

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

Acoustic panel (unpainted)

from

CEWOOD



Programme:

The International EPD® System, www.environdec.com

Programme operator:

EPD International AB

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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



General information

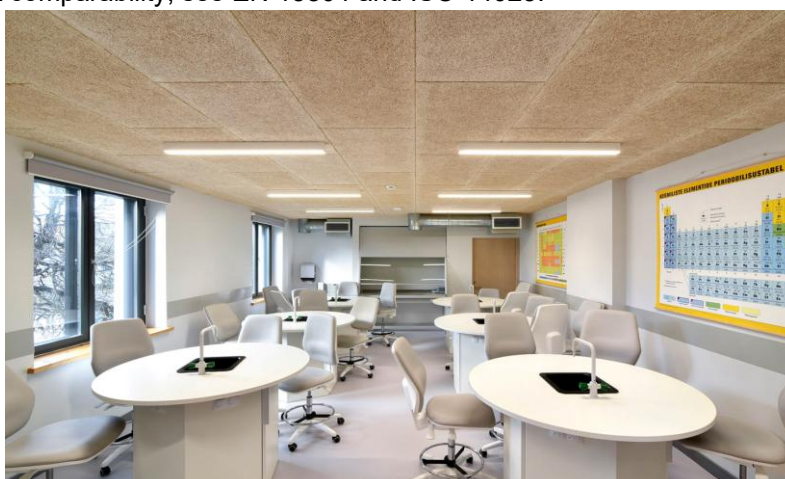
Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): <i>Construction Products, PCR 2019:14 Version 1.11 and Acoustical System Solutions PCR 2012:01-SUB-PCR-C (v2.31), UN CPC 37990</i>
PCR review was conducted by: <i>The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción (Chile). The review panel may be contacted via the Secretariat info@environdec.com</i>
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: <i>Marcel Gómez Ferrer, Marcel Gómez Consultoria Ambiental. Email: info@marcelgomez.com</i>
Approved by: The International EPD® System
The LCA and EPD has been worked out by Bureau Veritas Latvia. Email: riga@bureauveritas.com
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 from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.



Company information

Owner of the EPD: CEWOOD.

Contact: Ingars Udris: ingars.udris@cewood.com

Description of the organization: CEWOOD has successfully adopted 50-year-old Latvian traditions of manufacturing wood wool panels. CEWOOD SIA is a 100% Latvian company, currently employing over 100 employees.

The company was established in 2015. CEWOOD is the only manufacturer of panels of wood wool in the Baltic States, and it is among the leading companies of the field in the world. The quality standards set forth by the company have allowed to successfully expand the sales market of CEWOOD to include many countries.

The company is continuously working on optimization of production processes, launching new products, educating markets. Together with field experts — architects, interior designers, builders and object developers — preconditions are established with the aim to take full advantage of unique applications of CEWOOD panels.

Product-related or management system-related certifications: Powered by Green Certificate, Declaration of Performance Certificate, Emission Classification of Building Materials, NaturePlus Certificate, PEFC Certificate, ISO 50001 Certificate.

Name and location of production site(s): Latvia.

Product information

Product name: Acoustic Panels

Product identification: CW-W25S

Product description: The acoustic panels are an eco-friendly and harmless material that combines high fire resistance with good acoustic and heat inertia properties. Widely used in interior design of public and residential buildings, finishing of ceilings and walls, in premises with increased acoustic load, where noise absorption and sound insulation is of importance. Suitable for high humidity facilities.

Wood wool width	1.0 mm (0.5, 1.5, 3.0 mm - available upon request)
Panel thickness	25mm
Size	2400x600 mm, 1200x600 mm and 600x600 mm + other sizes upon request
Weight	10.5 kg/m ²
Cement	white Portland cement
Thermal conductivity	$\lambda = 0.066 \text{ W/mK}$
Fire safety class	B-s1, d0
Colors	natural

UN CPC code: 379 - Other non-metallic mineral products n.e.c.

LCA information

Declared unit: In accordance with the PCR the declared unit is 1 square meter of acoustic panel with a thickness of 25mm with a useful life of 50 years.

Reference service life: The reference service life for the Acoustic Panels is estimated at 50 years.

Time representativeness: The primary data was gathered internally. All production data corresponds to values for the year 2021.

Scope of the EPD: This EPD has a Global Scope, as installation activities and main raw materials are common independently from the region where the acoustic panels are to be installed. Nonetheless, it must be clarified, that transport distances to installation sites (Stage A4) in the model under study, correspond to several construction sites located in different parts of Europe. The scope of this EPD is Business to Business.

Database(s) and LCA software used: The Ecoinvent 3.7. was used to conduct the quantitative evaluation in this study. This database provided the life cycle inventory data for raw and processes materials in the background system. The LCA software was Simapro 9.1. To obtain the results in accordance with the provisions of EN 15804:2012+A2:2019, the “EN 15804:A1+A2:2019 method”, “EDIP 2003”, “CED (LHV)” and “IPCC GWP100a” methodologies have been used for environmental impacts, waste generation, use of resources and biogenic carbon content respectively.

Description of system boundaries:

Cradle to gate with options. The LCA was carried out considering the product stage A1-A3, modules C1–C4, module D and the additional optional modules A4-A5.

Data quality: The foreground data was collected internally considering the latest available average production amounts and measures during the last year. Data regarding waste processes and scenarios was taken from waste scenarios for Europe contained in Ecoinvent 3.7.

