Environmental Product Declaration

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

Steel reinforcing bar

from

Stride Reinforcement Pty. Ltd

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
Regional programme:	EPD Australasia, www.epd-australasia.com
EPD registration number:	EPD-IES-0014125
Publication date:	2026-06-26
Valid until:	2029-06-20
Geographic scope of EPD:	Australia
Reference year:	Financial Year 21/22, 1st July 2021 to 30th June 2022
Version history:	1.0

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at epd-australasia.com

General information

Declaration Owner: Stride Reinforcement Pty Ltd

Contact:	dannytaylor@stridereo.com.au
Address:	571 Mt Derrimut Road, Derrimut Victoria 3026

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

Programme information

	Programme Operator	**Regional Programme**
Name	EPD International AB	EPD Australasia Limited
Address:	Box 210 60 SE-100 31 Stockholm, Sweden	315a Hardy Street Nelson 7010 New Zealand
E-mail:	info@environdec.com	info@epd-australasia.com

Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR):	PCR2019:14 Construction products, version 1.3.2, 2023-12-08
PCR review was conducted by:	The technical Committee of the International EPD ® System
Chair:	Martin Erlandsson, IVL Swedish Environmental Research Institute
Contact:	martin.erlandsson@ivl.se

Life Cycle Assessment (LCA)

LCA conducted by:	Charlotte Wang
Email:	charlottewangEPDs@gmail.com

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
☒ EPD verification by individual verifier

Third-party verifier:	Angela Schindler
Email:	angela@schindler-umwelt.de
Approved by:	EPD Australasia

Procedure for follow-up of data during EPD validity involves third party verifier:
☐ Yes ☒ No

Comparability of EPDs

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

The results for EN15804+A1 compliant EPDs are not comparable with EN15804+A2 compliant EPDs. Results using EN15804+A1 indictors are presented in this EPD to assist comparability.

Company information

100% Australian owned and operated.

Stride Reinforcement (Stridereo) was established in 2021 as a family run business, with an aim and purpose to bring assurance and reliability to an uncertain and unpredictable market.

Our innovative approach and willingness to collaborate with our clients means that projects are delivered on budget and on time. We pride ourselves on our competitiveness and ability to honour our word. Safety is always at the forefront of what we do. We believe that everyone should be safe at all times and we achieve this through innovative practices and a common sense approach.

Our team is comprised of self-motivated individuals who share a common set of values and strive to achieve our company goals.

They are a dedicated, customer focused and detail orientated workforce who strive to bring the very best products to the Australian construction market. Our state-of-the-art machinery, unparalleled technical support, combined with our pioneering spirit means that no job is too difficult for Stridereo.

Combined with Stride Tek a division of Stridereo, we also offer connecting, fixing, lifting and anchoring technology for the construction industry. We design, model and make engineered products and innovative construction solutions. From the safe handling of precast concrete elements and highly engineered concrete connections, Stride Tek offer full service of design, manufacture & supply to the Construction industry.

Product information

Product name:	Steel reinforcing bar
Name and location of production site(s):	571 Mt Derrimut Road, Derrimut Victoria 3026 Australia
Description of manufacturing processes:	The product is imported as bar or coil. It is cut and bent to customer specification at the above production site.
Product identification:	Steel reinforcement bar used in reinforced concrete. The sold product varies in shape and form based on the unique specification of the customer
Intended application:	The product provides structural reinforcement for concrete used in a variety of applications across the built environment. Reinforced concrete is used in structures ranging from wind turbines to skyscrapers.
ANZSIC 2006 code:	2221 – structural steel fabricating
UN CPC version 2.1:	4124 – Bars and rods, hot-rolled, of iron or steel
Standards compliance:	The product conforms to AS 4671 Steel reinforcing materials and is accredited by the Australasian Certification Authority for Reinforcing and Structural Steels (ACRS)
Geographical scope:	Australia

