Sb eq.]
- Resource use, energy carriers [MJ]
- Water deprivation potential [m^3 world equiv.]
- Land use [Pt]
- Human toxicity (cancer) [CTUh]
- Human toxicity(noncancer) [CTUh]
- Ecotoxicity (freshwater [CTUe]

Disclaimer 2: The impact category Ionizing radiation, human health [kBq U235 eq.] deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction material is also not measured by this indicator.

Disclaimer 3: The assumptions for the modules are in accordance with the project report (LCA study).

The following non-mandatory additional environmental indicators are not declared:

- Ecotoxicity freshwater [CTUe]
- Particulate Matter emissions [Disease incidence]
- Cancer human health effects [CTUh]
- Ionizing radiation - human health [kBq U235 eq.]
- Non-cancer human health effects [CTUh]
- Land Use [Pt].

Results refer to a functional unit of 1 m^2 of mineral wool with thickness of 45 mm. To obtain results with different commercial thicknesses see additional information section.

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 CO2 eq.]	4.04E-01	4.57E-02	8.63E-01	0	0	0	0	0	0	0	2.66E-04	1.04E-02	0	4.33E-02	1.38E-01
Climate Change (fossil) [kg CO2 eq.]	5.70E-01	4.48E-02	1.08E-01	0	0	0	0	0	0	0	2.66E-04	1.04E-02	0	1.00E-02	1.39E-01
Climate Change (biogenic) [kg CO2 eq.]	-1.66E-01	1.29E-04	7.55E-01	0	0	0	0	0	0	0	2.15E-08	1.69E-06	0	3.32E-02	-1.88E-03
Climate Change (land use change) [kg CO2 eq.]	1.06E-03	7.23E-04	2.97E-04	0	0	0	0	0	0	0	2.31E-08	3.39E-06	0	6.02E-05	9.59E-04
Ozone depletion [kg CFC-11 eq.]	3.34E-06	2.58E-14	8.99E-08	0	0	0	0	0	0	0	4.07E-12	2.06E-10	0	2.71E-14	4.36E-10
Acidification terrestrial and freshwater [Mole of H+ eq.]	4.64E-03	6.03E-05	4.26E-04	0	0	0	0	0	0	0	2.40E-06	3.25E-05	0	7.13E-05	1.05E-03
Eutrophication freshwater [kg P eq.]	2.40E-05	1.88E-07	3.30E-06	0	0	0	0	0	0	0	9.36E-10	7.99E-08	0	2.28E-08	8.07E-06
Eutrophication marine [kg N eq.]	1.73E-03	2.15E-05	1.27E-04	0	0	0	0	0	0	0	1.11E-06	1.09E-05	0	1.83E-05	2.90E-04
Eutrophication terrestrial [Mole of N eq.]	1.63E-02	2.57E-04	1.15E-03	0	0	0	0	0	0	0	1.22E-05	1.19E-04	0	2.02E-04	3.24E-03
Photochemical ozone formation - human health [kg NMVOC eq.]	1.97E-03	5.80E-05	3.53E-04	0	0	0	0	0	0	0	3.64E-06	5.09E-05	0	5.61E-05	5.76E-04
Resource use, mineral and metals [kg Sb eq.][1]	4.37E-05	3.84E-09	4.99E-06	0	0	0	0	0	0	0	9.49E-11	3.32E-08	0	6.50E-10	7.92E-05
Resource use, energy carriers [MJ][1]	2.27E+01	5.82E-01	1.35E+00	0	0	0	0	0	0	0	3.45E-03	1.46E-01	0	1.32E-01	1.29E+00
Water deprivation potential [m³ world equiv.][1]	3.05E-01	9.03E-04	4.54E-02	0	0	0	0	0	0	0	1.07E-05	8.58E-04	0	1.15E-03	4.16E-02

