

Environmental Product Declaration



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

HI-QuadCore KS1000 AWP: Self-supporting double skin metal faced QuadCore rigid insulating panel for facades

EPD of multiple products based on worst-case results

Products included 50,60,80,100,120,140,160 mm(thickness related)

from



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
E-mail:	info@environdec.com

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, version 1.3.4 published on 2024.03.01*

UN CPC Code: Structural products and Parts Thereof (CPC 421, version 2.1 dated 2015)

PCR review was conducted by: Technical Committee of the international EPD® System. See www.environdec.com 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: *Engloba Consulting Professional Services, SL*

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: Marcel Gómez, Marcel Gómez Consultoria Ambiental, S.L. (info@marcelgomez.com)

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:

HUURRE IBERICA, SAU
 Carrer Serinyà, 43. Poligon Industrial el Trust
 E-17244 Cassà de la Selva Girona, Spain

Contact: Nuria Gomez; nuria.gomez@huurreiberica.com

Description of the organisation: HUURRE IBERICA SAU is dedicated to the manufacture of high-quality steel faced sandwich panel for innovative constructive solutions of metal closure for any type of building. HUURRE develops this sandwich panels for building that guarantee durable designs that comply with environmental and health standards and that, once their useful life is complete, can be recycled or managed effectively.

Product-related or management system-related certifications: ISO 9001 (ER-0947/1998), ISO 14001 (GA-2003/0091), ISO 45001 (SST-0035/2010), BES6001 (INTRS0017).

Name and location of production site(s):

Name: HUURRE IBERICA, SAU
 Location: Carrer Serinya (Poligon Industrial el Trust), E-17244 Cassà de la Selva Girona, Spain.

Product information

Product name: Self-supporting double skin metal faced QuadCore® rigid insulating panel for facades

Product identification:

This EPD covers the representative product of prefabricated double skin steel faced sandwich panels (secret & visible fixings) with QuadCore, for self-supporting and application in wall cladding and ceiling. The inner and outer skin is made of a core of steel, which is protected against corrosion with a pre-painted coating. The thermal insulating core material is made of QuadCore® according to EN 13165 with sealing tapes.

All panels are manufactured by HUURRE in their production plant in Cassà de la Selva (Carrer Serinyà, 43).

From 7 different thickness worst case product has been analysed. Results of the Life Cycle Assessment (LCA) are presented for this worst case. This product has been calculated based on a set of references which are certified with CE according to EN 14509.

One of the main objectives of the EPD is to communicate the environmental impacts of our product to B2B companies.

Product description:

All references included are a double skin steel faced sandwich panels with QuadCore® rigid insulation core and specially designed for self-supporting application in wall cladding and ceiling.

The representative product of this family has been obtained from the calculation of the largest product thickness (worst case) of double skin steel faced sandwich panels with QuadCore® core, produced on the same continuous foaming line during the year of study (2022) in the production site of HUURRE.

Within this EPD are included the following references:

Reference	50	60	80	100	120	140	160
HI-QuadCore KS1000 AWP	X	X	X	X	X	X	X

Available:

Not available:

UN CPC code: CPC 421 Structural metal products and parts thereof

Geographical scope:

Product under study is produced in Cassà de la Selva (Catalonia, Spain) but can be used at a global scale.

LCA information

Declared unit:

One square meter (m²) of double skin steel faced sandwich panels with QuadCore® insulation core with 160 mm thickness used for insulating facades for industrial, residential, commercial and sports facilities, as well as for ceilings and internal partitions.

For the calculation of the declared unit, an application of 16,22 kg/m² (160mm) has been considered.

Reference service life:

HUURRE. sandwich panels used in lightweight metal constructions must withstand a minimum period of service life of at least 30 years. The term of service life is the period until first slight renewals in the surface of the sandwich panels are required, only if there is no need for frequent inspections and service. The service life depends on the location, weather conditions and the quality of the pre-painted coating of steel skins. Huurre S.A.U. sandwich panels exhibit an estimated service life of 40-45 years depending on the end-use conditions and material specification

Composition of the reference product:

Name	Value	Unit
Steel sheets	59,16	%
Thermal insulation core	40,06	%
Others	0,78	%

Time representativeness:

All specific data related to the production plants and used for the study date from 2022.

