ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Tate Forte LEC - APAC

Made by Tate Asia-Pacific

EPD HUB, EPD number HUB-4651

Published on 14.12.2025, last updated on 14.12.2025, valid until 14.12.2030

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.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Tate Asia-Pacific
Address	28 Astoria Street, Marsden Park, Sydney, Australia
Contact details	info@tateapac.com
Website	https://www.tateinc.com/au/en/

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	NA
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Pierre Kerhascoet, Sustainability Manager, Tate
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly Gonzalez Vazquez 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	Tate Forte LEC - APAC
Additional labels	Tate Forte LEC Asia-Pacific
Product reference	-
Place(s) of raw material origin	Asia-Pacific
Place of production	Sydney, Australia
Place(s) of installation and use	Asia-Pacific
Period for data	01/01/2024-31/12/2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	NA
GTIN (Global Trade Item Number)	NA
NOBB (Norwegian Building Product Database)	NA
A1-A3 Specific data (%)	78,8

ENVIRONMENTAL DATA SUMMARY

Declared unit	1m2 of Tate Forte LEC
Declared unit mass	4,84 kg
Mass of packaging	0,64 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	23,6
GWP-total, A1-A3 ($kgCO_2e$)	22,8
Secondary material, inputs (%)	0,48
Secondary material, outputs (%)	52,3
Total energy use, A1-A3 (kWh)	134
Net freshwater use, A1-A3 (m^3)	1,69

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

For over 60 years, Tate has been an industry leading global manufacturer of data centre solutions. We work collaboratively with our data centre clients to provide structural ceilings, containment systems, airflow grills and security cages that are reliable, innovative, and high performing.
Our team of professional and highly qualified technical engineers are on hand to support our clients with their specific data centre project requirements.
We have a long-term commitment to delivering a sustainable agenda as part of Kingspan Group's 10-year Planet Passionate programme, which addresses climate change, circularity and promoting the well-being of people and of the environment.
We believe these can only be met through true collaboration and partnership and are delighted that together our initiatives have been recognised by global environmental impact non-profit CDP since 2016, for driving climate change. As a member of RE100, together with Kingspan Group, we are actively committed to 100% renewable electricity and have joined as a key global partner with the World's GBC's.

PRODUCT DESCRIPTION

Tate Forte LEC is engineered to support evolving demands of modern data centres, ensuring seamless integration with liquid-cooled IT infrastructure, providing enhanced scalability. It is fully compatible with the needs of Liquid Cooling Infrastructure and the future of AI. Designed to meet high deflection standards, ensuring your systems stay stable and secure, with the ability to suspend a uniform load of 6.1 kN/m2. Features a continuously threaded M10 bottom slot to allow multiple containment configurations. It is built with a safety factor of 2 to provide unparalleled reliability.

This EPD is based on 1 m2 of Tate Forte LEC with a 1200mm x 600mm configuration. The Tate Forte LEC structural ceiling belongs to the UN CPC class 4219.

This EPD describes a specific product, with no consideration of varied sizes or configurations. Tate Forte LEC is a design update of the Tate Grid LEC structural ceiling product which also had an existing and available EPD.
Tate Forte LEC is made with lower embodied carbon aluminium, which is produced using renewable electricity. This product has been optimised to give superior environmental and structural performance.

Further information can be found at: https://www.tateinc.com/au/en/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	97	APAC
Minerals	-	-
Fossil materials	3	APAC
Bio-based materials	-	-

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	0,24

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1m2 of Tate Forte LEC
Mass per declared unit	4,84 kg
Functional unit	-
Reference service life	50 years

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

The profiles for the Tate Forte LEC structural ceiling are made from aluminium produced with renewable energy. The transport of the raw material from supplier to the factory site is composed of 912 km by road transport, assuming it is done by a >32-ton EURO6 lorry and 2,375 km by sea transport via container ship.

The production of the Tate Forte LEC takes place at our Tate facility in Sydney, Australia. Our site in Sydney site is using 100% renewable energy, verified with Guarantees of Origin. Transmission and distribution losses are modelled, assuming 8% losses as per World Bank data. As per World Bank, the definition encompasses all stages between generation and final distribution, implying that high to medium voltage transformation losses are included in this measure.