LCA information

Declared unit:	1 tonne (t) of reinforcing steel bar delivered to the average customer
Year(s) the data of the manufacturing processes in module A3 represent(s):	Financial Year 21/22, 1st July 2021 to 30th June 2022
Databases used:	Ecoinvent v3.9.1 AusLCI v1.42
LCA software used:	OpenLCA
Description of system boundaries:	Cradle to gate with options (A1-A3[1], A4) with modules C1-C4 and module D

Modules declared

	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	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO[2]	GLO[3]	AU	AU	ND	ND	ND	ND	ND	ND	ND	ND	AU	AU	AU	AU	AU
Specific data used[4]	1%			-	ND	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	ND	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	ND	-	-	-	-	-	-	-	-	-	-	-	-

[1] As module A5 is not included, the A1-A3 results include balancing-out reporting of the biogenic carbon of packaging released in module A5.
[2] Includes: 3% Italy (IT), 26% Poland (PL), 30% Turkey (TR), 10% Ukraine (UA), 26% Indonesia (ID), 3% Taiwan (TW), 2% Malaysia (MY), 1% South Korea (KR).
[3] Includes country specific transport and international shipping based on module A1 geography.
[4] Share of the GWP-GHG results in A1-A3 coming from specific data.

LCA modelling information

LCA modelling information	Description
Geographic scope	Rolled steel products are sourced from multiple overseas suppliers and are cut and bent into shape by Stride Reinforcement in Australia. Module A1 has been modelled to represent steel production in the following locations: • 3% Italy (IT) • 26% Poland (PL) • 30% Turkey (TR) • 10% Ukraine (UA) • 26% Indonesia (ID) • 3% Taiwan (TW) • 2% Malaysia (MY) • 1% South Korea (KR) The end-of-life (module C) of the product has been modelled to represent conditions in Australia.
Electricity	To model the manufacturing process in A3, the AusLCI v1.42 database has been adopted. The electricity process for Victoria has a climate impact of **0.84 kg CO_2 eq./kWh** and consists of the following energy sources: • Coal – 44% • Gas – 44% • Wind – 8% • Hydro – 3% • Solar – 1% • Biofuel – 1%
Cut-off flows	The cut-off criteria have been selected in accordance with the PCR section 4.4, page 17: "LCI data shall according to EN 15804 include a minimum of 95% of total inflows (mass and energy) per module (e.g. A1-A3, A4-A5, B1-B5, B6-B7, C1-C4 and module D). In addition, this PCR applies the expanded cut-off rule of ISO 21930, which says that at least 95% of the environmental impact per module shall be included as well."
Infrastructure and capital goods	In accordance with the PCR section 4.3.2, infrastructure and capital goods have been excluded where reasonable for upstream, core and downstream processes in relation to specific data. For specific data, infrastructure and capital goods information was not collected from Stride Reinforcement. For generic data, where reasonable, infrastructure and capital goods have been manually excluded. This has been accomplished by modifying the list of inputs for the first-level module A1 LCI database processes to manually exclude any infrastructure or capital goods input flows. 'First-level' refers to the immediate process used to model a piece of specific data. This effort was focused on module A1, where the infrastructure associated with steel production (i.e. electric arc furnace, blast furnace, hot rolling mill) has been manually excluded. Note that electricity infrastructure external to the steel production facility has not been