[1] 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

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]	7.29E+00	6.19E-02	1.52E+00	0	0	0	0	0	0	0	2.14E-05	2.48E-03	0	2.31E-02	1.07E-01
Primary energy resources used as raw materials (PERM) [MJ] [2]	1.64E+00	0.00E+00	-7.33E+00	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00
Total use of renewable primary energy resources (PERT) [MJ] [2]	8.94E+00	6.19E-02	-5.82E+00	0	0	0	0	0	0	0	2.14E-05	2.48E-03	0	2.31E-02	1.07E-01
Use of non-renewable primary energy (PENRE) [MJ] [2]	2.16E+01	5.82E-01	1.21E+00	0	0	0	0	0	0	0	3.45E-03	1.46E-01	0	1.32E-01	1.43E+00
Non-renewable primary energy resources used as raw materials (PENRM) [MJ] [2]	1.20E+00	0.00E+00	-1.73E+00	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ] [2]	2.28E+01	5.82E-01	-5.24E-01	0	0	0	0	0	0	0	3.45E-03	1.46E-01	0	1.32E-01	1.43E+00
Use of secondary material (SM) [kg]	4.51E-01	0.00E+00	6.51E-02	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00
Use of renewable secondary fuels (RSF) [MJ]	3.44E-29	0.00E+00	2.58E-30	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0	0.00E+00	6.46E-29
Use of non-renewable secondary fuels (NRSF) [MJ]	4.04E-28	0.00E+00	3.03E-29	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0	0.00E+00	7.59E-28
Use of net fresh water (FW) [m3]	8.61E-03	6.43E-05	1.27E-03	0	0	0	0	0	0	0	2.49E-07	1.99E-05	0	3.51E-05	1.17E-03

[2] From EPD International Construction Product PCR 2.0.1 (Annex 3). Option B was retained to calculate the primary energy use indicators.

Waste Category & Output flows

Waste Category & Output Flows	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
Hazardous waste disposed (HWD) [kg]	2.77E-02	4.69E-11	2.40E-03	0	0	0	0	0	0	0	3.01E-06	1.43E-04	0.00E+00	3.29E-11	1.05E-03
Non-hazardous waste disposed (NHWD) [kg]	6.92E-01	1.04E-04	1.66E-01	0	0	0	0	0	0	0	2.33E-05	8.68E-03	0.00E+00	6.71E-01	8.33E-01
Radioactive waste disposed (RWD) [kg]	5.25E-03	3.91E-06	7.90E-06	0	0	0	0	0	0	0	3.82E-10	4.64E-08	0.00E+00	1.39E-06	1.05E-05
Components for re-use (CRU) [kg]	0.00E+00	0.00E+00	4.45E-01	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for Recycling (MFR) [kg]	0.00E+00	0.00E+00	8.65E-02	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for Energy Recovery (MER) [kg]	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electrical energy (EEE) [MJ]	0.00E+00	0.00E+00	9.00E-02	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (EET) [MJ]	0.00E+00	0.00E+00	1.61E-01	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Additional environmental impact indicators

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	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
GWP-GHG [kg CO2 eq.][3]	5.98E-01	4.53E-02	1.12E-01	0	0	0	0	0	0	0	2.64E-04	1.03E-02	0	1.01E-02	1.37E-01

Information on biogenic carbon content

Biogenic Carbon Content	PRODUCT STAGE
	A1 / A2 / A3
Biogenic carbon content in product [kg]	9.04E-03
Biogenic carbon content in packaging [kg]	4.48E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2.

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

[3] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO2 is set to zero.

