Environmental Product Declaration

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

JI ECO 1000

from

Joris Ide

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

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): *PCR 2019:14 Construction products (EN 15804+A2) (version 1.3.4, published 2024-04-30). The product group classification for the assessed products is UN CPC 421 Structural metal products.*
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Life Cycle Assessment (LCA)
LCA accountability: Joris Ide NV, marketing@joriside.be
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Elisabet Amat <eamat@greenize.es>* 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 registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Joris Ide NV

Contact: marketing@joriside.be

Description of the organisation:
Joris Ide is a strong international player in the steel business. Over 3 decades, Joris Ide has developed a clear presence in more than 15 countries.

We operate from more than 20 production sites to provide you with quality steel construction materials. Guided by our values and dedicated staff, we are continually growing and evolving.

Our strength lies in the many different solutions we offer to a wide range of sectors: agriculture, industrial, residential, and more.

We are committed to giving our customers the best possible service, by building long-term relationships that create successful projects for everyone involved.

Product-related or management system-related certifications:
Company is certified according to ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 37301:2021 and BES 6001.

Name and location of production site(s):
Hille 174, 8750 Zwevezele, Belgium

Product information

Product name: JI Eco 1000

Product description:
The JI Eco 1000 panel is a lightweight insulated panel. The aluminium foil internal liner makes it easy to handle and install. This roof panel is mostly applied on agricultural and functional buildings.

The reference product used for this study considers the product JI Eco 1000. The reference product has a total steel weight of 4,95 kg and a PIR foam insulation thickness of 100mm. The steel weight is the weighted average of all configurations produced during reference year 2023.

A methodology to estimate the environmental performances for other insulation thicknesses can be find in the Annex 1 and Annex 2.

Technical specifications

Standard length from 2500 to 13500 mm
Effective width 1000 mm
Type of metal Steel S280 GD
Outer plate (A) trapezoidal steel plate, type 33-250-1000
Inner plate (B) stucco aluminum foil
Fastening with support bracket on the wave
Roof pitch ≥ 5° Accessories support brackets, folding work, filler strips, etc., see brochure MR036_Accessories

Product standards

Galvanized steel EN 10346:2015 - tolerances according to EN 10143:2006
Pre-painted steel EN 10169:2022
Dimensions / Tolerances EN 14509:2013 (Geometry)
Static calculation Flat-rate application of EN 14509:2013 Standards please always consult the national annex (UK: BS)

UN CPC code: 421 Structural metal products

Geographical scope: Europe

More information: www.joriside.com

LCA information

Declared unit:
1 m² of sandwich panel JI Eco 1000 with core thickness 100 mm (9,45 kg/m²).

Reference service life:
The reference service life of the product is set to be equal to the reference service life of a building. The reference service life of a building is set at a minimum of 50 years.

Time representativeness: 01/01/2023 – 31/12/2023

Database(s) and LCA software used:
Ecoinvent database v3.10.1 (2024) and One Click LCA database. The “EN 15804 reference package” based on EF 3.1 has been used.

Description of system boundaries:
Cradle to gate with options, A4-A5, and modules C1–C4, module D

Mass balance:
Mass balance approaches (MBAs), to claim, for example, biobased, renewable, and/or recycled product content, are not applied.

