

# Environmental Product Declaration

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

## *Sandwich panels with PUR or PIR insulating core for cold rooms*

from

**KIDE, S. COOP.**



*EPD of multiple products, based on average representative product (60mm). See product description for more information.*



Programme:	The International EPD System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products from a company
EPD registration number:	EPD-IES-0000353:003 (S-P-00353)
Version date:	2026-01-20
Validity date:	2031-01-20

*An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see [www.environdec.com](http://www.environdec.com)*

## GENERAL INFORMATION

### Programme Information

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
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### Product Category Rules (PCR)

<b>CEN standard EN 15804 serves as the Core Product Category Rules (PCR)</b>	
<b>Product Category Rules (PCR):</b>	<i>PCR 2019:14 Construction products. Version 2.0.1</i>
<b>PCR review was conducted by:</b>	<i>The Technical Committee of the International EPD@ System. Review chair: Rob Rouwette. The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a>.</i>
<b>c-PCR:</b>	<i>c-PCR-005 to PCR 2019:14 Thermal insulation products (EN 16783) (1.0.0)</i>

### Third-party Verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
<input checked="" type="checkbox"/> <b>Individual EPD verification without a pre-verified LCA/EPD tool</b> Third-party verifier: <i>Elisabet Amat, GREENIZE (<a href="mailto:eamat@greenize.es">eamat@greenize.es</a>)</i> Approved by: International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier:
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

## Information about EPD owner

**EPD Owner**

KIDE, S. Coop.  
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[www.kide.com](http://www.kide.com)  
[kide@kide.com](mailto:kide@kide.com)



### Description of the organisation

KIDE S.COOP is a business Group manufacturer of cold-rooms, insulation panels, insulated doors, refrigeration units and drying units, offering integral solutions to its clients and developing valuable relations with the agents it works with.

It is aimed at different sectors where activity mostly deals with installers and distributors, and it seeks to stand out in terms of its quality and service, with a value proposal that sets it apart, being a group of reference in a national sphere while having international projection.

It is a Group of companies based on cooperative principles, integrated into the MONDRAGON Group, and whose final objective is to grow in a sustainable manner, creating wealth and well-being as well as support in cultural development within its surroundings.

### Product-related or management system-related certifications

- ISO 9001:2015 Quality Management System
- ISO 14001:2015 Environment Management System



## Product information

**Product name:**

Sandwich panels with expanded rigid polyurethane or polyisocyanurate insulating core for cold rooms

**Product identification:** Thermal insulation panel

**UN CPC code:** 54650

**Name and location of production site(s):**

KIDE S.COOP.

Pol Gardotza nº1- (48710) Berriatua, Bizkaia, Spain.

[www.kide.com](http://www.kide.com)

**Product description:**

The prefabricated KIDE panels are made up of an insulating core of rigid polyurethane or polyisocyanurate foam, the 2 surfaces of which receive a cover of electrogalvanized sheet steel. They are lacquered in their standard version. The panels are joined together to make walls, floors and insulated roofs, thereby forming a cold room, or an air-conditioned enclosure at positive or negative.

**Production process:**

- Metal Sheet forming: In this phase, the metal sheet is cutted and covered with polyethylene film protector.
- Assembly phase: In this stage, both metal faces of the panel are fixed with auxiliary materials like profiles and hooks.
- Preparation of Polyurethane Foam components: In this stage polyol is mixed with expanded gas. Isocyanate and the polyol mixed with the expanded gas are contained into separated tanks ready for the injection process.
- Injection process: the metal frame is placed into the press. At this stage, the metal frames are filled with inert gas and isocyanate, and polyol-gas are subsequently injected into the metal frame. The isocyanate and polyol-expanded gas mixture react inside the panel, and the polyurethane foam is formed. After a curing period in the press, the final product is ready.
- Packaging: The production process is considered complete at the time the order is completely packaged and sent for dispatch



**Technical information:**

- Thermal resistance, R, (K·m<sup>2</sup>·W-1) (UNE-EN 12667). Depending on the thicknesses:

Thickness (mm)	40	60	75	80	100	120	150	180	200
R (K·m <sup>2</sup> ·W-1)	0,6	0,4	0,32	0,3	0,24	0,2	0,15	0,14	0,12

