GlobalEPD

A VERIFIED ENVIRONMENTAL DECLARATION

AENOR

Environmental Product Declaration

ECOCERAMIC S.L.
Ceramic tiles.
Glazed stoneware (BIb)

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EN 17160: 2019

ecoceramic cerámica

The owner of this Declaration is responsible for its content, as well as for keeping the supporting documentation that justifies the data and statements included during the period of validity.

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AENOR is a founding member of ECO Platform, the European Association of Environmental Product Declaration Verification Programmes

EN 17160:2019 PCR for ceramic tiles EN 15804:2012+A2:2019 serves as the basis for the PCR
Independent verification of the declaration and data, in accordance with the Standard ISO 14025:2006 ☐ Internal ☒ External
Verification Body AENOR Product certification body accredited by ENAC with accreditation No. 1/C-PR468

1. General Information

1.1. Description of the organisation

Ecoceramic was founded in 2009 as a brand dedicated to the design, manufacture, and commercialization of ceramic products. Its goal is to transform ceramics into an accessible product that can adapt to various spaces and lifestyles, while consistently ensuring exceptional quality, design, and customer service.

Ecoceramic is part of the Pamesa Industrial Group, recognized as a leader in the tile industry, being the largest producer in Europe and the fifth largest worldwide. Within this group, Ecoceramic plays a crucial role, positioning itself in the market as a brand capable of meeting the needs of over 1,000 customers in 150 countries globally.

1.2. Scope of the declaration

This Environmental Product Declaration includes environmental information for a group of products manufactured at **PAMESA GROUP** and marketed by **ECOCERAMIC**, in the geographical and technological environment of Spain in 2023.

The location of the production centre is shown below:

TAU porcelánico CV-16, km.2, 12006 Castellón, Spain
Compacglass I Camí de la lloma de Miralcamp, 4, 12200 Onda Castellón, Spain
Compacglass III Carretera Onda, Villarreal Km.3.5, 12200 Onda, Castellón, Spain
Compacglass IV Camino de Palos, 13, 12200 Onda, Castellón, Spain

The Pamesa Industrial Group also has other facilities related to other stages of the production process:

Mine Elena Localities of Estercuel y Gargallo, Teruel, Spain
Mine Pilón Localities of Mas de las Matas, Castellote and Seno, Teruel, Spain
Mine Valdecastillo Localities of Berge, Castellote and Seno, Teruel, Spain
Arcillas Atomizadas Av. Manuel Escobedo, 30, 12200 Onda, Castellón, Spain
Serviker Camí Prats, s/n, 12110 L'Alcora, Castellón, Spain
Compacglass II Camí de la lloma de Miralcamp, 4, 12200 Onda Castellón, Spain
Atommed Cam. Foyes Ferraes, 19, 12110 L'Alcora, Castellón, Spain
Logistics centre 1 Camino del Palmeral, 10 P.I Colomer, 12200 Onda, Castellón, Spain **Logistics centre 2** Calle del Toll, 24, 12200 Onda, Castellón, Spain **Logistics centre 3** Calle del Toll, 11, 12200 Onda, Castellón, Spain **Logistics centre 4** Carretera CV-20 Km 3,5, 12200 Onda, Castellón. Spain **Logistics centre 5** Camí Miralcamp 47-49, 12200 Onda, Castellón, Spain **Logistics centre 6** Camí cuadra la Torta, 2, 12006 Castellón de la Plana, Castellón Spain **Logistics centre 7** Calle Argentina, 93 P.I. Sur 13, 12200 Onda, Castellón, Spain **Logistics centre 8** Calle Ratils, 23 P.I. Colomer, 12200 Onda, Castellón, Spain **Logistics centre 9** Calle Panamá, 1 esq. P.I. Sur 13, 12200 Onda, Castellón, Spain **Logistics centre 10** Avda. Mediterráneo, 53, 12200 Onda, Castellón, Spain **Logistics centre 11** Carretera Castellón – Alcora Pza. Polígono 4, 4 P.G. 12, 12130 Sant Joan de Moró, Castellón, Spain

The results shown the environmental performance of the porcelain stoneware tiles, as average weighted by production. Moreover, the environmental data of the tiles with the lowest and highest impact, thus narrowing down the results obtained in the LCA are also declared. The scope of this Environmental Product Declaration (hereinafter EPD) is from cradle to grave.

