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Environmental Product Declaration

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

Optima Smart

from İzocam Tic. ve San. A.Ş

Programme: The International EPD® System

Programme Operator: EPD International AB

EPD Registration Number: EPD-IES-0016023

Publication Date: 2024-08-12

Validity Date: 2029-08-11

Geographical Scope: Global

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 m^2 glass wool blanket 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 CO_2 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.

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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

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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
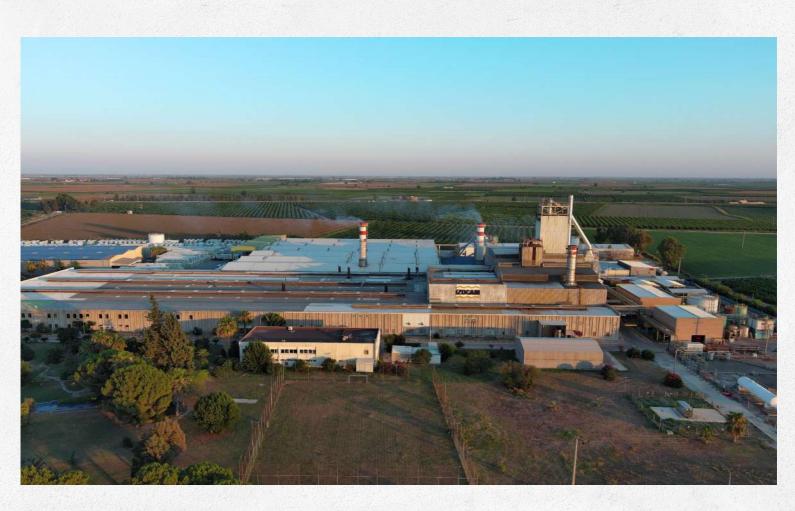
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About the Company

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 Cetification 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 500001 and Environmental Management System - ISO 14001.

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About the Product

Optima Smart, which is developed for use in light partition wall systems in buildings, inner insulation of external walls, partitions and adjacent walls, walls adjacent to stairwells and elevator shafts, provide fire safety with continuous sound insulation and thermal insulation in the areas where it is applied.

Application Area

- 'U' channels should be used for the head and base of the partition. In order to fix the channels, marking is made along the ceiling and floor, leaving a 1-2 cm gap from the side wall.
- The channel is fixed to the ceiling and floor at 40 – 60 cm intervals along the marked line as specified in the project.
- Self-adhesive rubber tape is applied to the surface of the channel to prevent a sound bridge.
- Vertically placed stud dimension is measured, and the partition wall frame is formed by mounting the studs inside the channels.
- If no dimensions are specified in the project, then the stud is fixed to the side wall at intervals of 40 cm - 60 cm.
- After the assembly of the initial stud is completed, the studs are placed back-to-back on the horizontal axis into the channel on the ceiling and floor at 40 - 60 cm intervals if no dimensions are specified in the project, and leveled.
- Studs and channels forming the perimeter should be tightly butted together with clamping scissors.
- The gypsum boards are screwed vertically to the studs at a distance of 60 to 80 cm or at intervals specified in the project, thus completing the wall assembly.
- Self-adhesive plaster mesh is cladded on the joint sections of the gypsum boards. After applying plaster, surfaces can be painted as desired.

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
Type	-	-	Optima Smart (Mineral Yün)				-	-
Width	b	mm	400+400+400		600+600		+/-1,5%	TS EN 822
Lenght	l	mm	13.500	10.000	8.000		+/-2%	TS EN 822
Thickness	d	mm	50	75-80	100		T3 **	TS EN 823
Reaction to Fire	-	-	A1				-	TS EN 13501-1
Dimensional Stability	-	%	Max. 1				-	TS EN 1604
Thermal Conductivity (10 °C)	λ_D	W/m.K	0.037				-	TS EN 12667/12939
Thermal Resistance	RD	m2.K/W	1,35	2,00	2,15	2,70	-	-
Water Vapor Diffusion Resistance (*)	µ	-	1				-	TS EN 12086
Specific Heat *	c	kJ/(kg.K)	0.84				-	EN 12524
Dynamic Elasticity *	Edyn	kN/m2	0.8				-	DIN 52214
Packaging Material	-	-	PE Film				-	-
Sound Absorption Coefficient (***)	d	mm	50	75	100		-	-
	aw	-	0,8	1,0	1,0		-	-

* Literature value

** T1: -5 or -5% is allowed. The biggest value is chosen at minus tolerance, the smallest value is chosen at plus tolerance.

*** The values were measured at TUBITAK (Scientific and Technological Research Council of Türkiye) National Metrology Institute.

For more information about the product, please visit here.

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System Boundaries & Description

	Stage
	Raw Material Supply
	Raw Material Transport
	Manufacturing

A1 - A3 ▼

	Product Transport
	Installation

A4 - A5 ▼

	De-construction
	Waste Transport
	Waste Processing
	Disposal

C1 - C4 ▼

	Benefits & Loads

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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 production process of glass wool blanket involves melting raw materials, predominantly silica sand, along with other recycled glass and minerals, at high temperatures to form molten glass. This molten glass is then fiberized by being spun or blown through a high-speed spinner, which disperses the liquid glass into fine fibers. These fibers are coated with a binder, which helps in binding them together when they are collected and formed into a blanket. The coated fibers are then cured in an oven at a controlled temperature to harden the binder, resulting in a flexible, resilient glass wool blanket. After curing, the blankets are cut to size, packaged, and prepared for distribution. Electric and natural gas are consumed during the manufacturing.