Energy consumption of the site was allocated following the mass-allocation principle, with the calendar year 2024 used as the reference period.

The manufacturing production losses incurred on the Tate Sydney site are all from amending the aluminium profiles (amounting to 5%) and are sent to a third party for recycling. As per co-product allocation, the aluminium manufacturing losses are excluded for the main product.
There is no other manufacturing losses modelled - as only other wastes are lubrication oil and saw blades which are considered minor waste streams that are individually less than 1% of the total product weight and well below 5% cumulatively.

The finished product is packaged in carboard boxes, loaded onto a wooden crate.

Installation parts such as the turnbuckle, screws and connectors are considered in the module A5 installation as they enter the system's scope at the installation stage.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts incurred 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 distance is based on the weighted average distance based on the sales numbers in 2023.

The installation parts are made of carbon steel and ductile iron. The installation is carried out with electrical machinery, modelled with the market group for low voltage electricity (global geography was selected as conservative). There are no construction losses modelled, except packaging waste. The following scenarios for Australia[1] were considered for the packaging EoL:

Resource	Scenario	Reference
Wood pallet	80% recycled 0% incinerated with ER 20% landfill	DCCEEW National Waste Report 2022
Cardboard	55% recycled 7.2% incinerated with ER 37.8% landfill	DCCEEW National Waste Report 2022

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase are out of scope of this study. The reference service life is 50 years, based on the average lifetime of commercial buildings. (as per the Building Cost Information Service 2018 study).

[1] Source: DCCEEW National Waste Report 2022.

PRODUCT END OF LIFE (C1-C4, D)

It is assumed that the deconstruction of the product requires 0.01kWh of electricity per kg of product disassembled (C1).
The transportation distance to the treatment site is assumed to be 50 km and the mode is assumed to be the transportation method is assumed to be a 16-32 ton EURO6 lorry (C2). Product parts are considered in the end of life and are treated (C3). Any landfilled parts are considered in C4.

The place(s) of end-of-life depend on the location of the installation site. The market in which this product is available is restricted to the Asia-Pacific region. The scenarios included are currently in use and are representative for one of the most likely scenario.

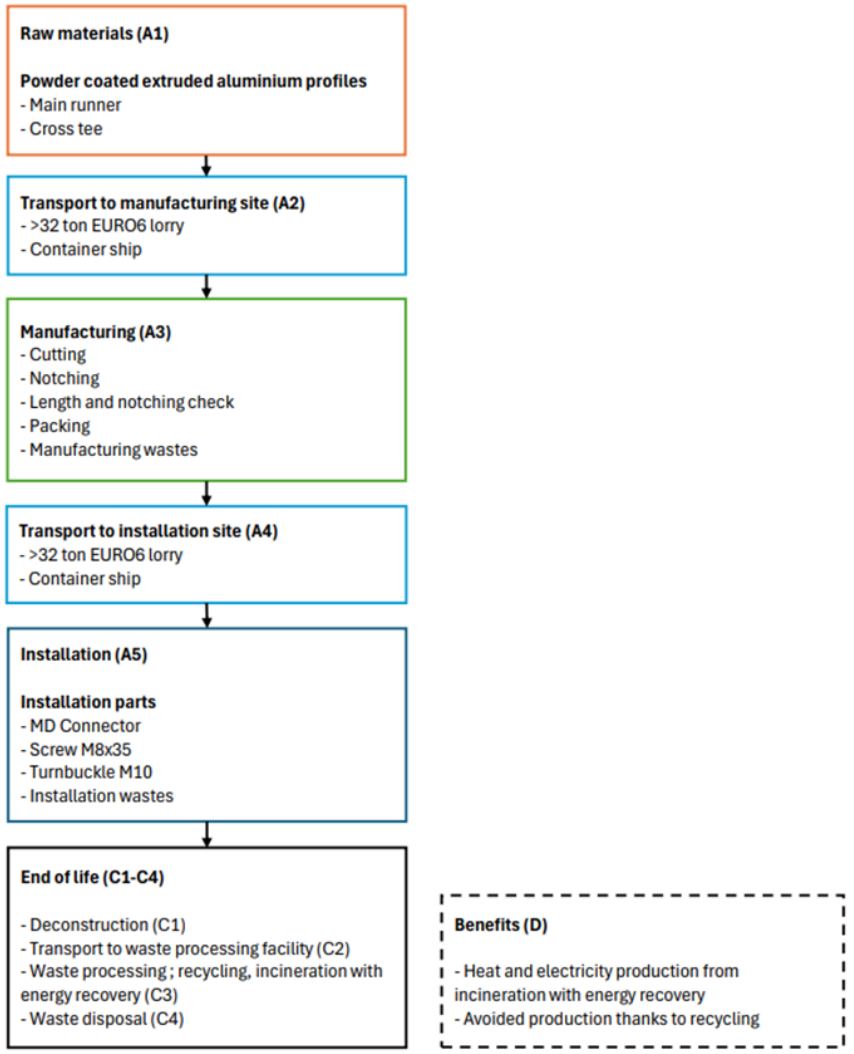
The table below shows the used waste processing scenarios for the accumulated product materials and installation parts. The systems parts are either aluminium or steel, the following recommended scenarios were used for the End of Life:

