Environmental product declaration

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

Sandwich panels with MW (mineral wool) insulation core

BalPol

Programme:	The International EPD® System, www.environdec.com
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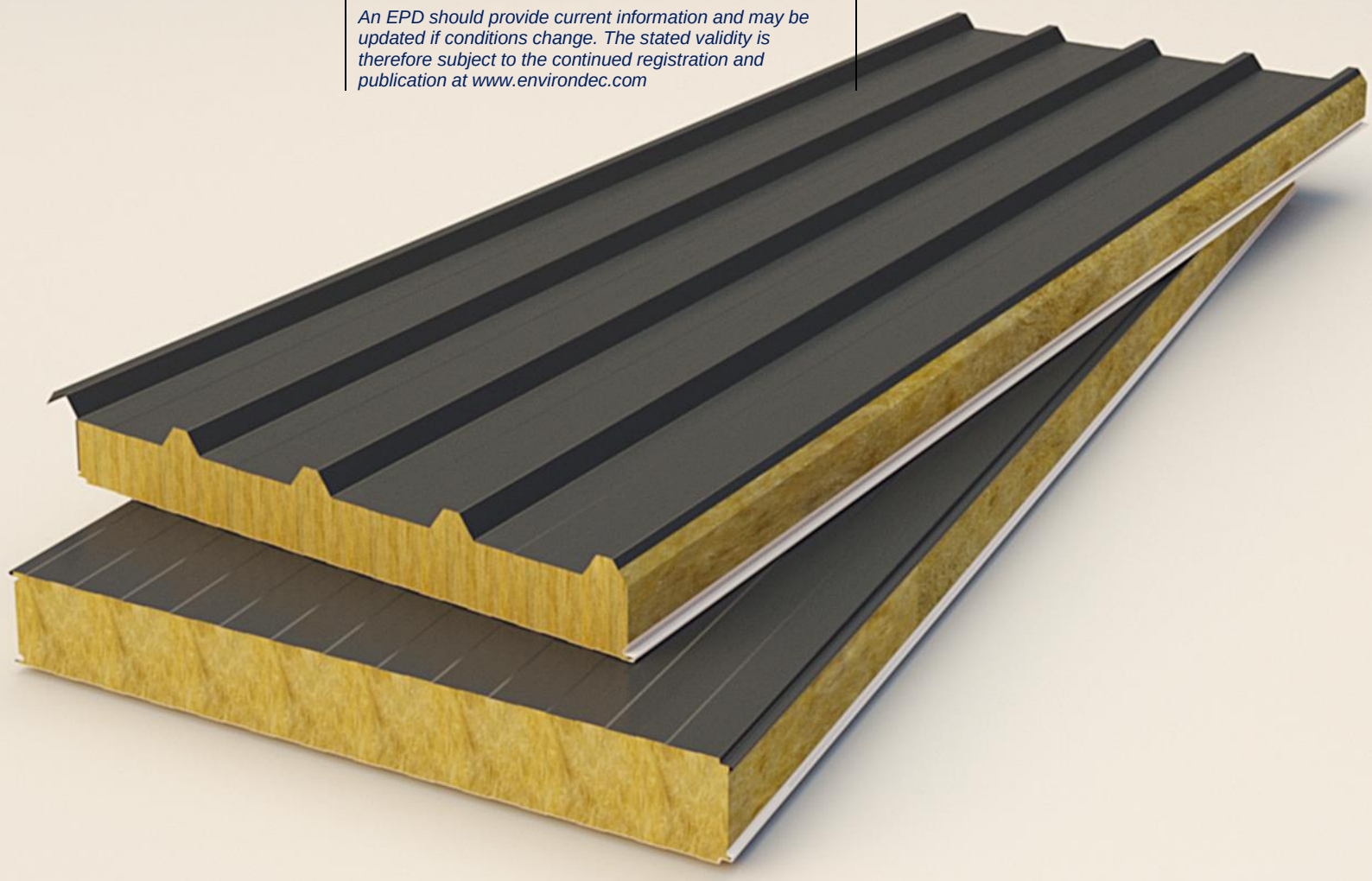
An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



Company information

Owner of the EPD:
Baltijos Polistirenas, UAB
E-mail info@balpol.lt
Tel +370 37 551 518
https://www.balpol.eu

Description of the organisation: The company was founded in 2002 when its first unit (polystyrene foam production department) was opened. Balpol supplies a selection of sandwich panels with PIR and MW insulation core for a wide variety of applications. Innovative solutions will make the construction process faster, safer, and more effective. The mission of the company is to help modern technology and experienced staff become an attractive and professional business partner focused on the high quality of products and competitive prices. The vision of the company is to be the best in its field at improving production processes, introducing modern technologies, and producing high quality products that meet the needs of all interested parties.

The company has implemented the quality management system in accordance with the standard requirements of LST EN ISO 9001: 2015 and the environmental management system in accordance with the requirements of LST EN ISO 14001: 2015.

Name and location of production site(s): The manufacturing plant of Baltijos Polistirenas is based in Utena (Lithuania).

Product information

Product name: Sandwich panels with MW (mineral wool) insulation core

Product identification: Balpol sandwich panels have CE marking and represent that products comply with the EU's New Approach Directives. Sandwich panels are manufactured in compliance with these European standards which specifies all requirements for factory-made, self-supporting, double skin metal faced insulating sandwich panels:

- EN 14509
- EN 13165
- EN 13501
- EN 10346

Product description: Sandwich panel is a building product consisting of two metal faces positioned on either side of a core that is a thermally insulating material, which is firmly bonded to both faces so that the three components act compositely when under load. One or both metal faces may be flat, lightly profiled or fully profiled. Metal faces are protected against corrosion by galvanization with zinc layer and paint. The core material is consisting of mineral wool lamellas. Wall panels with mineral wool (MW) insulation core are designated for applications with high fire resistance requirements (fire walls, fire compartments, partitions, etc.). MW wall panels may also be used for projects with higher sound insulation requirements.

Sandwich panels are widely used for industrial and commercial buildings, logistic centres, sports arenas, warehouses, power plants and other structures that require to ensure the rapid pace of construction, high building's resistance to external factors and high energy efficiency. Factory-made self-supporting sandwich panels are intended for discontinuous laying in the following applications:

- External walls and wall cladding;
- Roofs and roof cladding;
- Walls (including partitions) and ceilings within the building envelope.

Product general characteristics:

Product group	Thickness (mm)	Weight (kg/m²)	U-value (W/m²K)	Material content (% in weight)			
				Steel	Insulation	Protective film	Adhesive
Sandwich panel with mineral wool core for wall, insulation density 115 kg/m³	50	14.4	0.80	60.56	35.24	0.56	3.65
	80	17.8	0.50	48.99	47.61	0.45	2.95
	100	20.0	0.40	43.60	53.38	0.40	2.63
	120	22.2	0.33	39.28	58.00	0.36	2.36
	150	25.5	0.27	34.20	63.43	0.31	2.06
	200	31.0	0.20	28.13	69.92	0.26	1.69
	230	34.3	0.17	25.42	72.81	0.23	1.53
Sandwich panel with mineral wool core for roof, insulation density 115 kg/m³	80	18.4	0.50	50.60	46.11	0.43	2.85
	100	20.6	0.40	45.19	51.87	0.39	2.55
	120	22.8	0.33	40.83	56.51	0.35	2.30
	150	26.1	0.27	35.67	62.01	0.31	2.01

Geographical scope: Europe

LCA information

Declared unit: In accordance with the PCR (Product Category Rules) the declared unit is 1 m² of product, with an average mass of 23.6 kg.

Reference service life: The reference service life for the panels is set at 50 years.

Time representativeness: Primary data was collected internally. The production data refer to an average of the year 2019.

Database(s) and LCA software used: The Ecoinvent database provides the life cycle inventory data for the raw materials and processes obtained from the background system. The used database is Ecoinvent 3.6. The LCA software used is One Click LCA.

Description of system boundaries: Cradle to gate with options. The L. C. A. was carried out considering the Product stage phases (A1-A2-A3), Distribution (A4), End of life (C2-C3-C4), Potential environmental benefits (D) in accordance with EN 15804.

Data quality: The foreground data collected internally is based on yearly production amounts and extrapolations of measurements on specific machines and plants. Overall, the data quality can be described as good. The primary data collection has been done thoroughly.

Cut-off criteria: Life cycle inventory data for a minimum of 99% of total material and energy input flows have been included in the life cycle analysis.

System boundary:

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
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
x	x	x	x	MND	MND	x	MND	MND	MND	MND	MND	x	x	x	x	x

Description of the system boundary (X = Included in LCA; MND = Module Not declared)

Product stage:

A1: This stage considers the extraction and processing of raw materials (steel, MW insulation and others), as well as energy consumption.

A2: The raw materials are transported to the manufacturing plant. In our case, the model includes road transport of each raw material.

A3: This stage includes the manufacturing and packaging production. Specifically, it covers insulation preparation and panel assembly. On the other hand, it considers the energy consumption and waste generated in the production plant.

Production process description

The first section starts with the metal sheet decoilers and continues with the equipment for forming the two sheets into the desired shape. The panel could be formed for walls or roofs. The surfaces of the metal sheets are pre-heated to the temperature required by the process and then the insulating material is prepared.

Mineral wool is cut to the desired thickness, shaped, inserted, and glued to the metal sheets to form a sandwich-like composite. After being formed, the panel is cut to the required length, cooled, stacked and wrapped with a plastic film.

Construction process stage:

A4: This stage includes transport from the production facility to the construction site where the product will be installed.

Transportation is calculated based on data form manufacturer and a scenario with the parameters described in the following table.