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.

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LCA Information

Declared Unit: The declared unit is 1m² of glass wool roof blanket with a R value of 1,35 m²K/W (for a thickness of 50 mm and a declared lambda of 0.037 W/mK).

Conversion Factor: Weight of 1 m² product is 0,7 kg. A mass conversion factor of 1,42 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	>73%					-											
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.

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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
Additivies	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	Weight-% (versus the product)	Biogenic material, weight-% and kg C/kg
PE Film	0,045	6,4%	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 spesific data
Raw Material Transport	Generic database, plant spesific data
Manufacturing	Generic database, plant spesific 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

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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.	1,33E-02	3,44E-05	4,51E-06	0,00E+00	2,80E-06	0,00E+00	2,80E-06	-3,65E-02
	Biogenic	kg CO_2 eq.	5,48E-03	1,44E-05	3,62E-07	0,00E+00	1,17E-06	0,00E+00	1,17E-06	0,00E+00
	Luluc	kg CO_2 eq.	1,92E+00	4,47E-02	4,70E-02	0,00E+00	3,64E-03	0,00E+00	3,64E-03	-3,36E-05
	Total	kg CO_2 eq.	1,94E+00	4,48E-02	4,70E-02	0,00E+00	3,64E-03	0,00E+00	3,64E-03	-3,65E-02
ODP		kg CFC-11 eq.	5,01E-08	9,78E-10	2,62E-11	0,00E+00	7,95E-11	0,00E+00	7,95E-11	-2,46E-10
AP		mol H+ eq.	7,14E-03	1,50E-04	6,15E-06	0,00E+00	1,22E-05	0,00E+00	1,22E-05	-1,57E-04
EP - Freshwater		kg P eq.	8,20E-04	3,18E-06	5,63E-08	0,00E+00	2,59E-07	0,00E+00	2,59E-07	-9,86E-06
EP - Marine		kg N eq.	1,47E-03	5,21E-05	1,11E-05	0,00E+00	4,23E-06	0,00E+00	4,23E-06	-3,15E-05
EP - Terrestrial		mol N eq.	1,44E-02	5,50E-04	3,15E-05	0,00E+00	4,48E-05	0,00E+00	4,48E-05	-3,24E-04
POCP		kg NMVOC	5,45E-03	2,34E-04	9,67E-06	0,00E+00	1,90E-05	0,00E+00	1,90E-05	-1,56E-04
**ADPE		kg Sb eq.	7,02E-05	1,21E-07	9,70E-10	0,00E+00	9,80E-09	0,00E+00	9,80E-09	-1,31E-07
**ADPF		MJ	2,81E+01	6,54E-01	6,21E-03	0,00E+00	5,32E-02	0,00E+00	5,32E-02	-1,06E+00
**WDP		m³ depriv.	2,00E+00	3,12E-03	8,32E-05	0,00E+00	2,54E-04	0,00E+00	2,54E-04	-1,49E-02
Additional environmental impact indicators per declared unit (Optional)									
PM		disease inc.	4,79E-08	4,52E-09	6,93E-11	0,00E+00	3,67E-10	0,00E+00	3,67E-10	-1,48E-09
*IR		kBq U-235 eq.	6,43E-02	8,25E-04	1,88E-05	0,00E+00	6,71E-05	0,00E+00	6,71E-05	-3,44E-03
**HTP - C		CTUh	1,02E-09	1,93E-11	5,43E-12	0,00E+00	1,57E-12	0,00E+00	1,57E-12	-1,08E-11
***HTP - NC		CTUh	1,03E-08	4,70E-10	4,07E-11	0,00E+00	3,82E-11	0,00E+00	3,82E-11	-2,51E-10
**SQP		Pt	3,16E+00	6,64E-01	1,11E-02	0,00E+00	5,40E-02	0,00E+00	5,40E-02	-1,30E-01
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.								

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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.	1,92E+00	4,48E-02	4,70E-02	0,00E+00	3,64E-03	0,00E+00	3,64E-03	-3,67E-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 CO_2 is set to zero.

RESOURCE USE INDICATORS PER DECLARED UNIT

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2,84E+00	0,00E+00	3,03E-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	2,84E+00	0,00E+00	3,03E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRE	MJ	2,61E+01	0,00E+00	1,95E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRM	MJ	1,94E+00	0,00E+00	-1,94E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,81E+01	0,00E+00	6,21E-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	9,86E-03	1,30E-04	2,12E-05	0,00E+00	1,06E-05	0,00E+00	1,06E-05	-1,31E-04

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	1,82E-05	2,88E-04	0,00E+00	1,48E-06	0,00E+00	1,48E-06	-1,55E-05
NHWD	kg	8,83E-02	5,73E-02	3,32E-02	0,00E+00	4,66E-03	0,00E+00	7,00E-01	-2,87E-03
RWD	kg	1,60E-05	1,99E-07	4,45E-09	0,00E+00	1,62E-08	0,00E+00	1,62E-08	-8,69E-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	1,26E-02	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.

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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 exturnel 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	95%	2%	2%	0%	0%	0%	0%
	Total	95%	2%	2%	0%	0%	0%	0%
ODP		98%	2%	0%	0%	0%	0%	0%
AP		98%	2%	0%	0%	0%	0%	0%
EP - Freshwater		100%	0%	0%	0%	0%	0%	0%
EP - Marine		95%	3%	1%	0%	0%	0%	0%
EP - Terrestrial		96%	4%	0%	0%	0%	0%	0%
POCP		95%	4%	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

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References

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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

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ISO 9001 / Quality Management System

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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

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