

# ENVIRONMENTAL PRODUCT DECLARATION

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

Particleboard

Vina Eco Board Co., Ltd



**EPD HUB, HUB-3013**

Published on 28.02.2025, last updated on 14.03.2025, valid until 27.02.2030

## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Vina Eco Board Co., Ltd
Address	Lot D2, D3, D4, D5, D6 and part D7, Phu An Thanh Industrial Park, An Thanh Commune, Ben Luc District, Long An Province, Vietnam
Contact details	info@veco.vn
Website	https://veco.vn

### 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
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Kento Takafuji
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	Sarah Curpen, 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	Particleboard
Place of production	Long An Province, Vietnam
Period for data	January 2023 – December 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	%

### ENVIRONMENTAL DATA SUMMARY

Declared unit	1m3 of particleboard
Declared unit mass	654 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	2,21E+02
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	-7,94E+02
Secondary material, inputs (%)	0.1
Secondary material, outputs (%)	76
Total energy use, A1-A3 (kWh)	2870
Net freshwater use, A1-A3 (m <sup>3</sup> )	4.03

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Vina Eco Board, established by SUMITOMO FORESTRY GROUP in Japan, is the only particle board factory in Vietnam using modern European equipment, with a strong focus on environmental aspects, aiming to produce ASEAN's No.1 quality particleboard from locally available plantation and waste wood using accumulated technical know-how and capability, while providing attractive products to valued customers and contributing significantly to the wooden industries and economic development of regional communities in Vietnam.

### PRODUCT DESCRIPTION

Particle board, also known as chipboard, is an engineered wood product that has become increasingly popular in various industries due to its versatility and cost-effectiveness. This composite material is manufactured by compressing wood particles or chips with a synthetic resin binder under high pressure and temperature. The result is a sturdy, uniform panel that can be used in a wide range of applications, from furniture manufacturing to construction.

Typically, particle board finds its way into numerous everyday items and structures. It is commonly used in the production of furniture, including cabinets, shelving units, and tables. In the construction industry, particle board serves as a reliable material for flooring underlayment, wall paneling, and even as a substrate for countertops. Its affordability and ease of use make it a preferred choice for both mass-produced items and custom interior solutions.

At our factory, we take pride in producing high-quality particle board that meets and exceeds industry standards. Our product range includes boards with thicknesses from 9mm to 30mm, available in various sizes to suit different needs. We offer JIS Certified 18/13/8 U Type-F☆☆☆☆, EPA-Carb (Phase 2), E0 and E1 grades, as well as High Moisture Resistance (HMR) options. What sets our particle board apart is our commitment to

environmental responsibility and quality control. We source 100% of our raw materials from local plantation forests, ensuring traceability and eco-friendliness. Our wood species include Acacia, Eucalyptus, Melaleuca, Rubber, and Cashew, utilized in the form of small logs, branches, and saw-slabs.

The particle board we produce is ideal for a variety of applications, particularly in furniture manufacturing, cabinet making, and as interior housing components. Our products are known for their consistent quality, with excellent physical properties, surface finish, and dimensional stability. We pride ourselves on achieving low formaldehyde emissions, meeting stringent standards such as E1, EPA, and JIS F☆☆☆☆. The fine surface of our boards makes them highly suitable for melamine and paper lamination, while their slightly lighter density ensures good cut-ability. Our reliable quality control and traceability systems, coupled with our ability to deliver small lots with short lead times, make us a preferred supplier in markets such as Vietnam, USA, Japan, and China.

Furthermore, we are deeply committed to environmental sustainability. As part of our initiatives, we produce 500,000 seedlings annually in our on-site nursery, which we provide to neighboring farmers to encourage reforestation activities. This approach not only ensures a sustainable supply of raw materials but also contributes positively to the local ecosystem and community.

Further information can be found at <https://veco.vn>.

### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	-
Minerals	0	-
Fossil materials	6	Asia
Bio-based materials	94	Asia

### BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	278,03
Biogenic carbon content in packaging, kg C	2.8e-7

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1m3 of particleboard
Mass per declared unit	654 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	MND	MND	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.

A1: Raw Materials Particleboard is produced from plantation wood and chemical resins. The plantation wood are sourced from local plantation forest and the chemical resins are sourced from local supplier as a pre-made mixture. Other minor chemical material are sourced from local and other countries in the Asia.