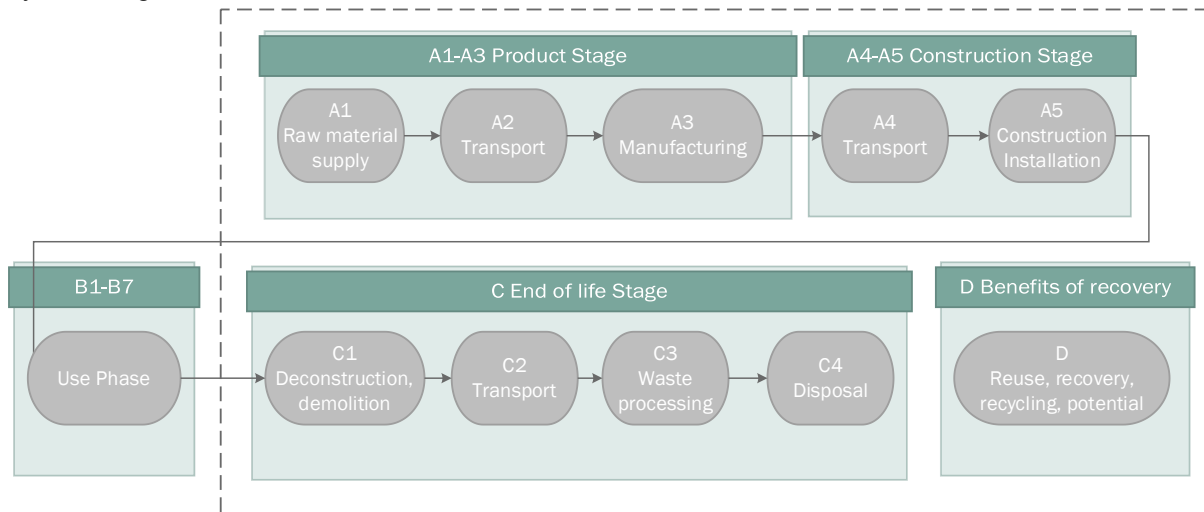
According to the criteria of the UN Environment Global Guidance on LCA database development, the quality level can be defined as very good. Data is geographically representative as it comes from the area of study, it is technical representative as it comes from processes and products under study using the same state of technology defined in goal and scope, and it is also time representative as data used was collected less than 3 years difference between the reference year according to the documentation. A data quality rating was performed with a rating system where 1 means excellent and 5 poor. An average for each criterion is presented as follows:

Technological Representativeness, TeR	Geographic representativeness, GeR	Time Representativeness, TiR	Precision, P	Average DQR
1.67	2.48	1.70	1.15	1.75

Cut-off criteria: All major raw materials and processes have been considered and only less than 1% of total material and energy flows were excluded, and 5% of materials and energy per module.

Allocation: Following the recommendations in the EN 15804 and PCR 2019:14, allocation among products and co-products has been avoided. Material and energy flows have been allocated to the main product following physical/mass criteria.

System diagram:



More information: During this LCA, the *polluters pay*, and modularity principles have been followed. As well as double counting avoided.

The processes related to infrastructure, construction and production of equipment and tools that are not directly consumed in the production process, have been excluded. Activities personnel-related, such as transportation to and from work, and research and development activities have been excluded. Long term emissions are also excluded from the impacts.

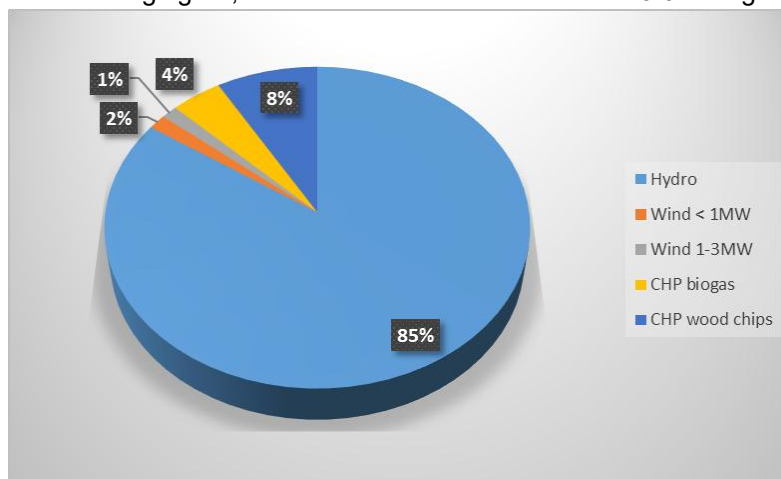
Stages and Production description

Product Stage

A1: This stage considers the extraction and processing of all raw materials.

A2: This stage accounts for the transport activities of raw materials to the facilities in Latvia. This stage includes road transport by lorries, and water transport by ferry.

A3: This stage includes the manufacturing process conducted in the facilities previous to the transport to the different locations around the world. The use of packaging materials is considered in this stage. The electricity use for the manufacturing process is certified by Latvenergo AS (Powered by Green Certificate) as 100% renewable from the national Latvian grid. The energy sources share of the mix is represented as in the following figure, and its associated emissions are 0.0221 kg of CO_{2eq}/kWh.



Construction Stage

A4: This stage stands for the transport of materials from the production site to the construction site. In this stage, 5 different destination scenarios have been considered to obtain an average impact considering average distribution of sales during the last years.

	Destination 1	Destination 2	Destination 3	Destination 4	Destination 5
Final country or region	Denmark	Germany	Finland	Spain	Belgium
Normalization Share %	68%	10%	5%	12%	5%
Transport mode	Truck and ferry	Truck and ferry	Truck and ferry	Truck	Truck and ferry
Distance	918 km by Road and 405 km by Sea	1165 km by Road and 405 km by Sea	370 km by Road and 82 km by Sea	3218 km by Road	1679 km by Road and 405 km by Sea

A5: This stage includes the activities related to installation of the panels. As the installation is handmade, no energy or additional materials are required. Activities related to the recycling and waste disposal of packaging materials are accounted for in this stage. End of life processes for such materials correspond to the typical waste treatment scenario for the specific materials under the European geography, to recycling, incineration and inert landfilling in the following quantities per declared unit:

Material	Recycling (kg)	Incineration (kg)	Landfilling (kg)
Cardboard	3.55E-02	3.45E-03	2.43E-05
Mixed plastics	5.88E-04	6.27E-04	4.42E-06
Polyethylene	9.00E-04	9.53E-04	6.72E-06

Use Stage:

During the normal use scenario, it is assumed that no maintenance, repair, replacement and/or refurbishment is required, hence this optional stage is not considered (B1–B5). Energy or water consumption is not required (referred to the declared unit), and hence not declared for the building operation (B6-B7).

