



# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

RECOMA PackWall



Programme: The international EPD® system, [www.environdec.com](http://www.environdec.com)

Programme operator: EPD International AB

EPD registration number: S-P-12841

Publication date: 2024-04-09

Valid until: 2029-04-09

Geographical scope: Northern Europe

*An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com)*

# GENERAL INFORMATION

## MANUFACTURER INFORMATION

<b>Manufacturer</b>	RECOMA AB
<b>Address</b>	Norra Kringelvägen 13, 28141 Hässleholm, Sweden
<b>Contact details</b>	info@recoma.se
<b>Website</b>	www.recoma.com

## PRODUCT IDENTIFICATION

<b>Product name</b>	RECOMA PackWall
<b>Place of production</b>	Hässleholm, Sweden
<b>CPC code</b>	31439 - Other board of wood or other ligneous materials

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programmes 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.

## EPD INFORMATION

<b>EPD program operator</b>	The International EPD System
<b>EPD standards</b>	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards. EN 15804 reference package based on EF 3.0 is used.
<b>Product category rules</b>	The CEN standard EN 15804 serves as the core PCR. In addition, the Int'l EPD System PCR 2019:14 Construction products, version 1.3.2 (Preverified) is used. Product specific complementary category rules have not been applied in this EPD
<b>EPD author</b>	Max Rosenberg, RECOMA AB
<b>EPD verification</b>	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
<b>Verification date</b>	2024-04-09
<b>EPD verifier</b>	Anni Oviir, Rangi Maja OU
<b>EPD number</b>	S-P-12841
<b>ECO Platform nr.</b>	
<b>Publishing date</b>	2024-04-09
<b>EPD valid until</b>	2029-04-09

## PRODUCT INFORMATION

### PRODUCT DESCRIPTION

RECOMA PackWall construction board is a low-carbon, circular alternative to wood and gypsum-based construction boards. RECOMA saves waste from incineration and gives it new life as high performance construction material. RECOMA manufactures its products from 100% recycled composite packaging in a process generating 0 waste, 0 emissions while using 0 water and 0 additives. The product is also 100% recyclable, contributing to the transition to a circular economy. RECOMA uses 100% food-grade material in its production, without adding any glues or other chemicals, making it safe to use and handle.

### PRODUCT APPLICATION

RECOMA PackWall is designed as a high performing sustainable substitute for construction and carpeting, replacing traditional materials such as OSB, MDF, Plywood, cement fiber boards as well as gypsum products as the surface is paper-covered and treatment-ready. Even though the product contains cellulose fibers, considered a living material, movement of the board due to temperature and moisture changes are minimal as the fibers are surrounded by solidified LDPE. RECOMA PackWall is suitable for construction of interior and exterior walls (although not as an outermost layer), roofing substrate, floor underlayment, concrete molds, site barriers (interim) and SIP-panels. Due to its moisture resistant properties, the board is considered semi-permeable, but not waterproof. Usage in bathrooms and other wet areas is therefore not recommended without waterproofing treatment. For exterior sheathing the joints should be taped with waterproof tape to achieve weatherproofing. Panel can be mounted directly on the boards. Primer and mesh usage is recommended for plastering. For flooring, additional insulation and even spread of subfloor heating can be expected. Consider that the board is more flexible than particleboard. For ceilings, consider the fire standards and the weight of the board.

## TECHNICAL SPECIFICATIONS

Property	Value	Standard
Modulus of elasticity in bending	> 488 N/mm <sup>2</sup>	EN 310, EN 13986+A1, EN 326-1
Bending strength	> 4,4 N/mm <sup>2</sup>	EN 310, EN 13986+A1, EN 326-1
Reaction to fire	D - s1, d1	EN 13501-1
Propensity to undergo continuous smouldering	No	EN 16733
Vapour permeability (Basic / Design)	482 / 1977	EN ISO 12572
TVOC emissions	< 0.1 mg / m <sup>3</sup>	EN 16000
Tensile strength perpendicular to faces	> 0.033 N/mm <sup>2</sup>	EN 319, EN 13986+A1, EN 326-1
Pull through resistance to fasteners	> 3,43 N/mm <sup>2</sup>	EN 1383, EN 14358
Indentation hardness by means of a durometer	56,2	EN ISO 868
Residual swelling after immersion in water	< 6,7 %	EN 317, EN 326-1, EN 13986+A1
Durability - Moisture resistance	≥ 0,023 N/mm <sup>2</sup>	EN 326-1, EN 319, EN 317, EN 321
Airborne sound insulation	> 34 dB	EN ISO 10140-2, EN ISO 10140-4
Thermal conductivity	< 0,157 W/(mK)	EN 12664
Critical moisture conditions for mould growth	80% < RF <sub>krit</sub> ≤ 85%	SP-4927
Hygroscopic dimensional changes (30-85% RF)	Weight -1,37/+1,10, Length -0,12/+0,04, Width -0,49/+0,68	EN 318:2002
Fastener shear strength (Recoma 12mm)	Medium: 8111 N 4mm shear: 5006	RI.SE 1139776-01