- Thermal conductivity: 0,025W/(m·K) (UNE-EN 12667)
- Reaction to fire: Euroclase Bs2d0 (UNE-EN 13501-1) / Euroclase Bs1d0 (UNE-EN 13501-1)
- Water permeability: Class A (UNE EN 12865)
- Air permeability: n:0,70 C:0,19 (UNE EN 12144)
- Acoustic isolation: Rw:24 (-1;2) (UNE EN ISO 140-3)
- Density: 40Kg /m<sup>3</sup> ± 3 (UNE EN 1602)
- Tensile strength: 0,09 MPa (UNE EN 1607)
- Compressive strength: 0,19 MPa (UNE EN 826)
- Shear strength (UNE EN 14509). Depending on the thicknesses:

Thickness (mm)	40	60	75	80	100	120	150	180	200
Mpa	0,12	0,12	0,12	0,12	0,10	0,1	0,08	0,08	0,08



# Content declaration

## Product

Content of sandwich panels with **expanded rigid polyurethane (PUR) 60mm** insulating core for cold rooms

Product content PUR panel 60mm	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material*, kg C/product or declared unit
Faces / Metal sheet	9.06	-	-	-
Core / Polyurethane foam (Polyol)	1.09	-	-	-
Core / Polyurethane foam (Isocyanate)	1.60	-	-	-
Core / Polyurethane foam (Pentane)	0.03	-	-	-
Cam-lock / 90% Polyethylene PE & 10% Metal	0.17	-	-	-
Spacer / Polyethylene PE	0.01	-	-	-
Gasket / Silicone	0.02	-	-	-
TOTAL	11.97	-	-	-

\*1 kg biogenic carbon is equivalent to 44/12 kg of CO<sub>2</sub>

Content of sandwich panels with **expanded rigid polyisocyanurate (PIR) 60mm** insulating core for cold rooms

Product content PIR panel 60mm	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material*, kg C/product or declared unit
Faces / Metal sheet	9.06	-	-	-
Core / Polyurethane foam (Polyol)	1.33	-	-	-
Core / Polyurethane foam (Isocyanate)	1.44	-	-	-
Core / Polyurethane foam (Pentane)	0.03	-	-	-
Cam-lock / 90% Polyethylene PE & 10% Metal	0.17	-	-	-
Spacer / Polyethylene PE	0.01	-	-	-
Gasket / Silicone	0.02	-	-	-
TOTAL	12.06	-	-	-

\*1 kg biogenic carbon is equivalent to 44/12 kg of CO<sub>2</sub>

**Packaging**

The primary packaging used in the shipment of the product (distribution packaging) has been considered in the LCA. Packaging for both types of panels (PUR or PIR) are considered the same.

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material*, kg C/product or declared unit
Plastic	0.132	1.08%	-
Wood	0.284	2.33%	0.1421
Cardboard	0.001	0.01%	0.0004
TOTAL	0.417	3.42%	0.1425

\*1 kg biogenic carbon is equivalent to 44/12 kg of CO<sub>2</sub>

The manufacturer declares that during the life cycle of the studied product, no hazardous substances listed in the "Candidate List of Substances of Very High Concern (SVHC) for authorisation" are used in a percentage over 0.1% of the weight of the product.



## LCA information

Declared unit: The declared unit is 1 m<sup>2</sup> of sandwich panels with expanded rigid polyurethane or polyisocyanurate insulating core for cold rooms of 60mm thickness with a conductivity of 0,025 (W/m K) and a thermal resistance of:

Thickness (mm)	40	60	75	80	100	120	150	180	200
R (K·m <sup>2</sup> ·W-1)	0,6	0,4	0,32	0,3	0,24	0,2	0,15	0,14	0,12

The mass per square meter is 11,97 kg/m<sup>2</sup> for PUR panels and 12,06 kg/m<sup>2</sup> for PIR panels.

Reference service life: RSL not specified - product use stage has not been included in the study

Time representativeness: Data from the year 2024 has been used for the LCA calculation. The inventory data refers to the 12-months period between January 2024 and December 2024, representing conventional operation conditions.

Geographical scope: Product manufactured in Spain and distributed globally, although the LCA study was conducted with European parameters.

Database(s) and LCA software used: The LCA modelling was carried out using SimaPro v10.2.0.3 LCA software. All relevant background LCI database were sourced from the Ecoinvent database v3.11. In certain cases, such as electricity mix and steel coils of specific suppliers, the original Ecoinvent datasets were adapted to the specific requirements of the LCA analysis. The impact assessment methods used was EN 15804 +A2 LCIA & LCI indicators v.1.01.

### Description of system boundaries:

Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules A4).

