

ENVIRONMENTAL PRODUCT DECLARATION

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

Diawool E

Version 2
Date of publication: 2024/11/04
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Validity: 5 years
Valid until: 2029/11/03
Scope of the EPD: Czech Republic
EPD of multiple product based on representative product

National Environmental Labeling Program

Program operator: Národní pravidla pro environmentální značení

Registration number: 3015 – EPD - 030066791



An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.cenia.cz

Programme information

PROGRAMME:	"National Environmental Labeling Program" Czech Republic (NPEZ)
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CEN standard EN 15804:2012 + A2:2019/AC:2021 serves as the Core Product Category Rules (PCR)

Product category rules (PCR): EN 15804+A2

Complementary PCR: EN 16783:2024

LCA accountability: Ing. arch. Tomáš Truxa, Saint-Gobain Construction Products CZ, a.s., Saint-Gobain LCA central team

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

☒ EPD verification by individual verifier

Third party verifier: Technický a zkušební ústav stavební Praha, s.p.
Prosecká 811/76a, Prague 9, 190 00 - info@tzus.cz

Approved by: Český institut pro akreditaci, o.p.s.

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

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they 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 characterisation 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

Company information

Manufacturer: Saint-Gobain Construction Products CZ, a.s., Smrčkova 2485/4, 180 00 Prague 8, Czech Republic
Production plant: Častolovice, Masarykova 197, 517 50, Czech Republic
Management system-related certification: ISO 14001, ISO 45001, ISO 50001, ISO 9001
Programme used: EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works – Environmental product declaration - core rules for the product category of construction product
Owner of the declaration: Saint-Gobain Construction Products CZ, a.s.
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)
Product name and manufacturer represented: Diawool E
EPD prepared by: Ing. arch. Tomáš Truxa, Saint-Gobain Construction Products CZ, a.s.; Saint-Gobain LCA central team
The intended use of this EPD is for B2B communication.
Geographical scope of the EPD: Czech Republic
EPD registration number: 3015 – EPD - 030066791
Declaration issued: 2024/11/04 valid until: 2029/11/03
Demonstration of verification: An independent verification of the declaration was made, according to ISO 14025:2010. This verification was external and conducted by the following third party based on the PCR mentioned above.

CEN standard EN 15804+A2 serves as the core PCR	
Independent verification of the declaration and data, according to EN ISO 14025:2010: ☐ Internal ☒ External	
Third party verifier: Technický a zkušební ústav stavební Praha, s.p. Prosecká 811/76a, Praha 9, 190 00 Czech Republic Certification Body for EPD, accredited by CAI - Czech Accreditation Institute, under No. 456/2024	

Product description

Product description and description of use

This Environmental Product Declaration (EPD) describes the environmental impacts of 1 m² of mineral wool with a thermal resistance of 1,30 $K.m^2.W^{-1}$ of Diawool E. To calculate the impact of the range of commercial thicknesses between 30 mm and 100 mm, see the table “influence of particular thickness". in additional information section.

This EPD applies for one specific product produced in one single plant of Saint-Gobain Construction Products CZ, a.s.

The production site of Saint-Gobain Construction Products CZ, a.s. in Častolovice uses natural raw materials (basalt, diabas), slag and briquettes, and fusion and fiberizing techniques to produce stone wool. The products are obtained in the form of a "mineral wool mat" characterized with a soft and airy structure.

Diawool E are the basic substrate boards for Isover vegetation roof systems. They are mainly used for extensive and semi-intensive compositions of flat and counter roofs as a partial substrate replacement. They are light and airy, and in addition to greening new buildings, they are also suitable for renovations. Their balanced ratio of hydroaccumulation and drainage ensures the removal of excess water and, at the same time, sufficient accumulation of rainwater for periods without natural watering.