Resource	Scenario	Reference
Aluminium	76% recycled 25% landfill	International aluminium
Steel	85% recycled 15% landfill	World steel association

The scope of the end of life for recycling ends after the preparation steps for recycling.

The benefits and loads of product and packaging material recycling are included in Module D. The benefits considered for the system parts are the avoided production of aluminium and steel thanks to recycling (but discounting the recycled content of the parts to avoid double accounting). The loads considered are from the recycling of such parts. The same logic applied to the packaging with the addition of recovered energy from the incineration with ER.

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.

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	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	No allocation
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, %	-

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[1)]	kg CO_2e	2,26E+01	7,35E-01	-5,06E-01	2,28E+01	2,24E-01	4,19E+00	ND	ND	ND	ND	ND	ND	ND	4,39E-02	4,63E-02	1,23E-01	6,77E-03	-2,71E+01
GWP – fossil	kg CO_2e	2,26E+01	7,35E-01	3,37E-01	2,36E+01	2,24E-01	3,15E+00	ND	ND	ND	ND	ND	ND	ND	4,39E-02	4,63E-02	7,03E-02	6,77E-03	-2,60E+01
GWP – biogenic	kg CO_2e	-1,14E-02	1,56E-04	-8,44E-01	-8,55E-01	4,10E-05	1,04E+00	ND	ND	ND	ND	ND	ND	ND	6,60E-06	1,03E-05	5,25E-02	-8,97E-07	-1,20E-01
GWP – LULUC	kg CO_2e	5,69E-02	3,41E-04	1,35E-03	5,86E-02	1,15E-04	2,16E-03	ND	ND	ND	ND	ND	ND	ND	3,73E-06	2,10E-05	9,29E-05	4,13E-06	-1,00E+00
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1,57E-06	1,09E-08	8,59E-09	1,59E-06	3,35E-09	2,26E-08	ND	ND	ND	ND	ND	ND	ND	7,20E-10	6,87E-10	5,57E-10	1,90E-10	-4,16E-07
Acidification potential	mol H^+e	2,07E-01	4,10E-03	2,18E-03	2,13E-01	4,52E-03	1,60E-02	ND	ND	ND	ND	ND	ND	ND	1,64E-04	1,06E-04	5,85E-04	4,78E-05	-1,71E-01