Alternative End of life scenarios

Environmental indicators		Scenario 100% Landfill					Scenario 100% Recycling				
		END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
		C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
	Climate Change (total) [kg CO2 eq.]	2.66E-04	1.04E-02	0.00E+00	4.33E-02	1.38E-01	2.66E-04	1.04E-02	3.97E-02	0.00E+00	-8.88E-03
	Climate Change (fossil) [kg CO2 eq.]	2.66E-04	1.04E-02	0.00E+00	1.00E-02	1.39E-01	2.66E-04	1.04E-02	1.85E-03	0.00E+00	-6.44E-03
	Climate Change (biogenic) [kg CO2 eq.]	2.15E-08	1.69E-06	0.00E+00	3.32E-02	-1.88E-03	2.15E-08	1.69E-06	3.78E-02	0.00E+00	-1.68E-03
	Climate Change (land use change) [kg CO2 eq.]	2.31E-08	3.39E-06	0.00E+00	6.02E-05	9.59E-04	2.31E-08	3.39E-06	2.51E-05	0.00E+00	-7.64E-04
	Ozone depletion [kg CFC-11 eq.]	4.07E-12	2.06E-10	0.00E+00	2.71E-14	4.36E-10	4.07E-12	2.06E-10	3.35E-15	0.00E+00	-2.36E-09
	Acidification terrestrial and freshwater [Mole of H+ eq.]	2.40E-06	3.25E-05	0.00E+00	7.13E-05	1.05E-03	2.40E-06	3.25E-05	9.28E-06	0.00E+00	-7.02E-04
	Eutrophication freshwater [kg P eq.]	9.36E-10	7.99E-08	0.00E+00	2.28E-08	8.07E-06	9.36E-10	7.99E-08	7.21E-09	0.00E+00	-7.51E-06
	Eutrophication marine [kg N eq.]	1.11E-06	1.09E-05	0.00E+00	1.83E-05	2.90E-04	1.11E-06	1.09E-05	4.27E-06	0.00E+00	-1.90E-04
	Eutrophication terrestrial [Mole of N eq.]	1.22E-05	1.19E-04	0.00E+00	2.02E-04	3.24E-03	1.22E-05	1.19E-04	4.72E-05	0.00E+00	-2.08E-03
	Photochemical ozone formation - human health [kg NMVOC eq.]	3.64E-06	5.09E-05	0.00E+00	5.61E-05	5.76E-04	3.64E-06	5.09E-05	1.18E-05	0.00E+00	-4.60E-04
	Resource use, mineral and metals [kg Sb eq.][4]	9.49E-11	3.32E-08	0.00E+00	6.50E-10	7.92E-05	9.49E-11	3.32E-08	1.94E-09	0.00E+00	-5.95E-05
	Resource use, energy carriers [MJ][4]	3.45E-03	1.46E-01	0.00E+00	1.32E-01	1.29E+00	3.45E-03	1.46E-01	3.47E-02	0.00E+00	8.26E-01
	Water deprivation potential [m³ world equiv.][4]	1.07E-05	8.58E-04	0.00E+00	1.15E-03	4.16E-02	1.07E-05	8.58E-04	3.54E-04	0.00E+00	1.62E-02

