

ENVIRONMENTAL PRODUCT DECLARATION

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

Iccuna MEKA fixed triple glazed wood-aluminium window
Iccuna Oy



EPD HUB, HUB-3373

Published on 27.05.2025, last updated on 27.05.2025, valid until 26.05.2030

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) and JRC characterization factors EF 3.1.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Iccuna Oy
Address	Metallitie 6, 33470 Ylöjärvi, Finland
Contact details	teemu.haapalahti@iccuna.fi
Website	www.iccuna.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 1.1, 5 Dec 2023 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	Miia Toivo, Iccuna
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Haiha Nguyen, as an authorized verifier acting for EPD Hub Limited

This EPD is intended for business-to-business and/or business-to-consumer communication. 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	Iccuna MEKA fixed triple glazed wood-aluminium window
Place of production	Iccuna Oy, Ullavantie 10, 69600 Kaustinen Finland
Period for data	Calendar year 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3 (%)	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1m ² of window
Declared unit mass	39,7 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	7,95E+01
GWP-total, A1-A3 (kgCO ₂ e)	4,84E+01
Secondary material, inputs (%)	0,62
Secondary material, outputs (%)	55,1
Total energy use, A1-A3 (kWh)	498
Net freshwater use, A1-A3 (m ³)	2,94

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Iccuna is a Finnish door and window manufacturing company which provide wide range of products to all housebuilders. Iccuna windows are available made of wood-aluminium, PVC, aluminium or steel. In addition, Iccuna delivers profile doors with glazing, sliding doors and glass walls suitable for example to entrances, balconies and terraces.

Iccuna delivers windows and doors to different types of construction projects from private homes to public buildings such as retail, administrative and residential buildings. Iccuna products are made according to measurements at Iccuna's factories in Finland.

PRODUCT DESCRIPTION

The studied product is fixed wood-aluminium window with triple insulated glass. Wooden frame is made of timbered pine and there is aluminium cladding outside. The window size is 1,23m x 1,48m. Frame depth is 170mm. Wooden frame and aluminium are painted. Optional devices such as shutters and blinds are excluded from study.

All the production inputs and outputs of the standard window unit (1,23m x 1,48m) is scaled to 1m² for the calculation of the declared unit.

The product is manufactured at the Iccuna factory in Kaustinen, Finland.

Windows are used in buildings to bring light inside and simultaneously to keep out cold air and excessive heat.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	5	EU
Minerals	66	EU
Fossil materials	1	EU
Bio-based materials	27	EU

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	6,19
Biogenic carbon content in packaging, kg C	2,31

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1m ² of window
Mass per declared unit	39,7 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	Deconstruction/ demolition	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 materials are transported to Iccuna production facility in Kaustinen. There the wooden parts of window are cut, formed and painted. Aluminium profiles have been already painted while coming to the factory. Then aluminium profiles are cut and machined. Finally, after manufacturing wooden and aluminium components the window element is assembled. Glass, gaskets and hardware are installed. Products are packed on a pallet and supported by wooden supports and wrapped in plastic film. Wooden manufacturing waste consists of wooden chips and cut-offs. The Wood chips are used in production of municipal district heat. Cut-off waste of aluminium profiles is delivered to recycling company and aluminium is reused as raw material. Tap water is used to washing the spray-painting machine. This causes some water waste. Manufacturing process requires electricity, energy for heating and fuel for factory's internal transport.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

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.

Average distance of transportation from production plant to building site is calculated to be 328 km and transportation method is assumed to be truck. Empty returns are not taken into account as it is assumed that return trips are used by the transportation company to serve the needs of other clients. Only electric handheld tools are used during the installation. The energy consumption during the window installation is minimal, thus the environmental impacts are also negligible. Since the product is designed for a specific location and packed correctly, there are no transportation or

installation losses. After transportation and installation wooden pallet and plastic packaging become waste. Wooden packaging and plastic packaging waste is recycled or incinerated. In this study assumptions are used for packaging waste treatment according Ecoinvent EU scenarios (Ref. Eurostat).