## PRODUCT STANDARDS

Standard	Assessment	Comment
CE (EAD, ETA, DoP)	Certified	2022
Type Approval	Approved	ERW GreenWall
Basta	Basta	Highest Level
Sunda Hus	B	Based on "worst case" / default
Byggvarubedömningen	Recommended	In all categories
Nordic Swan Product Portal	Listed	

## PHYSICAL PROPERTIES OF THE PRODUCT

PackWall is a construction board designed for use in construction and furniture manufacturing. The boards are offered as standard in dimensions 1200x2500, 900x2500, 600x2500 and 300x2500 mm. Thickness of the boards vary between 8 and 18 mm. The surface of the boards is laminated with LDPE (low density polyethylene, 25 g / m<sup>2</sup>) and paperboard (205 g / m<sup>2</sup>) which contributes to a smooth surface ready for treatment. Density of the boards is cca 900-950 kg / m<sup>3</sup>. Tolerance of thickness +/- 0.7 mm. The product is made from recycled beverage cartons, a majority of which are "post-consumer" food packaging that have been diverted from the waste flow to avoid incineration. This means that our product does not contribute to deforestation or mining of natural resources but fits into the future of circular material usage in construction.

## ADDITIONAL TECHNICAL INFORMATION

Further information can be found at [www.recoma.com](http://www.recoma.com).

## PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-%	Biogenic material, kg C/DU
LDPE (Surface)	0,05	100	0	0
LDPE (Cartons)	3	100	0	0
Paperboard (Surface)	0,4	100	100	0,16
Paperboard (Cartons)	6,9	100	100	2,75
Aluminium (Cartons)	0,1	100	0	0
Packaging (from product)	0,29	100	70	0,08
Packaging (strap)	0,000009	100	0	0

## SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

## PRODUCT LIFE-CYCLE

### MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Steps in the production process include shredding the input material (waste beverage cartons) to a fraction size of around 25x25 mm, heating the material up above the melting point of the polymer content and pressing it between layers of recycled LDPE and paperboard, then cooling the finished product down, format sawing it to size and loading it on pallets.

Using the results of modules A1-A3 without considering C is not recommended.

### TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is defined according to the PCR. Average distance of transportation from production plant to building site is assumed as 270,7 km (the mean distance from production plant to the main markets of Malmö, Göteborg, and Stockholm) and the transportation method is assumed to be lorry.

Average vehicle capacity utilization volume factor and empty returns are taken into account in theecoinvent background data. Transportation does not cause losses as products are packaged properly. In A5, an installation loss of 1% is assumed based on alternative

product EPDs, e.g., plywood, particle board. Waste treatment of packaging materials and 1% installation losses (assumed 100% incineration) is also accounted for. The benefits are considered in module D.

### PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

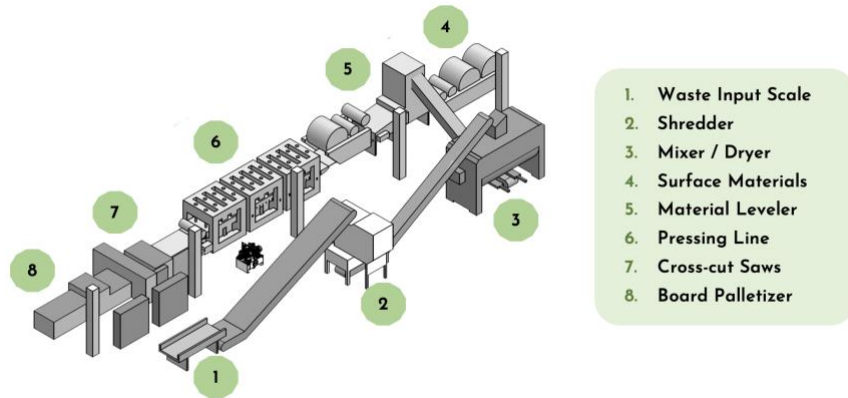
Air, soil, and water impacts during the use phase have not been studied.

### PRODUCT END OF LIFE (C1-c4, D)

At the end-of-life, in the demolition phase 100% of the waste is assumed to be collected. The demolition process consumes negligible energy as removal/demolition is performed manually or with minor usage of power tools (C1). The dismantled construction board is delivered to the nearest construction waste treatment plant, average distance 20 km (C2) for energy recovery.

While the board is fully recyclable, a conservative scenario based on EN 17213 for Windows and doors (wood) assumes 100% incineration with energy recovery. The efficiency of the incineration process is assumed as 85.7% for thermal and 11.9% for electric energy in Sweden, as per <https://ec.europa.eu/environment/pdf/waste/framework/guidance.pdf>. In Module D, the benefit of the exported energy from the incineration of the product and packaging is included.

