ENVIRONMENTAL PRODUCT DECLARATION

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

Isover PLE MAX

Stonewool boards

(50→250 mm)

Version 01
Version date: 2025/08/13
Validity date: 2030/08/12
Validity: 5 years

EPD INTERNATIONAL EPD SYSTEM

The International EPD® System
Programme operator: EPD international AB
Registration number: EPD-IES-0024713

ECO PLATFORM EPD VERIFIED

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

Isover, Saint-Gobain

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
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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: prof. Ing. Silvia Vilčeková, PhD., Silcert, s.r.o. tel.:+421907993033, Company: Silcert, s.r.o
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 Construction Products România, Calea Floreasca, no.165, One United Tower, Code 014459, Bucureşti, România
Description of the organization of the EPD owner:
Saint-Gobain designs, manufactures and distributes materials and services for the construction and industrial markets.
Its integrated solutions for the renovation of public and private buildings, light construction and the decarbonization of construction and industry are developed through a continuous innovation process and provide sustainability and performance.
Management system-related certification: ISO 9001:2015, ISO 14001:2015,ISO 45001:2018
LCA Practitioner: Ana-Maria Dumitru (ana-maria.dumitru@saint-gobain.com) Saint-Gobain România
Communication: The intended use of this EPD is for B2B communication.

Product information

Product name: Isover PLE MAX
Visual representation of the product:

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): ISOVER, Ploiesti, Romania

Product description

ISOVER PLE MAX boards are used for thermal, acoustic and fire insulation in civil and industrial buildings according to standard EN 13162:2012 + A1:2015):Thermal insulation for buildings (ThiB):
- pitched roofs and attics.
- wooden houses walls.
- metallic buildings walls.
- partition walls with specified fire resistance performances

To calculate the impact of the range of commercial thicknesses between 50 mm and 250 mm, 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 stone wool. The products are obtained in the form of a "stone wool mat" characterized by a soft and airy structure.

For more information: https://www.isover.ro/products/isover-ple-max#descriptions

Technical data/physical characteristics:

TECHNICAL ASPECT	VALUE / DESCRIPTION
Thermal resistance	2.70 $K.m^2.W^{-1}$ (EN 13162:2012 + A1:2015)
Thermal conductivity	0.037 W/(m·K) (EN 13162:2012 + A1:2015)
Reaction to fire	A1 (EN 13162:2012 + A1:2015)
Density	32 kg/m^3

APPLICATION	VALUE / DESCRIPTION
Intended use and key functionalities	thermal insulation
Expected influence on the operational aspects and impact of the building or other construction work	Insulation significantly impacts both the operational performance and environmental footprint of a building. It reduces energy consumption, lowers heating and cooling costs, enhances indoor comfort, and minimizes the building's carbon footprint.
Restrictions to a type of construction or building	No restriction
Lifespan	50 years

Content declaration

This EPD uses the 100 mm thickness as a reference. The content declaration is representative of this thickness.

Description of the main components and/or materials:

Quantity for 1 declared unit	3.2 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	3.10E+00	0	0.0%	0.00E+00
> Recycled glass	6.15E-03	0.0%	0.0%	0.00E+00
Additives	0.00E+00	0.0%	0.0%	0.00E+00
Binder	1.02E-01	0.0%	0.000%	0.00E+00
Facing	0.00E+00	0.0%	0.0%	0.00E+00
Sum	**3.20**	**0%**	**0.00%**	**0.00E+00**
Packaging materials	**Mass (kg)**	**Mass - % (vs the product)**	**Biogenic material, weight- kg C/DU**	
LDPE film	*0.08*	*2.5%*	*0.00E+00*	
Paper label	*0.00*	*0.1%*	*7.50E-04*	
Thermal ribbon	*0.00*	*0.1%*	*0.00E+00*	
Wooden Pallet	*0.52*	*16.2%*	*2.14E-01*	

Hazardous substances

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).