1.3. Life cycle and compliance.

This EPD has been developed and verified in accordance with the EN ISO 14025:2010 and -EN 15804:2012+A2:2019 and the following Category Rule:

INFORMATION ABOUT PRODUCT CATEGORY RULES	
Descriptive title	Product Category Rules for Ceramic Tiles
Registration code and version	EN 17160:2019
Publication date	2019
Compliance	EN 15804:2012 + A2:2019
Program Administrator	AENOR

This Environmental Statement includes the following stages of the life cycle:

Limits of the system. Information modules considered

Product Stage	A1	Raw materials supply	X
	A2	Transport	X
	A3	Manufacturing	X
Construction	A4	Transport of the product	X
	A5	Installation and construction processes	X
Stage of use	B1	Use	X
	B2	Maintenance	X
	B3	Repair	X
	B4	Replacement	X
	B5	Refurbishment	X
	B6	Use of energy in service	X
	B7	Use of water in service	X
End of life	C1	Deconstruction	X
	C2	Transport	X
	C3	Waste management	X
	C4	Waste disposal	X
	D	Potential for reuse, recovery and recycling of materials	X

X = Module included in the LCA; NR = Module no relevant; MNE = Module not evaluated

This EPD may not be comparable with those developed in other Programmes or according to different reference documents, in particular it may not be comparable with EPDs not developed according to EN 15804+A2.

Similarly, this EPD may not be comparable if the origin of the data is different (e.g. databases), not all relevant information modules are included, or they are not based on the same scenarios.

The comparison of construction products should be done on the same function, applying the same functional unit and at the level of the building (or architectural or engineering work), i.e. including the behaviour of the product throughout its life cycle, as well as the specifications of section 6.7.2 of the EN ISO 14025 standard

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2. Product information

2.1. Product Identification

The ceramic tiles included in this study belong to group BIb (glazed stoneware), classification based on standard EN 14411: 2016 (equivalent to standard ISO 13006:2018), i.e. they have water absorption between 0.5% and 3% and are formed by pressing. Their common name is glazed stoneware.

The glazed stoneware tiles included in this study comprise 14 commercial formats, with and without glaze, with and without mechanical treatment, with thicknesses ranging from 8.5 mm to 10.5 mm, with an average fired weight of 21.1 kg/m² and an unfired weight of 22.0 kg/m².

The annexes contain the results for the formats included in the scope of this EPD that have the minimum and maximum environmental impact, corresponding to the following formats: 60.8x60.8 cm weighing 19.7 kg/m2 and 75x75 cm weighing 27.0 kg/m2 before firing and 18.4 kg/m2 and 25.9 kg/m2 after firing, respectively.

The CPC code of the product is 37370.

2.2. Product technical features

The manufacturer declares the following information about the technical specifications of the product:

Product technical features (GL)

Technical properties	Standard	Average value
Width	EN-ISO 10545-2	Complies with the standard
Length		Complies with the standard
Thickness		Complies with the standard
Straightness of Sides		Complies with the standard
Rectangularity		Complies with the standard
Surface Flatness		Complies with the standard
Warpage		Complies with the standard
Modulus of rupture Breaking Strength	EN-ISO 10545-4	30 – 40 N/mm2 e=9.5mm
Modulus of rupture Bending strength		1600-2400 N e=9.5mm
Resistance to Surface abrasion	EN-ISO 10545-7	Depending on models
Linear thermal expansion	EN-ISO 10545-8	<7.0 x 10-6ºC-1
Thermal sock resistance	EN-ISO 10545-9	Resist
Cracking resistance	EN-ISO 10545-11	Resist
Frost resistance	EN-ISO 10545-12	Resist
Chemical resistance	EN-ISO 10545-13	Class GA
Stain resistance	UNE-EN-ISO 10545-14	Minimum class 5