# MANUFACTURING PROCESS



# LIFE-CYCLE ASSESSMENT

## LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2023.02 - 2024.01
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## DECLARED AND FUNCTIONAL UNIT

Declared unit	1 m <sup>2</sup>
Mass per declared unit	10.45 kg

# BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	2.91
Biogenic carbon content in packaging, kg C	0.08

# SYSTEM BOUNDARY

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Geography, by two-letter ISO country code or regions. The International EPD System only.																		
EU	EU	EU	EU	EU	-	-	-	-	-	-	-	EU	EU	EU	EU	EU	EU	EU
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

## CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

## ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

As this is the only product produced in the factory, but in different thicknesses - raw material and energy consumption data can not be separately collected for each product produced the in the plant, so data is allocated. Allocation is based on annual production rate and made with high accuracy and precision.

The values for 1 square meter of board are calculated by considering the total product weight per annual production. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total raw materials, energy consumption, packaging materials and the generated waste per the declared product are allocated. Subsequently, the product output fixed to 10.45 kg of element and the corresponding amount of product is used in the calculations.

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs.

The allocations in the Ecoinvent 3.8 datasets used in this study follow the Ecoinvent system model 'Allocation, cut-off, EN15804'.

## AVERAGES AND VARIABILITY

The International EPD System additional data requirements

Data specificity and GWP-GHG variability for GWP-GHG for A1-A3.

Supply-chain specific data for GWP-GHG	>90 %
Variation in GWP-GHG between products	%
Variation in GWP-GHG between sites	0 %

# ENVIRONMENTAL IMPACT DATA

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. Note: additional environmental impact data may be presented in annexes.

## CORE ENVIRONMENTAL IMPACT INDICATORS - EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total <sup>1)</sup>	kg CO <sub>2</sub> e	-1,06E+01	4,84E-01	3,27E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,96E-02	1,12E+01	0,00E+00	-1,38E+01
GWP – fossil	kg CO <sub>2</sub> e	5,31E-01	4,83E-01	2,42E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,96E-02	3,48E-01	0,00E+00	-1,38E+01
GWP – biogenic	kg CO <sub>2</sub> e	-1,11E+01	-2,71E-20	3,03E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,08E+01	0,00E+00	0,00E+00
GWP – LULUC	kg CO <sub>2</sub> e	3,21E-04	1,90E-04	9,90E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,24E-06	1,18E-04	0,00E+00	-2,59E-02
Ozone depletion pot.	kg CFC <sub>11</sub> e	9,42E-08	1,12E-07	3,33E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,51E-09	2,87E-08	0,00E+00	-7,49E-07
Acidification potential	mol H <sup>+</sup> e	4,76E-03	1,96E-03	1,82E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,30E-05	2,91E-03	0,00E+00	-1,15E-01
EP-freshwater <sup>2)</sup>	kg Pe	1,72E-05	3,39E-06	3,56E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,61E-07	3,77E-06	0,00E+00	-5,50E-04
EP-marine	kg Ne	9,13E-04	5,86E-04	6,40E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,47E-05	1,26E-03	0,00E+00	-1,32E-02
EP-terrestrial	mol Ne	1,02E-02	6,46E-03	6,75E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,72E-04	1,30E-02	0,00E+00	-1,55E-01
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	2,64E-03	1,98E-03	1,72E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,71E-05	3,20E-03	0,00E+00	-4,28E-02
ADP-minerals & metals <sup>4)</sup>	kg Sbe	2,59E-07	1,71E-06	6,75E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,60E-08	1,20E-06	0,00E+00	-9,80E-06
ADP-fossil resources	MJ	1,38E+00	7,17E+00	1,87E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,95E-01	2,36E+00	0,00E+00	-1,71E+02
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	6,52E+00	3,32E-02	9,36E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,32E-03	7,31E-01	0,00E+00	-2,51E+00

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO<sub>4</sub>e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. 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.



## USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy <sup>8)</sup>	MJ	6,82E+00	1,03E-01	7,30E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,32E-03	9,45E-02	0,00E+00	-4,32E+01
Renew. PER as material	MJ	9,73E+01	0,00E+00	-3,63E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-9,37E+01	0,00E+00	0,00E+00
Total use of renew. PER	MJ	1,04E+02	1,03E-01	-3,55E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,32E-03	-9,36E+01	0,00E+00	-4,32E+01
Non-re. PER as energy	MJ	6,63E+01	7,17E+00	8,36E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,95E-01	2,36E+00	0,00E+00	-1,71E+02
Non-re. PER as material	MJ	1,32E+02	0,00E+00	-2,62E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,30E+02	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	1,98E+02	7,17E+00	-1,79E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,95E-01	-1,27E+02	0,00E+00	-1,71E+02
Secondary materials	kg	1,07E+01	2,41E-03	1,08E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,18E-05	3,49E-03	0,00E+00	-1,29E-02
Renew. secondary fuels	MJ	4,34E-06	2,65E-05	2,62E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,25E-07	5,96E-05	0,00E+00	-8,67E-05
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m <sup>3</sup>	7,29E-02	9,03E-04	1,24E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,82E-05	1,30E-02	0,00E+00	-1,36E-01