A2: Transport to Manufacturer Our raw materials are reach the site by load or by river.

A3: Manufacturing Ancillary water is sourced from and returned to the local water network in accordance with local standards and agreement. Electricity is sourced from the local grid network, and heat is provided primarily by our onsite energy plant (fuelled with site waste).

By-products include bark, sawdust, offcuts, rejects, and other process wastes, which are and other process wastes, which are used for reuse(20%) or energy recovery in our own manufacturing process(36%) or sold to merchants(44%).

## 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.

This EPD does not cover this phase

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.

## 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.

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

## PRODUCT END OF LIFE (C1-C4, D)

### C1: Deconstruction/Demolition

Manual deconstruction generating no loads.

### C2: Transfer to Waste Facility

It is modelled that the waste product travels no further than 50km by lorry, unspecified.

### C3: Waste Treatment

Wood: Waste treatment is modelled as the Recommended Scenarios (EU) for waste wood material (26% recycled, 50% energy recovery, 24% landfill.), as indicated by Eurostat & BuildLCA (pg 12, 2020).

Plastic: Waste treatment is modelled as the Recommended Scenarios (EU) for waste plastic packaging material (26% recycled, 47.5% energy recovery, 26.5% landfill.), as indicated by Plastics Europe (2021).

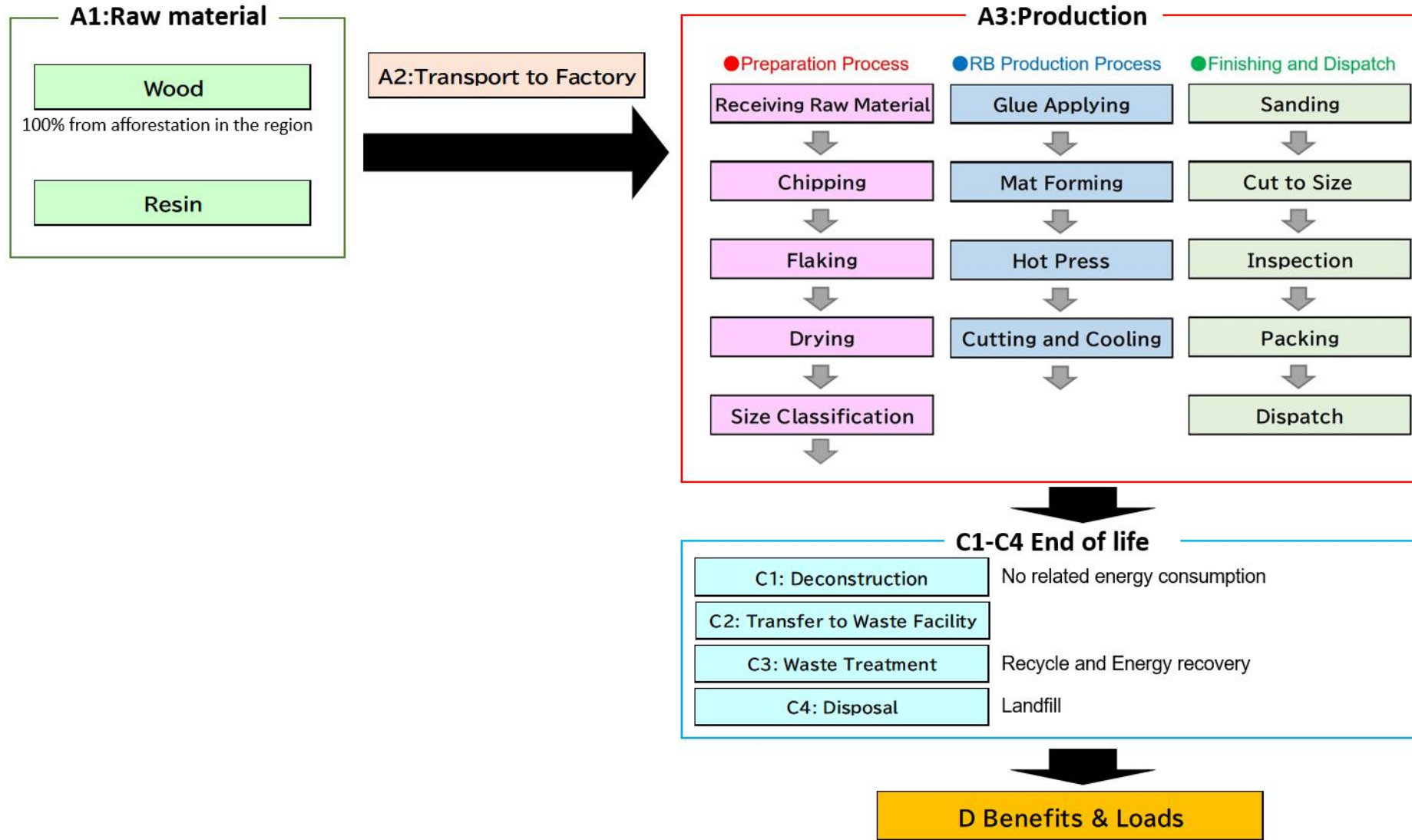
### C4: Disposal Wood:

24% of the material is sent to landfill in the standard EU pathway for waste wood.

Plastic: 26.5% of the material is sent to landfill in the standard EU pathway for waste plastic.

Module D: External Benefits & Loads In Module D the energy benefits of municipal incineration are modelled, as well as the avoided wood chip production from the recycling.

# MANUFACTURING PROCESS



## 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	Allocated by mass or volume
Packaging material	Allocated by mass or volume
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	%

Not an average EPD

### 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 <sup>1)</sup>	kg CO <sub>2</sub> e	-1,10E+03	8,46E+00	2,93E+02	-7,94E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,29E+00	7,79E+02	2,45E+02	-3,56E+02
GWP – fossil	kg CO <sub>2</sub> e	1,31E+02	8,45E+00	8,17E+01	2,21E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,29E+00	7,83E+00	1,70E+00	-3,55E+02
GWP – biogenic	kg CO <sub>2</sub> e	-1,23E+03	3,99E-08	2,12E+02	-1,02E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,72E+02	2,44E+02	0,00E+00
GWP – LULUC	kg CO <sub>2</sub> e	4,98E-01	4,55E-03	1,20E-02	5,15E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,75E-03	6,20E-03	1,75E-03	-4,66E-01
Ozone depletion pot.	kg CFC-11e	1,32E-05	1,83E-06	1,99E-06	1,70E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,01E-06	4,28E-07	5,04E-07	-1,04E-05
Acidification potential	mol H <sup>+</sup> e	8,15E-01	1,68E-01	7,25E-01	1,71E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,43E-02	6,67E-02	1,43E-02	-2,25E+00
EP-freshwater <sup>2)</sup>	kg Pe	6,28E-03	4,44E-05	4,13E-03	1,04E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,16E-05	1,93E-04	3,26E-05	-1,61E-02
EP-marine	kg Ne	1,87E-01	4,43E-02	1,05E-01	3,36E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,76E-03	2,78E-02	9,42E-03	-3,28E-01
EP-terrestrial	mol Ne	2,04E+00	4,92E-01	1,16E+00	3,70E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,63E-02	2,96E-01	5,30E-02	-3,65E+00
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	6,09E-01	1,29E-01	3,17E-01	1,05E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,75E-02	7,36E-02	1,90E-02	-1,04E+00
ADP-minerals & metals <sup>4)</sup>	kg Sbe	1,63E-03	1,93E-05	1,70E-04	1,82E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,47E-05	1,76E-05	5,71E-06	-3,27E-04
ADP-fossil resources	MJ	2,05E+03	1,16E+02	8,95E+02	3,06E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,49E+01	7,48E+01	3,86E+01	-3,86E+03
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	1,65E+02	4,47E-01	7,75E+00	1,73E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,12E-01	2,24E+01	2,32E-01	-5,86E+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	9,97E-06	5,82E-07	1,20E-06	1,18E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,75E-07	6,85E-07	2,85E-07	-3,12E-05
Ionizing radiation <sup>6)</sup>	kBq 11235e	4,75E+00	5,75E-01	9,40E-01	6,26E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,41E-01	3,54E-01	1,86E-01	-3,06E+01
Ecotoxicity (freshwater)	CTUe	3,34E+03	8,58E+01	9,20E+02	4,34E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,46E+01	1,33E+02	3,93E+01	-9,26E+03
Human toxicity, cancer	CTUh	1,97E-07	4,42E-09	1,54E-08	2,17E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,08E-09	1,52E-08	1,26E-09	-9,83E-08
Human tox. non-cancer	CTUh	1,82E-06	7,90E-08	6,45E-07	2,54E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,09E-08	7,12E-07	3,98E-08	-3,36E-06
SQP <sup>7)</sup>	-	4,90E+04	6,06E+01	2,36E+02	4,93E+04	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,64E+01	1,91E+01	9,31E+01	-1,72E+04

