Environmental Product Declaration

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Rediwall by AFS
Manufactured by CSR Building Products Limited

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Version: 001

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 www.environdec.com

This EPD covers multiple products based on a representative product Rediwall 200.

EPD INTERNATIONAL EPD SYSTEM | AUSTRALASIA EPD® ENVIRONMENTAL PRODUCT DECLARATION | ECO PLATFORM EPD VERIFIED

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021
Program: International EPD System — www.environdec.com
Program Operator: EPD International AB
Regional Program: EPD Australasia — www.epd-australasia.com

Contents

Tackling the sustainability challenge in building

As a trusted supplier of building solutions, we are taking on industry challenges to cut carbon emissions and waste, and better manage resources.

The global building industry has a vital role to play in making progress on sustainability goals. With building materials and operations accounting for approximately 37% of greenhouse gas (GHG) emissions globally[1], work to decarbonise products, processes and logistics will be a major factor in moving our sector towards net zero.

Manufacturing building materials and how these are packaged, used and disposed of can have negative impacts on the environment. If our industry is to make progress towards resource efficiency, waste reduction and preserving biodiversity, it's important to understand exactly how our products are having an impact – on our climate and resources and on nature and communities.

Revealing sustainability opportunities for our industry, business and customers

At CSR, we are committed to leading the much-needed shift to sustainable manufacturing and driving decarbonisation of operations and products. As an innovator for our industry, we believe that finding ways to advance our sustainability agenda supports a better future for our industry, business and customers.

Providing Environmental Product Declarations (EPDs) to our customers enables us to share robust information about the environmental performance of our building materials. This supports them in making informed choices on the solutions that best meet their objectives for quality and sustainability outcomes in building projects.

It also creates an opportunity to establish embodied carbon baselines and identify key material sources of impact at a product level. Knowing where these impacts occur along the value chain will highlight opportunities to maximise material efficiency, reduce embodied carbon and extend product life across our range. This will provide CSR with information we need to innovate in our product design and manufacturing processes with the goal of optimising environmental performance across all our building solutions.

[1] United Nations Environment Program. "Global Status Report for Buildings and Construction", 2022.

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CSR

Building solutions for a better future

CSR offers a unique portfolio of products to provide complete customer solutions that build sustainable places and communities.

At CSR, our products have been used in buildings for almost a century. Our operations span Australia, New Zealand, parts of Asia and Europe and we have the scale and expertise to innovate for the sustainable solutions our customers and communities need to build for a better future.

As a trusted supplier of building solutions, we are taking on industry challenges to cut carbon emissions and waste, and better manage resources. **To set our ambition and ignite our progress, we are committed to 2030 targets across:**

1

Reducing our emissions, waste and water use

2

Increasing uptake of renewable energy

3

Improving biodiversity outcomes

Project name: Integrated Studies Centre
Architect: Mayoh Architects
Photography: Chris Warnes

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Towards net zero
in the built environment

We take a strategic approach to investing in solutions that reduce emissions - from increasing the uptake of renewable energy to exploring emerging technologies across our operations. This includes optimising our manufacturing plants, energy and process efficiencies and building collaborative partnerships across our operations.

CSR targets for 2030[2]

50% **of energy from renewables**

20% **energy reduction per tonne of saleable product manufactured**

30% **reduction in greenhouse gas (GHG) emissions per tonne of saleable product manufactured**

As part of an industry that accounts for a high proportion of carbon emissions, we are looking to partner with our peers on the best solutions for a successful net zero transition and reduction of embodied carbon for the built environment.

[2] 2030 targets baseline is 1st July 2019 to 30th June 2020.

Reducing waste and preserving resources to protect our environment

As a major supplier of building solutions, CSR has an important role in becoming a closed loop business to influence a circular economy in the built environment.

We are making it a priority to reduce our use of raw materials, increase regenerative and recycled material and actively seek solutions to reduce waste in the manufacturing, packaging and supply of our products.

Since 2018, our timber pallet recovery program has significantly reduced the amount of timber going to landfill. Being a member of the Australian Packaging Covenant Organisation (APCO) demonstrates our focus on redesigning packaging to minimise plastic use and waste. In collaboration with our suppliers, we are committed to monitoring our progress towards our 2025 sustainable packaging targets, where CSR packaging is closed loop (either 100% reusable, recyclable or compostable) and using an average of 50% recycled content in packaging.

CSR closing the loop goals for 2030[3]

75% **reduction in solid waste to landfill**

30% **reduction of potable water consumed (litre) per tonne of saleable product manufactured**

↑ **enhance biodiversity outcomes on CSR sites and developments**

We continually work to eliminate waste across our business and source the ‘right’ materials to manufacture building products from natural, reused, repurposed and recycled materials. Our approach includes working with our team and suppliers to look beyond energy, water and waste to explore holistic environmental management solutions and influence the wider industry to follow circular principles.

[3] 2030 targets baseline is 1st July 2019 to 30th June 2020.

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AFS: Smarter sustainable solutions.

For over two decades, AFS Rediwall® has been the smarter way to build load-bearing structural walls. Relied on for the construction of apartments, offices, warehouses and a range of projects, AFS permanent formwork systems embody the quality, reliability and innovation that are hallmarks of the CSR brand.

As part of a trusted portfolio of CSR products, AFS Rediwall® stands alongside some of the most respected names in the construction industry.

Product descriptions

AFS Rediwall® walling systems are proudly Australian-made and environmentally responsible. Regarded as the first choice for specifiers and builders wanting a high-quality, fast installation and long-life alternative to the slower conventional walling methods, AFS Rediwall® is the smarter structural solution.

Rediwall® walling systems are designed to improve circularity and share CSR's commitment to innovative and environmentally responsible products. By investing in and implementing systems that target recycling raw products, such as galvanised steel and timber, and implementing initiatives to reduce product waste, AFS remains committed to manufacturing and supplying sustainable solutions.

Backed by a 25-year warranty, AFS walling solutions have consistently delivered cost control and schedule certainty across thousands of successful projects. As a proud member of the respected CSR brand, AFS Rediwall® maintains unwavering commitment to exceptional standards and superior quality – today and tomorrow.

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Rediwall

AFS Rediwall is an innovative PVC permanent formwork suitable for both above and below-ground wall applications. This system consists of prefabricated high-quality panels and interconnecting components that easily snap or slide into position.

Rediwall 110
Thickness: 110mm
Width: 259mm
Length: 3.00m

Rediwall 156
Thickness: 156mm
Width: 259mm
Length: 3.00m

Rediwall 200
Thickness: 200mm
Width: 259mm
Length: 3.00m

Rediwall 256
Thickness: 256mm
Width: 170mm
Length: 3.00m

Rediwall 275
Thickness: 275mm
Width: 280mm
Length: 3.00m

Rediwall 300
Thickness: 300mm
Width: 280mm
Length: 3.00m

Life cycle assessment information

Program Information

Program: EPD International AB

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CEN standard EN 15804+A2:2019/AC:2021 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR) 2019:14 Construction products (EN 15804+A2), Version 1.3.4

UN CPC Code: 3695

PCR review was conducted by:

The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com for a list of members. The review panel may be contacted via info@environdec.com.

