

# Environmental Product Declaration

In accordance with ISO 14025:2006, EN 15804:2012+A2:2019 / AC:2021 and CPR 018:2023 for ventilation components for:

## NASHIRA S



EPD of multiple products, based on a representative product.

Products included:

**NASHIRA S 150 R8**

**NASHIRA S 200 R8**

From:

**S&P Sistemas de Ventilación, S.L**

**Programme:** The International EPD® System,  
[www.environdec.com](http://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](http://www.environdec.com)



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THE INTERNATIONAL EPD® SYSTEM

## General information

### Programme information

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
<b>E-mail:</b>	<a href="mailto:info@environdec.com">info@environdec.com</a>

#### 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 2024.04.30  
CPCR 018:2023 for ventilation components.

PCR review was conducted by: The Technical Committee of the International EPD System. See [www.environdec.com](http://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](http://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](mailto: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:** S&P SISTEMAS DE VENTILACIÓN, SL; Carrer Llevant, 4 - Polígon Industrial Llevant; 08150 Parets del Vallès (Barcelona).
- **Contact:** Martí Roig Rabadà ([mroig@solerpalau.com](mailto:mroig@solerpalau.com)), Product Sustainability Manager.
- **Description of the organisation:** Committed to improving indoor air quality and making it accessible to everyone, S&P develops highly energy-efficient, reliable, and durable ventilation solutions that benefit both our customers and the planet. Easy installation is a key pillar of our innovation, ensuring our products meet the needs of both users and installers. We also prioritize human well-being, which is why we are dedicated to designing exceptionally quiet equipment.



- **Product-related or management system-related certifications:** ISO 9001 (ES-257/2001) and ISO 14001 (ES-2001/0052).
- **Name and location of production site(s):** The product is manufactured at S&P SISTEMAS DE VENTILACIÓN, SL group facilities, located in the province of Barcelona.



## Product information

- **Product name:** NASHIRA S.
- **Product Identification:** The NASHIRA S is a double-flow mechanical ventilation unit (VMC) designed for residential use.
- **Product Description:** Equipped with a high-performance counterflow heat exchanger that recovers up to 94% of heat, the NASHIRA S optimizes indoor air quality while minimizing energy consumption. Its patented FLEXY system allows easy nozzle exchange without disassembly, and its advanced filtration significantly improves air quality. The energy-efficient EC motor ensures quiet operation, complying with the Building Technical Code. Through the SPCM communication board, the unit connects to the CONNECTAIR platform for remote control via an intuitive app. Available in two models—NASHIRA S 150 and NASHIRA S 200—it offers airflow rates of up to 150 m³/h and 200 m³/h, respectively, adapting to different ventilation needs. With an A energy rating and Passivhaus certification, it guarantees high performance with minimal environmental impact.
- **UN CPC code:** Ventilation and air-conditioning equipment installation services (CPC 54632, version 2.1 dated 2015).
- **Geographical scope:** The product under study is produced in Barcelona, Spain, but can be used at a European scale.
- **Included products:** This EPD covers multiple products and is based on the NASHIRA S 150 R8 as a representative product. The products included in this EPD are:

Product name	Weight (Kg)*
NASHIRA S 150 R8	22,19
NASHIRA S 200 R8	22,19

\*Excluding wooden pallet, folding box and instructions.