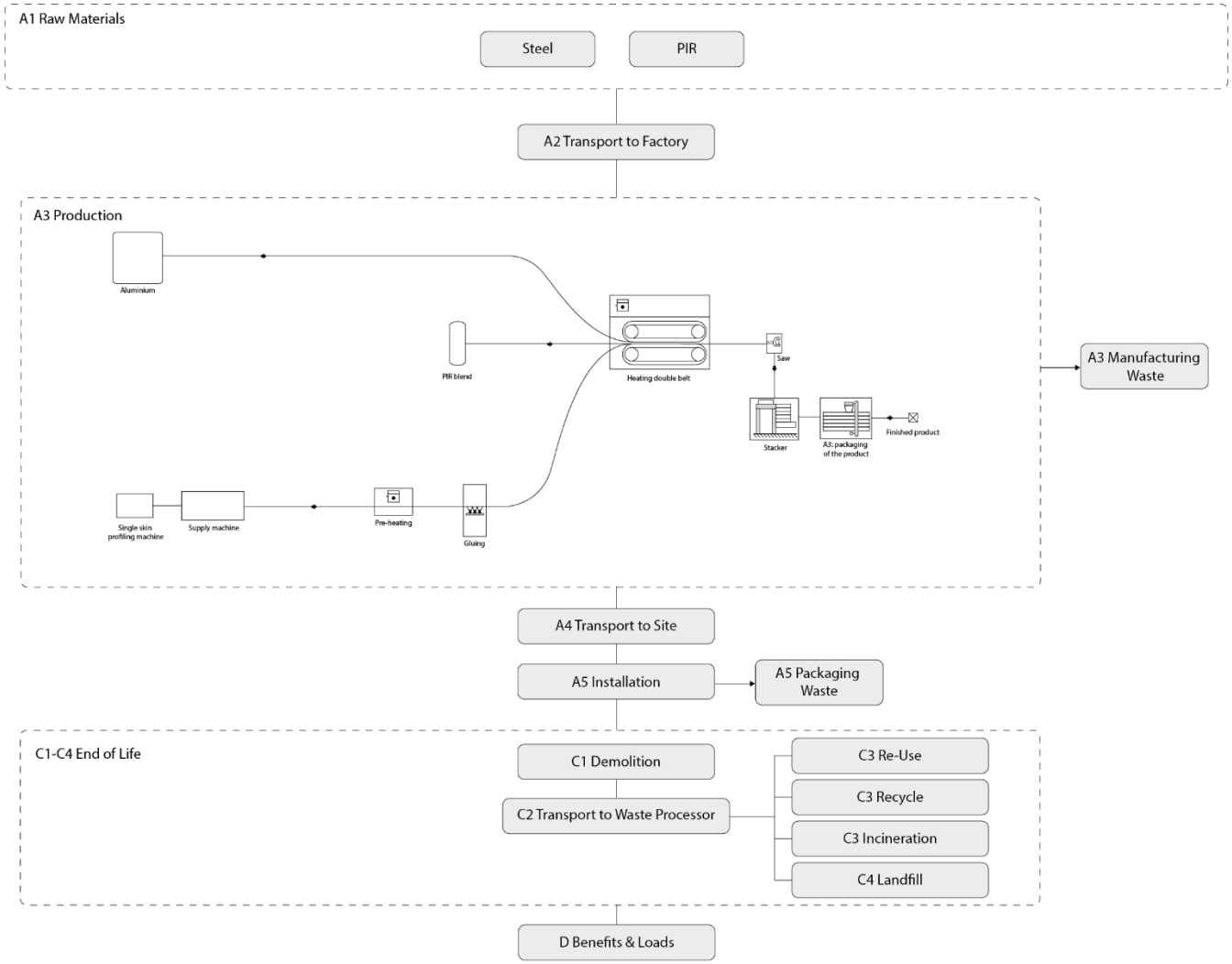
Cut-off rules:
The study includes all major raw material and energy consumption. There is no neglected unit process more than 1% of total mass and energy flows. The total excluded input and output flows do not exceed 5% of energy usage or mass, compliant to the PCR.
Infrastructure/capital goods for upstream, core and downstream processes regarding the inventory data are excluded.

Allocation:
All allocations are done as per EN15804+A2 and the applied PCR. Allocation, based on mass, was necessary for the energy used during manufacturing phase since energy data is only available on production process level. The total fuel consumed on the production line was divided by the total production. This results in the knowledge of energy consumed for 1m² of panel production.

Within this LCA study no co-product allocation was applied.

System diagram:

The system diagram showcases all life cycle stages included in the scope of the LCA (cradle to gate with options, A4-A5, and modules C1–C4, module D).



- Module A1 – A3

The environmental impacts of raw material supply are included in A1, the transportation impact of raw materials to the manufacturing site are included in A2. A3 considers the environmental impacts coming from the manufacturing of materials used in the production but not included in the final products such as packaging materials as well as energy used during the manufacturing of the end product. The product stage also considers losses during the manufacturing processes.

Within this LCA study no co-product allocation was applied to the losses during the manufacturing waste.

During the manufacturing stage (A3) the energy (i.e. natural gas and electricity) for manufacturing was included. Consumed electricity consists of a part renewable electricity purchased from the grid and a part electricity from solar panels on the roof of the production site. To model the renewable electricity from the grid, specific electricity mix is used (0.0155 kgCO2e / kWh). The energy consumed from our own solar panels is modelled with 0.13 kgCO2e /kWh.

- Module A4 – A5

Transportation impacts occurred from final products delivery to construction site are included in A4. The reported distance in A4, 240 km by Truck. This is a weighted average distance from our manufacturing site to our end costumer from all deliveries within the reference period of this study.

