



# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Aluminum Cladding Panel

Foshan Polea Building Material Industry Co., Ltd



**EPD HUB, HUB-5204**

Published on 30.01.2026, last updated on 30.01.2026, valid until 29.01.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.



Created with One Click LCA



## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Foshan Polea Building Material Industry Co., Ltd
Address	North of Yangmei Substation, West District of Yanghe Town (Yangmei), Gaoming District, Foshan City, west of Shashui River, China
Contact details	1302799932@QQ.COM
Website	http://polea-fs.com/

### EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Climate Asia Pte Ltd, Yap Ee Gin
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 for EPD Hub

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	Aluminum Cladding Panel
Additional labels	-
Product reference	GB/T 23443-2009, ASTM B209, AAMA 2603 / 2604 / 2605
Place(s) of raw material origin	China
Place of production	China
Place(s) of installation and use	Singapore
Period for data	Jan – Dec 2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	0
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	22,7

## ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m2 of Aluminium Cladding Panel
Declared unit mass	9,2 kg
Mass of packaging	0,64 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	27,5
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	27,6
Secondary material, inputs (%)	10,9
Secondary material, outputs (%)	90,2
Total energy use, A1-A3 (kWh)	123
Net freshwater use, A1-A3 (m <sup>3</sup> )	0,2

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Polea building material Co., Ltd (hereafter referred as Polea) was established in April 2004. Polea has a total investment of RMB 15 million and a total area of more than 30,000 sqm. Polea mainly fabricates, designs and sales aluminum sheet, stainless steel. We also process complicated sheet metal.

Polea has sold products worldwide in over 40 countries and areas, including America, Mexico, Australia, Singapore, Indonesia, the United Arab Emirates Saudi Arabia, Hong Kong and Macau, China Mainland and more.

### PRODUCT DESCRIPTION

Aluminum panels are widely used as façade cladding in curtain wall systems. They are fixed onto a metal framework (such as aluminum or steel subframes) to form a non-load-bearing protective envelope with strong design flexibility and modern aesthetics.

Featuring a low density of about 2.7 g/cm<sup>3</sup>, aluminum offers a high strength-to-weight ratio, with tensile strength up to 570 MPa after alloying and heat treatment. It also provides excellent thermal conductivity (200–240 W/m·K) and electrical conductivity (59–61% IACS), ensuring good performance in both structural and energy-efficient façade designs. Common panel thicknesses range from 1.0–3.0 mm, and lengths from 1000–6000 mm, balancing stiffness and ease of installation.

Further information can be found at:  
<http://polea-fs.com/>

### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	China
Minerals	0	NA
Fossil materials	0	NA
Bio-based materials	0	NA

### BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,264

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m2 of Aluminium Cladding Panel
Mass per declared unit	9,2 kg
Functional unit	-
Reference service life	15

### 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	ND	ND	ND	ND	ND	ND	ND	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 = ND. 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 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.

A location-based approach is used in modelling the electricity mix utilized in the factory.

The A1–A3 environmental impacts associated with the product stage have been evaluated, focusing primarily on raw material extraction and processing. The analysis also accounts for energy consumption and waste generation during the manufacturing phase.

Raw materials, including metals and other construction materials, are sourced from third-party suppliers in China and transported to the production facility by road using trucks. The aluminum used in this product contains 70% recycled content, which represents the sum of pre-consumer and post-consumer recycled aluminum. Based on information provided by the manufacturer, post-consumer recycled content accounts for 53%, with the remaining recycled content attributed to pre-consumer sources.

The transportation impact assessment reflects this supply chain arrangement. The modelling of electricity [Electricity, consumption mix w/o renewables, China, 2022 (One Click LCA) - 1.15 GWP/kWh] as well as natural gas [Market for natural gas, low pressure (Reference product: natural gas, low pressure) - 0.69 GWP/m3] in the foreground system has been described and meets the requirements of the calculation rules.

