Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2: 2019/AC:2021

ULTRACORE IQ from Bluechip

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
Licensee:	EPD Australasia, www.epd-australasia.com
Type of EPD:	EPD of multiple products, based on the average results of the product group
EPD registration number:	EPD-IES-0027140:001
Version date:	2025-12-10
Validity date:	2030-12-09

General EPD Information

An Environmental Product Declaration, or EPD, is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a PCR (Product Category Rules).

Programme information	
Programme:	**International EPD System** **EPD International AB** Box 210 60, SE-100 31 Stockholm, Sweden W: www.environdec.com E: support@environdec.com
Regional Programme Operator:	**EPD Australasia Ltd** 6 Cube Court, Richmond 7020 New Zealand W: epd-australasia.com P: +64 9 889 2909 P: +61 2 8005 8206 E: info@epd-australasia.com

Product Category Rules (PCR)	
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product Category Rules (PCR):	PCR 2019.14 Construction Products, version 2.0.1
PCR review was conducted by:	Rob Rouwette | start2see (chair), Noa Meron | thinkstep-anz (co-chair). The review panel may be contacted via the Secretariat: www.environdec.com/contact.

Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
☒ Individual EPD verification without a pre-verified LCA/EPD tool
☐ Individual EPD verification with a pre-verified LCA/EPD tool
☐ EPD process certification* without a pre-verified LCA/EPD tool
☐ EPD process certification* with a pre-verified LCA/EPD tool
☐ Fully pre-verified EPD tool

Third Party Verifier	Claudia A. Peña, PINDA LCT SpA Email: claudia@epd-americalatina.com
Verifier approved by:	International EPD System
More information can be found in the General Programme Instructions on www.envrondec.com.	
Procedure for follow-up of data during EPD validity involved third-party verifier	
☐ Yes	☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.

For further information about comparability, see EN 15804 and ISO 14025.

Information about EPD owner

Bluechip Group is an Australian-owned company specialising in premium building façade solutions, with a strong focus on performance, compliance, and architectural appeal. With decades of experience in the construction and cladding industry, Bluechip is known for supplying high-quality, tested, and certified materials that meet Australia's strict building codes and fire safety standards.

Bluechip's metal cladding range includes innovative, non-combustible solutions such as ULTRACORE IQ and other solid and composite aluminium panel systems. These products are designed for modern architectural façades, offering durability, aesthetic versatility, and compliance with AS 1530.1 and other relevant fire and performance standards. Bluechip's cladding systems are widely used in commercial, residential, and recladding projects across Australia.

Declaration Owner	
BLUECHIP	**Bluechip** 16 Ashby Close, Forrestfield WA 6058 Australia P: +61300 945 123 W: www.bluechipgroup.net.au
EPD Produced by	
edge impact™	Lilia Caballero, Weiqi Xing & Sazal Kundu Edge Environment Pty Limited Greenhouse, Level 3, 180 George Street, Sydney NSW 2000 W: www.edgeimpact.global E: info@edgeimpact.global

Product Information

ULTRACORE IQ by Bluechip Australia

UN CPC code: 4153, under Semi-finished products of aluminium or aluminium alloys, according to version 2.1, 2015

ULTRACORE IQ by BlueChip Australia a 4 mm non-combustible aluminium core cladding panel manufactured in Perth, Australia. The product consists entirely of aluminium layers with 0% polyethylene content and is tested in accordance with AS 1530.1, AS 1530.3, AS 5113, and BS 8414. ULTRACORE IQ meets the NCC 2022 C2D10(6)(g) requirements for Deemed-to-Satisfy (DtS) non-combustible external wall materials. Although visually similar to traditional aluminium composite panels, ULTRACORE IQ contains only non-combustible aluminium components.

ULTRACORE IQ is intended for use as an external wall cladding system for commercial, residential, and institutional buildings requiring non-combustible construction materials. Typical applications include façades, soffits, parapets, balcony screens, architectural features, and the recladding of existing façades. The expected influence on the operational aspects and impact of the building or other construction work, as well as restrictions to a type of construction or building.