This EPD covers residential interior and exterior flooring as a study scenario. However, the versatility of these ceramic tiles allows them to be installed in other locations such as walls, roofs, façades, exterior paving and other types of buildings with varying levels of foot traffic, such as hospitals, schools, offices and shopping centres

2.3. Product composition

The composition declared by the manufacturer is as follows:

Product Composition

Substance/Component	Content
Support (clays, feldspars, sands, etc.)	91%
Decoration raw materials (grits, inks, dry-based glazes, liquid-based glazes and micronized glazes)	9%

Substances contained in the product that are listed in the "Candidate List of Substances of Very High Concern (SVHC) for Authorization" do not exceed 0.1% by weight of the product

3. LCA Information

3.1. Life Cycle Assestsment

The LCA has been carried out with the support of the LCA for Experts software (Sphera-GaBi) [7] and with the latest version of the 2024.2 database. (SP40.0) [8]) (SpheraSolutions). The characterisation factors used are those included in the EN 15804:2012+A2:2019 standard.

3.2. Functional unit

The functional unit considered is "**Covering and decoration of 1 m² of interior flooring with ceramic tiles from group BIb (various formats from 8.5 mm to 10.5 mm and an average weight of 21.1 kg/m²) for 50 years "**.

3.3. Reference service life (RSL)

The reference service life of the product is the same as that of the building where it is installed, provided that it is installed correctly, as it is a long-lasting product that does not require replacement. A service life of 50 years has been considered

Reference service life

Parameter	Unit (expressed by functional unit)
Reference service life	Minimum 50 years
Declared product properties (on gate), coatings, etc.	Minimum values of the relevant characteristics according to Annex H of the EN 14411. For more information, request technical data sheets according to model.
Design parameters of the application (manufacturer's instructions), including references to good practices	For more information: Área Técnica - Ecoceramic
Estimated quality of work, when installed according to the manufacturer's specifications	For more information, request technical data sheets according to model.
Installed from outside environment (for outdoor applications), e.g. weathering, pollutants, UV radiation and wind exposure, building orientation, shading, temperature, etc.	Results of the values of the relevant characteristics according to Annex H of the EN 14411. For more information, request technical data sheets according to model.
Indoor environment (for indoor applications), e.g. temperature, humidity, chemical exposure	For more information, request technical data sheets according to model.
Conditions of use, e.g.: frequency of use, mechanical exposure, etc.	For more information: Área Técnica - Ecoceramic

3.4. Allocation rules

In accordance with the standards and PCR, the principle of causality has been applied when assigning inputs and outputs in processes with multiple inputs and/or outputs. Therefore, an attempt has been made to establish the physical relationship between the inputs and outputs of the system and its different products.

In generally terms, the inputs and outputs assigned to the declared unit have been weighted averages based on the production or specific weight of the tiles before and after firing, according to the criteria for each stage of the process.

3.5. Cut-off rule and exclusions

In this cradle-to-grave LCA study, a cut-off rule of 1% for the energy use (renewable and non - renewable) and 1% of total mass in those unitary processes, whose data is insufficient, have been applied. In total, more than 95% of all mass and energy inputs and outputs of the system have been included, excluding the not available nor quantified data.

The excluded data are the following:

- Diffuse emissions of particles into the atmosphere generated during the transport and storage of powdered raw materials.
- Channelled atmospheric emissions, not regulated by law, generated during the combustion stages.
- Long-term emissions (>100 years).
- The production of goods, machinery, infrastructure, and industrial equipment that can be replaced in less than a year.
- Mortar losses in stage A5.
- Waste generated in mines, other than unusable soil, which is managed externally.
- The catalyst used in the installation of fibreglass.
- The processes of recycling and reusing waste generated throughout the life cycle of ceramic coverings that will form part of another system, based on the PCR.

3.6. Representativeness, quality and selection of data

The primary data have been provided directly by PAMESA Industrial Group, with six production centres located in Almazora, Castellón de la Plana, Onda and Villarreal (Castellón).