End of Life Stage:

C1: The consumption of fuel during the deconstruction and dismantling process is considered using as reference the background process available in Ecoinvent 3.7 for conducting this specific activity. Other air emissions are also accounted for during deconstruction.

C2: The transport of the dismantled panels is considered in this stage. A distance of 30 km is assumed to the disposal facility.

C3: No reuse or recycling of the product is considered.

C4: The waste disposal scenario corresponds to the inert landfilling of 100% of the product.

The main assumptions during the end-of-life stage are presented as follow:

PARAMETER	VALUE/DESCRIPTION
Collection process specified by type	Deconstruction of walls and dismantling of panels
Recovery system specified by type	No re-use, recycling, or energy recovery
Disposal specified by type	1 m ² landfilled

**Assumptions for scenario development
(e.g. transportation)**

Average waste collection truck with a 7.5-16t payload,
30 km of average distance to landfill site

Benefits and loads beyond the system boundaries:

D: Benefits of recycled packaging materials (Polyethylene, cardboard, and other plastics) are taken into account in the module D. The amount to recycle is considered avoided product to the technosphere.

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EUR	EUR	LV	GLO	GLO	ND	ND	ND	ND	ND	ND	ND	GLO	GLO	GLO	GLO	GLO
Specific data used	> 90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	NOT RELEVANT					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	NOT RELEVANT					-	-	-	-	-	-	-	-	-	-	-	-

Description of the system boundary (X = Included in LCA; ND = Not declared; NR = Not relevant)

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Wood	3.2 – 3.5	0.00%	32.0 – 33.0%
Cement	5.3 – 5.8	0.00%	0.00%
Limestone	0.6 – 0.8	0.00%	0.00%
Oil	> 0.03	0.00%	0.00%
Water	< 1.0	0.00%	0.00%
TOTAL	10.5	0.00%	32.0 – 33.0%
Packaging materials	Weight, kg	Weight-% (versus the product)	
Polyethylene	0.00186	0.02 %	
Cardboard	0.039	0.37 %	
Plastic Clamps	0.0012	0.01 %	
TOTAL	0.042	0.4 %	

No dangerous substances from the candidate list of SVHC are contained in the product.

Biogenic carbon content	Value
Carbon content in product (kg)	1.7E+00
Carbon content in accompanying packaging (kg)	3.41E-02

Environmental Information

Data results is now presented for the Acoustic Panel in its declared unit of 1 m².

Acoustic Panel

Potential environmental impact – mandatory indicators according to EN 15804:2012+A2 2019

Results per declared unit									
Indicator	Unit	Tot. A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	6.3E+00	1.5E+00	4.4E-03	3.4E-02	6.7E-02	0.0E+00	5.5E-02	-8.4E-02
GWP-biogenic	kg CO ₂ eq.	-6.2E+00	2.5E-03	5.5E-03	2.7E-05	1.9E-04	0.0E+00	1.7E-04	7.4E-02
GWP-luluc	kg CO ₂ eq.	8.2E-03	5.7E-04	5.5E-08	2.7E-06	2.8E-05	0.0E+00	1.5E-05	-8.6E-04
GWP-total	kg CO ₂ eq.	9.3E-02	1.5E+00	9.9E-03	3.4E-02	6.8E-02	0.0E+00	5.5E-02	-1.1E-02
ODP	kg CFC 11 eq.	4.6E-07	3.5E-07	2.1E-11	7.4E-09	1.5E-08	0.0E+00	2.3E-08	-5.0E-09
AP	mol H ⁺ eq.	3.4E-02	1.6E-02	1.6E-06	3.6E-04	2.6E-04	0.0E+00	5.2E-04	-5.6E-04
EP-freshwater	kg PO ₄ eq.	2.9E-03	2.7E-04	7.7E-08	3.2E-06	1.6E-05	0.0E+00	1.6E-05	-1.2E-04
EP-freshwater	kg P eq.	9.7E-04	8.8E-05	2.5E-08	1.0E-06	5.3E-06	0.0E+00	5.1E-06	-3.9E-05
EP-marine	kg N eq.	9.2E-03	4.0E-03	9.0E-07	1.6E-04	7.8E-05	0.0E+00	1.8E-04	-1.5E-04
EP-terrestrial	mol N eq.	1.0E-01	4.4E-02	7.7E-06	1.7E-03	8.5E-04	0.0E+00	2.0E-03	-1.4E-03
POCP	kg NMVOC eq.	2.9E-02	1.3E-02	1.9E-06	4.8E-04	2.6E-04	0.0E+00	5.8E-04	-3.2E-04
ADP-minerals&metals*	kg Sb eq.	1.2E-05	3.2E-06	5.7E-10	1.4E-08	3.2E-07	0.0E+00	1.2E-07	-3.7E-07
ADP-fossil*	MJ	4.5E+01	2.3E+01	1.2E-03	4.7E-01	1.0E+00	0.0E+00	1.5E+00	-1.2E+00
WDP*	m ³	4.4E-01	6.7E-02	1.5E-04	6.8E-04	3.2E-03	0.0E+00	6.9E-02	-5.4E-02
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Use of resources

Results per declared unit									
Indicator	Unit	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	8.4E+00	1.9E-01	4.7E-05	1.9E-03	1.2E-02	0.0E+00	8.5E-03	-7.9E-02
PERM	MJ	1.0E+02	6.4E-02	1.7E-05	6.0E-04	4.6E-03	0.0E+00	4.0E-03	-1.3E+00
PERT	MJ	1.1E+02	2.5E-01	6.4E-05	2.5E-03	1.6E-02	0.0E+00	1.2E-02	-1.3E+00
PENRE	MJ	4.5E+01	2.3E+01	1.2E-03	4.7E-01	1.0E+00	0.0E+00	1.5E+00	-1.2E+00
PENRM	MJ	1.0E-02	5.8E-04	1.5E-08	1.2E-06	2.7E-05	0.0E+00	7.9E-06	-9.6E-04
PENRT	MJ	4.5E+01	2.3E+01	1.2E-03	4.7E-01	1.0E+00	0.0E+00	1.5E+00	-1.2E+00
SM	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	m ³	2.3E-02	2.2E-03	5.4E-06	2.3E-05	1.2E-04	0.0E+00	1.6E-03	-1.9E-03
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

