



Environmental Product Declaration

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

Glass Wool Pipe Section (AF)

from **izocam Tic. ve San. A.Ş**

Programme: The International EPD® System

Programme Operator: EPD International AB

EPD Registration Number: EPD-IES-0016025

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Validity Date: 2029-08-11

Geographical Scope: Global



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

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

How to Read This EPD?

An Environmental Product Declaration (EPD) is an ISO Type III Environmental Declaration based on ISO 14025 standard. An EPD transparently reports the environmental performance of products or services from a lifecycle perspective. The preparation of an EPD includes different stages, from acquiring raw materials to the end of life of the final product/service. EPDs are based on international standards and consider the entire value chain. Additionally, EPD is a third-party verified document. This EPD includes several sections described below.

1. General and Program Information

The first part of an EPD has information about the name of the manufacturer and product/service and other general information such as the validity and expiration dates of the document, the name of the program operator, geographical scope, etc. The second page states the standards followed and gives information about the program operator, third-party verifier, etc. The followed Product Category Rule (PCR) is indicated on the second page.

2. Company and Product/Service Information

Information about the company and the investigated product is given in this section. It summarizes the characteristics of the product provided by the manufacturer. It also includes information about the product such as product composition and packaging.

3. LCA Information

LCA information is one of the most important parts of the EPD as it describes the functional/declared unit, time representativeness of the study, database(s) and LCA software, along with system boundaries.

The table presented in this part has columns for each stage in the life cycle. The considered stages are marked 'X' whereas the ones that are not declared are labeled as 'ND'. Not all EPDs consider the full life cycle assessment for a product's entire life stages. The 'System Boundary' page is also the place where one can find detailed information about the stages and the assumptions made.

4. LCA Results

The results of the Life Cycle Assessment analysis are presented in table format. The first column in each table indicates the name of the impact category and their measurement units are presented in the second column. These tables show an amount at each life cycle stage to see the impact of different indicators on different stages. Each impact can be understood as what is released through the production of the declared unit of the material—in this case, 1 m² glass wool pipe production. The benefits of reuse/recycling of the declared product is reflected in this section.

The first impact in the table is global warming potential (GWP), which shows how much CO₂ is released at each stage. Other impacts include eutrophication potential, acidification potential, ozone layer depletion, land use related impacts, etc. The second table provides results for resource use and the third table is about the waste produced during the production. The fourth and final table shows the results for the GWP-GHG indicator, which is almost equivalent to the GWP-Total indicator mentioned previously. The only difference is that this indicator excludes the biogenic carbon content by following a certain methodology.

Programme Information

The International EPD® System: EPD International AB Box 210 60 SE-100 31 Stockholm, Sweden, info@environdec.com

PCR 2019:14 Construction products, version 1.3.3., Construction EN 15804:2012+A2:2019/AC:2021 Sustainability of Construction Works and c-PCR-005 Thermal Insulation products (EN 16783) Version: 2019-12-20

Technical Committee of the International EPD® System. Review chair: Claudia A. Peña, University of Concepción, Chile.

The review panel may be contacted via the Secretariat www.environdec.com/contact.

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

EPD process certification EPD verification **X**

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

Third party individual verifier: Stephen Forson, Vridis Pride

Approved by: The International EPD® System Technical Committee supported by the Secretariat

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes No **X**

Life Cycle Assessment (LCA)

LCA accountability: Metsims Sustainability Consulting

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cutoff rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

About the Company

Owner of the EPD: Izocam Tic. ve San. A.S.

Production Plant: Tarsus/Mersin, Türkiye

Izocam is the leading company in its sector that designs, produces and distributes insulation materials for the creation and installation of thermal insulation, noise control, acoustic comfort and fire safety systems in the fields of construction, industry and durable consumer goods. Izocam has more than half a century of experience in Turkey and the Region. Izocam is the first and only company in the world that produces 7 main different product ranges, i.e., glass wool, stone wool, foamboard-xps, izopor-eps, izocamflex-rubber, peflex-polyethylene, polyurethane, under one roof in order to provide energy saving and living comfort.