LCA Information

TYPE OF EPD	Cradle to gate with options, module C1-C4, module D and optional modules (A4–A5 + B1–B7).
DECLARED UNIT	1 m^2 of product with a thermal resistance of 2.7 $K.m^2.W^{-1}$, a thickness of 100 mm for 50 years.
CONVERSION FACTOR TO MASS	Density = 32 kg/m^3
SYSTEM BOUNDARIES	Cradle to gate with options, module C1-C4, module D and optional modules (A4–A5 + B1–B7).
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. - 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: Europe Data is collected from one production site ISOVER located in Romania Data collected for the year 2024
BACKGROUND DATA SOURCE	Databases Sphera CUP2024.2 and ecoinvent v.3.10 GWP100, EN 15804. Version: EF 3.1, February, 2023
SOFTWARE	Sphera LCA for experts (GaBi) 10

Data quality declaration

Data Collection	01/01/2024 to 31/12/2024
Sites used	ISOVER, Ploiesti, Romania
Geography	Product in Romania Sold in Europe Use and disposal in Europe
Technology	Raw materials are transformed into lava using industrial SBM melter. Stone wool fibers are obtain by centrifuging lava, then sprayed with binder, cured and sized.
Averaging	Production weighted average covering 100 % of production by the company
LCI/LCA database	Sphera CUP2024.2 and ecoinvent v.3.10
EPD used	None
Data Quality Scheme	EN 15804:2012+A2:2019, Annex E, Table E.2
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

PROCESS	SOURCE TYPE	SOURCE	REFERENCE YEAR	DATA CATEGORY	SHARE OF PRIMARY DATA OF GWP-GHG RESULTS FOR A1-A3
Plant data					
Electricity	Database	Sphera 2024.2/ecoinvent 3.10	<5 years old	Primary data	0.3%
Emissions Specific	Collected data	EPD Owner	<5 years old	Primary data	23.1%
Thermal Energy	Database	Sphera 2024.2	<5 years old	Primary data	46.2%
Transport of RM					
Transport of RM Packaging	Database	Sphera 2024.2	<5 years old	Primary data, secondary data	0.3%
Transport of RM Product	Database	Sphera 2024.2	<5 years old	Primary data, secondary data	2.7%
				Total share of primary data	72.63%

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	GLO	GLO	RO	EU	EU	-	-	-	-	-	-	-	EU	EU	EU	EU	RO

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

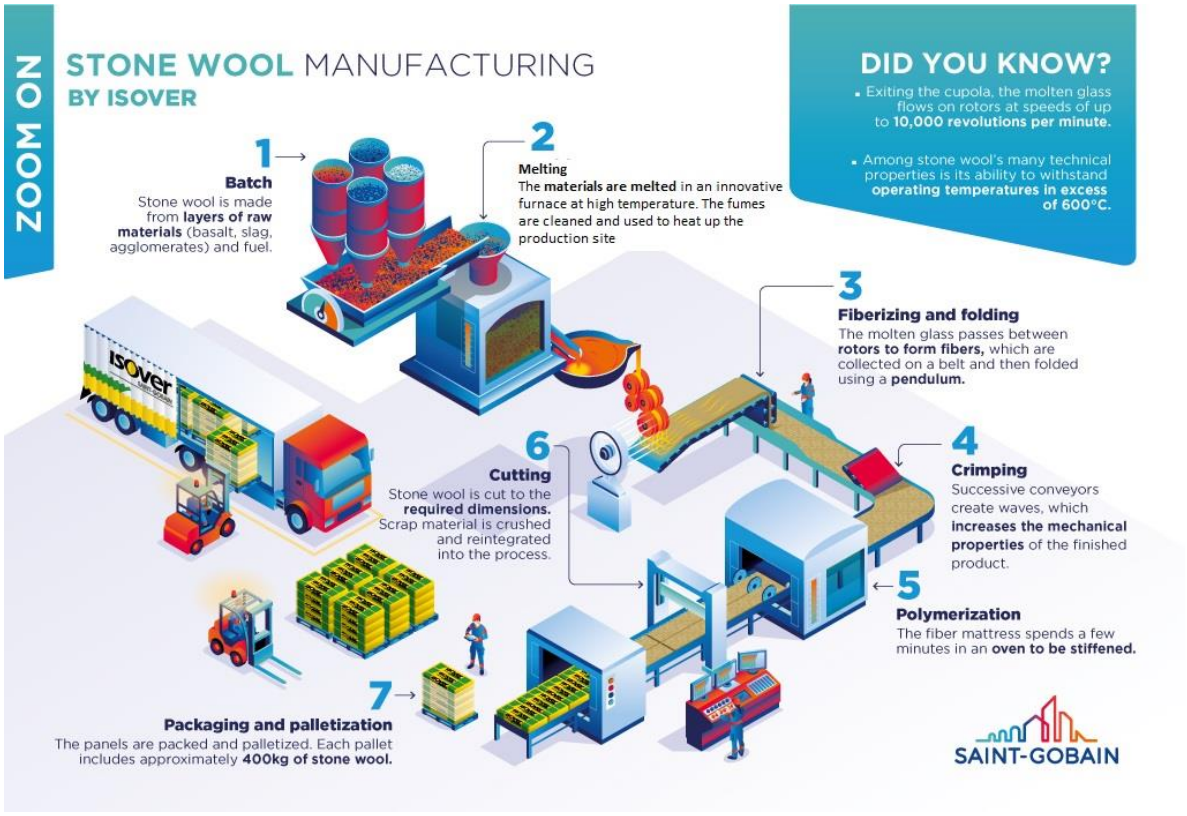
This module includes the extraction and transformation of raw materials.