## LCA information

- Declared unit:** 1 NASHIRA S 150 unit installed in a European country and maintained for 17 years.  
 NASHIRA S 200 is also included in this EPD. The only difference between both is that the NASHIRA S 200 version can deliver a maximum airflow of 200 m<sup>3</sup>/h.
- Reference service life:** The product is maintained for 17 years. The period has been selected to seek present and future harmonization with other international environmental product declaration programs as for example PEP Ecopassport
- Time representativeness:** All specific data related to the production plants and use, used for the study date back to 2023.
- Database(s) and LCA software used:** The primary inventory data have been obtained from S&P, corresponding to the references listed above produced in 2023 by S&P at its production site.  
 The secondary data has been extracted from the Ecoinvent version 3.9.1 database, included in the Simapro software (9.5.2 version) and internationally recognized. Wherever possible, inventory data relating to Spain, or in its absence to Europe in general, has been selected. These have been used for the production stage 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 options, modules C1–C4, and module D and optional modules A4-A5 and B1-B7.  
 Applicable lifecycle stages within the system boundaries and processes are described below.
  - 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 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 NASHIRA S (A3):** The NASHIRA S is manufactured and assembled almost entirely in-house. This stage covers motor construction, plastic injection molding of some components, full product assembly, and quality testing, which is performed on all manufactured units. Local suppliers are used also for the assembly of some parts.
  - Distribution stage (A4):** It has been considered a national distribution (Madrid, Spain – 627 km) and an international distribution (Strasbourg, France – 1.106 km) from the manufacturing site. In both scenarios it has been considered a EURO 6 lorry (16-32 metric ton).
  - Installation (A5):** It has been considered an energy consumption for manual tools (drill) and also some assembly auxiliary materials (plastic wall plugs and screws).
  - Use stage (B1-B5):** For the NASHIRA S no maintenance, repair or refurbishment are foreseen in its normal use. For this whole module, a yearly filter replacement (B4) has been taken into account.
  - Use stage operational consumptions (B6-B7):** The use stage operational consumption (B6) has been calculated at a typical and realistic operating point, which corresponds to the energy consumed by the equipment when supplying its reference flow rate at the reference pressure. This EPD follows additional requirements for construction products considered as Electronic and Electric Equipment.

The equipment is considered to operate continuously (24 hours) for 17 years. The European mix for low-voltage electricity has been chosen to assess the impacts.

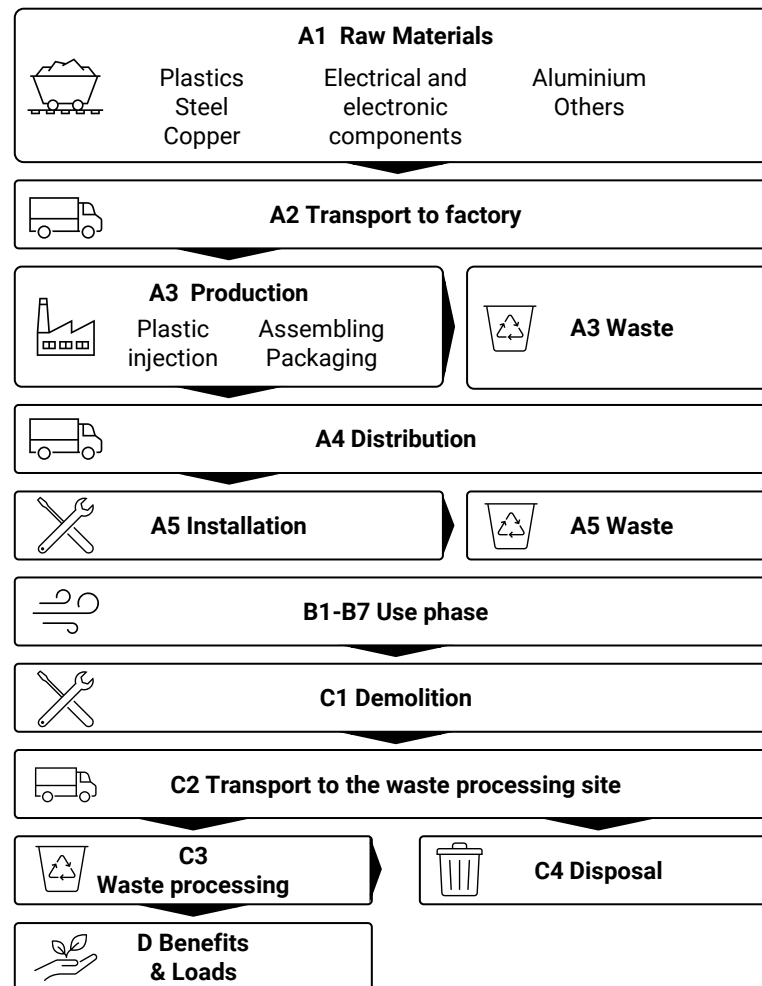
The EN 50693 requirements has been taking in this module when considering NASHIRA S 150 as an electric and electronic product.