Izocam has products bearing the CE marking according to the Construction Materials Directive (89/106/EEC) and zocam Glass Wool and Stone Wool products certified by EUCEB (European Certification Board for mineral wool products).

-Izocam, which serves as the industry leader with a product range of 7 different products in the world and in Turkey, develops solutions to the needs of the industry in cooperation with its group companies, Rigips and Weber.

The company have Quality Management System - ISO 9001, Occupational Health and Management System - ISO 45001, Energy Management System - ISO 50001 and Environmental Management System - ISO 14001.



About the Product

They are used for the thermal insulation of industrial pipes, central heating and solar energy installations, for the insulation against freezing and condensation of the pipes and for vibration and soundinsulation of the pressure water pipes as well.

Application Area

- Appropriate Glass Wool Prefabricated Pipe according to nominal diameter of the pipe line to be used is chosen.
- It is placed by parting cut line.
- The application is completed so that no gap is left between the joints.
- Unfaced pipes are coated with bituminous emulsion or bituminous membranes, galvanized or aluminium jacket.
- Coating joints are fastened by adhering, clamping, riveting or screwing.
- For the pipes coated with aluminium foil that are used for the insulation of cold lines, adhesive tape on overlap allowance and vapour barrier foil coating make the installation process notably easy. In this application, the joint of the two pipes should definitely be sealed with an adhesive aluminium foil tape with 7,5 mm width and vapour passage should totally be prevented.
- If a double layer application for the pipe insulation is carried out, care should be taken to line up the joint of second layer with the bottom of the pipe and to ensure the joints are staggered

The product UN CPC code is 37990 according to Central Product Classification (CPC) Version 2.1. (37990: 37990: Non-metallic mineral products (including mineral wool, expanded mineral materials, worked mica, articles of mica, non-electrical articles of graphite or other carbon and articles of peat).

Properties	Symbol	Unit	Description					Tolerance	Standard
Material	-	-	Glass Wool					-	TS EN 14303
Density	-	kg/m ³	See Table					± 15 %	-
Wall Thickness	-	mm	See Table					± 3 mm or ±6 % (which is greater)	TS EN 823
Length	-	mm	1200					± 5 mm	TS EN 822
Inner Diameter	-	mm	See Table					+4 mm, -1 mm or +2 %, -1 % (which is greater)	TS EN 13467
Declared Thermal Conductivity	T _m	°C	50	100	150	200	250	< 0,035	TS EN 12667
	κ	W/m.K	0,036	0,043	0,050	0,059	0,069		
Facing	-	-	Unfaced			Al-foil		-	-
Reaction to fire **	-	-	A1			C _s -E _s , D _s		-	TS EN 13501-1
Max. Service Temperature	-	°C	250					max. 250	TS EN 14707
Water Absorption	-	kg/m ³	max. 1					max. 1	TS EN 13472
Package	-	-	PE Bag					-	-

For more information about the product, please visit [here](#).

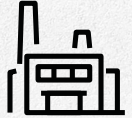
System Boundaries & Description



Raw Material Supply



Raw Material Transport



Manufacturing



Product Transport



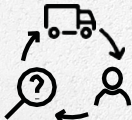
Installation



De-construction



Waste Transport



Waste Processing



Disposal



Benefits & Loads

A1 - A3



A4 - A5



C1 - C4



D

A1 - Raw Material Supply

Production starts with raw materials mainly locally sourced, but some transported from other parts of the world. 'Raw material supply' includes raw material extraction and pre-treatment processes before production. The stage covers the supply (quarrying) and production of all components and additives. The use of electricity, fuel and auxiliary materials in production is also taken into account.

A2 - Raw Material Transport

Raw material transport from supplier to manufacturer is considered in raw material supply stage. The distances and routes are calculated accordingly. Depending the manufacturer, locally supplied raw materials are transported via trucks and other supplies come through seaway.