Table: Transport scenario documentation A4

Scenario parameter	Value
A4 specific transport CO2e emissions, kg CO2e / tkm	0.1 kgCO2e/tkm for Truck; 0.0071 kgCO2e/tkm for Boat
A4 average transport distance, km	134 km for Truck and 2 km for Boat
A4 Capacity utilization (including empty return) %	60%
A4 Bulk density of transported products	9.88 kg/m²
A4 Volume capacity utilization factor	~1

Environmental impacts from installation into the building (A5) include the product installation losses (2%), emissions of energy use in installation and generation of waste at the construction site. The required screws during installation of the product were included in this stage.

Table: Installation of the product in the building A5

Scenario parameter	Value
Ancillary materials for installation	0.0284 kg screw /m²
Water use	0 m³
Other resource use	0 kg
Quantitative description of energy type (consumption mix) and consumption during the installation process	0.034 kWh electricity (0.2 kg CO2e/ kWh) 0.026 kWh diesel (0.1 kg CO2e /MJ)
Waste materials on the building site before waste processing, generated by the products installation	2% of all A1 product raw materials + packaging materials
Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route)	A1 product raw materials are disposed in the same way as the end of life waste (see C3-C4). Packaging materials are disposed following Europarl 2023, Eurostat 2023 and Plastics Europe 2018.
Direct emissions to ambient air, soil and water	N/A

- Module C1 – C4

Within the End-of-Life stage of this study energy used for the dismantling of the product is considered in C1, the transportation to treatment is included in C2, the waste processing for recovery or recycling is considered in C3, C4 considers the disposal of the product.

In C2, the distance towards recycling, landfill or incineration facility were standard set at 50km.

At end of life, 95% of the steel and aluminium is considered to be recycled (C3) and 5% of the steel and aluminium considered to be landfilled (C4) following World Steel Association. 100% of the insulation is considered to be incineration at end of life (C3).

Table: C1-C4 End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	0 kg
Collection process – kg collected with mixed waste	9,48 kg
Recovery process – kg for re-use	0 kg
Recovery process – kg for recycling	4,81 kg (95% steel and aluminium) 0,027 kg (95% screws)
Recovery process – kg for energy recovery	4,39 kg (100% foam)
Disposal (total) – kg for final deposition	0,25 kg (5% steel and aluminium) 0,001 kg (5% screws)
Scenario assumptions e.g. transportation	Conservative assumption of 50km from installation site to disposal site.

- Module D

Benefits and loads of recycling waste generated in module C3 and A5 are taken into account in module D. The recycled steel have been modelled to avoid use of primary materials. The scrap content in the studied product is considered and only the mass of primary steel in the product provides the benefit in order to avoid double counting.

Incinerated materials generate energy which can replace the need for heat energy in district heating and can also replace generation of electricity from other sources.

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	x	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	GLO	GLO	EU	EU	EU	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Specific data used	>60%*					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%					-	-	-	-	-	-	-	-	-	-	-	-

*The percentage of specific data is assumed to be larger than 60%, but it cannot be proved since one or several EPDs that are used as data sources lack information on the percentage of specific data used.

Content information

Product components	**Weight, kg**	**Post-consumer material, weight-%**	**Biogenic material, weight-% and kg C/kg**
Steel	4,95	20%*	0
Aluminium	0,12	0%	0
Foam	4.39	10%**	0,25***
TOTAL (excl. packaging)	9,45	15%	0,25***
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Plastic	0,07	0,7%	0
EPS	0,09	0,9%	0
Cardboard	0,28	2,8%	0,11***
TOTAL	0,43	4,4%	0,11***

**Total recycled content in steel is considered in the market an average of 20%. We account the total 20% as post-consumer material.*
*** Total recycled content in foam is an average from our suppliers*
****1 kg biogenic carbon is equivalent to 12/44 kg of CO2.*

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

Results of the environmental performance indicators

The environmental performance of the declared unit of 1 m² of JI Eco 1000 with a 100 mm insulation core (i.e. the representative product) are reported below using the parameters and units as specified in PCR 2019:14 v1.3.4.
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

