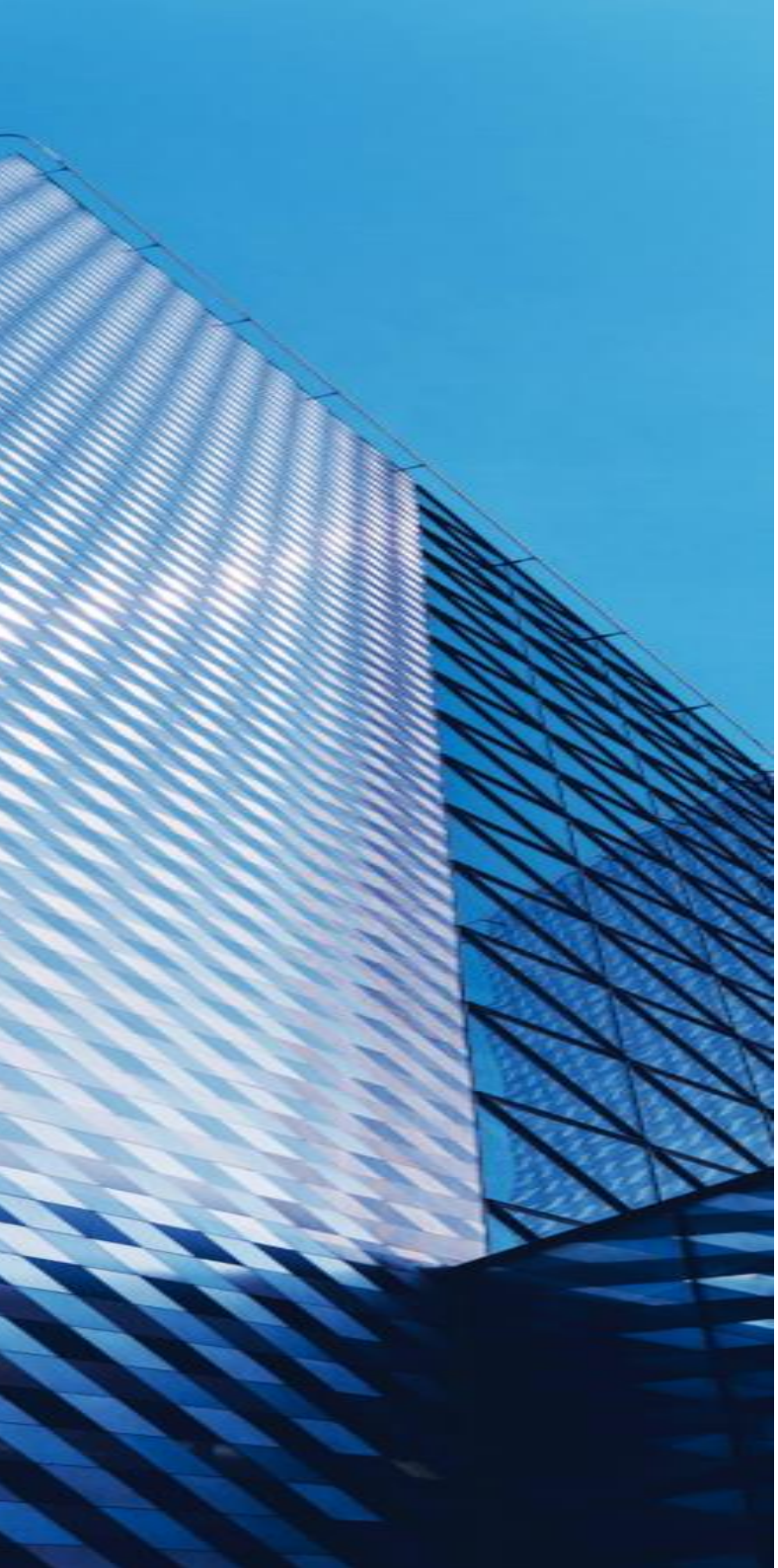


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

PihlaPro ECO2 MEK-A
Pihla Group Oy

EPD HUB, HUB-1261
Published on 27.03.2024, last updated on 27.03.2024, valid until 27.03.2029.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Pihla Group Oy
Address	Äyritie 16, 01510 Vantaa Finland
Contact details	asiakaspalvelu@pihla.fi
Website	www.pihlapro.fi

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022 EN 17213 Windows and doors
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Timo Nissinen Pihla Group Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Haiha Nguyen, as an authorized verifier acting for EPD Hub Limited