Transport Mode	Type
Road	Vehicle: Lorry Size Class: >32 metric ton Emission Standard: EURO5 Fuel Type: Diesel
Sea	Vehicle: Container Ship DWT (Load Capacity): 43000 tonnes Fuel Type: Heavy Fuel Oil

A3 - Manufacturing

The manufacturing process for glass wool preformed pipe insulation begins with the melting of raw materials, primarily silica sand, along with recycled glass and various minerals, at elevated temperatures to produce molten glass. This molten glass is fiberized by being spun or blown through a high-speed spinner, which transforms it into fine glass fibers. These fibers are then coated with a binder that aids in their adhesion when they are gathered and shaped into cylindrical preformed pipes. The coated fibers undergo a curing process in an oven at a specific temperature to solidify the binder, thereby creating a durable and flexible glass wool pipe insulation. Once cured, the preformed pipes are cut to required dimensions, packaged, and readied for distribution. The production consumes both electric and natural gas energy sources.

Information	Description
Electricity Data	Türkiye electricity grid mix from Ecoinvent, Medium Voltage
Type of dataset	Cradle to gate
GWP of Electricity Data	0,578 kg CO ₂ eq./kWh

A4 - Product Transport

Product transport from manufacturer to customer is considered in product material supply stage. The distances and routes are calculated accordingly. Depending the customer location, product is transported via trucks and other supplies come through seaway.

Transport Mode	Type
Road	Vehicle: Lorry Size Class: >32 metric ton Emission Standard: EURO5 Fuel Type: Diesel
Sea	Vehicle: Container Ship DWT (Load Capacity): 43000 tonnes Fuel Type: Heavy Fuel Oil

A5 - Installation

No material or energy use was taken into account for the installation. Mounting equipment is included in the product. Installation can be done by manpower. Additionally, disposal of packaging is taken into account at this stage. The end-of-life scenario of the package was modelled according to EU statistics. It is assumed that 27.5% of the plastics are recycled. Materials other than not recycled, assumed to be incinerated or landfilled.

C1 - Deconstruction / Demolition

There is no energy use during uninstallation, manpower and some tools are sufficient.

C2 - Waste Transport

Waste transport includes the transport of materials after they reach their end-of-life. The average distance was assumed 50 km by truck from demolition site to a waste or recycling area.

Parameter	Value
Vehicle Type	Vehicle: Lorry Size Class: 16-32 metric ton Emission Standard: EURO4 Fuel Type: Diesel
Distance	50 km

C3 - Waste Processing

The product is considered to be landfilled without reuse, recovery or recycling. It is classified as 'nonhazardous waste' in the European list of waste products. The impacts of any treatment process to the demolished waste is included in this stage. It is assumed that no treatment is needed as 100 % of the material goes to a landfill.

C4 - Disposal

All plasters end up at construction and demolition waste landfills as their final fate and modelled as such in the LCA.

D - Benefits

No potential benefits of recycling and re-use were taken into account. Only the benefit due to the recycling of the packaging has been calculated.

LCA Information

Declared Unit: The declared unit is 1m² of glass wool prefabric pipe with a R value of 0,71 m²K/W (for a thickness of 25 mm and a declared lambda of 0.035 W/mK).

Conversion Factor: Weight of 1 m² product is 1,875 kg. A mass conversion factor of 0,53 should be used.

Time Representativeness: 2023 (12 months)

Database(s) and LCA Software: Ecoinvent 3.9.1 and SimaPro 9.5

System Boundaries: Cradle to gate with options, module C1- C4, module D and optional modules

	Product Stage			Construction Process Stage		Use Stage						End of Life Stage				Benefits and Loads	
	Raw Material Supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	De-construction	Transport	Waste Processing	Disposal	Reuse-Recycling-Recovery Potential
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	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO		TR	GLO													
Specific Data Used	45%					-											
Variation - Products	0%					-											
Variation - Sites	0%					-											

(X:Included in LCA, ND: Not Declared)

Geographical Scope

The geographical scope of this EPD is global.

Allocation

Source of raw material, water consumption, energy consumption and raw material transportation were weighted according to 2023 production figures. In addition, hazardous and non-hazardous waste amounts were also allocated from the 2023 total waste generation.