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	2,65E+01	1,43E-01	1,55E+00	1,65E-02	5,10E-02	1,24E+01	1,59E-03	-1,31E+01
GWP-fossil	kg CO_2 eq.	2,72E+01	1,43E-01	1,13E+00	1,64E-02	5,10E-02	1,20E+01	1,59E-03	-1,31E+01
GWP-biogenic	kg CO_2 eq.	-8,38E-01	3,23E-05	4,22E-01	5,56E-06	0,00E+00	4,54E-01	0,00E+00	-1,48E-02
GWP-luluc	kg CO_2 eq.	3,99E-02	6,38E-05	9,32E-04	2,16E-06	2,28E-05	2,64E-04	9,06E-07	-8,74E-03
ODP	kg CFC 11 eq.	4,30E-05	2,11E-09	8,63E-07	4,73E-10	7,53E-10	1,22E-08	4,59E-11	-8,35E-08
AP	mol H^+ eq.	9,81E-02	4,90E-04	2,88E-03	1,06E-04	1,74E-04	1,15E-02	1,12E-05	-7,40E-02
EP-freshwater	kg P eq.	6,57E-03	1,11E-05	1,85E-04	1,07E-06	3,97E-06	1,30E-04	1,30E-07	-5,87E-03
EP-marine	kg N eq.	5,94E-02	1,60E-04	1,61E-03	4,45E-05	5,72E-05	8,20E-03	4,29E-06	-1,19E-02
EP-terrestrial	mol N eq.	2,33E-01	1,75E-03	7,73E-03	4,79E-04	6,22E-04	5,79E-02	4,68E-05	-1,26E-01
POCP	kg NMVOC eq.	8,13E-02	7,19E-04	2,54E-03	1,44E-04	2,56E-04	1,43E-02	1,68E-05	-4,15E-02
ADP-minerals&metals*	kg Sb eq.	1,69E-04	3,98E-07	4,58E-06	2,82E-08	1,42E-07	9,08E-06	2,52E-09	-1,16E-05
ADP-fossil*	MJ	4,75E+02	2,07E+00	1,17E+01	5,03E-01	7,40E-01	8,20E+00	3,89E-02	-1,39E+02
WDP*	m^3	1,18E+01	1,02E-02	2,99E-01	3,66E-03	3,66E-03	8,81E-01	1,12E-04	-2,14E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

** Disclaimer 1: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*
We discourage the use of the results of modules A1-A3 without considering the results of module C.

Additional environmental impact indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Incidence	1,41E-06	1,43E-08	4,14E-08	2,54E-09	5,11E-09	5,18E-08	2,56E-10	-8,67E-07
Ionizing radiation	kBg U235e	1,26E+00	1,80E-03	4,52E-02	1,54E-02	6,45E-04	1,85E-02	2,45E-05	-5,95E-01
Ecotoxicity (freshwater)	CTUe	1,93E+02	2,93E-01	5,33E+00	1,81E-02	1,05E-01	2,90E+01	3,26E-03	-2,51E+01
Human tox. cancer	CTUh	2,21E-08	2,36E-11	6,14E-10	2,12E-12	8,42E-12	1,11E-09	2,92E-13	-1,85E-09
Human tox. Non-cancer	CTUh	2,65E-07	1,34E-09	8,10E-09	5,25E-11	4,79E-10	4,18E-08	6,71E-12	-7,14E-08
SQP	-	1,08E+02	2,08E+00	2,99E+00	4,33E-02	7,46E-01	3,79E+00	7,66E-02	-5,51E+01
Acronyms	PM = particular matter; SQP = Land use related impacts/soil quality								

**Disclaimer 2: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.*

Additional mandatory and voluntary impact category indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	2,73E+01	1,43E-01	1,13E+00	1,64E-02	5,10E-02	1,20E+01	1,59E-03	-1,31E+01

Resource use indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	3,17E+01	2,84E-02	-3,22E+00	1,02E-02	1,01E-02	7,56E-01	3,76E-04	-1,54E+01
PERM	MJ	4,85E+00	0,00E+00	-3,58E+00	0,00E+00	0,00E+00	-1,26E+00	0,00E+00	4,51E-02
PERT	MJ	3,65E+01	2,84E-02	-6,80E+00	1,02E-02	1,01E-02	-5,08E-01	3,76E-04	-1,54E+01
PENRE	MJ	3,83E+02	2,07E+00	5,00E+00	5,03E-01	7,40E-01	-9,39E+01	3,89E-02	-1,39E+02
PENRM	MJ	9,09E+01	0,00E+00	-6,12E+00	0,00E+00	0,00E+00	-8,48E+01	-1,34E-02	6,64E-01
PENRT	MJ	4,73E+02	2,07E+00	-1,12E+00	5,03E-01	7,40E-01	-1,79E+02	2,55E-02	-1,38E+02
SM	kg	1,73E+00	8,81E-04	4,56E-02	6,74E-05	3,15E-04	4,46E-03	9,78E-06	3,99E+00
RSF	MJ	2,73E-02	1,12E-05	5,87E-04	1,88E-07	4,00E-06	1,74E-04	2,03E-07	8,24E-05
NRSF	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
FW	m^3	2,89E-01	3,06E-04	6,83E-03	8,82E-05	1,09E-04	1,79E-02	4,05E-05	-7,19E-02
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 nonrenewable 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								

Note: Option A based on the Annex 3 of the PCR is followed for the balance of the indicators that are primary energy resources used as raw materials.