Waste production and output flows

Waste production

Results per declared unit									
Indicator	Unit	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7.2E-05	4.8E-05	3.4E-09	1.3E-06	2.7E-06	0.0E+00	2.3E-06	-1.4E-06
Non-hazardous waste disposed	kg	9.7E-01	1.6E+00	1.4E-04	5.7E-04	4.0E-02	0.0E+00	1.0E+01	-7.8E-03
Radioactive waste disposed	kg	2.7E-04	1.6E-04	3.2E-09	3.3E-06	6.8E-06	0.0E+00	1.0E-05	-4.3E-06

Output flows

Results per functional or declared unit									
Indicator	Unit	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Material for recycling	kg	0.0E+00	0.0E+00	3.7E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported energy, electricity	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported energy, thermal	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

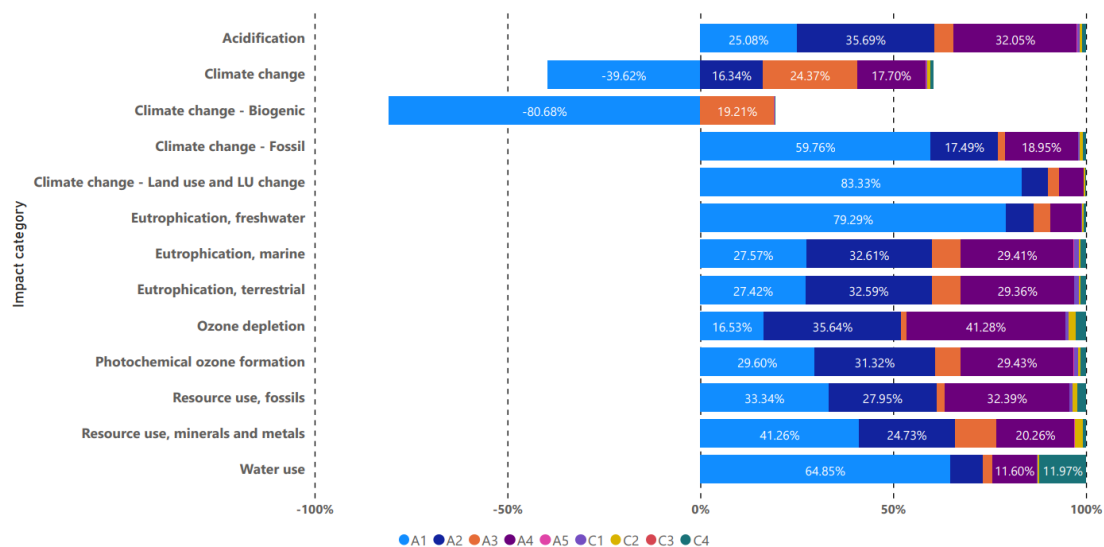
Global warming calculated as in previous standards (Global warming potential - GWP100a)

Results per functional or declared unit									
Indicator	Unit	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential - GHG	kg CO ₂ eq.	6.3E+00	1.5E+00	4.5E-03	3.4E-02	6.7E-02	0.0E+00	5.4E-02	-8.4E-02

LCA Interpretation

The impact on the environment of the life cycle of 1m² of CEWOOD's Acoustic Panel version on Global Warming Potential is 1.8 kg of CO₂-eq. The overall impact of the Acoustic Panel life cycle is dominated by the Product stage (A1-A3) and the Construction stage (A4-A5)) as can be observed in the following figure. The use of wood causes a potential positive impact in the Climate Change impact category, observing the negative value for Biogenic CO₂ emissions (understood as a benefit to the environment), due to the carbon fixation within the product. The transport of the final product to the destination for installation is the dominant module in the construction stage and it is an important driver in several impact categories. It can also be seen in the following, how transport activities (Modules A2 and A4), play an important role in the overall impact of the Acoustic Panels in several impact categories such as acidification, those accounting for marine and terrestrial eutrophication, ozone depletion, photochemical ozone formation, and the ones related to use of resources. The Use phase has not been considered as it is assumed there is no impact from this stage.

Module D, which accounts for benefits or loads beyond the system boundaries, delivers in overall a benefit from the recycling of packaging materials according to the modeled waste treatment scenario within the time boundaries. Such benefits come from simulating as avoiding products the packaging materials in the recycled quantities.



Information related to the EPD Sector

This EPD® is individual.

Differences with previous versions

This is the first version of EPD®.

Additional information

CEWOOD is a responsible, future-oriented company which has set as its basic objective the natural quality of the panels that it produces, which is why focus is on the source of the raw materials, sustainability and renewable energy. The company pays a lot of attention to ensure that the panels contain only 100% natural, high-quality components that are sourced in an environmentally friendly way. Panels are made of PEFC certified timber using green energy. Our panels have received quality and sustainability certification, such as M1, Powered by Green, PEFC. The quality of CEWOOD Acoustic panels and their compliance with stringent environmental and health safety requirements are attested by the international NaturePlus certificate. CEWOOD is member of Europe's largest network for sustainable building – DGNB and our panels are recommended as safe for health by Latvian Asthma and Allergy Society.

Upon delivery, check the panels for accordance with the order and for any visible defects.

The panels maintain their properties at the temperature +23 (+/- 2) °C and the relative humidity of 50% (+/- 5%). To ensure the best properties, the panels should be allowed to adopt the ambient conditions. The optimal period for acclimatization is one to two weeks.

Please follow CEWOOD guidelines in webpage for indoor or outdoor storage conditions of panels!

For more detailed information before and after installation, please visit: www.cewood.com section "Downloads".

