ENVIRONMENTAL PRODUCT DECLARATION

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

ECOPHON FOCUS DS

Programme: The International EPD System, www.environdec.com
Programme operator: EPD International AB
Licensee: EPD Australasia
Type of EPD: EPD of a single product from a manufacturer
Registration number: EPD-IES-0029620:001

EPD in accordance with ISO 14025:2006, ISO 21930:2017 and EN 15804:2012+A2:2019/AC:2021

Version date: 2026-03-31
Validity date: 2031-03-30

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.environdec.com.

GENERAL INFORMATION

Programme information

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

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 (EN 15804+A2), version 2.0.1, (2025-06-05).

UN CPC CODE: 37990

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).

Complementary PCR: International EPD System, *Complementary Product Category Rules (c-PCR-014) to PCR 2019:14: Acoustical ceiling and wall solutions*, Version 1.0.0 (2025-04-15).

Verification

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

☒ Individual EPD verification without a pre-verified LCA/EPD tool

Third party verifier: Jonas Bengtsson, Edge Impact Greenhouse, Level 3, 180 George Street, Sydney
Email: jonas.bengtsson@edgeimpact.global

Approved by: 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.

For further information about comparability, see EN 15804 and ISO 14025.

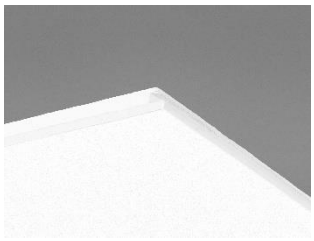
INFORMATION ABOUT EPD OWNER

Owner of the EPD: Saint-Gobain Ecophon AB
Adress: Box 500 265 03 Hyllinge Sweden
Contact information: carl.eriksson@ecophon.se

Description of the organization of the EPD owner: Ecophon designs and manufactures acoustic mineral wool ceilings and grid systems.
LCA Practitioner: Carl Eriksson, carl.eriksson@ecophon.se, Box 500 265 03 Hyllinge Sweden
Communication: The intended use of this EPD is for B2B communication.

PRODUCT INFORMATION

Product name: Ecophon Focus Ds
Visual representation of the product: Products are usually based on glass wool with a golden tone and covered with a white surface layer.
UN CPC CODE: 37990
Manufacturing site(s): Hyllinge, Sweden and Forssa, Finland



Product description

This Environmental Product Declaration (EPD) describes the environmental impact of 1 m² Focus Ds (acoustic ceiling) with the intent to increase sound absorption and be decorative in a room and to create a better indoor environment. The raw materials used for production are all from the European Union. Infrastructure is included in secondary data used in the impact calculations. Thanks to its acoustic properties, the mineral wool ceiling contributes to the absorption of ambient noise and allows acoustic correction to be carried out inside the premises. Intended use is sound absorption and decoration. The lifespan of an Ecophon product is like that of a building (often set to 50 years).

For more information: https://www.ecophon.com/en/

Technical data/physical characteristics:

TECHNICAL ASPECT	VALUE / DESCRIPTION
Weight	2.01 kg / m²
Density	100.4 kg/m^3

APPLICATION	VALUE / DESCRIPTION
Intended use and key functionalities	Sound absorption and interior design
Expected influence on the operational aspects and impact of the building or other construction work	Increased indoor room acoustics and visual appearance
Restrictions to a type of construction or building	N/A
Technical Service Life (TSL)	50 years

CONTENT DECLARATION

This EPD uses 20.00 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	2.01 kg per m² of finished product

Product components	Mass (kg)	Post-consumer recycled material (mass - % of product)	Biogenic material (mass - % of product)	Biogenic material (kg C/DU)
Glass wool	1.56E+00	70%	0%	0
Surface	2.50E-01	0%	0%	0
Paint	1.30E-01	0%	0%	0
Glue	3.20E-02	0%	0%	0
Sum	100%			
Packaging materials	**Mass (kg)**	**Mass - % (vs the product)**	**Biogenic material, weight- kg C/DU**	
Plastic wrap	0.00E+00	0.0%	0	
Cardboard box	1.40E-01	7.0%	0.06	
Wood pallet	4.00E-02	2.0%	0.02	

Contribution to GWP-GHG from the recycled material used in glass wool production is around 27%. Hence, the GWP-GHG intensity of the recycled glass cullet is 26.6 kgCO_2-eq./ton.