Cut-Off Criteria

1% cut-off is applied in LCA. Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts have been included.

Reach Regulation

No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in this product either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

Product Composition

Product Component	Weight, %	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
External Cullet	70-80	70-80	0
Minerals	10-20	0	0
Aluminium Foil	0-5	0	0
Additives	0-5	0	0

Packaging Composition

Glass wool roof blankets are packaged and send to customer. PE films are generally used in packaging.

Product Component	Weight, kg/m ²	Weight-% (versus the product)	Biogenic material, weight-% and kg C/kg
PE Film	0,024	1,2%	0

Lca Modelling, Calculation And Data Quality

The results of the LCA with the indicators as per EPD requirement are given in the LCA result tables. All energy calculations were obtained using Cumulative Energy Demand (LHV) methodology, while fresh water use is calculated with selected inventory flows in SimaPro according to the PCR. There are no co-product allocations within the LCA study underlying this EPD. The regional energy datasets were used for all energy calculations. For LCA modelling and calculation, ecoinvent database (v3.9.1) and SimaPro (v9.5) LCA software were used. Characterization factors of EN 15804 reference package based on EF 3.1 are utilized. Impact of infrastructure and capital goods are excluded from the analysis

Stage	Data Type
Raw Material Supply	Generic database, plant specific data
Raw Material Transport	Generic database, plant specific data
Manufacturing	Generic database, plant specific data
Product Transport	Generic database, generic data
Installation	Generic database, generic data
End of Life	Generic database, generic data
Benefits and Loads	Generic database, generic data

LCA Results

It is discouraging the use of the results of modules A1-A3 without considering the results of module C. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

CORE ENVIRONMENTAL IMPACTS PER DECLARED UNIT										
Mandatory indicators		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential	Fossil	kg CO ₂ eq.	4,13E-02	8,46E-05	2,42E-06	0,00E+00	7,49E-06	0,00E+00	7,49E-06	-1,95E-02
	Biogenic	kg CO ₂ eq.	1,95E-02	3,55E-05	1,94E-07	0,00E+00	3,14E-06	0,00E+00	3,14E-06	0,00E+00
	Luluc	kg CO ₂ eq.	5,31E+00	1,10E-01	2,51E-02	0,00E+00	9,75E-03	0,00E+00	9,75E-03	-1,80E-05
	Total	kg CO ₂ eq.	5,37E+00	1,10E-01	2,51E-02	0,00E+00	9,76E-03	0,00E+00	9,76E-03	-1,96E-02
ODP		kg CFC-11 eq.	1,15E-07	2,41E-09	1,40E-11	0,00E+00	2,13E-10	0,00E+00	2,13E-10	-1,32E-10
AP		mol H+ eq.	2,83E-02	3,70E-04	3,29E-06	0,00E+00	3,28E-05	0,00E+00	3,28E-05	-8,41E-05
EP - Freshwater		kg P eq.	2,32E-03	7,83E-06	3,01E-08	0,00E+00	6,93E-07	0,00E+00	6,93E-07	-5,28E-06
EP - Marine		kg N eq.	4,89E-03	1,28E-04	5,96E-06	0,00E+00	1,13E-05	0,00E+00	1,13E-05	-1,69E-05
EP - Terrestrial		mol N eq.	4,87E-02	1,36E-03	1,68E-05	0,00E+00	1,20E-04	0,00E+00	1,20E-04	-1,73E-04
POCP		kg NMVOC	1,76E-02	5,77E-04	5,18E-06	0,00E+00	5,10E-05	0,00E+00	5,10E-05	-8,35E-05
**ADPE		kg Sb eq.	1,88E-04	2,97E-07	5,19E-10	0,00E+00	2,63E-08	0,00E+00	2,63E-08	-7,02E-08
**ADPF		MJ	6,70E+01	1,61E+00	3,32E-03	0,00E+00	1,42E-01	0,00E+00	1,42E-01	-5,69E-01
**WDP		m ³ depriv.	6,08E+00	7,69E-03	4,46E-05	0,00E+00	6,80E-04	0,00E+00	6,80E-04	-7,96E-03
Additional environmental impact indicators per declared unit (Optional)										
PM		disease inc.	2,96E-07	1,11E-08	3,71E-11	0,00E+00	9,84E-10	0,00E+00	9,84E-10	-7,92E-10
*IR		kBq U-235 eq.	3,30E-01	2,03E-03	1,01E-05	0,00E+00	1,80E-04	0,00E+00	1,80E-04	-1,84E-03
**HTP - C		CTUh	7,43E-09	4,76E-11	2,90E-12	0,00E+00	4,21E-12	0,00E+00	4,21E-12	-5,80E-12
***HTP - NC		CTUh	7,47E-08	1,16E-09	2,18E-11	0,00E+00	1,02E-10	0,00E+00	1,02E-10	-1,34E-10
**SQP		Pt	1,11E+01	1,63E+00	5,95E-03	0,00E+00	1,45E-01	0,00E+00	1,45E-01	-6,93E-02
Legend	A1: Raw Material Supply. A2: Transport. A3: Manufacturing. A1-A3: Sum of A1. A2. and A3. A4: Transport to Site. C1: De-Construction. C2: Waste Transport. C3: Waste Processing. C4: Disposal. D: Benefits and Loads Beyond the System Boundary.									
Acronyms	GWP-total: Climate change. GWP-fossil: Climate change- fossil. GWP-biogenic: Climate change - biogenic. GWP-luluc: Climate change – land use and transformation. ODP: Ozone layer depletion. AP: Acidification terrestrial and freshwater. EP-freshwater: Eutrophication freshwater. EPmarine: Eutrophication marine. EP-terrestrial: Eutrophication terrestrial. POCP: Photochemical oxidation. ADPE: Abiotic depletion - elements. ADPF: Abiotic depletion - fossil resources. WDP: Water scarcity. PM: Respiratory inorganics - particulate matter. IR: Ionising radiation. HTP-c: Cancer human health effects. HTP-nc: Non-cancer human health effects. SQP: Land use related impacts. soil quality									
*Disclaimer 1	This impact category 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 materials is also not measured by this indicator.									
**Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.									