Database(s) and LCA software used: The primary inventory data has been obtained from HUURRE IBERICA, SAU. corresponding to the references listed above produced on 2022 by HUURRE IBERICA, SAU at its production site, located in Cassà de la Selva (Girona -Spain).

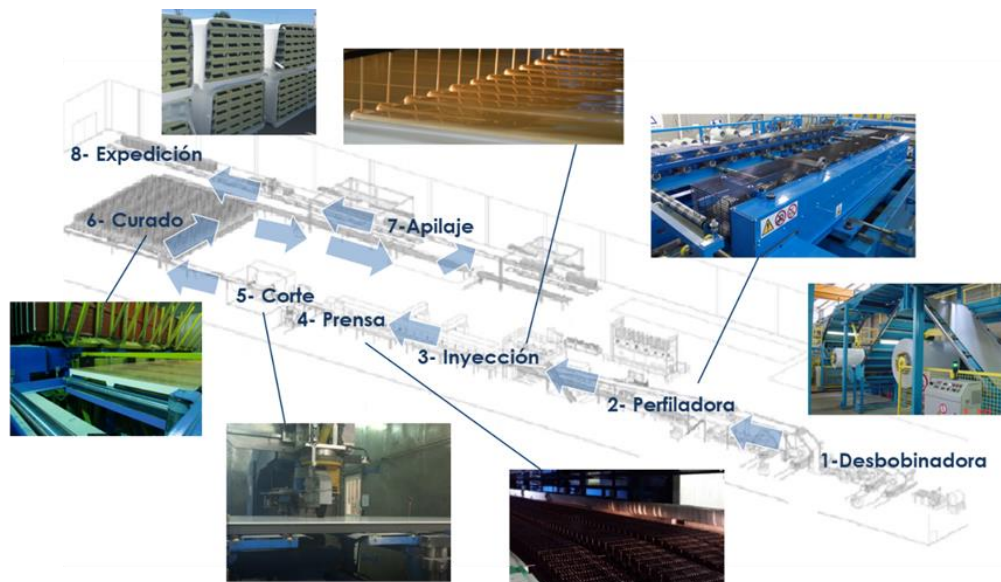
The secondary data has been extracted from the Ecoinvent version 3.10 database, included in the Earthster software and internationally recognized. Wherever possible, inventory data relating to Spain, or in its absence from Europe in general, has been selected. These have been used for the stage of production and transport of raw materials, as well as for electricity generation or waste management processes, over which the manufacturer has no direct influence.

Description of system boundaries: Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D). Therefore, this EPD report considers the scope "cradle to gate with end of life of the product", covering the modules of extraction and processing of raw materials (A1), their transportation to the production plant (A2), manufacturing process (A3), end of life (C1-C4) and potential benefits and loads from the reuse and recycling of the steel aggregate at its end of life (D).

As permitted by PCR 2019:14 (version 1.3.4), remaining life cycle stages (modules A4-A5 and B1-B7) have been excluded from the study as not being relevant for this product. Therefore, since the steel can be identified and separated at its end of life, the end of life of the product and possible benefits from material recovery of the HUURRE product shall be included in the EPD (i.e., modules C1-C4 and D).

Applicable lifecycle stages within the system boundaries and processes are described below.

- Product stage (A1-A3):
 - Raw material supply (A1): This module considers the extraction and processing of raw materials used for the manufacture of the product. Moreover, raw materials' packaging enabling transportation to the production plant is included. Likewise, the production of the energy necessary for the manufacturing process (electricity, diesel, and other fuels) is also considered.
 - Transport of the raw materials (A2): This module consists of the transportation of all raw materials covered by module A1, from the extraction, production, and treatment site to the factory, considering the specific distances of each material supplier.
 - Manufacturing of double skin steel faced sandwich panels with QuadCore® insulation core (A3):



This module refers to the production process of the all QuadCore products included in this EPD in the Cassà de la Selva (Girona) production plant. It includes the combustion of fuels (diesel) and the water consumed during the manufacturing process. It also considers the waste generated from the production process: the treatment and transport from the production plant to the waste manager. Finally, it considers the packaging used for distribution: the materials of the packaging of the product and the transport of this packaging from suppliers to the HUURRE factory in Cassà de la Selva. The Industrial process is based on a continuous foaming line through it can get a double skin steel faced sandwich panels with QuadCore insulation core. Electricity generation by photovoltaic solar panels has also been considered. In our case, the emission factor is 0,2 kg CO₂eq/kWh.