Parameter	Value/Description
Vehicle type used for transport	EURO 5 truck using a trailer with an average load of 32t or container ship
Distance	78 % of production: Truck – 184 km. 22 % of production: Truck – 988 km; Ship - 294 km.
Capacity utilization	56 % of the capacity in volume (truck) 50 % of the capacity in volume (ship)

Use stage:

B2: This stage includes cleaning of the surface of the panels using detergent four times during the lifetime.
In a typical use scenario, it is assumed that there is no repair (B3), replacement (B4) and refurbishment (B5) needed.

End of Life stage:

This stage includes the next modules:

C1: Deconstruction, dismantling, demolition.

Consumption of fuel in the demolition process is calculated according to transported mass.

C2: Transportation of the discarded product to the processing site

Panel elements made of steel are transported to the recycling plant, while the rest of the materials that make up the panel are sent to a landfill. In both cases, the materials are transported by truck with a 16-32-ton trailer. A transport distance of 150 km has been considered.

C3: Waste processing for reuse, recovery and/or recycling

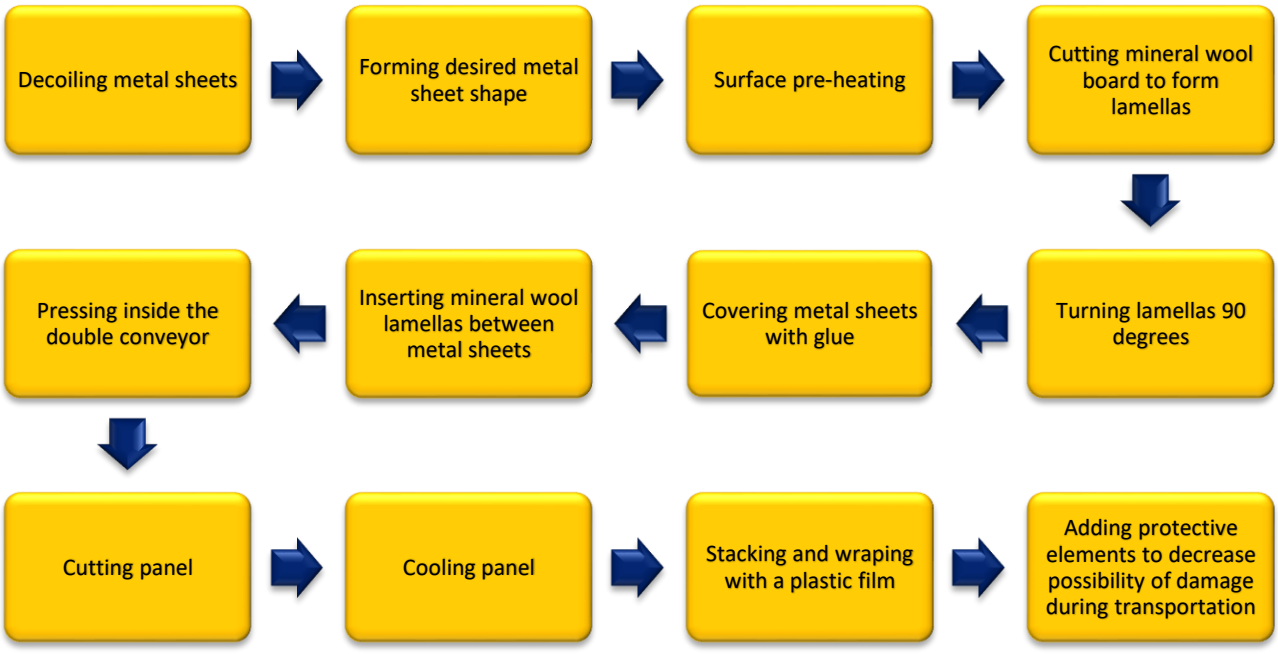
Waste containing steel is separated from the rest of the panel materials for subsequent recycling.

C4: Discharge (disposal)

Panel elements made of steel (polyester coated metal sheets and screws) are transformed into secondary material in a recycling plant, while the mineral wool insulation that structures the panel core is deposited in a landfill as inert waste.

Benefits and loads beyond the system boundary (D):

Benefits beyond the life cycle (D) are calculated as the net new steel that is recycled and replace primary steel production. Therefore, if your product had 30 % recycled content in the composition, and 100 % of your products are recycled at the end of life, you can count as external recycling benefit 100 % - 30 % = 70 % of the product mass.



Content information

Process flow	Unit	Sandwich panels for walls with MW insulation core						
Collection process specified by type	Thickness, mm	50	80	100	120	150	200	230
	Product mass, kg	14.4	17.8	20.0	22.2	25.5	31.0	34.3
	Collected separately, kg	14.4	17.8	20.0	22.2	25.5	31.0	34.3
	Collected with mixed construction waste, kg	-	-	-	-	-	-	-
Recovery system specified by type	For reuse, kg	-	-	-	-	-	-	-
	For recycling, kg	8.8	8.8	8.8	8.8	8.8	8.8	8.8
	For energy recovery, kg	-	-	-	-	-	-	-
Disposal specified by type	Products or material for final deposition, kg	5.6	9.0	11.2	13.4	16.7	22.2	25.5

Process flow	Unit	Sandwich panels for roofs with MW insulation core			
Collection process specified by type	Thickness, mm	80	100	120	150
	Product mass, kg	18.4	20.6	22.8	26.1
	Collected separately, kg	18.4	20.6	22.8	26.1
	Collected with mixed construction waste, kg	-	-	-	-
Recovery system specified by type	For reuse, kg	-	-	-	-
	For recycling, kg	9.4	9.4	9.4	9.4
	For energy recovery, kg	-	-	-	-
Disposal specified by type	Products or material for final deposition, kg	9.0	11.2	13.4	16.7

No dangerous substances from the candidate list of SVHC for Authorisation are included in the product.

Packaging

Distribution packaging: protective film; polystyrene foam packaging.

After use, packaging materials can be reused or recycled. Polystyrene foam packaging, plastic film can be collected separately and directed to the recycling circuit.

Environmental Information

Sandwich panel for walls (thickness 50 mm)

Potential environmental impact per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	2.71E+01	1.10E+00	7.163E−1	2.89E+01	4.793E−1	6.734E−1	4.712E−2	1.238E−1	2.137E−1	2.894E−2	−1.083E1
GWP-biogenic	kg CO_2 eq.	5.922E−1	5.327E−3	6.923E−3	6.045E−1	2.318E−3	2.197E−1	7.984E−5	5.399E−4	2.606E−2	1.837E−4	−1.325E−1
GWP-luluc	kg CO_2 eq.	1.988E−2	3.352E−4	3.963E−4	2.061E−2	1.489E−4	4.668E−2	4.011E−6	4.635E−5	2.465E−4	8.757E−6	−3.231E−3
GWP-total	kg CO_2 eq.	2.77E+01	1.10E+00	7.236E−1	2.95E+01	4.817E−1	9.397E−1	4.72E−2	1.243E−1	2.4E−1	2.914E−2	−1.097E1
ODP	kg CFC 11 eq.	1.804E−6	2.596E−7	5.713E−8	2.121E−6	1.134E−7	9.549E−8	1.025E−8	2.713E−8	3.119E−8	1.214E−8	−5.232E−7
AP	mol H^+ eq.	1.678E−1	2.802E−3	4.372E−3	1.75E−1	1.403E−3	4.465E−3	8.115E−5	4.775E−4	1.775E−3	1.391E−4	−4.364E−2
EP-freshwater	kg PO_4^{3-} eq.	1.491E−2	7.857E−5	6.211E−4	1.561E−2	3.419E−5	2.45E−4	1.723E−6	1.056E−5	1.845E−4	3.053E−6	−5.567E−3
EP-marine	kg N eq.	2.594E−2	4.237E−4	1.128E−2	3.764E−2	2.302E−4	1.378E−3	1.092E−5	1.358E−4	1.928E−4	2.726E−5	−8.877E−3
EP-terrestrial	mol N eq.	3.081E−1	4.548E−3	1.085E−2	3.235E−1	2.489E−3	9.355E−3	1.168E−4	1.476E−3	2.181E−3	2.958E−4	−8.608E−2
POCP	kg NMVOC eq	1.101E−1	2.332E−3	2.201E−3	1.146E−1	1.143E−3	2.378E−3	1.162E−4	4.527E−4	7.657E−4	1.213E−4	−4.199E−2
WDP	m^3	1.46E+03	2.46E+01	1.10E+01	1.49E+03	1.07E+01	4.56E+01	3.647E−1	2.28E+00	2.12E+01	7.276E−1	−2.782E2
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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		2.156E−1	3.94E−3	2.195E−1	9.369E−2			2.056E−2			
PERM	MJ	2.38E+01		7.00E+00	3.08E+01		2.67E+00	3.534E−3		4.722E−1	6.666E−3	4.30E+00
PERT	MJ	2.38E+01	2.156E−1	7.01E+00	3.10E+01	9.369E−2	2.67E+00	3.534E−3	2.056E−2	4.722E−1	6.666E−3	4.30E+00
PENRE	MJ		1.73E+01	2.96E+00	2.03E+01	7.55E+00			1.88E+00			
PENRM	MJ	4.32E+02		1.10E+01	4.43E+02		1.27E+01	6.497E−1		3.35E+00	8.296E−1	1.55E+02
PENRT	MJ	4.32E+02	1.73E+01	1.39E+01	4.63E+02	7.55E+00	1.27E+01	6.497E−1	1.88E+00	3.35E+00	8.296E−1	1.55E+02
SM	kg	4.80E+00	5.937E−3	1.26E−2	4.82E+00	2.599E−3	5.999E−3	3.208E−4	7.235E−4	8.81E+00	2.235E−4	−1.339E0
RSF	MJ	3.489E−1	7.535E−3	4.484E−3	3.61E−1	3.269E−3	1.216E−2	8.694E−5	4.021E−4	1.209E−2	1.549E−4	−1.285E−1
NRSF	MJ	1.20E+01	2.541E−2	4.076E−2	1.20E+01	1.115E−2	1.569E−3	1.279E−3	3.409E−3	8.265E−3	7.929E−4	−1.171E1
FW	m^3	2.72E+01	2.683E−1	1.673E−1	2.76E+01	1.166E−1	7.614E−1	5.29E−3	3.945E−2	1.28E−1	1.189E−2	−2.676E0
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 resources; 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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	6.18E+00	1.67E−2	4.858E−2	6.25E+00	7.305E−3	3.798E−2	7.03E−4	2.409E−3	1.572E−2	7.714E−4	−1.843E0
Non-hazardous waste disposed	kg	6.61E+01	1.84E+00	1.64E+00	6.96E+01	7.953E−1	9.006E−1	7.515E−3	1.341E−1	9.394E−1	5.62E+00	−1.994E1
Radioactive waste disposed	kg	6.496E−4	1.184E−4	1.577E−5	7.838E−4	5.169E−5	1.873E−5	4.582E−6	1.222E−5	1.797E−5	5.468E−6	−1.903E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	4.76E+00	5.154E−3	1.247E−2	4.78E+00	2.268E−3	2.14E−3	3.15E−4	6.048E−4	8.80E+00	2.098E−4	−1.329E0
Materials for energy recovery	kg	4.28E−3	8.287E−5	5.203E−5	4.414E−3	3.595E−5	2.958E−3	9.768E−7	5.232E−6	1.319E−4	1.696E−6	−1.575E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for walls (thickness 80 mm)