[4] 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

Environmental indicators		Scenario 100% incineration with ER					Scenario 100% incineration w/o ER				
		END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
		C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
	Climate Change (total) [kg CO2 eq.]	2.66E-04	1.69E-02	0.00E+00	8.61E-02	1.38E-01	2.66E-04	1.69E-02	0.00E+00	8.61E-02	1.38E-01
	Climate Change (fossil) [kg CO2 eq.]	2.66E-04	1.69E-02	0.00E+00	5.29E-02	1.39E-01	2.66E-04	1.69E-02	0.00E+00	5.29E-02	1.39E-01
	Climate Change (biogenic) [kg CO2 eq.]	2.15E-08	2.74E-06	0.00E+00	3.32E-02	-1.88E-03	2.15E-08	2.74E-06	0.00E+00	3.32E-02	-1.88E-03
	Climate Change (land use change) [kg CO2 eq.]	2.31E-08	5.51E-06	0.00E+00	3.38E-05	9.59E-04	2.31E-08	5.51E-06	0.00E+00	3.38E-05	9.59E-04
	Ozone depletion [kg CFC-11 eq.]	4.07E-12	3.35E-10	0.00E+00	3.30E-10	4.36E-10	4.07E-12	3.35E-10	0.00E+00	3.30E-10	4.36E-10
	Acidification terrestrial and freshwater [Mole of H+ eq.]	2.40E-06	5.28E-05	0.00E+00	1.55E-04	1.05E-03	2.40E-06	5.28E-05	0.00E+00	1.55E-04	1.05E-03
	Eutrophication freshwater [kg P eq.]	9.36E-10	1.30E-07	0.00E+00	2.33E-07	8.07E-06	9.36E-10	1.30E-07	0.00E+00	2.33E-07	8.07E-06
	Eutrophication marine [kg N eq.]	1.11E-06	1.77E-05	0.00E+00	6.50E-05	2.90E-04	1.11E-06	1.77E-05	0.00E+00	6.50E-05	2.90E-04
	Eutrophication terrestrial [Mole of N eq.]	1.22E-05	1.93E-04	0.00E+00	7.19E-04	3.24E-03	1.22E-05	1.93E-04	0.00E+00	7.19E-04	3.24E-03
	Photochemical ozone formation - human health [kg NMVOC eq.]	3.64E-06	8.27E-05	0.00E+00	2.10E-04	5.76E-04	3.64E-06	8.27E-05	0.00E+00	2.10E-04	5.76E-04
	Resource use, mineral and metals [kg Sb eq.][5]	9.49E-11	5.39E-08	0.00E+00	4.95E-08	7.92E-05	9.49E-11	5.39E-08	0.00E+00	4.95E-08	7.92E-05
	Resource use, energy carriers [MJ][5]	3.45E-03	2.38E-01	0.00E+00	3.25E-01	1.29E+00	3.45E-03	2.38E-01	0.00E+00	3.25E-01	1.29E+00
	Water deprivation potential [m³ world equiv.][5]	1.07E-05	1.39E-03	0.00E+00	1.62E-02	4.16E-02	1.07E-05	1.39E-03	0.00E+00	1.62E-02	4.16E-02

[5] 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 indicators	Scenario 100% Landfill					Scenario 100% recycling				
	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Use of renewable primary energy (PERE) [MJ] [6]	2.14E-05	2.48E-03	0.00E+00	2.31E-02	1.07E-01	2.14E-05	2.48E-03	3.70E-03	0.00E+00	1.29E-01
Primary energy resources used as raw materials (PERM) [MJ] [6]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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] [6]	2.14E-05	2.48E-03	0.00E+00	2.31E-02	1.07E-01	2.14E-05	2.48E-03	3.70E-03	0.00E+00	1.29E-01
Use of non-renewable primary energy (PENRE) [MJ] [6]	3.45E-03	1.46E-01	0.00E+00	1.32E-01	1.43E+00	3.45E-03	1.46E-01	3.47E-02	0.00E+00	7.15E-01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ] [6]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ] [6]	3.45E-03	1.46E-01	0.00E+00	1.32E-01	1.43E+00	3.45E-03	1.46E-01	3.47E-02	0.00E+00	7.15E-01
Use of secondary material (SM) [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (RSF) [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.46E-29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.93E-29
Use of non-renewable secondary fuels (NRSF) [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.59E-28	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.80E-28
Use of net fresh water (FW) [m3]	2.49E-07	1.99E-05	0.00E+00	3.51E-05	1.17E-03	2.49E-07	1.99E-05	1.03E-05	0.00E+00	3.32E-04

[6] From EPD International Construction Product PCR 2.0.1 (Annex 3). Option B was retained to calculate the primary energy use indicators.