Technical data/physical characteristics:

PARAMETER	VALUE / DESCRIPTION
Thermal resistance	1,30 $K.m^2.W^{-1}$ (EN 12667)
Thermal conductivity	0.037 W/(m·K) (EN 12667)
Reaction to fire	A1 (EN 13501-1)
Density	76 kg/m^3 (76 – 100 kg/m^3)

Declaration of the main product components and/or materials

Description of the main components and/or materials:

Product components	Weight (%)	Post-consumer material weight (%)	Biogenic material weight-kg C/product
Stone wool	≥ 95 %	0 %	0,00
Terpolymerbinder	≤ 5 %	0 %	0,00
Sum	100 %	0 %	0,00
Packaging materials	**Weight (kg)**	**Weight-% (vs the product)**	**Biogenic material, weight-kg C/product**
Stretch hood	0,04166	1,096 %	0,00
Wooden pallet	0,3819	10,050 %	1,67E-01
LE label	0,00049	0,013 %	0,00

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

TYPE OF EPD	Cradle to grave and module D
FUNCTIONAL UNIT	Providing a thermal insulation on 1 m² of product with a thermal resistance of 1,30 K.m2.W-1 and a thickness of 50 mm during 50 years
SYSTEM BOUNDARIES	Cradle to grave (A1, A2, A3, A4, A5, B1–B7, C1–C4) and module D
REFERENCE SERVICE LIFE (RSL)	The Reference Service Life (RSL) of the insulation product 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 that there is not enough information, the process energy and materials representing less than 1% of the whole energy and mass used can be excluded (if they do not cause significant impacts). The addition of all the inputs and outputs excluded cannot be bigger than the 5% of the whole mass and energy used, as well of the emissions to environment occurred. Flows related to human activities such as employee transport are excluded. The construction of plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the production of the building product when compared at these systems lifetime level.
ALLOCATIONS	Allocation has been avoided when possible and when not possible a mass allocation has been applied. The polluter pays and the modularity principles as well have been followed.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope: Czech Republic Data is collected from 1 production site Častolovice located in Czech Republic Data collected for the year 2022
BACKGROUND DATA SOURCE	The databases Sphera 2023.2 and ecoinvent v.3.9.1
SOFTWARE	Sphera LCA for experts (GaBi) 10

LCA scope

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	CZ	CZ	CZ	CZ	CZ	-	-	-	-	-	-	-	CZ	CZ	CZ	CZ	CZ

Specific data used	>90% GWP- GHG
Variation products	0%
Variation sites	0%

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”.

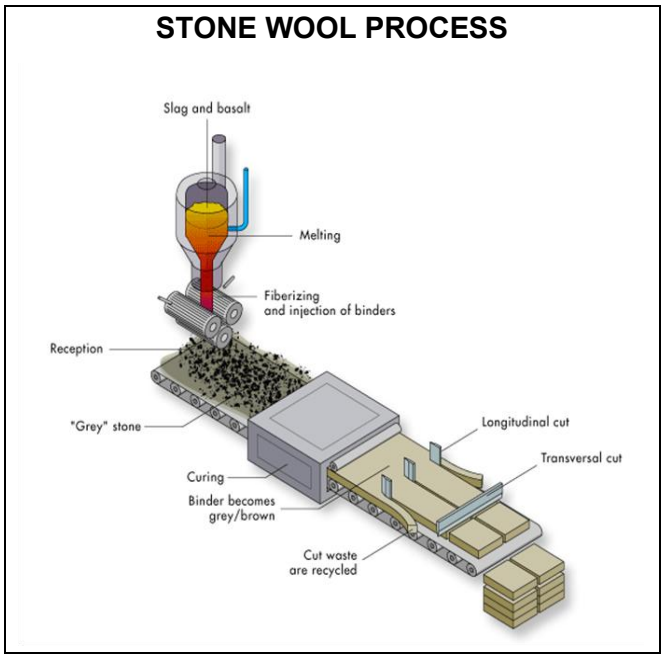
A1, Raw materials supply
This module includes the extraction and transformation of raw materials.

A2, Transport to the manufacturer
This module includes the transportation of raw materials and packaging to the manufacturing site. The modelling includes road transportations.

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

System diagram:



Manufacturing in detail:
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.