#### A1-A3: Production stage (Cradle-to-gate)

A1 – raw material supply. Extraction of resources and production of raw materials; transport to raw materials treatment/production centres; energy and fuel consumption during the production of raw materials; consumption of other resources (such as water) during the production of raw materials; generation of waste and emissions into the air and discharges into water and soil during the production of raw materials; generation of electricity and heat from primary energy resources.

A2 – transport to the manufacturer site in Berriatua.

A3 – manufacturing. Consumption of electricity, propane and fuel have been considered; the production of the packaging necessary for the distribution of the product to the customer and its transport to the plant; and the transport and treatment to the waste manager of the waste generated during the product stage.

The electricity consumed at plant has been adapted to specific power mix supply with total emissions of 0.557 kg CO<sub>2</sub> eq/kWh.

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.

#### A4-A5: Distribution/ installation stage

A4 – For the transport towards clients a weighted average distance by truck and ship, based on Kide’s client’s location, has been considered. Kide distributes its products to clients around the world.

Parameter	Value
Fuel type and consumption of vehicle or vehicle type used for transport	EURO 6 truck (16-32 ton) diesel
	Container ship (43.000 DWT load capacity)
Average distance	Truck: 1.100 km
	Ship: 12.600 km
Capacity utilisation (including empty returns)	100% of the capacity in mass 30% of empty returns
Bulk density of transported products	40 Kg /m <sup>3</sup> ± 3
Volume capacity utilisation factor	1 (by default)

A5 – non-relevant module.

B1-B7: Use stage

Non-relevant modules. The product studied is integrated into larger structures, so it does not require any material or energy consumption.

C1-C4: End-of-life stage

C1 – de-construction/demolition. To represent the deconstruction/demolition process, the guidelines of PCR 2019:14 have been applied. The manufacturer declares that operations during the disassembly of its products do not generate particulate emissions into the air.

C2 – Transport to waste processing. For the impact of the transport to waste processing a distance of 80 km has been considered, applying the guidelines of PCR 2019:14.

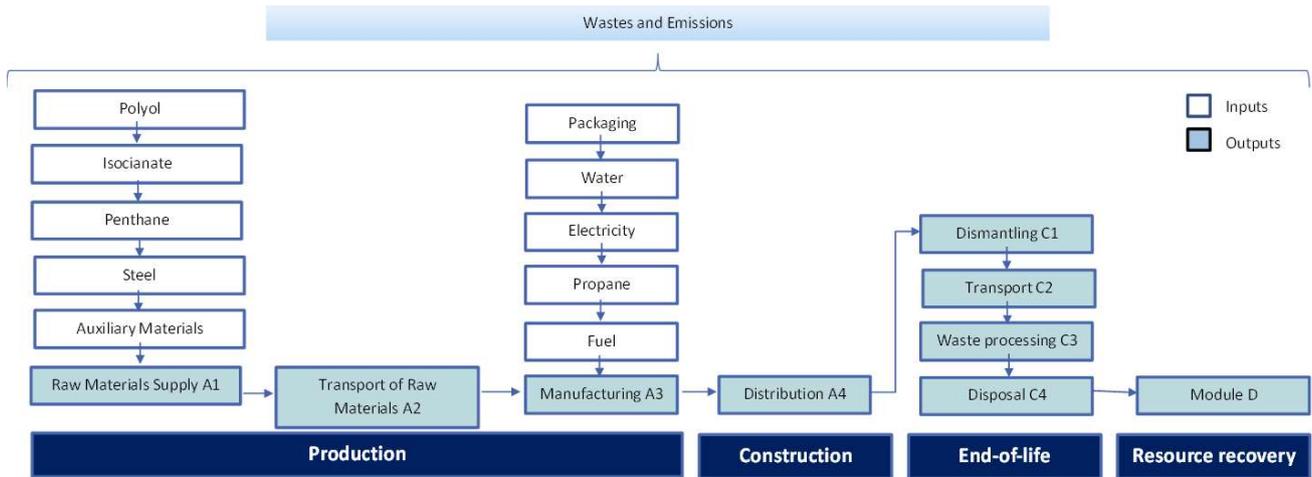
C3 – waste processing for recycling. This stage includes the operations necessary to prepare the material for final disposal, such as sorting, shredding, cleaning, or separating materials. It has been assumed that 95% of steel sheet metal is recycled.

C4 – disposal. PIR/PUR insulating core (100% non-metallic material) and the rest of the panel components are disposed of in a non-hazardous waste landfill, without energy recovery. The 5% of metal sheets not recycled in C3 goes to landfill.