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 <sup>8)</sup>	MJ	7,62E+03	1,25E+00	2,11E+02	7,83E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,49E-01	4,47E+00	7,16E-01	-2,14E+03
Renew. PER as material	MJ	5,73E+03	0,00E+00	-9,87E+02	4,74E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-3,60E+03	-1,14E+03	0,00E+00
Total use of renew. PER	MJ	1,33E+04	1,25E+00	-7,77E+02	1,26E+04	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,49E-01	-3,60E+03	-1,14E+03	-2,14E+03
Non-re. PER as energy	MJ	1,48E+03	1,16E+02	8,89E+02	2,49E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,49E+01	7,48E+01	3,86E+01	-3,86E+03
Non-re. PER as material	MJ	5,68E+02	0,00E+00	4,73E+00	5,73E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-4,34E+02	-1,37E+02	0,00E+00
Total use of non-re. PER	MJ	2,05E+03	1,16E+02	8,94E+02	3,06E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,49E+01	-3,59E+02	-9,85E+01	-3,86E+03
Secondary materials	kg	6,54E-01	4,34E-02	1,52E-01	8,50E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,18E-02	1,14E-01	1,38E-02	-3,12E-01
Renew. secondary fuels	MJ	7,99E-03	2,77E-04	5,51E-03	1,38E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,27E-04	2,65E-04	5,30E-04	-1,14E-01
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	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 <sup>3</sup>	3,82E+00	1,14E-02	1,91E-01	4,03E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,65E-03	-5,34E-02	4,14E-02	-1,64E+00

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	8,43E+00	1,40E-01	4,24E+00	1,28E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,50E-02	2,46E-01	0,00E+00	-2,48E+01
Non-hazardous waste	kg	1,41E+02	1,82E+00	1,72E+02	3,15E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,33E+00	3,32E+02	1,57E+02	-6,52E+02
Radioactive waste	kg	3,98E-03	8,13E-04	7,32E-04	5,53E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,46E-04	7,51E-05	0,00E+00	-1,01E-02

### 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	2,83E+01	2,83E+01	MND	MND	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	0,00E+00	0,00E+00	6,15E+01	6,15E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,70E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	1,03E+02	1,03E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	3,27E+02	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	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 <sub>2</sub> e	1,27E+02	8,39E+00	8,11E+01	2,16E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,25E+00	7,53E+00	1,18E+01	-3,47E+02
Ozone depletion Pot.	kg CFC <sub>11</sub> e	1,10E-05	1,45E-06	1,72E-06	1,42E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,98E-07	3,67E-07	4,00E-07	-8,60E-06
Acidification	kg SO <sub>2</sub> e	6,42E-01	1,33E-01	6,14E-01	1,39E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,82E-02	4,85E-02	1,08E-02	-1,90E+00
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	2,86E-01	1,70E-02	1,55E-01	4,59E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,27E-03	4,77E-02	4,52E-01	-5,59E-01
POCP (“smog”)	kg C <sub>2</sub> H <sub>4</sub> e	4,52E-02	3,49E-03	2,19E-02	7,06E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,94E-04	1,68E-03	2,62E-03	-8,74E-02
ADP-elements	kg Sbe	1,62E-03	1,89E-05	1,68E-04	1,81E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,43E-05	1,59E-05	5,52E-06	-3,26E-04
ADP-fossil	MJ	2,05E+03	1,16E+02	8,95E+02	3,06E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,49E+01	7,48E+01	3,86E+01	-3,86E+03

### ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG <sup>9)</sup>	kg CO <sub>2</sub> e	1,31E+02	8,46E+00	8,18E+01	2,22E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,29E+00	7,84E+00	1,70E+00	-3,56E+02

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH<sub>4</sub> fossil, CH<sub>4</sub> biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO<sub>2</sub> is set to zero.

## 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.

Sarah Curpen, as an authorized verifier acting for EPD Hub Limited.  
28.02.2025