During production, approximately 1% of total material input is lost as metal scrap generated during fabrication and assembly processes. This portion is modelled as being sent to incineration under Module A3.

## 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.

The transportation-to-site scenario (Module A4) is analyzed based on local conditions and statistical data representative of the market area in which the product is sold. The analysis considers typical transport distances, vehicle types, and load capacities to reflect realistic logistics operations.

Installation at the construction site (Module A5) is assumed to have no product loss, as each unit is custom-fabricated to fit the building design prior to installation.

### PRODUCT USE AND MAINTENANCE (B1-B7)

B1-B7 are not included in this study.

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

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

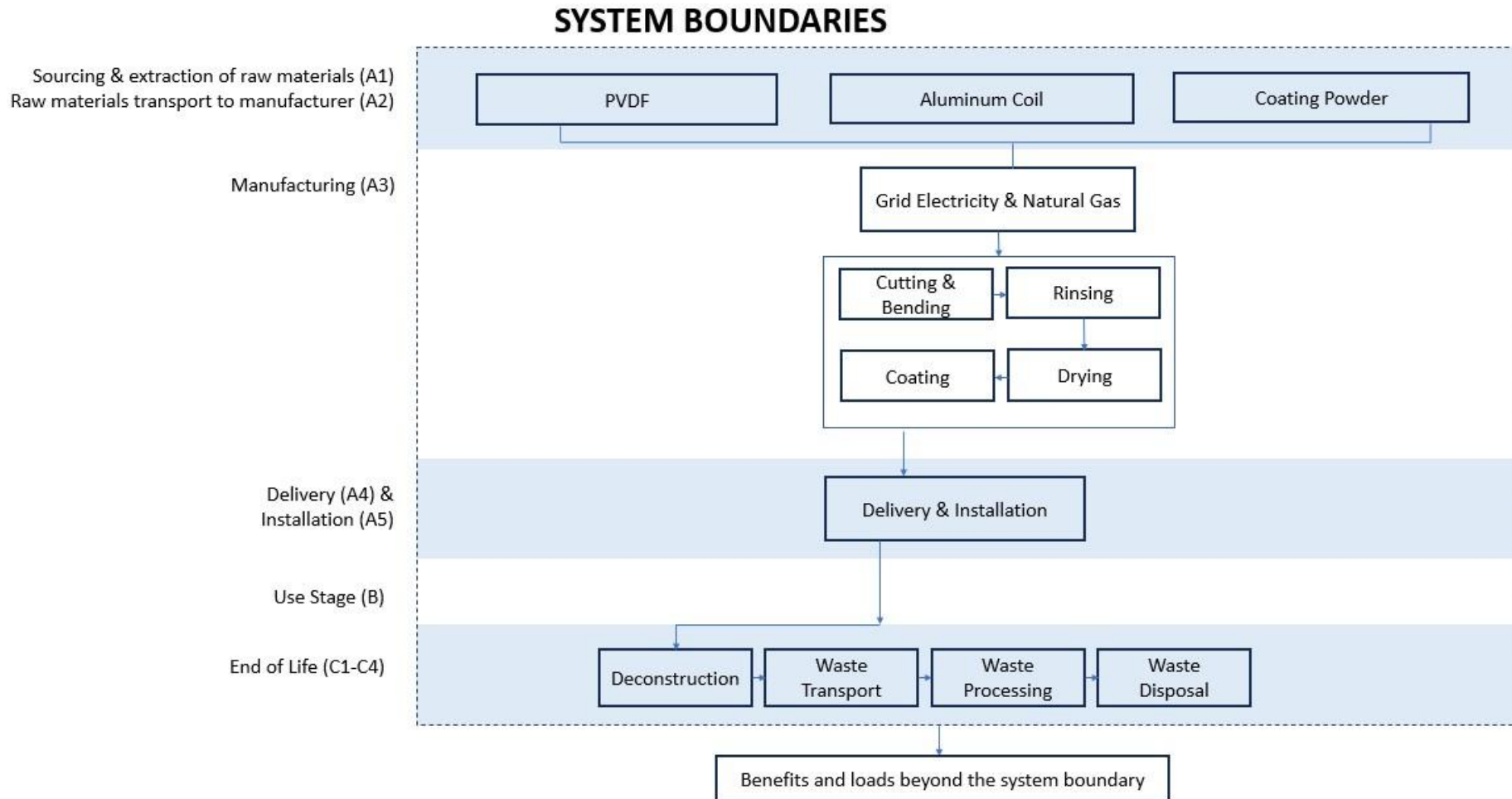
C1 includes product deconstruction and dismantling activities. The aluminium cladding panel is removed together with the building services during demolition, it is assumed that the deconstruction of the product requires 0.1 kWh of electricity per kg of product disassembled.