Parameter	Value
Demolition	National mix: 1,1 kWh/Tn (default value from PCR)
Disposal type	Metal sheets (steel): 95% recycled; 5% landfill.
	Core and other materials: 100% landfill.
Collection process, specified by type	8,61 kg collected separately
	3,38 kg collected with construction waste mix
Recycling system, specified by type	Reuse: 0 kg
	Recycling: 8,61 kg of steel
	Energy recovery: 0 kg
Disposal system, specified by type	Landfill disposal: 3,38 kg of panel
	Incineration: 0 kg
Transport waste	Average distance – EURO 5 truck (16-32 ton)
	- for incineration: 130 km
	- for recycling and landfill: 80 km

Module D: Module D represents the environmental benefits and/or burdens generated beyond the system. In this study, recycling and recovery of 95% steel from the metal sheet of the panels are quantified as burdens. The benefit of avoiding the extraction of 95% virgin steel is applied as a benefit.

Process flow diagram:



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

Module	Product stage			Distribution/ installation stage		Use stage							End-of-life stage				Beyond product life cycle
	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
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	ES	GLO	-	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Share of primary data	19.65% GWP-GHG			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0.77% GWP-GHG			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

ND: Not declared module.

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 of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

Process name	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3	GWP-GHG contribution for A1-A3
Steel	Collected data	EPD owner	2024	Primary data	15.41%	15.41%
Steel	Company data, Database	Ecoinvent v3.11	2024	Secondary data	-	22.85%
Other raw materials	Company data, Database	Ecoinvent v3.11	2024	Secondary data	-	28.44%
Transport of raw materials & packaging	Company data, Database	Ecoinvent v3.11	2024	Primary data	2.61%	2.61%
Packaging – Plastic, Wood and Cardboard	Company data, Database	Ecoinvent v3.11	2024	Secondary data	-	1.53%
Electricity mix	Public national data, Database	CNMC (ES), Ecoinvent v3.11	2024	Primary data	1.15%	1.15%
Other manufacturing processes (water, waste treatment, diesel, propane)	Company data, Database	Ecoinvent v3.11	2024	Primary data	0.49%	0.49%
<b>Total share of primary data, of GWP-GHG results for A1-A3</b>					<b>19.65%</b>	<b>72.48%</b>

Representativeness, quality and selection of data:

Site-specific data were used for the manufacturing stage. In this LCA study, specific data were used from the manufacturing facility in Berriatua, Bizkaia (Spain), along with supplier-specific data for steel. When specific data is not available, generic data from internationally recognized databases was used.

The quality of the data used to calculate this LCA meets the following requirements:

- The data used in the LCA were as up to date as possible (updated within the last 10 years for generic data and within the last 5 years for manufacturer-specific data).
- Used background data are of recognised prestige and acceptance in the technical and scientific fields. In particular, the Ecoinvent database is considered to be of preferential use.
- Regionally specific datasets were used to model energy consumption (electricity, natural gas or diesel). For processes of transport, production of raw materials and end-of-life, datasets were chosen according to their technological and geographical representation of the actual process.

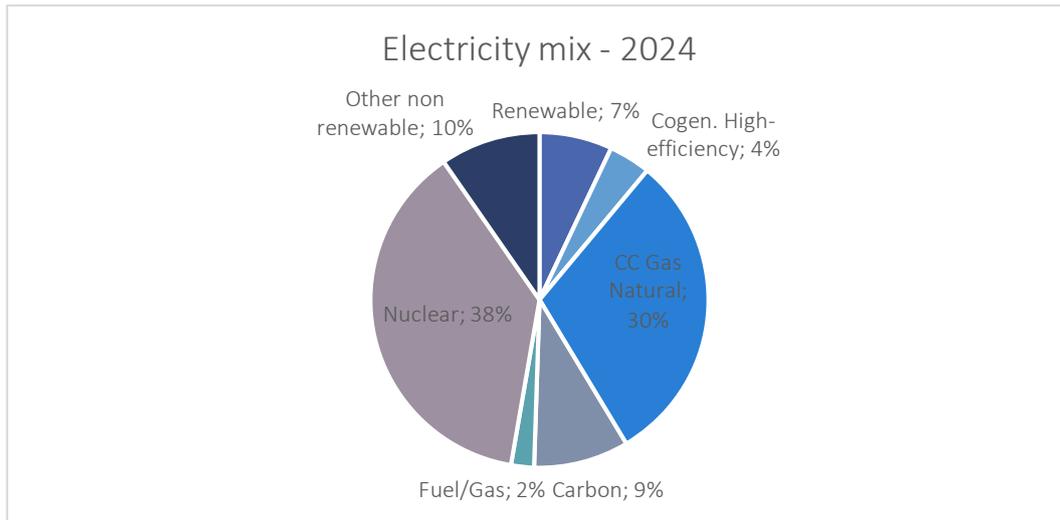
To assess the quality of the primary data used, the semi-quantitative evaluation criteria for data quality proposed by the European Union in its Guide to the Environmental Footprint of Products and Organizations are applied, obtaining a Data Quality Rating (DQR) = 1.99, which indicates that the quality of the data is very good.