References

- General Programme Instructions of the International EPD® System. Version 3.01.
- PCR 2019:14. Construction Products. Version 1.11
- SUB-PCR TO PCR 2012:01, 2020. Acoustical System Solutions (Construction Product)
- EN 15804:2012+A2:2019 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products;
- ISO 14040:2006: Environmental Management-Life Cycle Assessment-Principles and framework.
- ISO 14044:2006/Amd 2:2020 Environmental management. Life Cycle Assessment. Requirements and guidelines
- ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations. Principles and procedures.
- Ecoinvent v3.7 Database.
- Baitz M. and Bos U. (2020). Impact Methods, Data Collection and Data Requirements. Webinar: Environmental Footprint (EF) Transition Phase (2020).

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

A2 panel

from

CEWOOD



Programme:

The International EPD® System, www.environdec.com

Programme operator:

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General information

Programme information

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Product category rules (PCR): <i>Construction Products, PCR 2019:14 Version 1.11 and Acoustical System Solutions PCR 2012:01-SUB-PCR-C (v2.31), UN CPC 37990</i>
PCR review was conducted by: <i>The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción (Chile). The review panel may be contacted via the Secretariat info@environdec.com</i>
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: <i>Marcel Gómez Ferrer, Marcel Gómez Consultoria Ambiental. Email: info@marcelgomez.com</i>
Approved by: The International EPD® System
The LCA and EPD has been worked out by Bureau Veritas Latvia. Email: riga@bureauveritas.com
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 from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804:2012+A2:2019 and ISO 14025.



Company information

Owner of the EPD: CEWOOD

Contact: Ingars Udris: ingars.udris@cewood.com

Description of the organization: CEWOOD has successfully adopted 50-year-old Latvian traditions of manufacturing wood wool panels. CEWOOD SIA is a 100% Latvian company, currently employing over 100 employees.

The company was established in 2015. CEWOOD is the only manufacturer of panels of wood wool in the Baltic States, and it is among the leading companies of the field in the world. The quality standards set forth by the company have allowed to successfully expand the sales market of CEWOOD to include many countries.

The company is continuously working on optimization of production processes, launching new products, educating markets. Together with field experts — architects, interior designers, builders and object developers — preconditions are established with the aim to take full advantage of unique applications of CEWOOD panels.

Product-related or management system-related certifications: Powered by Green Certificate, Declaration or Performance Certificate, Emission Classification of Building Materials, NaturePlus Certificate, PEFC Certificate, ISO 50001 Certificate.

Name and location of production site(s): Latvia.

Product information

Product name: A2 Panels

Product identification: CW – A2-W25S

Product description: The A2 panels are an eco-friendly and harmless material that combines high fire resistance with good acoustic, aesthetic, durability, and heat inertia properties. Widely used in buildings where increased fire resistance is necessary. Panels are unique as they next to increased fire resistance still have the same benefits and application properties as regular CEWOOD panels and can be used as the interior design of public and residential buildings, finishing of ceilings and walls, in premises with increased acoustic load, where noise absorption is of importance. Suitable for high humidity facilities.

Wood wool width	1.0, (1.5 mm - available upon request)
Panel thickness	25 mm
Size	2400x600 mm, 1200x600 mm and 600x600 mm + other sizes upon request
Weight	14.5 kg/m ²
Cement	white Portland cement
Thermal conductivity	$\lambda = 0.074 \text{ W/mK}$
Fire safety class	A2-s1, d0
Colors	natural

UN CPC code: 379 - Other non-metallic mineral products n.e.c.

LCA information

Declared unit: In accordance with the PCR the declared unit is 1 square meter of A2 panel with a thickness of 25mm installed and with a useful life of 50 years.

Reference service life: The reference service life for A2 Panel is estimated at 50 years.

Time representativeness: The primary data was gathered internally. All production data corresponds to values for the year 2021.

Scope of the EPD: This EPD has a Global Scope, as installation activities and main raw materials are common independently from the region where the A2 panels are to be installed. Nonetheless, it must be clarified, that transport distances to installation sites (Stage A4) in the model under study, correspond to several construction sites located in different parts of Europe. The intended target group is Business-to-Business.

Database(s) and LCA software used: The Ecoinvent 3.7. was used to conduct the quantitative evaluation in this study. This database provided the life cycle inventory data for raw and processes materials in the background system. The LCA software was Simapro 9.1. To obtain the results in accordance with the provisions of EN 15804:2012+A2:2019, the “EN 15804:A1+A2:2019 method”, “EDIP 2003”, “CED (LHV)” and “IPCC 100a” methodologies have been used for environmental impacts, waste generation, use of resources and biogenic carbon content respectively.

Description of system boundaries:

Cradle to gate with options. The LCA was carried out considering the product stage A1-A3, modules C1–C4, module D and the additional optional modules A4-A5.

Data quality: The foreground data was collected internally considering the latest available average production amounts and measures during the last year. Data regarding waste processes and scenarios was taken from waste scenarios for Europe contained in Ecoinvent 3.7.