Review chair: Claudia A. Peña, University of Concepción, Chile.

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

☐ EPD process certification

☒ EPD verification by individual verifier

Third party verifier:

Jane Anderson, ConstructionLCA

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Approved by: EPD Australasia Ltd

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ Yes ☒ No

An Environmental Product Declaration (EPD) is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as Product Category Rules (PCR). This is a specific EPD. The EPD owner has the sole ownership, liability, and responsibility for this EPD.

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/declared 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.

Company Information

Owner of the EPD:
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Contact Person:
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Product Information

Product description: AFS Rediwall® is an innovative PVC permanent formwork suitable for both above and below-ground wall applications.

UN CPC code: 3695 (Builders' ware of plastics n.e.c.), according to version 2.1, 2015.

ANZSIC code: 1912 (Rigid and Semi-Rigid Polymer Product Manufacturing)

This is an EPD for multiple products, based on a representative product (RP), valid for 1m² of AFS Rediwall® panels are available in 6 different face widths, produced at Minto, NSW, Australia. The rationale for choosing the RP is that it is the most sold product from its range. Table 4 lists the products included in this EPD and identifies the representative product. The environmental impacts of this RP are shown in the Environmental Performance section, while the conversion factors for the other products are provided in the Additional Environmental Information section of this EPD.

LCA Information

TABLE 1 LCA INFORMATION

	Product Characteristics
Declared Unit	1m² of AFS Rediwall 200 weighted 10.4 kg
Modules Included	A1-A3, A4-A5, C1–C4, D
Technical lifetime	50 years
Geographical Coverage	Australia
Time Period	01 April 2022 – 31 March 2023

Declared unit:

This EPD provides data for 1m² of AFS Rediwall 200 weighted 10.4 kg, manufactured in Australia.

Background data modelling:

The inventory data for the process are entered into the SimaPro (v9.5) LCA software program and linked to the pre-existing data for the upstream feedstocks and services selected in order of preference from:

- For Australia, the Australian Life Cycle Inventory (AusLCI) v1.42 compiled by the Australian Life Cycle Assessment Society (ALCAS, 2023). The AusLCI database at the time of this report was less than two years old.
- Other authoritative sources (e.g., ecoinvent v3.9.1, (Wernet, et al., 2023), where necessary adapted for relevance to Australian conditions (energy sources, transport distances and modes and so on, and documented to show how the data is adapted for national relevance). At the time of reporting, the ecoinvent v3.9.1 database was 2 years old.

Take care when comparing EPD's

EPD's within the same product category but from different programs may not be comparable:

- When comparing EPD data using the comparability requirements in EN 15804, e.g., using equivalent methodology and assumptions such as utilising the same Product Category Rules (PCR).
- The results for EN 15804:2012+A1:2013 compliant EPDs are not comparable with EN 15804:2012+A2:2019 compliant studies as the methodologies are different. EN 15804:2012+A1:2013 compliant results are given in this document to assist comparability across EPDs and support use in tools such as Green Star.
- LCA provides high-level scientific guidance and differences in data should be substantial to be material. – Understanding the detail is important in comparisons. Expert analysis is required to ensure data is truly comparable, to avoid unintended distortions.

It is discouraged to use the results of modules A1-A3 without considering the results of module C.

The best way to compare products and materiality of differences is to place them into the context of a structure across the whole life cycle.

Life cycle content information

Description of system boundaries:

The scope of this EPD is cradle to gate (modules A1-A3) with options, modules A4-A5, modules C1-C4 and module D. The geographical scope of this EPD is Australia.

Upstream processes

The upstream processes include those involved in Module A1 – Raw material supply. This module includes:

- Extraction, transport and manufacturing of raw materials.
- Generation of electricity from primary and secondary energy resources, also including their extraction, refining and transport for Module A1.
- Processing up to the end-of-waste state or disposal of final residues including any packaging not leaving the factory gate with the product.

Core Processes

The core processes include those involved in Module A2 and Module A3, including:

- External transportation of materials to the core processes and internal transport.
- Manufacturing of CSR AFS products.
- Packaging.
- Processing of waste to landfill and recycling.

Downstream Processes

The downstream processes include those involved in Module A4 to C4, including:

- Transportation from the production gate to the construction site.
- Transport of waste generated from the construction site.
- Installation of the product on the site.
- Wastage of construction products.
- Waste processing of the waste from product wastage during the construction processes up to the end-of-waste state or disposal of final residues.
- Transport of equipment and use of materials for deconstruction at the end of life.
- Transport of waste generated at the end of life.
- Treatment of waste generated at the end of life.

