



Product Carbon Footprint  
Limited Assurance



ISO 14067  
ISO 14064-3  
EN 15804+A2  
[rebuilt.eco/pcf](http://rebuilt.eco/pcf)

# Rebellion Red Clay Brick Independently Verified Product Carbon Footprint (PCF) Full Report

16 October 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 Rebellion Red Clay 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.

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## 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

## Rebellion Red Clay Brick

SELKIRK PTY LTD

Total upfront carbon (Fossil)  
(A1-A3)

**196.80**

Carbon Footprint  
kg CO<sub>2</sub>e /tonne

### Carbon impact (Fossil)

Relative carbon impact of the components of the product



● Yellow Clay ● Shale ● Calcination of carbonates in clay ● Basalt Dust  
● Black Oxide ● MDF Board 745 x 133 x 4.75 ● Other Components  
● Factory Energy

Component name	Weight (kg)	kg CO <sub>2</sub> e	% of total kg CO <sub>2</sub> e
Basalt Dust	80.00	0.53	0.27
Shale	270.00	2.21	1.13
Claypro Clay	0.07	< 0.01	< 0.01
Black Oxide	0.03	0.09	0.05
Yellow Clay	650.00	7.41	3.76
Calcination of carbonates in clay	0.00	0.83	0.42
PET Strap 16 x 0.9 x 1200m	< 0.01	0.03	0.01
MDF Board 745 x 133 x 4.75	7.04	0.09	0.05
Edge Tape	< 0.01	< 0.01	< 0.01
Layer Sheets	< 0.01	< 0.01	< 0.01
Factory Energy	0.00	185.59	94.30
	Total (kg)	Total (kg CO <sub>2</sub> e)	
	1,007.15	196.80	

### 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 (kgCO <sub>2</sub> e)	A2 (kgCO <sub>2</sub> e)	A3 (kgCO <sub>2</sub> e)
Fossil	7.91	2.34	186.55
Biogenic	-0.01	0.00	-0.00
Luluc	< 0.01	0.00	< 0.01
	Total (kgCO <sub>2</sub> e)	Total (kgCO <sub>2</sub> e)	Total (kgCO <sub>2</sub> e)
	7.92	2.34	186.55

# Report information

Publication date	October 16, 2025
Valid until	October 16, 2030
Independently verified	Declaration owner generated report Reviewed and verified by Rebuilt
Verifier contact	<a href="http://www.rebuilt.eco">www.rebuilt.eco</a> <a href="mailto:verified@rebuilt.eco">verified@rebuilt.eco</a>
Geographic scope	N/A
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	SELKIRK PTY LTD
Company description	-
Company location	-
Manufacturing facility	SELKIRK PTY LTD
Manufacturing location	630 Howitt Street, Ballarat North VIC, Australia

# Product information

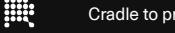
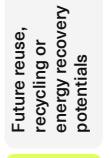
Product name	Rebellion Red Clay Brick
SKU	-
Description	Clay fired brick
Net weight (kg) per declared unit	1,000.00
Declared unit	1 tonne
	For the purposes of this report, declared unit is taken to be an individual unit as sold.
Recycled content	-
ANZSIC	30
UNICLASS code	Pr_20_93_52_27

# 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 (kgCO<sub>2</sub>-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
<b>Upfront carbon</b>									
Lifecycle Boxes [EN15978]	A1	A2	A3	A4	A5	B1	B2	B3	B4
Climate change (GHG)	Raw Material Supply	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement
Climate change (GHG)	●	●	●	○	○	●	●	●	●
 Cradle to gate									
 Cradle to practical completion									
Cradle to grave									
Cradle to cradle									
 Cradle to cradle									
 Future reuse, recycling or energy recovery potentials									

## 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 CO<sub>2</sub> 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