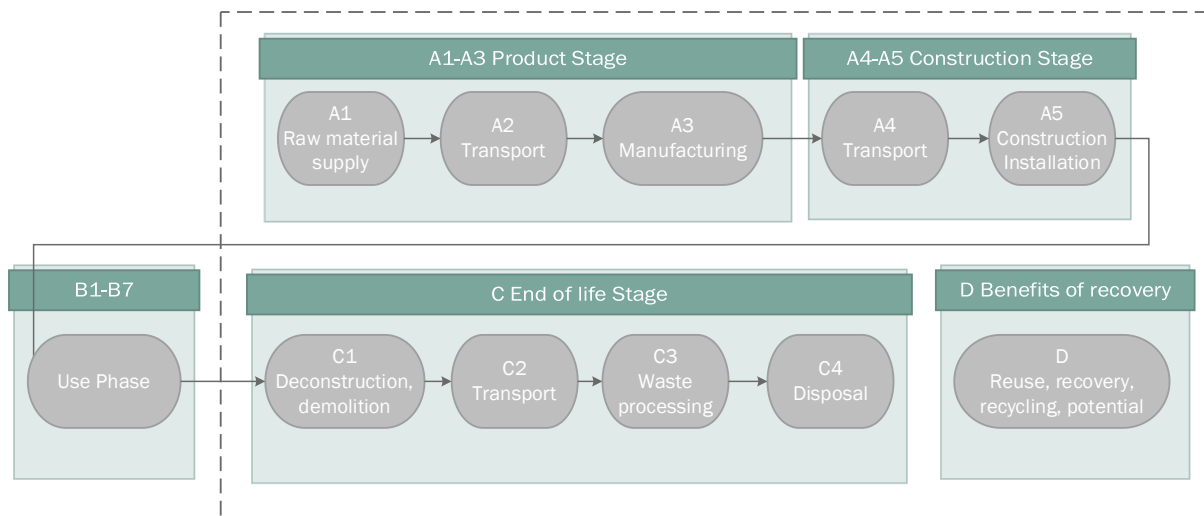
According to the criteria of the UN Environment Global Guidance on LCA database development, the quality level can be defined as very good. Data is geographically representative as it comes from the area of study, it is technical representative as it comes from processes and products under study using the same state of technology defined in goal and scope, and it is also time representative as data used was collected less than 3 years difference between the reference year according to the documentation. A data quality rating was performed with a rating system where 1 means excellent and 5 poor. An average for each criterion is presented as follows:

Technological Representativeness, TER	Geographic representativeness, GER	Time Representativeness, TIR	Precision, P	Average DQR
1.77	2.60	1.77	1.17	1.83

Cut-off criteria: All major raw materials and processes have been considered and only less than 1% of total material and energy flows were excluded, and 5% of materials and energy per module.

Allocation: Following the recommendations in the EN 15804:2012+A2:2019 and PCR 2019:14, allocation among products and co-products has been avoided. Material and energy flows have been allocated to the main product following physical/mass criteria.

System diagram:



More information: During this LCA, the *polluters pay*, and modularity principles have been followed. As well as double counting avoided.

The processes related to infrastructure, construction and production of equipment and tools that are not directly consumed in the production process, have been excluded. Activities personnel-related, such as transportation to and from work, and research and development activities have been excluded. Long term emissions are excluded from the impacts.

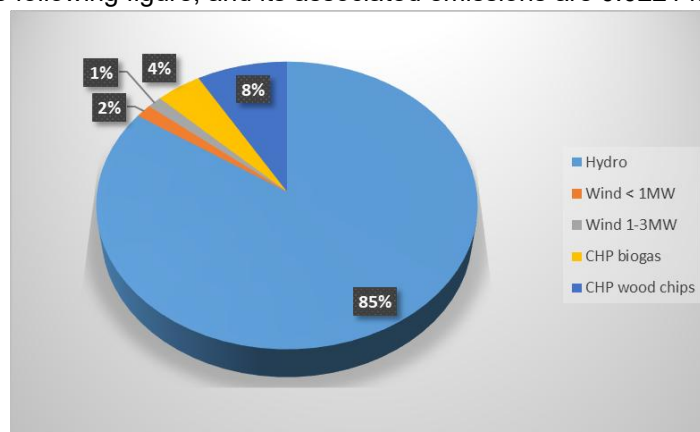
Stages and Production description

Product Stage

A1: This stage considers the extraction and processing of all raw materials.

A2: This stage accounts for the transport activities of raw materials to the facilities in Latvia. This stage includes road transport by lorries, and water transport by ferry.

A3: This stage includes the manufacturing process conducted in the facilities previous to the transport to the different locations around the world. The use of packaging materials is considered in this stage. The electricity use for the manufacturing process is certified by Latvenergo AS (Powered by Green Certificate) as 100% renewable from the national Latvian grid. The energy sources share of the mix is represented as in the following figure, and its associated emissions are 0.0221 kg of CO_{2eq}/kWh.



Construction Stage

A4: This stage stands for the transport of materials from the production site to the construction site. In this stage, 5 different destination scenarios have been considered to obtain an average impact considering average distribution of sales during the last years.

	Destination 1	Destination 2	Destination 3	Destination 4	Destination 5
Final country or region	Denmark	Germany	Finland	Spain	Belgium
Normalization Share %	68%	10%	5%	12%	5%
Transport mode	Truck and ferry	Truck and ferry	Truck and ferry	Truck	Truck and ferry
Distance	910 km by Road and 700 km by Sea	830 km by Road and 700 km by Sea	700 km by Road and 85 km by Sea	3600 km by Road	1310 km by Road and 700 km by Sea

A5: This stage includes the activities related to installation of the panels. As the installation is handmade, no energy or additional materials are required. Activities related to the recycling and waste disposal of packaging materials are accounted for in this stage. End of life processes for such materials correspond to the typical waste treatment scenario for the specific materials under the European geography, to recycling, incineration and inert landfilling in the following quantities per declared unit:

Material	Recycling (kg)	Incineration (kg)	Landfilling (kg)
Cardboard	7.83E-02	7.60E-03	5.36E-05
Mixed plastics	5.88E-04	6.27E-04	4.42E-06
Polyethylene	9.00E-04	9.53E-04	6.72E-06

Use Stage:

During the normal use scenario, it is assumed that no maintenance, repair, replacement and/or refurbishment is required, hence this optional stage is not considered (B1–B5). Energy or water consumption is not required (referred to the declared unit), and hence not declared for the building operation (B6-B7).

End of Life Stage:

C1: The consumption of fuel during the deconstruction and dismantling process is considered using as reference the background process available in Ecoinvent 3.7 for conducting this specific activity. Other air emissions are also accounted for during the deconstruction.

C2: The transport of the dismantled painted panels is considered in this stage. A distance of 30 km is assumed to the disposal facility.

C3: No reuse or recycling of the product is considered.

C4: The waste disposal scenario corresponds to the inert landfilling of 100% of the product.

