KNAUF

ENVIRONMENTAL PRODUCT DECLARATION

CHAPA RESISTENTE À UMIDADE (RU) - (RH) 12.5mm

In accordance with: ISO 14025, EN15804+A2:2019/AC:2021, ISO21930:2017

Programme:	The International EPD® System www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0027407:001
Version date:	2025-12-23
Validity date:	2030-12-23

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GENERAL INFORMATION

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 characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com support@environdec.com
EPD registration number:	EPD-IES-0027407:001
Published:	2025-12-23
Valid until:	2030-12-23
EPD owner	Yesos Knauf GmbH Juan Carlos Cruz 1528 Vicente Lopez, Argentina sustainabilitylatam@knauf.com
Product Category Rules:	PCR 2019:14. Construction products (EN 15804+A2) Version 2.0.1 C-PCR-031. Gypsum-based construction products (EN 17328:2024) Version: 2024-08-06.
Product group classification:	UN CPC 37530
Reference year for plant data:	2024
Geographical application scope:	South America

Product Category Rules (PCR)
CEN standard EN 15804+A2 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14. Construction products (EN 15804+A2) Version 2.0.1 Complementary product category rules (C-PCR) to PCR 2019:14: C-PCR-031. Gypsum-based construction products (EN 17328:2024) Version: 2024-08-06, UN CPC 37530.
PCR review was conducted by: The Technical Committee of the International EPD System *Review chair: Rob Rouwette (chair), Noa Meron (co-chair)* *The review panel may be contacted via support@environdec.com.*

Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006. ☐ Individual EPD verification without a pre-verified LCA/EPD tool ☐ Individual EPD verification with a pre-verified LCA/EPD tool ☒ EPD process certification* without a pre-verified LCA/EPD tool ☐ EPD process certification* with a pre-verified LCA/EPD tool ☐ Fully pre-verified EPD tool Third-party verification: *Bureau Veritas Certification Sweden AB with accreditation number 1236* Third-party verifier is accredited by: *SWEDAC - Sverige AB 1236* *EPD process certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.envrondec.com.
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

Information about the EPD owner

Description of the organisation:

Founded in 1932 by brothers Alfons and Karl Knauf in Iphofen, Germany, Gebr. Knauf Westdeutsche Gipswerk has grown into a global leader in high-quality building materials, specializing in gypsum products. Over the decades, the company has expanded its worldwide footprint, including significant growth in South America since 1998 through acquisitions in Argentina, Brazil, Chile, and Colombia, forming "Knauf South America."

With over 900 employees and operations spanning from gypsum quarries in Mendoza, Argentina, at 2,700 meters above sea level, to state-of-the-art production facilities in Cartagena, Colombia, Knauf South America combines local production with regional expansion. Its focus on dry construction systems enhances building comfort, safety, and quality across the region.

Knauf South America operates five quarries and the largest gypsum factory in the region, located in Luján de Cuyo, Argentina. It also runs seven training centers under the Knauf Akademie, offering free courses to advance expertise in dry construction technologies, empowering construction professionals to adopt innovative building solutions.

Queimados,Brazil

Brazil

Knauf began its operations in Brazil in 1997, initially importing Drywall systems produced in Europe. The following year, the company partnered with Senai to launch training courses for Drywall system installers, marking the start of its commitment to workforce development. In 2000, Knauf began local production at its Queimados plant in Rio de Janeiro, the first in Brazil to manufacture plasterboard and profiles. The facility expanded with additional production lines, reaching 25 million m² annually by 2011. In 2014, Knauf opened a second industrial park in Camaçari, Bahia, covering 157,000 m². The Camaçari plant began profile production in 2018 and is currently expanding its capacity.

Knauf's administrative offices are located in Rio de Janeiro, and the company employs over 280 people, most of whom work at the production plants. Knauf has also invested in professional training through its Knauf Akademia training centers, established in Camaçari, Queimados, São Paulo, and Belo Horizonte. Today, Knauf Brazil stands as the largest market in the region, supporting the growth of modern construction systems with high-quality local production and skilled talent development.

Name and location of production site:

The intended application of this product in the construction industry is within South America. The data utilized for the production stage life cycle assessment is related to production plant(s) located in located in Camaçari and Queimados, Brazil.