Features and Benefits

- Constructed from 100% aluminium with no polyethylene content (0% PE)
- Tested to AS 1530.1, AS 1530.3, AS 5113, and BS 8414
- Low mass compared to solid aluminium panels, reducing structural loading and easing installation
- High rigidity with reduced risk of oil-canning
- Demonstrated V-groove folding durability over 40 years
- Uses less aluminium per m^2 than solid aluminium sheets, reducing embodied impacts
- Available in a wide range of stock and custom finishes, including timber, stone and metallic effects

Product Range

ULTRACORE IQ is available in a wide range of sheet sizes and factory-applied finishes, including solid, metallic, matt, sparkling, chromatic, and imitation finishes (timber, stone and metal). Standard sheet dimensions include 2 500 mm, 3 200 mm and 4 000 mm lengths with widths of 1 250 mm or 1 500 mm, depending on colour series.

Table 1 | ULTRACORE IQ product range, and sizes

Description	Sheet Sizes (mm)
Metallic Stock Colours	2 500, 3 200, 4 000 × 1 500
Solid Stock Colours	2 500, 3 200, 4 000 × 1 500
Non-stock, BCG & Custom Colours	2 500, 3 200, 4 000 × 1 250 / 1 500
Matt, Sparkling, Chromatic & Imitation Colours	2 500, 3 200, 4 000 × 1 250 / 1 500

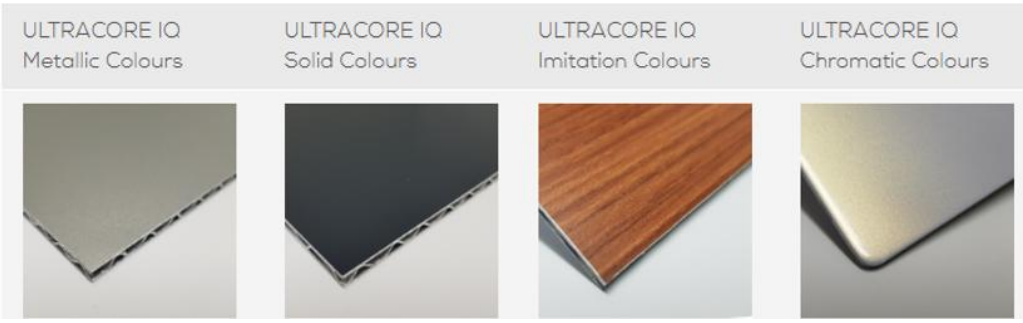

Figure 1 | ULTRACORE IQ product range

This LCA covers four ULTRACORE IQ variants produced at Bluechip's Perth facility: metallic stock colours, solid stock colours, non-stock/BCG/custom colours, and matt, sparkling, chromatic and imitation finishes. All variants have the same 4 mm panel construction with aluminium skins and an aluminium IQ core, produced via a common manufacturing process. The only differences are in colour and surface finish, applied during coil-coating, while raw material inputs, lamination, cutting, inspection, and packaging are consistent across the range.

The products are coated with PVDF Kynar 500, with PVDF as the main ingredient and a small amount of pigment for colour. The LCA results are average results based on the production volume of the included products.

Content Declaration

One declared unit of Bluechip ULTRACORE IQ, defined as 1 m^2, has a mass of 4.6 kg. The detailed, weighted average material composition of this unit is provided in Table 2.

Table 2: Content declaration for 1 m^2 of Bluechip ULTRACORE IQ.

Product components	Weight, kg	Post-consumer recycled material (%)	Biogenic material, weight-% of product	Biogenic material, kg C/ declared unit
Aluminium top skin	1.8E+00	0	0	0
Aluminium rare skin	1.3E+00	0	0	0
Aluminium core	1.3E+00	0	0	0
Coating	1.1E-02	0	0	0
Adhesive film	2.0E-02	0	0	0
Protective film	8.0E-02	0	0	0

Note 1: All product variants included in the grouped product system use the same coil-coating system; differences in colour and finish result only from pigment variation and do not change the underlying aluminium construction.