In stage C2, the end-of-life product is assumed to have the same mass as declared and is transported to the nearest recovery or recycling facility. An average transport distance of 40 km by lorry is applied based on local conditions.

In stage C3, 99% of the aluminium scraps are separated and sent for recycling, following typical metal recovery practices in the region. The recycling process converts the collected scrap into secondary metal materials, displacing the need for virgin metal production. The remaining minor non-recyclable residues (1%) are sent for final disposal, which is modelled under stage C4.

Benefits beyond the system boundary are accounted for in Module D. Recycled aluminium materials are assumed to replace virgin metals in production, and the avoided environmental burdens from primary extraction and refining are credited here. In addition, benefits and loads from biogenic carbon and fossil-based packaging materials are evaluated using reliable secondary data sources.

## SYSTEM DIAGRAM



## 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.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

### 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/AC:2021 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	Allocated by mass or volume
Packaging material	Allocated by mass or volume
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

### PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	0

This EPD is product and factory specific.



## LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD System Verification v3.2.3. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

## ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

### CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

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	2,23E+01	8,03E-03	5,18E+00	2,75E+01	3,02E-01	8,59E-01	ND	ND	ND	ND	ND	ND	ND	5,32E-02	3,96E-02	1,82E+00	2,28E-02	-5,80E+01
GWP – fossil	kg CO <sub>2</sub> e	2,14E+01	8,03E-03	6,02E+00	2,74E+01	3,02E-01	2,09E-02	ND	ND	ND	ND	ND	ND	ND	5,32E-02	3,96E-02	1,83E+00	2,28E-02	-5,88E+01
GWP – biogenic	kg CO <sub>2</sub> e	5,63E-01	1,43E-06	-8,36E-01	-2,73E-01	4,71E-05	8,38E-01	ND	ND	ND	ND	ND	ND	ND	4,71E-06	8,97E-06	-1,10E-02	-6,58E-05	8,97E-01
GWP – LULUC	kg CO <sub>2</sub> e	4,00E-01	3,59E-06	8,63E-04	4,00E-01	1,63E-04	1,33E-05	ND	ND	ND	ND	ND	ND	ND	3,47E-06	1,77E-05	1,16E-03	3,19E-05	-6,54E-03
Ozone depletion pot.	kg CFC <sub>11</sub> e	3,56E-05	1,19E-10	6,36E-08	3,56E-05	4,34E-09	1,67E-10	ND	ND	ND	ND	ND	ND	ND	1,24E-09	5,85E-10	7,69E-09	4,18E-10	-1,96E-07
Acidification potential	mol H <sup>+</sup> e	1,85E-01	2,74E-05	3,59E-02	2,21E-01	8,89E-03	5,87E-05	ND	ND	ND	ND	ND	ND	ND	6,06E-05	1,35E-04	7,02E-03	1,32E-04	-3,81E-01
EP-freshwater <sup>2)</sup>	kg Pe	6,74E-04	6,25E-07	1,20E-03	1,87E-03	9,47E-06	4,37E-06	ND	ND	ND	ND	ND	ND	ND	1,49E-06	3,08E-06	4,80E-04	3,57E-06	-1,17E-02
EP-marine	kg Ne	2,12E-02	9,00E-06	4,63E-03	2,58E-02	2,21E-03	3,20E-04	ND	ND	ND	ND	ND	ND	ND	1,69E-05	4,44E-05	9,75E-04	5,65E-05	-6,60E-02
EP-terrestrial	mol Ne	2,49E-01	9,79E-05	4,69E-02	2,96E-01	2,46E-02	1,94E-04	ND	ND	ND	ND	ND	ND	ND	1,80E-04	4,83E-04	1,09E-02	4,99E-04	-6,99E-01
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	7,84E-02	4,04E-05	1,66E-02	9,51E-02	6,65E-03	7,34E-05	ND	ND	ND	ND	ND	ND	ND	1,34E-04	1,99E-04	3,43E-03	1,57E-04	-2,05E-01
ADP-minerals & metals <sup>4)</sup>	kg Sbe	1,01E-04	2,24E-08	2,17E-06	1,04E-04	2,94E-07	2,18E-08	ND	ND	ND	ND	ND	ND	ND	6,14E-08	1,10E-07	4,43E-05	6,11E-08	-3,80E-05
ADP-fossil resources	MJ	2,21E+02	1,17E-01	9,45E+01	3,15E+02	3,70E+00	1,84E-01	ND	ND	ND	ND	ND	ND	ND	8,40E-01	5,75E-01	1,03E+01	3,87E-01	-5,05E+02
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	1,18E+01	5,76E-04	4,82E+01	6,00E+01	1,03E-02	4,87E-03	ND	ND	ND	ND	ND	ND	ND	3,98E-03	2,84E-03	2,40E-01	9,37E-03	-5,91E+00