EP-freshwater[2)]	kg Pe	1,92E-02	5,34E-05	1,07E-04	1,94E-02	1,08E-05	1,06E-03	ND	ND	ND	ND	ND	ND	ND	1,93E-06	3,63E-06	3,61E-05	6,38E-07	-3,93E-03
EP-marine	kg Ne	1,63E-02	9,95E-04	5,47E-04	1,79E-02	1,12E-03	3,81E-03	ND	ND	ND	ND	ND	ND	ND	2,64E-05	2,46E-05	1,74E-04	1,81E-05	-2,08E-02
EP-terrestrial	mol Ne	1,72E-01	1,09E-02	5,88E-03	1,89E-01	1,25E-02	3,77E-02	ND	ND	ND	ND	ND	ND	ND	2,87E-04	2,66E-04	1,53E-03	1,97E-04	-2,26E-01
POCP ("smog")[3)]	kg NMVOCe	6,03E-02	4,03E-03	2,02E-03	6,64E-02	3,53E-03	1,18E-02	ND	ND	ND	ND	ND	ND	ND	1,33E-04	1,49E-04	4,61E-04	7,04E-05	-9,58E-02
ADP-minerals & metals[4)]	kg Sbe	1,14E-04	2,25E-06	3,66E-06	1,19E-04	3,65E-07	1,24E-05	ND	ND	ND	ND	ND	ND	ND	2,14E-07	1,55E-07	2,51E-06	1,16E-08	-4,68E-05
ADP-fossil resources	MJ	2,16E+02	1,02E+01	4,55E+00	2,31E+02	2,95E+00	3,44E+01	ND	ND	ND	ND	ND	ND	ND	6,68E-01	6,51E-01	7,44E-01	1,63E-01	-2,81E+02
Water use[5)]	m^3e depr.	7,56E+01	4,56E-02	2,06E-01	7,58E+01	1,07E-02	7,04E-01	ND	ND	ND	ND	ND	ND	ND	3,37E-03	3,05E-03	1,52E-02	5,16E-04	-4,49E+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, 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	2,42E-06	5,08E-08	4,46E-08	2,52E-06	1,19E-08	3,35E-07	ND	ND	ND	ND	ND	ND	ND	1,12E-09	3,45E-09	2,47E-08	1,08E-09	-2,33E-06
Ionizing radiation[6]	kBq U235e	7,45E-01	7,91E-03	1,70E-02	7,70E-01	1,81E-03	1,09E-01	ND	ND	ND	ND	ND	ND	ND	6,85E-04	5,32E-04	3,48E-03	1,28E-04	-1,04E-01
Ecotoxicity (freshwater)	CTUe	7,66E+02	1,52E+00	1,02E+01	7,78E+02	2,95E-01	1,88E+02	ND	ND	ND	ND	ND	ND	ND	3,40E-01	1,03E-01	4,06E+01	2,04E-02	-7,95E+01
Human toxicity, cancer	CTUh	5,06E-08	1,27E-10	1,24E-09	5,20E-08	4,40E-11	5,46E-09	ND	ND	ND	ND	ND	ND	ND	7,72E-12	7,75E-12	1,97E-10	1,25E-12	-1,81E-08
Human tox. non-cancer	CTUh	8,24E-07	5,99E-09	4,58E-09	8,35E-07	1,18E-09	2,10E-07	ND	ND	ND	ND	ND	ND	ND	2,31E-10	4,11E-10	3,25E-09	2,96E-11	9,24E-08
SQP[7]	-	5,43E+01	5,58E+00	1,20E+02	1,80E+02	1,30E+00	1,53E+01	ND	ND	ND	ND	ND	ND	ND	2,51E-02	3,94E-01	2,88E+00	3,15E-01	-3,46E+01