Table 3: Content declaration of packaging for 1 m^2 of Bluechip ULTRACORE IQ.

Packaging components	Weight, kg	Weight-% (versus the product)	Biogenic material, kg C/ declared unit
Wooden crate	3.3E-02	0.7%	0.01
Steel strapping	1.6E-02	0.3%	0

Note 2: Wooden crates are modelled with a conservative reuse assumption of 10 reuse cycles prior to end-of-life.

Note 3: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2

Note 4: The biogenic carbon and inherent energy of packaging material (i.e. wooden crate) is balanced out in the environmental impacts of modules A1-A3 aligning with the requirements from ANNEXES 2 and 3 of PCR.

Additional information on release of dangerous substances to indoor air, soil and water

None of the products contain any substances listed in the "Candidate List of Substances of Very High Concern for Authorisation." Based on available information and the Safety Data Sheet, Bluechip's ULTRACORE IQs are not classified as hazardous according to Safe Work Australia criteria (GHS 7).

LCA Information

This EPD has been produced in conformance with the requirements of PCR 2019:14, v2.0.1, General Programme Instructions (GPI) (v5.0.1) and EN 15804+A2:2019.

Table 4 | LCA information

	Product Characteristics
Declared Unit	1 m² of ULTRACORE IQ with a weight of 4.6 kg/m².
Manufactured in:	Perth, Western Australia.
Time representativeness	CY2024 (01-Jan-2024 – 31-Dec-2024).
Geographical scope	Australia
Database(s) and LCA software used:	Australian Life Cycle Inventory (AusLCI) v1.45 and v2.45, ecoinvent v3.11 database and EF v3.1 SimaPro (v10.2) LCA software Programme
Characterisation factors	The characterisation factors are based on version 3.1 of the EN 15804+A2 package for the Product Environmental Footprint (PEF) framework (EF 3.1).
Description of system boundaries:	EPD type a) Cradle-to-gate with modules C1-C4 and module D. This is in accordance with EN 15804, section 5.2.*

*Modules A4 and A5 were excluded due to the wide variation in project locations, applications, and installation methods, along with the absence of reliable and representative data for these processes. The use stage (Modules B1–B7) was not considered, as ULTRACORE IQ is an inert product that does not consume energy or water, emit substances, or require repair, replacement, or maintenance during its service life.

Table 5: Life Cycle of building products: stages and modules included in this EPD

	Product stage			Construction process stage		Use stage							End of life stage					Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal		Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**		**D**
Modules declared	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x		x
Geography	GLO	GLO	AU	-	-	-	-	-	-	-	-	-	AU	AU	AU	AU		AU
Variation of products	<5.1%			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Variation – sites	Not applicable			-	-	-	-	-	-	-	-	-	-	-	-	-		-

ND = not declared (such a declaration shall not be regarded as an indicator of zero result).

*All ULTRACORE IQ 4 mm products covered in this EPD share the same material composition and identical per-m² manufacturing inventories. The only variation between product variants relates to the coil-coating stage, which provides the different colours and surface finishes. In this assessment, the coating process is the only source of variation, and products with no coating are calculated to have approximately 5.1% lower GWP-GHG impacts compared to coated products.