The data quality criteria assessed for primary data are:

- Technological Representativeness (TeR) – 2.00
- Geographical Representativeness (GeR) – 2.12
- Temporal Representativeness (TiR) – 1.94
- Precision (P) – 1.91

Energy information

Market based approach electricity mix based on residual electricity mix from supplier (CNMC) for the year 2024 has been used – 0.557 kgCO2 eq./kWh



Allocation rules applied:

In accordance with the PCR criteria, the allocation of system inputs and outputs was based on physical properties (mass). This allocation criterion was applied to auxiliary materials, energy, transportation, and waste. Approach used for end of life allocation criteria is according to “Polluters Pay Principle”.

The quantities of the various materials used and produced in the manufacturing process are derived from measurements taken at the plant.

Cut-off rules:

As general rule, according to the criteria of the reference standard 95% of the total inflows (mass and energy) used in the manufacturing process have been included in the LCA. In addition, at least 95% of the environmental impacts of each module have been considered.

There has been no exclusion of energy consumption.

The following processes have been excluded:

- Manufacture of equipment used in the production, buildings, or any other capital goods.
- Business travel of personnel.
- Travel to and from work by personnel.
- Research and development activities including production and manufacture of laboratory equipment
- Long-term emissions.

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## Environmental performance

### LCA results of the product(s) - main environmental performance results

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).

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.

#### Mandatory impact category indicators according to EN 15804 (reference package EF 3.1)

Results per 1 m <sup>2</sup>										
Indicator	Unit	A1-A3	A4	A5*	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	3.81E+01	1.29E-01	ND	ND	4.49E-03	1.47E-01	3.53E-01	2.97E-02	-1.00E+01
GWP-fossil	kg CO <sub>2</sub> eq.	3.68E+01	1.29E-01	ND	ND	4.49E-03	1.47E-01	1.61E-01	2.95E-02	-1.02E+01
GWP-biogenic	kg CO <sub>2</sub> eq.	1.24E+00	9.11E-05	ND	ND	2.42E-06	1.08E-04	1.92E-01	1.56E-04	1.80E-01
GWP-luluc	kg CO <sub>2</sub> eq.	7.41E-02	2.24E-06	ND	ND	1.88E-07	2.33E-06	8.64E-05	4.12E-06	2.57E-03
ODP	kg CFC 11 eq.	2.27E-06	2.84E-09	ND	ND	6.83E-11	3.34E-09	8.92E-10	1.06E-09	-1.69E-08
AP	mol H <sup>+</sup> eq.	2.85E-01	4.77E-04	ND	ND	4.15E-05	3.79E-04	3.99E-04	3.53E-04	-3.05E-02
EP-freshwater	kg P eq.	9.64E-04	8.15E-08	ND	ND	4.23E-09	9.07E-08	4.36E-06	9.04E-07	-4.47E-04
EP-marine	kg N eq.	5.21E-02	1.15E-04	ND	ND	1.96E-05	1.45E-04	4.00E-04	8.81E-05	-6.91E-03
EP-terrestrial	mol N eq.	7.55E-01	1.28E-03	ND	ND	2.14E-04	1.58E-03	1.49E-03	9.50E-04	-8.24E-02
POCP	kg NMVOC eq.	1.53E-01	5.32E-04	ND	ND	6.39E-05	6.28E-04	4.62E-04	3.45E-04	-3.01E-02
ADP-minerals&metals <sup>1</sup>	kg Sb eq.	3.16E-04	3.17E-09	ND	ND	1.57E-10	3.83E-09	3.41E-09	7.89E-09	8.05E-07
ADP-fossil <sup>1</sup>	MJ	1.87E+02	0.00E+00	ND	ND	0.00E+00	0.00E+00	9.78E-01	7.35E-01	0.00E+00
WDP <sup>1</sup>	m <sup>3</sup>	2.97E+00	2.29E-04	ND	ND	2.87E-05	2.38E-04	1.35E-02	-4.01E-01	-1.75E-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									

\*Biogenic carbon leaving the product system in module A5 have been balanced out in modules A1-A3.