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	2,24E+02	1,34E-01	1,49E+01	2,39E+02	2,95E-02	-7,45E+00	ND	ND	ND	ND	ND	ND	ND	1,17E-02	9,05E-03	1,11E-01	1,96E-03	-1,37E+02
Renew. PER as material	MJ	0,00E+00	0,00E+00	7,99E+00	7,99E+00	0,00E+00	-7,99E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,00E+00
Total use of renew. PER	MJ	2,24E+02	1,34E-01	2,29E+01	2,47E+02	2,95E-02	-1,54E+01	ND	ND	ND	ND	ND	ND	ND	1,17E-02	9,05E-03	1,11E-01	1,96E-03	-1,36E+02
Non-re. PER as energy	MJ	2,28E+02	1,02E+01	4,03E+00	2,43E+02	2,95E+00	3,44E+01	ND	ND	ND	ND	ND	ND	ND	6,68E-01	6,51E-01	7,44E-01	-2,40E+00	-2,81E+02
Non-re. PER as material	MJ	2,14E+00	0,00E+00	5,25E-01	2,66E+00	0,00E+00	-5,25E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	-2,14E+00	6,40E-02
Total use of non-re. PER	MJ	2,31E+02	1,02E+01	4,55E+00	2,45E+02	2,95E+00	3,39E+01	ND	ND	ND	ND	ND	ND	ND	6,68E-01	6,51E-01	7,44E-01	-4,54E+00	-2,81E+02
Secondary materials	kg	2,32E-02	4,65E-03	2,73E-02	5,51E-02	1,35E-03	3,37E-01	ND	ND	ND	ND	ND	ND	ND	8,14E-05	2,96E-04	1,17E-03	4,16E-05	2,66E+00
Renew. secondary fuels	MJ	1,77E-03	5,39E-05	2,08E-01	2,10E-01	8,10E-06	1,22E-03	ND	ND	ND	ND	ND	ND	ND	2,99E-07	3,78E-06	8,25E-05	8,31E-07	-1,09E-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^3	1,68E+00	1,32E-03	4,55E-03	1,69E+00	2,96E-04	1,23E-02	ND	ND	ND	ND	ND	ND	ND	7,83E-05	8,90E-05	3,35E-04	1,66E-04	-1,11E+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	7,21E-01	1,74E-02	3,34E-02	7,72E-01	4,33E-03	6,75E-01	ND	ND	ND	ND	ND	ND	ND	4,24E-04	1,14E-03	7,06E-03	1,98E-04	-7,54E+00
Non-hazardous waste	kg	1,87E+01	3,18E-01	6,13E-01	1,96E+01	6,81E-02	1,39E+01	ND	ND	ND	ND	ND	ND	ND	1,09E-02	2,14E-02	2,18E-01	4,53E-03	3,99E+01
Radioactive waste	kg	8,28E-05	1,94E-06	4,19E-06	8,90E-05	4,42E-07	2,69E-05	ND	ND	ND	ND	ND	ND	ND	1,62E-07	1,30E-07	8,49E-07	3,13E-08	-2,55E-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	7,83E-02	0,00E+00	0,00E+00	7,83E-02	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	0,00E+00	0,00E+00	0,00E+00	1,08E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,67E+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	2,10E-03	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	2,43E-02	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	9,30E-03	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	1,50E-02	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_2e	2,31E+01	7,31E-01	3,41E-01	2,41E+01	2,23E-01	3,30E+00	ND	ND	ND	ND	ND	ND	ND	4,37E-02	4,61E-02	1,13E-01	6,71E-03	-2,80E+01
Ozone depletion Pot.	kg $CFC_{-11}e$	1,38E-06	8,66E-09	8,01E-09	1,40E-06	2,66E-09	2,05E-08	ND	ND	ND	ND	ND	ND	ND	5,74E-10	5,48E-10	4,85E-10	1,51E-10	-3,43E-07
Acidification	kg SO_2e	1,82E-01	3,29E-03	1,73E-03	1,87E-01	3,61E-03	1,30E-02	ND	ND	ND	ND	ND	ND	ND	1,38E-04	8,55E-05	4,65E-04	3,55E-05	-1,47E-01
Eutrophication	kg PO_4^3e	3,07E-02	5,14E-04	6,01E-03	3,72E-02	4,16E-04	2,59E-03	ND	ND	ND	ND	ND	ND	ND	1,25E-05	2,04E-05	1,32E-04	1,10E-05	-5,33E-03
POCP (“smog”)	kg C_2H_4e	8,52E-03	2,19E-04	1,77E-04	8,92E-03	1,86E-04	1,37E-03	ND	ND	ND	ND	ND	ND	ND	8,79E-06	8,29E-06	5,55E-05	3,31E-06	-1,52E-02
ADP-elements	kg Sbe	1,12E-04	2,20E-06	3,62E-06	1,18E-04	3,58E-07	1,21E-05	ND	ND	ND	ND	ND	ND	ND	2,13E-07	1,51E-07	2,50E-06	1,14E-08	-4,06E-05
ADP-fossil	MJ	2,11E+02	1,00E+01	4,26E+00	2,25E+02	2,92E+00	3,27E+01	ND	ND	ND	ND	ND	ND	ND	6,56E-01	6,43E-01	6,89E-01	1,61E-01	-2,79E+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[9)]	kg CO_2e	2,26E+01	7,35E-01	3,38E-01	2,37E+01	2,24E-01	3,15E+00	ND	ND	ND	ND	ND	ND	ND	4,39E-02	4,63E-02	7,04E-02	6,78E-03	-2,70E+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 – CH4 fossil, CH4 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 CO2 is set to zero.