In addition, primary data has been obtained from four spray-dried granule manufacturing plants belonging to the PAMESA Industrial Group located in Alcora and Onda (Castellón), from three mines managed by PAMESA Industrial Group located in the municipalities of Estercuel, Gargallo, Mas de las Matas, Castellote, Seno and Berge (Teruel), from a polishing plant located in Onda (Castellón) and from the 11 logistics centres managed by the Pamesa Industrial Group.

Secondary data was obtained from the most up-to-date Sphera-GaBi databases [8] and modelled using LCA for Experts (Sphera-GaBi) [7]. All data refers to a geographical scenario for Spain in 2023.

The results presented are representative of ceramic tiles, expressed as an average weighted by the production of the ceramic tiles belonging to the BIb group range, limiting this average by the products with the minimum and maximum environmental impact.

The global warming potential (GWP-total) of the different technologies that make up the electricity mix used is 0.38 kgCO2 eq/kWh

3.7. Other calculation rules and assumptions

The 14 ceramic tile references have different weights and environmental impacts. The following table shows the deviations between the formats with the highest and lowest environmental impact and the average, in relation to the product stage (A1-A3).

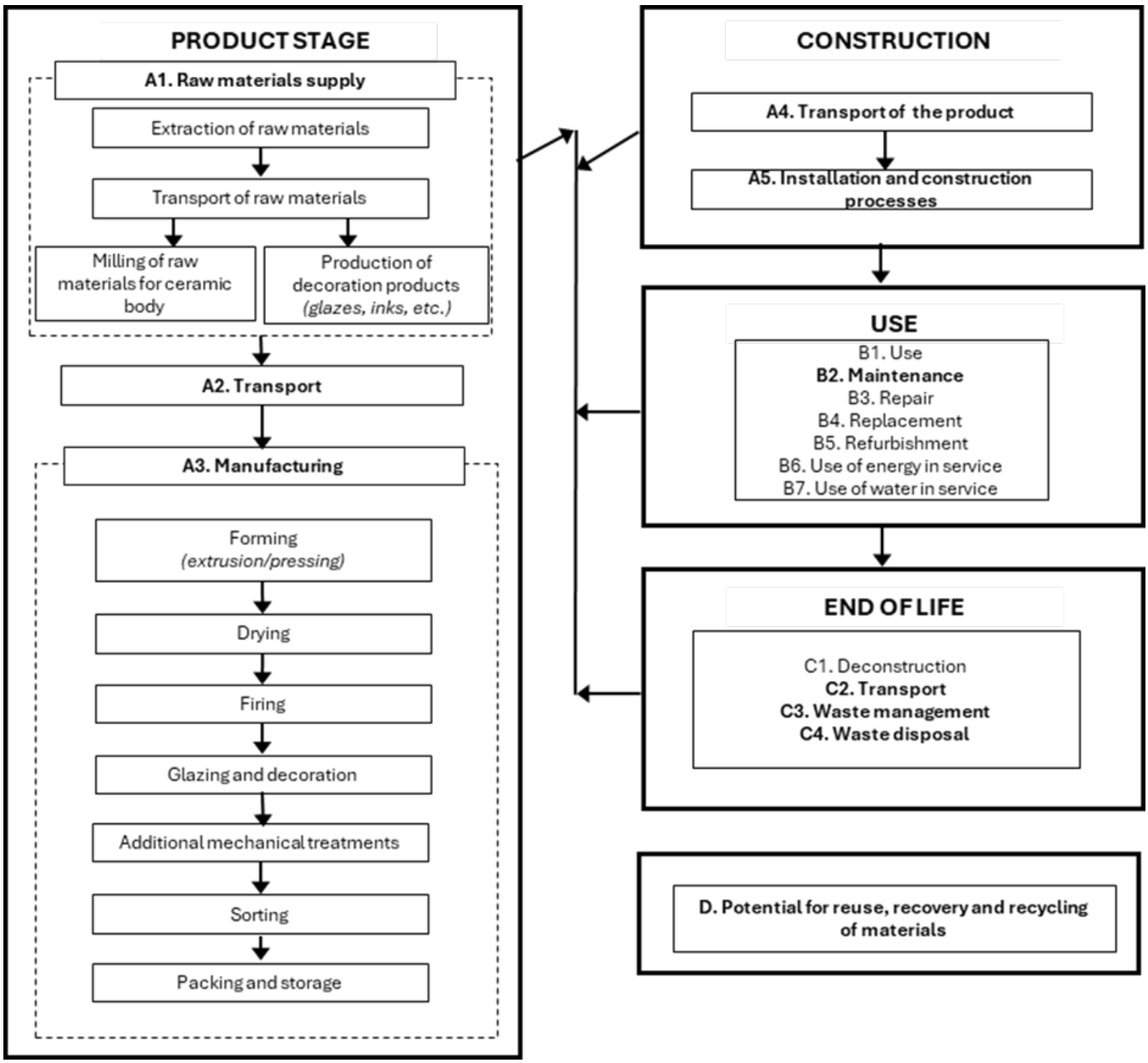
The maximum value corresponds to the format with the highest weight in raw material and the greatest application of decorative materials for that format. The minimum value corresponds to the format with the lowest weight in raw material and a minimum amount of decorative materials for that specific format.