<sup>1</sup> The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

### Additional mandatory and voluntary impact category indicators

Results per 1 m <sup>2</sup>										
Indicator	Unit	A1-A3	A4	A5*	B1-B7	C1	C2	C3	C4	D
GWP-GHG <sup>2</sup>	kg CO <sub>2</sub> eq.	3.68E+01	1.29E-01	ND	ND	4.49E-03	1.47E-01	1.61E-01	2.95E-02	-1.02E+01
PM	disease inc.	1.47E-06	6.29E-09	ND	ND	1.18E-09	8.51E-09	6.46E-09	5.30E-09	-6.06E-07
IRP <sup>3</sup>	kBq U-235 eq	7.81E-01	1.61E-04	ND	ND	4.88E-06	1.88E-04	5.97E-03	3.07E-04	2.41E-01
ETP-fw <sup>1</sup>	CTUe	7.00E+02	6.07E-02	ND	ND	1.68E-03	6.98E-02	1.54E+00	4.53E-01	-2.16E+01
HTP-c <sup>1</sup>	CTUe	3.66E-08	8.85E-12	ND	ND	2.40E-13	9.90E-12	8.45E-11	1.04E-11	1.59E-09
HTP-nc <sup>1</sup>	CTUe	2.51E-07	8.10E-10	ND	ND	4.41E-12	9.74E-10	1.81E-09	7.74E-10	1.89E-08
SQP <sup>1</sup>	Pt	8.77E+01	2.16E-03	ND	ND	9.97E-05	2.48E-03	1.78E-01	1.84E+00	-6.47E+00
Acronyms	GWP-GHG = Global warming potential excluding biogenic carbon 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									

<sup>2</sup> This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

<sup>3</sup> This impact category primarily addresses the potential impacts of low doses of ionizing radiation on human health from the nuclear fuel cycle. It does not consider effects from potential nuclear accidents or occupational exposure due to radioactive waste disposal at underground facilities. The ionizing radiation potential of soil, due to radon or some building materials, is also not measured in this parameter.

### Resource use indicators

Results per 1 m <sup>2</sup>										
Indicator	Unit	A1-A3	A4	A5*	B1-B7	C1	C2	C3	C4	D
PERE	MJ	3.92E+01	4.16E-03	ND	ND	1.28E-04	4.87E-03	1.49E-01	1.15E-02	5.76E+00
PERM**	MJ	4.72E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	-4.72E+00	0.00E+00
PERT	MJ	4.39E+01	4.16E-03	ND	ND	1.28E-04	4.87E-03	1.49E-01	-4.71E+00	5.76E+00
PENRE	MJ	1.78E-01	1.09E-05	ND	ND	2.77E-07	1.31E-05	9.78E-01	7.35E-01	2.81E-02
PENRM**	MJ	8.89E+01	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	-8.89E+01	0.00E+00
PENRT	MJ	8.91E+01	1.09E-05	ND	ND	2.77E-07	1.31E-05	9.78E-01	-8.82E+01	2.81E-02
SM	kg	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	8.92E-06	3.53E-05	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	6.62E-07	3.42E-06	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m <sup>3</sup>	9.43E-02	2.41E-05	ND	ND	1.26E-06	2.76E-05	3.69E-04	-9.34E-03	4.37E-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									

\*\*Recovered energy leaving the product system in module A5 have been balanced out in modules A1-A3.

Energy used as raw material is declared according to option A of the PCR 2019:14

### Waste indicators

Results per 1 m <sup>2</sup>										
Indicator	Unit	A1-A3	A4	A5*	B1-B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	3.80E+00	3.54E-05	ND	ND	3.33E-06	3.49E-05	1.24E-02	5.78E-04	1.50E+00
Non-hazardous waste disposed	kg	4.66E+01	2.34E-03	ND	ND	5.77E-05	2.80E-03	7.71E-01	1.10E+01	-1.12E+01
Radioactive waste disposed	kg	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	4.89E-06	1.94E-07	0.00E+00

### Output flow indicators

Results per 1 m <sup>2</sup>										
Indicator	Unit	A1-A3	A4	A5*	B1-B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	1.46E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	8.61E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

### Additional end-of-life scenarios

The following tables show the environmental impact of the end-of-life stages, if 100% of 1 m<sup>2</sup> of product is sent to a landfill or recycled. In the recycling scenario, only the steel metal sheet is considered 100% recycled. The core of the insulation panel is always estimated to be sent to landfill.