There is no water consumption (B7).

- **Deconstruction or demolition (C1):** It has been considered a manual dismantling with no energy consumption.
- **Transport to the waste processing site (C2):** It has been considered a distance of 50 km between the building where the product was installed and the waste management facility.
- **Waste processing (C3):** It has been considered a manual disassembly of the product. It has been taking into account the EN 50693 requirements in the waste module.
- **Disposal (C4):** This module includes the final disposal of waste that has not been allocated to recovery or treatment processes and in accordance with EN 50693.
- **Benefits & Loads (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 its end of life, which could become part of the life cycle of a new product.



## System diagram:



- **More information:** Company website: <https://www.solerpalau.com>
- **Name and contact information of LCA practitioner:** Engloba Consulting Professional Services, SL; C/ Vila de Lloret, 24 Edifici C, entresòl 1era; 17300 Blanes (Girona) [info@englobaconsulting.com](mailto:info@englobaconsulting.com)

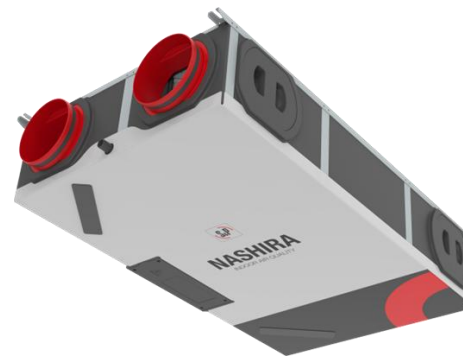
- **Cut-off rules:** In accordance with the provisions of the PCR 2019:14 construction products, version 1.3.4 and the standard UNE-EN 15804:2012+A2:2020, at least 95% of total inflows and outflows (mass and energy) per module has been included. The "polluter pays" principle has been applied.

In addition, the following processes have not been included within the scope:

- 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 correspond to 2023.
  - It has been assumed that all truck transport complies with the EURO 6 emission standard, when carried out within European territory.
  - The EN 50693 percentage for treatment operations throughout the lifecycle has been assumed.
  - The electrical mix has been modelled taking into account the renewable energy guarantees of origin assigning a global

emission factor of 0,197 kg CO<sub>2eq</sub>/kWh.

- A 50 km distance has been assumed for the transport of waste from product deinstallation point to the waste manager's plant.
- Mass allocation has been applied to accurately determine the share of resources—such as electricity consumption, packaging materials, and waste generation—attribution to the production of the product.
- Regarding the transport of raw materials (module A2), specific distances have been introduced for each supplier.
- For the transport of waste from the production plant to the waste manager, specific distances have been introduced for 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. The global data quality assessment reflects good quality (3,78).



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## Modules Declared

Module	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
Modules declared	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Geography	ES	ES	ES	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU
Specific data used	10,2% (GWP-GHG)					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0% (1)					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%					-	-	-	-	-	-	-	-	-	-	-	-

(1) Both NASHIRA S (150 and 200) have the same configuration.

## Content information

Product components	Reference Product Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
<b>Steel</b>	10,39	20,00%	-
<b>Aluminium</b>	3,45	100,00%	-
<b>Copper</b>	0,47	0,00%	-
<b>Plastics</b>	6,53	0,00%	-
<b>Electrical and electronic components</b>	0,72	0,00%	-
<b>Others</b>	0,63	0,00%	-
<b>TOTAL</b>	<b>22,19</b>	<b>24,91%</b>	-
Packaging materials	Reference Product Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
<b>Cardboard</b>	2,30	10,36%	1,15
<b>Paper</b>	0,07	0,31%	0,03
<b>Wood</b>	3,57	16,08%	1,78
<b>TOTAL</b>	<b>5,94</b>	<b>26,76%</b>	<b>2,97</b>

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

### Mandatory impact category indicators according to EN 15804

Considering a declared unit of one unit of NASHIRA S 150 (17 years) with a 22,19 Kg weight. The impact assessment is based on EF3.1. 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. When comparing results from different Environmental Product Declarations (EPDs), exercise caution due to varying methodologies and inherent uncertainties across programs.