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 PO<sub>4</sub>e; 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, EF 3.1

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	2,09E-06	8,04E-10	7,64E-08	2,16E-06	8,92E-09	1,07E-09	ND	ND	ND	ND	ND	ND	ND	2,70E-10	3,97E-09	1,27E-07	2,43E-09	-5,49E-06
Ionizing radiation <sup>6)</sup>	kBq 11235e	1,76E+00	1,01E-04	9,55E-02	1,86E+00	1,66E-03	8,84E-04	ND	ND	ND	ND	ND	ND	ND	9,16E-05	5,01E-04	4,67E-02	8,36E-04	-2,85E-01
Ecotoxicity (freshwater)	CTUe	5,80E+02	1,65E-02	3,63E+01	6,16E+02	2,72E-01	6,61E-01	ND	ND	ND	ND	ND	ND	ND	4,82E-02	8,13E-02	7,32E+00	1,59E+02	-1,46E+02
Human toxicity, cancer	CTUh	5,63E-08	1,33E-12	1,62E-09	5,79E-08	6,41E-11	2,55E-12	ND	ND	ND	ND	ND	ND	ND	4,08E-12	6,54E-12	6,19E-10	1,70E-11	-2,27E-08
Human tox. non-cancer	CTUh	8,34E-07	7,54E-11	3,29E-08	8,67E-07	8,98E-10	2,36E-10	ND	ND	ND	ND	ND	ND	ND	1,11E-10	3,72E-10	3,97E-08	3,63E-09	-3,73E-07
SQP <sup>7)</sup>	-	2,93E+01	1,17E-01	1,10E+02	1,39E+02	2,84E-01	2,37E-01	ND	ND	ND	ND	ND	ND	ND	5,76E-02	5,79E-01	1,12E+01	5,95E-01	-1,12E+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 <sup>8)</sup>	MJ	1,45E+02	1,60E-03	8,11E+00	1,53E+02	2,82E-02	-3,38E+00	ND	ND	ND	ND	ND	ND	ND	1,06E-02	7,88E-03	1,52E+00	1,21E-02	-2,45E+01
Renew. PER as material	MJ	0,00E+00	0,00E+00	7,54E+00	7,54E+00	0,00E+00	-7,54E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-8,02E+00
Total use of renew. PER	MJ	1,45E+02	1,60E-03	1,57E+01	1,60E+02	2,82E-02	-1,09E+01	ND	ND	ND	ND	ND	ND	ND	1,06E-02	7,88E-03	1,52E+00	1,21E-02	-3,26E+01
Non-re. PER as energy	MJ	2,21E+02	1,17E-01	6,64E+01	2,87E+02	3,70E+00	-4,28E+00	ND	ND	ND	ND	ND	ND	ND	8,40E-01	5,75E-01	1,04E+01	3,87E-01	-5,05E+02
Non-re. PER as material	MJ	0,00E+00	0,00E+00	4,98E-01	4,98E-01	0,00E+00	-4,98E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-6,70E-01
Total use of non-re. PER	MJ	2,21E+02	1,17E-01	6,69E+01	2,88E+02	3,70E+00	-4,78E+00	ND	ND	ND	ND	ND	ND	ND	8,40E-01	5,75E-01	1,04E+01	3,87E-01	-5,06E+02
Secondary materials	kg	1,00E+00	4,96E-05	2,82E-02	1,03E+00	1,76E-03	1,24E-02	ND	ND	ND	ND	ND	ND	ND	1,84E-04	2,45E-04	1,02E-02	1,54E-04	-6,38E-02
Renew. secondary fuels	MJ	8,63E-01	6,30E-07	2,03E-01	1,07E+00	3,81E-06	8,33E-07	ND	ND	ND	ND	ND	ND	ND	1,79E-07	3,11E-06	3,01E-04	2,14E-06	-1,16E-03
