Environmental Product Declaration

In accordance with ISO 14025 and EN15804:2012+A2: 2019

Residential Insulation Products Manufactured by CSR Martini

Program: The International EPD® System — www.environdec.com
Program Operator: EPD International AB
Regional Program: EPD Australasia — www.epd-australasia.com
EPD Registration No: EPD-IES-0015424
Publication Date: 2024-11-29
Expiration Date: 2029-11-28
Geographical Scope: Australia
Version: 001

An EPD should provide current information and maybe 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 Polymax Ceiling Batt R2.5, the list of which can be found on page 10

All products within this EPD were previously covered through EPD S-P-01004, which expired on 2023-08-09.

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

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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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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.

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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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Where science and sound meet design

At CSR Martini, our mission is to revolutionise the acoustic insulation industry and improve daily life through fusing science, sound and design. With over 20 years' experience serving industries worldwide, innovation, craft and sustainability are at the heart of everything we create.

Advanced solutions for acoustic performance and sustainability

CSR Martini is part of CSR building products group, the name behind some of Australia's most trusted and recognised brands in the construction industry.

To help CSR reach its ambition of a sustainable future for the built environment, CSR Martini is committed to creating industry-leading acoustic insulation systems that are sustainable by design. Innovation is embedded across its value chain to drive sustainable outcomes, from reducing plastic waste during manufacturing to helping customers access solutions crafted with sustainability in mind.

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Product and industry innovation

Increasing the use of recycled material in CSR Martini solutions is a key priority. The CSR Martini MAB product is manufactured from thermally bonded polyester fibre made with up to 80% recycled fibre content from post-consumer PET packaging, such as empty drink bottles.

CSR Martini takes great pride in its products being awarded the Level A certification by Green Tag™[4]. This verifies that its processes and materials have minimal environmental impact and provides customers with credits towards Green Star Buildings[5], an increasingly important certification to scale industry progress. Through the long-standing membership that CSR has with the Green Building Council of Australia (GBCA)[6], CSR Martini can actively champion sustainable building initiatives, practices and standards across the country.

Reducing waste throughout the product lifecycle

By approaching sustainability in a holistic way, CSR Martini is making progress towards closing the loop in its operations, as well as in product design. The Product Stewardship program allows customers to return uncontaminated insulation offcuts for recycling, and the program also invests in providing education to contractors around how products can be reused – both efforts helping to minimise waste.

[4] GreenTag is an independent and International Standards compliant Third-Party Ecolabel and Trust Mark. GreenTag certification demonstrates the credentials of every product based on full disclosure and audits, from safety and environmental restoration to ethical employment and social outcomes, GreenTag certification demonstrates the credentials of every product based on full disclosure and audits.
[5] Green Star Buildings is one of the many rating tools initiated by the Green Building Council of Australia. This specific tool enables owners and developers to act on sustainability across 8 categories, from ensuring the building contributes to key environmental issues such as water use, to solutions that address social health in the community.
[6] GBCA provides Australia's largest, voluntary rating system for buildings, Green Star Buildings. This tool enables owners and developers to act on sustainability across 8 categories, from ensuring the building contributes to key environmental issues such as water use, to solutions that address social health in the community.

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Design versatility without compromising on performance

CSR Martini strikes the perfect balance between acoustic functionality and design aesthetics - from the diverse range of colours and fabric finishings available, to customisable panels and modular structures that can be installed to elevate any space.

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Industry-leading acoustic enhancement

The CSR Martini approach towards superior engineered noise control and investment in rigorous testing ensures that all its acoustic solutions deliver on what is promised. From residential homes to commercial environments, acoustic needs and requirements vary dramatically. That's why CSR Martini offers a comprehensive range of science-backed products that can absorb a wide spectrum of sound.

Fast and efficient installation

No matter the type of application, CSR Martini ensures that the installation process across all its products remain as easy as possible, contributing to quicker completion of projects.

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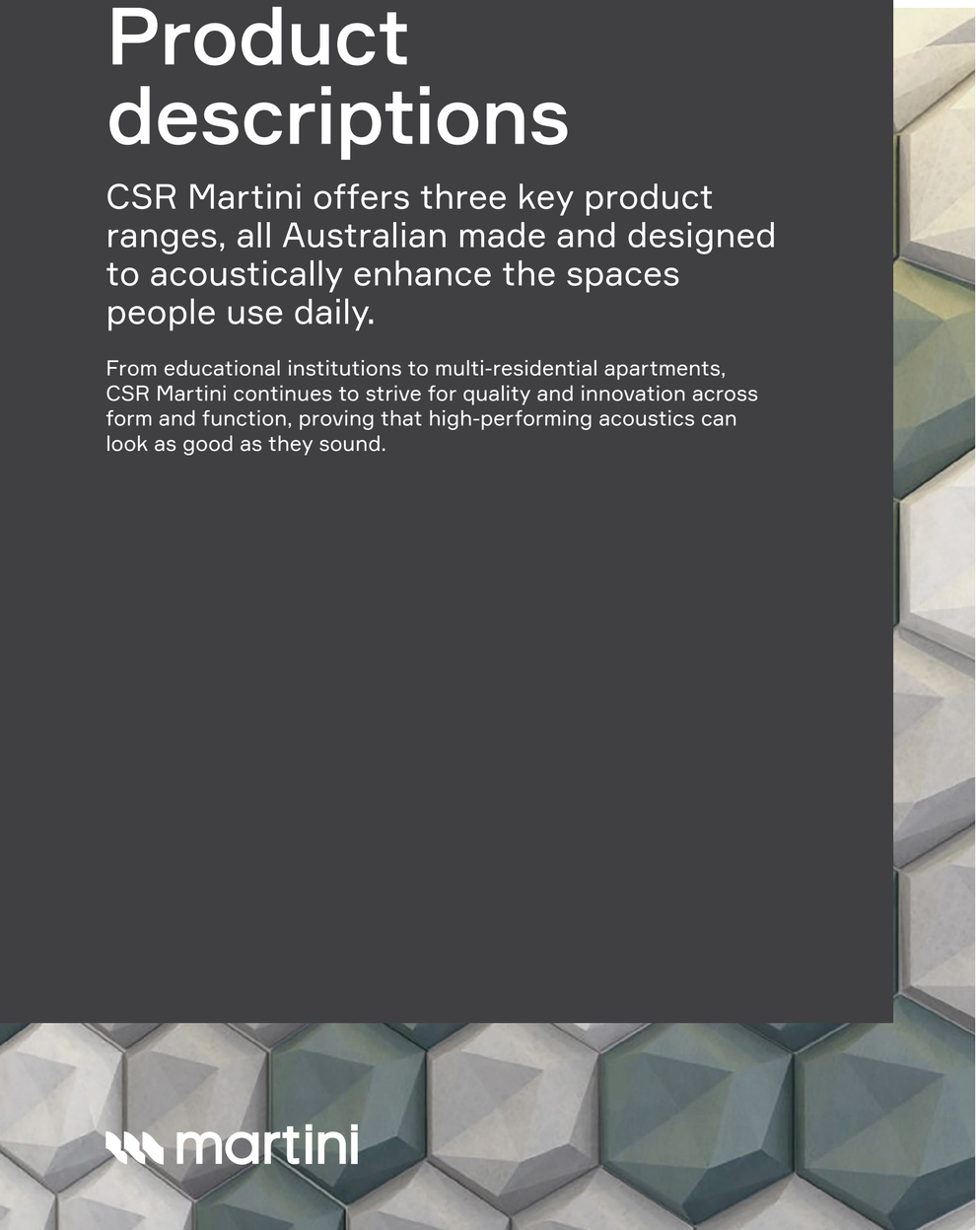
Product descriptions

CSR Martini offers three key product ranges, all Australian made and designed to acoustically enhance the spaces people use daily.

From educational institutions to multi-residential apartments, CSR Martini continues to strive for quality and innovation across form and function, proving that high-performing acoustics can look as good as they sound.



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CSR Martini (Bradford) Polymax Thermal

The CSR Martini (Bradford) Polymax Thermal range has been designed to maximise comfort and save energy all year round by regulating temperature in commercial and residential buildings.