Results per declared unit																
Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	Kg CO <sub>2eq.</sub>	9,63E+01	3,79E+00	7,13E-01	0,00E+00	0,00E+00	0,00E+00	5,53E+00	0,00E+00	1,20E+03	0,00E+00	0,00E+00	2,05E-01	8,52E+00	3,49E-01	-9,64E+00
GWP-biogenic	Kg CO <sub>2eq.</sub>	-1,09E+01	0,00E+00	1,09E+01	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	0,00E+00
GWP-luluc	Kg CO <sub>2eq.</sub>	2,09E-01	1,87E-03	4,78E-04	0,00E+00	0,00E+00	0,00E+00	1,63E-03	0,00E+00	3,04E+00	0,00E+00	0,00E+00	1,01E-04	2,11E-04	1,20E-05	-4,78E-02
GWP-total	Kg CO <sub>2eq.</sub>	8,56E+01	3,79E+00	1,16E+01	0,00E+00	0,00E+00	0,00E+00	5,53E+00	0,00E+00	1,20E+03	0,00E+00	0,00E+00	2,05E-01	8,52E+00	3,49E-01	-9,69E+00
ODP	kg CFC11 <sub>eq.</sub>	3,75E-06	8,25E-08	1,42E-08	0,00E+00	0,00E+00	0,00E+00	4,28E-08	0,00E+00	1,96E-05	0,00E+00	0,00E+00	4,46E-09	1,97E-08	5,46E-10	-2,86E-07
AP	mol H <sup>+</sup> <sub>eq.</sub>	7,35E-01	8,28E-03	5,10E-03	0,00E+00	0,00E+00	0,00E+00	2,20E-02	0,00E+00	5,90E+00	0,00E+00	0,00E+00	4,48E-04	2,36E-03	3,22E-04	-2,91E-01
EP-freshwater	kg P <sub>eq.</sub>	6,43E-03	3,08E-05	4,28E-05	0,00E+00	0,00E+00	0,00E+00	6,86E-05	0,00E+00	1,19E-01	0,00E+00	0,00E+00	1,66E-06	8,42E-06	3,46E-07	-1,31E-03
EP-marine	kg N <sub>eq.</sub>	3,81E-01	2,04E-03	8,10E-04	0,00E+00	0,00E+00	0,00E+00	3,46E-03	0,00E+00	7,82E-01	0,00E+00	0,00E+00	1,10E-04	1,19E-03	3,12E-04	-1,95E-02
EP-terrestrial	mol N <sub>eq.</sub>	1,10E+00	2,12E-02	7,84E-03	0,00E+00	0,00E+00	0,00E+00	3,77E-02	0,00E+00	8,98E+00	0,00E+00	0,00E+00	1,15E-03	1,09E-02	1,53E-03	-2,46E-01
POCP	kg NMVOC <sub>eq.</sub>	4,98E-01	1,29E-02	3,34E-03	0,00E+00	0,00E+00	0,00E+00	1,63E-02	0,00E+00	2,88E+00	0,00E+00	0,00E+00	6,95E-04	3,06E-03	5,39E-04	-1,02E-01
ADP-minerals&metals*	kg Sb <sub>eq.</sub>	7,89E-03	1,24E-05	3,53E-05	0,00E+00	0,00E+00	0,00E+00	5,29E-07	0,00E+00	7,48E-05	0,00E+00	0,00E+00	6,69E-07	8,08E-08	1,53E-09	-3,11E-03
ADP-fossil*	MJ	1,55E+03	5,38E+01	9,14E+00	0,00E+00	0,00E+00	0,00E+00	1,24E+02	0,00E+00	2,82E+04	0,00E+00	0,00E+00	2,91E+00	3,79E+00	5,07E-01	-1,99E+02
WDP*	m <sup>3</sup>	3,64E+01	2,22E-01	1,20E-01	0,00E+00	0,00E+00	0,00E+00	3,14E+00	0,00E+00	2,82E+02	0,00E+00	0,00E+00	1,20E-02	4,42E-02	1,68E-03	-4,89E+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.

• EPD International Disclaimers:

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.

The results of A1-A3 modules shall be used taking into account the results of module C.