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

Air, soil, and water impacts during the use phase have not been studied.

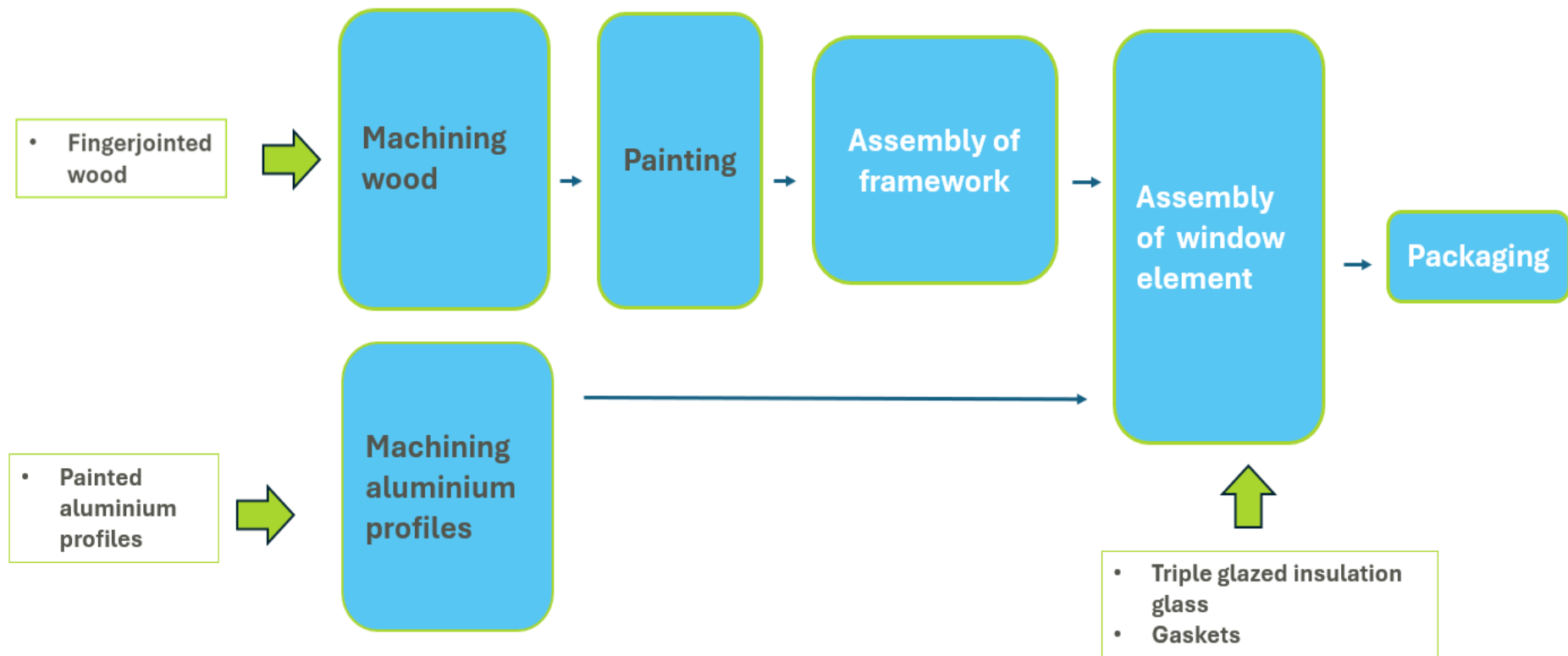
PRODUCT END OF LIFE (C1-C4, D)

Energy consumption is assumed to be very low in module C. Energy is only used to dismantle the windows from the building with hand-held tools and transport them to the waste treatment plant by lorry to be sorted there. The transport distance is assumed to be 50 km. According to the used end of life scenario EN 17213:2020 for timber windows and doorsets 70% of the glass and 5 % of metals, plastics, wood, paint and other materials end up in landfill. 30% of the glass is recycled and 95% of other materials such as metals, plastic and wood are recycled or incinerated.