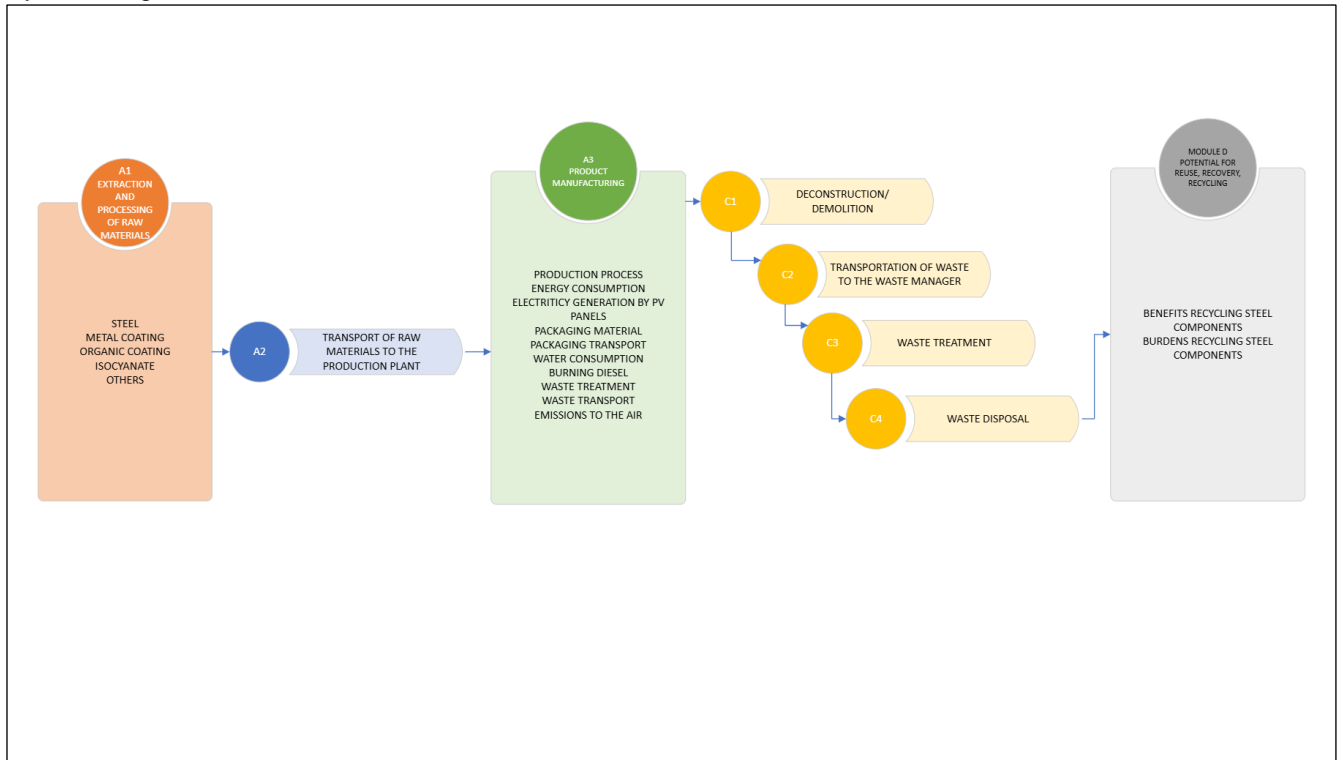
End of life stage (C):

- Deconstruction or demolition (C1): For this module has been considered diesel consumption for machinery used.
- Transport to the waste processing site (C2): This module considers a default distance of 50 km between the building where the product was installed and the waste manager facility.
- Waste processing (C3): This module includes the reconditioning of aggregate sandwich panel for recycling. The 95% of the steel is considered for recycling.
- Disposal (C4): This module includes the final discharge of waste that has not been destined for recovery or treatment processes.