Polymax Ceiling Batt R2.5
Thickness: 140mm
Width: 430mm
Length: 1.16m

Polymax Ceiling Batt R2.5
Thickness: 140mm
Width: 580mm
Length: 1.16m

Polymax Ceiling Batt R3.0
Thickness: 180mm
Width: 430mm
Length: 1.16m

Polymax Ceiling Batt R3.0
Thickness: 180mm
Width: 580mm
Length: 1.16m

Polymax Ceiling Batt R3.5
Thickness: 180mm
Width: 430mm
Length: 1.16m

Polymax Ceiling Batt R3.5
Thickness: 180mm
Width: 580mm
Length: 1.16m

Polymax Ceiling Batt R4.0
Thickness: 200mm
Width: 430mm
Length: 1.16m

Polymax Ceiling Batt R4.0
Thickness: 200mm
Width: 580mm
Length: 1.16m

Polymax Wall Batts R1.5
Thickness: 75mm
Width: 430mm
Length: 1.16m

Polymax Wall Batts R1.5
Thickness: 75mm
Width: 580mm
Length: 1.16m

Polymax Wall Batts R1.5
Thickness: 90mm
Width: 430mm
Length: 1.16m

Polymax Wall Batts R1.5
Thickness: 90mm
Width: 580mm
Length: 1.16m

Polymax Wall Batts R2.0
Thickness: 75mm
Width: 430mm
Length: 1.16m

Polymax Wall Batts R2.0
Thickness: 75m
Width: 580mm
Length: 1.16m

Polymax Wall Batts R2.0
Thickness: 90mm
Width: 430mm
Length: 1.16m

Polymax Wall Batts R2.0
Thickness: 90mm
Width: 580mm
Length: 1.16m

Polymax Underfloor Batts R1.5
Thickness: 90mm
Width: 430mm
Length: 15m

Polymax Underfloor Batts R2.0
Thickness: 120m
Width: 430mm
Length: 12

Polymax Underfloor Batts R2.0
Thickness: 120mm
Width: 450mm
Length: 11.6m

Polymax Underfloor Batts R2.5
Thickness: 140mm
Width: 430mm
Length: 10m

Polymax Underfloor Batts R2.5
Thickness: 140mm
Width: 450mm
Length: 10

Thermaflex R1.0
Thickness: 75mm
Width: 700-1650mm
Length: 18m

Thermaflex R1.25
Thickness: 100mm
Width: 700-1350mm
Length: 18m

Thermaflex R1.5
Thickness: 110mm
Width: 890-1370mm
Length: 12/18m

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Life cycle assessment information

Program Information

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CEN standard EN 15804+A2:2019/AC2021 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR) 2019:14 Construction products, Version 1.3.4

UN CPC Code: 3699

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:

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Jane Anderson

Approved by: EPD Australasia Ltd

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

☐ Yes ☒ No

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

EPDs within the same product category but registered in different EPD programs, 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.

Company Information

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Manufacturer Sites: Ingleburn NSW, Villawood NSW, Scoresby VIC, East Vic Park VIC

EPD produced by:

Edge Environment Pty Limited

Jonas Bengtsson, Pasindu Samarakkody and Weiqi Xing

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Key Facts

This EPD provides data for 1m^2 of Residential Insulation Products (thermal panels), represented by Polymax Ceiling Batt R2.5, manufactured in Australia. Polymax Ceiling Batt R2.5 has been selected as the representative product for this EPD as it is Martini's flagship product, delivering efficient performance through cutting-edge raw materials and manufacturing.

This EPD is published in line with EN 15804 and ISO 14025, providing specific information by walling products and detailed by product area.

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Product Information

Product description: The CSR Polymax Thermal wall and ceiling batts help to save energy all year round by regulating temperature in commercial and residential buildings.

UN CPC code: 3699 (Articles of plastics n.e.c.), according to version 2.1, 2015

ANZSIC code: 1919 (Other Polymer Product Manufacturing) according to version 2, 2013

UNSPSC code: 30141601 (Acoustical Insulation) according to version 26

TABLE 1 PRODUCT APPLICATIONS

Product Type	Product Range	Product Names
Thermal insulation	Polymax thermal	Polymax thermal wall, Polymax thermal ceiling, Polymax thermal underfloor, Thermaflex

TABLE 2 PRODUCTS INCLUDED

Product	Thickness (mm)	Width (mm)	Length (m)	Product weight per m^2 (kg/m^2)
Polymax Ceiling Batt R2.5	140	430	1.16	1.6
Polymax Ceiling Batt R2.5	140	580	1.16	1.6
Polymax Ceiling Batt R3.0	180	430	1.16	1.8
Polymax Ceiling Batt R3.0	180	580	1.16	1.8
Polymax Ceiling Batt R3.5	180	430	1.16	2.5
Polymax Ceiling Batt R3.5	180	580	1.16	2.5
Polymax Ceiling Batt R4.0	200	430	1.16	2.9
Polymax Ceiling Batt R4.0	200	580	1.16	2.9
Polymax Wall Batts R1.5	75	430	1.16	1.05
Polymax Wall Batts R1.5	75	580	1.16	1.05
Polymax Wall Batts R1.5	90	430	1.16	0.9
Polymax Wall Batts R1.5	90	580	1.16	0.9
Polymax Wall Batts R2.0	75	430	1.16	2.85
Polymax Wall Batts R2.0	75	580	1.16	2.85
Polymax Wall Batts R2.0	90	430	1.16	1.65
Polymax Wall Batts R2.0	90	580	1.16	1.65
Polymax Underfloor Batts R1.5	90	430	15	0.9
Polymax Underfloor Batts R2.0	120	430	12	1.2
Polymax Underfloor Batts R2.0	120	450	11.6	1.2
Polymax Underfloor Batts R2.5	140	430	10	1.6
Polymax Underfloor Batts R2.5	140	450	10	1.6
Thermaflex R1.0	75	700-1650	18	0.429
Thermaflex R1.25	100	700-1350	18	0.58
Thermaflex R1.5	110	890-1370	12/18	0.75

LCA Information

TABLE 3 LCA INFORMATION

	Product Characteristics
Declared Unit	1m² Polymax Ceiling Batt R2.5 weighted 1.6kg
Modules Included	A1-A3, A4-A5, C1–C4, D
Technical lifetime	30 years
Geographical Coverage	Australia
Time Period	01 Apr 2022 to 31 Mar 2023

Declared unit:

This EPD provides data for 1m² of Polymax Ceiling Batt R2.5 weighted 1.6kg, manufactured in Australia.

Life Cycle Assessment (LCA) Methodology

This EPD has been produced in conformance with the requirements of PCR2019:14, General Program Instructions (GPI) and four information modules according to ISO 21930 and EN 15804.

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, refer to the comparability requirements in EN 15804, e.g., using equivalent methodology and assumptions such as 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.

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 1 year 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 less than 1 year old.
- Other sources with sensitivity analysis reported to show the significance of this data for the results and conclusions drawn.

Life cycle content information

Cradle to Gate (Module A1-A3)

The primary raw materials used by CSR Martini in the manufacturing of PET acoustic and insulation products are virgin and recycled PET in various proportions. Additional ingredients are pigments and adhesives.

Details on recycled PET:

- 100% recycled PET is made up of post-consumer water bottles and soft drink bottles. These bottles reach the end of their initial use, but have an additional use, have a market in recycled PET, and follow all local and national regulations.
- PET fibres are made using a specific type of extrusion in which PET granulate is melted and pressed through preformed mouldings and shaped into fibres. This was modelled according to the "polluter pays principle" and PCR 2019:14: no burden was assumed for the post-consumer recycled PET. The only input for this material was the transportation from the supplier.

CSR Martini has four manufacturing locations: Villawood and Ingleburn, New South Wales, and Scoresby and East Vic Park, Victoria. However the majority of products are manufactured only at the Villawood and Ingleburn sites.

The manufacturing process comprises the following steps:

- PET fibres are mixed into a hopper to create a blend suitable for the current product.
- Fibres are thermally and/or mechanically bound into the desired shape, density and texture. The Scoresby plant uses flame bonding.
- The panels are cut to size.
- Depending on the specific product, panels may be laminated using adhesives to form the final product and/or moulded.
- The primary energy sources of energy in the NSW region are black coal: 75% and photovoltaic: 17%

— 0.72kg CO_2eq/kWh (GWP-GHG)

- The primary energy sources of energy in the VIC region are natural gas: 44% and brown coal: 41%

— 0.84kg CO_2eq/kWh (GWP-GHG)