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).

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

LCA INFORMATION

Description of system boundaries	Cradle to grave and module D
FUNCTIONAL UNIT	1 m^2 of installed acoustic ceiling panels including the service life of 50 years and a declared acoustic performance class A.
CONVERSION FACTOR TO MASS	Density = 100.4 kg/m^3
SYSTEM BOUNDARIES	Cradle to grave and module D
Technical Service Life (TSL)	The Technical Service Life (TSL) 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 energy process 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. Installation of the product does not require additional accessories, water, or energy, and the associated impacts represent less than 0.1% of total energy consumption. Therefore, these stages are considered cut off in accordance with the applied criteria.
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:** Mass allocation has been implemented regarding the actual production split between different factories. No co-products and no waste allocation have been used.
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: A1-A3 EU, A4-C4: AU Data is collected from 3 production sites Hyllinge, Gliwice and Forssa located in Sweden, Poland and Finland Data collected for the year 2022
BACKGROUND DATA SOURCE	Databases Sphera CUP2025.2 and ecoinvent v.3.10

SOFTWARE	Sphera LCA for experts (GaBi) 10

Electricity information

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

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of residual mix in the country where the plant is located
Geographical & technical representativeness	Share of energy sources Biogas 0% Biomass 0.77% Coal gases 0% Geothermal 0% Hard coal 70.7% Heavy fuel oil (HFO) 0.15% Hydro 0.35% Lignite 0.03% Natural gas 17.39% Peat 0% Nuclear 1.63% Solar 8.04% Waste 0% Wind 0.13% Unspecified fossil 1.44% 2% transmission losses
Type of dataset/dataset version	Sphera CUP2025.2 ecoinvent 3.10 (medium voltage)
Source of electricity mix	Sphera/ecoinvent/AIB report 2024/IEA
GWP-GHG CO_2 eq.	0.922 kg of CO_2 eq./kWh

The Ecophon factories based in Hyllinge and Forssa use 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 sites.

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of the Guarantee of Origin purchased by Saint-Gobain for Hyllinge and Forssa
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 Biogas 0% Biomass 0% Coal gases 0% Geothermal 0% Hard coal 0% Heavy fuel oil (HFO) 0% Hydro 0%

	Lignite 0% Natural gas 0% Nuclear 0% Peat 0% Photovoltaic 0% Solar thermal 0% Waste 0% Wind 100% 2% transmission losses
Dataset version	Sphera CUP2025.2
Source	Guarantee of Origin certificate: Entelios
GWP-GHG CO_2 eq.	0.0129 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.

Data quality declaration

Data Collection	01/01/2022 to 31/12/2022
Sites used	Hyllinge, Gliwice and Forssa
Geography	Produced: EU Sold: Globally Use and disposal: Globally
Technology	Acoustic ceiling tiles are manufactured by laminating a fiber glass surface to the glass wool baseboard and trimming the panels to size. Edges may be left raw or milled for specific mounting applications. Paint is applied to some edge designs and ovens are used to dry the paint.
Averaging	Production weighted average covering 100 % of production by the company
LCI/LCA database	Sphera CUP2025.2 and ecoinvent v.3.10
EPD used	N/A
Data Quality Scheme	UN Environment Global Guidance
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
Raw Material from EPD					
Production of Glass wool	LCA model	Sphera 2025.2 and ecoinvent 3.10	2022	Secondary data	0%
Production of Surface	LCA results	ecoinvent 3.10	2022	Secondary data	0%
Production of Paint	LCA data	Sphera 2025.2 and ecoinvent 3.10	2022	Secondary data	0%
Production of Glue	LCA data	Sphera 2025.2 and ecoinvent 3.10	2022	Secondary data	0%
Plant data					
Generation of Electricity	Database	Sphera 2025.2 and ecoinvent 3.10	2021	Primary data	1%
Generation of Thermal Energy	Database	ecoinvent 3.10	2023	Primary data	0.5%
Transport					
Transport of raw materials	Database	Sphera 2025.2	2021	Primary data	0.5%
Other processes	Database	Sphera 2025.2 and ecoinvent 3.10	2022	Primary data	0%
				Total share of primary data	2%