Adress:
Camaçari: R. Nafta - Camaçari, BA – Brazil
Queimados: Rod. Pres. Dutra, 198 - 5 - Cidade Jardim Marajoara, Queimados - RJ, 26373-320 – Brazil

Management system-related certifications:

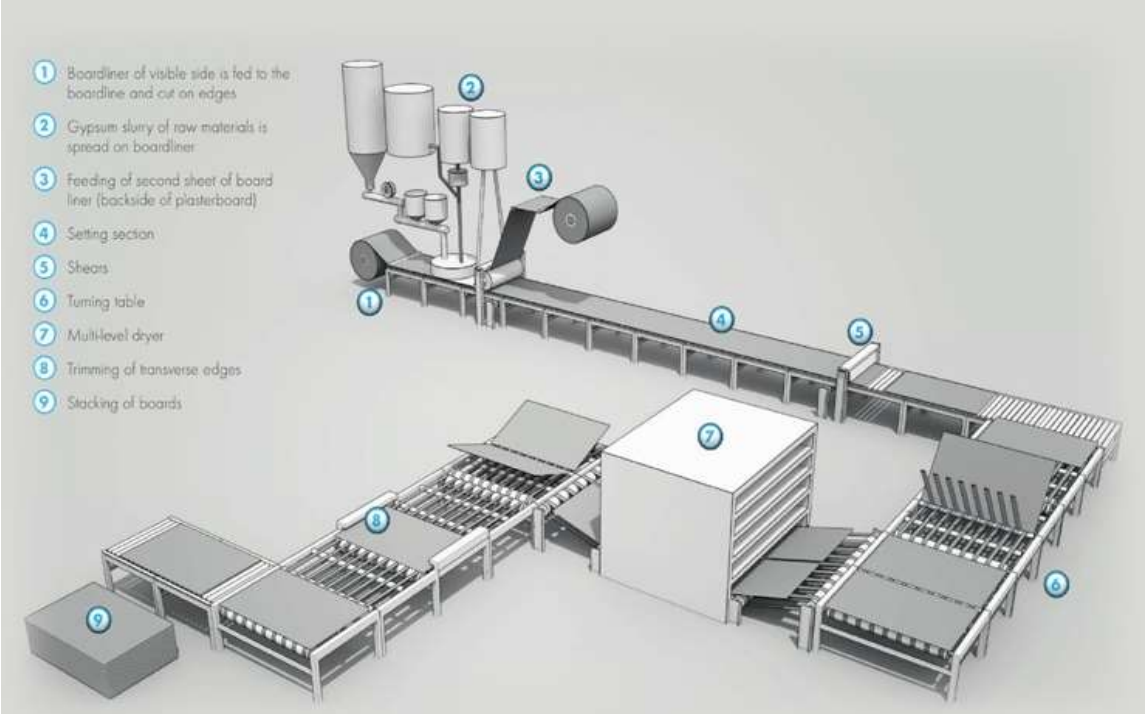
The site is ISO 9001 and ISO 45001 certified.

Product information

Information about gypsum plasterboard production

Production starts with raw materials mainly locally sourced, but some could be transported from other parts of the world.

To produce plasterboards, crushed gypsum is calcined to dehydrate the feedstock. The board components are suspended in silos in liquid phase and spread on a continuous sheet of board liner (visible face, lower layer). The liner is bend on the sides for edge shaping. The slurry is covered with a second sheet of board liner (back surface) in the forming station and the edges of the visible face board liner are flipped upwards. As the board moves down a conveyer line, the gypsum sets continuously. The hardened product reaches the shear, where automatic blades determine the length of the plasterboard. Then, plasterboards are dried in a multi-level dryer to the permitted residual moisture level. Drying is followed by the cutting of the boards to achieve a smooth termination. Finally, the plasterboards are piled and packed.



Chapa Resistente à Umidade (RU)

Product name

Chapa Resistente à Umidade (RU)

Product identification

Chapa Resistente à Umidade (RU) is a moisture resistant board industrially manufactured by a continuous lamination process from a mixture of gypsum, water, and water-repellent additives, formed between two paper liners. Also known as “green board.” Protects drywall systems against moisture, including splashes, water run-off, and the action of condensed water vapor. Flexible board, allows bending.