System Diagram:

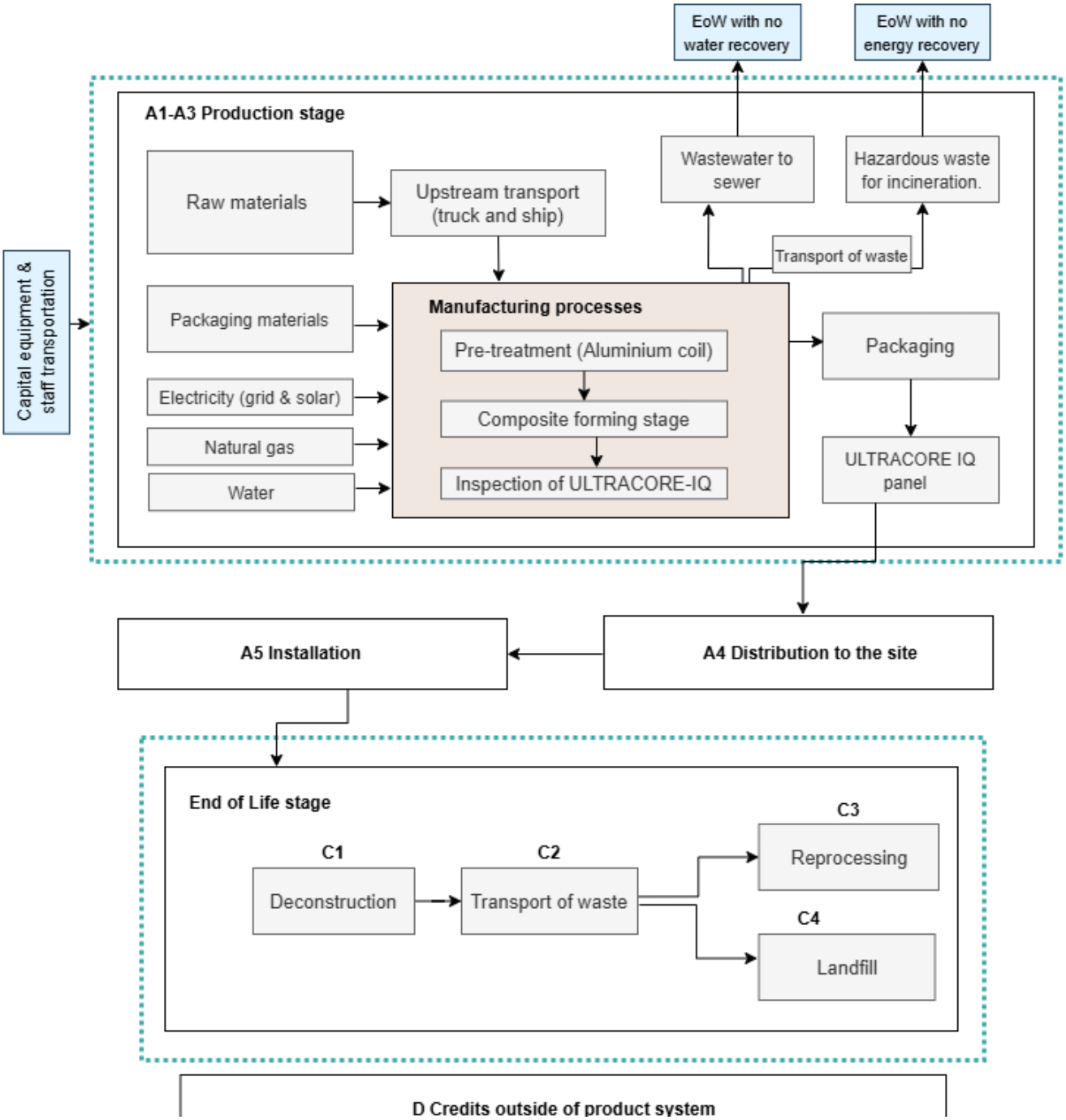

Figure 2 | System diagram of Bluechip's ULTRACORE IQ

Product Stage (Modules A1 – A3)

Modules A1–A3 include the extraction and transport of raw materials and packaging, electricity generation from primary and secondary energy sources, and the production of Bluechip ULTRACORE IQ variants. Inputs for each product were allocated by weight and averaged based on production volume.

Key raw materials are aluminium coil, coated aluminium alloy, adhesive film, and protective film, all transported to Bluechip's manufacturing site in Perth, Western Australia.