LCA modelling information	Description
	modified due to the complexity of the sub-processes. Infrastructure and capital goods for all other modules have not been manually excluded and are likely to be automatically included by the LCA database provider. Personnel-related processes, including the generation of office waste, has not been accounted for.
Data quality	Generic data has been utilised for 99% of module A1-A3 (in terms of GWP-GHG indicator results). The following Ecoinvent v3.9.1 database processes were utilised to model the module A1 steel production impacts: • steel production, low-alloyed, hot rolled | steel, low-alloyed, hot rolled | EN15804, U – RER • steel production, low-alloyed, hot rolled | steel, low-alloyed, hot rolled | EN15804, U – RoW These processes were further modified for greater technical representativeness in relation to the steel production technologies of electric arc furnace (EAF) and blast furnace basic oxygen furnace (BF-BOF). The infrastructure impacts of the steel plant were removed according to the PCR rule to exclude infrastructure and capital goods. Transport to site (A2) impacts were also removed from the customised process in lieu of specific data on transport modes and distances.
Scrap allocation	Scrap steel has been treated as such: • Module A1: scrap steel input is assumed to arise primarily from module C of a previous product system. It is therefore treated as 'externally sourced post-consumer scrap' and modelled as a waste product. • Module A3: scrap steel output is treated as 'pre-consumer scrap steel' and allocated as co-product • Module C3: scrap steel output is treated as 'post-consumer scrap steel' and modelled as waste Definition of end-of-waste state for scrap steel is 'as soon as it is collected and put in a waste container/skip'. Scrap steel input in module A1 therefore includes all environmental impacts after it is deposited in a skip at the demolition site: transport to processing, processing, and transport to customer. Scrap steel output in module A3 and C3 therefore does not include any environmental impacts after it is deposited in a skip at the factory or demolition site.
Allocation	The PCR require outputs from module A to be treated using co-product allocation. While this has been intentionally carried out for scrap steel, the remaining (5% by weight) outputs from module A have been modelled using the generic LCA database settings in Ecoinvent v3.9.1 "Allocation, cut-off, EN15804" system model.
Net flows outside the system boundary	Net flows relate to the export of: • Secondary materials • Secondary fuels • Energy as a result of waste incineration • Energy as a result of landfilling. There are no net flows of fuels or energy from the product system, therefore module D is limited to a consideration of **secondary materials**. in the scope of this LCA study, net flows leaving the product system declared in module D relate to the **secondary material of scrap** steel. Since scrap steel export in module A3 is allocated as a co-product it has not been included in module D.

LCA modelling information	Description
	Considering scrap steel inputs (931 kg/tonne of steel reinforcing bar) and outputs (870 kg/tonne of steel reinforcing bar), excluding module A3, this amounts to a net output flow of **-61 kg of scrap steel/tonne of steel reinforcing bar**. The net output flow value is specific to this LCA study. The negative value suggests that there is not enough steel recycled in Australia (87% recycling rate) to provide for the full amount of scrap steel (93%) utilised within the mix of steelmaking technologies employed by Stride Reinforcement's suppliers. However it should be noted that the 87% steel recycling rate refers to all metal types across construction, residential and commercial sources. The specific recycling rate of steel from construction is likely to be higher than 87% and, if higher than 93%, would lead to a positive net output flow value.

Assumptions and limitations of the LCA study

Module	Assumption or limitation	Strategy	Impact on results
Overall	Use of LCA databases to provide generic data to model processes that are outside the control of Stride Reinforcement	Where generic data is required to complete the life cycle inventory (LCI), the best available data has been selected based on three criteria: geographic, technical and temporal representativeness.	High
Overall	Use of external data sources to provide generic data to model processes that are outside the control of Stride Reinforcement or to carry out calculations to support the modelling		High
A2 to A4	Expert judgements were required to interpret invoices and dockets provided by Stride Reinforcement for warehousing and manufacturing activities	A conservative approach has been adopted where a judgement call on the interpretation of data has been required. Confirmation was sought from Stride Reinforcement to provide context to the data source.	Low

A major limitation of the study is the variability of steel suppliers and their technology type and geographic location over time. While the study covers a twelve-month period comprising FY21/22, there is variability in Stride Reinforcement's steel suppliers across time, due to the nature of the steel import business. Given the significant contribution of module A1 to the GWP-total results (82%) and the significant sensitivity of the results to changes in the geographic location and technology type of the steel suppliers, GWP-total result is subject to significant variability over time. The study is therefore not expected to be representative of impacts over time. However, to address this limitation the EPD owner is required to follow procedures following EPD publication to ensure the EPD is updated or re-verified if changes in technology or circumstances lead to an increase of 10% or more of any of the mandatory indicators.