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	PihlaPro ECO2 MEK-A
Additional labels	Pihla ECO2 MEK-A, Tiivi ECO2 MEK-A
Product reference	-
Place of production	Autiontie 6, 34600 Ruovesi Finland
Period for data	2021
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	- %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m2 of window
Declared unit mass	40.53 kg
GWP-fossil, A1-A3 (kgCO2e)	5.78E+01
GWP-total, A1-A3 (kgCO2e)	3.29E+01
Secondary material, inputs (%)	5.66
Secondary material, outputs (%)	50.8
Total energy use, A1-A3 (kWh)	268
Total water use, A1-A3 (m3e)	3.99

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Pihla Group Oy is a domestic window and door operator whose goal is to improve peoples quality of life with windows and doors. We develop and manufacture Finland´s best window and door solutions for consumers, housing associations and construction industry customer´s as well under the Pihla, PihlaPRO, Tiivi, Profin, Klas1, Sydänpuu, Metallityö Välimäki and Puuseppien brands. Our wide range of brands serves all our customers, from renovation and new projects to the most architecturally challenging projects and various public and administrative buildings. Pihla Group have seven production facilities located in Ruovesi, Kannus, Haapajärvi, Pudasjärvi, Kuusamo, Joutsa, Nokia and Hyvinkää. Group employ approximately 850 employees in Finland. Turnover in 2021 was 175 million euros, and during that year group manufactured approximately 366,000 window units and 58,000 doors, and did up to 8,000 window and door renovations. Pihla Group Oy is part of Inwido AB, which is Europe´s largest window and door manufacturer.

PRODUCT DESCRIPTION

Pihla ECO2 products use low-carbon recycled aluminium, whose carbon footprint is significantly lower than the aluminium usually used in window and door products. The aluminium profiles are made 100% of secondary aluminium with high share of the post-consumer aluminium. The studied product is a fixed wood-aluminium window with a triple-glazed insulating glass unit. The studied product is based on 1,23 x 1,48 m size. The window has a wooden frame and aluminium cladding on the outside. The popularity of Pihla MEK-A fixed windows has constantly been increasing thanks to their advanced glazing solution and excellent energy-efficiency.

Further information can be found at www.pihlapro.fi.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	2.4	EU
Minerals	65.6	EU
Fossil materials	2	EU
Bio-based materials	30	EU

BIOGENIC CARBON CONTENT

Product’s biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	5.55
Biogenic carbon content in packaging, kg C	2.27

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m2 of window
Mass per declared unit	40.53 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The product is made of a mixture of primary and secondary metals, and triple insulating glass in a wooden frame with aluminium cladding. The product also contains some plastic material. The materials are transported to Pihla Group production facility, where the main manufacturing processes include cutting of wood and aluminium parts, surface treatment, glazing and assembly. The finished products are packed on pallets and sent to the customer. The manufacturing process requires electricity and fuels for the different equipment as well as heating. Certain ancillary materials are also included.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

According to sales data, the average transport distance from the factory to the construction site was 413 km. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product are packaged properly.

There is no material loss during installation, because the products are always ready-made with special dimensions for each need. Energy consumption for installation with manual tools according to the installation instructions has been ignored, as it is assumed to be very low. No ancillary material is required. This module also considers environmental impacts from installation process are due to generation of waste packaging materials (A5). This study assumed the loads of preprocessing of packaging waste, namely wooden pallet chipped to be used as secondary fuel and PE sorted for recycling.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase and its effects have not been studied.
Air, soil, and water impacts during the use phase have not been studied.

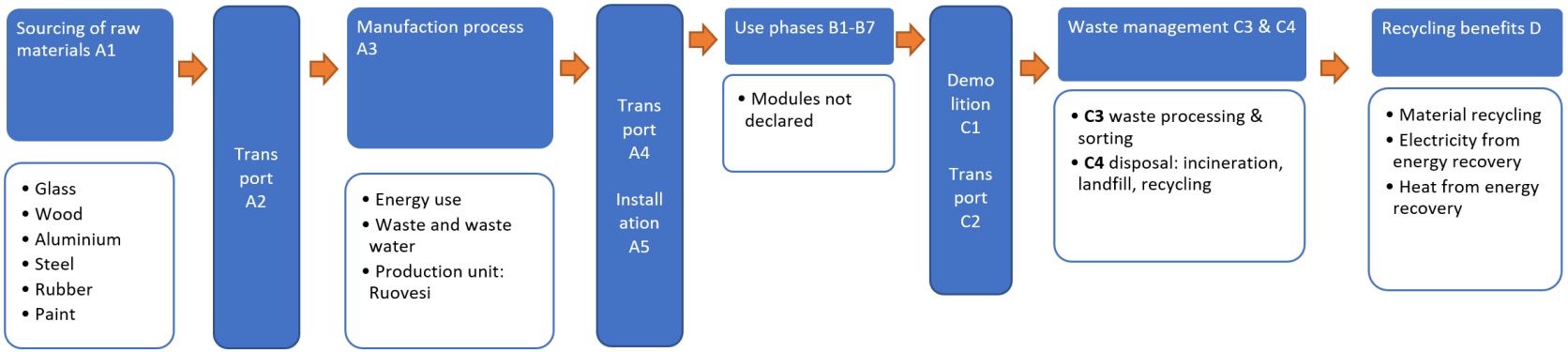
PRODUCT END OF LIFE (C1-C4, D)