The main assumptions during the end-of-life stage are presented as follow:

PARAMETER	VALUE/DESCRIPTION
Collection process specified by type	Deconstruction of walls and dismantling of panels
Recovery system specified by type	No re-use, recycling, or energy recovery
Disposal specified by type	1 m ² landfilled
Assumptions for scenario development (e.g. transportation)	Average waste collection truck with a 7.5-16t payload, 30 km of average distance to landfill site

Benefits and loads beyond the system boundaries:

D: Benefits of recycled packaging materials (Polyethylene, cardboard, and other plastics) are considered in the module D. The amount to recycle is considered avoided product to the technosphere.

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EUR	EUR	LV	GLO	GLO	ND	ND	ND	ND	ND	ND	ND	GLO	GLO	GLO	GLO	GLO
Specific data used	> 90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	NOT RELEVANT					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	NOT RELEVANT					-	-	-	-	-	-	-	-	-	-	-	-

Description of the system boundary (X = Included in LCA; ND = Not declared; NR = Not relevant)

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Wood	3.3 - 3.6	0.0 %	> 23.0 %
Cement	8.0 - 8.5	0.0 %	0.0 %
Limestone	> 1.0	0.0 %	0.0 %
Oil	> 0.035	0.0 %	0.0 %
Water	1.5 - 2.0	0.0 %	0.0 %
TOTAL	14.5	0.0 %	> 23.0 %
Packaging materials	Weight, kg	Weight-% (versus the product)	
Polyethylene	0.00186	0.01 %	
Cardboard	0.086	0.59 %	
Plastic Clamps	0.00122	0.01 %	
TOTAL	0.089	0.61 %	

No dangerous substances from the candidate list of SVHC are contained in the product.

Biogenic carbon content	Value
Carbon content in product (kg)	1.5E+00
Carbon content in accompanying packaging (kg)	5.0E-2

Environmental Information

Data results is now presented for the A2 Panel in its declared unit of 1 m².

A2 Panel

Potential environmental impact – mandatory indicators according to EN 15804:2012+A2:2019

Results per declared unit									
Indicator	Unit	Tot. A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	9.3E+00	2.1E+00	4.6E-03	4.8E-02	9.3E-02	0.0E+00	7.6E-02	-1.1E-01
GWP-biogenic	kg CO ₂ eq.	-5.5E+00	3.5E-03	1.2E-02	3.8E-05	2.6E-04	0.0E+00	2.4E-04	6.0E-02
GWP-luluc	kg CO ₂ eq.	8.6E-03	7.9E-04	8.5E-08	3.8E-06	3.9E-05	0.0E+00	2.1E-05	-1.8E-03
GWP-total	kg CO ₂ eq.	3.8E+00	2.1E+00	1.7E-02	4.8E-02	9.3E-02	0.0E+00	7.6E-02	-5.7E-02
ODP	kg CFC 11 eq.	7.2E-07	4.9E-07	3.3E-11	1.0E-08	2.1E-08	0.0E+00	3.1E-08	-8.6E-09
AP	mol H ⁺ eq.	5.1E-02	2.3E-02	2.8E-06	5.0E-04	3.6E-04	0.0E+00	7.2E-04	-8.4E-04
EP-freshwater	kg PO ₄ eq.	3.8E-03	3.7E-04	1.3E-07	4.4E-06	2.2E-05	0.0E+00	2.2E-05	-1.8E-04
EP-freshwater	kg P eq.	1.3E-03	1.2E-04	4.2E-08	1.4E-06	7.3E-06	0.0E+00	7.1E-06	-6.0E-05
EP-marine	kg N eq.	1.4E-02	5.5E-03	1.5E-06	2.2E-04	1.1E-04	0.0E+00	2.5E-04	-2.6E-04
EP-terrestrial	mol N eq.	1.5E-01	6.1E-02	1.3E-05	2.4E-03	1.2E-03	0.0E+00	2.7E-03	-2.4E-03
POCP	kg NMVOC eq.	4.2E-02	1.7E-02	3.2E-06	6.6E-04	3.6E-04	0.0E+00	8.0E-04	-4.9E-04
ADP-minerals&metals*	kg Sb eq.	1.7E-05	4.4E-06	8.9E-10	1.9E-08	4.4E-07	0.0E+00	1.7E-07	-6.3E-07
ADP-fossil*	MJ	6.7E+01	3.2E+01	2.1E-03	6.5E-01	1.4E+00	0.0E+00	2.1E+00	-1.6E+00
WDP*	m ³	5.0E-01	9.3E-02	3.0E-04	9.4E-04	4.4E-03	0.0E+00	9.6E-02	-1.1E-01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Use of resources

Results per declared unit									
Indicator	Unit	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.0E+01	2.6E-01	7.2E-05	2.6E-03	1.6E-02	0.0E+00	1.2E-02	-1.1E-01
PERM	MJ	9.9E+01	8.9E-02	2.9E-05	8.3E-04	6.3E-03	0.0E+00	5.5E-03	-1.6E+00
PERT	MJ	1.1E+02	3.5E-01	1.0E-04	3.4E-03	2.2E-02	0.0E+00	1.7E-02	-1.7E+00
PENRE	MJ	6.7E+01	3.2E+01	2.1E-03	6.5E-01	1.4E+00	0.0E+00	2.1E+00	-1.6E+00
PENRM	MJ	1.0E-02	8.1E-04	2.4E-08	1.7E-06	3.8E-05	0.0E+00	1.1E-05	-2.0E-03
PENRT	MJ	6.7E+01	3.2E+01	2.1E-03	6.5E-01	1.4E+00	0.0E+00	2.1E+00	-1.6E+00
SM	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	m ³	2.9E-02	3.0E-03	1.1E-05	3.2E-05	1.6E-04	0.0E+00	2.3E-03	-3.7E-03
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

Waste production and output flows

Waste production

Results per declared unit									
Indicator	Unit	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.1E-04	6.7E-05	5.3E-09	1.8E-06	3.7E-06	0.0E+00	3.1E-06	-2.7E-06
Non-hazardous waste disposed	kg	1.5E+00	2.2E+00	2.7E-04	7.9E-04	5.5E-02	0.0E+00	1.4E+01	-1.3E-02
Radioactive waste disposed	kg	4.0E-04	2.2E-04	5.5E-09	4.6E-06	9.4E-06	0.0E+00	1.4E-05	-7.1E-06