Module D claims the benefit and load of material and energy recovery from packaging materials and the product. Incinerated materials, wood and plastics are used as a source of energy decreasing the demand for virgin fuel production and use. Recycled materials such as aluminium are used as a secondary material of new product reducing virgin aluminium production.

MANUFACTURING PROCESS

ICCUNO MEKA Fixed wooden frame window with aluminium cladding, triple glazed



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.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC2021 and JRC EF 3.1.

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 material	No allocation
Ancillary materials	Allocated by mass or volume
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 (%)	-

This EPD is product and factory specific and does not contain average calculations.

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 v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

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 ₂ e	4,27E+01	2,19E+00	3,53E+00	4,84E+01	2,83E+00	8,70E+00	MND	MND	MND	MND	MND	MND	MND	6,57E-04	1,20E+00	2,33E+01	1,34E+00	-2,41E+01
GWP – fossil	kg CO ₂ e	6,53E+01	2,19E+00	1,20E+01	7,95E+01	2,83E+00	2,32E-01	MND	MND	MND	MND	MND	MND	MND	6,55E-04	1,20E+00	1,76E+00	2,08E-01	-2,41E+01
GWP – biogenic	kg CO ₂ e	-2,27E+01	0,00E+00	-8,47E+00	-3,12E+01	0,00E+00	8,47E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,16E+01	1,14E+00	3,57E-01
GWP – LULUC	kg CO ₂ e	1,48E-01	7,96E-04	1,03E-02	1,59E-01	1,00E-03	2,59E-04	MND	MND	MND	MND	MND	MND	MND	2,01E-06	4,98E-04	1,45E-04	1,29E-04	-3,24E-01
Ozone depletion pot.	kg CFC-11e	6,54E-06	4,21E-08	6,95E-07	7,28E-06	5,63E-08	2,80E-09	MND	MND	MND	MND	MND	MND	MND	1,21E-11	2,22E-08	4,21E-09	5,28E-09	-3,84E-07
Acidification potential	mol H ⁺ e	3,25E-01	1,05E-02	1,07E-01	4,43E-01	8,86E-03	9,46E-04	MND	MND	MND	MND	MND	MND	MND	3,85E-06	3,67E-03	2,66E-03	1,42E-03	-1,73E-01
EP-freshwater ²⁾	kg Pe	8,68E-03	1,40E-04	1,65E-03	1,05E-02	1,88E-04	4,55E-05	MND	MND	MND	MND	MND	MND	MND	6,09E-07	9,49E-05	1,29E-04	2,45E-05	-1,05E-02
EP-marine	kg Ne	8,08E-02	3,03E-03	1,69E-02	1,01E-01	2,99E-03	1,00E-03	MND	MND	MND	MND	MND	MND	MND	6,04E-07	1,17E-03	1,29E-03	7,93E-04	-2,87E-02
EP-terrestrial	mol Ne	5,84E-01	3,32E-02	2,90E-01	9,07E-01	3,25E-02	3,84E-03	MND	MND	MND	MND	MND	MND	MND	5,41E-06	1,27E-02	1,22E-02	5,90E-03	-3,04E-01
POCP (“smog”) ³⁾	kg NMVOCe	2,09E-01	1,27E-02	5,46E-02	2,76E-01	1,39E-02	1,26E-03	MND	MND	MND	MND	MND	MND	MND	1,78E-06	5,53E-03	3,23E-03	2,05E-03	-1,02E-01
ADP-minerals & metals ⁴⁾	kg Sbe	6,33E-04	6,78E-06	4,49E-05	6,85E-04	9,26E-06	4,75E-07	MND	MND	MND	MND	MND	MND	MND	8,84E-09	4,84E-06	1,65E-06	4,62E-07	2,52E-04
ADP-fossil resources	MJ	7,92E+02	3,04E+01	5,36E+02	1,36E+03	3,98E+01	2,43E+00	MND	MND	MND	MND	MND	MND	MND	1,52E-02	1,69E+01	3,28E+00	4,52E+00	-3,51E+02
Water use ⁵⁾	m ³ e depr.	4,00E+06	1,44E-01	5,82E+01	4,00E+06	1,95E-01	6,62E-02	MND	MND	MND	MND	MND	MND	MND	4,15E-04	9,32E-02	4,60E-01	2,22E-02	-3,03E+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.