Product description

The main application for Chapa Resistente à Umidade (RU) is wet areas: walls, ceilings, and linings in drywall systems. Examples of use: residential and non-residential indoor environments such as domestic or industrial kitchens, pantries/break rooms, bathrooms, powder rooms, laundries, balconies/verandas, cafeterias/canteens, locker rooms. The plasterboards are built according to the norm ABNT NBR 14715:2010.

Geographical scope

The manufacturing is done in Queimados and Camaçari, Brazil. Regarding the market area, the product is mainly marketed in South America.

Technical Characteristics

Parameter	Value	Unit
Thickness	12.5	mm
Thermal Conductivity	0.21	W/(m.K)
Reaction to fire	A2	Class

UN CPC code

37530: Articles of plaster or of compositions based on plaster.

LCA information

Declared unit

The declared unit is 1m^2 of Chapa Resistente à Umidade (RU) with thickness of 12.5 mm and weight of 9.4kg/m^2.

Reference service life

The RSL of 50 years used in this analysis corresponds to the average life of plasterboards in general.

Time representativeness & Information on Specific Data

Plant production data for the complete year 2024 is used. The product considered in this EPD is produced in Queimados and Camaçari, Brazil.

The data which is used to carry out the LCA calculations contains 42% of primary data and 58% of secondary data. Data quality information used in this EPD is compliant with EN 15941.

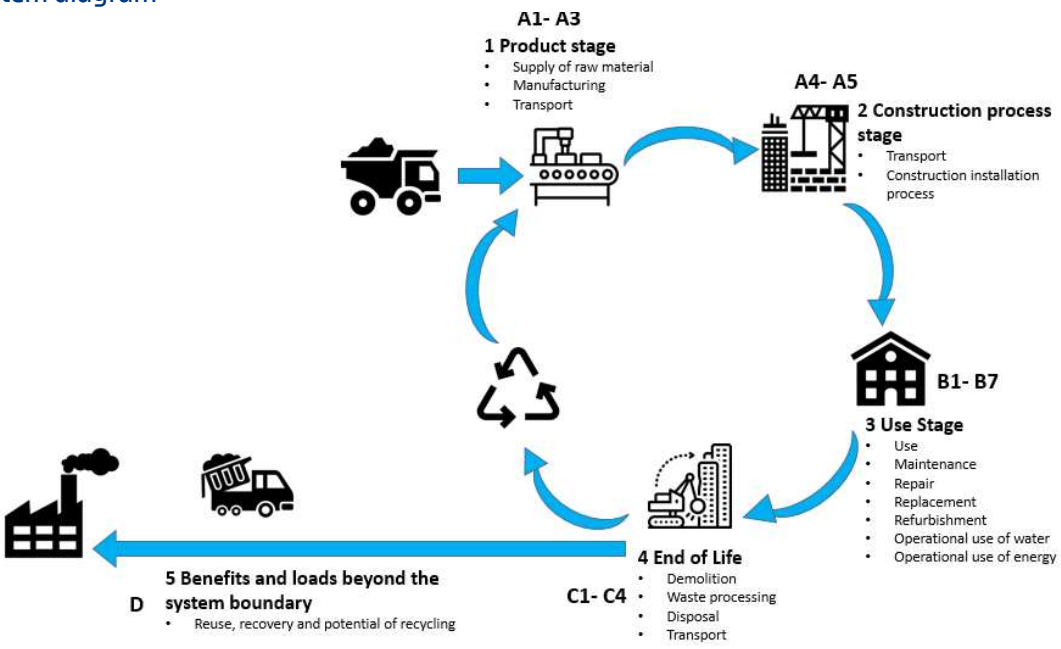
Database(s) and LCA software used:

The LCA model, the data aggregation and environmental impacts are calculated with the software LCA for Experts (GaBi) 10.9, databases: Ecoinvent 3.11 and MLC professional. The impact models used are those indicated in EN 15804:2012+A2:2019/AC:2021, version EF 3.1.

Energy information

Energy input for Brazil is selected. The emission of CO_2 is 0.0138 kg per kWh for electricity (100% wind electricity through RECs annually purchased).

System diagram



Description of system boundaries

The system boundary of the EPD follows the modularity approach defined by the EN 15804:2012+A2:2019/AC:2021.