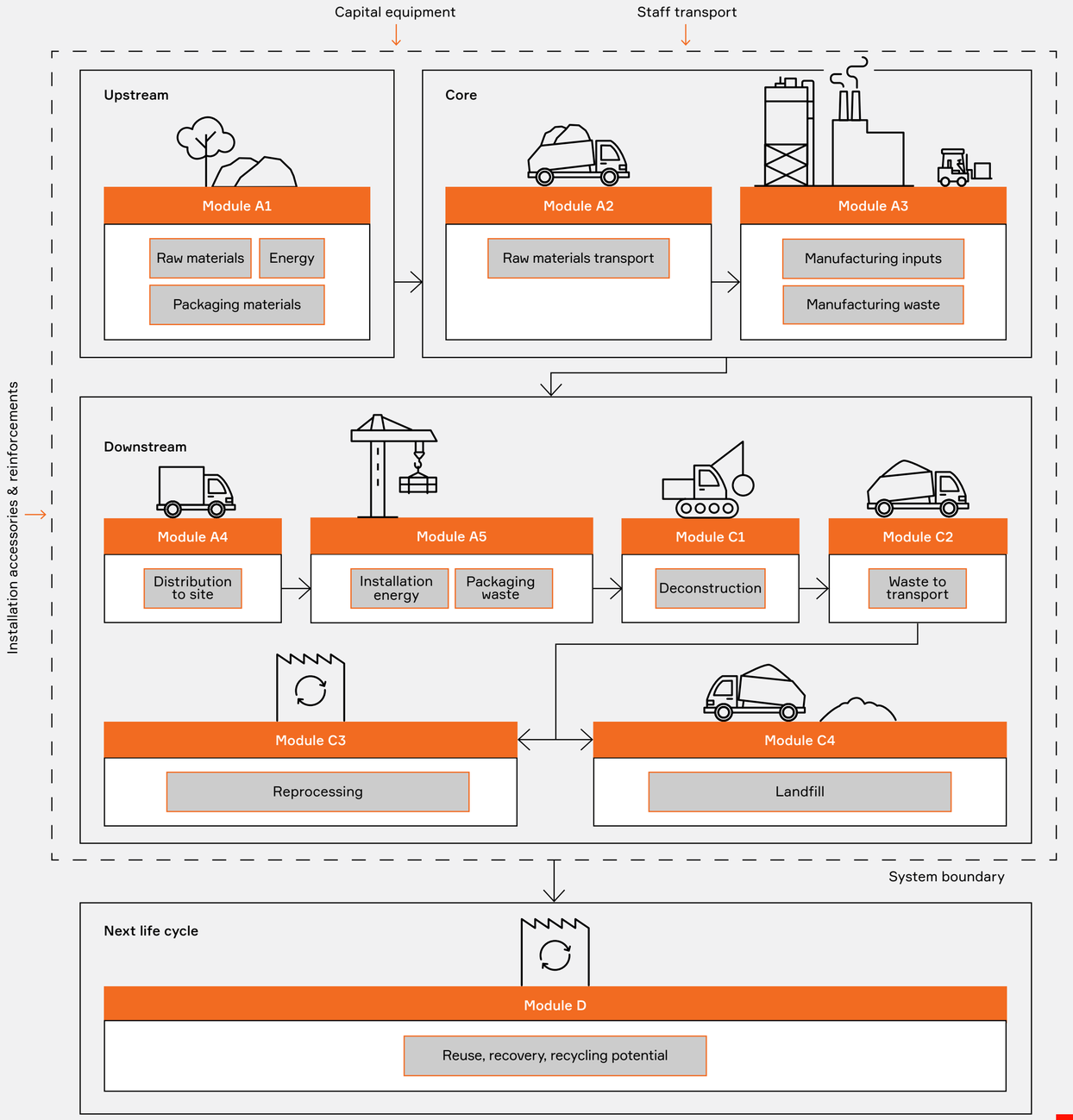

Figure 1: System Diagram

Cut-off rule

It is common practice in LCA/LCI protocols to propose exclusion limits for inputs and outputs that fall below a threshold % of the total, but with the exception that where the input/output has a “significant” impact it should be included. According to the PCR 2019:14 v1.3.4, Life cycle inventory data shall according to EN 15804 A2 include a minimum of 95% of total inflows (mass and energy) per module. Inflows not included in the LCA shall be documented in the EPD. Data gaps in included stages in the downstream modules shall be reported in the EPD, including an evaluation of their significance. In accordance with the PCR 2019:14 v1.3.4, 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 in the LCI. Capital equipment and buildings typically account for less than a few percent of nearly all LCIs 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. 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.
- The transport of heavy equipment (e.g., excavators and cranes) to and from the installation site are excluded.

Allocation

According to EN 15804+A2, in a process step where more than one type of product is generated, it is necessary to allocate the

environmental stressors (inputs and outputs) from the process to the different products (functional outputs) in order to get product-based inventory data instead of process-based data. An allocation problem also occurs for multi-input processes. In an allocation procedure, the sum of the allocated inputs and outputs to the products shall be equal to the unallocated inputs and outputs of the unit process.

The following stepwise allocation principles shall be applied for multi-input/output allocations:

- The initial allocation step includes dividing up the system sub-processes and collecting the input and output data related to these sub-processes.
- The first (preferably) allocation procedure step for each sub-process is to partition the inputs and outputs of the system into their different products in a way that reflects the underlying physical relationships between them.
- The second (worst case) allocation procedure step is needed when physical relationship alone cannot be established or used as the basis for allocation. In this case, the remaining environmental inputs and outputs from a sub-process must be allocated between the products in a way that reflects other relationships between them, such as the economic value of the products.

For AFS products the manufacturing energy inputs were allocated based on a weighted average based on the production volumes produced in the site. This is valid as the manufacturing process is the same for all the products, which their only difference is their thickness.

Impacts of recycling and energy recovery of wastes at module A3 have been economically allocated as coproducts of module A1-A3, with an economic value of zero. No credits for recycling or energy recovery of manufacturing waste have been assigned.

Data Quality and Validation

The primary data used for the study is based on direct utility bills or feedstock quantities from CSR AFS procurement records. Edge used contribution analysis to focus on the key pieces of data contributing to the environmental impact categories. The data was benchmarked against relevant benchmark data in ecoinvent. Edge considers the data to be of high quality for primary data used in this study.

For the background data, the quality was considered high when processes chosen were geographically, temporal, and technologically relevant. For data that was based on assumptions, quality was considered medium, unless based on official reports.

TABLE 2 ASSUMPTIONS OR LIMITATIONS DATA ASSESSMENT SCHEME

Assumption or limitation	Impact on LCA results	Discussion
Raw material data for panel production.	Minor	The AFS team provided the composition of the products and other manufacturing inputs. No proxy data was used. Energy and utility used as well as waste generated during the production of products were allocated to the different products using mass allocation method.
Exclusion of employees, capital good and infrastructure	Minor	Personnel-related impacts, such as transportation to and from work, are also not accounted for in the LCI. 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.
Products distribution	Minor	Information obtained from CSR AFS Team. The CSR AFS team gave the destinations and associated average distance for each type of transport. The transport includes road and sea transport. Relevant background database was used for each type of weighted average distance. There were two weighted average data: road truck, and sea international.
Installation Energy	Medium	It's assumed that a forklift / mobile crane is used to unload the material to the site of construction. According to literature the amount of consumed diesel per hour is 2.6L for forklift and between 8-10L for mobile cranes. 4L was chosen as an approximate weighted average. It is assumed that the amount of time to unload a pack of panels is 40 seconds. The number of panels in a pack delivered to the construction site are based on the installation guides (20 panels of RW110, RW156, and RW200, 24 panels of RW256,12 panels of RW275 and RW300). The number of panels per pack was estimated as an average by the CSR AFS Team as 8 for each product. The tool usage assumption was taken from the list of tools suggested in the Rediwall installation guides. It's assumed that a 760 watts of power cordless screwdriver gun is operated for 20 seconds to install a 1m2 of Rediwall panels.
Deconstruction Energy	Minor	Allocation of diesel consumption was based on proportion of structure type by weight, assuming the demolition energy requirement is directly proportionally to weight for a given area. It was assumed that external walls and internal built with AFS panels have the same density. The final deconstruction impact values are allocated to the product based on the unfilled mass.
Average distance or transport form deconstruction site to waste plant	Minor	The distance from the installation site to the landfill and recycling plant is assumed to be 50km based on the average distance travelled from deconstruction to waste plant, used in similar EPD

Scope of Declaration

The scope of this EPD is cradle-to-gate (modules A1-A3) with options, modules A4-A5, module C1-C4 and module D. The scope of this declaration is according to the General Program Instructions (GPI) and four information modules according to ISO 21930 and EN 15804 as given in Table 3.

TABLE 3 THE LIFE CYCLE OF PRODUCTS 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	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	AU/ GER	AU	AU	AU	AU	-	-	-	-	-	-	-	AU	AU	AU	AU	AU
Specific data used	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	+23%/-10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - locations	Not applicable			-	-	-	-	-	-	-	-	-	-	-	-	-	-

ND = Not Declared
The following life cycle stages have not been declared, as they are deemed not applicable for AFS product ranges:
Material emissions from usage (B1); Maintenance (B2); Repair (B3); Replacement (B4); Refurbishment (B5); Operational energy use (B6), and Operational water use (B7).