Annex I and Annex II show the environmental impact results of the reference with minimum impact values and maximum values for stage A1-A3 respectively.

Impact Indicator	Relative variation from the average
GWP-total	-12%/+16%
AP	-0%/+24%
POCP	-0%/+23%

4. System limits, scenarios, and additional technical information.

All life cycle modules relevant to ceramic tiles according to the PCRs have been included:



4.1. Pre-manufacturing processes (upstream).

Raw materials (A1) and Transport (A2)

Ceramic tiles are composed of a ceramic support and a decorative layer.

The raw materials included in the composition of the substrate are mainly clays, feldspars, sands and ceramic waste generated during manufacture. Part of the clays present in the composition of BIb come from quarries managed by Pamesa.

The raw materials for decoration (glazes, engobes and inks) are produced in specialised plants. The most common raw materials are ceramic frits, pigments and inorganic materials.
The raw materials used have different origins, according to their nature and properties; they are transported by road or by ship in bulk, depending on the distance and location of the extraction point.

4.2. Manufacturing of the product

Manufacturing (A3)

The raw materials are wet-milled and spray-dried to form granules.

This granule is sent to the forming stage by uniaxial dry pressing and later, they are placed in a continuous dryer to reduce their humidity.
The tiles coming from the dryer are covered with one or more thin layers of engobe and glaze, and in some cases, it is mostly decorated by inkjet printing, grits can also be applied to give it different characteristics.

The pieces are then fired in single-layer roller kilns, resulting in a hard material that is resistant to water and chemicals.

Optionally, the parts undergo mechanical surface treatments, such as cutting, polishing, or rectifying.

After passing quality control processes, the classified pieces are assembled and packaged. Finally, they are transported to the brand's logistics centres for distribution.

4.3. Construction Process

Transport (A4)

The product is distributed 22% in Spain, 45% in Europe and 33% in the rest of the world.

A4 Transport to site

Scenario Information	Unit (expressed by functional unit)
Type and fuel consumption of the vehicle, type of vehicles used for transport, e.g. long distance trucks, ship, etc.	According to the destinations in the distribution as described above: 0.2608 l diesel (Euro truck 6, 27 t) 0.0256 l fuel oil (ship)
Distance	300 km national distribution: 22% 1390 km rest of Europe distribution: 45% 6520 km rest of the world distribution: 33%
Capacity utilisation (including no-load return)	85% in truck 100% ship
Bulk density of transported products	≈415.4 kg/m^3
Usable capacity factor (factor: = 1 or < 1 or ≥ 1 for products that are packed compressed or nested)	1

Product installation and process construction (A5).

