

Krause Emperor Brick

Independently Verified Product Carbon Footprint (PCF) Full Report

22 August 2025

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Document overview

This Product Carbon Footprint (PCF) report provides a transparent and verified account of the greenhouse gas (GHG) emissions associated with Krause Emperor Brick.

This report has been prepared by the declaration owner using primary and secondary data. The report conforms to international standard ISO 14067 and it is compiled using a range of high quality data sources. The results of this report has been reviewed by a suitably qualified Rebuilt LCA professional and verified in accordance to ISO 14064-3. This report demonstrates the declaration owner's commitment to transparency, sustainability excellence and continuous improvement.

Users of this PCF are responsible for evaluating the applicability of the data for their intended purposes.

Benefits of using this Product Carbon Footprint

This document can be used to:

- Inform your customers about the embodied emissions in your products
- Meet procurement and tender requirements
- Identify hot spots and opportunities for making improvements in carbon intensity over time
- Input into mandatory corporate carbon disclosure reporting.

PCFs and EPDs: making comparisons

Both Product Carbon Footprints (PCFs) and Environmental Product Declarations (EPDs) are based on lifecycle assessment methodologies (ISO 14044), so their results are technically interoperable. However, comparisons should be approached with care:

- Data sources differ. Even within the same product category, PCFs and EPDs may draw on different reference datasets, assumptions, or cut-off rules, leading to variation in results.
- Rules matter. Results are only directly comparable if they apply the same Product Category Rules (PCRs), which set the boundaries and methods for assessment.
- Timing matters. PCFs and EPDs last for five years. Assessments carried out at different times may reflect changes in datasets, methodologies, or manufacturing processes.
- Lifecycle stages vary. Not all PCFs and EPDs cover the same modules (e.g. raw materials, manufacturing, transport, use, end-of-life). Different system boundaries can significantly affect results. Use the breakdown tables to compare like-for-like.
- Detail drives accuracy. Expert interpretation is often needed to judge whether results are genuinely comparable and to avoid misleading conclusions.
- Project context is key. The most meaningful comparison comes from assessing products in the context of the whole project or structure, not in isolation.

Results at a glance

Krause Emperor Brick

THE KRAUSE BRICKS UNIT TRUST

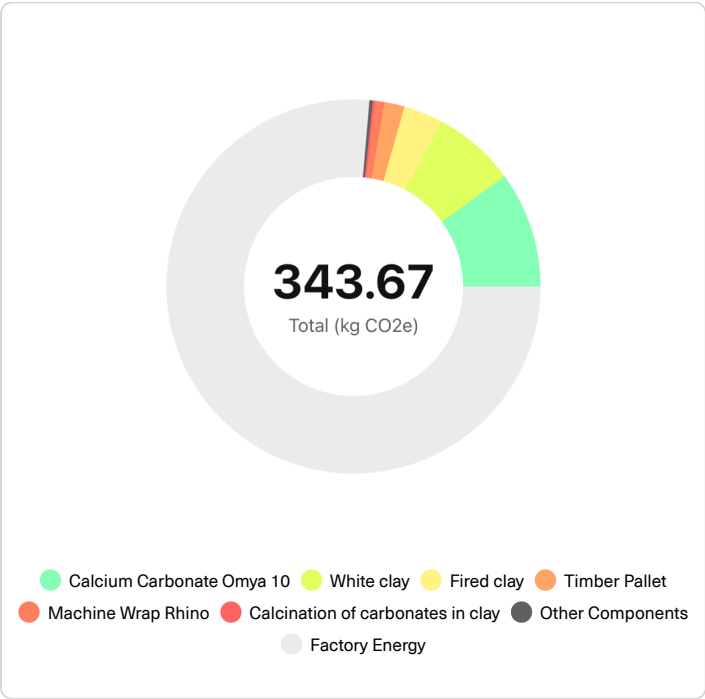
Total upfront carbon (Fossil)
(A1-A3)

343.67

Carbon Footprint
kg CO2e /tonne

Carbon impact (Fossil)

Relative carbon impact of the components of the product



Component name	Weight (kg)	kg CO2e	% of total kg CO2e
White clay	727.00	24.55	7.14
Calcination of carbonates in clay	0.00	0.65	0.19
Custom Tape	0.04	0.08	0.02
Machine Wrap Rhino	0.12	0.39	0.11
Pallet bag	0.26	0.52	0.15
Timber Pallet	16.30	5.99	1.74
Fired clay	50.00	11.75	3.42
Calcium Carbonate Omya 10	223.00	34.52	10.05
Machine Wrap Rhino	0.70	2.78	0.81
Factory Energy	0.00	262.43	76.36
Total (kg)		Total (kg CO2e)	
1,017.41		343.67	

Carbon intensity by life cycle stage

Carbon impact from raw materials (A1), transport to factory (A2), production activities (A3), transport to site (A4), and installation (A5).