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Content information

AFS Rediwall® panels are available in 6 different face widths described in Table 4.

TABLE 4 PRODUCTS INCLUDED

Product	Face width (mm)	Width (mm)	Length (m)	Product weight per m² (kg/m²)
Rediwall 110	110	259	3.00	9.3
Rediwall 156	156	259	3.00	9.9
Rediwall 200 (RP)	200	259	3.00	10.4
Rediwall 256	256	170	3.00	12.1
Rediwall 275	275	280	3.00	11.8
Rediwall 300	300	280	3.00	12.8

Cradle to Gate (Modules A1 – A3)

Modules A1 – A3 covers the extraction and transport of raw materials, and the production stage of CSR AFS® products.

The primary raw materials for AFS Rediwall panels are PVC resin, plastic compound as PVC stabiliser and calcium carbonate.

Most of the raw materials are transported by truck within Australia, PVC Resin is delivered from Indonesia by truck and ship.

AFS Rediwall products are manufactured in Minto, NSW, Australia. In the modelling of electricity related impacts, the local electricity mix was used, which primary energy sources of energy in NSW region during the assessment period are black coal (75%), photovoltaic (17%) and other sources (8%) with emission of 0.72 kg CO2 eq./kWh (GWP- GHG).

Packaging materials such as timber frames and plastic strapping are used to protect the product during distribution. The timber frames are designed to be single-use and are made with softwood.

Table 5 and Table 6 outline the materials used in manufacturing and packaging related data. Rediwall packaging consists of 1.8 kg of timber frames per 1m², accounting for 12–16% of the product's total weight during delivery.

None of the products contain substances listed in the Candidate List of Substances of Very High Concern for Authorisation. Based on available information and safety data sheets, Rediwall products are classified as Non-Hazardous according to Safe Work Australia criteria and are Not Classified as Hazardous under the GHS classification.

TABLE 5 CONTENT DECLARATION FOR 1M² AFS REDIWALL® PANELS

Product components	Weight, kg		Post-consumer recycled material, weight-% of product	Biogenic material, weight-% of product	Biogenic material, kg C/product or declared unit
	RP: Rediwall 200	Other Rediwall products			
PVC Resin	7.07	6.32 – 8.7	0	0	0
Plastic Compound	2.08	1.86 – 2.56	0	0	0
Calcium Carbonate	1.25	1.12 – 1.54	0	0	0
Sum	**10.4**	**9.3 – 12.8**	**0**	**0**	**0**

TABLE 6 CONTENT DECLARATION OF PACKAGING FOR 1M² AFS REDIWALL® PANELS

Packaging materials	Weight, kg		Post-consumer recycled material, weight-% of product	Weight-% (versus the product)	Biogenic material, kg C/ declared unit
	RP: Rediwall 200	Other Rediwall products			
Timber Frames	1.8	1.8	0	12-16	0.75
Plastic Strapping	0.008	0.008	0	<1	0
Sum	**1.81**	**1.81**	**-**	**12-16**	**0.75**

Distribution Stage (Module A4)

AFS Rediwall are distributed across Australia. Distances were calculated based on the proportion of total products distributed to Sydney, Brisbane and Melbourne and the estimated distances by truck are 50km, 950km and 830km respectively. A shared distribution of 80% to Sydney, 10% to Brisbane and 10% to Melbourne.

TABLE 7 TRANSPORT TO THE BUILDING SITE

Scenario information	Amount	Unit
16-32 tonne truck	3.27E-2	kg / tkm
Average Distance	50 - 950	km

City/market	Share %	Distance road (km)	Weighted distance	Average freight transport (tkm/m²)
Sydney	80%	50	40	0.44
Brisbane	10%	950	95	1.02
Melbourne	10%	830	83	0.92

Installation Stage (Module A5)

The installation of AFS Rediwall panels begins with securing the floor track or angle, followed by vertically sliding panels into place, bracing them, and inserting vertical reinforcement bars. Temporary bracing is required for lateral stability before and during the concrete core fill. Once cured, the walls serve as load-bearing structures.

To ensure fair comparison, no installation accessories, reinforcements or concrete have been included in this LCA.

Material unloading assumes forklift use, consuming 2.6L of diesel per hour, with estimated unloading times based on panel packs. Electricity usage is estimated using a 760W cordless screwdriver operating for 8 seconds per 1m² of installed panels. No offcuts are expected, and packaging waste is assumed to go to landfill.

TABLE 8 INSTALLATION OF THE PRODUCT IN THE BUILDING

Input	Unit	Rediwall 110	Rediwall 156	Rediwall 200	Rediwall 256	Rediwall 275	Rediwall 300
Diesel	L	2.96E-03	2.96E-03	2.96E-03	2.47E-03	4.94E-03	4.94E-03
Electricity	kWh	4.22E-03	4.22E-03	4.22E-03	4.22E-03	4.22E-03	4.22E-03
Screws	Kg	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02

	Offcuts (kg)	Timber frames (kg)	Plastic strapping (kg)
Material for disposal	0	1.8	0.01

Deconstruction and End of Life (Modules C1 – C4)

The lifespan of the Rediwall formwork system is considered to be 50 years. The recommended cradle to grave environmental profile will be based on the most common scenario as construction products are deconstructed and transported to material recovery facilities.

The following assumptions have been used in this EPD to model deconstruction and end of life scenarios:

- A diesel engine demolition machine is assumed as the operating tool for deconstruction.
- 100% of the products are assumed to be collected during deconstruction for further process.
- 50 km delivery distance to landfill and material recovery facility is assumed for waste collection process.
- 100% of product are disposed in landfill.

Benefits and loads beyond the system boundary (Module D)

The product is 100% destined for landfill, and Module D is 0.

Compliance with Standards

The methodology and report format has been modified to comply with:

- ISO 14040:2006 and ISO14044:2006+A1:2018 which describe the principles, framework, requirements and provides guidelines for life cycle assessment (LCA).
- ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations -- Principles and procedures, which establishes the principles and specifies the procedures for developing Type III environmental declaration programmes and Type III environmental declarations.
- EN 15804:2012+A1:2013; Sustainability of construction works — Environmental product declarations.
- EN 15804+A2:2019: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products (referred to as EN15804+A2).
- Product Category Rules (PCR) 2019:14, v1.3.4 – Construction products – Hereafter referred to as PCR 2019:14.
- General Programme Instructions (GPI) for the International EPD System V4.0 – 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 – a regional annex to the general programme instructions of the International EPD System.