Modules declared, geographical scope, share of primary data (in GWP-GHG results) and data variation (in GWP-GHG results):

X = Module declared; ND = 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	EU	AU	AU	AU	AU	AU	AU	AU	AU	AU	AU	AU	AU	AU	AU

Share of primary data	2%
Variation products	0%
Variation sites	+7/-54%

LIFE CYCLE STAGES

A1-A3. Product stage

The product stage of the acoustic glass wool ceiling 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.

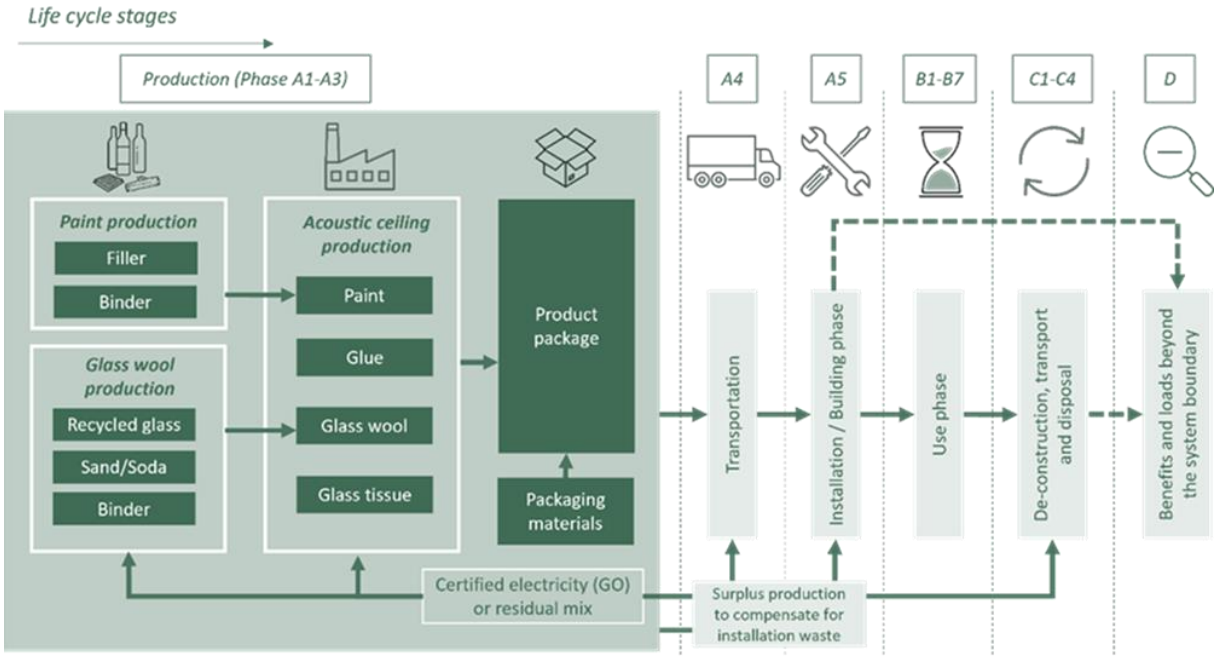
A2. Transport to the manufacturer

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

The glass wool panels are produced in a continuous online process starting with applying glass tissue on the glass wool baseboard. The panels are cut into correct sizes, and the edges of the panels are painted. After drying the panels are packed in cardboard boxes. 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



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 27 t, and consumption of 0.38 liters per km
Distance	384 km by truck 21 896 km by ship
Capacity utilization (including empty returns)	100% of the capacity in volume 28% of the capacity in weight 30% of empty returns
Bulk density of transported products	64-132 kg/m^3
Volume capacity utilization factor	0.45

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:

- Fasteners and other hardware like screws only constitute a negligible amount of the product weight < 0.1%, these are cutoff and excluded from the scope of this study.
- A loss of 5% of the product is considered during the installation.
- The transport of product waste is modelled as in C2.
- No additional accessory, water, or energy was considered for the installation of the insulation product. As a general figure, the time to install 1 DU product is 20 minutes. During this time the installer is considered to use handheld appliances for about 5% of this time, which in this case results in 1 minute. A handheld device such as a cordless screwdriver is considered to have a power of 0.7 kilowatt. Therefore, in one minute it will consume a total energy of 0.7*60 = 4.2 kilojoule = 0.0042 MJ, per m2 ceiling. In this context it is a negligible contribution and will not be part of the LCA calculation (lower than 0.1% of the total energy consumption).