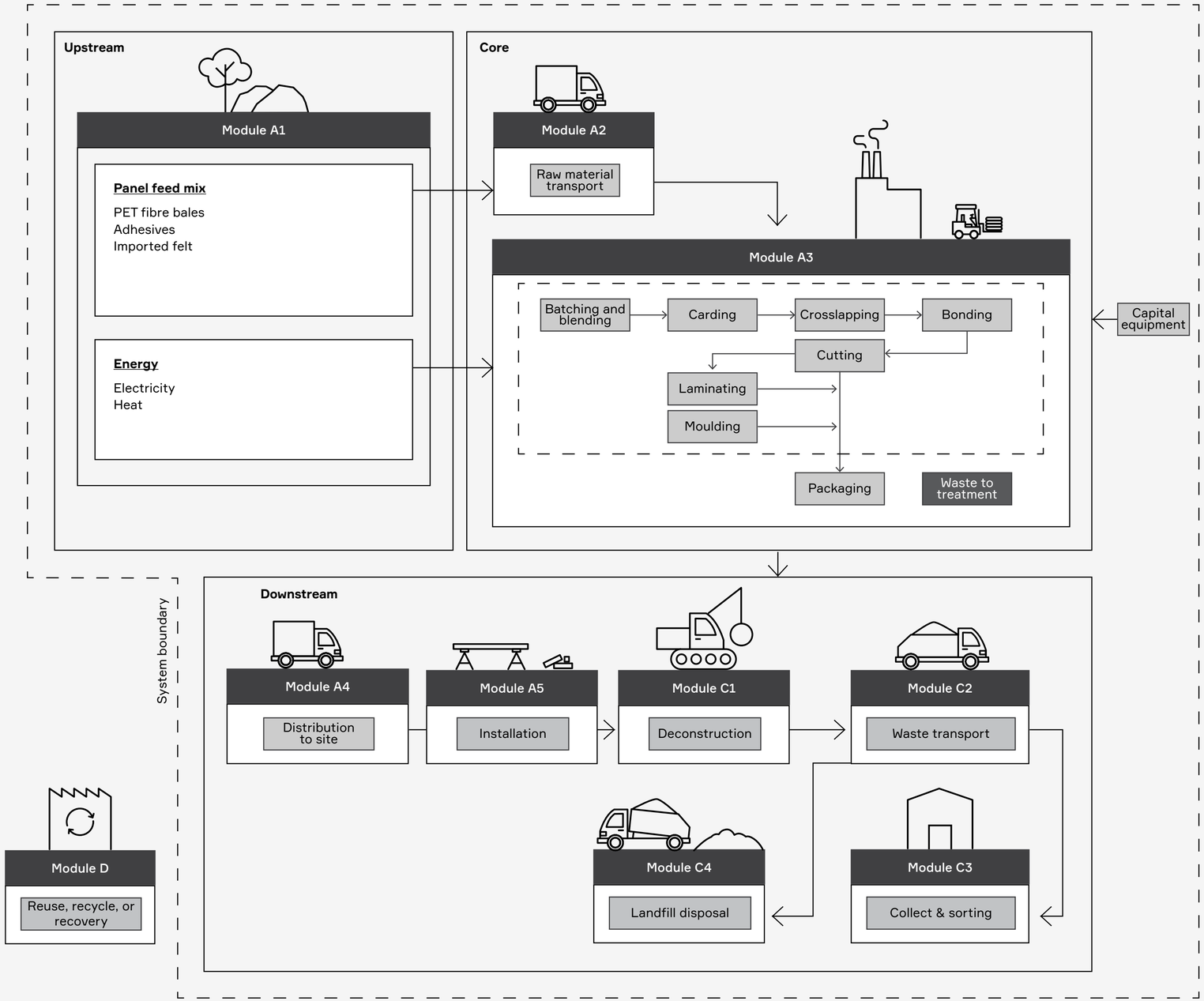

Figure 1: System Diagram

TABLE 4 CONTENT DECLARATION

Representative product: Polymax Ceiling Batt R2.5			Other Residential insulation products	
Material Input	**Percent composition for 1m² of product**	**Post-consumer recycled material, weight, %**	**Percent composition for 1m² of product**	**Post-consumer recycled material, weight, %**
Virgin PET	40%	0	40-100%	0
50% recycled PET	15%	8	0-15%	0-8
Recycled PET	45%	45	0-45%	0-45
Imported felt	0%	0	0%	0
Adhesives	0%	0	0%	0
Packaging materials	**Percent composition for 1m² of product**	**Post-consumer recycled material, weight, %**	**Percent composition for 1m² of product**	**Post-consumer recycled material, weight, %**
Plastic packaging	5%	0	2-6%	0

Table 4 lists the main materials and packaging used to produce PET panels. Product packaging is made up of either plastic film or cardboard depending on the product. Plastic film packaging is between 2-6% of the weight of product.

None of the products contain one or more substances that are listed in the “Candidate List of Substances of Very High Concern for authorisation”. Based on available information and safety data sheets, Martini products and their raw materials are not classified as hazardous according to criteria of Safe Work Australia GHS 7.

TABLE 5 BIOGENIC CARBON OF 1m² OF RESIDENTIAL INSULATION PRODUCTS

Biogenic content, kg C/m² of product	Polymax Ceiling Batt R2.5	Other Residential insulation products
Product	0	0
Packaging – Plastic	0	0

TABLE 6 WEIGHTED TRANSPORT DISTANCE AND TRANSPORT SCENARIOS

Product	Weighted road transport (km)	Weighted sea transport (km)
Polymax Ceiling Batts	571.0	0.4
Polymax Wall Batts	510.6	0.4
Polymax Underfloor Batts	583.9	0.0
Thermaflex	571.0	0.4

Vehicle	Fuel use (L/tkm)	Fuel type	Carrying capacity	Volume capacity utilization factor	Empty return
Truck	3.95E-02	Diesel	28t	<1	Yes
Ship	2.60E-03	Heavy fuel oil	51000 t	<1	No

Transport (Module A4)

The transport distance from manufacturing gate was provided by percentage of each product that goes to each state. The weighted transport distance and relevant transport scenarios can be found in Table 6.

Installation (Module A5)

None of the products requires installation inputs as they are manually installed.
Product packaging is discarded – plastic packaging goes to landfill.

Disposal / Reuse / Recycling (Module C1-C4)

At end-of-life, products are removed, transported to waste processing, and landfilled. If a product required a scissor lift for installation, a scissor lift was included for deconstruction. 100% of the products end up in landfill.

Scope of Declaration

The scope of this EPD is cradle-to-gate (modules A1-A3) with options, modules A4-A5, modules C1-C4 and module D. The scope of this declaration is according to the General Program Instructions (GPI) and seven information modules according to ISO 21930 and EN 15804 as given in Table 7.

TABLE 7 THE LIFE CYCLE OF A BUILDING PRODUCT

	Upstream			Core		Downstream											Other environmental information
	Raw material supply	Transport	Manufacturing	Transport	Construction installation process	Material emissions from usage	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction and demolition	Transport	Waste processing	Disposal	Reuse, recycle or recovery
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	AU	AU	AU	AU	x	x	x	x	x	x	x	AU	AU	AU	AU	AU
Specific data used	16%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	+101%/-62%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

ND = Not Declared
The following life cycle stages are deemed not applicable for CSR Martini: Material emissions from usage (B1); Maintenance (B2); Repair (B3); Replacement (B4); Refurbishment (B5); Operational energy use (B6), and Operational water use (B7). The scenarios included are currently in use and are representative for one of the most likely scenario alternatives.

Variation – Products is measured by the difference between the declared GWP-GHG result, and the product with GWP-GHG results furthest away from the declared results, for modules A1-A3.

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Cut-off rules

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 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 in this EPD.
- The transport of scissor lift to and from the installation site is excluded.
- Besides these exclusions, no energy or mass flows were excluded in the LCA.

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.

Waste values were provided in lump sums per material, and were allocated to each product according to the percentage of total product produced in one year.

Data Quality and Validation

The primary data used for the study is based on direct utility bills or feedstock quantities from CSR Martini's 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, temporally, and technologically relevant. For data that was based on assumptions, quality was considered medium, unless based on official reports.

TABLE 8 ASSUMPTIONS OR LIMITATIONS DATA ASSESSMENT SCHEME

Assumption or limitation	Impact on LCA results	Discussion
Raw material data for panel production is based on generic information.	Significant	The EN 15804 standard permits generic data for upstream processes, however, this is where the main impacts are for panels across the life cycle. Supplier specific data was only used for shipping and transport of raw materials.
Use of proxy process for PET fibre production	Moderate	Complete data for producing fibre from PET granulate is limited. Extrusion is the primary process and was used for all virgin PET fibres in this assessment. It is assumed that additional manufacturing stages are insignificant and extrusion is an accurate proxy for PET fibre production. As it is an upstream process, this is considered adequate due diligence.
Average pigment composition	Minor	In the case of coloured CSR Martini products, this LCA uses a generic pigment composition. This generalisation is justified by the large CSR Martini colour range (>4000) and the fact that the colour range changes frequently and is often added to. The underlying assumption is that the pigments used to colour the PET are of minor contribution to the environmental impacts. The sensitivity analysis shows that for a coloured product, the pigment composition leads to a variability of maximum of +19% in A1-3 results.
Exclusion of employees, capital good and infrastructure	Minor	Allowed/required as per EPD rules.
Exclusion of pallets	Minor	Plastic pallets, which are used during storage and transport, are very resilient materials that are used multiple times. It is unknown how many times pallets can be reused and whether reuse can happen both in and outside CSR Martini panels' life cycle. The allocated material flows of one pallet to the declared unit is negligible, especially when prolonged lifespan is considered.

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 programs and Type III environmental declarations.
- EN 15804:2012+A1:2013; Sustainability of construction works — Environmental product declarations.
- EN 15804:2012+A2:2019; Sustainability of construction works — Environmental product declarations.
- Complementary Product Category Rules (c-PCR-005). Thermal Insulation Products (EN 16783:2024).
- Product Category Rules (PCR) 2019:14, v1.3.4 – Construction products – Hereafter referred to as PCR 2019:14.
- General Program Instructions (GPI) for the International EPD System V5.0 – 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 program 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.

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 (v4.1)
Abiotic depletion potential (fossil fuels)*	ADPF	MJ net calorific value	CML (v4.1)
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)
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[8]
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[9]
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[10]
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[11]
Use of secondary material	SM	kg	Manual for direct inputs

* 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.
[8] Calculated based on the lower hearing value of renewable raw materials.
[9] Calculated as sum of renewables, biomass; renewable, wind, solar and geothermal, and renewable, water.
[10] Calculated based on the lower hearing value of non-renewables raw materials.
[11] Calculated as sum of non-renewables, fossil and non-renewable, nuclear.