Environmental Impact Indicators

The potential environmental impacts, use of resources and waste categories included in this EPD were calculated using the SimaPro v9.5 tool and are listed in Table 9. They are aligned to and adopted from Environmental Footprint 3.1. 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 9 LIFE CYCLE IMPACT, RESOURCE AND WASTE ASSESSMENT CATEGORIES, MEASUREMENTS AND METHODS ACCORDANCE WITH EN 15804+A2

Impact Category	Abbreviation	Measurement Unit	Assessment Method and Implementation
Potential Environmental Impacts			
Total global warming potential	GWPT	kg CO_2 equivalents (GWP100)	Baseline model of 100 years of the IPCC based on IPCC 2021
Global warming potential (fossil)	GWPF	kg CO_2 equivalents (GWP100)	Baseline model of 100 years of the IPCC based on IPCC 2021
Global warming potential (biogenic)	GWPB	kg CO_2 equivalents (GWP100)	Baseline model of 100 years of the IPCC based on IPCC 2021
Global warming potential (land use and land transformation)	GWPL	kg CO_2 equivalents (GWP100)	Baseline model of 100 years of the IPCC based on IPCC 2021
Acidification potential	AP	mol H^+ eq.	Accumulated Exceedance, Seppälä et al. 2006, Posch et al., 2008
Eutrophication - aquatic freshwater	EP-freshwater	kg P equivalent	EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe
Eutrophication - aquatic marine	EP-marine	kg N equivalent	EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe
Eutrophication - terrestrial	EP -terrestrial	mol N equivalent	Accumulated Exceedance, Seppälä et al. 2006, Posch et al.
Photochemical ozone creation potential	POCP	kg NMVOC equivalents	LOTOS-EUROS, Van Zelm et al., 2008, as applied in ReCiPe
Abiotic depletion potential (elements)*	ADPE	kg Sb equivalents	CML (v4.8)
Abiotic depletion potential (fossil fuels)*	ADPF	MJ net calorific value	CML (v4.8)
Ozone depletion potential	ODP	kg CFC 11 equivalents	Steady-state ODPs, WMO 2014
Water Depletion Potential*	WDP	m^3 equivalent deprived	Available WAter REmaining (AWARE) Boulay et al., 2016 (includes Australia flows calculated using 36 Australian catchments)

Impact Category	Abbreviation	Measurement Unit	Assessment Method and Implementation
Resource use			
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ, net calorific value	Manual for direct inputs
Use of renewable primary energy resources used as raw materials	PERM	MJ, net calorific value	Manual for direct inputs[4]
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PERT	MJ, net calorific value	ecoinvent version 3.8 and expanded by PRé Consultants[5]
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ, net calorific value	Manual for direct inputs
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ, net calorific value	Manual for direct inputs[6]
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PENRT	MJ, net calorific value	ecoinvent version 3.8 and expanded by PRé Consultants[7]
Use of secondary material	SM	kg	Manual for direct inputs
Use of renewable secondary fuels	RSF	MJ, net calorific value	Manual for direct inputs
Use of non-renewable secondary fuels	NRSF	MJ, net calorific value	Manual for direct inputs
Use of net fresh water	FW	m^3	ReCiPe 2016
Output flow categories			
Components for re-use	CRU	kg	Manual for direct inputs
Material for recycling	MFR	kg	Manual for direct inputs
Materials for energy recovery	MERE	kg	Manual for direct inputs
Exported energy - electricity	EE - e	MJ per energy carrier	Manual for direct inputs
Exported energy - thermal	EE - t	MJ per energy carrier	Manual for direct inputs
Waste categories			
Hazardous waste disposed	HWD	kg	EDIP 2003 (v1.05)
Non-hazardous waste disposed	NHWD	kg	EDIP 2003 (v1.05)[8]
Radioactive waste disposed/stored	RWD	kg	EDIP 2003 (v1.05)

[4] Calculated based on the lower hearing value of renewable raw materials.
[5] Calculated as sum of renewables, biomass; renewable, wind, solar and geothermal, and renewable, water.
[6] Calculated based on the lower hearing value of non-renewables raw materials.
[7] Calculated as sum of non-renewables, fossil and non-renewable, nuclear.
[8] Calculated as sum of Bulk waste and Slags/ash.

Impact Category	Abbreviation	Measurement Unit	Assessment Method and Implementation
Additional environmental impact indicators			
Global warming potential, excluding biogenic uptake, emissions and storage	GWP-GHG	kg CO_2 equivalents (GWP100)	Baseline model of 100 years of the IPCC based on IPCC 2021[9]
Particulate matter	Potential incidence of disease due to PM emissions (PM)	Disease incidence	SETAC-UNEP, Fantke et al. 2016
Ionising radiation - human health**	Potential Human exposure efficiency relative to U235 (IRP)	kBq U-235 eq	Human Health Effect model
Eco-toxicity (freshwater)*	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	CTUe	USEtox
Human toxicity potential - cancer effects*	Potential Comparative Toxic Unit for humans (HTP-c)	CTUh	USEtox
Human toxicity potential - non cancer effects*	Potential Comparative Toxic Unit for humans (HTP-nc)	CTUh	USEtox
Soil quality*	Potential soil quality index (SQP)	Dimensionless	Soil quality index (LANCA®)
Potential Environmental Impacts – Indicators According to EN 15804+A1			
Global warming (GWP100a) - A1	GWP (A1)	kg CO_2 equivalents	CML (v4.02) based on IPCC AR4
Ozone layer depletion (ODP) - A1	ODP (A1)	kg CFC-11 equivalents	CML (v4.02) based on WMO 1999
Acidification - A1	AP (A1)	kg SO_2 equivalents	CML (v4.02)
Eutrophication - A1	EP (A1)	kg PO_4^{3}- equivalents	CML (v4.02)
Photochemical oxidation - A1	POCP (A1)	kg C_2H_4 equivalents	CML (v4.02)
Abiotic depletion - A1	ADPE (A1)	kg Sb equivalents	CML (v4.02)
Abiotic depletion (fossil fuels) - A1	ADPF (A1)	MJ, net calorific value	CML (v4.02)

* 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 indicator.

[9]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.

Environmental Performance

The interpretation of results is presented in the following sections. 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.