PARAMETER	VALUE / DESCRIPTION
Waste of materials on the building site before waste processing, generated by the product's installation (specified by type)	Product: 1.00E-01 kg/DU Pallet: 4.00E-02 kg/DU Cardboard: 1.40E-01 kg/DU PE film: 0.00E+00 kg/DU
Transport of packaging waste	Landfill: 80 km Recycling: 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: 100% landfill Pallet: 83.3% recycling, 16.7% landfill Cardboard box: 50.3% recycling, 5.5% energy recovery, 44.2% landfill PE film: 11.5% recycling, 1.0% energy recovery, 87.5% landfill End of life fate split (dcceew.gov.au)
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
  Use is not relevant and therefore, this module has not been reported in the results tables.
- **B2:** Maintenance is only assumed to contain standard surface cleaning which has a negligible impact on the end results. B2 is therefore considered to be not relevant, and this module has not been reported in the results tables.
- **B3:** Repair
  No repair is required for the functional unit. Thus, B3 is not relevant, and this module has not been reported in the results tables.
- **B4:** Replacement
  No replacement of product is assumed under the product life cycle. B4 is therefore considered to be not relevant, and this module has not been reported in the results tables.
- **B5:** Refurbishment
  No refurbishment is assumed under the product life cycle. Thus, this module has not been reported in the result tables.
- **B6:** Operational energy use
  The product systems do not use energy. Thus, B6 is not relevant, and this module has not been reported in the results tables.
- **B7:** Operational water use
  The product systems do not use water. Thus, B7 is not relevant, and this module has not been reported in the results tables.

The product has a service life of 50 years. Following the assumptions in the c-PCR, it is assumed that the product will last in-situ with no requirements for maintenance, repair, replacement, or refurbishment throughout this period. Therefore, there are no reported impacts for the results in 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 in 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
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 with real 27 t payload and consumption of 0,38 liters per km
Collection process specified by type	The entire product is collected with mixed construction waste. 2.01 kg of product
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	2.01 kg of product is landfilled
Assumptions for scenario development (e.g., transportation)	The waste going to landfill is transported 80 km by truck from deconstruction/demolition sites to landfill

The end-of-life scenario for the acoustic panels considers that they are landfilled once no longer in use, reflecting the most common practice globally due to the practical challenges of recycling. Alternative end-of-life pathways, such as recycling or incineration with energy recovery, are not considered in this EPD, as they are not representative of typical disposal practices for this product in any geographical location. Therefore, the end-of-life scenario considered in this EPD is a single 100% scenario where the acoustic panels are landfilled.

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

The 'Water Deprivation Potential' (WDP) indicator is characterised using global characterisation factors and does not use regionalised Australian catchment-level data.

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 about 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 [m³ 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 installed acoustic ceiling panels including the service life of 50 years and a declared acoustic performance class A.

The footnote numbers associated with the impact indicator names in the result tables relate to the disclaimers presented above.