Potential environmental impact per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	3.23E+01	1.47E+00	8.468E−1	3.46E+01	5.882E−1	6.734E−1	5.824E−2	1.53E−1	2.137E−1	4.652E−2	−1.083E1
GWP-biogenic	kg CO_2 eq.	7.351E−1	7.161E−3	8.009E−3	7.503E−1	2.845E−3	2.197E−1	9.869E−5	6.674E−4	2.606E−2	2.952E−4	−1.325E−1
GWP-luluc	kg CO_2 eq.	2.295E−2	4.479E−4	4.17E−4	2.382E−2	1.827E−4	4.668E−2	4.958E−6	5.73E−5	2.465E−4	1.407E−5	−3.231E−3
GWP-total	kg CO_2 eq.	3.31E+01	1.48E+00	8.553E−1	3.54E+01	5.913E−1	9.397E−1	5.835E−2	1.537E−1	2.4E−1	4.683E−2	−1.097E1
ODP	kg CFC 11 eq.	2.12E−6	3.485E−7	5.895E−8	2.528E−6	1.391E−7	9.549E−8	1.267E−8	3.353E−8	3.119E−8	1.952E−8	−5.232E−7
AP	mol H^+ eq.	2.165E−1	3.606E−3	4.908E−3	2.25E−1	1.719E−3	4.465E−3	1.003E−4	5.903E−4	1.775E−3	2.235E−4	−4.364E−2
EP-freshwater	kg PO_4^{3-} eq.	1.675E−2	1.056E−4	6.293E−4	1.749E−2	4.197E−5	2.45E−4	2.13E−6	1.305E−5	1.845E−4	4.907E−6	−5.567E−3
EP-marine	kg N eq.	3.068E−2	5.294E−4	1.137E−2	4.258E−2	2.82E−4	1.378E−3	1.349E−5	1.679E−4	1.928E−4	4.38E−5	−8.877E−3
EP-terrestrial	mol N eq.	3.887E−1	5.668E−3	1.182E−2	4.062E−1	3.049E−3	9.355E−3	1.444E−4	1.824E−3	2.181E−3	4.754E−4	−8.608E−2
POCP	kg NMVOC eq	1.335E−1	3.023E−3	2.598E−3	1.391E−1	1.402E−3	2.378E−3	1.436E−4	5.596E−4	7.657E−4	1.95E−4	−4.199E−2
WDP	m^3	1.73E+03	3.31E+01	1.30E+01	1.77E+03	1.31E+01	4.56E+01	4.508E−1	2.82E+00	2.12E+01	1.17E+00	−2.782E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		2.899E−1	6.68E+00	6.97E+00	1.15E−1			2.542E−2			
PERM	MJ	2.71E+01		3.604E−1	2.75E+01		2.67E+00	4.368E−3		4.722E−1	1.071E−2	4.30E+00
PERT	MJ	2.71E+01	2.899E−1	7.04E+00	3.45E+01	1.15E−1	2.67E+00	4.368E−3	2.542E−2	4.722E−1	1.071E−2	4.30E+00
PENRE	MJ		2.32E+01	3.68E+00	2.69E+01	9.27E+00			2.33E+00			
PENRM	MJ	5.13E+02		1.36E+01	5.26E+02		1.27E+01	8.032E−1		3.35E+00	1.33E+00	1.55E+02
PENRT	MJ	5.13E+02	2.32E+01	1.73E+01	5.53E+02	9.27E+00	1.27E+01	8.032E−1	2.33E+00	3.35E+00	1.33E+00	1.55E+02
SM	kg	4.83E+00	7.967E−3	1.274E−2	4.85E+00	3.19E−3	5.999E−3	3.966E−4	8.943E−4	8.81E+00	3.592E−4	−1.339E0
RSF	MJ	3.956E−1	1.014E−2	5.138E−3	4.109E−1	4.013E−3	1.216E−2	1.075E−4	4.97E−4	1.209E−2	2.489E−4	−1.285E−1
NRSF	MJ	1.20E+01	3.407E−2	4.096E−2	1.21E+01	1.369E−2	1.569E−3	1.581E−3	4.214E−3	8.265E−3	1.274E−3	−1.171E1
FW	m^3	3.19E+01	3.608E−1	1.992E−1	3.25E+01	1.431E−1	7.614E−1	6.539E−3	4.877E−2	1.28E−1	1.911E−2	−2.676E0
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 resources; 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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	6.54E+00	2.241E−2	5.117E−2	6.61E+00	8.967E−3	3.798E−2	8.689E−4	2.977E−3	1.572E−2	1.24E−3	−1.843E0
Non-hazardous waste disposed	kg	7.51E+01	2.47E+00	1.85E+00	7.95E+01	9.762E−1	9.006E−1	9.289E−3	1.658E−1	9.394E−1	9.03E+00	−1.994E1
Radioactive waste disposed	kg	7.453E−4	1.59E−4	1.681E−5	9.211E−4	6.345E−5	1.873E−5	5.664E−6	1.511E−5	1.797E−5	8.788E−6	−1.903E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	4.78E+00	6.905E−3	1.254E−2	4.80E+00	2.784E−3	2.14E−3	3.894E−4	7.476E−4	8.80E+00	3.372E−4	−1.329E0
Materials for energy recovery	kg	4.842E−3	1.115E−4	5.898E−5	5.013E−3	4.413E−5	2.958E−3	1.207E−6	6.468E−6	1.319E−4	2.726E−6	−1.575E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for walls (thickness 100 mm)

Potential environmental impact per 1 m^2 of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	3.71E+01	1.79E+00	9.792E−1	3.98E+01	6.623E−1	6.734E−1	6.544E−2	1.719E−1	2.137E−1	5.789E−2	−1.083E1
GWP-biogenic	kg CO_2 eq.	8.634E−1	8.717E−3	8.942E−3	8.81E−1	3.204E−3	2.197E−1	1.109E−4	7.499E−4	2.606E−2	3.673E−4	−1.325E−1
GWP-luluc	kg CO_2 eq.	2.572E−2	5.447E−4	4.35E−4	2.67E−2	2.057E−4	4.668E−2	5.571E−6	6.438E−5	2.465E−4	1.751E−5	−3.231E−3
GWP-total	kg CO_2 eq.	3.79E+01	1.80E+00	9.885E−1	4.07E+01	6.657E−1	9.397E−1	6.556E−2	1.727E−1	2.4E−1	5.827E−2	−1.097E1
ODP	kg CFC 11 eq.	2.403E−6	4.242E−7	6.051E−8	2.888E−6	1.567E−7	9.549E−8	1.424E−8	3.767E−8	3.119E−8	2.429E−8	−5.232E−7
AP	mol H^+ eq.	2.602E−1	4.362E−3	5.448E−3	2.7E−1	1.937E−3	4.465E−3	1.127E−4	6.633E−4	1.775E−3	2.781E−4	−4.364E−2
EP-freshwater	kg PO_4^{3-} eq.	1.841E−2	1.286E−4	6.366E−4	1.917E−2	4.725E−5	2.45E−4	2.394E−6	1.466E−5	1.845E−4	6.106E−6	−5.567E−3
EP-marine	kg N eq.	3.494E−2	6.376E−4	1.146E−2	4.704E−2	3.177E−4	1.378E−3	1.516E−5	1.886E−4	1.928E−4	5.451E−5	−8.877E−3
EP-terrestrial	mol N eq.	4.611E−1	6.823E−3	1.279E−2	4.807E−1	3.435E−3	9.355E−3	1.622E−4	2.05E−3	2.181E−3	5.916E−4	−8.608E−2
POCP	kg NMVOC eq	1.546E−1	3.66E−3	2.994E−3	1.612E−1	1.578E−3	2.378E−3	1.614E−4	6.287E−4	7.657E−4	2.426E−4	−4.199E−2
WDP	m^3	1.97E+03	4.02E+01	1.47E+01	2.02E+03	1.47E+01	4.56E+01	5.065E−1	3.17E+00	2.12E+01	1.46E+00	−2.782E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		3.529E−1	6.68E+00	7.03E+00	1.295E−1			2.856E−2			
PERM	MJ	3.01E+01		3.935E−1	3.05E+01		2.67E+00	4.908E−3		4.722E−1	1.333E−2	4.30E+00
PERT	MJ	3.01E+01	3.529E−1	7.08E+00	3.75E+01	1.295E−1	2.67E+00	4.908E−3	2.856E−2	4.722E−1	1.333E−2	4.30E+00
PENRE	MJ		2.83E+01	3.68E+00	3.20E+01	1.04E+01			2.61E+00			
PENRM	MJ	5.85E+02		1.69E+01	6.02E+02		1.27E+01	9.024E−1		3.35E+00	1.66E+00	1.55E+02
PENRT	MJ	5.85E+02	2.83E+01	2.06E+01	6.34E+02	1.04E+01	1.27E+01	9.024E−1	2.61E+00	3.35E+00	1.66E+00	1.55E+02
SM	kg	4.85E+00	9.696E−3	1.287E−2	4.87E+00	3.592E−3	5.999E−3	4.456E−4	1.005E−3	8.81E+00	4.469E−4	−1.339E0
RSF	MJ	4.376E−1	1.234E−2	5.704E−3	4.556E−1	4.518E−3	1.216E−2	1.207E−4	5.584E−4	1.209E−2	3.098E−4	−1.285E−1
NRSF	MJ	1.20E+01	4.146E−2	4.115E−2	1.21E+01	1.541E−2	1.569E−3	1.777E−3	4.735E−3	8.265E−3	1.586E−3	−1.171E1
FW	m³	3.62E+01	4.392E−1	2.269E−1	3.69E+01	1.611E−1	7.614E−1	7.347E−3	5.479E−2	1.28E−1	2.378E−2	−2.676E0