Once the product has been unpacked, it is installed using mortar, in accordance with the standard operating procedures for ceramic tiles.

Packaging waste is managed separately depending on the geographical location of the installation site. To this end, three scenarios have been considered.

Based on sales distribution, waste management has been considered for Spain, Europe and the rest of the world.

Furthermore, a 15% loss has been considered during the tile installation stage, according to data provided by Pamesa Industrial Group.

A5 Installation

Scenario Information	Unit (expressed by functional unit)
Supplementary materials for installation (specify each material)	3,3 kg/m^2
Water use	0.8 l/m^2
Use of other resources	Not applicable
Quantitative description of the type of energy (regional mix) and consumption during the installation process	Not applicable
Waste of materials at the construction site before processing of waste generated at the product installation (specified by type)	Product losses: 3172 g Packaging wastes: Cardboard: 124 g Plastic: 18 g Wood: 41 g
Output of materials (specified by type) as a result of waste treatment waste at the construction site, e.g. from waste collected for recycling, energy recovery, disposal (specified by route)	Product losses for recycling: 2220 g Product losses for final deposition: 952 g Incinerated cardboard: 3 g Recycled cardboard:110 g Cardboard for final deposition: 11 g Incinerated plastic:2 g Recycled plastic:13 g Plastic for final deposition:3 g Incinerated wood: 13 g Recycled wood: 19 g Wood for final deposition: 9 g
Direct emissions to ambient air, soil and water	Not applicable

4.4. Use linked to the structure of the building

B1 Use

Once installed, the tiles do not require any energy or water to operate. The only maintenance required after installation is normal cleaning.

For this reason, only the environmental burdens attributable to the maintenance of the product (module B2) are considered.

B2 Maintenance

Cleaning is carried out using a damp cloth and cleaning agents

Use linked to the building structure

Scenario information	Unit (expressed per functional unit)
Maintenance process	According to PCR for ceramic tiles (EN17160) residential scenario for floor cleaning
Maintenance cycle	Wash once a week with water and once every two weeks with detergent
Auxiliary materials for maintenance (e.g. cleaning products) (specify each material)	Detergent: 1.34E-04 kg/m^2 per wash
Material wastage during maintenance (specify type))	Not applicable
Net tap water consumption	0.1 l/m^2 per wash
Energy input during maintenance (e.g. vacuum cleaning), type of energy carrier (e.g. electricity) and amount, if applicable and relevant	Not applicable

B3-B4-B5 Repair, Replacement and refurbishment

Ceramic tiles do not require repair, replacement or refurbishment, and their potential impact is not significant.

4.5. Use linked to the operation of the building

B6-B7 Operational energy use and Operational water use.

These modules are not relevant for ceramic tiles.

4.6. End of life stage

C1 Deconstruction and demolition

The impacts attributable to the removal of the product in the context of a building rehabilitation or during its demolition are negligible, as specified in the RCP of ceramic tiles.

C2 Transport

The product waste is transported 50 km by lorry for management, either by disposal in inert landfills or for recycling.

C3 Waste management for reuse, recovery and recycling

70% of tiles are considered to be recycled and/or reused, as indicated in the PCR.

C4 Final disposal

It was assumed that 30% of the product was sent to controlled landfills after its service life had ended. In addition, the adhesive material and 90% of the water used in the installation are taken into account.

End of life

Parameter	Unit (expressed by functional unit)
Collection process, specified by type	25.2 kg total
Recovery system, specified by type	17.6 kg for recycling
Disposal, specified by type	7.5 kg to landfill
Assumptions for scenario development (e.g.: transport)	The product waste is transported in a Euro 6 compliant heavy-duty truck (27 t) to be managed either to landfilling or recycling. An average distance of 50km from the building site to the final destination is considered. The return journey of the lorries is also included (100% empty return).

4.7. Benefits and burdens beyond the system

Module D

The net environmental burdens and net benefits of obtaining the secondary material from waste at the installation stage and at the end of life of the product have been considered.