End-of-life scenario with 100% recycling (per 1 m <sup>2</sup> )					
Indicator	Unit	C1	C2	C3	C4
GWP-total	kg CO <sub>2</sub> eq.	4.49E-03	1.47E-01	3.72E-01	2.56E-02
GWP-fossil	kg CO <sub>2</sub> eq.	4.49E-03	1.47E-01	1.70E-01	2.54E-02
GWP-biogenic	kg CO <sub>2</sub> eq.	2.42E-06	1.08E-04	2.02E-01	1.34E-04
GWP-luluc	kg CO <sub>2</sub> eq.	1.88E-07	2.33E-06	9.09E-05	3.55E-06
ODP	kg CFC 11 eq.	6.83E-11	3.34E-09	9.39E-10	9.15E-10
AP	mol H <sup>+</sup> eq.	4.15E-05	3.79E-04	4.20E-04	3.04E-04
EP-freshwater	kg P eq.	4.23E-09	9.07E-08	4.59E-06	7.79E-07
EP-marine	kg N eq.	1.96E-05	1.45E-04	4.21E-04	7.59E-05
EP-terrestrial	mol N eq.	2.14E-04	1.58E-03	1.56E-03	8.18E-04
POCP	kg NMVOC eq.	6.39E-05	6.28E-04	4.86E-04	2.97E-04
ADP-minerals&metals <sup>1</sup>	kg Sb eq.	1.57E-10	3.83E-09	3.58E-09	6.79E-09
ADP-fossil <sup>1</sup>	MJ	0.00E+00	0.00E+00	1.03E+00	6.32E-01
WDP <sup>1</sup>	m <sup>3</sup>	2.87E-05	2.38E-04	1.42E-02	-3.46E-01

End-of-life scenario with 100% landfill (per 1 m <sup>2</sup> )					
Indicator	Unit	C1	C2	C3	C4
GWP-total	kg CO <sub>2</sub> eq.	4.49E-03	1.47E-01	0.00E+00	1.05E-01
GWP-fossil	kg CO <sub>2</sub> eq.	4.49E-03	1.47E-01	0.00E+00	1.05E-01
GWP-biogenic	kg CO <sub>2</sub> eq.	2.42E-06	1.08E-04	0.00E+00	5.51E-04
GWP-luluc	kg CO <sub>2</sub> eq.	1.88E-07	2.33E-06	0.00E+00	1.46E-05
ODP	kg CFC 11 eq.	6.83E-11	3.34E-09	0.00E+00	3.76E-09
AP	mol H <sup>+</sup> eq.	4.15E-05	3.79E-04	0.00E+00	1.25E-03
EP-freshwater	kg P eq.	4.23E-09	9.07E-08	0.00E+00	3.20E-06
EP-marine	kg N eq.	1.96E-05	1.45E-04	0.00E+00	3.12E-04
EP-terrestrial	mol N eq.	2.14E-04	1.58E-03	0.00E+00	3.36E-03
POCP	kg NMVOC eq.	6.39E-05	6.28E-04	0.00E+00	1.22E-03
ADP-minerals&metals <sup>1</sup>	kg Sb eq.	1.57E-10	3.83E-09	0.00E+00	2.79E-08
ADP-fossil <sup>1</sup>	MJ	0.00E+00	0.00E+00	0.00E+00	2.60E+00
WDP <sup>1</sup>	m <sup>3</sup>	2.87E-05	2.38E-04	0.00E+00	-1.42E+00

### Additional LCA results (other environmental performance results) of the product(s)

The following additional results present the variation of environmental impacts as a function of product thickness, using the 60 mm panel as the representative reference product