Environmental Impacts

Environmental impacts								
Parameters	Product stage	Construction process stage		End-of-life stage				Reuse, recovery, recycling
	A1–A3	A4	A5	C1	C2	C3	C4	D
Climate change - total *[kg CO_2 eq.]*	2.7E+00	7.1E-01	4.4E-01	7.9E-03	1.2E-02	7.9E-03	3.0E-02	-2.6E-02
Climate change - fossil *[kg CO_2 eq.]*	2.7E+00	7.1E-01	1.4E-01	7.9E-03	1.2E-02	7.9E-03	2.9E-02	-3.0E-02
Climate change - biogenic *[kg CO_2 eq.]*	9.7E-03	6.4E-04	3.0E-01	6.3E-07	2.5E-05	6.3E-07	7.7E-05	-1.2E-06
Climate change - land use and land use change *[kg CO_2 eq.]*	6.5E-03	6.9E-04	3.4E-04	6.8E-07	1.2E-04	6.8E-07	8.8E-05	-8.9E-06
Ozone depletion *[kg CFC 11 eq]*	1.2E-06	8.2E-14	5.9E-08	9.5E-11	1.7E-15	9.5E-11	1.5E-16	-1.1E-09
Acidification *[Mole of H+ eq.]*	1.5E-02	1.7E-02	7.7E-04	2.6E-05	1.1E-05	2.6E-05	1.7E-04	-2.2E-05
Eutrophication, freshwater *[kg P eq.]*	3.4E-04	3.4E-07	1.7E-05	2.3E-07	3.3E-08	2.3E-07	5.0E-08	-1.3E-06
Eutrophication, marine *[kg N eq.]*	4.4E-03	5.0E-03	2.3E-04	1.6E-05	6.2E-06	1.6E-05	5.5E-05	-1.0E-05
Eutrophication, terrestrial *[Mole of N eq.]*	6.6E-02	5.5E-02	3.4E-03	1.7E-04	6.6E-05	1.7E-04	6.1E-04	-9.3E-05
Photochemical ozone formation, human health *[kg NMVOC eq.]*	1.1E-02	1.4E-02	5.8E-04	5.8E-05	1.4E-05	5.8E-05	1.7E-04	-6.0E-05
Resource use, mineral and metals [1] [2] *[kg Sb eq.]*	9.1E-05	2.0E-08	4.5E-06	2.8E-09	8.0E-10	2.8E-09	2.8E-09	-2.1E-08
Resource use, fossils [1] *[MJ]*	3.7E+01	8.3E+00	1.7E+00	1.0E-01	1.5E-01	1.0E-01	4.0E-01	-4.6E-01
Water deprivation [1] *[m^3 world eq.]*	1.5E+00	1.5E-03	8.3E-02	3.1E-04	4.8E-05	3.1E-04	3.2E-03	-6.9E-04

[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 experience with the indicator

[2] The results of the impact category abiotic depletion of minerals and metals may be highly uncertain in LCAs that include capital goods/infrastructure in secondary 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 secondary datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.

Resources Use

Resource use								
Parameters	Product stage	Construction process stage		End-of-life stage				Reuse, recovery, recycling
	A1–A3	A4	A5	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials [1] *[MJ]*	8.9E+01	9.9E-02	4.4E+00	6.3E-04	1.1E-02	6.3E-04	5.3E-02	-1.1E+00
Use of renewable primary energy used as raw materials *[MJ]*	3.1E+00	0.0E+00	-3.1E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) *[MJ]*	9.2E+01	9.9E-02	1.3E+00	6.3E-04	1.1E-02	6.3E-04	5.3E-02	-1.1E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material *[MJ]*	3.3E+01	8.3E+00	1.5E+00	1.0E-01	1.5E-01	1.0E-01	4.0E-01	-4.6E-01
Use of non-renewable primary energy used as raw materials *[MJ]*	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) *[MJ]*	3.3E+01	8.3E+00	1.5E+00	1.0E-01	1.5E-01	1.0E-01	4.0E-01	-4.6E-01
Use of secondary material *[kg]*	1.2E+00	0.0E+00	5.9E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Use of renewable secondary fuels *[MJ]*	0.0E+00	0.0E+00	8.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Use of non-renewable secondary fuels *[MJ]*	2.1E-07	0.0E+00	1.0E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Use of net fresh water *[m³]*	4.1E-02	7.6E-05	2.2E-03	7.3E-06	5.5E-06	7.3E-06	9.8E-05	-7.9E-06

The energy stored in packaging material leave system boundary in A5 and energy stored in the product at end-of-life in C4 and is therefore reported with a negative figure in A5 respectively C4, and zero over the life cycle. This approach is in accordance with Option A as presented in PCR 2019:14.