## Additional mandatory and voluntary impact category indicators

Results per declared unit																
Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
<b>GWP-GHG (1)</b>	Kg CO <sub>2eq.</sub>	9,68E+01	3,79E+00	9,68E-01	0,00E+00	0,00E+00	0,00E+00	5,54E+00	0,00E+00	1,21E+03	0,00E+00	0,00E+00	2,05E-01	8,67E+00	3,49E-01	-9,67E+00
<b>PM</b>	Disease inc.	5,66E-06	2,81E-07	5,48E-08	0,00E+00	0,00E+00	0,00E+00	2,51E-07	0,00E+00	2,27E-05	0,00E+00	0,00E+00	1,52E-08	3,08E-08	8,14E-09	-1,47E-06
<b>IRP (2)</b>	kBq U-235 <sub>eq</sub>	9,03E+00	2,73E-02	2,61E-02	0,00E+00	0,00E+00	0,00E+00	8,19E-02	0,00E+00	2,96E+02	0,00E+00	0,00E+00	1,47E-03	1,06E-02	1,48E-03	-2,82E-01
<b>ETP-fw (3)</b>	CTUe	2,58E-07	1,73E-09	2,95E-09	0,00E+00	0,00E+00	0,00E+00	9,67E-10	0,00E+00	5,78E-07	0,00E+00	0,00E+00	9,33E-11	8,57E-10	2,82E-11	5,17E-08
<b>HTP-c (3)</b>	CTUh	2,08E+03	2,85E+01	5,84E+00	0,00E+00	0,00E+00	0,00E+00	5,30E+00	0,00E+00	3,52E+03	0,00E+00	0,00E+00	1,54E+00	9,00E+00	2,41E+00	-1,37E+02
<b>HTP-nc (3)</b>	CTUh	5,10E-06	3,82E-08	1,17E-08	0,00E+00	0,00E+00	0,00E+00	1,40E-08	0,00E+00	2,04E-05	0,00E+00	0,00E+00	2,06E-09	1,52E-08	8,39E-10	-3,36E-06
<b>SQP (3)</b>	Pt	1,08E+03	3,25E+01	1,20E+00	0,00E+00	0,00E+00	0,00E+00	9,15E+00	0,00E+00	4,28E+03	0,00E+00	0,00E+00	1,76E+00	2,73E-01	9,39E-01	-9,78E+01

**Acronyms:** **GWP-fossil = 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 related impacts/ Soil quality.

- 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<sub>2</sub> is set to zero.
- 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

Indicator	Unit	Results per declared unit														
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,28E+02	8,46E-01	9,90E-01	0,00E+00	0,00E+00	0,00E+00	4,18E+00	0,00E+00	6,39E+03	0,00E+00	0,00E+00	4,57E-02	2,38E-01	7,07E-02	-3,67E+01
PERM	MJ	1,15E+02	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	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,43E+02	8,46E-01	9,90E-01	0,00E+00	0,00E+00	0,00E+00	4,18E+00	0,00E+00	6,39E+03	0,00E+00	0,00E+00	4,57E-02	2,38E-01	7,07E-02	-3,67E+01
PENRE	MJ	1,35E+03	5,72E+01	9,68E+00	0,00E+00	0,00E+00	0,00E+00	1,33E+02	0,00E+00	2,96E+04	0,00E+00	0,00E+00	3,09E+00	4,03E+00	5,37E-01	-2,10E+02
PENRM	MJ	3,03E+02	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	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,66E+03	5,72E+01	9,68E+00	0,00E+00	0,00E+00	0,00E+00	1,33E+02	0,00E+00	2,96E+04	0,00E+00	0,00E+00	3,09E+00	4,03E+00	5,37E-01	-2,10E+02
SM	kg	5,52E+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	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	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
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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m³	9,32E-01	7,75E-03	4,71E-03	0,00E+00	0,00E+00	0,00E+00	8,12E-02	0,00E+00	2,21E+01	0,00E+00	0,00E+00	4,19E-04	2,48E-03	2,39E-04	-1,67E+01