Parameter	Units per Declared Unit (m ²)	Value
Waste collection process, specified by type	Kg collected separately	16,22
	Kg collected mixed with demolition waste	0,00
Recovery process waste, steel	Kg for reuse	0,00
	Kg for recycling	9,18
	Kg of energy recovery	0,00
Recovery process waste, other materials	Kg for reuse	0,00
	Kg for recycling	0,00
	Kg for energy recovery	0,00
Waste disposal	Kg to landfill	7,04
Considerations for scenarios development	Distance to waste manager (km)	50

- Benefits and loads beyond the system boundary (D): This module analyses the benefits and burdens related to the process of recovery, reuse, or recycling of waste from the product under study at their end of life, which could form part of the cycle of a new product.

System diagram:



More information:

Company website for more information: <https://www.huurreiberica.com>

Name and contact information of LCA practitioner:

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Cut-off rules: In accordance with the provisions of the PCR 2019:14 construction products, version 1.3.4 and the standard UNE-EN 15804:2012+A2:2020, at least 95% of total inflows and outflows (mass and energy) per module have been included.

The "polluter pays" principle has been applied.

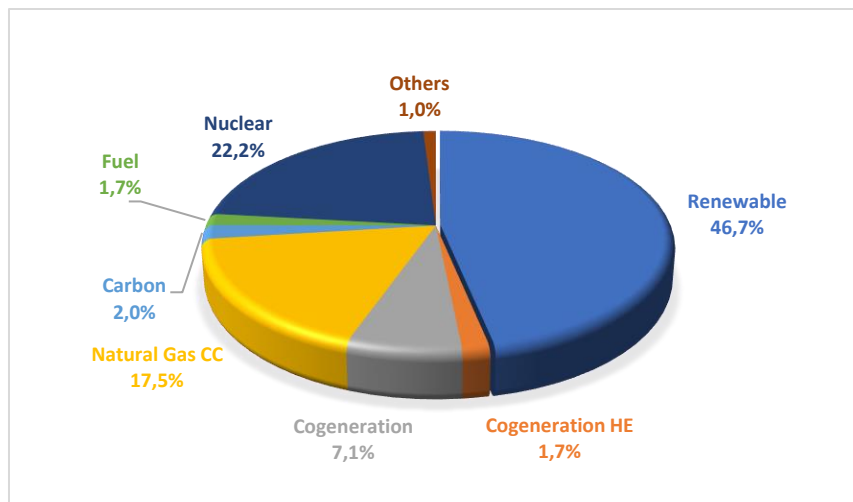
In addition, the following processes have not been included in the scope of the study:

- Manufacture of equipment used in production.
- Business trips.
- Maintenance activities at the production plants
- Transportation of personnel to and within the plants
- Diffuse particle emissions during the transport and storage of raw materials

Hypothesis and considerations applied:

The hypothesis and considerations assumed during the study are detailed below:

- All specific data used in the present study corresponds to 2022.
- The conventional furnace steel used as raw material includes steel scrap in their formulation: 13,02% of the material comes from "pre-consumer" material and 3,72% from "post-consumer" material.
- The electrical mix corresponding to the company's consumption has been modelled according to the data of its energy supplier, assigning the impact value to each resulting kWh (0,2 CO₂eq/kWh).



- It has been assumed that all truck transport complies with the EURO 6 emission standard, when carried out within European territory.
- As specified in ANNEX C of the Single Market for Green Products - The Product Environmental Footprint Pilots - Environment - European Commission (europa.eu), an end-of-life situation has been assumed for steel of 95% for the recycling process, and for the remaining 5%, it has been considered destined for landfill since the steel cannot be incinerated. The isolating material, in this case QuadCore, it has been considered destined for inert landfill, as well as the other components of the sandwich panel.
- 50 km distance has been assumed for the transport of waste from product deinstallation point to the waste manager's plant.
- Average production losses of 2,14 % derived from the production process of the product have been considered. These have been applied as input to the consumption of raw materials and their transport to the production plant.
- Both for electricity consumption, as for the rest of the plant consumption, as well as for the generation of waste, an allocation of loads per mass per kg of double skin steel faced sandwich panels with QuadCore® insulation core produced has been made.
- Regarding the transport of raw materials (module A2), specific distances have been introduced by supplier. We have considered dual sourcing supplier.
- For the transport of waste from the production to the waste manager, specific distances have been introduced to each waste manager based on waste type.