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.

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 2.4 t, and consumption of 0.38 liters per km
Distance	362.8 km by truck
Capacity utilization (including empty returns)	100% of the capacity in volume 7% of the capacity in weight 23% of empty returns
Bulk density of transported products	32 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:

- A loss of 2% of the product is considered during the installation
- The wooden pallet is reused 1 time before end-of-life
- The transport of product waste is modelled as in C2-C4.
- 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: 0.064 kg/DU Pallet: 0.521 kg/DU PE film: 0.080 kg/DU
Transport of packaging waste	Landfill: 50 km Recycling: 50 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: 0.064 kg/DU to landfill (100%) Pallet: 0.365 kg/DU recycling (70.1%) and 0.156 kg/DU landfill (29.9%) PE film: 3.39E-02 kg/DU to recycling (42,4%), 3.82E-02 kg/DU landfill (47.8%) and 0.784E-02 kg/DU incineration with energy recovery (9.8%)
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:

- **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 0.045 MJ/kg.
- **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	VALUE/DESCRIPTION
Energy for demolition	0.045 MJ/kg diesel
Collection process specified by type	The entire product, including any facing, is collected with mixed construction waste. 3.2 kg of product landfill
Recovery system specified by type	There is no recovery, recycling or reuse of the product once it has reached its end of life phase.
Disposal specified by type	3.2 kg of product are landfilled
Assumptions for scenario development (e.g., transportation)	The waste going to landfill is transported 50 km by truck from deconstruction/demolition sites to landfill