**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.

## Waste indicators

Results per declared unit																
Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	4,11E-02	3,42E-04	5,19E-05	0,00E+00	0,00E+00	0,00E+00	1,04E-04	0,00E+00	5,87E-02	0,00E+00	0,00E+00	1,85E-05	2,30E-05	2,67E-06	6,47E-04
Non-hazardous waste disposed	kg	1,70E+01	2,67E+00	3,76E+00	0,00E+00	0,00E+00	0,00E+00	1,29E+00	0,00E+00	3,27E+01	0,00E+00	0,00E+00	1,45E-01	3,02E-01	7,45E+00	-4,22E+00
Radioactive waste disposed	kg	1,15E-02	1,77E-05	1,98E-05	0,00E+00	0,00E+00	0,00E+00	1,06E-04	0,00E+00	2,10E-01	0,00E+00	0,00E+00	9,56E-07	8,27E-06	8,14E-07	-1,72E-04

## Output flow indicators

Results per declared unit																
Indicator	Unit	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	1,67E-01	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	1,15E+01	0,00E+00	0,00E+00
Materials for energy recovery	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	0,00E+00	3,23E+00	0,00E+00	0,00E+00
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	0,00E+00	1,30E+01	0,00E+00	0,00E+00
Exported energy, thermal	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	0,00E+00	3,75E+01	0,00E+00	0,00E+00

## Variability analysis

### NASHIRA S 200

The main difference between the two products is that the NASHIRA S 200 can deliver a maximum airflow of 200 m³/h. Due to this higher capacity, the reference power consumption varies slightly. As a result, the environmental impacts associated with the B6 phase also show slight variations.

Indicator	Unit	% Difference Total
<b>GWP-fossil</b>	Kg CO <sub>2eq.</sub>	26,53%
<b>GWP-luluc</b>	Kg CO <sub>2eq.</sub>	26,88%
<b>GWP-total</b>	Kg CO <sub>2eq.</sub>	26,52%
<b>ODP</b>	kg CFC11 <sub>eq.</sub>	24,71%
<b>AP</b>	mol H <sup>+</sup> <sub>eq.</sub>	25,81%
<b>EP-freshwater</b>	kg P <sub>eq.</sub>	27,16%
<b>EP-marine</b>	kg N <sub>eq.</sub>	20,81%
<b>EP-terrestrial</b>	mol N <sub>eq.</sub>	25,81%
<b>POCP</b>	kg NMVOC <sub>eq.</sub>	24,92%
<b>ADP-fossil*</b>	MJ	27,03%
<b>WDP*</b>	m³	25,62%
<b>GWP-GHG</b>	Kg CO <sub>2eq</sub>	26,53%

**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.

\* EPD International 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 environmental information

### Module B6: Country-Specific Results

Below are the results for module B6 of NASHIRA S 150 over the default reference lifetime of 17 years. It has been chosen the electricity low voltage (market activity) of different representative countries in Europe.

Results per declared unit B6 - NASHIRA S 150 per seventeen (17) years of consumption								
Indicator	Unit	SPAIN	FRANCE	GERMANY	BELGIUM	NORWAY	ITALY	GREAT BRITAIN
GWP-fossil	Kg CO <sub>2eq.</sub>	1,00E+03	3,18E+02	1,58E+03	7,46E+02	1,22E+02	1,26E+03	1,01E+03
GWP-biogenic	Kg CO <sub>2eq.</sub>	1,84E+00	1,13E+00	2,06E+01	2,04E+00	1,78E+00	1,57E+01	5,10E-01
GWP-luluc	Kg CO <sub>2eq.</sub>	7,12E+00	2,18E-01	2,63E+00	1,64E+00	8,19E-01	8,82E-02	1,17E+00
GWP-total	Kg CO <sub>2eq.</sub>	1,01E+03	3,19E+02	1,60E+03	7,49E+02	1,24E+02	1,28E+03	1,02E+03
ODP	kg CFC11 <sub>eq.</sub>	2,34E-05	1,32E-05	1,83E-05	3,09E-05	3,59E-06	2,70E-05	4,98E-05
AP	mol H <sup>+</sup> <sub>eq.</sub>	6,04E+00	2,23E+00	4,58E+00	2,40E+00	1,31E+00	4,30E+00	2,31E+00
EP-freshwater	kg P <sub>eq.</sub>	2,74E-02	1,03E-02	2,39E-01	1,46E-02	8,34E-03	2,16E-02	1,12E-02
EP-marine	kg N <sub>eq.</sub>	9,60E-01	3,23E-01	7,23E-01	4,29E-01	1,22E-01	6,78E-01	6,35E-01
EP-terrestrial	mol N <sub>eq.</sub>	1,08E+01	3,53E+00	9,12E+00	5,09E+00	1,59E+00	8,21E+00	7,79E+00
POCP	kg NMVOC <sub>eq.</sub>	3,75E+00	1,20E+00	2,60E+00	1,61E+00	4,68E-01	3,61E+00	2,21E+00
ADP-minerals&metals*	kg Sb <sub>eq.</sub>	1,54E-02	1,50E-02	1,75E-02	1,64E-02	1,37E-02	1,94E-05	4,75E-05
ADP-fossil*	MJ	2,71E+04	4,33E+04	2,36E+04	3,29E+04	2,38E+03	2,01E+04	2,70E+04
WDP*	m <sup>3</sup>	6,67E+02	1,18E+02	1,17E+02	3,31E+02	1,05E+02	8,15E+02	2,90E+01