The type of EPD is cradle-to-grave.

For a comprehensive assessment, it is strongly recommended to consider the results from all the modules. Relying exclusively on Modules A1-A3 may lead to incomplete conclusions.

A comprehensive list and detailed explanations of each stage within the EPD are available as follows.

The product stage (A1-A3) includes:
- A1 – raw material extraction and processing, processing of secondary material input (e.g. recycling processes),
- A2 – transport to the manufacturer and
- A3 – manufacturing.

This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of-waste state or disposal of final residues during the product stage.

The LCA results are presented in an aggregated format for the product stage, where modules A1, A2, and A3 are consolidated into a single module, denoted as A1-A3.

Product Parameters	Value
Product weight	9.4 kg/m^2
Thickness	12.5mm
Area	1 m^2
Packaging – Polyethylene	4.0E-03 kg/m^2
Packaging – Paper	5.5E-03 kg/m^2
Packaging – Wooden pallet	6.6E-02 kg/m^2

The construction process stage includes:
- A4 - transport to the construction site and
- A5 - installation into the building.

The transport to the building site (A4) included in this LCA uses a standard distance of 100km by truck. This facilitates the extrapolation of the results in A4 to the real distance once the construction site location is known. This consists of the following parameters:

Parameter	Value
Average transport distance (truck)	100 km
Type of fuel and vehicle used for transport (truck)	Truck Euro 4 (20-26 t / 17,3 t payload).
Truck capacity utilization (including 40 % of empty returns)	80 % of the weight capacity
Loss of plasterboard on site	5%
Packaging – Polyethylene	100% incinerated
Packaging – Cardboard	100% incinerated
Packaging – Wooden pallet	100% landfilled

During the installation (A5) of plasterboard, screws, joint tape, fillers and water are generally used. The parameters bellow were considered.

Parameter	Value
Screws	12 (0.024kg)
Filler	0.33 kg
Joint tape	1.25 m (0.06 kg)
Water	0.178 kg
Loss of ancillary materials on site	10%

The treatment and the transport of the packaging waste after the installation of the product (A5) has been considered.

The Use stage (B1-B7) includes:

- B1: Use
- B2: Maintenance
- B3: Repair
- B4: Replacement
- B5: Refurbishment
- B6: Operational Energy Use
- B7: Operational Water Use

Once installation is complete, no actions or technical operations are required during the use stages until the end of life. Therefore, the plasterboard type A has no impact on this stage.

The end-of-life stage includes:

- C1 – de-construction, demolition,
- C2 – transport to waste processing,
- C3 – waste processing for reuse, recovery and/or recycling and
- C4 – disposal.

This includes provision of all transport, materials, products and related energy and water use.

Although gypsum products from Knauf are partly recycled at their end-of-life, an established collection system does not yet exist in all countries. Therefore, the assumption chosen in this study, 100% landfill for gypsum (C4) after the use phase, is the most conservative approach.

For energy consumption and transport distance, the default values available on the PCR 2019:12 2.0.1 were used.

Parameter	Value
Energy consumption for demolition/deconstruction	1.1 kWh diesel/ton plasterboard
Disposal type	100 % incinerated for the paper liner; 100% landfilled for the gypsum 0 % recycled
Average transport distance waste (C2)	130 km for materials incinerated 80 km for materials landfilled
Type of vehicle used for transport.	Truck Euro 5 (20-26 t / 17,3 t payload).
Truck capacity utilization (including 40% empty returns)	80 % of the weight capacity

Module D includes reuse, recovery and/or recycling potentials. According to EN 15804:2012+A2:2019 any declared benefits and loads from net flows leaving the product system not allocated as co-products and having passed the end-of waste state shall be included in module D. The benefits considered in module D originate from packaging recycling or incineration.

Cut-off rules and Additional information

All raw materials used in the manufacture of the declared product, the required energy, water consumption and the resulting emissions are considered in the LCA. As a result, recipe components with a share of less than 1% are included. All neglected processes contribute less than 5% to the total mass or less than 5% to the total energy consumption. For information, the impact of the gypsum plasterboard plant construction or manufacturing equipment is not taken into account in the life cycle assessment. Allocation criteria with by-products are based on cost, but no by-products are considered into this EPD.