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
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 24 t and consumption of 0.32 liters per km
Distance	160 km
Capacity utilisation (including empty returns)	100% of the capacity in volume 30% of empty returns
Bulk density of transported products	76 kg/m^3 (76 – 100 kg/m^3)
Volume capacity utilisation factor	1

A5, Installation in the building: this module includes the installation of the product manually and no additional accessories, nor energy are considered

PARAMETER	VALUE/DESCRIPTION
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	2 %
Distance	25 km to landfill by truck
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)	Product lossess: 0,076 kg/m² Pallet: 0,3819 kg/m² Stretch hood: 0,04166 kg/m² PE label: 0,00049 kg/m²

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**: The de-construction and/or dismantling of the product takes part of the demolition of the entire building. In our case, the energy is considered is 0.05 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
Collection process specified by type	The entire product, including any facing is collected with mixed construction waste. 3,8 kg of mineral wool
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	3,8 kg of mineral wool is landfilled
Assumptions for scenario development (e.g. transportation)	The waste going to landfill is transported 25 km by truck from deconstruction/demolition sites to landfill

D, Reuse/recovery/recycling potential

There is no inclusion of secondary materials in the product and packaging.

100 % of wastes are landfilled. There is no reuse, nor recycling, nor incineration with energy recovery for the for the product nor its packaging.

Considering all the above, no benefits or loads are reported on stage D.

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 are from the ILCD. Raw materials and energy consumption, as well as transport distances have been taken directly from the manufacturing plant. Characterisation factors EN15804 based on EF 3.1.

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.

This EPD including module C, we strongly advise against using the results of modules A1-A3 without considering the results of module C.

Results refer to a functional unit of 1 m^2 of mineral wool with thermal resistance of 1,30 $m^2.K.W^{-1}$ for a thickness of 50 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.]	3,44E+00	3,52E-01	7,80E-01	0	0	0	0	0	0	0	1,70E-02	1,38E-02	0,00E+00	7,66E-02	-8,96E-01
Climate Change (fossil) [kg CO2 eq.]	4,04E+00	3,48E-01	9,31E-02	0	0	0	0	0	0	0	1,70E-02	1,37E-02	0,00E+00	5,63E-02	-8,96E-01
Climate Change (biogenic) [kg CO2 eq.]	-5,94E-01	9,19E-04	6,87E-01	0	0	0	0	0	0	0	2,14E-06	3,66E-05	0,00E+00	2,01E-02	8,58E-04
Climate Change (land use change) [kg CO2 eq.]	1,43E-03	3,26E-03	5,03E-05	0	0	0	0	0	0	0	1,91E-06	1,26E-04	0,00E+00	1,77E-04	-6,87E-04
Ozone depletion [kg CFC-11 eq.]	3,24E-07	3,08E-14	6,60E-09	0	0	0	0	0	0	0	2,70E-10	1,77E-15	0,00E+00	1,45E-13	-7,60E-09
Acidification terrestrial and freshwater [Mole of H+ eq.]	3,48E-02	4,58E-04	7,36E-04	0	0	0	0	0	0	0	1,57E-04	1,73E-05	0,00E+00	4,05E-04	-2,66E-03
Eutrophication freshwater [kg P eq.]	2,37E-04	1,28E-06	5,39E-06	0	0	0	0	0	0	0	5,21E-07	4,97E-08	0,00E+00	1,15E-07	-8,15E-05
Eutrophication marine [kg N eq.]	3,20E-03	1,67E-04	2,33E-04	0	0	0	0	0	0	0	7,30E-05	6,06E-06	0,00E+00	1,05E-04	-6,19E-04
Eutrophication terrestrial [Mole of N eq.]	1,40E-01	1,95E-03	2,97E-03	0	0	0	0	0	0	0	7,92E-04	7,09E-05	0,00E+00	1,15E-03	-5,80E-03
Photochemical ozone formation - human health [kg NMVOC eq.]	8,31E-03	4,04E-04	2,34E-04	0	0	0	0	0	0	0	2,35E-04	1,52E-05	0,00E+00	3,16E-04	-1,63E-03
Resource use, mineral and metals [kg Sb eq.][1]	3,21E-06	2,29E-08	7,33E-08	0	0	0	0	0	0	0	5,92E-09	9,01E-10	0,00E+00	2,64E-09	-9,27E-05
Resource use, energy carriers [MJ][1]	7,39E+01	4,79E+00	1,62E+00	0	0	0	0	0	0	0	2,22E-01	1,85E-01	0,00E+00	7,60E-01	-1,30E+01
Water deprivation potential [m³ world equiv.][1]	6,17E-01	4,06E-03	1,77E-02	0	0	0	0	0	0	0	7,49E-04	1,64E-04	0,00E+00	6,27E-03	-1,99E-01