Impact Category	Abbreviation	Measurement Unit	Assessment Method and Implementation
Use of renewable secondary fuels	RSF	MJ, net calorific value	Manual for direct inputs
Use of non-renewable secondary fuels	NRSF	MJ, net calorific val-ue	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)[12]
Radioactive waste disposed/stored	RWD	kg	EDIP 2003 (v1.05)

[12] 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[13]
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.

[13] 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 installed Polymax Ceiling Batt R2.5

Indicator	Unit	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Potential environmental impact									
GWP-total	kg CO_2 eq.	5.93E+00	1.19E-01	3.92E-04	0.00E+00	5.21E-06	0.00E+00	4.46E-03	0.00E+00
GWP-fossil	kg CO_2 eq.	5.91E+00	1.19E-01	3.91E-04	0.00E+00	5.21E-06	0.00E+00	4.45E-03	0.00E+00
GWP-biogenic	kg CO_2 eq.	1.37E-02	8.87E-06	7.07E-08	0.00E+00	3.88E-10	0.00E+00	8.01E-07	0.00E+00
GWP-luluc	kg CO_2 eq.	5.08E-03	5.55E-08	7.36E-07	0.00E+00	2.42E-12	0.00E+00	2.18E-07	0.00E+00
ODP	kg CFC 11 eq.	1.23E-05	1.84E-08	5.83E-12	0.00E+00	8.08E-13	0.00E+00	6.43E-11	0.00E+00
AP	mol H+ eq.	2.72E-02	1.03E-03	2.81E-06	0.00E+00	4.50E-08	0.00E+00	4.02E-05	0.00E+00
EP-freshwater	kg P eq.	1.23E-03	1.21E-08	1.22E-08	0.00E+00	5.27E-13	0.00E+00	1.29E-07	0.00E+00
EP-marine	kg N eq.	5.72E-03	3.24E-04	1.25E-06	0.00E+00	1.42E-08	0.00E+00	1.83E-05	0.00E+00
EP-terrestrial	mol N eq	5.94E-02	3.54E-03	1.35E-05	0.00E+00	1.55E-07	0.00E+00	1.99E-04	0.00E+00
POCP	kg NMVOC eq.	2.09E-02	8.64E-04	4.05E-06	0.00E+00	3.78E-08	0.00E+00	5.94E-05	0.00E+00
ADP-minerals & metals	kg Sb eq.	2.83E-04	1.36E-10	1.99E-11	0.00E+00	5.93E-15	0.00E+00	1.72E-10	0.00E+00
ADP-fossil	MJ	1.09E+02	1.60E+00	4.97E-03	0.00E+00	7.01E-05	0.00E+00	5.55E-02	0.00E+00
WDP	m^3	1.81E+00	1.03E-02	9.83E-06	0.00E+00	4.51E-07	0.00E+00	7.71E-05	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 installed Polymax Ceiling Batt R2.5 (Cont.)

Indicator	Unit	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Use of resources									
PERE	MJ	6.65E+00	2.30E-03	2.84E-05	0.00E+00	1.01E-07	0.00E+00	2.47E-04	0.00E+00
PERM	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
PERT	MJ	6.65E+00	2.30E-03	2.84E-05	0.00E+00	1.01E-07	0.00E+00	2.47E-04	0.00E+00
PENRE	MJ	3.19E+01	1.60E+00	3.09E+00	0.00E+00	7.01E-05	0.00E+00	7.44E+01	0.00E+00
PENRM	MJ	7.75E+01	0.00E+00	-3.08E+00	0.00E+00	0.00E+00	0.00E+00	-7.44E+01	0.00E+00
PENRT	MJ	1.09E+02	1.60E+00	4.97E-03	0.00E+00	7.01E-05	0.00E+00	5.55E-02	0.00E+00
SM	kg	9.12E-01	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	4.92E-02	2.38E-04	5.80E-07	0.00E+00	1.04E-08	0.00E+00	2.91E-06	0.00E+00
Waste production									
Hazardous waste disposed	kg	3.85E-04	3.80E-07	3.24E-08	0.00E+00	1.66E-11	0.00E+00	3.58E-07	0.00E+00
Non-hazardous waste disposed	kg	1.95E-01	7.26E-05	7.19E-02	0.00E+00	3.18E-09	0.00E+00	1.60E+00	0.00E+00
Radioactive waste disposed	kg	1.07E-04	1.02E-10	4.00E-10	0.00E+00	4.32E-15	0.00E+00	3.29E-09	0.00E+00
Output flows									
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	0.00E+00
Material for recycling	kg	1.14E-03	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Ceiling Batt R2.5 (Cont.)

Indicator	Unit	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Additional environmental impact indicators									
GWP-GHG	kg CO_2 eq	5.93E+00	1.19E-01	3.92E-04	0.00E+00	5.21E-06	0.00E+00	4.46E-03	0.00E+00
Particulate matter	disease incidence	2.00E-07	5.78E-09	6.84E-11	0.00E+00	2.53E-13	0.00E+00	1.11E-09	0.00E+00
Ionising radiation - human health	kBq U-235 eq	4.28E-01	2.82E-06	1.78E-06	0.00E+00	1.23E-10	0.00E+00	1.53E-05	0.00E+00
Eco-toxicity (fresh-water)	CTUe	3.06E+01	9.20E-01	5.23E-03	0.00E+00	4.03E-05	0.00E+00	4.35E-02	0.00E+00
Human toxicity potential - cancer effects	CTUh	8.62E-10	3.86E-12	6.75E-14	0.00E+00	1.69E-16	0.00E+00	4.95E-13	0.00E+00
Human toxicity potential - non cancer effects	CTUh	3.96E-08	3.03E-10	5.28E-12	0.00E+00	1.33E-14	0.00E+00	7.80E-11	0.00E+00
Soil quality	Pt	1.47E+01	7.19E-03	3.00E-03	0.00E+00	3.15E-07	0.00E+00	6.59E-02	0.00E+00
Potential environmental impacts – indicators according to EN 15804+A1									
Global warming (GWP100a) - A1	kg CO_2 eq	5.75E+00	1.17E-01	3.82E-04	0.00E+00	5.12E-06	0.00E+00	4.32E-03	0.00E+00
Ozone layer depletion (ODP) - A1	kg CFC-11 eq	8.23E-06	1.46E-08	4.63E-12	0.00E+00	6.38E-13	0.00E+00	5.09E-11	0.00E+00
Acidification - A1	kg SO_2 eq	2.04E-02	5.69E-04	2.01E-06	0.00E+00	2.49E-08	0.00E+00	2.85E-05	0.00E+00
Eutrophication - A1	kg PO_4--- eq	5.77E-03	1.20E-04	4.63E-07	0.00E+00	5.24E-09	0.00E+00	6.57E-06	0.00E+00
Photochemical oxidation - A1	kg C_2H_4 eq	1.11E-03	3.69E-05	8.34E-08	0.00E+00	1.61E-09	0.00E+00	1.26E-06	0.00E+00
Abiotic depletion - A1	kg Sb eq	2.83E-04	1.37E-10	2.15E-11	0.00E+00	6.01E-15	0.00E+00	1.72E-10	0.00E+00
Abiotic depletion (fossil fuels) - A1	MJ	1.10E+02	1.56E+00	4.92E-03	0.00E+00	6.84E-05	0.00E+00	5.51E-02	0.00E+00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage								

Additional Environmental Information

This EPD is declared as 1m² installed thermal panel product. The environmental impacts provided are for Polymax Ceiling Batt R2.5.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. Polymax Ceiling Batt R3.0 or Polymax Ceiling Batt R3.5) of Martini Residential Insulation products.