Ancillary materials required for fixing and installation are included in the scope of this LCA. The impact of any additional construction products or materials (steel profiles, for example) are not included in this EPD and should be accounted for at building level.

Conversion to mass

The conversion factor used in this EPD involves multiplying the results by 0.107 to obtain Environmental Impact Indicator results for 1 kg.

Name and contact information of LCA practitioner

Contact : Marcella Cristina Neves Alvarenga
E:mail: MarcellaCristina.NevesAlvarenga@knauf.com

Declared Modules, geography, share of specific data (in GWP-GHG indicator) & data variation

Life cycle stages and the description of the system boundaries for the reference product LCA (X= included in the LCA, MND = module is not declared)

	Production stage			Construction stage		Use stage	End of life stage				Loads and benefits beyond system boundary
	A1	A2	A3	A4	A5	B1 - B7	C1	C2	C3	C4	D
	Raw Materials	Raw materials transport	Manufac turing	Delivery	Installation	Use Maintenance Repair Replacement Refurbishment Operational energy Operational water	Demolition or deconstruction	Transport to treatment site	Waste processing	Disposal	Future reuse, recycling or energy recovery potential
	X	X	X	X	X	X	X	X	X	X	X
Geopraphy	Rest of the world	Rest of the world	Brazil / rest of the world	Rest of the world	Rest of the world	Rest of the world	Rest of the world	Rest of the world	Rest of the world	Rest of the world	Rest of the world
Share of primary data	42%										
Variation* - products	0%										
Variation** - Sites	+13/-39%										

*Variation regarding the average EPD result in terms of GWP-GHG indicator amongst products covered with this EPD
**Variation regarding the average EPD result in terms of GWP-GHG indicator

The grouping of the plasterboards for different sites is done by worst-case scenario for the raw and packaging materials (A1-A3).

Data quality assessment for the processes contributing more than 10% to the GWP-GHG results:

Process	Source	Source type	Reference year	Data category	Geographical representa-tiveness	Technological representa-tiveness
Raw materials	Database	Ecoinvent 3.11	2024	Secondary data	Good	Good
Natural gas consumption in manufacturing of product	Database	Ecoinvent 3.11	2024	Primary data	Good	Very good
Other energy consumption in manufacturing of product (electricity, diesel and LPG)	Database	Ecoinvent 3.11	2024	Primary data	Very good	Good

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

According to PCR 2019:14 v2.0.1 infrastructure should be outside of the system boundary (expect for energy-related infrastructure). However, infrastructure impacts could have been considered in some background datasets.

Content Declaration

The table below represents the composition and packaging information for 1m^2 of plasterboard Chapa Resistente à Umidade (RU) 12.5mm and weight of 9.4kg

Product components	Weight %	Recycled content, % .	Biogenic carbon content, %	Biogenic carbon material, kg C
Gypsum	75-85	0	0	0
Water	10-15	0	0	0
Liner	2-5	81	39	1.4E-01
Additives	1-2	0	39-60	2.5E-02
TOTAL	100	-	-	1.7E-01
Packaging Materials	**Weight, kg/m2**	**Weight -% (versus the product)**	**Biogenic carbon content, %**	**Biogenic carbon material, kg C**
Packaging – Polyethylene	4.0E-03	4.3E-04	0	0
Packaging – Paper	5.5E-03	5.9E-04	39	2.2E-03
Packaging – Wooden pallet	6.6E-02	7.1E-03	39	2.6E-02
TOTAL	7.6E-02	8.2E-03	-	2.8E-02

The materials content can slightly vary from the need to regulate the production process.

Environmental performance

Potential environmental impacts: 1m² of plasterboard Chapa Resistente à Umidade (RU) with a thickness of 12.5 mm and weight of 9.4 kg/m²

These results are representative of all the product's dimensions.