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	1,69E+02	5,17E-01	1,11E+02	2,81E+02	6,88E-01	-7,20E+01	MND	MND	MND	MND	MND	MND	MND	4,18E-03	3,63E-01	-1,77E+02	-9,25E+00	-1,21E+02
Renew. PER as material	MJ	2,09E+02	0,00E+00	7,42E+01	2,84E+02	0,00E+00	-7,42E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,99E+02	-1,05E+01	2,54E+00
Total use of renew. PER	MJ	3,79E+02	5,17E-01	1,85E+02	5,65E+02	6,88E-01	-1,46E+02	MND	MND	MND	MND	MND	MND	MND	4,18E-03	3,63E-01	-3,76E+02	-1,97E+01	-1,18E+02
Non-re. PER as energy	MJ	9,49E+02	3,04E+01	5,29E+02	1,51E+03	3,98E+01	3,63E-01	MND	MND	MND	MND	MND	MND	MND	1,52E-02	1,69E+01	-1,96E+01	2,60E+00	-3,51E+02
Non-re. PER as material	MJ	1,46E+01	0,00E+00	7,02E+00	2,16E+01	0,00E+00	-7,02E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,39E+01	-7,31E-01	1,47E+00
Total use of non-re. PER	MJ	9,64E+02	3,04E+01	5,36E+02	1,53E+03	3,98E+01	-6,66E+00	MND	MND	MND	MND	MND	MND	MND	1,52E-02	1,69E+01	-3,35E+01	1,87E+00	-3,50E+02
Secondary materials	kg	2,45E-01	1,37E-02	2,81E-01	5,40E-01	1,82E-02	1,66E-03	MND	MND	MND	MND	MND	MND	MND	2,52E-06	8,72E-03	4,72E-03	1,65E-03	8,85E+00
Renew. secondary fuels	MJ	3,06E-02	1,56E-04	2,50E+00	2,53E+00	2,30E-04	1,67E-05	MND	MND	MND	MND	MND	MND	MND	2,01E-08	9,79E-05	7,00E-05	3,09E-05	-5,38E-03
Non-ren. secondary fuels	MJ	6,46E-02	0,00E+00	0,00E+00	6,46E-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
Use of net fresh water	m ³	2,40E+00	3,97E-03	5,30E-01	2,94E+00	5,35E-03	-6,22E-03	MND	MND	MND	MND	MND	MND	MND	1,32E-05	2,63E-03	-2,53E-05	-6,76E-02	-6,71E-01

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	6,89E+00	4,27E-02	5,89E-01	7,53E+00	5,71E-02	1,58E-02	MND	MND	MND	MND	MND	MND	MND	3,85E-05	2,69E-02	9,90E-02	8,35E-03	-3,76E+00
Non-hazardous waste	kg	6,77E+01	9,00E-01	1,87E+01	8,72E+01	1,20E+00	1,10E+01	MND	MND	MND	MND	MND	MND	MND	2,98E-03	6,10E-01	1,71E+01	9,09E+01	-4,78E+01
Radioactive waste	kg	2,79E-03	9,52E-06	7,95E-03	1,07E-02	1,26E-05	1,68E-06	MND	MND	MND	MND	MND	MND	MND	1,08E-07	6,80E-06	3,81E-06	1,01E-06	-1,38E-03

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	2,90E-02	0,00E+00	2,10E-01	2,39E-01	0,00E+00	1,59E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,08E+01	0,00E+00	0,00E+00
Materials for energy rec	kg	2,02E-02	0,00E+00	7,55E+00	7,57E+00	0,00E+00	1,49E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,11E+01	0,00E+00	0,00E+00
Exported energy	MJ	1,13E-01	0,00E+00	0,00E+00	1,13E-01	0,00E+00	8,09E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,41E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,65E+01	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,68E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	3,65E+01	0,00E+00	0,00E+00

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
27.05.2025