Data quality requirements: In this study, data quality requirements established by ISO 14025 standards and reference PCRs "PCR 2019:14 Construction products, version 1.3.4 Published on 2024.04.30 and UNE- EN 15804:2012+A2:2019/AC:2021 have been applied.

Data has been evaluated through a data quality matrix based on the Product Environmental Footprint Category rules criterion for the data quality management, as it is established in the UNE-EN 15804:2012+A2:2019/AC:2021. The global data quality assessment reflects good quality (3,62).

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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	ES	ES	ES	-	-	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	28,79 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight % of product
Steel	9,669 ⁽¹⁾	3,72%	0
Isocyanates	3,968 (1,230-3,968)	0	0
Chemical components	2,531 (0,863-2,531)	0	0
Others non chemical	0,075 (0,019-0,075)	0	0
TOTAL	16,22 (11,78-16,22)	2,50 %	0
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
PE	0,036 (0,036-0,036)	0,44	0
EPS	0,122 (0,067-0,122)	0,45	0
TOTAL	0,158 (0,1044-0,158)	1,02	0

(1) weight of the worst and best cases steel is the same

None of the components present in the final product and included in the “Candidate List of Substances of Extreme Concern in the authorization procedure” of the REACH regulation has a percentage higher than 0,1%.

Results of the environmental performance indicators

Considering a declared unit of one square meter (m²) of double skin steel face sandwich panels with QuadCore® insulation core with thickness of 160 mm and application factor of 16,22 kg/m²

The impact assessment is based on EF3.1

The results of A1-A3 should not be used without taking into account the results of module C.

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.

(160 mm thick)

Mandatory impact category indicators according to EN 15804 Results per declared unit

Indicator	Unit	TOTAL A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq.	4,65E+01	5,01E-03	1,88E-01	7,65E-03	8,00E-02	-1,26E+01
GWP-biogenic	kg CO2 eq.	0,00E+00 (1)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP- luluc	kg CO2 eq.	4,20E-02	4,35E-07	5,95E-05	2,03E-05	3,99E-05	-3,97E-04
GWP total -	kg CO2 eq.	4,66E+01	5,01E-03	1,89E-01	7,68E-03	8,01E-02	-1,26E+01
ODP	kg CFC 11 eq.	5,86E-07	7,66E-11	3,77E-09	1,38E-10	1,84E-09	-3,94E-08
AP	mol H+ eq.	8,03E-01	4,52E-05	3,70E-04	4,69E-05	6,11E-04	-4,86E-02
EP-freshwater	kg P eq.	1,36E-02	1,46E-07	1,24E-05	6,31E-06	5,02E-06	-5,38E-03
EP-marine	kg N eq.	5,93E-02	2,10E-05	8,90E-05	9,50E-06	2,57E-04	-1,09E-02
EP-terrestrial	mol N eq.	3,32E+00	2,30E-04	9,42E-04	9,10E-05	2,79E-03	-1,18E-01
POCP	kg NMVOC eq.	1,11E-01	5,83E-05	3,43E-04	2,46E-05	7,40E-04	-3,60E-02
ADP- minerals&metals*	kg Sb eq.	2,11E-03	1,79E-09	6,01E-07	9,47E-08	9,74E-08	-1,12E-04
ADP-fossil*	MJ	9,92E+02	7,00E-02	2,84E+00	1,87E-01	1,68E+00	-1,99E+02
WDP*	m ³	2,09E+01	1,92E-04	1,48E-02	5,27E-03	4,97E-02	-7,18E-01

(1) The impact of CC biogenic is 0 because A5 is not declared and this is compensated in modules A1-A3, although the value is 2.95E-02

Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption
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* 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.

Additional mandatory and voluntary impact category indicators

Results per declared unit

Indicator	Unit	TOTAL A1-A3	C1	C2	C3	C4	D
GWP-GHG ¹ (1)	kg CO2 eq.	4,57E+01	4,98E-03	1,87E-01	7,65E-03	7,94E-02	-1,25E+01
PM	Disease inc.	8,47E-06	1,28E-09	1,16E-08	3,31E-10	1,54E-08	-8,17E-07
IRP (2)	kBq U-235 eq	3,27E+00	2,94E-05	4,04E-03	4,27E-03	9,50E-04	4,94E-01
ETP-fw (3)	CTUe	3,81E+03	1,95E-02	1,82E+00	3,23E-01	9,12E-01	-8,49E+02
HTP-c (3)	CTUh	5,52E-06	2,93E-11	1,59E-09	1,16E-10	5,74E-10	-1,17E-06
HTP-nc (3)	CTUh	1,67E-06	1,31E-11	2,05E-09	2,50E-10	4,94E-10	-1,45E-07
SQP (3)	Pt	1,29E+02	2,05E-03	4,45E-01	1,19E-01	7,70E-01	-2,45E+01