Consumption of energy and natural resources in demolition process is assumed to be negligible. Conservative EoL scenario for Timber door/window from Annex B of EN 17213 has been used. It is assumed that the waste is collected as mixed construction waste and transported to the

waste treatment center. Transportation distance to treatment is assumed as 50 km and the transportation method is assumed to be lorry (C2). Module C3 accounts for energy and resource inputs for sorting and treating these waste streams for recycling and incineration with energy recovery. According to the EoL scenario, 30% ends up being burned for energy and 22% for recycling, the rest for landfill.

MANUFACTURING PROCESS

MANUFACTURING PROCESS AND SYSTEM BOUNDARY



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	Allocated by mass or volume
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	- %

There is no average result considered in this study since this EPD refers to one specific product produced in one production plant.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	3.27E+01	1.83E+00	-1.60E+00	3.29E+01	1.71E+00	6.06E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.90E-01	2.10E+01	9.66E-01	-5.30E+01
GWP – fossil	kg CO_2e	5.34E+01	1.83E+00	2.61E+00	5.78E+01	1.71E+00	7.15E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.90E-01	1.97E+00	1.83E-01	-2.87E+00
GWP – biogenic	kg CO_2e	-2.08E+01	7.17E-04	-4.21E+00	-2.50E+01	0.00E+00	5.99E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	1.90E+01	7.83E-01	-5.01E+01
GWP – LULUC	kg CO_2e	1.04E-01	7.19E-04	7.22E-03	1.12E-01	6.13E-04	1.06E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.02E-05	8.50E-04	1.69E-04	-3.93E-02
Ozone depletion pot.	kg CFC_{-11}e	4.87E-06	4.23E-07	2.38E-07	5.53E-06	4.08E-07	7.66E-09	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.37E-08	2.51E-07	6.09E-08	3.03E-07
Acidification potential	mol H^+e	4.40E-01	5.70E-03	2.44E-02	4.71E-01	7.12E-03	3.32E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.05E-04	4.81E-03	1.62E-03	-3.16E-02
EP-freshwater[2)]	kg Pe	4.47E-03	1.34E-05	8.20E-04	5.31E-03	1.17E-05	4.51E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.56E-06	2.62E-05	2.10E-06	-2.88E-04
EP-marine	kg Ne	7.19E-02	1.29E-03	5.61E-03	7.88E-02	2.16E-03	6.40E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.39E-04	8.22E-04	5.87E-04	-6.94E-03
EP-terrestrial	mol Ne	8.51E-01	1.43E-02	7.78E-02	9.43E-01	2.38E-02	7.13E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.64E-03	9.20E-03	6.25E-03	-1.14E-01
POCP ("smog")[3)]	kg NMVOCe	2.18E-01	5.16E-03	1.94E-02	2.42E-01	7.65E-03	2.13E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.45E-04	2.70E-03	1.81E-03	-2.24E-02
ADP-minerals & metals[4)]	kg Sbe	5.08E-04	6.14E-06	1.35E-05	5.28E-04	4.01E-06	2.08E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.46E-07	1.57E-05	6.05E-07	1.46E-04
ADP-fossil resources	MJ	6.58E+02	2.72E+01	3.18E+01	7.17E+02	2.61E+01	1.23E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.86E+00	1.61E+01	4.40E+00	-2.36E+01
Water use[5)]	m^3e depr.	4.07E+01	1.26E-01	5.58E+00	4.64E+01	1.21E-01	2.55E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.28E-02	2.63E-01	2.22E-02	-8.02E-01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	4.21E-06	1.60E-07	9.24E-07	5.29E-06	2.01E-07	3.86E-09	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.19E-08	4.72E-08	3.40E-08	-1.52E-07
Ionizing radiation[6)]	kBq U235e	4.92E+00	1.40E-01	1.76E+00	6.81E+00	1.35E-01	2.47E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.36E-02	1.34E-01	1.95E-02	4.55E-01
Ecotoxicity (freshwater)	CTUe	1.38E+03	2.31E+01	9.03E+01	1.49E+03	2.17E+01	8.96E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.57E+00	3.69E+01	3.58E+00	-4.58E+02
Human toxicity, cancer	CTUh	3.28E-08	6.79E-10	8.53E-09	4.20E-08	5.73E-10	4.22E-11	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.31E-11	6.68E-10	1.32E-10	-1.16E-08
Human tox. non-cancer	CTUh	7.68E-07	2.27E-08	7.66E-08	8.68E-07	2.30E-08	9.03E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.54E-09	2.21E-08	1.92E-09	-3.20E-07
SQP[7)]	-	1.96E+02	2.18E+01	5.95E+02	8.13E+02	3.04E+01	5.80E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.29E+00	5.60E+00	1.14E+01	-6.28E+02