Conversion factors of per m² of installed Polymax Ceiling Batt R3.0

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	1.12	1.13	1.00	1.00	1.12	1.00	1.12	1.00
GWP-fossil	1.12	1.13	1.00	1.00	1.12	1.00	1.13	1.00
GWP-biogenic	1.12	1.13	1.00	1.00	1.13	1.00	1.13	1.00
GWP-luluc	1.12	1.12	1.00	1.00	1.12	1.00	1.12	1.00
ODP	1.12	1.13	1.00	1.00	1.12	1.00	1.12	1.00
AP	1.12	1.13	1.00	1.00	1.12	1.00	1.12	1.00
EP-freshwater	1.12	1.12	1.00	1.00	1.13	1.00	1.12	1.00
EP-marine	1.12	1.12	1.00	1.00	1.12	1.00	1.13	1.00
EP-terrestrial	1.12	1.13	1.00	1.00	1.13	1.00	1.12	1.00
POCP	1.12	1.13	1.00	1.00	1.13	1.00	1.12	1.00
ADP-minerals & metals	1.13	1.13	1.00	1.00	1.13	1.00	1.12	1.00
ADP-fossil	1.12	1.13	1.00	1.00	1.12	1.00	1.13	1.00
WDP	1.12	1.13	1.00	1.00	1.12	1.00	1.12	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 installed Polymax Ceiling Batt R3.0 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	1.12	1.13	1.00	1.00	1.12	1.00	1.13	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	1.12	1.13	1.00	1.00	1.12	1.00	1.13	1.00
PENRE	1.12	1.13	1.00	1.00	1.12	1.00	1.13	1.00
PENRM	1.12	1.00	1.00	1.00	1.00	1.00	1.13	1.00
PENRT	1.12	1.13	1.00	1.00	1.12	1.00	1.13	1.00
SM	1.13	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	1.12	1.13	1.00	1.00	1.13	1.00	1.12	1.00
Conversion factors of waste production								
Hazardous waste disposed	1.10	1.13	1.00	1.00	1.13	1.00	1.12	1.00
Non-hazardous waste disposed	1.12	1.13	1.00	1.00	1.13	1.00	1.13	1.00
Radioactive waste disposed	1.12	1.13	1.00	1.00	1.13	1.00	1.12	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	1.12	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Ceiling Batt R3.0 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	1.12	1.13	1.00	1.00	1.12	1.00	1.12	1.00
Particulate matter	1.12	1.13	1.00	1.00	1.13	1.00	1.13	1.00
Ionising radiation - human health	1.12	1.12	1.00	1.00	1.12	1.00	1.12	1.00
Eco-toxicity (fresh-water)	1.12	1.12	1.00	1.00	1.12	1.00	1.12	1.00
Human toxicity potential - cancer effects	1.12	1.12	1.00	1.00	1.12	1.00	1.12	1.00
Human toxicity potential - non cancer effects	1.12	1.13	1.00	1.00	1.12	1.00	1.12	1.00
Soil quality	1.12	1.13	1.00	1.00	1.12	1.00	1.13	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	1.12	1.13	1.00	1.00	1.13	1.00	1.13	1.00
Ozone layer depletion (ODP) - A1	1.13	1.12	1.00	1.00	1.12	1.00	1.13	1.00
Acidification - A1	1.12	1.13	1.00	1.00	1.12	1.00	1.12	1.00
Eutrophication - A1	1.12	1.13	1.00	1.00	1.13	1.00	1.12	1.00
Photochemical oxidation - A1	1.12	1.12	1.00	1.00	1.13	1.00	1.13	1.00
Abiotic depletion - A1	1.13	1.12	1.00	1.00	1.12	1.00	1.13	1.00
Abiotic depletion (fossil fuels) - A1	1.12	1.13	1.00	1.00	1.12	1.00	1.13	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Polymax Ceiling Batt R3.5

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
GWP-fossil	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
GWP-biogenic	1.55	1.57	1.01	1.00	1.56	1.00	1.56	1.00
GWP-luluc	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
ODP	1.56	1.57	1.01	1.00	1.56	1.00	1.56	1.00
AP	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
EP-freshwater	1.54	1.56	1.00	1.00	1.56	1.00	1.57	1.00
EP-marine	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
EP-terrestrial	1.55	1.56	1.01	1.00	1.56	1.00	1.56	1.00
POCP	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
ADP-minerals & metals	1.56	1.56	1.01	1.00	1.56	1.00	1.56	1.00
ADP-fossil	1.54	1.56	1.01	1.00	1.55	1.00	1.56	1.00
WDP	1.54	1.56	1.01	1.00	1.56	1.00	1.56	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 installed Polymax Ceiling Batt R3.5 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	1.55	1.57	1.01	1.00	1.56	1.00	1.57	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	1.55	1.57	1.01	1.00	1.56	1.00	1.57	1.00
PENRE	1.51	1.56	1.01	1.00	1.55	1.00	1.56	1.00
PENRM	1.54	1.00	1.01	1.00	1.00	1.00	1.56	1.00
PENRT	1.54	1.56	1.01	1.00	1.55	1.00	1.56	1.00
SM	1.56	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	1.54	1.56	1.01	1.00	1.57	1.00	1.56	1.00
Conversion factors of waste production								
Hazardous waste disposed	1.55	1.56	1.01	1.00	1.57	1.00	1.56	1.00
Non-hazardous waste disposed	1.55	1.56	1.01	1.00	1.56	1.00	1.56	1.00
Radioactive waste disposed	1.54	1.57	1.01	1.00	1.56	1.00	1.56	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	1.56	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Ceiling Batt R3.5 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
Particulate matter	1.54	1.56	1.01	1.00	1.57	1.00	1.57	1.00
Ionising radiation - human health	1.54	1.56	1.01	1.00	1.55	1.00	1.56	1.00
Eco-toxicity (fresh-water)	1.54	1.57	1.01	1.00	1.56	1.00	1.56	1.00
Human toxicity potential - cancer effects	1.53	1.56	1.01	1.00	1.56	1.00	1.56	1.00
Human toxicity potential - non cancer effects	1.55	1.56	1.01	1.00	1.56	1.00	1.56	1.00
Soil quality	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
Ozone layer depletion (ODP) - A1	1.57	1.56	1.01	1.00	1.56	1.00	1.56	1.00
Acidification - A1	1.54	1.56	1.00	1.00	1.56	1.00	1.56	1.00
Eutrophication - A1	1.54	1.56	1.01	1.00	1.56	1.00	1.57	1.00
Photochemical oxidation - A1	1.54	1.56	1.01	1.00	1.57	1.00	1.56	1.00
Abiotic depletion - A1	1.57	1.57	1.00	1.00	1.56	1.00	1.56	1.00
Abiotic depletion (fossil fuels) - A1	1.54	1.56	1.01	1.00	1.56	1.00	1.56	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Polymax Ceiling Batt R4.0

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	1.79	1.82	1.33	1.00	1.81	1.00	1.81	1.00
GWP-fossil	1.79	1.82	1.33	1.00	1.81	1.00	1.81	1.00
GWP-biogenic	1.80	1.82	1.33	1.00	1.81	1.00	1.81	1.00
GWP-luluc	1.80	1.82	1.33	1.00	1.81	1.00	1.81	1.00
ODP	1.81	1.82	1.33	1.00	1.81	1.00	1.80	1.00
AP	1.80	1.81	1.33	1.00	1.81	1.00	1.81	1.00
EP-freshwater	1.80	1.81	1.33	1.00	1.81	1.00	1.81	1.00
EP-marine	1.80	1.81	1.34	1.00	1.81	1.00	1.81	1.00
EP-terrestrial	1.80	1.81	1.33	1.00	1.81	1.00	1.81	1.00
POCP	1.79	1.82	1.33	1.00	1.81	1.00	1.82	1.00
ADP-minerals & metals	1.81	1.81	1.33	1.00	1.82	1.00	1.81	1.00
ADP-fossil	1.79	1.81	1.33	1.00	1.81	1.00	1.82	1.00
WDP	1.79	1.82	1.33	1.00	1.81	1.00	1.82	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 installed Polymax Ceiling Batt R4.0 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	1.79	1.82	1.33	1.00	1.81	1.00	1.82	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	1.79	1.82	1.33	1.00	1.81	1.00	1.82	1.00
PENRE	1.77	1.81	1.33	1.00	1.81	1.00	1.81	1.00
PENRM	1.79	1.00	1.33	1.00	1.00	1.00	1.81	1.00
PENRT	1.79	1.81	1.33	1.00	1.81	1.00	1.82	1.00
SM	1.81	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	1.79	1.81	1.33	1.00	1.82	1.00	1.81	1.00
Conversion factors of waste production								
Hazardous waste disposed	1.78	1.81	1.33	1.00	1.82	1.00	1.81	1.00
Non-hazardous waste disposed	1.80	1.82	1.33	1.00	1.81	1.00	1.81	1.00
Radioactive waste disposed	1.79	1.81	1.33	1.00	1.81	1.00	1.81	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	1.82	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Ceiling Batt R4.0 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	1.79	1.82	1.33	1.00	1.81	1.00	1.81	1.00
Particulate matter	1.79	1.82	1.33	1.00	1.81	1.00	1.82	1.00
Ionising radiation - human health	1.80	1.81	1.33	1.00	1.80	1.00	1.81	1.00
Eco-toxicity (fresh-water)	1.79	1.82	1.33	1.00	1.81	1.00	1.81	1.00
Human toxicity potential - cancer effects	1.79	1.81	1.33	1.00	1.81	1.00	1.81	1.00
Human toxicity potential - non cancer effects	1.80	1.82	1.33	1.00	1.81	1.00	1.81	1.00
Soil quality	1.79	1.81	1.33	1.00	1.81	1.00	1.82	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	1.79	1.81	1.33	1.00	1.81	1.00	1.81	1.00
Ozone layer depletion (ODP) - A1	1.81	1.81	1.33	1.00	1.82	1.00	1.81	1.00
Acidification - A1	1.80	1.81	1.33	1.00	1.82	1.00	1.81	1.00
Eutrophication - A1	1.80	1.81	1.33	1.00	1.81	1.00	1.81	1.00
Photochemical oxidation - A1	1.79	1.81	1.33	1.00	1.82	1.00	1.81	1.00
Abiotic depletion - A1	1.81	1.82	1.33	1.00	1.81	1.00	1.81	1.00
Abiotic depletion (fossil fuels) - A1	1.79	1.81	1.33	1.00	1.81	1.00	1.81	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Polymax Wall Batt R1.5, 75mm