Environment Performance Indicators per m² of AFS Rediwall 200

Indicator	Unit	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Potential environmental impacts									
GWP-total	kg CO_2 eq.	3.53E+01	3.19E-01	4.99E+00	3.87E-03	8.18E-02	0.00E+00	3.99E-02	0.00E+00
GWP-fossil	kg CO_2 eq.	3.79E+01	3.19E-01	3.01E-02	3.87E-03	8.18E-02	0.00E+00	3.98E-02	0.00E+00
GWP-biogenic	kg CO_2 eq.	-2.62E+00	2.31E-05	4.96E+00	3.27E-07	5.93E-06	0.00E+00	2.67E-05	0.00E+00
GWP-luluc	kg CO_2 eq.	3.76E-02	1.07E-05	1.11E-05	1.89E-09	2.75E-06	0.00E+00	1.64E-08	0.00E+00
ODP	kg CFC 11 eq.	8.15E-06	4.26E-09	1.31E-09	6.30E-10	1.09E-09	0.00E+00	8.15E-06	0.00E+00
AP	mol H+ eq.	1.60E-01	9.13E-04	1.21E-04	9.15E-06	2.34E-04	0.00E+00	1.60E-01	0.00E+00
EP-freshwater	kg P eq.	1.42E-02	6.16E-06	9.23E-06	4.72E-09	1.58E-06	0.00E+00	1.42E-02	0.00E+00
EP-marine	kg N eq.	3.22E-02	3.36E-04	2.54E-05	1.68E-06	8.61E-05	0.00E+00	3.22E-02	0.00E+00
EP-terrestrial	mol N eq.	3.39E-01	3.56E-03	2.59E-04	1.83E-05	9.13E-04	0.00E+00	3.39E-01	0.00E+00
POCP	kg NMVOC eq.	1.19E-01	1.28E-03	7.15E-04	4.92E-06	3.28E-04	0.00E+00	1.19E-01	0.00E+00
ADP-minerals & metals	kg Sb eq.	1.42E-05	1.86E-08	1.11E-07	4.64E-12	4.76E-09	0.00E+00	1.42E-05	0.00E+00
ADP-fossil	MJ	7.13E+02	4.16E+00	3.30E-01	5.47E-02	1.07E+00	0.00E+00	7.13E+02	0.00E+00
WDP	m^3	1.87E+01	5.93E-03	5.68E-03	3.53E-04	1.52E-03	0.00E+00	3.76E-03	0.00E+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;								

Environment Performance Indicators per m² of AFS Rediwall 200 (Cont.)

Indicator	Unit	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Use of resources									
PERE	MJ	1.97E+01	6.10E-03	3.96E+01	8.52E-05	1.57E-03	0.00E+00	7.21E-03	0.00E+00
PERM	MJ	3.96E+01	0.00E+00	-3.96E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	5.93E+01	6.10E-03	2.17E-02	8.52E-05	1.57E-03	0.00E+00	7.21E-03	0.00E+00
PENRE	MJ	4.88E+02	4.16E+00	6.50E-01	5.47E-02	1.07E+00	0.00E+00	2.25E+02	0.00E+00
PENRM	MJ	2.25E+02	0.00E+00	-3.20E-01	0.00E+00	0.00E+00	0.00E+00	-2.25E+02	0.00E+00
PENRT	MJ	7.13E+02	4.16E+00	3.30E-01	5.47E-02	1.07E+00	0.00E+00	5.46E-01	0.00E+00
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	3.98E-01	2.13E-04	3.87E-05	8.15E-06	5.47E-05	0.00E+00	8.26E-05	0.00E+00
Waste categories									
Hazardous waste disposed	kg	7.67E-04	2.79E-05	1.39E-06	1.31E-08	7.15E-06	0.00E+00	1.13E-07	0.00E+00
Non-hazardous waste disposed	kg	1.30E+00	1.09E-03	1.63E+00	3.22E-06	2.81E-04	0.00E+00	2.02E-04	0.00E+00
Radioactive waste disposed/stored	kg	4.64E-04	1.49E-07	1.50E-07	3.48E-12	3.82E-08	0.00E+00	3.01E-11	0.00E+00
Output flows									
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	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	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	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	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	0.00E+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								

Environment Performance Indicators per m² of AFS Rediwall 200 (Cont.)

Indicator	Unit	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Additional environmental impact indicators									
GWP-GHG	kg CO_2 eq	3.81E+01	3.19E-01	2.24E+00	3.87E-03	8.18E-02	0.00E+00	3.99E-02	0.00E+00
Particulate matter	disease incidence	1.38E-06	2.09E-08	1.86E-09	4.82E-11	5.36E-09	0.00E+00	6.31E-10	0.00E+00
Ionising radiation - human health	kBq U-235 eq	1.85E+00	7.50E-04	6.01E-04	9.64E-08	1.92E-04	0.00E+00	8.35E-07	0.00E+00
Ecotoxicity - freshwater	CTUe	3.80E+02	1.86E+00	2.72E-01	1.57E-02	4.76E-01	0.00E+00	1.39E-01	0.00E+00
Human toxicity potential - cancer effects	CTUh	1.08E-08	1.22E-11	6.54E-11	1.45E-13	3.14E-12	0.00E+00	1.68E-12	0.00E+00
Human toxicity potential - non cancer effects	CTUh	2.82E-07	1.00E-09	3.53E-09	1.41E-11	2.57E-10	0.00E+00	1.35E-10	0.00E+00
Soil quality	Pt	2.09E+02	1.61E-02	4.19E-02	2.64E-04	4.13E-03	0.00E+00	1.98E-02	0.00E+00
Potential Environmental Impacts – Indicators According to EN 15804+A1:2013									
Global warming (GWP100a) - A1	kg CO_2 eq	3.69E+01	3.12E-01	1.54E+00	3.85E-03	8.01E-02	0.00E+00	3.96E-02	0.00E+00
Ozone layer depletion (ODP) - A1	kg CFC-11 eq	8.19E-06	3.38E-09	1.21E-09	4.97E-10	8.67E-10	0.00E+00	4.29E-09	0.00E+00
Acidification - A1	kg SO_2 eq	1.12E-01	6.86E-04	8.35E-05	7.41E-06	1.76E-04	0.00E+00	6.98E-05	0.00E+00
Eutrophication - A1	kg PO_4--- eq	5.50E-02	1.37E-04	3.79E-05	9.63E-07	3.51E-05	0.00E+00	9.86E-06	0.00E+00
Photochemical oxidation - A1	kg C_2H_4 eq	7.91E-03	3.82E-05	3.71E-04	3.70E-07	9.81E-06	0.00E+00	3.61E-06	0.00E+00
Abiotic depletion - A1	kg Sb eq	1.43E-05	1.86E-08	1.11E-07	4.70E-12	4.76E-09	0.00E+00	4.52E-11	0.00E+00
Abiotic depletion (fossil fuels) - A1	MJ	7.26E+02	4.10E+00	3.93E-01	5.34E-02	1.05E+00	0.00E+00	5.53E-01	0.00E+00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage								

Additional Environmental Information

This EPD is declared as 1m² of installed Rediwall product. The environmental impacts provided are for Rediwall 200.

As per section 5.4.6.1 of PCR, the following conversion factors can be applied to the results of the declared modules above to calculate the impacts of other product variants (e.g. Rediwall 110 or Rediwall 256) of Rediwall products.