Not reported as part of this scope

## A5 - Construction & Installation

Not reported as part of this scope

## B - Use Phase

Not reported as part of this scope

## C - End of Life

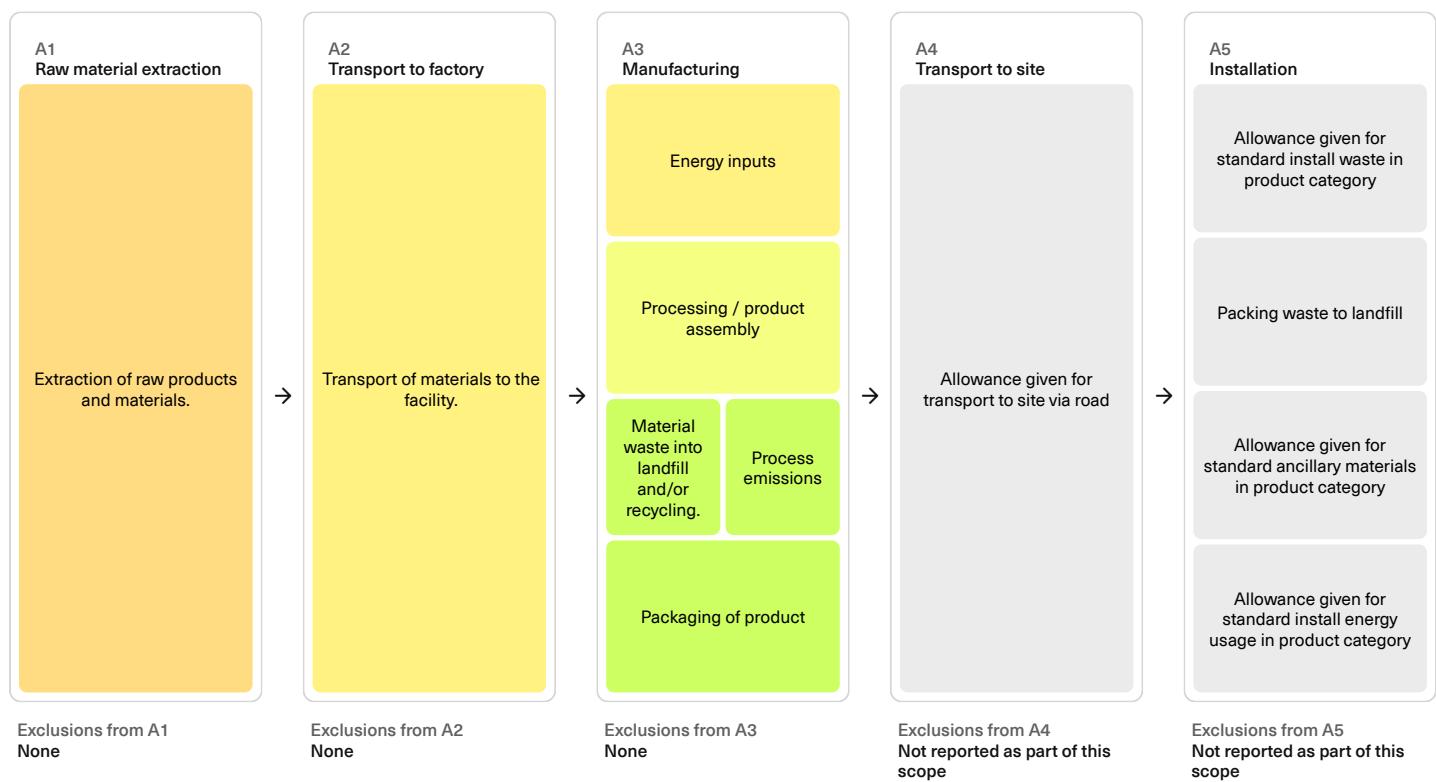
Not reported as part of this scope

## D - Beyond

Not reported as part of this scope

# 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 (Fossil)  
(A1-A3)

**196.80**

Carbon Footprint  
kg CO<sub>2</sub>e /tonne

## Carbon intensity by life cycle stage

Type	A1 (kgCO <sub>2</sub> e)	A2 (kgCO <sub>2</sub> e)	A3 (kgCO <sub>2</sub> e)
Fossil	7.91	2.34	186.55
Biogenic	-0.01	0.00	-0.00
Luluc	< 0.01	0.00	< 0.01
	Total (kgCO <sub>2</sub> e)	Total (kgCO <sub>2</sub> e)	Total (kgCO <sub>2</sub> e)
	7.92	2.34	186.55