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 resources; 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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	6.85E+00	2.728E−2	5.364E−2	6.93E+00	1.01E−2	3.798E−2	9.763E−4	3.345E−3	1.572E−2	1.543E−3	−1.843E0
Non-hazardous waste disposed	kg	8.32E+01	3.01E+00	1.99E+00	8.82E+01	1.10E+00	9.006E−1	1.044E−2	1.862E−1	9.394E−1	1.12E+01	−1.994E1
Radioactive waste disposed	kg	8.312E−4	1.935E−4	1.77E−5	1.042E−3	7.144E−5	1.873E−5	6.364E−6	1.698E−5	1.797E−5	1.094E−5	−1.903E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	4.80E+00	8.402E−3	1.261E−2	4.82E+00	3.134E−3	2.14E−3	4.376E−4	8.401E−4	8.80E+00	4.196E−4	−1.329E0
Materials for energy recovery	kg	5.347E−3	1.357E−4	6.499E−5	5.548E−3	4.969E−5	2.958E−3	1.357E−6	7.267E−6	1.319E−4	3.392E−6	−1.575E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for walls (thickness 120 mm)

Potential environmental impact per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	3.94E+01	1.95E+00	1.18E+00	4.25E+01	7.363E−1	6.734E−1	7.264E−2	1.908E−1	2.137E−1	6.926E−2	−1.083E1
GWP-biogenic	kg CO_2 eq.	9.274E−1	9.496E−3	9.891E−3	9.467E−1	3.562E−3	2.197E−1	1.231E−4	8.323E−4	2.606E−2	4.395E−4	−1.325E−1
GWP-luluc	kg CO_2 eq.	2.71E−2	5.932E−4	4.539E−4	2.814E−2	2.287E−4	4.668E−2	6.184E−6	7.146E−5	2.465E−4	2.095E−5	−3.231E−3
GWP-total	kg CO_2 eq.	4.04E+01	1.96E+00	1.19E+00	4.35E+01	7.401E−1	9.397E−1	7.277E−2	1.917E−1	2.4E−1	6.972E−2	−1.097E1
ODP	kg CFC 11 eq.	2.545E−6	4.621E−7	6.241E−8	3.069E−6	1.742E−7	9.549E−8	1.58E−8	4.182E−8	3.119E−8	2.906E−8	−5.232E−7
AP	mol H^+ eq.	2.82E−1	4.741E−3	6.244E−3	2.93E−1	2.154E−3	4.465E−3	1.251E−4	7.362E−4	1.775E−3	3.327E−4	−4.364E−2
EP-freshwater	kg PO_4^{3-} eq.	1.923E−2	1.4E−4	6.449E−4	2.002E−2	5.254E−5	2.45E−4	2.657E−6	1.628E−5	1.845E−4	7.306E−6	−5.567E−3
EP-marine	kg N eq.	3.707E−2	6.917E−4	1.159E−2	4.935E−2	3.534E−4	1.378E−3	1.683E−5	2.093E−4	1.928E−4	6.522E−5	−8.877E−3
EP-terrestrial	mol N eq.	4.971E−1	7.401E−3	1.421E−2	5.187E−1	3.821E−3	9.355E−3	1.8E−4	2.275E−3	2.181E−3	7.078E−4	−8.608E−2
POCP	kg NMVOC eq	1.651E−1	3.979E−3	3.569E−3	1.726E−1	1.755E−3	2.378E−3	1.791E−4	6.979E−4	7.657E−4	2.903E−4	−4.199E−2
WDP	m^3	2.09E+03	4.38E+01	1.65E+01	2.15E+03	1.64E+01	4.56E+01	5.623E−1	3.52E+00	2.12E+01	1.74E+00	−2.782E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		3.845E−1	6.68E+00	7.07E+00	1.439E−1			3.17E−2			
PERM	MJ	3.16E+01		4.33E−1	3.20E+01		2.67E+00	5.448E−3		4.722E−1	1.595E−2	4.30E+00
PERT	MJ	3.16E+01	3.845E−1	7.11E+00	3.91E+01	1.439E−1	2.67E+00	5.448E−3	3.17E−2	4.722E−1	1.595E−2	4.30E+00
PENRE	MJ		3.08E+01	3.68E+00	3.45E+01	1.16E+01			2.90E+00			
PENRM	MJ	6.21E+02		2.19E+01	6.43E+02		1.27E+01	1.00E+00		3.35E+00	1.99E+00	1.55E+02
PENRT	MJ	6.21E+02	3.08E+01	2.55E+01	6.77E+02	1.16E+01	1.27E+01	1.00E+00	2.90E+00	3.35E+00	1.99E+00	1.55E+02
SM	kg	4.86E+00	1.056E−2	1.301E−2	4.88E+00	3.993E−3	5.999E−3	4.946E−4	1.115E−3	8.81E+00	5.347E−4	−1.339E0
RSF	MJ	4.585E−1	1.344E−2	6.293E−3	4.782E−1	5.023E−3	1.216E−2	1.34E−4	6.198E−4	1.209E−2	3.707E−4	−1.285E−1
NRSF	MJ	1.21E+01	4.515E−2	4.138E−2	1.21E+01	1.714E−2	1.569E−3	1.972E−3	5.256E−3	8.265E−3	1.897E−3	−1.171E1
FW	m³	3.83E+01	4.785E−1	2.564E−1	3.91E+01	1.791E−1	7.614E−1	8.155E−3	6.082E−2	1.28E−1	2.845E−2	−2.676E0
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 resources; 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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7.01E+00	2.971E−2	5.694E−2	7.10E+00	1.122E−2	3.798E−2	1.084E−3	3.713E−3	1.572E−2	1.846E−3	−1.843E0
Non-hazardous waste disposed	kg	8.72E+01	3.28E+00	2.14E+00	9.26E+01	1.22E+00	9.006E−1	1.159E−2	2.067E−1	9.394E−1	1.34E+01	−1.994E1
Radioactive waste disposed	kg	8.74E−4	2.108E−4	1.874E−5	1.104E−3	7.943E−5	1.873E−5	7.064E−6	1.884E−5	1.797E−5	1.308E−5	−1.903E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	4.81E+00	9.15E−3	1.27E−2	4.83E+00	3.485E−3	2.14E−3	4.857E−4	9.325E−4	8.80E+00	5.02E−4	−1.329E0
Materials for energy recovery	kg	5.599E−3	1.479E−4	7.123E−5	5.818E−3	5.524E−5	2.958E−3	1.506E−6	8.066E−6	1.319E−4	4.058E−6	−1.575E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for walls (thickness 150 mm)