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	9.32E+01	3.78E-01	9.91E+01	1.93E+02	3.38E-01	1.55E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.22E-02	8.35E-01	5.28E-02	-1.60E+02
Renew. PER as material	MJ	1.95E+02	0.00E+00	4.32E+01	2.39E+02	0.00E+00	-5.25E+01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	-1.77E+02	-9.30E+00	7.83E+01
Total use of renew. PER	MJ	2.89E+02	3.78E-01	1.42E+02	4.31E+02	3.38E-01	-5.23E+01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.22E-02	-1.76E+02	-9.25E+00	-8.18E+01
Non-re. PER as energy	MJ	6.80E+02	2.72E+01	6.12E+01	7.69E+02	2.61E+01	1.23E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.86E+00	1.61E+01	4.40E+00	-2.36E+01
Non-re. PER as material	MJ	1.25E+01	0.00E+00	5.07E+00	1.76E+01	0.00E+00	-5.16E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	-1.18E+01	-6.19E-01	3.74E+01
Total use of non-re. PER	MJ	6.93E+02	2.72E+01	6.63E+01	7.86E+02	2.61E+01	-3.93E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.86E+00	4.30E+00	3.78E+00	1.38E+01
Secondary materials	kg	2.29E+00	8.93E-03	2.01E-01	2.50E+00	7.36E-03	5.54E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.93E-04	2.09E-02	1.54E-03	2.32E-01
Renew. secondary fuels	MJ	1.86E-02	9.69E-05	1.77E+00	1.79E+00	6.49E-05	2.59E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.00E-06	6.36E-05	2.91E-05	4.03E-03
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	3.93E+00	3.48E-03	6.39E-02	3.99E+00	3.47E-03	7.86E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.70E-04	7.40E-03	4.86E-03	-1.09E-02

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3.34E+00	3.20E-02	4.05E-01	3.78E+00	2.80E-02	4.42E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.79E-03	6.84E-01	0.00E+00	-2.54E+00
Non-hazardous waste	kg	6.66E+01	5.59E-01	4.83E+00	7.20E+01	4.87E-01	2.06E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.22E-02	1.96E+00	1.93E+01	7.46E+00
Radioactive waste	kg	2.38E-03	1.86E-04	6.83E-04	3.25E-03	1.80E-04	8.62E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.91E-05	2.25E-05	0.00E+00	1.82E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	5.93E-01	0.00E+00	2.76E-02	6.21E-01	0.00E+00	4.00E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	8.90E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	1.17E-02	0.00E+00	4.30E+00	4.31E+00	0.00E+00	5.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	1.17E+01	0.00E+00	0.00E+00
Exported energy	MJ	4.98E-02	0.00E+00	0.00E+00	4.98E-02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	5.40E+01	1.80E+00	2.66E+00	5.85E+01	1.69E+00	7.07E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.88E-01	1.97E+00	2.20E-01	-2.43E+00
Ozone depletion Pot.	kg CFC_{-11}e	4.17E-06	3.33E-07	1.97E-07	4.70E-06	3.23E-07	6.23E-09	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.46E-08	2.13E-07	4.83E-08	2.07E-07
Acidification	kg SO_2e	3.68E-01	4.57E-03	1.82E-02	3.91E-01	5.52E-03	2.73E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.26E-04	3.98E-03	1.22E-03	-2.25E-02
Eutrophication	kg PO_4^3e	8.32E-02	9.99E-04	7.81E-03	9.20E-02	1.23E-03	1.88E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.42E-04	1.40E-03	2.13E-03	-1.13E-02
POCP (“smog”)	kg C_2H_4e	1.59E-02	2.17E-04	1.63E-03	1.77E-02	2.17E-04	1.18E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.44E-05	1.66E-04	5.13E-05	-3.43E-03
ADP-elements	kg Sbe	5.41E-04	5.96E-06	1.74E-05	5.64E-04	3.89E-06	2.05E-07	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.32E-07	1.42E-05	5.84E-07	1.30E-04
ADP-fossil	MJ	6.53E+02	2.70E+01	6.64E+01	7.46E+02	2.61E+01	1.23E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.86E+00	1.61E+01	4.40E+00	-2.36E+01

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
27.03.2024

VERIFIED ISO 14025