The manufacturing process of Bluechip ULTRACORE-IQ aluminium composite panels involves three main stages: pre-treatment, composite forming, and inspection. The process requires electricity (grid and solar), natural gas, and water, with water primarily used for cleaning materials. Consumption data were allocated on a per-m^2 basis.

Packaging consists of wooden crates and steel strapping, containing about 90% post-consumer recycled content. The wooden crates also represent the biogenic carbon content of packaging. Wastewater is discharged to sewer, while hazardous waste such as oil filters and powders is fully incinerated.

The plant uses both grid electricity and rooftop photovoltaic (PV) solar.

- Western Australia's residual electricity mix is composed of natural gas (44%), black coal (30%), solar (13%), wind (13%), and other sources (<1%), with emissions of 5.3E-01 kg CO_2 eq./kWh (GWP-GHG).
- PV electricity is modelled separately, with emissions of 5.5E-06 kg CO_2 eq./kWh (GWP-GHG).

Secondary datasets from LCA databases are location-based, relying on market-average mixes. While this may not fully represent Bluechip's actual electricity profile, any deviation is expected to be minor and not to affect overall conclusions on environmental performance.

End of Life stage (Module C1 - C4)

End-of-life stages cover deconstruction, waste transport, and final processing. Since limited data exist on ULTRACORE IQ's actual end-of-life fate, the assessment assumes typical construction product scenarios.

Key assumptions include:

- In line with EN 15804+A2:2019, Clause 6.3.5.5, 100% of panels and installation materials are assumed to be collected as mixed construction and demolition waste.
- In deconstruction stage (module C1), diesel use is modelled using the PCR 2019:14 v2.0.1 default value of 1.1 kWh per tonne of construction material.
- A 50 km transport distance to landfill is assumed as a conservative and typical Australian scenario, using PCR default parameters (EURO 5, 28-t truck, <1 utilisation, 50% load factor).
- The ULTRACORE IQ intelligent core panel is designed to be 100% recyclable. However, at present, Bluechip does not have verifiable or documented evidence demonstrating that the product can be consistently recycled at end of life. Due to the lack of reliable recyclability data and to maintain a conservative and robust LCA approach, this study assumes a single end-of-life scenario in which 100% of the product is considered to be sent to landfill.

Benefits and loads beyond the system boundary (Module D)

It is assumed that 100% of the products at End-of-Life are disposed of in landfill. In consequence, there is no benefits reported in Module D from the avoided production.

Cut-off rules and Exclusion of Small Amounts

In accordance with the PCR 2019:14 v2.0.1, the following system boundaries are applied to manufacturing equipment and employees:

- Environmental impact from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process are not accounted for. Capital equipment and buildings typically account for less than a few percent of nearly all life cycle inventories and this is usually smaller than the error in the inventory data itself. For this project, it is assumed that capital equipment makes a negligible contribution to the impacts as per Frischknecht et al. (Frischknecht, 2007) with no further investigation.

- Personnel-related impacts, such as transportation to and from work, are also not accounted for in the LCI, following to PCR v2.0.1 section 4.3.5. The impacts of employees are also excluded from inventory impacts on the basis that if they were not employed for this production or service function, they would be employed for another. It is very hard to decide what proportion of the impacts from their whole lives should count towards their employment. For this project, the impacts of employees are excluded.

Allocation

The ULTRACORE IQ colour and size variants covered by this study are treated as a single product group of similar products in accordance with PCR 2019:14 v2.0.1. Annual production data for ULTRACORE IQ were aggregated and allocated to the declared unit (1 m^2 of panel) using mass/area allocation across the total site production of ULTRACORE IQ. No further allocation between colour variants was required because their material composition and process chains are identical per m^2.

Raw material, energy, water, and waste data were sourced from the manufacturing plants operated by Bluechip. Raw material inputs were collected at the individual product level for the calendar year 2024. Energy and utility consumption, as well as waste generation were reported at the plant level, and allocated to Bluechip's products based on production volume during the reporting year using mass allocation method.