Potential environmental impact per 1 m^2 of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	4.65E+01	2.43E+00	1.23E+00	5.01E+01	8.437E−1	6.734E−1	8.344E−2	2.191E−1	2.137E−1	8.631E−2	−1.083E1
GWP-biogenic	kg CO_2 eq.	1.12E+00	1.182E−2	1.111E−2	1.14E+00	4.081E−3	2.197E−1	1.414E−4	9.561E−4	2.606E−2	5.477E−4	−1.325E−1
GWP-luluc	kg CO_2 eq.	3.123E−2	7.379E−4	4.76E−4	3.245E−2	2.621E−4	4.668E−2	7.103E−6	8.208E−5	2.465E−4	2.612E−5	−3.231E−3
GWP-total	kg CO_2 eq.	4.76E+01	2.44E+00	1.24E+00	5.13E+01	8.48E−1	9.397E−1	8.359E−2	2.202E−1	2.4E−1	8.689E−2	−1.097E1
ODP	kg CFC 11 eq.	2.969E−6	5.752E−7	6.39E−8	3.608E−6	1.996E−7	9.549E−8	1.815E−8	4.803E−8	3.119E−8	3.622E−8	−5.232E−7
AP	mol H^+ eq.	3.473E−1	5.871E−3	6.475E−3	3.597E−1	2.467E−3	4.465E−3	1.437E−4	8.457E−4	1.775E−3	4.147E−4	−4.364E−2
EP-freshwater	kg PO_4^{3-} eq.	2.171E−2	1.743E−4	6.527E−4	2.254E−2	6.019E−5	2.45E−4	3.052E−6	1.869E−5	1.845E−4	9.105E−6	−5.567E−3
EP-marine	kg N eq.	4.344E−2	8.534E−4	1.163E−2	5.593E−2	4.046E−4	1.378E−3	1.933E−5	2.405E−4	1.928E−4	8.128E−5	−8.877E−3
EP-terrestrial	mol N eq.	6.054E−1	9.128E−3	1.465E−2	6.291E−1	4.374E−3	9.355E−3	2.068E−4	2.614E−3	2.181E−3	8.821E−4	−8.608E−2
POCP	kg NMVOC eq	1.966E−1	4.932E−3	3.755E−3	2.053E−1	2.01E−3	2.378E−3	2.058E−4	8.016E−4	7.657E−4	3.617E−4	−4.199E−2
WDP	m^3	2.45E+03	5.46E+01	1.87E+01	2.52E+03	1.88E+01	4.56E+01	6.459E−1	4.04E+00	2.12E+01	2.17E+00	−2.782E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		4.786E−1	6.68E+00	7.16E+00	1.649E−1			3.642E−2			
PERM	MJ	3.61E+01		4.65E−1	3.66E+01		2.67E+00	6.258E−3		4.722E−1	1.988E−2	4.30E+00
PERT	MJ	3.61E+01	4.786E−1	7.15E+00	4.37E+01	1.649E−1	2.67E+00	6.258E−3	3.642E−2	4.722E−1	1.988E−2	4.30E+00
PENRE	MJ		3.83E+01	3.68E+00	4.20E+01	1.33E+01			3.33E+00			
PENRM	MJ	7.29E+02		2.33E+01	7.52E+02		1.27E+01	1.15E+00		3.35E+00	2.47E+00	1.55E+02
PENRT	MJ	7.29E+02	3.83E+01	2.70E+01	7.94E+02	1.33E+01	1.27E+01	1.15E+00	3.33E+00	3.35E+00	2.47E+00	1.55E+02
SM	kg	4.90E+00	1.314E−2	1.315E−2	4.92E+00	4.575E−3	5.999E−3	5.681E−4	1.281E−3	8.81E+00	6.664E−4	−1.339E0
RSF	MJ	5.212E−1	1.674E−2	7.007E−3	5.45E−1	5.755E−3	1.216E−2	1.539E−4	7.12E−4	1.209E−2	4.619E−4	−1.285E−1
NRSF	MJ	1.21E+01	5.619E−2	4.152E−2	1.22E+01	1.963E−2	1.569E−3	2.265E−3	6.037E−3	8.265E−3	2.364E−3	−1.171E1
FW	m^3	4.47E+01	5.957E−1	2.902E−1	4.56E+01	2.052E−1	7.614E−1	9.367E−3	6.986E−2	1.28E−1	3.546E−2	−2.676E0
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 resources; 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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7.49E+00	3.698E−2	5.866E−2	7.58E+00	1.286E−2	3.798E−2	1.245E−3	4.265E−3	1.572E−2	2.3E−3	−1.843E0
Non-hazardous waste disposed	kg	9.93E+01	4.09E+00	2.34E+00	1.06E+02	1.40E+00	9.006E−1	1.331E−2	2.375E−1	9.394E−1	1.68E+01	−1.994E1
Radioactive waste disposed	kg	1.003E−3	2.623E−4	1.968E−5	1.285E−3	9.1E−5	1.873E−5	8.114E−6	2.165E−5	1.797E−5	1.631E−5	−1.903E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	4.83E+00	1.139E−2	1.276E−2	4.86E+00	3.993E−3	2.14E−3	5.579E−4	1.071E−3	8.80E+00	6.256E−4	−1.329E0
Materials for energy recovery	kg	6.355E−3	1.841E−4	7.881E−5	6.618E−3	6.329E−5	2.958E−3	1.73E−6	9.265E−6	1.319E−4	5.058E−6	−1.575E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for walls (thickness 200 mm)

Potential environmental impact per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	6.06E+01	3.38E+00	1.52E+00	6.55E+01	1.03E+00	6.734E−1	1.014E−1	2.664E−1	2.137E−1	1.147E−1	−1.083E1
GWP-biogenic	kg CO_2 eq.	1.50E+00	1.648E−2	1.313E−2	1.53E+00	4.958E−3	2.197E−1	1.719E−4	1.162E−3	2.606E−2	7.281E−4	−1.325E−1
GWP-luluc	kg CO_2 eq.	3.952E−2	1.028E−3	5.151E−4	4.106E−2	3.184E−4	4.668E−2	8.635E−6	9.978E−5	2.465E−4	3.472E−5	−3.231E−3
GWP-total	kg CO_2 eq.	6.22E+01	3.40E+00	1.54E+00	6.71E+01	1.03E+00	9.397E−1	1.016E−1	2.677E−1	2.4E−1	1.155E−1	−1.097E1
ODP	kg CFC 11 eq.	3.818E−6	8.019E−7	6.743E−8	4.687E−6	2.425E−7	9.549E−8	2.207E−8	5.839E−8	3.119E−8	4.815E−8	−5.232E−7
AP	mol H^+ eq.	4.783E−1	8.136E−3	7.672E−3	4.941E−1	2.997E−3	4.465E−3	1.747E−4	1.028E−3	1.775E−3	5.513E−4	−4.364E−2
EP-freshwater	kg PO_4^{3-} eq.	2.667E−2	2.431E−4	6.687E−4	2.758E−2	7.313E−5	2.45E−4	3.71E−6	2.273E−5	1.845E−4	1.21E−5	−5.567E−3
EP-marine	kg N eq.	5.621E−2	1.178E−3	1.183E−2	6.922E−2	4.915E−4	1.378E−3	2.35E−5	2.923E−4	1.928E−4	1.081E−4	−8.877E−3
EP-terrestrial	mol N eq.	8.222E−1	1.259E−2	1.68E−2	8.516E−1	5.314E−3	9.355E−3	2.514E−4	3.177E−3	2.181E−3	1.173E−3	−8.608E−2
POCP	kg NMVOC eq	2.597E−1	6.843E−3	4.632E−3	2.712E−1	2.442E−3	2.378E−3	2.501E−4	9.745E−4	7.657E−4	4.809E−4	−4.199E−2
WDP	m^3	3.18E+03	7.61E+01	2.25E+01	3.28E+03	2.28E+01	4.56E+01	7.852E−1	4.91E+00	2.12E+01	2.89E+00	−2.782E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		6.674E−1	6.68E+00	7.35E+00	2.004E−1			4.427E−2			
PERM	MJ	4.50E+01		5.374E−1	4.56E+01		2.67E+00	7.608E−3		4.722E−1	2.642E−2	4.30E+00
PERT	MJ	4.50E+01	6.674E−1	7.22E+00	5.29E+01	2.004E−1	2.67E+00	7.608E−3	4.427E−2	4.722E−1	2.642E−2	4.30E+00
PENRE	MJ		5.34E+01	3.68E+00	5.71E+01	1.62E+01			4.05E+00			
PENRM	MJ	9.46E+02		3.08E+01	9.76E+02		1.27E+01	1.40E+00		3.35E+00	3.29E+00	1.55E+02
PENRT	MJ	9.46E+02	5.34E+01	3.45E+01	1.03E+03	1.62E+01	1.27E+01	1.40E+00	4.05E+00	3.35E+00	3.29E+00	1.55E+02
SM	kg	4.97E+00	1.832E−2	1.343E−2	5.00E+00	5.559E−3	5.999E−3	6.907E−4	1.557E−3	8.81E+00	8.859E−4	−1.339E0
RSF	MJ	6.469E−1	2.334E−2	8.238E−3	6.785E−1	6.992E−3	1.216E−2	1.872E−4	8.655E−4	1.209E−2	6.141E−4	−1.285E−1
NRSF	MJ	1.22E+01	7.833E−2	4.193E−2	1.23E+01	2.385E−2	1.569E−3	2.754E−3	7.339E−3	8.265E−3	3.143E−3	−1.171E1
FW	m^3	5.75E+01	8.306E−1	3.506E−1	5.87E+01	2.494E−1	7.614E−1	1.139E−2	8.493E−2	1.28E−1	4.714E−2	−2.676E0
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 resources; 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 per 1 m² of product

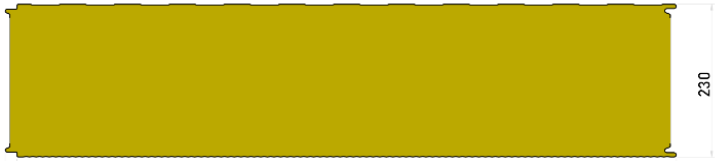
Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	8.44E+00	5.156E−2	6.41E−2	8.56E+00	1.562E−2	3.798E−2	1.513E−3	5.185E−3	1.572E−2	3.058E−3	−1.843E0
Non-hazardous waste disposed	kg	1.24E+02	5.70E+00	2.69E+00	1.32E+02	1.70E+00	9.006E−1	1.618E−2	2.887E−1	9.394E−1	2.23E+01	−1.994E1
Radioactive waste disposed	kg	1.26E−3	3.658E−4	2.168E−5	1.647E−3	1.106E−4	1.873E−5	9.864E−6	2.631E−5	1.797E−5	2.168E−5	−1.903E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	4.89E+00	1.587E−2	1.292E−2	4.91E+00	4.851E−3	2.14E−3	6.782E−4	1.302E−3	8.80E+00	8.317E−4	−1.329E0
Materials for energy recovery	kg	7.869E−3	2.567E−4	9.188E−5	8.218E−3	7.69E−5	2.958E−3	2.103E−6	1.126E−5	1.319E−4	6.723E−6	−1.575E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for walls (thickness 230 mm)