ENVIRONMENTAL IMPACTS										
Parameter	**Unit**	**A1-3*****	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D****
GWP-total	kg CO_2 eq.	2.6E+00	7.6E-02	5.4E-01	0.0E+00	3.5E-02	6.4E-02	6.6E-04	6.7E-01	-3.1E-02
GWP-fossil	kg CO_2 eq.	3.3E+00	7.0E-02	3.8E-01	0.0E+00	3.5E-02	5.8E-02	6.6E-04	7.4E-02	-3.1E-02
GWP-biogenic	kg CO_2 eq.	-7.1E-01	1.5E-04	1.5E-01	0.0E+00	1.3E-05	1.3E-04	6.4E-09	6.0E-01	-2.7E-06
GWP-luluc	kg CO_2 eq.	5.8E-02	6.1E-03	3.8E-03	0.0E+00	8.6E-06	5.1E-03	7.7E-07	3.9E-05	-2.2E-05
ODP	kg CFC 11 eq.	4.8E-05	9.1E-12	2.4E-06	0.0E+00	1.5E-09	9.5E-12	7.4E-12	1.8E-09	-1.8E-09
AP	mol H^+ eq.	2.3E-02	2.9E-04	2.2E-03	0.0E+00	3.2E-04	2.4E-04	6.6E-06	5.4E-04	-1.7E-04
EP-freshwater	kg P eq.	4.3E-04	1.0E-06	1.4E-04	0.0E+00	9.4E-07	8.6E-07	3.2E-07	9.0E-06	-2.3E-05
EP-marine	kg N eq.	7.0E-03	1.4E-04	6.8E-04	0.0E+00	1.6E-04	1.2E-04	1.6E-06	2.3E-04	-3.8E-05
EP-terrestrial	mol N eq.	6.8E-02	1.5E-03	6.5E-03	0.0E+00	1.7E-03	1.3E-03	1.7E-05	2.3E-03	-3.8E-04
POCP	kg NMVOC eq.	1.9E-02	2.7E-04	2.0E-03	0.0E+00	4.9E-04	2.2E-04	5.1E-06	7.7E-04	-1.6E-04
ADP-minerals&metals*	kg Sb eq.	3.5E-05	5.7E-09	2.4E-06	0.0E+00	1.2E-08	4.9E-09	3.4E-08	1.1E-07	-5.5E-07
ADP-fossil*	MJ	4.7E+01	9.3E-01	6.0E+00	0.0E+00	4.6E-01	7.8E-01	8.8E-03	1.6E+00	-4.5E-01
WDP*	m^3 world eq.	1.4E+00	3.3E-04	1.9E-01	0.0E+00	3.1E-03	2.8E-04	1.4E-04	7.3E-02	-8.9E-03
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 1: 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.*

***: [Life Cycle D stage covers benefits and loads beyond the system boundary stage (reuse, recovery and recycling potential) therefore, when summing up results, this stage should be considered separately].*

**** The indicator's results are calculated using a reference product.*

Potential environmental impact – additional mandatory and voluntary indicators

Indicator	Unit	Tot.A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-GHG [2]	kg CO_2 eq.	3.3E+00	7.6E-02	3.9E-01	0.0E+00	3.5E-02	6.4E-02	6.6E-04	7.4E-02	-3.1E-02

[2] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product

Use of resources: 1m² of plasterboard Chapa Resistente à Umidade (RU) with a thickness of 12.5 mm and weight of 9.4 kg/m²

These results are representative of all the product's dimensions.

RESOURCES USE										
Parameter	**Unit**	**A1-3*****	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D***
PERE	MJ	1.4E+01	1.1E-01	1.7E+00	0.0E+00	2.5E-03	8.9E-02	1.1E-03	1.7E-02	-3.3E-02
PERM	MJ	7.3E+00	0.0E+00	1.3E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERT	MJ	2.1E+01	1.1E-01	3.1E+00	0.0E+00	2.5E-03	8.9E-02	1.1E-03	1.7E-02	-3.3E-02
PENRE	MJ	4.5E+01	9.3E-01	5.9E+00	0.0E+00	4.4E-01	7.8E-01	8.8E-03	1.6E+00	-4.5E-01
PENRM	MJ	1.9E+00	0.0E+00	9.3E-02	0.0E+00	1.5E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PENRT	MJ	4.7E+01	9.3E-01	6.0E+00	0.0E+00	4.6E-01	7.8E-01	8.8E-03	1.6E+00	-4.5E-01
SM	kg	2.9E-01	0.0E+00	1.4E-02	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	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	0.0E+00
FW	m^3	3.4E-02	3.5E-05	4.5E-03	0.0E+00	7.2E-05	2.9E-05	3.1E-06	1.7E-03	-2.1E-04
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									