ADDITIONAL MANDATORY IMPACT CATEGORY INDICATORS PER DECLARED UNIT

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - GHG	kg CO ₂ eq.	5,27E+00	1,10E-01	2,52E-02	0,00E+00	9,76E-03	0,00E+00	9,76E-03	-1,97E-02

GWP-GHG = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology. The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. The GWP-GHG indicator is identical to GWP-total except that the characterisation factor (CF) for biogenic CO₂ is set to zero.

RESOURCE USE INDICATORS PER DECLARED UNIT

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1,81E+01	0,00E+00	1,62E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERM	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
PERT	MJ	1,81E+01	0,00E+00	1,62E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRE	MJ	6,59E+01	0,00E+00	1,04E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRM	MJ	1,04E+00	0,00E+00	-1,04E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	6,70E+01	0,00E+00	3,32E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
SM	kg	8,66E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	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
NRSF	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
FW	m3	3,35E-02	3,20E-04	1,14E-05	0,00E+00	2,83E-05	0,00E+00	2,83E-05	-7,04E-05

Legend
 PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM: Use of renewable primary energy resources used as raw materials; PERT: Total use of renewable primary energy resources; PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM: Use of non-renewable primary energy resources used as raw materials; PENRT: Total use of non-renewable primary energy re-sources; SM: Use of secondary material; RSF: Use of renewable secondary fuels; NRSF: Use of non-renewable secondary fuels; FW: Use of net fresh water

WASTE & OUTPUT INDICATORS

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	8,48E-04	4,48E-05	1,54E-04	0,00E+00	3,97E-06	0,00E+00	3,97E-06	-8,31E-06
NHWD	kg	8,83E-02	1,41E-01	1,77E-02	0,00E+00	1,25E-02	0,00E+00	1,88E+00	-1,54E-03
RWD	kg	7,81E-05	4,91E-07	2,38E-09	0,00E+00	4,34E-08	0,00E+00	4,34E-08	-4,65E-07
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
MFR	kg	0,00E+00	0,00E+00	6,74E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
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
EE (Electrical)	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
EE (Thermal)	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

Legend
 HWD: Hazardous waste disposed, NHWD: Non-hazardous waste disposed, RWD: Radioactive waste disposed, CRU: Components for reuse, MFR: Material for recycling, MER: Materials for energy recovery, EE (Electrical): Exported energy electrical, EE (Thermal): Exported energy, Thermal.