Type	A1 (kgCO2e)	A2 (kgCO2e)	A3 (kgCO2e)
Fossil	24.74	46.09	272.84
Biogenic	0.19	0.00	-25.80
Luluc	< 0.01	0.00	0.02
Total (kgCO2e)		Total (kgCO2e)	Total (kgCO2e)
24.94		46.09	247.05

Report information

Publication date	August 22, 2025
Valid until	August 22, 2030
Independently verified	Declaration owner generated report Reviewed and verified by Rebuilt
Verifier contact	www.rebuilt.eco iso@rebuilt.eco
Geographic scope	This claim covers production in Australia
Data collection period	1 July 2024 - 30 June 2025
Standards compliance	ISO 14040, ISO 14044, ISO 14064-3, ISO 14067, ISO 14071
Product Category Rules (PCR)	EN 15804+A2:2019

This PCF report has been created and verified in accordance with:



Company information

Declaration owner	THE KRAUSE BRICKS UNIT TRUST
Company description	-
Company location	Stawell, Australia
Manufacturing facility	Griffiths St Site
Manufacturing location	Stawell, Australia

Product information

Product name	Krause Emperor Brick
SKU	EMPEXGHO
Description	A Krause Bricks specialty, the Emperor brick recalls the elongated lines of celebrated architect Frank Lloyd Wright. With dimensions of 390 x 105 x 45 mm, these unique bricks epitomise and accentuate the beauty of architectural design.
Net weight (kg) per declared unit	1,000.00
Declared unit	1 tonne For the purposes of this report, declared unit is taken to be an individual unit as sold.
ANZSIC	30
UNICLASS code	Pr_20_93_52_27

Technical information

Report boundary

This declaration shows the global warming potential (GWP) of the greenhouse gases embodied in this product, expressed in kilograms of carbon dioxide and equivalent gasses with global warming potential (kgCO₂-e) and is based on the results of a pre-verified LCA performed in accordance with ISO14067 process and procedure as well as ISO14025 and nominated PCR EN15804.

NOTE: This declaration is limited to the life cycle stages shown in the table below.

Lifecycle stage [EN15978]	Product A1-3					Construction A4-5		Use B1-5							End-of-life C1-4				Beyond D		
	Upfront carbon																				
Lifecycle Boxes [EN15978]	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D				
Climate change (GHG)	Raw Material Supply	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy	Operational Water	Deconstruction/ Demolition	Transport	Waste Processing	Disposal	Future reuse, recycling or energy recovery potentials				
Climate change (GHG)	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○				
	 Cradle to gate																				
	 Cradle to practical completion																				
Cradle to grave																					
Cradle to cradle																					

A1 - Raw Material Extraction

The raw materials stage also called background or upstream covers the extraction and production of the raw materials needed to manufacture the product. It includes the processing of the extracted raw material to the point where it can be made into a recognisable part.

A2 - Transport Raw Material to Factory

This stage outlines the calculation of CO₂ emissions (Stage A2) for transporting raw materials to the factory. It considers transport modes, distances travelled, and material weights to calculate emissions.

A3 - Manufacturing

Converting raw materials into parts and made into the final product. It considers energy usage, packaging, process emissions and production waste.

A4 - Transport to Site

Transport of the product to the final customer, including retail and warehousing. This PCF assumes products ship directly from the manufacturing plant to the final customer and are not sent to retail or warehousing. Scenario used is distance estimated at 200km by truck

A5 - Construction & Installation

Energy to install, ancillary materials required and waste created during the construction & installation of the product on site.