4.8. Information on biogenic carbon content

Ceramic tiles are mineral products and therefore do not contain biogenic carbon. According to standard EN 16449, it is necessary to calculate the biogenic carbon content, which in this case comes from packaging, wooden pallets and cardboard.

Biogenic carbon content

Parameter	Unit (expressed by functional unit)
Biogenic carbon content of the product	-
Biogenic carbon content of the package	1.4E-01 kg C

5. Declaration of the environmental parameters of the LCA and the ICV.

Environmental impacts.

The estimated impact results are relative and do not indicate the final value of the impact categories, nor do they refer to threshold values, safety margins or risks

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	11.8	9.6E-01	3.0	0	1.9E-01	0	0	0	0	0	0	1.4E-01	2.5E-02	1.3E-01	-2.1E-01
GWP-biogenic	kg CO2 eq	1.4E-02	1.0E-04	3.7E-02	0	4.3E-03	0	0	0	0	0	0	0	1.3E-05	1.4E-03	-1.2E-04
GWP-luluc	kg CO2 eq	1.4E-02	1.3E-02	5.9E-03	0	2.3E-05	0	0	0	0	0	0	2.2E-03	3.4E-06	5.7E-04	-5.7E-04
GWP-total	kg CO2 eq	11.8	9.7E-01	3.0	0	1.9E-01	0	0	0	0	0	0	1.4E-01	2.5E-02	1.3E-01	-2.1E-01
ODP	kg CFC11 eq	1.0E-08	1.3E-13	1.5E-09	0	6.5E-11	0	0	0	0	0	0	1.9E-14	7.4E-14	7.6E-14	-3.7E-09
AP	mol H+ eq	2.7E-02	4.0E-03	6.9E-03	0	6.0E-04	0	0	0	0	0	0	1.5E-04	3.1E-05	9.8E-04	-5.2E-04
EP-freshwater	kg P eq	1.7E-04	3.4E-06	2.8E-05	0	6.0E-06	0	0	0	0	0	0	5.6E-07	2.7E-09	2.8E-06	-2.0E-06
EP-marine	kg N eq	7.3E-03	1.1E-03	2.0E-03	0	1.4E-04	0	0	0	0	0	0	5.2E-05	8.4E-06	2.7E-04	-2.0E-04
EP-terrestrial	mol N eq	7.9E-02	1.2E-02	2.2E-02	0	1.4E-03	0	0	0	0	0	0	6.2E-04	9.1E-05	2.9E-03	-2.2E-03
POCP	Kg NMVOC eq	2.0E-02	3.1E-03	5.7E-03	0	3.7E-04	0	0	0	0	0	0	1.7E-04	2.7E-05	7.9E-04	-5.0E-04
ADP-minerals& metals [2]	kg Sb eq	1.2E-04	7.1E-08	1.8E-05	0	3.1E-09	0	0	0	0	0	0	1.1E-08	1.2E-09	1.4E-08	-1.0E-07
ADP-fossil [2]	MJ	169.4	11.5	33.2	0	3.2	0	0	0	0	0	0	1.7	6.2E-01	1.8	-2.5E+00
WDP [2]	m3	2.4	1.2E-02	4.7E-01	0	21.6	0	0	0	0	0	0	2.0E-03	8.9E-03	1.0E-02	5.8E-02

GWP - total: Global warming potential; **GWP - fossil**: Global warming potential of fossil fuels; **GWP - biogenic**: Biogenic Global Warming Potential; **GWP - luluc** : Global warming potential of land use and land use change; **ODP**: Stratospheric ozone depletion potential; **AP:** Acidification potential, accumulated surplus; **EP-freshwater**: Eutrophication potential, fraction of nutrients that reach the final freshwater compartment; **EP-marine**: Eutrophication potential, fraction of nutrients that reach the final compartment of seawater; **EP-terrestrial**: Eutrophication potential, accumulated surplus; **POCP:** Tropospheric ozone formation potential; **ADP-minerals&metalsAbiotic** resource depletion potential for non-fossil resources; **APD-fossil**: Abiotic resource depletion potential for fossil resources; **WDP**: Water deprivation potential (user), water-weighted deprivation consumption. **NR:** Not relevant