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	0.74	0.59	0.51	1.00	0.66	1.00	0.65	1.00
GWP-fossil	0.74	0.59	0.51	1.00	0.66	1.00	0.66	1.00
GWP-biogenic	0.72	0.59	0.51	1.00	0.66	1.00	0.66	1.00
GWP-luluc	0.72	0.59	0.51	1.00	0.66	1.00	0.66	1.00
ODP	0.89	0.59	0.51	1.00	0.66	1.00	0.66	1.00
AP	0.71	0.59	0.51	1.00	0.66	1.00	0.66	1.00
EP-freshwater	0.72	0.59	0.51	1.00	0.66	1.00	0.66	1.00
EP-marine	0.70	0.59	0.51	1.00	0.65	1.00	0.66	1.00
EP-terrestrial	0.70	0.59	0.51	1.00	0.66	1.00	0.65	1.00
POCP	0.71	0.59	0.51	1.00	0.66	1.00	0.66	1.00
ADP-minerals & metals	0.90	0.59	0.51	1.00	0.66	1.00	0.66	1.00
ADP-fossil	0.77	0.59	0.51	1.00	0.66	1.00	0.66	1.00
WDP	0.78	0.59	0.51	1.00	0.66	1.00	0.66	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 installed Polymax Wall Batt R1.5, 75mm (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.69	0.60	0.51	1.00	0.66	1.00	0.66	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.69	0.60	0.51	1.00	0.66	1.00	0.66	1.00
PENRE	1.05	0.59	0.51	1.00	0.66	1.00	0.66	1.00
PENRM	0.65	1.00	0.51	1.00	1.00	1.00	0.66	1.00
PENRT	0.77	0.59	0.51	1.00	0.66	1.00	0.66	1.00
SM	0.44	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	0.77	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Conversion factors of waste production								
Hazardous waste disposed	0.69	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Non-hazardous waste disposed	0.71	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Radioactive waste disposed	0.70	0.60	0.51	1.00	0.66	1.00	0.66	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	0.66	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Wall Batt R1.5, 75mm (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.74	0.59	0.51	1.00	0.66	1.00	0.65	1.00
Particulate matter	0.75	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Ionising radiation - human health	0.70	0.59	0.51	1.00	0.65	1.00	0.65	1.00
Eco-toxicity (fresh-water)	0.78	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Human toxicity potential - cancer effects	0.69	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Human toxicity potential - non cancer effects	0.82	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Soil quality	0.67	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.74	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Ozone layer depletion (ODP) - A1	0.90	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Acidification - A1	0.71	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Eutrophication - A1	0.71	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Photochemical oxidation - A1	0.73	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Abiotic depletion - A1	0.90	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Abiotic depletion (fossil fuels) - A1	0.77	0.59	0.51	1.00	0.66	1.00	0.66	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Polymax Wall Batt R1.5, 90mm

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	0.64	0.51	0.50	1.00	0.56	1.00	0.56	1.00
GWP-fossil	0.64	0.51	0.50	1.00	0.56	1.00	0.56	1.00
GWP-biogenic	0.62	0.51	0.50	1.00	0.56	1.00	0.56	1.00
GWP-luluc	0.62	0.51	0.50	1.00	0.56	1.00	0.56	1.00
ODP	0.77	0.51	0.50	1.00	0.56	1.00	0.56	1.00
AP	0.61	0.51	0.50	1.00	0.56	1.00	0.56	1.00
EP-freshwater	0.62	0.51	0.50	1.00	0.56	1.00	0.56	1.00
EP-marine	0.60	0.51	0.50	1.00	0.56	1.00	0.56	1.00
EP-terrestrial	0.60	0.51	0.50	1.00	0.56	1.00	0.56	1.00
POCP	0.62	0.51	0.50	1.00	0.56	1.00	0.56	1.00
ADP-minerals & metals	0.77	0.51	0.50	1.00	0.56	1.00	0.56	1.00
ADP-fossil	0.66	0.51	0.50	1.00	0.56	1.00	0.56	1.00
WDP	0.67	0.51	0.50	1.00	0.56	1.00	0.56	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 installed Polymax Wall Batt R1.5, 90mm (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.60	0.51	0.50	1.00	0.56	1.00	0.56	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.60	0.51	0.50	1.00	0.56	1.00	0.56	1.00
PENRE	0.90	0.51	0.50	1.00	0.56	1.00	0.56	1.00
PENRM	0.56	1.00	0.50	1.00	1.00	1.00	0.56	1.00
PENRT	0.66	0.51	0.50	1.00	0.56	1.00	0.56	1.00
SM	0.38	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	0.66	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Conversion factors of waste production								
Hazardous waste disposed	0.58	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Non-hazardous waste disposed	0.62	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Radioactive waste disposed	0.60	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	0.56	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Wall Batt R1.5, 90mm (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.64	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Particulate matter	0.65	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Ionising radiation - human health	0.60	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Eco-toxicity (fresh-water)	0.67	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Human toxicity potential - cancer effects	0.60	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Human toxicity potential - non cancer effects	0.70	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Soil quality	0.57	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.64	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Ozone layer depletion (ODP) - A1	0.77	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Acidification - A1	0.61	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Eutrophication - A1	0.61	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Photochemical oxidation - A1	0.63	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Abiotic depletion - A1	0.77	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Abiotic depletion (fossil fuels) - A1	0.66	0.51	0.50	1.00	0.56	1.00	0.56	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Polymax Wall Batt R2, 75mm

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	2.01	1.61	1.03	1.00	1.78	1.00	1.78	1.00
GWP-fossil	2.00	1.61	1.03	1.00	1.78	1.00	1.78	1.00
GWP-biogenic	1.93	1.61	1.03	1.00	1.78	1.00	1.79	1.00
GWP-luluc	1.94	1.61	1.03	1.00	1.78	1.00	1.78	1.00
ODP	2.44	1.61	1.03	1.00	1.78	1.00	1.77	1.00
AP	1.90	1.60	1.03	1.00	1.78	1.00	1.78	1.00
EP-freshwater	1.93	1.60	1.02	1.00	1.78	1.00	1.78	1.00
EP-marine	1.89	1.61	1.03	1.00	1.77	1.00	1.78	1.00
EP-terrestrial	1.89	1.61	1.03	1.00	1.78	1.00	1.78	1.00
POCP	1.93	1.61	1.03	1.00	1.78	1.00	1.78	1.00
ADP-minerals & metals	2.44	1.60	1.03	1.00	1.79	1.00	1.78	1.00
ADP-fossil	2.06	1.61	1.03	1.00	1.78	1.00	1.78	1.00
WDP	2.10	1.61	1.03	1.00	1.78	1.00	1.78	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 installed Polymax Wall Batt R2, 75mm (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	1.88	1.61	1.03	1.00	1.78	1.00	1.79	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	1.88	1.61	1.03	1.00	1.78	1.00	1.79	1.00
PENRE	2.81	1.61	1.03	1.00	1.78	1.00	1.79	1.00
PENRM	1.75	1.00	1.03	1.00	1.00	1.00	1.77	1.00
PENRT	2.06	1.61	1.03	1.00	1.78	1.00	1.78	1.00
SM	1.18	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	2.07	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Conversion factors of waste production								
Hazardous waste disposed	3.77	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Non-hazardous waste disposed	2.46	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Radioactive waste disposed	1.88	1.62	1.03	1.00	1.78	1.00	1.78	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	7.89	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Wall Batt R2, 75mm (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	2.01	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Particulate matter	2.02	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Ionising radiation - human health	1.88	1.61	1.03	1.00	1.77	1.00	1.78	1.00
Eco-toxicity (fresh-water)	2.11	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Human toxicity potential - cancer effects	1.87	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Human toxicity potential - non cancer effects	2.22	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Soil quality	1.79	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	2.00	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Ozone layer depletion (ODP) - A1	2.43	1.60	1.03	1.00	1.79	1.00	1.78	1.00
Acidification - A1	1.92	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Eutrophication - A1	1.92	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Photochemical oxidation - A1	1.97	1.61	1.03	1.00	1.79	1.00	1.79	1.00
Abiotic depletion - A1	2.44	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Abiotic depletion (fossil fuels) - A1	2.06	1.61	1.03	1.00	1.78	1.00	1.78	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Polymax Wall Batt R2, 90mm