B - Use Phase

Not reported as part of this scope

C - End of Life

Not reported as part of this scope

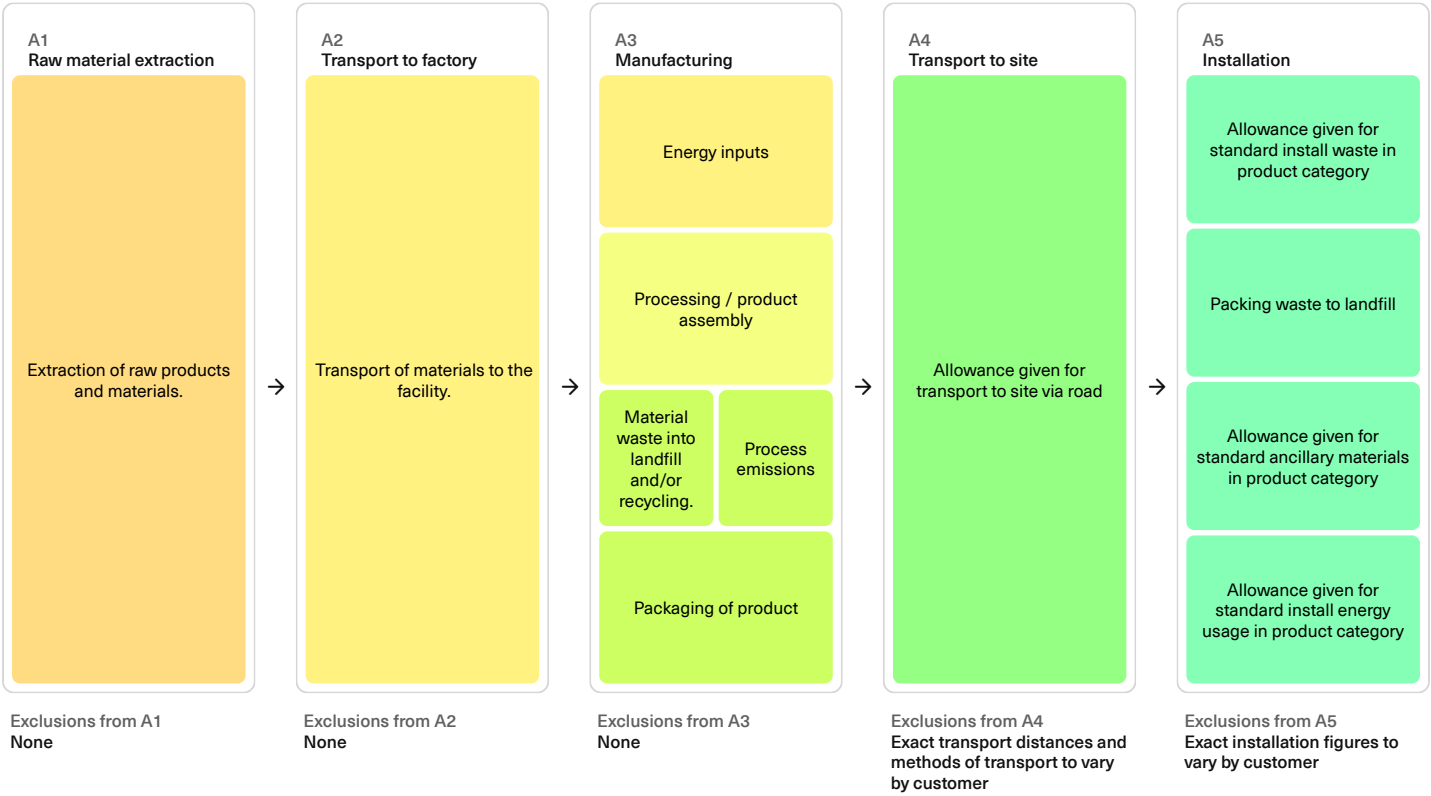
D - Beyond

Not reported as part of this scope

All effort is made to align measurement procedures for PRODUCT PCR to support comparability within the normal limits of accuracy. Users should take note of the scope, limits and product rules where they attempt to compare the A1-A5 result declared here and other product declarations.

Technical information (continued)

Process flow diagram



Cut-off criteria

Individual processes may be excluded if their contributions to the total system's environmental impact are less than 1%. The aggregate cut-off criteria of this PCF follows PCR 2019:14 guideline where a minimum of 95% of total input (mass and energy) for each life cycle stage are included. Exclusions from the PCF is outlined in "Data Assumptions, Choices and Limitations".

The use stage is excluded from the study due to the uncertainty related to the multiple possible applications of the products assessed.

The following processes were left out of the system boundaries, in conformity to usual practices in carbon footprinting: labor, commuting of workers and administrative work.

Allocation procedures

The allocation method for this PCF is based on a physical (mass) basis. The energy used by the product is allocated by normalising the total energy used in the factory to the total mass of the product to the total production mass output from the same factory.