For water use and waste, although mass allocation is applied, the allocated values reflect the actual physical flows of the processes, in accordance with Section 6.4.3.2 of EN 15804+A2, which states:

Wastes generated in Module A3 are modelled using the waste allocation procedure described in PCR 2.0.1, Annex 4. Module A3 includes waste sorting and transport processes up to the end-of-waste state. There are not recycling credits/burdens for materials leaving the system boundary.

Assumptions, Choices, and Limitations

Table 6: Key assumptions, choices and limitation for this EPD

Assumption or limitation	Impact on LCA results	Discussion
Raw material data is based on generic information.	Significant	The EN 15804 standard permits generic data for upstream processes, however, this is where the main impacts are for panels across the life cycle.
Energy and waste allocation	Moderate	The energy consumptions and other manufacturing data at manufacturing stage are allocated by production volume in standard meter.
Exclusion of employees, capital good and infrastructure	Minor	Allowed/required as per EPD rules.
Transport to landfill	Minor	It is assumed 50km delivery distance to the waste processing plant based on the distance from likely construction sites within major cities to main landfill sites for the area.
End of life scenario	Moderate	For simplicity and lacking comprehensive data and statistics on the fate of used products, all products are assumed to be disposed in landfill after use.

Data Quality and Validation

The EPD covers Bluechip's ULTRACORE IQ from one factory in Taren Point, NSW, Australia, and provided data for the period January -December 2024. The products are manufactured using electricity from the local residual grid mix from Western Australia. Background data was sourced from the Australian Life Cycle Inventory (AusLCI) v1.45 and v2.44, Ecoinvent v3.11 2023-2025 and EF 3.1 databases. No fair, poor or very poor data was found during the assessment of relevant data using EN 15804:2012+A2:2019, Annex E, only E.2.

Declaration of share of primary data

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories

Table 7: Declaration of data sources, reference years, data categories, and share of primary data.

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Aluminium top skin	Database	ecoinvent 3.10, EF 3.1 database	2023-2024	Representative secondary data	0%
Aluminium rare skin	Database	ecoinvent 3.10	2023-2024	Representative secondary data	0%
Aluminium core	Database	ecoinvent 3.10	2023-2024	Representative secondary data	0%
Other raw materials production	Database	ecoinvent 3.10	2023-2024	Representative secondary data	0%
Transport of raw materials to production site	Database	ecoinvent v3.10	2024	Primary data	1.7%
Generation of electricity used in manufacturing of product	Database	AusLCI v2 EN15804 v 2.45	2024	Primary data	0.4%
Manufacturing of product[1]	Database	ecoinvent 3.11, AusLCI unit and AusLCI v2 EN15804 v 2.45	2024	Primary data	0.1%
Production of packaging materials	Database	AusLCI v2 EN15804 v 2.45	2024	Primary data, secondary data	0.1%
Other process	Database	AusLCI v2 EN15804 v 2.45	2024	Secondary data	0%
Total share of primary data, of GWP-GHG results for A1-A3					2.3%

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

[1] Processes at the manufacturing site and the corresponding on-site emissions and use of resources.

Environmental Performance

The following tables show the results for one declared unit of Bluechip ULTRACORE IQ.

Note that the use of results of modules A1-A3 or A1-A5, without considering the results of module C may mislead the communication and decision-making. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Table 8 | Mandatory impact category indicators according to EN 15804