Acronyms	GWP-GHG: Global warming potential-Greenhouse gas; PM= particulate matter; IRP =Ionizing radiation, human health; ETP-fw=Ecotoxicity tap water-organic; HTP-c= human health, carcinogenic effects; HTP-nc= human health , non-carcinogenic effects; SQP=land use
(1)	The indicator includes all green house gases included in GWP -total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product.
(2)	This impact category refers to the eventual impacts of low amounts of ionizing radiation on human health from the nuclear fuel cycle. It does not consider the effects due to possible nuclear accidents or occupational exposure due to possible nuclear accidents or occupational exposure due to radon or from some construction materials
(3)	The results of this environmental impact category must be used wisely, as the uncertainties in the results are elevated and the results are elevated and the experience with this parameter is limited

Resource use indicators

Results per declared unit

Indicator	Unit	TOTAL A1-A3	C1	C2	C3	C4	D
PERE	MJ	6,58E+01	4,67E-04	6,04E-02	4,70E-02	1,68E-02	-9,01E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	6,58E+01	4,67E-04	6,04E-02	4,70E-02	1,68E-02	-9,01E+00
PENRE	MJ	9,88E+02	7,00E-02	2,84E+00	1,87E-01	1,68E+00	-1,99E+02
PENRM	MJ	3,47E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	9,92E+02	7,00E-02	2,84E+00	1,87E-01	1,68E+00	-1,99E+02
SM	kg	1,62E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	4,95E-01	4,69E-06	3,67E-04	1,35E-04	1,17E-03	-2,54E-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 non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water
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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 CO₂ is set to zero.

Waste indicators

Results per declared unit

Indicator	Unit	TOTAL A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,10E+01	4,25E-04	2,95E-02	1,67E-03	2,01E-02	-3,07E+00
Non-hazardous waste disposed	kg	6,75E-04	7,20E-09	1,01E-06	1,09E-06	2,32E-07	-1,12E+01
Radioactive waste disposed	kg	3,36E+00	5,63E-05	2,31E-03	2,43E-04	1,24E-03	1,28E-04

Output flow indicators

Indicator	Unit	TOTAL A1-A3	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
Material for recycling	kg	1,670E-01	0,00E+00	0,00E+00	9,18E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	7,22E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	3,81E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	6,98E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Information on biogenic carbon content

The product under study and its packaging contains the biogenic carbon content presented below:

Results per declared unit

BIOGENIC CARBON CONTENT	Unit	Quantity
Biogenic carbon content in product	kg	0,00E+00
Biogenic carbon content in packaging	kg	0,00E+00

Variability analysis

Variability analysis of 50 mm compared to 160 mm. Variability of more than 10% is shown below:

Indicator	Unit	TOTAL
GWP-fossil	kg CO2 eq.	28,72 %
GWP- luluc	kg CO2 eq.	22,05 %
GWP total -	kg CO2 eq.	28,79 %
EP-marine	kg N eq.	13,01 %
POCP	kg NMVOC eq.	17,46 %
ADP-fossil*	MJ	35,74 %
WDP*	m3	17,90 %

Indicator	Unit	TOTAL
GWP-GHG ² (1)	kg CO2 eq.	37,35%
IRP (2)	kBq U-235 eq	12,09 %
HTP-nc (3)	CTUh	11,53 %
SQP (3)	Pt	23,43%

Indicator	Unit	TOTAL
PERE	MJ	34,33 %
PERT	MJ	34,33 %
PENRE	MJ	35,75 %
PENRM	MJ	31,00 %
PENRT	MJ	35,74 %
FW	m ³	17,57 %

² 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 CO₂ is set to zero.

References

- PCR 2019:14. Construction products. Version 1.3.4. Valid until 2024-12-20
- *ISO 14025:2010 Environmental labels and declarations-Type III Environmental Declarations-Principles and procedures*
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