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/declared unit of 1 m^2 of mineral wool with thermal resistance of 2.7 $m^2.K.W^{-1}$ for a thickness of 100 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 [kg CO2 eq.]	2.71E+00	6.67E-01	9.25E-01	0	0	0	0	0	0	0	1.44E-02	2.56E-02	0.00E+00	4.84E-02	-3.74E-02
	Climate Change (fossil) [kg CO2 eq.]	3.49E+00	6.54E-01	1.27E-01	0	0	0	0	0	0	0	1.44E-02	2.51E-02	0.00E+00	4.79E-02	-3.75E-02
	Climate Change (biogenic) [kg CO2 eq.]	-7.80E-01	1.79E-03	7.98E-01	0	0	0	0	0	0	0	1.16E-06	7.05E-05	0.00E+00	2.58E-04	1.89E-04
	Climate Change (land use change) [kg CO2 eq.]	2.53E-03	1.08E-02	1.63E-04	0	0	0	0	0	0	0	1.25E-06	4.11E-04	0.00E+00	2.87E-04	-2.52E-05
	Ozone depletion [kg CFC-11 eq.]	3.75E-06	6.45E-14	7.52E-08	0	0	0	0	0	0	0	2.21E-10	3.60E-15	0.00E+00	1.29E-13	-1.28E-09
	Acidification terrestrial and freshwater [Mole of H+ eq.]	6.23E-03	8.66E-04	2.33E-04	0	0	0	0	0	0	0	1.30E-04	3.28E-05	0.00E+00	3.40E-04	-1.32E-04
	Eutrophication freshwater [kg P eq.]	2.88E-05	2.73E-06	1.14E-06	0	0	0	0	0	0	0	5.08E-08	1.04E-07	0.00E+00	1.09E-07	-1.04E-06
	Eutrophication marine [kg N eq.]	1.51E-03	3.09E-04	6.95E-05	0	0	0	0	0	0	0	6.04E-05	1.18E-05	0.00E+00	8.75E-05	-2.28E-05
	Eutrophication terrestrial [Mole of N eq.]	2.00E-02	3.72E-03	7.78E-04	0	0	0	0	0	0	0	6.61E-04	1.41E-04	0.00E+00	9.64E-04	-2.49E-04
	Photochemical ozone formation - human health [kg NMVOC eq.]	6.15E-03	8.10E-04	2.57E-04	0	0	0	0	0	0	0	1.97E-04	3.26E-05	0.00E+00	2.68E-04	-1.77E-04
	Resource use, mineral and metals [kg Sb eq.][1]	5.02E-06	5.45E-08	1.79E-07	0	0	0	0	0	0	0	5.15E-09	2.13E-09	0.00E+00	3.10E-09	-1.67E-07
	Resource use, energy carriers [MJ][1]	4.90E+01	8.36E+00	1.43E+00	0	0	0	0	0	0	0	1.87E-01	3.22E-01	0.00E+00	6.32E-01	-9.48E-01
	Water deprivation potential [m³ world equiv.][1]	5.42E-01	9.54E-03	1.86E-02	0	0	0	0	0	0	0	5.80E-04	3.79E-04	0.00E+00	5.48E-03	-1.10E-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]	1.55E+01	7.07E-01	3.42E-01	0	0	0	0	0	0	0	1.16E-03	2.78E-02	0.00E+00	1.10E-01	-3.51E-02
Primary energy resources used as raw materials (PERM) [MJ] [2]	7.86E+00	0.00E+00	-5.44E+00	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (PERT) [MJ] [2]	2.34E+01	7.07E-01	-5.10E+00	0	0	0	0	0	0	0	1.16E-03	2.78E-02	0.00E+00	1.10E-01	-3.51E-02
Use of non-renewable primary energy (PENRE) [MJ] [2]	4.40E+01	8.36E+00	1.33E+00	0	0	0	0	0	0	0	1.87E-01	3.22E-01	0.00E+00	6.32E-01	-9.48E-01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ] [2]	6.06E+00	0.00E+00	-1.52E+00	0	0	0	0	0	0	0	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] [2]	5.00E+01	8.36E+00	-1.88E-01	0	0	0	0	0	0	0	1.87E-01	3.22E-01	0.00E+00	6.32E-01	-9.48E-01
Use of secondary material (SM) [kg]	3.45E-02	0.00E+00	6.90E-04	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]	1.63E-27	0.00E+00	3.25E-29	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]	1.91E-26	0.00E+00	3.82E-28	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) [m3]	1.42E-02	7.94E-04	4.72E-04	0	0	0	0	0	0	0	1.35E-05	3.09E-05	0.00E+00	1.67E-04	-2.56E-04

[2] From EPD International Construction Product PCR 2.0 (Annex 3). 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]	7.85E-02	2.70E-10	2.44E-03	0	0	0	0	0	0	0	1.63E-04	1.23E-11	0.00E+00	1.57E-10	-8.47E-04
Non-hazardous waste disposed (NHWD) [kg]	6.79E-01	1.30E-03	3.29E-01	0	0	0	0	0	0	0	1.26E-03	5.26E-05	0.00E+00	3.20E+00	-1.48E-02
Radioactive waste disposed (RWD) [kg]	7.60E-04	1.08E-05	1.62E-05	0	0	0	0	0	0	0	2.07E-08	5.87E-07	0.00E+00	6.62E-06	-8.16E-07
Components for re-use (CRU) [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
Materials for Recycling (MFR) [kg]	0.00E+00	0.00E+00	4.07E-01	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	7.95E-03	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	5.31E-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	9.44E-02	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Additional voluntary indicators from EN 15804

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]	3.47E+00	6.62E-01	1.39E-01	0	0	0	0	0	0	0	1.43E-02	2.54E-02	0.00E+00	4.81E-02	-3.68E-02

Information on biogenic carbon content

Biogenic Carbon Content	PRODUCT STAGE
	A1 / A2 / A3
Biogenic carbon content in product [kg]	0.00E+00
Biogenic carbon content in packaging [kg]	2.14E-01

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

The 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.