Resources Use indicators	Scenario 100% incineration with ER					Scenario 100% incineration w/o ER				
	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Use of renewable primary energy (PERE) [MJ] [7]	2.14E-05	4.02E-03	0.00E+00	1.03E-02	1.07E-01	2.14E-05	4.02E-03	0.00E+00	1.03E-02	1.07E-01
Primary energy resources used as raw materials (PERM) [MJ] [7]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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] [7]	2.14E-05	4.02E-03	0.00E+00	1.03E-02	1.07E-01	2.14E-05	4.02E-03	0.00E+00	1.03E-02	1.07E-01
Use of non-renewable primary energy (PENRE) [MJ] [7]	3.45E-03	2.38E-01	0.00E+00	3.25E-01	1.43E+00	3.45E-03	2.38E-01	0.00E+00	3.25E-01	1.43E+00
Non-renewable primary energy resources used as raw materials (PENRM) [MJ] [7]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ] [7]	3.45E-03	2.38E-01	0.00E+00	3.25E-01	1.43E+00	3.45E-03	2.38E-01	0.00E+00	3.25E-01	1.43E+00
Use of secondary material (SM) [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (RSF) [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.46E-29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.46E-29
Use of non-renewable secondary fuels (NRSF) [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.59E-28	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.59E-28
Use of net fresh water (FW) [m3]	2.49E-07	3.24E-05	0.00E+00	3.79E-04	1.17E-03	2.49E-07	3.24E-05	0.00E+00	3.79E-04	1.17E-03

[7] From EPD International Construction Product PCR 2.0.1 (Annex 3). Option B was retained to calculate the primary energy use indicators.

Waste Category & Output Flows	Scenario 100% landfill					Scenario 100% recycling				
	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Hazardous waste disposed (HWD) [kg]	3.01E-06	1.43E-04	0.00E+00	3.29E-11	1.05E-03	3.01E-06	1.43E-04	5.02E-12	0.00E+00	-1.55E-03
Non-hazardous waste disposed (NHWD) [kg]	2.33E-05	8.68E-03	0.00E+00	6.71E-01	8.33E-01	2.33E-05	8.68E-03	6.71E-01	0.00E+00	-5.59E-01
Radioactive waste disposed (RWD) [kg]	3.82E-10	4.64E-08	0.00E+00	1.39E-06	1.05E-05	3.82E-10	4.64E-08	4.36E-07	0.00E+00	3.51E-04
Components for re-use (CRU) [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for Recycling (MFR) [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.71E-01	0.00E+00	0.00E+00
Material for Energy Recovery (MER) [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electrical energy (EEE) [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (EET) [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Waste Category & Output Flows	Scenario 100% incineration with ER					Scenario 100% incineration w/o ER				
	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE	END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Hazardous waste disposed (HWD) [kg]	3.01E-06	2.32E-04	0.00E+00	6.84E-04	1.05E-03	3.01E-06	2.32E-04	0.00E+00	6.84E-04	1.05E-03
Non-hazardous waste disposed (NHWD) [kg]	2.33E-05	1.41E-02	0.00E+00	6.71E-01	8.33E-01	2.33E-05	1.41E-02	0.00E+00	6.71E-01	8.33E-01
Radioactive waste disposed (RWD) [kg]	3.82E-10	7.54E-08	0.00E+00	9.58E-07	1.05E-05	3.82E-10	7.54E-08	0.00E+00	9.58E-07	1.05E-05
Components for re-use (CRU) [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for Recycling (MFR) [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for Energy Recovery (MER) [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electrical energy (EEE) [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (EET) [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Declaration of variation

Variation between products

According to PCR 2.0.1, since this EPD is multi-product, the variation of impact between products shall be declared. There are some variations in product density and packaging.
The following table provides this variation of impact between