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	6.2E+01	1.7E-03	2.2E-02	0.0E+00	1.9E-02	0.0E+00
GWP-fossil	kg CO_2 eq.	6.1E+01	1.7E-03	2.2E-02	0.0E+00	1.9E-02	0.0E+00
GWP-biogenic	kg CO_2 eq.	4.9E-02	7.4E-08	7.5E-07	0.0E+00	5.6E-06	0.0E+00
GWP-luluc	kg CO_2 eq.	6.8E-02	5.9E-08	5.5E-07	0.0E+00	1.2E-05	0.0E+00
ODP	kg CFC 11 eq.	3.0E-07	2.7E-11	2.8E-10	0.0E+00	2.6E-10	0.0E+00
AP	mol H^+ eq.	3.7E-01	1.6E-05	1.1E-04	0.0E+00	1.7E-04	0.0E+00
EP - F	kg P eq.	1.5E-02	1.4E-08	1.3E-07	0.0E+00	1.5E-07	0.0E+00
EP - M	kg N eq.	6.6E-02	7.5E-06	2.9E-05	0.0E+00	7.6E-05	0.0E+00
EP - T	mol N eq.	6.9E-01	8.2E-05	3.3E-04	0.0E+00	8.3E-04	0.0E+00
POCP	kg NMVOC eq.	2.1E-01	2.4E-05	1.2E-04	0.0E+00	2.5E-04	0.0E+00
ADPE*	kg Sb eq.	2.6E-04	7.2E-11	7.2E-10	0.0E+00	7.0E-10	0.0E+00
ADPF*	MJ	6.0E+02	2.3E-02	2.8E-01	0.0E+00	2.3E-01	0.0E+00
WDP*	m^3 eq. deprived	1.1E+01	2.9E-05	1.4E-04	0.0E+00	9.6E-04	0.0E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption;						

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Table 9 | Resource use indicators[2]

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	4.0E+01	5.0E-05	4.7E-04	0.0E+00	4.9E-03	0.0E+00
PERM	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERT	MJ	4.0E+01	5.0E-05	4.7E-04	0.0E+00	4.9E-03	0.0E+00
PENRE	MJ	5.9E+02	2.3E-02	2.8E-01	0.0E+00	1.1E+00	0.0E+00
PENRM	MJ	8.2E-01	0.0E+00	0.0E+00	0.0E+00	-8.2E-01	0.0E+00
PENRT	MJ	6.0E+02	2.3E-02	2.8E-01	0.0E+00	2.3E-01	0.0E+00
SM	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	m^3	3.1E-01	7.1E-07	3.6E-06	0.0E+00	2.0E-05	0.0E+00
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water.						

Table 10 | Waste indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.3E-02	1.5E-07	6.4E-08	0.0E+00	5.0E-08	0.0E+00
Non-hazardous waste disposed	kg	6.3E-01	7.9E-07	2.1E-05	0.0E+00	1.6E-04	0.0E+00
Radioactive waste disposed/stored	kg	2.7E-04	1.1E-09	1.7E-11	0.0E+00	1.3E-11	0.0E+00

Table 11 | Output flow indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for reuse	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported energy - electricity	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported energy - thermal	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

[2] Option A from PCR v2.0.1 annex 3 was selected for calculating primary energy use indicators

Table 12 | Additional mandatory and voluntary impact category indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG	kg CO_2 eq	6.2E+01	1.7E-03	2.2E-02	0.0E+00	1.9E-02	0.0E+00
Particulate matter	disease incidence	6.7E-06	4.6E-10	2.0E-09	0.0E+00	4.6E-09	0.0E+00
Ionising radiation - human health**	kBq U-235 eq	1.3E+00	4.8E-06	4.5E-05	0.0E+00	4.7E-05	0.0E+00
Ecotoxicity – freshwater*	CTUe	2.9E+02	7.8E-04	1.0E-02	0.0E+00	8.3E-03	0.0E+00
Human toxicity potential - cancer effects*	CTUh	2.2E-07	1.2E-13	1.0E-12	0.0E+00	1.3E-12	0.0E+00
Human toxicity potential - non cancer effects*	CTUh	4.4E-07	1.7E-12	4.4E-11	0.0E+00	2.5E-11	0.0E+00
Soil quality*	Pt	6.8E+01	4.8E-05	4.2E-04	0.0E+00	8.0E-03	0.0E+00