Scenario information for Module A4: Transport to the building site

Scenario information	Quantity	Unit
Vehicle type used for transport	Truck	Vehicle type
Distance	930	km
Bulk density of transported products	7,850	kg/m^3
Capacity utilisation (including empty returns)	36%	%
Volume capacity utilisation factor	1	N/A

Scenario information for Module C: end of life

Processes	Quantity	Unit
Demolition using excavator (> 30 MW)	55[5]U	kg of diesel
Collection process by type	870[6]	kg collected separately
	130	kg collected with mixed construction waste
Recovery system specified by type	N/A	kg for-reuse
	870[7]	kg for recycling
	N/A	kg for energy recovery
Disposal specified by type	130	kg product or material for final deposition
Assumptions for scenario development		
Vehicle type used for transport	Truck	Vehicle type
Distance	100[8]	km

[5] The demolition energy value used to calculate module C1 is based on the demolition of a whole concrete and steel structure, and does not disaggregate the demolition of the steel component of the structure. By including the demolition of the concrete component, this LCA study adopts a conservative approach.
[6] 87% resource recovery rate (recycling) for metals in Australia 2020-21. Source: Pickin, J. et al. (2023) *National Waste Report 2022*, Department of Climate Change, Energy, the Environment and Water, https://www.dcceew.gov.au/sites/default/files/documents/national-waste-report-2022.pdf.
[7] Note: applies to module C1 only owing to waste allocation approach for C2-4.
[8] Conservative assumption.

Content information

Content and packaging declaration

Product components	Weight, kg per tonne of steel reinforcing bar	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/tonne of steel reinforcing bar
Carbon manganese steel	1,000	93%*	0
Packaging materials	**Weight, kg per tonne of steel reinforcing bar**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/tonne of steel reinforcing bar**
Timber pallets	0.038	<1%	0.01
Plastic strapping	0.008	<1%	0
Plastic wrap	0.002	<1%	0
Timber dunnage	1.390	<1%	0.56
One-way slings	0.394	<1%	0
TOTAL	**1.832**	**<1%**	

** This value only includes scrap steel input, and assumes all scrap steel input is post-consumer. The value presented is based on assumptions rather than supplier data.*

Information describing the biogenic carbon content at the factory gate

Biogenic Carbon Content	Per tonne of steel reinforcing bar	
	Biogenic Carbon Dioxide (kg CO_2)	Biogenic Carbon (kg C)
Biogenic carbon content in product	0	0
Biogenic carbon content in accompanying packaging	2.12	0.58

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

Hazardous materials declaration

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
None	N/A	N/A	N/A

Results of the environmental performance indicators

Disclaimer: 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. The use of the results of modules A1-A3 (A1-A5 for services) is discouraged without considering the results of module C.

Mandatory impact category indicators according to EN 15804+A2 (EF 3.1)