LCA result of 1m <sup>2</sup> of 60mm PUR-PIR panel (A-C)	Unit	Representative/Average 60mm	40mm	75mm	80mm	100mm	120mm	150mm	180mm	200mm
GWP-total	kg CO <sub>2</sub> eq.	3.81E+01	-9.75%	7.08%	9.70%	19.32%	29.08%	41.78%	55.79%	66.12%
GWP-fossil	kg CO <sub>2</sub> eq.	3.66E+01	-9.33%	6.81%	9.25%	18.48%	27.79%	39.93%	53.41%	62.83%
GWP-biogenic	kg CO <sub>2</sub> eq.	1.36E+00	-19.83%	13.36%	20.26%	39.15%	59.41%	85.40%	111.76%	143.21%
GWP-luluc	kg CO <sub>2</sub> eq.	7.90E-02	-29.66%	18.43%	30.99%	58.27%	89.14%	128.14%	164.61%	226.20%
ODP	kg CFC 11 eq.	2.27E-06	-7.02%	5.07%	6.97%	13.87%	20.90%	30.04%	40.08%	47.63%
AP	mol H <sup>+</sup> eq.	2.81E-01	-4.75%	3.47%	4.71%	9.42%	14.16%	20.34%	27.20%	32.04%
EP-freshwater	kg P eq.	9.55E-04	-13.43%	9.15%	13.63%	26.48%	40.14%	57.70%	75.82%	95.71%
EP-marine	kg N eq.	5.18E-02	-10.18%	7.54%	10.04%	20.17%	30.30%	43.54%	58.47%	67.70%
EP-terrestrial	mol N eq.	7.48E-01	-4.81%	3.51%	4.78%	9.54%	14.35%	20.62%	27.56%	32.52%
POCP	kg NMVOC eq.	1.51E-01	-8.80%	6.40%	8.75%	17.46%	26.26%	37.72%	50.38%	59.70%
ADP-minerals&metals <sup>1</sup>	kg Sb eq.	3.16E-04	-0.15%	0.10%	0.15%	0.29%	0.44%	0.63%	0.84%	1.02%
ADP-fossil <sup>1</sup>	MJ	1.89E+02	-0.11%	0.08%	0.11%	0.21%	0.32%	0.45%	0.61%	0.73%
WDP <sup>1</sup>	m <sup>3</sup>	2.68E+00	-10.84%	7.25%	11.13%	21.43%	32.58%	46.79%	61.09%	78.82%
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									

## Abbreviations

Abbreviation	Definition
<b>General Abbreviations</b>	
EN	European Norm (Standard)
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
CPC	Central product classification
SVHC	Substances of Very High Concern
ND	Not Declared
EPD	Environmental Product Declaration
ES	Spain
GLO	Global
EU	Europe
LCA	Life Cycle Assessment
PCR	Product Category Rules
PE	Polyethylene
CNMC	Comisión Nacional de los Mercados y la Competencia

## References

- a) PCR 2019:14 Construction products, version 2.0.1 Date 2025-06-05. Valid until: 2030-04-07
- b) c-PCR-005 to PCR 2019:14 Thermal insulation products (EN 16783) (1.0.0)
- c) EN 15804:2012+A2:2019/AC:2021. Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
- d) General Programme Instructions for the Internacional EPD® System. Version 5.0 (Date 2024-06-19)
- e) Databases and methodologies of environmental impact applied through SimaPro 10.2.0.0
- f) UNE-EN ISO 14025:2010. Environmental labels and declarations. Type III environmental declarations. Principles and procedures (ISO 14025:2006).
- g) UNE-EN ISO 14040:2006/A1:2021. Environmental management. Life cycle assessment. Principles and framework. Amendment 1 (ISO 14040:2006/Amd 1:2020).
- h) UNE-EN ISO 14044:2006/A2:2021. Environmental management. Life cycle assessment. Requirements and guidelines. Amendment 2 (ISO 14044:2006/Amd 2:2020).
- i) Life Cycle Assessment report for the Environmental Product Declarations for sandwich panels with PUR or PIR insulating core for cold rooms fabricated by KIDE, S. COOP. by ONDOAN, S. COOP. December 2025. Version 2.

## Version history

### Original Version of the EPD, 2012-08-28

#### Revision 1, 2021-03-16

The declaration has been adapted to the requirements of the new version of EN 15804:2010+A2

The main associated changes have been:

- The scope is from cradle to grave instead of from cradle to gate.
- New environmental impact categories have been included and the methods used to calculate them are the recommended by the EN 15804:2010+A2 (March 2020)

#### Revision 2, 2026-01-20

The scope of the study has been extended to include panels with expanded rigid polyurethane (PUR) and polyisocyanurate (PIR) insulating core for cold rooms. In previous versions only polyurethane panels were analysed.

The declaration has been adapted to the requirements of the new version of PCR 2019:14 (v.2.0.1)

The main associated changes have been:

- Additional LCA results presented according to PCR guidelines.
- New End-of-Life stage scenario presented according to PCR guidelines.
- The impacts of A5 stage have been considered negligible.