ENVIRONMENTAL IMPACTS – TRACI 2.1. / 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	2,30E+01	7,26E-01	3,38E-01	2,41E+01	2,21E-01	3,25E+00	ND	ND	ND	ND	ND	ND	ND	4,33E-02	4,57E-02	1,07E-01	6,61E-03	-2,78E+01
Ozone Depletion	kg $CFC_{-11}e$	1,65E-06	1,15E-08	9,13E-09	1,67E-06	3,53E-09	2,59E-08	ND	ND	ND	ND	ND	ND	ND	7,57E-10	7,25E-10	6,10E-10	2,01E-10	-4,34E-07
Acidification	kg SO_2e	1,70E-01	3,50E-03	1,92E-03	1,76E-01	3,84E-03	1,36E-02	ND	ND	ND	ND	ND	ND	ND	1,35E-04	9,12E-05	5,27E-04	4,31E-05	-1,44E-01
Eutrophication	kg Ne	5,68E-02	2,48E-04	2,30E-03	5,94E-02	1,59E-04	2,52E-03	ND	ND	ND	ND	ND	ND	ND	6,88E-06	1,18E-05	7,55E-05	4,77E-06	3,64E-03
POCP (“smog”)	kg O_3e	9,82E-01	6,71E-02	3,42E-02	1,08E+00	7,31E-02	2,09E-01	ND	ND	ND	ND	ND	ND	ND	1,85E-03	1,79E-03	8,42E-03	1,22E-03	-1,37E+00
ADP-fossil	MJ	1,68E+02	1,02E+01	8,06E-01	1,79E+02	2,96E+00	1,09E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,52E-01	0,00E+00	1,59E-01	-2,65E+02

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity production, wind, 1-3MW turbine, onshore, Australia, Ecoinvent, 0.0138 kgCO2e/kWh
2. Electricity production, photovoltaic, 570kWp open ground installation, multi-Si, Australia, Ecoinvent, 0.0628 kgCO2e/kWh
3. Electricity production, hydro, run-of-river, Australia, Ecoinvent, 0.0046 kgCO2e/kWh
4. Heat and power co-generation, biogas, gas engine, Australia, Ecoinvent, 0.81 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry >32 metric ton, EURO6, 166,82 km
2. Market for transport, freight, sea, container ship, 3236,09 km

Installation scenario documentation - A5 (Installation resources)

1. Steel production, converter, low-alloyed, Ecoinvent, 0.2333 kg
2. Steel production, converter, low-alloyed, Ecoinvent, 0.1681 kg
3. Cast iron production, Ecoinvent, 0.6431 kg
4. Impact extrusion of steel, cold, 1 strokes, Ecoinvent, 1.0444 kg
5. Market group for electricity, low voltage, Ecoinvent, 0.1 kWh

Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, 0.016 kg
2. Treatment of waste paperboard, sanitary landfill, Ecoinvent, 0.011 kg
3. Treatment of waste paperboard, municipal incineration, Ecoinvent, Materials for energy recovery, 0.0021 kg
4. Exported Energy: Thermal, Ecoinvent, 0.015 MJ
5. Exported Energy: Thermal, Ecoinvent, 0.0 MJ
6. Exported Energy: Electricity, Ecoinvent, 0.0093 MJ
7. Exported Energy: Electricity, Ecoinvent, 0.0 MJ
8. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 0.092 kg
9. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.0 kg
10. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.52 kg

Use stages scenario documentation - C1-C4 (Data source)

1. Treatment of metal scrap, mixed, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 2.786 kg
2. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.8798 kg
3. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.1567 kg
4. Treatment of waste paint on metal, sorting plant, Ecoinvent, 0.1302 kg
5. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.8878 kg
6. Market group for electricity, low voltage, Ecoinvent, 0.04841 kWh

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 15802+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

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited
14.12.2025

VERIFIED ISO 14025