- reference and the minimum
- reference and maximum

DEVIATION A-C	BETWEEN REFERENCE AND MINIMUM	BETWEEN REFERENCE AND MAXIMUM
GWP-GHG	-5%	0.4%
Climate Change (total)	-3%	-0.5%
Climate Change (fossil)	-4%	0.5%
Climate Change (biogenic)	0%	3.0%
Climate Change (land use change)	-5%	0.3%
Ozone depletion	-6%	0.0%
Acidification terrestrial and freshwater	-5%	0.2%
Eutrophication freshwater	-5%	0.4%
Eutrophication marine	-5%	0.1%
Eutrophication terrestrial	-5%	0.1%
Photochemical ozone formation - human health	-4%	0.8%
Resource use, mineral and metals	-5%	0.1%
Resource use, energy carriers	-5%	0.3%
Water deprivation potential	-4%	0.7%

Additional environmental information:

Conversion to specific thicknesses

This EPD® includes the range of products with different thicknesses between 45 mm and 120 mm. A multiplication factor can be applied to obtain the environmental performance of every thickness. All the results of this EPD® refer to the reference thickness of 45 mm.

To obtain the environmental performance associated with every specific thickness, the results expressed in this EPD® must be multiplied by its corresponding multiplication factor.

PRODUCT THICKNESS (MM)	MULTIPLICATION FACTOR
45	1.00
70	1.56
95	2.11
120	2.67

For custom thickness' the multiplication factor can be calculated:

$$Multiplication\ factor = \frac{product\ thickness\ (mm)}{45}$$

Alternative transport distances for A4

This EPD assumes that the product is sold in Sweden. But it is sold throughout the Nordics and Baltics. The core environmental impacts of A4 are shown here.

	Denmark	Finland	Norway	Estonia	Latvia	Lithuania
Distance by truck/km	150	1670	580	820	480	510
Distance by ship/km	0	95	0	410	410	410
Climate Change [kg CO2 eq.]	9.47E-03	1.06E-01	3.66E-02	5.62E-02	3.47E-02	3.66E-02
Climate Change (fossil) [kg CO2 eq.]	9.59E-03	1.08E-01	3.71E-02	5.68E-02	3.51E-02	3.70E-02
Climate Change (biogenic) [kg CO2 eq.]	-2.14E-04	-2.39E-03	-8.29E-04	-1.17E-03	-6.82E-04	-7.24E-04
Climate Change (land use change) [kg CO2 eq.]	9.91E-05	1.10E-03	3.83E-04	5.42E-04	3.17E-04	3.37E-04
Ozone depletion [kg CFC-11 eq.]	1.13E-15	1.27E-14	4.39E-15	6.62E-15	4.05E-15	4.28E-15
Acidification terrestrial and freshwater [Mole of H+ eq.]	1.24E-05	1.72E-04	4.78E-05	2.14E-04	1.86E-04	1.88E-04
Eutrophication freshwater [kg P eq.]	2.60E-08	2.90E-07	1.00E-07	1.43E-07	8.43E-08	8.95E-08
Eutrophication marine [kg N eq.]	4.74E-06	6.08E-05	1.83E-05	6.03E-05	4.96E-05	5.05E-05
Eutrophication terrestrial [Mole of N eq.]	5.00E-05	6.43E-04	1.93E-04	6.50E-04	5.36E-04	5.46E-04
Photochemical ozone formation - human health [kg NMVOC eq.]	1.03E-05	1.38E-04	4.00E-05	1.55E-04	1.32E-04	1.34E-04
Resource use, mineral and metals [kg Sb eq.][8]	6.38E-10	7.13E-09	2.47E-09	3.60E-09	2.15E-09	2.28E-09
Resource use, energy carriers [MJ][1]	1.23E-01	1.38E+00	4.74E-01	7.22E-01	4.44E-01	4.69E-01
Water deprivation potential [m³ world equiv.][1]	3.85E-05	4.31E-04	1.49E-04	2.19E-04	1.32E-04	1.39E-04

[8] 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 experie

Electricity information

The electricity used during the manufacturing (A3) is based on the following:

The Billesholm factory based in Sweden uses electricity with Guarantee of Origin certificate (GO). 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 covers 100% of the electricity consumption on the manufacturing site.