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

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## Additional environmental information

### Module B6: Country-Specific Results

Below are the results for module B6 of NASHIRA S 200 over the default reference lifetime of 17 years. It has been chosen the electricity low voltage (market activity) of different representative countries in Europe.

Results per declared unit B6 - NASHIRA S 200 per seventeen (17) years of consumption								
Indicator	Unit	SPAIN	FRANCE	GERMANY	BELGIUM	NORWAY	ITALY	GREAT BRITAIN
GWP-fossil	Kg CO <sub>2eq.</sub>	1,40E+03	4,43E+02	2,20E+03	1,04E+03	1,70E+02	1,76E+03	1,41E+03
GWP-biogenic	Kg CO <sub>2eq.</sub>	2,57E+00	1,58E+00	2,87E+01	2,85E+00	2,48E+00	2,18E+01	7,11E-01
GWP-luluc	Kg CO <sub>2eq.</sub>	9,91E+00	3,03E-01	3,66E+00	2,29E+00	1,14E+00	1,23E-01	1,63E+00
GWP-total	Kg CO <sub>2eq.</sub>	1,41E+03	4,45E+02	2,23E+03	1,04E+03	1,73E+02	1,78E+03	1,41E+03
ODP	kg CFC11 <sub>eq.</sub>	3,26E-05	1,84E-05	2,55E-05	4,31E-05	5,01E-06	3,76E-05	6,94E-05
AP	mol H <sup>+</sup> <sub>eq.</sub>	8,42E+00	3,10E+00	6,39E+00	3,35E+00	1,82E+00	5,99E+00	3,22E+00
EP-freshwater	kg P <sub>eq.</sub>	3,82E-02	1,44E-02	3,33E-01	2,04E-02	1,16E-02	3,00E-02	1,56E-02
EP-marine	kg N <sub>eq.</sub>	1,34E+00	4,50E-01	1,01E+00	5,97E-01	1,70E-01	9,45E-01	8,85E-01
EP-terrestrial	mol N <sub>eq.</sub>	1,50E+01	4,92E+00	1,27E+01	7,09E+00	2,21E+00	1,14E+01	1,09E+01
POCP	kg NMVOC <sub>eq.</sub>	5,23E+00	1,67E+00	3,62E+00	2,25E+00	6,52E-01	5,03E+00	3,08E+00
ADP-minerals&metals*	kg Sb <sub>eq.</sub>	2,14E-02	2,09E-02	2,44E-02	2,28E-02	1,91E-02	2,70E-05	6,63E-05
ADP-fossil*	MJ	3,78E+04	6,04E+04	3,29E+04	4,58E+04	3,31E+03	2,80E+04	3,76E+04
WDP*	m <sup>3</sup>	9,29E+02	1,65E+02	1,63E+02	4,61E+02	1,47E+02	1,14E+03	4,04E+01

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

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## References

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