Conversion factors of per m² of AFS Rediwall 110

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impacts								
GWP-total	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
GWP-fossil	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
GWP-biogenic	1.00	1.00	1.00	1.64	0.89	1.00	0.89	1.00
GWP-luluc	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
ODP	0.90	1.00	1.00	1.63	0.90	1.00	0.90	1.00
AP	0.89	1.00	1.00	1.64	0.89	1.00	0.90	1.00
EP-freshwater	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
EP-marine	0.89	1.00	1.00	1.64	0.89	1.00	0.90	1.00
EP-terrestrial	0.89	1.00	1.00	1.64	0.89	1.00	0.90	1.00
POCP	0.90	1.00	1.00	1.64	0.89	1.00	0.89	1.00
ADP-minerals & metals	0.92	1.00	1.00	1.64	0.89	1.00	0.89	1.00
ADP-fossil	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
WDP	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
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;							

Conversion factors of per m² of AFS Rediwall 110 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.86	1.00	1.00	1.64	0.89	1.00	0.89	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.95	1.00	1.00	1.64	0.89	1.00	0.89	1.00
PENRE	0.90	1.00	1.00	1.64	0.89	1.00	0.89	1.00
PENRM	0.89	1.00	1.00	1.00	1.00	1.00	0.89	1.00
PENRT	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
SM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NRSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FW	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
Conversion factors of waste production								
Hazardous waste disposed	0.89	1.00	1.00	1.64	0.90	1.00	0.89	1.00
Non-hazardous waste disposed	0.89	1.00	1.00	1.64	0.89	1.00	0.90	1.00
Radioactive waste disposed/stored	0.89	1.00	1.00	1.64	0.90	1.00	0.90	1.00
Conversion factors of output flows								
Components for reuse	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for recycling	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for energy recovery	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - electricity	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - thermal	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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							

Conversion factors of per m² of AFS Rediwall 110 (Cont.)

Indicator	A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.90	1.00	1.00	1.64	0.89	1.00	1.00	1.00
Particulate matter	0.89	1.00	1.00	1.64	0.90	1.00	1.00	1.00
Ionising radiation - human health	0.90	1.00	1.00	1.64	0.90	1.00	1.00	1.00
Ecotoxicity - freshwater	0.89	1.00	1.00	1.64	0.89	1.00	1.00	1.00
Human toxicity potential - cancer effects	0.90	1.00	1.00	1.64	0.89	1.00	1.00	1.00
Human toxicity potential - non cancer effects	0.90	1.00	1.00	1.65	0.89	1.00	1.00	1.00
Soil quality	0.98	1.00	1.00	1.64	0.89	1.00	1.00	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
Ozone layer depletion (ODP) - A1	0.90	1.00	1.00	1.64	0.90	1.00	0.90	1.00
Acidification - A1	0.89	1.00	1.00	1.65	0.89	1.00	0.89	1.00
Eutrophication - A1	0.89	1.00	1.00	1.64	0.89	1.00	0.89	1.00
Photochemical oxidation - A1	0.90	1.00	1.00	1.64	0.89	1.00	0.89	1.00
Abiotic depletion - A1	0.92	1.00	1.00	1.64	0.89	1.00	0.89	1.00
Abiotic depletion (fossil fuels) - A1	0.89	1.00	1.00	1.64	0.90	1.00	0.89	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of AFS Rediwall 156

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impacts								
GWP-total	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
GWP-fossil	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
GWP-biogenic	1.00	1.00	1.00	1.22	0.95	1.00	0.95	1.00
GWP-luluc	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
ODP	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
AP	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
EP-freshwater	0.96	1.00	1.00	1.22	0.95	1.00	0.95	1.00
EP-marine	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
EP-terrestrial	0.95	1.00	1.00	1.23	0.95	1.00	0.95	1.00
POCP	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
ADP-minerals & metals	0.96	1.00	1.00	1.22	0.95	1.00	0.95	1.00
ADP-fossil	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
WDP	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
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;							

Conversion factors of per m² of AFS Rediwall 156 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.94	1.00	1.00	1.22	0.95	1.00	0.95	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.98	1.00	1.00	1.22	0.95	1.00	0.95	1.00
PENRE	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
PENRM	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
PENRT	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
SM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NRSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FW	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Conversion factors of waste production								
Hazardous waste disposed	0.95	1.00	1.00	1.22	0.95	1.00	0.96	1.00
Non-hazardous waste disposed	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Radioactive waste disposed/stored	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Conversion factors of output flows								
Components for reuse	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for recycling	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for energy recovery	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - electricity	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - thermal	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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							

Conversion factors of per m² of AFS Rediwall 156 (Cont.)

Indicator	A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Particulate matter	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Ionising radiation - human health	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Ecotoxicity - freshwater	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Human toxicity potential - cancer effects	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Human toxicity potential - non cancer effects	0.95	1.00	1.00	1.23	0.95	1.00	0.95	1.00
Soil quality	0.99	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.95	1.00	1.00	1.23	0.95	1.00	0.95	1.00
Ozone layer depletion (ODP) - A1	0.95	1.00	1.00	1.23	0.95	1.00	0.95	1.00
Acidification - A1	0.96	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Eutrophication - A1	0.95	1.00	1.00	1.23	0.95	1.00	0.95	1.00
Photochemical oxidation - A1	0.95	1.00	1.00	1.23	0.95	1.00	0.95	1.00
Abiotic depletion - A1	0.97	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Abiotic depletion (fossil fuels) - A1	0.95	1.00	1.00	1.22	0.95	1.00	0.95	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of AFS Rediwall 256

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impacts								
GWP-total	1.18	1.00	1.00	0.82	1.16	1.00	1.16	1.00
GWP-fossil	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
GWP-biogenic	0.99	1.00	1.00	0.82	1.16	1.00	1.16	1.00
GWP-luluc	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
ODP	1.16	1.00	1.00	0.82	1.17	1.00	1.16	1.00
AP	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
EP-freshwater	1.17	1.00	1.00	0.82	1.16	1.00	1.16	1.00
EP-marine	1.16	1.00	1.00	0.82	1.16	1.00	1.17	1.00
EP-terrestrial	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
POCP	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
ADP-minerals & metals	1.13	1.00	1.00	0.81	1.16	1.00	1.16	1.00
ADP-fossil	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
WDP	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
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;							

Conversion factors of per m² of AFS Rediwall 256 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	1.22	1.00	1.00	0.82	1.16	1.00	1.16	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	1.07	1.00	1.00	0.82	1.16	1.00	1.16	1.00
PENRE	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
PENRM	1.16	1.00	1.00	1.00	1.00	1.00	1.16	1.00
PENRT	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
SM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NRSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FW	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
Conversion factors of waste production								
Hazardous waste disposed	1.16	1.00	1.00	0.82	1.16	1.00	1.17	1.00
Non-hazardous waste disposed	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
Radioactive waste disposed/stored	1.16	1.00	1.00	0.82	1.16	1.00	1.17	1.00
Conversion factors of output flows								
Components for reuse	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for recycling	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for energy recovery	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - electricity	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - thermal	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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							

Conversion factors of per m² of AFS Rediwall 256 (Cont.)