Output flows

Results per functional or declared unit									
Indicator	Unit	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Material for recycling	kg	0.0E+00	0.0E+00	7.9E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported energy, electricity	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported energy, thermal	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

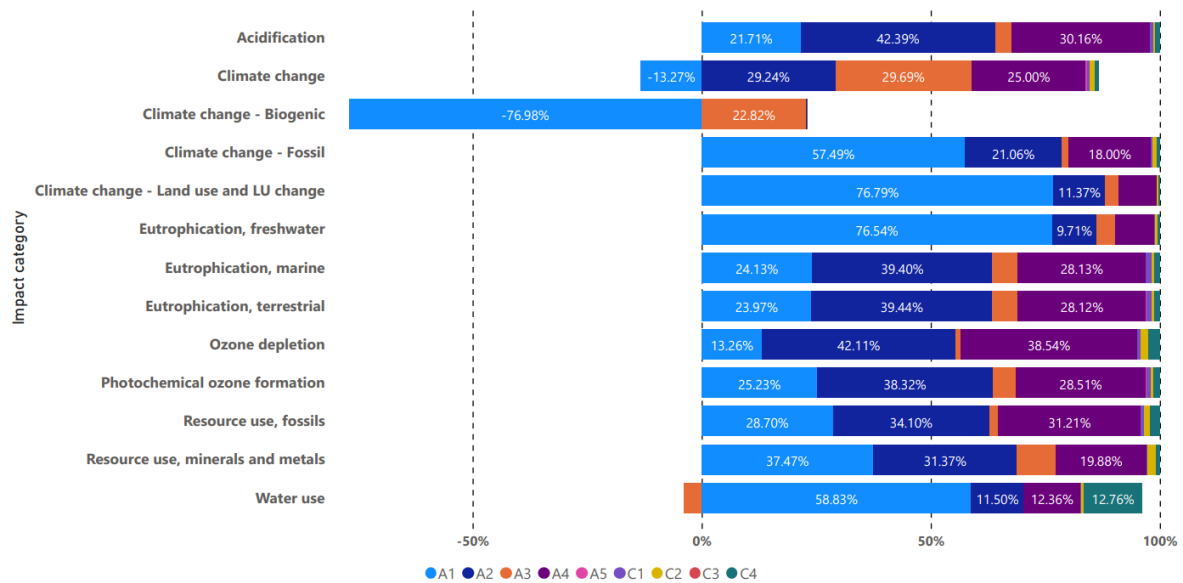
Global warming calculated as in previous standards (Global warming potential - GWP100a)

Results per functional or declared unit									
Indicator	Unit	Tot.A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential - GHG	kg CO ₂ eq.	9.2E+00	2.1E+00	4.6E-03	4.7E-02	9.2E-02	0.0E+00	7.5E-02	-1.2E-01

LCA Interpretation

The impact on the environment of the life cycle of 1m² of CEWOOD's A2 panel version on Global Warming Potential is 6.1 kg of CO₂-eq. The overall environmental burden in most of the impact categories of the A2 panel life cycle is dominated by the Product stage (A1-A3) and the Construction stage (A4-A5) as can be observed in the following figure. The use of wood reduces the overall impact in the Climate Change impact category, as the results at Biogenic CO₂ emissions are negative (understood as a benefit to the environment), due to the carbon fixation within the product. The transport of the final product to the destination for installation is the dominant module in the construction stage and it is an important driver in several impact categories. From the figure, it can also be seen how transport activities (Modules A2 and A4), play an important role in the overall effect of the A2 panels in several impact categories such as acidification, marine and terrestrial eutrophication, ozone depletion, photochemical ozone formation, and the ones related to use of resources. The Use phase has not been considered as it is assumed there is no impact from this stage.

The Module D, accounting for benefits or loads beyond the system boundaries, shows an overall benefit from the recycling of packaging materials according to the modeled waste treatment scenario within the time boundaries.



Information related to the EPD Sector

This EPD® is individual.

Differences with previous versions

This is the first version of EPD®.

Additional information

CEWOOD is a responsible, future-oriented company which has set as its basic objective the natural quality of the panels that it produces, which is why focus is on the source of the raw materials, sustainability and renewable energy. The company pays a lot of attention to ensure that the panels contain only 100% natural, high-quality components that are sourced in an environmentally friendly way. Panels are made of PEFC certified timber using green energy. Our panels have received quality and sustainability certification, such as M1, Powered by Green, PEFC. The quality of CEWOOD Acoustic panels and their compliance with stringent environmental and health safety requirements are attested by the international NaturePlus certificate. CEWOOD is member of Europe's largest network for sustainable building – DGNB and our panels are recommended as safe for health by Latvian Asthma and Allergy Society.

Upon delivery, check the panels for accordance with the order and for any visible defects. The panels maintain their properties at the temperature +23 (+/- 2) °C and the relative humidity of 50% (+/- 5%). To ensure the best properties, the panels should be allowed to adopt the ambient conditions. The optimal period for acclimatization is one to two weeks.

Please follow CEWOOD guidelines in webpage for indoor or outdoor storage conditions of panels! For more detailed information before and after installation, please visit: www.cewood.com section "Downloads".

References

- General Programme Instructions of the International EPD® System. Version 3.01.
- PCR 2019:14. Construction Products. Version 1.11
- SUB-PCR TO PCR 2012:01, 2020. Acoustical System Solutions (Construction Product)
- EN 15804:2012+A2:2019 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products;
- ISO 14040:2006: Environmental Management-Life Cycle Assessment-Principles and framework.
- ISO 14044:2006/Amd 2:2020 Environmental management. Life Cycle Assessment. Requirements and guidelines
- ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations. Principles and procedures.
- Ecoinvent v3.7 Database.
- Baitz M. and Bos U. (2020). Impact Methods, Data Collection and Data Requirements. Webinar: Environmental Footprint (EF) Transition Phase (2020).