[1] 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_2 is set to zero.

Waste indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	5,50E+00	3,51E-03	1,62E-01	4,31E-04	1,25E-03	2,24E-01	4,30E-05	-6,76E-01
Non-hazardous waste disposed	kg	3,73E+01	6,49E-02	1,90E+00	6,51E-03	2,32E-02	5,49E+00	9,82E-04	-3,14E+01
Radioactive waste disposed	kg	5,16E-04	4,41E-07	1,52E-05	3,65E-06	1,58E-07	4,72E-06	5,96E-09	-1,51E-04

Output flow indicators

Indicator	Unit	A1-A3	A4	A5	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
Material for recycling	kg	4,50E-02	0,00E+00	3,55E-01	0,00E+00	0,00E+00	4,84E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	3,89E-02	0,00E+00	1,70E-01	0,00E+00	0,00E+00	4,39E+00	0,00E+00	0,00E+00
Exported energy	MJ	7,94E-01	0,00E+00	3,68E+00	0,00E+00	0,00E+00	8,93E+01	0,00E+00	0,00E+00

References

EPD International (2021). General Programme Instructions of the international EPD® system. Version 4.0. www.environdec.com.

JI Eco 1000 report (2025)

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

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

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

EN 15804+A2 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

Product Category Rules (PCR) document for Construction Products (PCR 2019:14 Version 1.3.4, 2024-04-30)

Plastics Europe Final report “Plastic waste from B&C in EU 2018”

Ecoinvent database v3.10.1 (2024) and One Click LCA database.

Annex 1: Scaling table A1-A3

To enable the user of the EPD to calculate the environmental indicators for JI Eco 1000 with different insulation thicknesses in the product, we provide a scaling table. The variable in this scaling table is the insulation thickness, varying between 30 mm and 100 mm. The total steel weight is considered fixed with a total steel weight of 4,95 kg.

To calculate the environmental indicators for other thicknesses then 100mm (= thickness in reference product), the below conversion factors should be multiplied by the results find above.

Scaling table: Module A1 - A3													
PIR Thickness	GWP total kg CO2e	GWP fossil kg CO2e	GWPI biogenic kg CO2e	GWP, LULUC kg CO2e	ODP kg CFC11e	AP mol H+ eq.	EP freshwater kg Pe	EP marine kg N eq.	EP terrestrial mol N eq.	POCP kg NMVOC eq.	ADP-minerals & metals kg Sbe	ADP fossil MJ	WDP m³
Thickness: 30mm	0,71	0,71	0,67	0,75	0,35	0,78	0,95	0,50	0,76	0,77	0,93	0,60	0,73
Thickness: 40mm	0,75	0,75	0,71	0,78	0,46	0,81	0,96	0,58	0,80	0,80	0,94	0,66	0,77
Thickness: 60mm	0,84	0,84	0,82	0,86	0,65	0,88	0,97	0,73	0,87	0,87	0,96	0,78	0,86
Thickness: 100mm	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00

Annex 2: Scaling table A1-C4

To enable the user of the EPD to calculate the environmental indicators for JI Eco 1000 with different insulation thicknesses in the product, we provide a scaling table. The variable in this scaling table is the insulation thickness, varying between 30 mm and 100 mm. The total steel weight is considered fixed with a total steel weight of 4,95 kg.

To calculate the environmental indicators for other thicknesses then 100mm (= thickness in reference product), the below conversion factors should be multiplied by the results find above.

Scaling table: Module A1 - C4													
PIR Thickness	GWP total kg CO2e	GWP fossil kg CO2e	GWPI biogenic kg CO2e	GWP, LULUC kg CO2e	ODP kg CFC11e	AP mol H+ eq.	EP freshwater kg Pe	EP marine kg N eq.	EP terrestrial mol N eq.	POCP kg NMVOC eq.	ADP-minerals & metals kg Sbe	ADP fossil MJ	WDP m³
Thickness: 30mm	0,61	0,61	0,60	0,75	0,35	0,75	0,95	0,49	0,69	0,71	0,92	0,60	0,71
Thickness: 40mm	0,67	0,67	0,68	0,79	0,46	0,78	0,96	0,57	0,74	0,76	0,94	0,66	0,75
Thickness: 60mm	0,79	0,79	0,78	0,86	0,65	0,86	0,97	0,72	0,83	0,85	0,96	0,78	0,84
Thickness: 100mm	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00

**Main contributor stage is A1 – A3, this is why scaling factors of modules A1 – A3 are very similar to those of modules A1 – C4*

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