8) PER = Primary energy resources

## END OF LIFE - WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1,86E-02	8,05E-03	2,81E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,91E-04	0,00E+00	0,00E+00	-1,12E+00
Non-hazardous waste	kg	3,98E-01	1,43E-01	4,06E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,42E-03	1,04E+01	0,00E+00	-4,72E+01
Radioactive waste	kg	1,19E-03	4,94E-05	1,25E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,97E-06	0,00E+00	0,00E+00	-1,03E-03

## END OF LIFE - OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	8,34E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,18E+02	0,00E+00	0,00E+00

## ENVIRONMENTAL IMPACTS - GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG <sup>10)</sup>	kg CO <sub>2</sub> e	5,31E-01	4,83E-01	2,42E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,96E-02	3,48E-01	0,00E+00	-1,38E+01

10) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH<sub>4</sub> fossil, CH<sub>4</sub> biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.3.2 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO<sub>2</sub> is set to zero.

## SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, Sweden, residual mix, Sweden, 2022, AIB
Electricity CO <sub>2e</sub> / kWh	0,0893
District heating data source and quality	
District heating CO <sub>2e</sub> / kWh	

## BIBLIOGRAPHY

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

Ecoinvent database v3.8 (2021) and One Click LCA database.

EN 15804:2012+A2:2019 Sustainability in construction works - Environmental product declarations - Core rules for the product category of construction products.

Int'l EPD System PCR 2019:14 Construction products, version 1.3.2 (Preverified)

31439 - Other board of wood or other ligneous materialsR

EPD International (2021). General Programme Instructions of the international EPD® system. Version 4.0. [www.environdec.com](http://www.environdec.com).

RECOMA PackWall LCA background report 13.02.2024

## ABOUT THE MANUFACTURER

Manufacturer	RECOMA AB
EPD author	Max Rosenberg, RECOMA AB
EPD verifier	
EPD program operator	The International EPD System
Background data	This EPD is based on Ecoinvent 3.8 (Allocation, cut-off, EN15804) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Construction products

# VERIFICATION STATEMENT

## VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

## VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Anni Oviir, Rangi Maja OU
EPD verification started on	2024-03-06
EPD verification completed on	2024-04-09
Supply-chain specific data %	>99
Approver of the EPD verifier	The International EPD System

Author & tool verification	Answer
EPD author	Max Rosenberg, RECOMA AB
EPD author training	24 Sept 2021
EPD Generator module	Construction products
Independent software verifier	Ugo Pretato and Elia Rillo - Studio Fieschi & Soci Srl.
Software verification date	05 January 2024

# THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present

with respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Anni Oviir, Rangi Maja OÜ



## VERIFICATION AND REGISTRATION (INTERNATIONAL EPD SYSTEM)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)

PCR	PCR 2019:14 Construction products, version 1.3.2
PCR review was conducted by:	The Technical Committee of the International EPD® System. See <a href="http://www.environdec.com/TC">www.environdec.com/TC</a> for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a> .
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
Third party verifier	Anni Oviir, Rangi Maja OÜ Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	<input type="checkbox"/> yes <input type="checkbox"/> no



THE INTERNATIONAL EPD® SYSTEM

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## ANNEX 1 : ENVIRONMENTAL IMPACTS - EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO <sub>2</sub> e	5,25E-01	4,79E-01	2,34E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,94E-02	3,31E-01	0,00E+00	-1,35E+01
Ozone depletion Pot.	kg CFC <sub>11</sub> e	7,62E-08	8,86E-08	2,78E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,57E-09	2,60E-08	0,00E+00	-6,04E-07
Acidification	kg SO <sub>2</sub> e	3,85E-03	1,52E-03	1,37E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,45E-05	2,11E-03	0,00E+00	-9,87E-02
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	7,00E-04	3,46E-04	7,44E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,47E-05	1,66E-03	0,00E+00	-1,98E-02
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	1,50E-04	6,24E-05	4,71E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,52E-06	6,51E-05	0,00E+00	-4,27E-03
ADP-elements	kg Sbe	7,31E-06	1,67E-06	1,27E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,45E-08	9,22E-07	0,00E+00	-9,81E-06
ADP-fossil	MJ	6,63E+01	7,17E+00	8,36E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,95E-01	2,36E+00	0,00E+00	-1,71E+02