Declaration of variation

Additional environmental information:

Conversion to specific thicknesses

This EPD® includes the range of products with different thicknesses between 50 mm and 250 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 100 mm with a value of R = 2.7 m^2*K/W.

To obtain the environmental performance associated with every specific thickness, the results expressed in this EPD® must be multiplied by its corresponding multiplication factor. The calculation of the conversion factor is based on the GWP-GHG indicator for A1-A3.

	PRODUCT 1		PRODUCT 2	
Thickness (mm)	50		60	
Thermal resistance (m²K/W)	1.35		1.6	
	A1-A3	**Total life cycle (A-C)**	**A1-A3**	**Total life cycle (A-C)**
GWP-GHG	0.5	0.5	0.6	0.6

	PRODUCT 3		PRODUCT 4	
Thickness (mm)	80		120	
Thermal resistance (m²K/W)	2.15		3.75	
	A1-A3	**Total life cycle (A-C)**	**A1-A3**	**Total life cycle (A-C)**
GWP-GHG	0.8	0.8	1.2	1.2

	PRODUCT 5		PRODUCT 6	
Thickness (mm)	140		150	
Thermal resistance (m²K/W)	3.75		4.05	
	A1-A3	**Total life cycle (A-C)**	**A1-A3**	**Total life cycle (A-C)**
GWP-GHG	1.4	1.4	1.5	1.5

	PRODUCT 7		PRODUCT 8	
Thickness (mm)	160		180	
Thermal resistance (m²K/W)	4.3		4.85	
	A1-A3	**Total life cycle (A-C)**	**A1-A3**	**Total life cycle (A-C)**
GWP-GHG	1.6	1.6	1.8	1.8

	PRODUCT 9		PRODUCT 10	
Thickness (mm)	200		220	
Thermal resistance (m²K/W)	5.4		5.9	
	A1-A3	**Total life cycle (A-C)**	**A1-A3**	**Total life cycle (A-C)**
GWP-GHG	2	2	2.2	2.2

	PRODUCT 11		PRODUCT 12	
Thickness (mm)	240		250	
Thermal resistance (m²K/W)	6.45		6.75	
	A1-A3	**Total life cycle (A-C)**	**A1-A3**	**Total life cycle (A-C)**
GWP-GHG	2.4	2.4	2.5	2.5

Electricity information

The Saint-Gobain Construction Products Romania, ISOVER factory based in Ploiesti 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 Hydro 71.4% Photovoltaic 10.14% Wind 18.46% 2% transmission losses
Dataset version	Sphera CUP2024.2
Source	Guarantee of Origin certificate: 2024 OMV Petrom
GWP-GHG CO_2 eq.	0.009751 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

Original version of the EPD.

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 Analysis
LCIA	Life Cycle Impact Assessment
MJ	Mega Joules (as Net Calorific Value)
$m^2 \cdot K/W$	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
GHG	Greenhouse gas
GO	Guaranty of origin
AIB	Association of issuing bodies
IOBC	Instantaneous Oxidation of Biogenic Carbon
EF	Environmental footprint

References

1. ISO 14040:2006 Environmental Management - Life Cycle Assessment - Principles and framework.
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3. ISO 14025:2006 Environmental labels and Declarations - Type III Environmental Declarations - Principles and procedures.
4. EN 15804:2012+A2:2019/AC:2021 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
5. EN 15941 Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data
6. EPD International. General Program Instructions (GPI) for the International EPD® System (version 5.0.1) http://www.environdec.com/.
7. European Chemical Agency, Candidate List of substances of very high concern for Authorization. https://echa.europa.eu/candidate-list-table.
8. Product Environmental Footprint Category Rules (PEFCRs) for products in buildings (2019).
9. The International EPD System PCR 2019:14 Construction products and Construction services. Version 2.0
10. 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
11. 2025.1 Insulation_LCA report template (PCR 2.0 EPD Int. System) SW Insulation 2025