Indicator	A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
Particulate matter	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
Ionising radiation - human health	1.17	1.00	1.00	0.82	1.17	1.00	1.16	1.00
Ecotoxicity - freshwater	1.16	1.00	1.00	0.82	1.16	1.00	1.17	1.00
Human toxicity potential - cancer effects	1.17	1.00	1.00	0.81	1.16	1.00	1.16	1.00
Human toxicity potential - non cancer effects	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
Soil quality	1.03	1.00	1.00	0.81	1.16	1.00	1.16	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
Ozone layer depletion (ODP) - A1	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
Acidification - A1	1.16	1.00	0.99	0.82	1.16	1.00	1.16	1.00
Eutrophication - A1	1.16	1.00	1.00	0.82	1.17	1.00	1.17	1.00
Photochemical oxidation - A1	1.16	1.00	1.00	0.82	1.16	1.00	1.17	1.00
Abiotic depletion - A1	1.13	1.00	1.00	0.81	1.16	1.00	1.16	1.00
Abiotic depletion (fossil fuels) - A1	1.16	1.00	1.00	0.82	1.16	1.00	1.16	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of AFS Rediwall 275

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impacts								
GWP-total	1.14	1.00	1.00	0.82	1.13	1.00	1.13	1.00
GWP-fossil	1.13	1.00	1.00	0.82	1.13	1.00	1.13	1.00
GWP-biogenic	0.99	1.00	1.00	0.82	1.13	1.00	1.13	1.00
GWP-luluc	1.13	1.00	1.00	0.82	1.13	1.00	1.13	1.00
ODP	1.13	1.00	1.02	0.82	1.14	1.00	1.13	1.00
AP	1.13	1.00	1.01	0.82	1.14	1.00	1.13	1.00
EP-freshwater	1.14	1.00	1.00	0.82	1.13	1.00	1.13	1.00
EP-marine	1.13	1.00	1.00	0.82	1.13	1.00	1.13	1.00
EP-terrestrial	1.13	1.00	1.00	0.83	1.14	1.00	1.14	1.00
POCP	1.13	1.00	1.00	0.82	1.13	1.00	1.13	1.00
ADP-minerals & metals	1.11	1.00	1.00	0.82	1.13	1.00	1.13	1.00
ADP-fossil	1.13	1.00	1.01	0.82	1.13	1.00	1.13	1.00
WDP	1.13	1.00	1.00	0.82	1.13	1.00	1.13	1.00
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;							

Conversion factors of per m² of AFS Rediwall 275 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	1.17	1.00	1.00	0.82	1.13	1.00	1.14	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	1.06	1.00	1.00	0.82	1.13	1.00	1.14	1.00
PENRE	1.13	1.00	1.00	0.82	1.13	1.00	1.14	1.00
PENRM	1.13	1.00	1.00	1.00	1.00	1.00	1.13	1.00
PENRT	1.13	1.00	1.01	0.82	1.13	1.00	1.13	1.00
SM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NRSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FW	1.13	1.00	1.01	0.82	1.13	1.00	1.13	1.00
Conversion factors of waste production								
Hazardous waste disposed	1.13	1.00	1.00	0.82	1.14	1.00	1.14	1.00
Non-hazardous waste disposed	1.12	1.00	1.00	0.82	1.13	1.00	1.13	1.00
Radioactive waste disposed/stored	1.13	1.00	1.00	0.82	1.14	1.00	1.14	1.00
Conversion factors of output flows								
Components for reuse	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for recycling	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for energy recovery	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - electricity	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - thermal	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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							

Conversion factors of per m² of AFS Rediwall 275 (Cont.)

Indicator	A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	1.13	1.00	1.00	0.82	1.13	1.00	1.13	1.00
Particulate matter	1.13	1.00	1.01	0.82	1.14	1.00	1.13	1.00
Ionising radiation - human health	1.14	1.00	1.00	0.82	1.14	1.00	1.13	1.00
Ecotoxicity - freshwater	1.13	1.00	1.00	0.82	1.13	1.00	1.14	1.00
Human toxicity potential - cancer effects	1.14	1.00	1.00	0.82	1.13	1.00	1.13	1.00
Human toxicity potential - non cancer effects	1.13	1.00	1.00	0.82	1.14	1.00	1.13	1.00
Soil quality	1.02	1.00	1.00	0.82	1.13	1.00	1.14	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	1.13	1.00	1.00	0.82	1.13	1.00	1.13	1.00
Ozone layer depletion (ODP) - A1	1.13	1.00	1.00	0.82	1.13	1.00	1.14	1.00
Acidification - A1	1.13	1.00	1.02	0.82	1.14	1.00	1.13	1.00
Eutrophication - A1	1.13	1.00	1.00	0.82	1.14	1.00	1.14	1.00
Photochemical oxidation - A1	1.13	1.00	1.00	0.82	1.13	1.00	1.14	1.00
Abiotic depletion - A1	1.11	1.00	1.00	0.82	1.14	1.00	1.13	1.00
Abiotic depletion (fossil fuels) - A1	1.13	1.00	1.00	0.82	1.13	1.00	1.13	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of AFS Rediwall 300

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impacts								
GWP-total	1.25	1.00	1.00	1.00	0.82	1.23	1.00	1.23
GWP-fossil	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
GWP-biogenic	0.99	1.00	1.00	0.82	1.23	1.00	1.23	1.00
GWP-luluc	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
ODP	1.23	1.00	1.02	0.82	1.24	1.00	1.23	1.00
AP	1.23	1.00	1.01	0.82	1.23	1.00	1.23	1.00
EP-freshwater	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
EP-marine	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
EP-terrestrial	1.23	1.00	1.00	0.83	1.23	1.00	1.23	1.00
POCP	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
ADP-minerals & metals	1.18	1.00	1.00	0.82	1.23	1.00	1.23	1.00
ADP-fossil	1.23	1.00	1.01	0.82	1.22	1.00	1.23	1.00
WDP	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
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;							

Conversion factors of per m² of AFS Rediwall 300 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	1.31	1.00	1.00	0.82	1.23	1.00	1.23	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	1.10	1.00	1.00	0.82	1.23	1.00	1.23	1.00
PENRE	1.23	1.00	1.00	0.82	1.22	1.00	1.23	1.00
PENRM	1.23	1.00	1.00	1.00	1.00	1.00	1.23	1.00
PENRT	1.23	1.00	1.01	0.82	1.22	1.00	1.23	1.00
SM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NRSF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FW	1.23	1.00	1.01	0.82	1.23	1.00	1.23	1.00
Conversion factors of waste production								
Hazardous waste disposed	1.23	1.00	1.00	0.82	1.23	1.00	1.24	1.00
Non-hazardous waste disposed	1.22	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Radioactive waste disposed/stored	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Conversion factors of output flows								
Components for reuse	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for recycling	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Materials for energy recovery	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - electricity	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Exported energy - thermal	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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							

Conversion factors of per m² of AFS Rediwall 300 (Cont.)

Indicator	A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Particulate matter	1.23	1.00	1.01	0.82	1.23	1.00	1.23	1.00
Ionising radiation - human health	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Ecotoxicity - freshwater	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Human toxicity potential - cancer effects	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Human toxicity potential - non cancer effects	1.22	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Soil quality	1.04	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Ozone layer depletion (ODP) - A1	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Acidification - A1	1.23	1.00	1.02	0.82	1.23	1.00	1.23	1.00
Eutrophication - A1	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Photochemical oxidation - A1	1.22	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Abiotic depletion - A1	1.19	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Abiotic depletion (fossil fuels) - A1	1.23	1.00	1.00	0.82	1.23	1.00	1.23	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

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

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