**: [Life Cycle D stage covers benefits and loads beyond the system boundary stage (reuse, recovery and recycling potential) therefore, when summing up results, this stage should be considered separately].*
**** The indicator's results are calculated using a reference product, with equal weighting between plants, if this is a single plant, it means 100% for that plant.*

Waste production and output flows: 1m² of plasterboard Chapa Resistente à Umidade (RU) with a thickness of 12.5 mm and weight of 9.4 kg/m²

These results are representative of all the product's dimensions.

OUTPUT FLOWS AND WASTE CATEGORIES										
Parameter	**Unit**	**A1-3*****	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D***
Hazardous waste disposed	kg	6.5E-02	8.7E-06	2.8E-02	0.0E+00	3.6E-04	9.1E-06	4.0E-05	1.4E-02	0.0E+00
Non-hazardous waste disposed	kg	1.1E+00	5.8E-04	2.3E+00	0.0E+00	2.9E-03	5.0E-04	0.0E+00	1.0E+01	-5.9E-02
Radioactive waste disposed	kg	5.2E-06	1.0E-06	3.7E-07	0.0E+00	0.0E+00	8.6E-07	0.0E+00	0.0E+00	0.0E+00
Components for reuse	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	0.0E+00
Material for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-02	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	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	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	0.0E+00

**: [Life Cycle D stage covers benefits and loads beyond the system boundary stage (reuse, recovery and recycling potential) therefore, when summing up results, this stage should be considered separately].*
**** The indicator's results are calculated using a reference product, with equal weighting between plants, if this is a single plant, it means 100% for that plant.*

Additional impact categories and indicators: 1m² of plasterboard Chapa Resistente à Umidade (RU) with a thickness of 12.5 mm and weight of 9.4 kg/m²

These results are representative of all the product's dimensions.

ADDITIONAL IMPACT CATEGORIES AND INDICATORS

Parameter	Unit	A1-3****	A4	A5	B1-B7	C1	C2	C3	C4	D***
PM	Disease Incidence	1.1E-07	1.9E-09	1.8E-08	0.0E+00	9.3E-09	1.6E-09	9.0E-11	1.0E-08	-3.1E-09
IRP*	kBq U235 eq.	6.0E-02	1.0E-04	1.5E-02	0.0E+00	1.2E-04	8.9E-05	2.6E-05	1.0E-03	-1.7E-03
ETP-fw**	CTUe	9.6E+01	1.6E+00	5.8E+00	0.0E+00	1.6E-02	1.3E+00	5.7E-03	3.0E-01	-2.3E-01
HTP-c**	CTUh	3.3E-09	2.7E-11	4.6E-10	0.0E+00	3.5E-12	2.3E-11	5.0E-12	5.4E-11	-2.9E-10
HTP-nc**	CTUh	2.2E-08	7.7E-10	3.8E-09	0.0E+00	4.7E-11	6.4E-10	3.1E-11	1.9E-09	-3.1E-09
SQP**	dimensionless	5.6E+01	6.9E-01	1.6E+01	0.0E+00	1.6E-02	5.8E-01	1.4E-02	2.9E+00	-1.2E-01
Acronyms	PM = Particulate matter emissions; IRP= Ionising radiation, human health; ETP-fw: Ecotoxicity (freshwater); ETP-c: Human toxicity, cancer effects; HTP-nc: Human toxicity, non-cancer effects; SQP: Land use related impacts / soil quality									

** Disclaimer 1: 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.*
*** Disclaimer 2: 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.*
****: [Life Cycle D stage covers benefits and loads beyond the system boundary stage (reuse, recovery and recycling potential) therefore, when summing up results, this stage should be considered separately].*
***** The indicator's results are calculated using a reference product, with equal weighting between plants, if this is a single plant, it means 100% for that plant.*

Note: The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins and/or risks.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3). Environmental impacts from the product's full life cycle must be evaluated to ensure a comprehensive understanding.