Potential environmental impact per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	5.99E+01	3.33E+00	1.69E+00	6.49E+01	1.13E+00	6.734E−1	1.122E−1	2.948E−1	2.137E−1	1.318E−1	−1.083E1
GWP-biogenic	kg CO_2 eq.	1.48E+00	1.625E−2	1.572E−2	1.52E+00	5.478E−3	2.197E−1	1.902E−4	1.286E−3	2.606E−2	8.363E−4	−1.325E−1
GWP-luluc	kg CO_2 eq.	3.91E−2	1.014E−3	5.624E−4	4.068E−2	3.517E−4	4.668E−2	9.554E−6	1.104E−4	2.465E−4	3.988E−5	−3.231E−3
GWP-total	kg CO_2 eq.	6.14E+01	3.35E+00	1.70E+00	6.65E+01	1.14E+00	9.397E−1	1.124E−1	2.962E−1	2.4E−1	1.327E−1	−1.097E1
ODP	kg CFC 11 eq.	3.775E−6	7.907E−7	7.034E−8	4.637E−6	2.679E−7	9.549E−8	2.442E−8	6.461E−8	3.119E−8	5.53E−8	−5.232E−7
AP	mol H^+ eq.	4.717E−1	8.024E−3	8.356E−3	4.881E−1	3.309E−3	4.465E−3	1.933E−4	1.137E−3	1.775E−3	6.332E−4	−4.364E−2
EP-freshwater	kg PO_4^{3-} eq.	2.642E−2	2.397E−4	6.859E−4	2.734E−2	8.079E−5	2.45E−4	4.105E−6	2.515E−5	1.845E−4	1.39E−5	−5.567E−3
EP-marine	kg N eq.	5.557E−2	1.161E−3	1.195E−2	6.868E−2	5.427E−4	1.378E−3	2.6E−5	3.234E−4	1.928E−4	1.241E−4	−8.877E−3
EP-terrestrial	mol N eq.	8.113E−1	1.242E−2	1.807E−2	8.418E−1	5.867E−3	9.355E−3	2.782E−4	3.516E−3	2.181E−3	1.347E−3	−8.608E−2
POCP	kg NMVOC eq	2.565E−1	6.749E−3	5.16E−3	2.684E−1	2.698E−3	2.378E−3	2.768E−4	1.078E−3	7.657E−4	5.524E−4	−4.199E−2
WDP	m^3	3.14E+03	7.51E+01	2.70E+01	3.24E+03	2.52E+01	4.56E+01	8.687E−1	5.44E+00	2.12E+01	3.31E+00	−2.782E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		6.581E−1	6.68E+00	7.34E+00	2.214E−1			4.898E−2			
PERM	MJ	4.46E+01		6.1E−1	4.52E+01		2.67E+00	8.417E−3		4.722E−1	3.035E−2	4.30E+00
PERT	MJ	4.46E+01	6.581E−1	7.29E+00	5.25E+01	2.214E−1	2.67E+00	8.417E−3	4.898E−2	4.722E−1	3.035E−2	4.30E+00
PENRE	MJ		5.27E+01	3.68E+00	5.64E+01	1.78E+01			4.48E+00			
PENRM	MJ	9.35E+02		3.51E+01	9.70E+02		1.27E+01	1.55E+00		3.35E+00	3.78E+00	1.55E+02
PENRT	MJ	9.35E+02	5.27E+01	3.88E+01	1.03E+03	1.78E+01	1.27E+01	1.55E+00	4.48E+00	3.35E+00	3.78E+00	1.55E+02
SM	kg	4.96E+00	1.807E−2	1.374E−2	4.99E+00	6.141E−3	5.999E−3	7.642E−4	1.723E−3	8.81E+00	1.018E−3	−1.339E0
RSF	MJ	6.406E−1	2.302E−2	9.764E−3	6.734E−1	7.725E−3	1.216E−2	2.071E−4	9.577E−4	1.209E−2	7.053E−4	−1.285E−1
NRSF	MJ	1.22E+01	7.723E−2	4.223E−2	1.23E+01	2.635E−2	1.569E−3	3.047E−3	8.121E−3	8.265E−3	3.61E−3	−1.171E1
FW	m^3	5.69E+01	8.19E−1	4.23E−1	5.81E+01	2.755E−1	7.614E−1	1.26E−2	9.397E−2	1.28E−1	5.414E−2	−2.676E0
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 resources; 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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	8.39E+00	5.084E−2	6.835E−2	8.51E+00	1.726E−2	3.798E−2	1.674E−3	5.737E−3	1.572E−2	3.512E−3	−1.843E0
Non-hazardous waste disposed	kg	1.22E+02	5.62E+00	2.94E+00	1.31E+02	1.88E+00	9.006E−1	1.79E−2	3.194E−1	9.394E−1	2.56E+01	−1.994E1
Radioactive waste disposed	kg	1.247E−3	3.606E−4	2.355E−5	1.631E−3	1.221E−4	1.873E−5	1.091E−5	2.911E−5	1.797E−5	2.49E−5	−1.903E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	4.88E+00	1.565E−2	1.306E−2	4.91E+00	5.359E−3	2.14E−3	7.504E−4	1.441E−3	8.80E+00	9.553E−4	−1.329E0
Materials for energy recovery	kg	7.793E−3	2.531E−4	1.081E−4	8.155E−3	8.495E−5	2.958E−3	2.327E−6	1.246E−5	1.319E−4	7.723E−6	−1.575E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for roofs (thickness 80 mm)

Potential environmental impact per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	3.22E+01	1.42E+00	7.162E−1	3.43E+01	6.057E−1	6.734E−1	6.021E−2	1.581E−1	2.283E−1	4.652E−2	−1.157E1
GWP-biogenic	kg CO_2 eq.	7.227E−1	6.907E−3	6.933E−3	7.365E−1	2.93E−3	2.197E−1	1.02E−4	6.899E−4	2.783E−2	2.952E−4	−1.415E−1
GWP-luluc	kg CO_2 eq.	2.313E−2	4.321E−4	3.97E−4	2.396E−2	1.881E−4	4.668E−2	5.125E−6	5.923E−5	2.633E−4	1.407E−5	−3.451E−3
GWP-total	kg CO_2 eq.	3.30E+01	1.43E+00	7.235E−1	3.51E+01	6.088E−1	9.397E−1	6.031E−2	1.589E−1	2.564E−1	4.683E−2	−1.172E1
ODP	kg CFC 11 eq.	2.115E−6	3.362E−7	5.768E−8	2.508E−6	1.433E−7	9.549E−8	1.31E−8	3.466E−8	3.332E−8	1.952E−8	−5.589E−7
AP	mol H^+ eq.	2.105E−1	3.483E−3	4.373E−3	2.183E−1	1.769E−3	4.465E−3	1.037E−4	6.102E−4	1.896E−3	2.235E−4	−4.661E−2
EP-freshwater	kg PO_4^{3-} eq.	1.708E−2	1.019E−4	6.213E−4	1.781E−2	4.322E−5	2.45E−4	2.202E−6	1.349E−5	1.971E−4	4.907E−6	−5.947E−3
EP-marine	kg N eq.	3.069E−2	5.117E−4	1.128E−2	4.248E−2	2.9E−4	1.378E−3	1.395E−5	1.735E−4	2.06E−4	4.38E−5	−9.482E−3
EP-terrestrial	mol N eq.	3.806E−1	5.479E−3	1.086E−2	3.969E−1	3.135E−3	9.355E−3	1.492E−4	1.886E−3	2.33E−3	4.754E−4	−9.195E−2
POCP	kg NMVOC eq	1.324E−1	2.919E−3	2.204E−3	1.375E−1	1.442E−3	2.378E−3	1.485E−4	5.784E−4	8.179E−4	1.95E−4	−4.485E−2
WDP	m^3	1.72E+03	3.19E+01	1.10E+01	1.76E+03	1.35E+01	4.56E+01	4.66E−1	2.92E+00	2.26E+01	1.17E+00	−2.972E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		2.796E−1	6.68E+00	6.96E+00	1.184E−1			2.628E−2			
PERM	MJ	2.75E+01		3.243E−1	2.78E+01		2.67E+00	4.515E−3		5.044E−1	1.071E−2	4.60E+00
PERT	MJ	2.75E+01	2.796E−1	7.01E+00	3.48E+01	1.184E−1	2.67E+00	4.515E−3	2.628E−2	5.044E−1	1.071E−2	4.60E+00
PENRE	MJ		2.24E+01	3.68E+00	2.61E+01	9.54E+00			2.40E+00			
PENRM	MJ	5.11E+02		1.02E+01	5.21E+02		1.27E+01	8.302E−1		3.58E+00	1.33E+00	1.66E+02
PENRT	MJ	5.11E+02	2.24E+01	1.39E+01	5.47E+02	9.54E+00	1.27E+01	8.302E−1	2.40E+00	3.58E+00	1.33E+00	1.66E+02
SM	kg	5.14E+00	7.685E−3	1.261E−2	5.16E+00	3.285E−3	5.999E−3	4.1E−4	9.244E−4	9.41E+00	3.592E−4	−1.43E0
RSF	MJ	4.006E−1	9.778E−3	4.492E−3	4.149E−1	4.132E−3	1.216E−2	1.111E−4	5.137E−4	1.291E−2	2.489E−4	−1.373E−1
NRSF	MJ	1.28E+01	3.286E−2	4.081E−2	1.29E+01	1.41E−2	1.569E−3	1.635E−3	4.356E−3	8.829E−3	1.274E−3	−1.251E1
FW	m^3	3.20E+01	3.48E−1	1.68E−1	3.25E+01	1.474E−1	7.614E−1	6.759E−3	5.041E−2	1.367E−1	1.911E−2	−2.859E0
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 resources; 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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	6.82E+00	2.162E−2	4.861E−2	6.89E+00	9.233E−3	3.798E−2	8.982E−4	3.078E−3	1.679E−2	1.24E−3	−1.969E0
Non-hazardous waste disposed	kg	7.63E+01	2.39E+00	1.84E+00	8.05E+01	1.01E+00	9.006E−1	9.602E−3	1.713E−1	1.00E+00	9.03E+00	−2.13E1
Radioactive waste disposed	kg	7.524E−4	1.533E−4	1.602E−5	9.218E−4	6.533E−5	1.873E−5	5.855E−6	1.562E−5	1.92E−5	8.788E−6	−2.033E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	5.10E+00	6.661E−3	1.248E−2	5.12E+00	2.866E−3	2.14E−3	4.025E−4	7.728E−4	9.40E+00	3.372E−4	−1.42E0
Materials for energy recovery	kg	4.911E−3	1.075E−4	5.212E−5	5.071E−3	4.544E−5	2.958E−3	1.248E−6	6.686E−6	1.409E−4	2.726E−6	−1.682E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for roofs (thickness 100 mm)