## Carbon intensity by raw material

Material	GWP Fossil (kgCO <sub>2</sub> e)	GWP Biogenic (kgCO <sub>2</sub> e)	GWP Luluc (kgCO <sub>2</sub> e)	GWP Total (kgCO <sub>2</sub> e)
Basalt Dust	0.28	< 0.01	< 0.01	0.28
Shale	2.21	-0.00	< 0.01	2.21
Claypro Clay	< 0.01	-0.00	< 0.01	< 0.01
Black Oxide	0.09	-0.00	< 0.01	0.09
Yellow Clay	5.33	-0.01	< 0.01	5.33
	Total (kgCO <sub>2</sub> e)	Total (kgCO <sub>2</sub> e)	Total (kgCO <sub>2</sub> e)	Total (kgCO <sub>2</sub> e)
	7.91	-0.01	< 0.01	7.92

## Carbon intensity by transport type

Material	Transport mode	GWP Fossil (kgCO <sub>2</sub> e)	GWP Biogenic (kgCO <sub>2</sub> e)	GWP Luluc (kgCO <sub>2</sub> e)	GWP Total (kgCO <sub>2</sub> e)
Basalt Dust	By road, diesel truck, 16 to 28t, fleet average	0.26	0.00	0.00	0.26
Shale	N/A	0.00	0.00	0.00	0.00
PET Strap 16 x 0.9 x 1200m	Multi-leg transport	< 0.01	0.00	0.00	< 0.01
MDF Board 745 x 133 x 4.75	By road, diesel truck, 16 to 28t, fleet average	0.09	0.00	0.00	0.09
Claypro Clay	By road, diesel truck, 16 to 28t, fleet average	< 0.01	0.00	0.00	< 0.01
Black Oxide	Multi-leg transport	< 0.01	0.00	0.00	< 0.01
Edge Tape	Multi-leg transport	< 0.01	0.00	0.00	< 0.01
Yellow Clay	By road, diesel truck, 16 to 28t, fleet average	2.08	0.00	0.00	2.08
Layer Sheets	By road, diesel truck, 16 to 28t, fleet average	< 0.01	0.00	0.00	< 0.01

## Results (Continue)

	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)
	2.43	0.00	0.00	2.43

### Carbon intensity by energy source

Energy type	GWP Fossil (kgCO2e)	GWP Biogenic (kgCO2e)	GWP Luluc (kgCO2e)	GWP Total (kgCO2e)
Purchased from grid (high voltage)	47.47	0.00	0.00	47.47
Natural gas from grid	135.81	0.00	0.00	135.81
Diesel oil, Euro i, heavy vehicles	2.31	0.00	0.00	2.31
	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)
	185.59	0.00	0.00	185.59

### Carbon intensity by packaging material

Material	GWP Fossil (kgCO2e)	GWP Biogenic (kgCO2e)	GWP Luluc (kgCO2e)	GWP Total (kgCO2e)
PET Strap 16 x 0.9 x 1200m	0.03	< 0.01	< 0.01	0.03
MDF Board 745 x 133 x 4.75	0.09	0.00	0.00	0.09
Edge Tape	< 0.01	0.00	< 0.01	< 0.01
Layer Sheets	< 0.01	-0.00	< 0.01	< 0.01
	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)
	0.13	-0.00	< 0.01	0.12

### Carbon intensity by process emissions

Material	GWP Fossil (kgCO2e)	GWP Biogenic (kgCO2e)	GWP Luluc (kgCO2e)	GWP Total (kgCO2e)
Calcination of carbonates in clay	0.83	0.00	0.00	0.83
	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)	Total (kgCO2e)
	0.83	0.00	0.00	0.83

### Carbon intensity by waste treatment

Material	Waste treatment type	GWP Fossil (kgCO2e)	GWP Biogenic (kgCO2e)	GWP Luluc (kgCO2e)	GWP Total (kgCO2e)
Basalt Dust	N/A	0.00	0.00	0.00	0.00
Shale	N/A	0.00	0.00	0.00	0.00
Claypro Clay	N/A	0.00	0.00	0.00	0.00
Black Oxide	N/A	0.00	0.00	0.00	0.00
Yellow Clay	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