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m <sup>3</sup>	1,15E-01	1,72E-05	8,82E-02	2,04E-01	2,51E-04	-1,14E-03	ND	ND	ND	ND	ND	ND	ND	9,52E-05	8,50E-05	6,52E-03	-3,43E-03	-1,28E-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	6,65E+00	1,97E-04	3,84E-02	6,69E+00	4,89E-03	6,17E-04	ND	ND	ND	ND	ND	ND	ND	6,49E-04	9,74E-04	1,43E-01	2,92E-03	-1,22E+01
Non-hazardous waste	kg	3,03E+01	3,65E-03	1,01E+00	3,13E+01	6,60E-02	8,51E-01	ND	ND	ND	ND	ND	ND	ND	9,83E-03	1,80E-02	3,96E+00	4,92E+00	-5,14E+01
Radioactive waste	kg	1,10E-03	2,48E-08	1,57E-05	1,11E-03	4,04E-07	2,21E-07	ND	ND	ND	ND	ND	ND	ND	2,07E-08	1,23E-07	1,14E-05	2,05E-07	-6,68E-05

## 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	ND	ND	ND	ND	ND	ND	ND	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	9,20E-02	9,20E-02	0,00E+00	3,26E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,30E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	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	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	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	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

## ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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	2,14E+01	7,99E-03	5,97E+00	2,74E+01	3,01E-01	3,19E-02	ND	ND	ND	ND	ND	ND	ND	5,28E-02	3,94E-02	1,84E+00	2,28E-02	-5,82E+01
Ozone depletion Pot.	kg CFC <sub>11</sub> e	1,55E-06	9,46E-11	5,39E-08	1,61E-06	3,44E-09	1,35E-10	ND	ND	ND	ND	ND	ND	ND	9,89E-10	4,67E-10	6,42E-09	3,36E-10	-1,87E-07
Acidification	kg SO <sub>2</sub> e	1,53E-01	2,09E-05	3,09E-02	1,83E-01	7,10E-03	4,55E-05	ND	ND	ND	ND	ND	ND	ND	4,78E-05	1,03E-04	5,92E-03	9,79E-05	-3,19E-01
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	3,27E-02	5,09E-06	1,07E-02	4,34E-02	7,79E-04	2,26E-05	ND	ND	ND	ND	ND	ND	ND	8,75E-06	2,51E-05	6,59E-04	6,63E-05	-2,67E-02
POCP (“smog”)	kg C <sub>2</sub> H <sub>4</sub> e	1,15E-02	1,86E-06	1,38E-03	1,29E-02	3,52E-04	7,31E-06	ND	ND	ND	ND	ND	ND	ND	5,85E-06	9,19E-06	3,43E-04	7,41E-06	-2,32E-02
ADP-elements	kg Sbe	1,01E-04	2,18E-08	1,97E-06	1,03E-04	2,90E-07	2,12E-08	ND	ND	ND	ND	ND	ND	ND	5,90E-08	1,08E-07	4,41E-05	5,93E-08	-3,26E-05
ADP-fossil	MJ	2,21E+02	1,15E-01	9,41E+01	3,15E+02	3,67E+00	1,69E-01	ND	ND	ND	ND	ND	ND	ND	8,39E-01	5,67E-01	9,61E+00	3,73E-01	-5,01E+02