Information on biogenic carbon content

Results per functional or declared unit		
BIOGENIC CARBON CONTENT	**kg C**	**kg CO_2 eq.**
Biogenic carbon content in product	1.7E-01	6.1E-01
Biogenic carbon content in packaging	2.8E-02	1.0E-01

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

LCA interpretation

ENVIRONMENTAL IMPACTS

The production stages (A1-A3) are the main sources of environmental impacts.

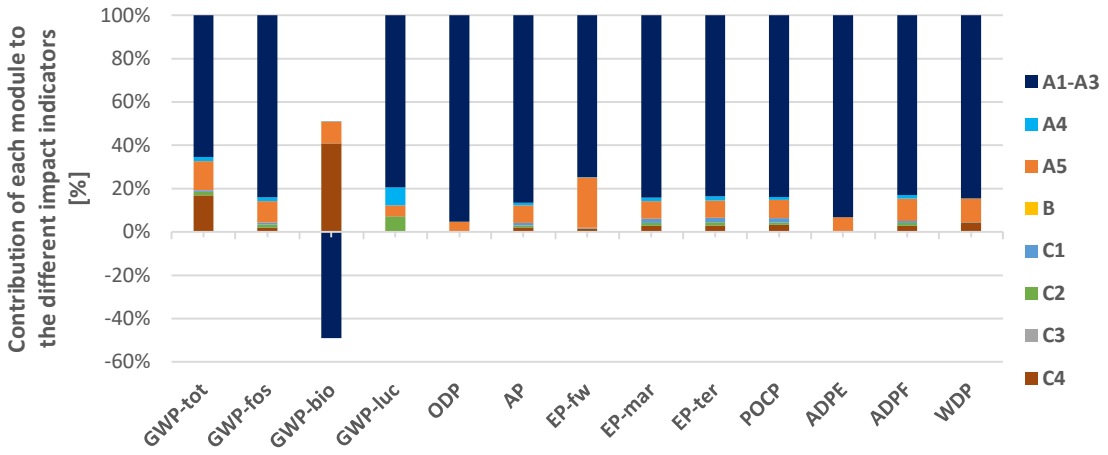
For, the indicators GWP-tot and GWP-bio, the disposal of the plasterboard (C4) is also a non-negligible contributor to the impact. This is due to the release of biogenic carbon from the paperboard during disposal.

The Abiotic Depletion Potential for Fossil Resources Potential (ADP-fossil) is dominated by energy consumption for the production.

The Acidification potential (AP) is dominated by production and the use of raw materials.

The Formation Potential of Tropospheric Ozone (POCP) is mostly driven by the production.

The Abiotic Depletion Potential for Non-Fossil Resources (ADP- minerals &metals) is dominated by consumptions of the raw materials.



Version history

Version	Date	Reason
Original version of the EPD	2025-12-23	Initial Release

Abbreviations

ADP	Abiotic Depletion Potential
AP	Acidification Potential
CEN	European Committee for Standardization
CO_2	Carbon dioxide
CPC	Central product classification
CPR	Construction product regulation
c-PCR	Complementary product category rules
EP	Eutrophication potential
EPD	Environmental product declaration
EU	European Union
FU	Functional Unit
FW	Fresh Water
GHG	Greenhouse gas
GPI	General programme instructions
GWP	Global warming potential
HTP	High Temperature Plastics
HTP	Human Toxicity Potential
IRP	Ionising radiation Potential
ISO	International Organization for Standardization
LCA	Life cycle assessment
LDPE	Low density Polyethylene
NRSF	Use of non-renewable secondary fuels
ODP	Depletion potential of the stratospheric ozone layer
PCR	Product category rules
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
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
PM	Particulate Material
POCP	Potential of Tropospheric Ozone
RSF	Use of renewable secondary fuels
RSL	Reference Service Life
SM	Use of secondary material
SQP	Soil Quality Potential
UN	United Nations
WDP	Water Deprivation Potential

References

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General Programme Instructions of the International EPD® System. Version 5.0.
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LCA for Experts 10.9: Software and database for life cycle engineering. LBP, University of Stuttgart and Sphera, 2025.

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Complementary product category rules for gypsum-based construction products

ISO 14021
ISO 14021:2016 Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)

ISO 14025
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EN 15804:2012+A2:2019/AC:2021
EN 15804:2012+A2:2019/AC:2021: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

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Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data

ISO 21930:2017
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