Results per tonne of steel reinforcing bar								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	1.52E+03	1.79E+02	2.41E+02	2.50E+00	0.00E+00	7.90E-01	1.40E+01
GWP-biogenic	kg CO_2 eq.	2.35E+00[9]	5.12E-02	0.00E+00	7.16E-04	0.00E+00	0.00E+00	-1.88E-03[10]
GWP-luluc	kg CO_2 eq.	1.39E+00	9.22E-02	2.71E-02	1.29E-03	0.00E+00	4.77E-04	2.28E-02
GWP-total	kg CO_2 eq.	1.53E+03	1.79E+02	2.41E+02	2.50E+00	0.00E+00	7.91E-01	1.40E+01
ODP	kg CFC 11 eq.	2.88E-05	2.69E-06	3.84E-06	3.76E-08	0.00E+00	2.29E-08	1.87E-07
AP	mol H^+ eq.	9.37E+00	1.06E+00	2.24E+00	1.48E-02	0.00E+00	5.95E-03	2.73E-01
EP-freshwater	kg P eq.	5.92E-01	1.46E-02	7.41E-03	2.03E-04	0.00E+00	6.58E-05	1.83E-03
EP-marine	kg N eq.	2.34E+00	4.31E-01	1.04E+00	6.02E-03	0.00E+00	2.29E-03	7.15E-02
EP-terrestrial	mol N eq.	2.41E+01	4.64E+00	1.13E+01	6.49E-02	0.00E+00	2.45E-02	8.42E-01
POCP	kg NMVOC eq.	8.69E+00	1.46E+00	3.34E+00	2.04E-02	0.00E+00	8.53E-03	2.20E-01
ADP-minerals&metals*	kg Sb eq.	5.89E-03	5.85E-04	8.64E-05	8.18E-06	0.00E+00	1.12E-06	2.89E-05
ADP-fossil*	MJ	1.88E+04	2.55E+03	3.18E+03	3.57E+01	0.00E+00	1.98E+01	1.74E+02
WDP*	m^3	8.44E+02	1.20E+01	7.87E+00	1.67E-01	0.00E+00	6.16E-02	2.83E+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.*

[9] As module A5 is not included, the A1-A3 results include balancing-out reporting of the biogenic carbon of packaging released in module A5.
[10] The negative module D GWP-biogenic result is uncertain owing to the complexity of the LCA database processes used to model module D.

Additional mandatory and voluntary impact category indicators according to EN15804+A2

Results per tonne of steel reinforcing bar								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[11]	kg CO_2 eq.	1.53E+03	1.79E+02	2.41E+02	2.50E+00	0.00E+00	7.91E-01	1.40E+01
PM	Disease incidence	1.34E-04	1.92E-05	6.24E-05	2.68E-07	0.00E+00	1.30E-07	1.38E-06
IRP	kBq U-235-eq.	1.40E+02	2.15E+00	1.50E+00	3.00E-02	0.00E+00	1.25E-02	5.01E-01
ETP-fw	CTUe	1.19E+04	1.42E+03	1.51E+03	1.98E+01	0.00E+00	9.24E+00	1.15E+02
HTP-c	CTUh	2.50E-05	1.19E-07	7.40E-08	1.66E-09	0.00E+00	3.37E-10	7.84E-09
HTP-nc	CTUh	4.43E-05	2.25E-06	5.19E-07	3.15E-08	0.00E+00	4.26E-09	9.50E-08
SQP	dimensionless	5.86E+03	1.50E+03	2.12E+02	2.10E+01	0.00E+00	3.91E+01	5.60E+01
Acronyms	PM = particulate matter; IRP = Ionising Radiation – human health; ETP-fw = Eco-toxicity – freshwater; HTP-c = Human toxicity potential – cancer effects; HTP-nc = Human toxicity potential – non-cancer effects; SQP = Land use related impacts / soil quality							

[11] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators

Results per tonne of steel reinforcing bar								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.56E+03	3.20E+01	1.80E+01	4.48E-01	0.00E+00	1.67E-01	7.67E+00
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.56E+03	3.20E+01	1.80E+01	4.48E-01	0.00E+00	1.67E-01	7.67E+00
PENRE	MJ	1.88E+04	2.55E+03	3.18E+03	3.57E+01	0.00E+00	1.98E+01	1.74E+02
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.88E+04	2.55E+03	3.18E+03	3.57E+01	0.00E+00	1.98E+01	1.74E+02
SM	kg	9.31E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00[12]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00[13]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	-5.87E-02[14]	3.00E-01	1.70E-01	4.20E-03	0.00E+00	2.05E-02	6.39E-02
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							

[12] A zero value has been conservatively reported for the 'use of renewable secondary fuel' indicator. It is noted that there is a small portion of biogas in the electricity mix of some countries relevant to this LCA study.
[13] A zero value has been conservatively reported for the 'use of non-renewable secondary fuel' indicator. It is noted that there is a small portion of municipal solid waste incineration in the electricity mix of some countries relevant to this LCA study.
[14] A negative value for the 'use of net fresh water' indicator is attributed to the wastewater treatment process in the electric arc furnace steel production process.