Interpretation

Interpretation Of All LCA Stages

When the environmental impact categories of the product are evaluated, the production stages (A1-A3) seem more dominant than other life cycle stages. The most dominant phase is the production stage for all categories. The use of externel cullet, etibor and feldspar during the production stage is the reason for the prominent impacts here. The table below lists the share of life cycle stages in each impact category. Impact category of GWP-biogenic and D module are not included in the percentage display because they contain negative values

Parameter		A1-A3	A4	A5	C1	C2	C3	C4
Global Warming Potential	Fossil	100%	0%	0%	0%	0%	0%	0%
	Biogenic							
	Luluc	97%	2%	0%	0%	0%	0%	0%
	Total	97%	2%	0%	0%	0%	0%	0%
ODP		98%	2%	0%	0%	0%	0%	0%
AP		98%	1%	0%	0%	0%	0%	0%
EP - Freshwater		100%	0%	0%	0%	0%	0%	0%
EP - Marine		97%	3%	0%	0%	0%	0%	0%
EP - Terrestrial		97%	3%	0%	0%	0%	0%	0%
POCP		96%	3%	0%	0%	0%	0%	0%
ADPE		100%	0%	0%	0%	0%	0%	0%
ADPF		97%	2%	0%	0%	0%	0%	0%
WDP		100%	0%	0%	0%	0%	0%	0%

Environmental Impact Distribution by LCA Stages

Additional Information

This EPD® includes of thicknesses 25-30-40 mm and an inner diameter from 13 to 114 mm, using a multiplication factor to obtain the environmental performance of every thickness and inner diameter. To calculate the multiplication factors, a reference unit has been selected value of $R = 0,71 \text{ m}^2 \cdot \text{K} / \text{W}$ for 25 mm (thickness) and 60 mm (inner diameter).

(mm)		Glass Wool Thickness (mm)		
		25	30	40
Inner Diameter (mm)	13	0,573	0,664	0,845
	21	0,645	0,736	0,918
	27	0,700	0,791	0,973
	33	0,755	0,845	1,027
	42	0,836	0,927	1,109
	48	0,891	0,982	1,164
	57	0,973	1,064	1,245
	60	1,000	1,091	1,273
	63	1,027	1,118	1,300
	76	1,145	1,236	1,418
	83	1,209	1,300	1,482
	89	1,264	1,355	1,536
	102	1,382	1,473	1,655
	108	1,436	1,527	1,709
	114	1,491	1,582	1,764

References

GPI / General Programme Instructions of the International EPD® System. Version 4.0. EN ISO 9001/ Quality Management Systems - Requirements EN ISO 14001/ Environmental Management Systems - Requirements

EN 15804:2012+A2:2019 / Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products

ISO 14025 / DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations - Principles and procedures

PCR for Construction Products and Construction Services / Prepared by IVL Swedish Environmental Research Institute, Swedish environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB, The International EPD System, 2019:14 Version 1.3.3

C-PCR / c-PCR-005 Thermal Insulation products (EN 16783)

ISO 14040/44 / DIN EN ISO 14040: 2006-10 / Environmental management - Life cycle assessment - Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006)

ISO 9001 / Quality Management System

ISO 45001 / Occupational Health and Management System

ISO 14001 / Environmental Management System

ISO 50001 / Energy Management System

The International EPD® System / The International EPD® System is a programme for type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. www.environdec.com





Ecoinvent / Ecoinvent Centre, www.ecoinvent.org

SimaPro / SimaPro LCA Software, Pré Consultants, the Netherlands, www.pre-sustainability.com

Metsims / www.metsims.com

izocam / www.izocam.com.tr

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