[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]	3,92E+00	3,39E-01	8,69E-02	0	0	0	0	0	0	0	1,27E-03	1,35E-02	0,00E+00	1,24E-01	-6,23E+00
Primary energy resources used as raw materials (PERM) [MJ] [2]	6,12E+00	0,00E+00	1,22E-01	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]	1,00E+01	3,39E-01	2,09E-01	0	0	0	0	0	0	0	1,27E-03	1,35E-02	0,00E+00	1,24E-01	-6,23E+00
Use of non-renewable primary energy (PENRE) [MJ] [2]	5,69E+01	4,80E+00	1,28E+00	0	0	0	0	0	0	0	2,22E-01	1,86E-01	0,00E+00	7,61E-01	-1,41E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ] [2]	1,70E+01	0,00E+00	3,40E-01	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]	7,39E+01	4,80E+00	1,62E+00	0	0	0	0	0	0	0	2,22E-01	1,86E-01	0,00E+00	7,61E-01	-1,41E+01
Input of secondary material (SM) [kg]	7,95E-01	0,00E+00	1,59E-02	0	0	0	0	0	0	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,00E+00
Use of renewable secondary fuels (RSF) [MJ]	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	-9,35E-29
Use of non-renewable secondary fuels (NRSF) [MJ]	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	-1,10E-27
Use of net fresh water (FW) [m3]	1,51E-02	3,73E-04	4,30E-04	0	0	0	0	0	0	0	1,74E-05	1,48E-05	0,00E+00	1,92E-04	-8,13E-03

[2] From EPD International Construction Product PCR 1.3.2 (Annex 3). The option B was reatined 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]	5,49E-02	1,78E-11	1,10E-03	0	0	0	0	0	0	0	1,50E-06	5,76E-13	0,00E+00	1,66E-11	-1,15E-05
Non-hazardous waste disposed (NHWD) [kg]	6,73E-01	6,92E-04	5,77E-01	0	0	0	0	0	0	0	1,37E-03	2,83E-05	0,00E+00	3,80E+00	-3,40E-01
Radioactive waste disposed (RWD) [kg]	4,84E-03	6,21E-06	9,71E-05	0	0	0	0	0	0	0	2,43E-08	3,48E-07	0,00E+00	8,66E-06	-1,56E-03
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]	1,68E-01	0,00E+00	3,35E-03	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	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 thermal energy (EET) [MJ]	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

Additional voluntary 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	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
GWP-GHG [kg CO2 eq.][3]	4,06E+00	3,52E-01	1,23E-01	0	0	0	0	0	0	0	1,70E-02	1,38E-02	0,00E+00	5,68E-02	-8,96E-01

Information on biogenic carbon content

	PRODUCT STAGE
Biogenic Carbon Content	**A1 / A2 / A3**
Biogenic carbon content in product [kg]	0,00E+00
Biogenic carbon content in packaging [kg]	1,67E-01

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

The product does not contain biogenic carbon. 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.

Additional information:

Influence of thicknesses

This EPD includes the range of products with different thicknesses between 30 mm and 100 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 50 mm with a value of R=1,30 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 THICKNESS (MM)	THERMAL RESISTANCE (m^2k/W)	CONVERSION FACTOR	GWP-GHG (kg CO2 / m^2) for A1-A3 stage	CONVERSION TO MASS
30	0,80	**0,79**	3,22E+00	1,07E+00
50	1,30	**1,00**	4,06E+00	1,07E+00
100	2,65	**2,00**	8,12E+00	1,07E+00

Electricity information

The factory based in Častolovice uses 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.