Waste indicators

Results per tonne of steel reinforcing bar								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4.78E+02	2.90E+00	2.64E+00	4.05E-02	0.00E+00	1.36E-02	3.30E-01
Non-hazardous waste disposed	kg	2.41E+02	1.19E+02	1.96E+00	1.67E+00	0.00E+00	2.60E+02	1.55E+00
Radioactive waste disposed	kg	3.54E-02	5.10E-04	3.46E-04	7.13E-06	0.00E+00	2.91E-06	1.22E-04

Output flow indicators

Results per tonne of steel reinforcing bar								
Indicator	**Unit**	**A1-A3**	**A4**	**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	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	8.70E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	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	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other environmental performance indicators, EN 15804:2012+A1:2013 indicators*

Results per tonne of steel reinforcing bar								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP	kg CO_2 eq.	1.52E+03	1.78E+02	2.40E+02	2.49E+00	0.00E+00	7.83E-01	1.39E+01
ODP	kg CFC-11 eq.	2.78E-05	2.25E-06	3.13E-06	3.14E-08	0.00E+00	1.85E-08	1.57E-07
AP	kg SO_2-eq.	7.54E+00	7.74E-01	1.58E+00	1.08E-02	0.00E+00	4.42E-03	2.11E-01
EP	kg PO_4^{3-}eq.	2.91E+00	1.97E-01	3.78E-01	2.76E-03	0.00E+00	1.01E-03	3.23E-02
POCP	kg C_2H_4-eq.	6.35E-01	6.20E-02	1.17E-01	8.67E-04	0.00E+00	4.05E-04	1.20E-02
ADPE	kg Sb-eq.	5.74E-03	5.72E-04	8.42E-05	7.99E-06	0.00E+00	1.10E-06	2.84E-05
ADPF	MJ	1.57E+04	2.30E+03	2.87E+03	3.22E+01	0.00E+00	1.78E+01	1.54E+02
Acronyms	ODP = ozone depletion potential; AP = acidification potential; EP = eutrophication potential, POCP = photochemical ozone creation potential; ADPE = abiotic depletion potential for non-fossil resources, ADPF = abiotic depletion potential for fossil resources							

**Disclaimer: the indicators and characterisation methods are from EN 15804:2012+A1:2013, but other LCA rules (system boundaries, allocation, etc.) are according to EN 15804:2012+A2:2019. Therefore, the results of the "A1 indicators" should not be taken to be compliant with EN 15804:2012+A1:2013.*

References

EPD Australasia (2020) *Guidance on the revised construction products PCR*. Version 2.0. 2020-12-08

EPD Australasia (2018) *Guidance on the use of background LCA data*. Version 2.0. 2018-06-29

EPD Australasia (2023) *Instructions of the Australasian EPD Programme: A Regional Annex to the General Program Instructions of the International EPD System*. Version 4.1. 2023-10-31

European Committee for Standardisation (CEN) (2021) *EN 15804:2012+A2:2019&AC:2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products*

International EPD Programme (2023) PCR 2019:14 for Construction Products. version 1.3.2. 2023-12-08

International EPD Programme (2021) *General Programme Instructions of the International EPD® System*. Version 4.0. 2021-03-29

Pickin, J. et al. (2023) *National Waste Report 2022*, Department of Climate Change, Energy, the Environment and Water, https://www.dcceew.gov.au/sites/default/files/documents/national-waste-report-2022.pdf