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	1.16	0.93	0.66	1.00	1.03	1.00	1.03	1.00
GWP-fossil	1.16	0.93	0.66	1.00	1.03	1.00	1.03	1.00
GWP-biogenic	1.12	0.93	0.66	1.00	1.03	1.00	1.03	1.00
GWP-luluc	1.13	0.93	0.66	1.00	1.03	1.00	1.03	1.00
ODP	1.41	0.93	0.67	1.00	1.03	1.00	1.03	1.00
AP	1.10	0.93	0.67	1.00	1.03	1.00	1.03	1.00
EP-freshwater	1.12	0.93	0.66	1.00	1.03	1.00	1.03	1.00
EP-marine	1.10	0.93	0.67	1.00	1.03	1.00	1.03	1.00
EP-terrestrial	1.09	0.93	0.67	1.00	1.03	1.00	1.03	1.00
POCP	1.12	0.93	0.66	1.00	1.03	1.00	1.03	1.00
ADP-minerals & metals	1.41	0.93	0.66	1.00	1.03	1.00	1.03	1.00
ADP-fossil	1.20	0.93	0.66	1.00	1.03	1.00	1.03	1.00
WDP	1.22	0.93	0.66	1.00	1.03	1.00	1.03	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 installed Polymax Wall Batt R2, 90mm (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	1.09	0.93	0.67	1.00	1.03	1.00	1.03	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	1.09	0.93	0.67	1.00	1.03	1.00	1.03	1.00
PENRE	1.63	0.93	0.66	1.00	1.03	1.00	1.03	1.00
PENRM	1.02	1.00	0.67	1.00	1.00	1.00	1.03	1.00
PENRT	1.20	0.93	0.66	1.00	1.03	1.00	1.03	1.00
SM	0.69	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	1.20	0.93	0.67	1.00	1.03	1.00	1.03	1.00
Conversion factors of waste production								
Hazardous waste disposed	1.06	0.93	0.66	1.00	1.04	1.00	1.03	1.00
Non-hazardous waste disposed	1.12	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Radioactive waste disposed	1.09	0.94	0.67	1.00	1.03	1.00	1.03	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	1.04	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Wall Batt R2, 90mm (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	1.16	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Particulate matter	1.17	0.93	0.67	1.00	1.03	1.00	1.04	1.00
Ionising radiation - human health	1.09	0.93	0.67	1.00	1.02	1.00	1.03	1.00
Eco-toxicity (fresh-water)	1.23	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Human toxicity potential - cancer effects	1.08	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Human toxicity potential - non cancer effects	1.29	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Soil quality	1.04	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	1.16	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Ozone layer depletion (ODP) - A1	1.41	0.93	0.67	1.00	1.03	1.00	1.03	1.00
Acidification - A1	1.11	0.93	0.67	1.00	1.03	1.00	1.03	1.00
Eutrophication - A1	1.11	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Photochemical oxidation - A1	1.14	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Abiotic depletion - A1	1.41	0.93	0.67	1.00	1.03	1.00	1.03	1.00
Abiotic depletion (fossil fuels) - A1	1.20	0.93	0.66	1.00	1.03	1.00	1.03	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Polymax Underfloor Batt R1.5

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
GWP-fossil	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
GWP-biogenic	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
GWP-luluc	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
ODP	0.56	0.58	0.31	1.00	0.56	1.00	0.56	1.00
AP	0.56	0.57	0.31	1.00	0.56	1.00	0.56	1.00
EP-freshwater	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
EP-marine	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
EP-terrestrial	0.56	0.58	0.31	1.00	0.56	1.00	0.56	1.00
POCP	0.56	0.58	0.31	1.00	0.56	1.00	0.56	1.00
ADP-minerals & metals	0.56	0.57	0.31	1.00	0.56	1.00	0.56	1.00
ADP-fossil	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
WDP	0.55	0.57	0.31	1.00	0.56	1.00	0.56	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 installed Polymax Underfloor Batt R1.5 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
PENRE	0.54	0.58	0.31	1.00	0.56	1.00	0.56	1.00
PENRM	0.55	1.00	0.31	1.00	1.00	1.00	0.56	1.00
PENRT	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
SM	0.56	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	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Conversion factors of waste production								
Hazardous waste disposed	0.68	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Non-hazardous waste disposed	0.58	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Radioactive waste disposed	0.55	0.56	0.31	1.00	0.56	1.00	0.56	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	0.90	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Underfloor Batt R1.5 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
Particulate matter	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Ionising radiation - human health	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
Eco-toxicity (fresh-water)	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Human toxicity potential - cancer effects	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Human toxicity potential - non cancer effects	0.56	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Soil quality	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
Ozone layer depletion (ODP) - A1	0.56	0.57	0.31	1.00	0.56	1.00	0.56	1.00
Acidification - A1	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
Eutrophication - A1	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
Photochemical oxidation - A1	0.55	0.57	0.31	1.00	0.56	1.00	0.56	1.00
Abiotic depletion - A1	0.56	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Abiotic depletion (fossil fuels) - A1	0.55	0.58	0.31	1.00	0.56	1.00	0.56	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Polymax Underfloor Batt R2.0

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
GWP-fossil	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
GWP-biogenic	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
GWP-luluc	0.74	0.76	0.40	1.00	0.75	1.00	0.75	1.00
ODP	0.75	0.77	0.40	1.00	0.75	1.00	0.75	1.00
AP	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
EP-freshwater	0.74	0.76	0.40	1.00	0.75	1.00	0.75	1.00
EP-marine	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
EP-terrestrial	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
POCP	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
ADP-minerals & metals	0.75	0.76	0.40	1.00	0.75	1.00	0.75	1.00
ADP-fossil	0.73	0.77	0.40	1.00	0.75	1.00	0.75	1.00
WDP	0.73	0.77	0.40	1.00	0.75	1.00	0.75	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 installed Polymax Underfloor Batt R2.0 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
PENRE	0.72	0.77	0.40	1.00	0.75	1.00	0.75	1.00
PENRM	0.74	1.00	0.40	1.00	1.00	1.00	0.75	1.00
PENRT	0.73	0.77	0.40	1.00	0.75	1.00	0.75	1.00
SM	0.75	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	0.74	0.76	0.40	1.00	0.75	1.00	0.75	1.00
Conversion factors of waste production								
Hazardous waste disposed	0.92	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Non-hazardous waste disposed	0.78	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Radioactive waste disposed	0.74	0.74	0.40	1.00	0.75	1.00	0.75	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	1.20	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Underfloor Batt R2.0 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Particulate matter	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Ionising radiation - human health	0.74	0.76	0.40	1.00	0.75	1.00	0.75	1.00
Eco-toxicity (fresh-water)	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Human toxicity potential - cancer effects	0.73	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Human toxicity potential - non cancer effects	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Soil quality	0.73	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Ozone layer depletion (ODP) - A1	0.75	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Acidification - A1	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Eutrophication - A1	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Photochemical oxidation - A1	0.74	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Abiotic depletion - A1	0.75	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Abiotic depletion (fossil fuels) - A1	0.73	0.77	0.40	1.00	0.75	1.00	0.75	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Polymax Underfloor Batt R2.5

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	0.98	1.03	0.44	1.00	1.00	1.00	1.00	1.00
GWP-fossil	0.98	1.03	0.45	1.00	1.00	1.00	1.00	1.00
GWP-biogenic	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
GWP-luluc	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
ODP	1.00	1.03	0.44	1.00	1.00	1.00	1.00	1.00
AP	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
EP-freshwater	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
EP-marine	0.98	1.02	0.45	1.00	1.00	1.00	1.00	1.00
EP-terrestrial	0.98	1.02	0.45	1.00	1.00	1.00	1.00	1.00
POCP	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
ADP-minerals & metals	1.00	1.02	0.44	1.00	1.00	1.00	1.00	1.00
ADP-fossil	0.97	1.03	0.44	1.00	1.00	1.00	1.00	1.00
WDP	0.97	1.02	0.44	1.00	1.00	1.00	1.00	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 installed Polymax Underfloor Batt R2.5 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.98	1.03	0.44	1.00	1.00	1.00	1.00	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.98	1.03	0.44	1.00	1.00	1.00	1.00	1.00
PENRE	0.95	1.03	0.44	1.00	1.00	1.00	1.00	1.00
PENRM	0.98	1.00	0.44	1.00	1.00	1.00	1.00	1.00
PENRT	0.97	1.03	0.44	1.00	1.00	1.00	1.00	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	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Conversion factors of waste production								
Hazardous waste disposed	1.20	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Non-hazardous waste disposed	1.04	1.02	0.45	1.00	1.00	1.00	1.00	1.00
Radioactive waste disposed	0.98	0.99	0.45	1.00	1.00	1.00	1.00	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	1.60	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Polymax Underfloor Batt R2.5 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.98	1.03	0.44	1.00	1.00	1.00	1.00	1.00
Particulate matter	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Ionising radiation - human health	0.98	1.01	0.45	1.00	1.00	1.00	1.00	1.00
Eco-toxicity (fresh-water)	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Human toxicity potential - cancer effects	0.97	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Human toxicity potential - non cancer effects	0.98	1.02	0.45	1.00	1.00	1.00	1.00	1.00
Soil quality	0.97	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.98	1.03	0.45	1.00	1.00	1.00	1.00	1.00
Ozone layer depletion (ODP) - A1	1.00	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Acidification - A1	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Eutrophication - A1	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Photochemical oxidation - A1	0.98	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Abiotic depletion - A1	1.00	1.02	0.44	1.00	1.00	1.00	1.00	1.00
Abiotic depletion (fossil fuels) - A1	0.97	1.03	0.45	1.00	1.00	1.00	1.00	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Thermaflex R1.0