TYPE OF INFORMATION	DESCRIPTION
Location	Electricity purchased by Saint-Gobain
Share of electricity covered by Guarantee of Origin	100% of the energy consumption is covered by the GO
Energy sources for electricity	Share of energy sources: 100% nuclear
Type of dataset	Cradle to gate from GaBi and ecoinvent databases
Source	Cradle to gate from Gabi and ecoinvent databases Guarantee of Origin certificate: ČEZ ESKO; reg. number: 202200015
CO_2 emission kg CO_2 eq. / kWh	0,0047 kg of CO_2 eq/kWh - Climate Change - fossil indicator

Data quality

Inventory data quality is judged by geographical, temporal, and technological representativeness. To cover these requirements and to ensure reliable results, first-hand industry data crossed with LCA background datasets were used. The data was collected from internal records and reporting documents from Častolovice. After evaluating the inventory, according to the defined ranking in the LCA report, the assessment reflects good inventory data quality.

Differences with previous version of the EPD

Correction of declaration of impact according to EN 15804:2012+A1.

Recycled content

The total amount of recycled content in the product Diawool E according EN ISO 14021 part 7.8 is 22 %.

The amount of recycled content in the product is divided as follows according to part 7.8.1.1:

PARAMETER	VALUE
Pre-consumer material	22 %

The calculation of the recycled content is based on the weight of the product.
Data on raw materials and production from 2022 are used in the calculation.

Environmental impacts according to EN 15804:2012 + A1

The following tables presents results for 1 m^2 of mineral wool with thermal resistance of 1,30 $m^2.K.W^{-1}$ for a thickness of 50 mm.

	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY, RECYCLING
Environmental impacts	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Global Warming Potential (GWP) [kg CO2eq.]	3,94E+00	3,47E-01	1,21E-01	0	0	0	0	0	0	0	1,68E-02	1,34E-02	0,00E+00	5,41E-02	-7,79E-01
Ozone depletion (ODP) [kg CFC 11eq.]	4,20E-07	3,63E-14	8,50E-09	0	0	0	0	0	0	0	2,20E-10	2,08E-15	0,00E+00	1,71E-13	-4,86E-09
Acidification potential (AP) [kg SO2eq.]	2,09E-02	3,28E-04	4,46E-04	0	0	0	0	0	0	0	1,11E-04	1,25E-05	0,00E+00	3,22E-04	-1,55E-03
Eutrophication potential (EP) [kg (PO4)3-eq.]	6,04E-03	7,25E-05	1,48E-03	0	0	0	0	0	0	0	2,67E-05	2,67E-06	0,00E+00	3,66E-05	-4,29E-04
Photochemical ozone creation (POCP) - [kg Ethylene eq.]	1,03E-03	-3,99E-05	3,21E-05	0	0	0	0	0	0	0	1,49E-05	-9,98E-07	0,00E+00	2,43E-05	-1,38E-04
Abiotic depletion potential for non-fossil resources (ADP-elements) [kg Sb eq.]	3,25E-06	2,28E-08	7,40E-08	0	0	0	0	0	0	0	5,92E-09	8,98E-10	0,00E+00	2,68E-09	-9,28E-05
Abiotic depletion potential for fossil resources (ADP-fossil fuels) [MJ]	5,84E+01	4,73E+00	1,31E+00	0	0	0	0	0	0	0	2,20E-01	1,82E-01	0,00E+00	7,29E-01	-7,90E+00

References

1. EN 15804:2012+A1:2013 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
2. EN 15804:2012+A2:2019/AC:2021 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
3. EN 16783:2017 Thermal insulation products - Product category rules (PCR) for factory made and in-situ formed products for preparing environmental product declarations
4. European Chemical Agency, Candidate List of substances of very high concern for Authorization. https://echa.europa.eu/candidate-list-table
5. LCA report Isover Častolovice 2022