**Disclaimer – 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.*

***Disclaimer – 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 indi cator.*

Version History

Original Version of the EPD, 2025-12-10

Abbreviations

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
c-PCR	Complementary Product Category Rules
CEN	European Committee for Standardization
CPC	Central Product Classification
Environmental Impact Indicators (EN 15804)	
GWP	Global Warming Potential
GWP-luluc	Global Warming Potential – land use and land use change
ODP	Ozone Depletion Potential
AP	Acidification Potential
EP	Eutrophication Potential (freshwater, marine, terrestrial compartments)
POCP	Photochemical Ozone Creation Potential
ADP	Abiotic Depletion Potential
WDP	Water Deprivation Potential
GWP-GHG	Global Warming Potential – accounts for all greenhouse gases except biogenic CO_2 uptake and emissions
PM	Particulate Matter
IRP	Ionizing Radiation Potential
ETP-FW	Ecotoxicity Potential – freshwater
HTP-C	Human Toxicity Potential – Cancer
HTP-NC	Human Toxicity Potential – Non-Cancer
SQP	Index of soil quality potential
PERE	Use of primary energy excluding renewable primary energy resources used as raw materials
PERM	Use of renewable primary energy resources used as raw materials

PERT	Total use of renewable primary energy resources
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy used as raw materials
PENRM	Use of non-renewable primary energy resources used as raw materials
PENRT	Total use of non-renewable primary energy resources
SM	Use of secondary materials
RSF	Use of renewable secondary fuels
NRSF	Use of non-renewable secondary fuels
FW	Use of fresh water (net)
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)
MER	Materials for Energy Recovery (kg)
EEE	Exported Energy, Electricity (MJ)
ETE	Exported Energy, Thermal (MJ)
Other relevant Terms	
SVHC	Substances of Very High Concern
MJ	Megajoule
kg	Kilogram
m^3	Cubic Meter
NMVOC	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO_2 eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO_2 eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared

References

- ALCAS (2025). Australian Life Cycle Inventory (AusLCI) – v1.45 and v2.44. www.auslci.com.au.
- Australian Bureau of Statistics. (2023). Waste Account, Australia, Experimental Estimates. ABS. https://www.abs.gov.au/statistics/environment/environmental-management/waste-account-australia-experimental-estimates/2018-19.
- ECO Platform standards including LCA calculation rules v2.0, and digital data requirements v1.1.
- EN 15804:2012 + A1:2013 — Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products. Brussels, Belgium: CEN.
- EN 15804:2012+A2:2019; Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products. Brussels: European Committee for.
- EN 15941:2024 Sustainability of construction works — Data quality for environmental assessment of products and construction work – Selection and use of data (EN 15941, 2024).
- Frischknecht, R. (2007). The Environmental Relevance of Capital Goods in Life Cycle Assessments of Products and Services. Int. J LCA.
- General Programme Instructions (GPI) for the International EPD System v5.0.1, published at 2025-02-07 (GPI, 2025) – containing instructions regarding methodology and the content that must be included in EPDs registered under the International EPD System.
- Instructions of EPD Australasia v4.2, published at 2024-04-12 (GPI Annex 2, 2024) – a regional annex to the general programme instructions of the International EPD System
- ISO. (2006). ISO 14025:2006 - Environmental labels and declarations - Type III environmental declarations - Principles and procedures. Geneva: International Organization for Standardization (ISO).
- ISO. (2006). ISO 14040:2006. Environmental management – Life cycle assessment – Principles and framework. Geneva: International Organization for Standardization.
- ISO. (2006). ISO 14044:2006. Environmental management – Life cycle assessment – Requirements and guidelines. Geneva: International Organization for Standardization.
- PCR 2019:14 - Product category rules for Construction products (EN 15804:2012+A2:2019), registration number 2019:14, version 2.0.1, published on 5 June 2025.
- Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., & & Weidema, B. (2024). The ecoinvent database version 3.11