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of the Guarantee of Origin purchased by Saint-Gobain
Share of electricity covered by the Guarantee of Origin	100% of the energy consumption is covered by the GO
Energy sources for electricity	Share of energy sources Nuclear 100% 2% transmission losses
Dataset version	Sphera CUP2024.2
Source	Guarantee of Origin certificate: 28th October 2024
GWP-GHG CO_2 eq.	0.005 kg of CO_2 eq./kWh

An EPD is valid for 5 years. Therefore, the GO will be prolonged continuously to be valid for the whole validity of the EPD. If not prolonged, the EPD will be updated.

Biogas information

The biogas used during the manufacturing (A3) is based on the following:
The raw materials used for biogas production vary throughout the year. None of the raw materials used for biogas production is a secondary fuel because the generic co-product allocation approach in module A1-3 is used as the allocation approach in the manufacturing process. For this reason, the energy resource use is reported in the LCA as a primary resource (and not secondary fuel). The allocation then needs to consider the very low value of the co-products used for the biogas as just a few percentages compared to the main products (no exact figures are available). Specific data for all those processes are not available (and not required by RED). The most representative LCA data applicable for this biogas production considers the EN 15804 economical allocation approach.

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of the Guarantee of Origin purchased by Saint-Gobain
Share of electricity covered by the Guarantee of Origin	50% of the energy consumption is covered by the GO
Energy sources for biogas	Variety
Dataset version	Sphera CUP2024.2
Source	Guarantee of Origin certificate: provided monthly
GWP-GHG CO_2 eq.	0.11 kg of CO_2 eq./kWh

An EPD is valid for 5 years. Therefore, the GO will be prolonged continuously to be valid for the whole validity of the EPD. If not prolonged, the EPD will be updated.

Other additional environmental information

No additional information displayed

Additional social and economic information

No additional information displayed

Version history

Version 1

Abbreviation

DU	Declared unit
EPD	Environmental Product Declaration
eq.	equivalents
FU	Functional unit
g	gram
GJ	Giga Joules (as Net Calorific Value)
kg	kilogram
kWh	kilowatt-hour
L	liter
LCA	Life Cycle Assessment
LCI	Life Cycle Inventory
LCIA	Life Cycle Impact Assessment
MJ	Mega Joules (as Net Calorific Value)
m²·K/W	kilowatt per square meter
PCR	Product Category Rules
RSL	Reference Service Life (in years)
ton	metric ton
W/(m.K)	Watts per meter-Kelvin
GWP	Global warming potential
GWP-GHG	Global warming potential - Greenhouse gas
GHG	Greenhouse gas
GO	Guaranty of origin
AIB	Association of issuing bodies
IOBC	Instantaneous Oxidation of Biogenic Carbon
EF	Environmental footprint

References

- ISO 14040:2006 Environmental Management - Life Cycle Assessment - Principles and framework.
- ISO 14044:2006 Environmental Management - Life Cycle Assessment - Requirements and guidelines.
- ISO 14025:2006 Environmental labels and Declarations - Type III Environmental Declarations - Principles and procedures.
- EN 15804:2012+A2:2019/AC:2021 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
- EN 15941 Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data
- EPD International. General Program Instructions (GPI) for the International EPD® System (version 5.0.1) http://www.environdec.com/.
- European Chemical Agency, Candidate List of substances of very high concern for Authorization. https://echa.europa.eu/candidate-list-table.
- Product Environmental Footprint Category Rules (PEFCRs) for products in buildings (2019).
- The International EPD System PCR 2019:14 Construction products and Construction services. Version 2.0.1
- EN 16783 Thermal insulation products - Environmental Product Declarations (EPD) - Product Category Rules (PCR) complementary to EN 15804 for factory made and in-situ formed products
- Amy Stockwell, January 2026, Project report for the verification of the Environmental Product Declaration of Insulation Products made in Bilesholm T6 Sweden