Results

Total upfront carbon
(A1-A3)

343.67

Carbon Footprint
kg CO₂e /tonne

Carbon intensity by life cycle stage

Type	A1 (kgCO ₂ e)	A2 (kgCO ₂ e)	A3 (kgCO ₂ e)
Fossil	24.74	46.09	272.84
Biogenic	0.19	0.00	-25.80
Luluc	< 0.01	0.00	0.02
	Total (kgCO ₂ e) 24.94	Total (kgCO ₂ e) 46.09	Total (kgCO ₂ e) 247.05

Carbon intensity by raw material

Material	GWP Fossil (kgCO ₂ e)	GWP Biogenic (kgCO ₂ e)	GWP Luluc (kgCO ₂ e)	GWP Total (kgCO ₂ e)
White clay	5.96	-0.01	< 0.01	5.96
Fired clay	11.75	-0.91	< 0.01	10.84
Calcium Carbonate Omya 10	7.02	1.11	< 0.01	8.13
	Total (kgCO ₂ e) 24.74	Total (kgCO ₂ e) 0.19	Total (kgCO ₂ e) < 0.01	Total (kgCO ₂ e) 24.94

Carbon intensity by transport type

Material	Transport mode	GWP Fossil (kgCO ₂ e)	GWP Biogenic (kgCO ₂ e)	GWP Luluc (kgCO ₂ e)	GWP Total (kgCO ₂ e)
White clay	Transport, truck, 16 to 28t, fleet average	18.58	0.00	0.00	18.58
Custom Tape	Transport, truck, 16 to 28t, fleet average	< 0.01	0.00	0.00	< 0.01
Machine Wrap Rhino	Transport, truck, 16 to 28t, fleet average	< 0.01	0.00	0.00	< 0.01
Pallet bag	Transport, truck, 16 to 28t, fleet average	< 0.01	0.00	0.00	< 0.01
Timber Pallet	Transport, truck, 16 to 28t, fleet average	0.42	0.00	0.00	0.42
Fired clay	N/A	0.00	0.00	0.00	0.00
Calcium Carbonate Omya 10	Transport, truck, 16 to 28t, fleet average	27.50	0.00	0.00	27.50
Machine Wrap Rhino	Transport, truck, 16 to 28t, fleet average	< 0.01	0.00	0.00	< 0.01
		Total (kgCO ₂ e) 46.52	Total (kgCO ₂ e) 0.00	Total (kgCO ₂ e) 0.00	Total (kgCO ₂ e) 46.52

Results (Continue)

Carbon intensity by energy source

Energy type	GWP Fossil (kgCO2e)	GWP Biogenic (kgCO2e)	GWP Luluc (kgCO2e)	GWP Total (kgCO2e)
Diesel oil, cars & light commercial vehicles	10.19	0.00	0.00	10.19
Natural gas from grid	95.03	0.00	0.00	95.03
Purchased from grid (high voltage)	52.59	0.00	0.00	52.59
Natural gas from grid	103.04	0.00	0.00	103.04
Gasoline, cars & light commercial vehicles	1.58	0.00	0.00	1.58
	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)
	262.43	0.00	0.00	262.43

Carbon intensity by packaging material

Material	GWP Fossil (kgCO2e)	GWP Biogenic (kgCO2e)	GWP Luluc (kgCO2e)	GWP Total (kgCO2e)
Custom Tape	0.08	< 0.01	< 0.01	0.08
Machine Wrap Rhino	0.39	-0.02	< 0.01	0.37
Pallet bag	0.52	< 0.01	< 0.01	0.52
Timber Pallet	5.99	-25.86	0.02	-19.85
Machine Wrap Rhino	2.78	0.07	< 0.01	2.85
	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)
	9.75	-25.80	0.02	-16.03

Carbon intensity by process emissions

Material	GWP Fossil (kgCO2e)	GWP Biogenic (kgCO2e)	GWP Luluc (kgCO2e)	GWP Total (kgCO2e)
Calcination of carbonates in clay	0.65	0.00	0.00	0.65
	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)
	0.65	0.00	0.00	0.65

Carbon intensity by waste treatment

Material	Waste treatment type	GWP Fossil (kgCO2e)	GWP Biogenic (kgCO2e)	GWP Luluc (kgCO2e)	GWP Total (kgCO2e)
White clay	N/A	0.00	0.00	0.00	0.00
Fired clay	N/A	0.00	0.00	0.00	0.00
Calcium Carbonate Omya 10	N/A	0.00	0.00	0.00	0.00
		Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)
		0.00	0.00	0.00	0.00

References

- ISO 14040:2006+A1:2020 - Environmental management - Life cycle assessment - Principles and framework
- ISO 14044:2006+A2:2020 - Environmental management - Life cycle assessment - Requirements and guidelines
- ISO 14067:2018 (First Edition) - Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification
- EN 15804:2012+A2:2019 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- Australian National Life Cycle Inventory Database (AusLCI) version 1.42 (May 2023)
- ecoinvent database v3.11 (November 2024)
- Australian National Greenhouse Accounts Factors 2024