Potential environmental impact per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	3.75E+01	1.77E+00	8.48E−1	4.01E+01	6.798E−1	6.734E−1	6.74E−2	1.77E−1	2.283E−1	5.789E−2	−1.157E1
GWP-biogenic	kg CO_2 eq.	8.654E−1	8.639E−3	8.016E−3	8.821E−1	3.288E−3	2.197E−1	1.142E−4	7.724E−4	2.783E−2	3.673E−4	−1.415E−1
GWP-luluc	kg CO_2 eq.	2.621E−2	5.399E−4	4.175E−4	2.716E−2	2.111E−4	4.668E−2	5.738E−6	6.631E−5	2.633E−4	1.751E−5	−3.451E−3
GWP-total	kg CO_2 eq.	3.84E+01	1.78E+00	8.564E−1	4.10E+01	6.833E−1	9.397E−1	6.752E−2	1.779E−1	2.564E−1	5.827E−2	−1.172E1
ODP	kg CFC 11 eq.	2.43E−6	4.204E−7	5.934E−8	2.91E−6	1.608E−7	9.549E−8	1.467E−8	3.88E−8	3.332E−8	2.429E−8	−5.589E−7
AP	mol H^+ eq.	2.591E−1	4.324E−3	4.914E−3	2.683E−1	1.986E−3	4.465E−3	1.161E−4	6.832E−4	1.896E−3	2.781E−4	−4.661E−2
EP-freshwater	kg PO_4^{3-} eq.	1.892E−2	1.274E−4	6.295E−4	1.968E−2	4.85E−5	2.45E−4	2.466E−6	1.51E−5	1.971E−4	6.106E−6	−5.947E−3
EP-marine	kg N eq.	3.543E−2	6.321E−4	1.137E−2	4.743E−2	3.257E−4	1.378E−3	1.562E−5	1.943E−4	2.06E−4	5.451E−5	−9.482E−3
EP-terrestrial	mol N eq.	4.611E−1	6.765E−3	1.184E−2	4.797E−1	3.521E−3	9.355E−3	1.671E−4	2.111E−3	2.33E−3	5.916E−4	−9.195E−2
POCP	kg NMVOC eq	1.558E−1	3.628E−3	2.603E−3	1.62E−1	1.619E−3	2.378E−3	1.662E−4	6.476E−4	8.179E−4	2.426E−4	−4.485E−2
WDP	m^3	1.99E+03	3.99E+01	1.30E+01	2.04E+03	1.51E+01	4.56E+01	5.217E−1	3.27E+00	2.26E+01	1.46E+00	−2.972E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		3.498E−1	6.68E+00	7.03E+00	1.329E−1			2.942E−2			
PERM	MJ	3.08E+01		3.607E−1	3.12E+01		2.67E+00	5.055E−3		5.044E−1	1.333E−2	4.60E+00
PERT	MJ	3.08E+01	3.498E−1	7.04E+00	3.82E+01	1.329E−1	2.67E+00	5.055E−3	2.942E−2	5.044E−1	1.333E−2	4.60E+00
PENRE	MJ		2.80E+01	3.68E+00	3.17E+01	1.07E+01			2.69E+00			
PENRM	MJ	5.91E+02		1.36E+01	6.05E+02		1.27E+01	9.295E−1		3.58E+00	1.66E+00	1.66E+02
PENRT	MJ	5.91E+02	2.80E+01	1.73E+01	6.37E+02	1.07E+01	1.27E+01	9.295E−1	2.69E+00	3.58E+00	1.66E+00	1.66E+02
SM	kg	5.17E+00	9.609E−3	1.275E−2	5.19E+00	3.687E−3	5.999E−3	4.59E−4	1.035E−3	9.41E+00	4.469E−4	−1.43E0
RSF	MJ	4.473E−1	1.223E−2	5.144E−3	4.647E−1	4.637E−3	1.216E−2	1.244E−4	5.752E−4	1.291E−2	3.098E−4	−1.373E−1
NRSF	MJ	1.28E+01	4.108E−2	4.1E−2	1.29E+01	1.582E−2	1.569E−3	1.83E−3	4.877E−3	8.829E−3	1.586E−3	−1.251E1
FW	m³	3.67E+01	4.353E−1	1.997E−1	3.73E+01	1.654E−1	7.614E−1	7.567E−3	5.644E−2	1.367E−1	2.378E−2	−2.859E0
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 resources; 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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7.18E+00	2.703E−2	5.12E−2	7.25E+00	1.036E−2	3.798E−2	1.006E−3	3.446E−3	1.679E−2	1.543E−3	−1.969E0
Non-hazardous waste disposed	kg	8.53E+01	2.99E+00	1.99E+00	9.02E+01	1.13E+00	9.006E−1	1.075E−2	1.918E−1	1.00E+00	1.12E+01	−2.13E1
Radioactive waste disposed	kg	8.48E−4	1.918E−4	1.699E−5	1.057E−3	7.332E−5	1.873E−5	6.555E−6	1.749E−5	1.92E−5	1.094E−5	−2.033E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	5.12E+00	8.326E−3	1.255E−2	5.14E+00	3.217E−3	2.14E−3	4.507E−4	8.653E−4	9.40E+00	4.196E−4	−1.42E0
Materials for energy recovery	kg	5.473E−3	1.345E−4	5.905E−5	5.667E−3	5.1E−5	2.958E−3	1.397E−6	7.485E−6	1.409E−4	3.392E−6	−1.682E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for roofs (thickness 120 mm)

Potential environmental impact per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	4.22E+01	2.09E+00	9.697E−1	4.53E+01	7.538E−1	6.734E−1	7.46E−2	1.959E−1	2.283E−1	6.926E−2	−1.157E1
GWP-biogenic	kg CO_2 eq.	9.938E−1	1.02E−2	8.948E−3	1.01E+00	3.646E−3	2.197E−1	1.264E−4	8.548E−4	2.783E−2	4.395E−4	−1.415E−1
GWP-luluc	kg CO_2 eq.	2.897E−2	6.368E−4	4.353E−4	3.004E−2	2.342E−4	4.668E−2	6.351E−6	7.339E−5	2.633E−4	2.095E−5	−3.451E−3
GWP-total	kg CO_2 eq.	4.32E+01	2.10E+00	9.791E−1	4.63E+01	7.577E−1	9.397E−1	7.474E−2	1.969E−1	2.564E−1	6.972E−2	−1.172E1
ODP	kg CFC 11 eq.	2.714E−6	4.961E−7	6.085E−8	3.271E−6	1.783E−7	9.549E−8	1.623E−8	4.295E−8	3.332E−8	2.906E−8	−5.589E−7
AP	mol H^+ eq.	3.028E−1	5.081E−3	5.412E−3	3.133E−1	2.204E−3	4.465E−3	1.285E−4	7.561E−4	1.896E−3	3.327E−4	−4.661E−2
EP-freshwater	kg PO_4^{3-} eq.	2.058E−2	1.504E−4	6.366E−4	2.137E−2	5.378E−5	2.45E−4	2.729E−6	1.672E−5	1.971E−4	7.306E−6	−5.947E−3
EP-marine	kg N eq.	3.969E−2	7.404E−4	1.145E−2	5.188E−2	3.614E−4	1.378E−3	1.728E−5	2.15E−4	2.06E−4	6.522E−5	−9.482E−3
EP-terrestrial	mol N eq.	5.335E−1	7.921E−3	1.274E−2	5.542E−1	3.907E−3	9.355E−3	1.849E−4	2.337E−3	2.33E−3	7.078E−4	−9.195E−2
POCP	kg NMVOC eq	1.769E−1	4.267E−3	2.97E−3	1.841E−1	1.796E−3	2.378E−3	1.84E−4	7.167E−4	8.179E−4	2.903E−4	−4.485E−2
WDP	m^3	2.23E+03	4.71E+01	1.47E+01	2.29E+03	1.68E+01	4.56E+01	5.775E−1	3.61E+00	2.26E+01	1.74E+00	−2.972E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		4.128E−1	6.68E+00	7.09E+00	1.474E−1			3.256E−2			
PERM	MJ	3.38E+01		3.928E−1	3.42E+01		2.67E+00	5.595E−3		5.044E−1	1.595E−2	4.60E+00
PERT	MJ	3.38E+01	4.128E−1	7.07E+00	4.13E+01	1.474E−1	2.67E+00	5.595E−3	3.256E−2	5.044E−1	1.595E−2	4.60E+00
PENRE	MJ		3.31E+01	3.68E+00	3.68E+01	1.19E+01			2.98E+00			
PENRM	MJ	6.64E+02		1.67E+01	6.80E+02		1.27E+01	1.03E+00		3.58E+00	1.99E+00	1.66E+02
PENRT	MJ	6.64E+02	3.31E+01	2.04E+01	7.17E+02	1.19E+01	1.27E+01	1.03E+00	2.98E+00	3.58E+00	1.99E+00	1.66E+02
SM	kg	5.19E+00	1.134E−2	1.288E−2	5.21E+00	4.088E−3	5.999E−3	5.08E−4	1.145E−3	9.41E+00	5.347E−4	−1.43E0
RSF	MJ	4.892E−1	1.444E−2	5.707E−3	5.094E−1	5.142E−3	1.216E−2	1.376E−4	6.366E−4	1.291E−2	3.707E−4	−1.373E−1
NRSF	MJ	1.29E+01	4.848E−2	4.117E−2	1.30E+01	1.754E−2	1.569E−3	2.026E−3	5.398E−3	8.829E−3	1.897E−3	−1.251E1
FW	m^3	4.10E+01	5.138E−1	2.272E−1	4.17E+01	1.834E−1	7.614E−1	8.375E−3	6.247E−2	1.367E−1	2.845E−2	−2.859E0
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 resources; 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 per 1 m² of product