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	0.38	0.15	0.36	1.00	0.27	1.00	0.27	1.00
GWP-fossil	0.39	0.15	0.36	1.00	0.27	1.00	0.27	1.00
GWP-biogenic	0.35	0.15	0.36	1.00	0.27	1.00	0.27	1.00
GWP-luluc	0.36	0.15	0.36	1.00	0.27	1.00	0.27	1.00
ODP	0.56	0.15	0.36	1.00	0.27	1.00	0.27	1.00
AP	0.35	0.15	0.36	1.00	0.27	1.00	0.27	1.00
EP-freshwater	0.35	0.15	0.36	1.00	0.27	1.00	0.27	1.00
EP-marine	0.35	0.15	0.36	1.00	0.27	1.00	0.27	1.00
EP-terrestrial	0.35	0.15	0.36	1.00	0.27	1.00	0.27	1.00
POCP	0.37	0.15	0.36	1.00	0.27	1.00	0.27	1.00
ADP-minerals & metals	0.57	0.15	0.36	1.00	0.27	1.00	0.27	1.00
ADP-fossil	0.42	0.15	0.36	1.00	0.27	1.00	0.27	1.00
WDP	0.43	0.15	0.36	1.00	0.27	1.00	0.27	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 installed Thermaflex R1.0 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.33	0.15	0.36	1.00	0.27	1.00	0.27	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.33	0.15	0.36	1.00	0.27	1.00	0.27	1.00
PENRE	0.77	0.15	0.36	1.00	0.27	1.00	0.27	1.00
PENRM	0.27	1.00	0.36	1.00	1.00	1.00	0.27	1.00
PENRT	0.42	0.15	0.36	1.00	0.27	1.00	0.27	1.00
SM	0.00	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	0.42	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Conversion factors of waste production								
Hazardous waste disposed	0.46	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Non-hazardous waste disposed	0.38	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Radioactive waste disposed	0.33	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	0.71	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Thermaflex R1.0 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.38	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Particulate matter	0.40	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Ionising radiation - human health	0.33	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Eco-toxicity (fresh-water)	0.44	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Human toxicity potential - cancer effects	0.33	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Human toxicity potential - non cancer effects	0.48	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Soil quality	0.29	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.38	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Ozone layer depletion (ODP) - A1	0.56	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Acidification - A1	0.36	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Eutrophication - A1	0.35	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Photochemical oxidation - A1	0.38	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Abiotic depletion - A1	0.57	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Abiotic depletion (fossil fuels) - A1	0.42	0.15	0.36	1.00	0.27	1.00	0.27	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Thermaflex R1.25

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	0.52	0.21	0.49	1.00	0.36	1.00	0.36	1.00
GWP-fossil	0.52	0.21	0.49	1.00	0.36	1.00	0.36	1.00
GWP-biogenic	0.47	0.21	0.49	1.00	0.36	1.00	0.36	1.00
GWP-luluc	0.48	0.21	0.49	1.00	0.36	1.00	0.36	1.00
ODP	0.76	0.21	0.49	1.00	0.36	1.00	0.36	1.00
AP	0.48	0.21	0.49	1.00	0.36	1.00	0.36	1.00
EP-freshwater	0.48	0.21	0.49	1.00	0.36	1.00	0.36	1.00
EP-marine	0.47	0.21	0.49	1.00	0.36	1.00	0.36	1.00
EP-terrestrial	0.47	0.21	0.49	1.00	0.36	1.00	0.36	1.00
POCP	0.49	0.21	0.49	1.00	0.36	1.00	0.36	1.00
ADP-minerals & metals	0.76	0.21	0.49	1.00	0.36	1.00	0.36	1.00
ADP-fossil	0.57	0.21	0.49	1.00	0.36	1.00	0.36	1.00
WDP	0.59	0.21	0.49	1.00	0.36	1.00	0.36	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 installed Thermaflex R1.25 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.44	0.21	0.49	1.00	0.36	1.00	0.36	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.44	0.21	0.49	1.00	0.36	1.00	0.36	1.00
PENRE	1.05	0.21	0.49	1.00	0.36	1.00	0.36	1.00
PENRM	0.37	1.00	0.49	1.00	1.00	1.00	0.36	1.00
PENRT	0.57	0.21	0.49	1.00	0.36	1.00	0.36	1.00
SM	0.00	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	0.56	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Conversion factors of waste production								
Hazardous waste disposed	0.64	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Non-hazardous waste disposed	0.52	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Radioactive waste disposed	0.44	0.20	0.49	1.00	0.36	1.00	0.36	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	0.96	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Thermaflex R1.25 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.52	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Particulate matter	0.54	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Ionising radiation - human health	0.44	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Eco-toxicity (fresh-water)	0.59	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Human toxicity potential - cancer effects	0.44	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Human toxicity potential - non cancer effects	0.65	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Soil quality	0.39	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.52	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Ozone layer depletion (ODP) - A1	0.76	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Acidification - A1	0.49	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Eutrophication - A1	0.47	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Photochemical oxidation - A1	0.51	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Abiotic depletion - A1	0.76	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Abiotic depletion (fossil fuels) - A1	0.57	0.21	0.49	1.00	0.36	1.00	0.36	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

Conversion factors of per m² of installed Thermaflex R1.5

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of potential environmental impact								
GWP-total	0.67	0.27	0.64	1.00	0.47	1.00	0.47	1.00
GWP-fossil	0.67	0.27	0.63	1.00	0.47	1.00	0.47	1.00
GWP-biogenic	0.61	0.27	0.64	1.00	0.47	1.00	0.47	1.00
GWP-luluc	0.62	0.27	0.64	1.00	0.47	1.00	0.47	1.00
ODP	0.98	0.27	0.64	1.00	0.47	1.00	0.47	1.00
AP	0.62	0.27	0.64	1.00	0.47	1.00	0.47	1.00
EP-freshwater	0.62	0.27	0.63	1.00	0.47	1.00	0.47	1.00
EP-marine	0.61	0.27	0.64	1.00	0.47	1.00	0.47	1.00
EP-terrestrial	0.61	0.27	0.64	1.00	0.47	1.00	0.47	1.00
POCP	0.64	0.27	0.64	1.00	0.47	1.00	0.47	1.00
ADP-minerals & metals	0.99	0.27	0.64	1.00	0.47	1.00	0.47	1.00
ADP-fossil	0.73	0.27	0.64	1.00	0.47	1.00	0.47	1.00
WDP	0.75	0.27	0.63	1.00	0.47	1.00	0.47	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 installed Thermaflex R1.5 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of use of resources								
PERE	0.57	0.27	0.64	1.00	0.47	1.00	0.47	1.00
PERM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PERT	0.57	0.27	0.64	1.00	0.47	1.00	0.47	1.00
PENRE	1.36	0.27	0.63	1.00	0.47	1.00	0.47	1.00
PENRM	0.47	1.00	0.64	1.00	1.00	1.00	0.47	1.00
PENRT	0.73	0.27	0.64	1.00	0.47	1.00	0.47	1.00
SM	0.00	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	0.73	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Conversion factors of waste production								
Hazardous waste disposed	0.82	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Non-hazardous waste disposed	0.67	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Radioactive waste disposed	0.57	0.26	0.64	1.00	0.47	1.00	0.47	1.00
Conversion factors of output flows								
Components for re-use	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Material for recycling	1.25	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 (primary energy and primary energy resources used as raw materials); 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 resources (primary energy and primary energy resources used as raw materials); 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 installed Thermaflex R1.5 (Cont.)

Indicator	Total A1-A3	A4	A5	C1	C2	C3	C4	D
Conversion factors of additional environmental impact indicators								
GWP-GHG	0.67	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Particulate matter	0.69	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Ionising radiation - human health	0.57	0.27	0.63	1.00	0.47	1.00	0.47	1.00
Eco-toxicity (fresh-water)	0.76	0.27	0.63	1.00	0.47	1.00	0.47	1.00
Human toxicity potential - cancer effects	0.58	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Human toxicity potential - non cancer effects	0.84	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Soil quality	0.51	0.27	0.63	1.00	0.47	1.00	0.47	1.00
Conversion factors of potential environmental impacts – indicators according to EN 15804+A1								
Global warming (GWP100a) - A1	0.67	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Ozone layer depletion (ODP) - A1	0.98	0.27	0.63	1.00	0.47	1.00	0.47	1.00
Acidification - A1	0.63	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Eutrophication - A1	0.61	0.27	0.63	1.00	0.47	1.00	0.47	1.00
Photochemical oxidation - A1	0.66	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Abiotic depletion - A1	0.99	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Abiotic depletion (fossil fuels) - A1	0.73	0.27	0.64	1.00	0.47	1.00	0.47	1.00
Acronyms	GWP-GHG = Global warming potential, excluding biogenic uptake, emissions and storage							

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Environmental Product Declaration

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In accordance with ISO 14025 and EN15804:2012+A2: 2019

Decorative Acoustic Products Manufactured by CSR Martini

Program: The International EPD® System — www.environdec.com
Program Operator: EPD International AB
Regional Program: EPD Australasia — www.epd-australasia.com
EPD Registration No: EPD-IES-0015424

Publication Date: 2024-11-29
Expiration Date: 2029-11-28
Geographical Scope: Australia
Version: 001

An EPD should provide current information and maybe 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 Polymax Ceiling Batt R2.5, the list of which can be found on page 11

All products within this EPD were previously covered through EPD S-P-01004, which expired on 2023-08-09.