[1] 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 categories								
Parameters	Product stage	Construction process stage		End-of-life stage				Reuse, recovery, recycling
	A1–A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed *[kg]*	1.5E-01	2.9E-10	7.4E-03	8.8E-05	5.6E-12	8.8E-05	4.2E-11	-7.8E-05
Non-hazardous waste disposed *[kg]*	9.7E-01	7.2E-04	1.6E-01	0.0E+00	2.0E-05	0.0E+00	2.0E+00	8.4E-06
Radioactive waste disposed *[kg]*	1.9E-04	1.0E-05	3.2E-06	0.0E+00	2.0E-07	0.0E+00	4.2E-06	7.2E-06

Output flows								
Parameters	Product stage	Construction process stage		End-of-life stage				Reuse, recovery, recycling
	A1–A3	A4	A5	C1	C2	C3	C4	D
Components for re-use (CRU) *[kg]*	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for Recycling (MFR) *[kg]*	5.4E-01	0.0E+00	2.7E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for energy recovery (MER) *[kg]*	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported electrical energy (EEE) *[MJ]*	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported thermal energy (EET) *[MJ]*	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Additional environmental impact indicators

Parameters	Product stage	Construction process stage		End-of-life stage				Reuse, recovery, recycling
	A1–A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential (GWP) *[kg CO_2 eq.]*	2.9E+00	7.0E-01	1.5E-01	0.0E+00	1.2E-02	0.0E+00	2.9E-02	-3.0E-02
Ozone Depletion Potential (ODP) *[kg R11 eq.]*	1.2E-06	8.2E-14	5.9E-08	0.0E+00	1.7E-15	0.0E+00	1.5E-16	-1.1E-09
Acidification potential (AP) *[kg SO_2 eq.]*	1.5E-02	1.7E-02	7.7E-04	0.0E+00	1.1E-05	0.0E+00	1.7E-04	-2.2E-05
Eutrophication potential (EP) *[kg $(PO_4)^{3-}$ eq.]*	8.1E-03	1.7E-03	4.1E-04	0.0E+00	2.8E-06	0.0E+00	1.9E-05	-1.2E-05
Photochemical ozone creation (POPC) *[Ethene eq.]*	1.3E-03	9.6E-04	6.7E-05	0.0E+00	4.0E-08	0.0E+00	1.3E-05	-8.7E-06
Abiotic depletion potential for non-fossil resources (ADP-elements) *[kg Sb eq.]*	9.1E-05	2.1E-08	4.6E-06	0.0E+00	8.0E-10	0.0E+00	2.8E-09	-2.1E-08
Abiotic depletion potential for fossil resources (ADP-fossil fuels) *[MJ/FU]*	3.7E+01	8.2E+00	1.7E+00	0.0E+00	1.5E-01	0.0E+00	3.9E-01	-4.7E-01

Information on biogenic carbon content

Biogenic Carbon Content	PRODUCT STAGE
Biogenic carbon content in product [kg]	**0**
Biogenic carbon content in packaging [kg]	**0.08**

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

The product contains no biogenic carbon. Regarding packaging, biogenic carbon is quantified due to wooden pallets and cardboard production.

ALTERNATIVE END OF LIFE SCENARIOS

Due to the technical and physiological challenges of recycling and energy recovery, the most probable end-of-life scenario for mineral wool acoustic panels consider landfill once no longer in use. Therefore, alternative end-of-life pathways, such as recycling or incineration with energy recovery, are not considered in this EPD. Additional information on this is found under the paragraph life cycle stages C1-C4.

DECLARATION OF VARIATION

Variation between sites

This EPD covers a similar product manufactured at different sites. The variation in the GWP-GHG indicator between sites ranges from -12% to 1%.

ADDITIONAL ENVIRONMENTAL INFORMATION:

N/A

Other additional environmental information

No additional information.

Additional social and economic information

No additional information.

Version history

This is the first EPD version – No previous versions.

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)
$m^2 \cdot K/W$	kilowatt per square meter
PCR	Product Category Rules
TSL	Technical Service Life (TSL) (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

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6. EPD International. General Program Instructions (GPI) for the International EPD System (version 5.0.1) http://www.environdec.com/.
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