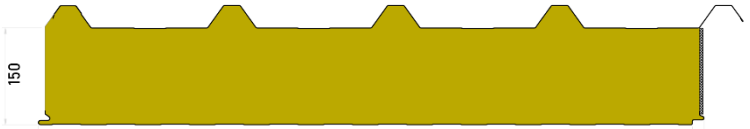
Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7.50E+00	3.19E−2	5.354E−2	7.58E+00	1.149E−2	3.798E−2	1.113E−3	3.814E−3	1.679E−2	1.846E−3	−1.969E0
Non-hazardous waste disposed	kg	9.33E+01	3.52E+00	2.13E+00	9.90E+01	1.25E+00	9.006E−1	1.19E−2	2.123E−1	1.00E+00	1.34E+01	−2.13E1
Radioactive waste disposed	kg	9.34E−4	2.263E−4	1.786E−5	1.178E−3	8.131E−5	1.873E−5	7.255E−6	1.935E−5	1.92E−5	1.308E−5	−2.033E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	5.13E+00	9.824E−3	1.262E−2	5.16E+00	3.568E−3	2.14E−3	4.988E−4	9.577E−4	9.40E+00	5.02E−4	−1.42E0
Materials for energy recovery	kg	5.979E−3	1.588E−4	6.502E−5	6.203E−3	5.655E−5	2.958E−3	1.547E−6	8.284E−6	1.409E−4	4.058E−6	−1.682E−3
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Environmental Information

Sandwich panel for roofs (thickness 150 mm)



Potential environmental impact per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	5.16E+01	2.73E+00	1.23E+00	5.56E+01	8.611E−1	6.734E−1	8.54E−2	2.243E−1	2.283E−1	8.631E−2	−1.157E1
GWP-biogenic	kg CO_2 eq.	1.25E+00	1.33E−2	1.111E−2	1.27E+00	4.166E−3	2.197E−1	1.447E−4	9.786E−4	2.783E−2	5.477E−4	−1.415E−1
GWP-luluc	kg CO_2 eq.	3.448E−2	8.3E−4	4.761E−4	3.579E−2	2.675E−4	4.668E−2	7.27E−6	8.401E−5	2.633E−4	2.612E−5	−3.451E−3
GWP-total	kg CO_2 eq.	5.29E+01	2.74E+00	1.24E+00	5.69E+01	8.656E−1	9.397E−1	8.555E−2	2.254E−1	2.564E−1	8.689E−2	−1.172E1
ODP	kg CFC 11 eq.	3.279E−6	6.471E−7	6.399E−8	3.99E−6	2.037E−7	9.549E−8	1.858E−8	4.916E−8	3.332E−8	3.622E−8	−5.589E−7
AP	mol H^+ eq.	3.899E−1	6.589E−3	6.476E−3	4.03E−1	2.516E−3	4.465E−3	1.471E−4	8.656E−4	1.896E−3	4.147E−4	−4.661E−2
EP-freshwater	kg PO_4^{3-} eq.	2.388E−2	1.962E−4	6.528E−4	2.473E−2	6.144E−5	2.45E−4	3.124E−6	1.913E−5	1.971E−4	9.105E−6	−5.947E−3
EP-marine	kg N eq.	4.819E−2	9.562E−4	1.163E−2	6.078E−2	4.126E−4	1.378E−3	1.978E−5	2.461E−4	2.06E−4	8.128E−5	−9.482E−3
EP-terrestrial	mol N eq.	6.778E−1	1.023E−2	1.465E−2	7.027E−1	4.461E−3	9.355E−3	2.117E−4	2.675E−3	2.33E−3	8.821E−4	−9.195E−2
POCP	kg NMVOC eq	2.189E−1	5.539E−3	3.756E−3	2.282E−1	2.051E−3	2.378E−3	2.106E−4	8.205E−4	8.179E−4	3.617E−4	−4.485E−2
WDP	m^3	2.72E+03	6.14E+01	1.87E+01	2.80E+03	1.92E+01	4.56E+01	6.61E−1	4.14E+00	2.26E+01	2.17E+00	−2.972E2
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											

Use of resources per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
PERE	MJ		5.385E−1	6.68E+00	7.22E+00	1.684E−1			3.727E−2			
PERM	MJ	3.98E+01		4.65E−1	4.02E+01		2.67E+00	6.405E−3		5.044E−1	1.988E−2	4.60E+00
PERT	MJ	3.98E+01	5.385E−1	7.15E+00	4.74E+01	1.684E−1	2.67E+00	6.405E−3	3.727E−2	5.044E−1	1.988E−2	4.60E+00
PENRE	MJ		4.31E+01	3.68E+00	4.68E+01	1.36E+01			3.41E+00			
PENRM	MJ	8.08E+02		2.33E+01	8.31E+02		1.27E+01	1.18E+00		3.58E+00	2.47E+00	1.66E+02
PENRT	MJ	8.08E+02	4.31E+01	2.70E+01	8.78E+02	1.36E+01	1.27E+01	1.18E+00	3.41E+00	3.58E+00	2.47E+00	1.66E+02
SM	kg	5.24E+00	1.479E−2	1.315E−2	5.26E+00	4.67E−3	5.999E−3	5.815E−4	1.311E−3	9.41E+00	6.664E−4	−1.43E0
RSF	MJ	5.729E−1	1.883E−2	7.008E−3	5.987E−1	5.874E−3	1.216E−2	1.576E−4	7.287E−4	1.291E−2	4.619E−4	−1.373E−1
NRSF	MJ	1.29E+01	6.322E−2	4.153E−2	1.30E+01	2.004E−2	1.569E−3	2.319E−3	6.179E−3	8.829E−3	2.364E−3	−1.251E1
FW	m^3	4.95E+01	6.702E−1	2.903E−1	5.05E+01	2.095E−1	7.614E−1	9.587E−3	7.151E−2	1.367E−1	3.546E−2	−2.859E0
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 resources; 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 per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	8.13E+00	4.161E−2	5.866E−2	8.23E+00	1.313E−2	3.798E−2	1.274E−3	4.366E−3	1.679E−2	2.3E−3	−1.969E0
Non-hazardous waste disposed	kg	1.09E+02	4.60E+00	2.37E+00	1.16E+02	1.43E+00	9.006E−1	1.362E−2	2.431E−1	1.00E+00	1.68E+01	−2.13E1
Radioactive waste disposed	kg	1.105E−3	2.951E−4	1.972E−5	1.42E−3	9.289E−5	1.873E−5	8.305E−6	2.215E−5	1.92E−5	1.631E−5	−2.033E−4

Output flows per 1 m² of product

Indicator	Unit	A1	A2	A3	A1-A3	A4	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	5.17E+00	1.281E−2	1.276E−2	5.19E+00	4.075E−3	2.14E−3	5.71E−4	1.096E−3	9.40E+00	6.256E−4	−1.42E0
Materials for energy recovery	kg	6.987E−3	2.071E−4	7.883E−5	7.272E−3	6.461E−5	2.958E−3	1.77E−6	9.483E−6	1.409E−4	5.058E−6	−1.682E−3
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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): C-PCR-005 (TO PCR 2019:14) Thermal Insulation Products (version 2019-12-20)

PCR review was conducted by: The International EPD® System

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

☐ EPD process certification ☒ EPD verification

Third party verifier: Silvia Vilčeková

Approved by: The International EPD® System

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.

References

- General Programme Instructions of the International EPD® System. Version 3.01;
- C-PCR-005 (TO PCR 2019:14) Thermal Insulation Products (version 2019-12-20);
- PCR 2019:14 Construction products (version 1.1)
- EN 15804:2012+A2:2019 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products;
- ISO 14044:2006 Environmental management. Life Cycle Assessment. Requirements and guidelines.
- ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations. Principles and procedures.

Tools and database

- One Click LCA tool;
- Ecoinvent 3.6 database

Contact information

EPD owner:	Baltijos Polistirenas, UAB https://www.balpol.eu
LCA author:	Vesta Consulting, UAB https://www.vestaconsulting.lt/
Programme operator:	The International EPD® System https://www.environdec.com

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