## ADDITIONAL INDICATOR – GWP-GHG

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	2,18E+01	8,03E-03	6,02E+00	2,78E+01	3,02E-01	2,09E-02	ND	ND	ND	ND	ND	ND	ND	5,32E-02	3,96E-02	1,83E+00	2,29E-02	-5,89E+01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH<sub>4</sub> fossil, CH<sub>4</sub> biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO<sub>2</sub> is set to zero.



## SCENARIO DOCUMENTATION

### DATA SOURCES

#### Manufacturing energy scenario documentation

1. Electricity, consumption mix w/o renewables, China, 2022, China, One Click LCA, 1.15 kgCO<sub>2</sub>e/kWh
2. Market for natural gas, high pressure, China, Ecoinvent, 0.60 kgCO<sub>2</sub>e/m<sup>3</sup>

#### Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, sea, container ship, 3000 km

#### Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	1,97E+03
Volume capacity utilization factor	1

#### Installation scenario documentation - A5 (Installation waste)

1. Market for wood chipping, industrial residual wood, stationary electric chipper, Ecoinvent, Materials for recycling, 0.32 kg
2. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.2 kg
3. Treatment of waste plastic, mixture, sanitary landfill, Ecoinvent, 0.117 kg
4. Market for plastic flakes, consumer electronics, for recycling, Ecoinvent, Materials for recycling, 0.006 kg

#### Use stages scenario documentation - B2 Maintenance

Scenario information	Value
Maintenance process / Description or source where description can be found	-
Maintenance cycle / Number per RSL or year (Not applicable if only B2 is declared)	-

#### Use stages scenario documentation - B3 Repair

Scenario information	Value
Repair process / Description or source where description can be found	-
Inspection Process / Description or source where description can be found	-
Repair cycle / Number per RSL or year	-

#### Use stages scenario documentation - B4 Replacement

Scenario information	Value
Replacement cycle / Number per RSL or year	-

#### Use stages scenario documentation - B5 Refurbishment

Scenario information	Value
Refurbishment process / Description or source where description can be found	-
Refurbishment cycle / Number per RSL or year	-
Further assumptions for scenario development, e.g., frequency and time period of use, number of occupants / Units as appropriate	-

#### Use stages scenario documentation - B6 (Energy data source)

## Use stages scenario documentation - B7 (Water data source)

### Use stages scenario documentation - B6-B7 Use of energy and use of water

Scenario information	Value
Ancillary materials specified by material / kg or units as appropriate	-
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc.	-
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants	-

### End of life scenario documentation - C1-C4 (Data source)

1. Treatment of aluminium scrap, post-consumer, by collecting, sorting, cleaning, pressing, Ecoinvent, Materials for recycling, 8.3 kg
2. Treatment of waste aluminium, sanitary landfill, Ecoinvent, 0.9 kg
3. Market for electricity, medium voltage, Ecoinvent, 1.0 kWh

Scenario information	Value
Scenario assumptions e.g. transportation	99% of metal recycling, 1% disposed with refer to the Singapore public statistic
	Distance: 40 km

## THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

### Verified tools

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Sarah Curpen as an authorized verifier for EPD Hub Limited

30.01.2026