Additional environmental impacts

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Incidence of diseases	2.2E-05	6.6E-08	3.4E-06	0	3.6E-09	0	0	0	0	0	0	1.6E-09	2.8E-10	1.2E-08	-2.4E-09
IRP [1]	kBq U235 eq	4.8E-01	2.9E-03	1.0E-01	0	2.1E-02	0	0	0	0	0	0	4.5E-04	6.4E-03	2.3E-03	-1.1E-02
ETP-fw [2]	CTUe	82.2	8.6	16.7	0	4.3	0	0	0	0	0	0	1.3	7.5E-02	1.1	-1.7E+00
HTP-c [2]	CTUh	5.0E-09	1.7E-10	9.4E-10	0	2.6E-10	0	0	0	0	0	0	2.6E-11	3.3E-12	1.4E-10	2.3E-13
HTP-nc [2]	CTUh	3.6E-07	7.2E-09	6.6E-08	0	2.8E-08	0	0	0	0	0	0	1.2E-09	3.2E-11	1.4E-08	-1.6E-09
SQP [2]	-	94.5	5.1	26.9	0	7.1E-01	0	0	0	0	0	0	8.4E-01	1.4E-03	4.1E-01	-2.0E+00

PM: Potential incidence of diseases due to particulate matter (PM) emissions; **IRP** : Exposure efficiency of human potential relative to U235; **ETP-fw** : Comparative toxic unit potential for ecosystems - freshwater; **HTP-c** : Comparative toxic unit potential for ecosystems - carcinogenic effects; **HTP-nc** : Comparative toxic unit potential for ecosystems - non-carcinogenic effects; **SQP** : Soil Quality Potential Index; **NR:** Not relevant

Notice 1: This impact category deals primarily with the eventual impacts of low doses 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 the disposal of radioactive waste in underground facilities. The potential for ionizing radiation in the soil, due to radon or some building materials, is not measured with this parameter either.

Notice 2: The results of this environmental impact indicator should be used with caution, as the uncertainties of the results are high and experience with this parameter is limited.

Use of resources

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	52.4	9.0E-01	2.1	0	4.2	0	0	0	0	0	0	1.5E-01	3.3E-02	2.1E-01	-5.2E-01
PERM	MJ	5.6	0	8.4E-01	0	0	0	0	0	0	0	0	0	0	0	0
PERTH	MJ	58.0	9.0E-01	2.9	0	4.2	0	0	0	0	0	0	1.5E-01	3.3E-02	2.1E-01	-5.2E-01
PENRE	MJ	169.4	11.5	6.1	0	3.2	0	0	0	0	0	0	1.7	6.2E-01	1.8	-2.5E+00
PENRM	MJ	7.8E-01	0	1.2E-01	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	170.2	11.5	6.2	0	3.2	0	0	0	0	0	0	1.7	6.2E-01	1.8	-2.5E+00
SM	kg	9.3E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	5.0E-02	1.0E-03	1.0E-02	0	2.9E-01	0	0	0	0	0	0	1.6E-04	1.2E-04	3.4E-04	-1.0E-03

PERE: Use of renewable primary energy excluding renewable primary energy resources used as feedstock; **PERM:** Use of renewable primary energy used as feedstock; **PERT:** Total use of renewable primary energy; **PENRE:** Use of non-renewable primary energy, excluding non-renewable primary energy resources used as feedstock; **PENRM:** Use of non-renewable primary energy used as feedstock; **PENRT:** Total use of non-renewable primary energy; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW**: Net use of piped water resources; **NR:** Not relevant

Waste Categories

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
etc.	kg	6.1E-04	4.4E-10	9.1E-05	0	1.7E-10	0	0	0	0	0	0	6.6E-11	9.1E-11	2.8E-08	-4.3E-08
DWD	kg	5.0E-01	1.8E-03	1.4	0	7.6E-02	0	0	0	0	0	0	2.8E-04	7.2E-05	8.2	-1.5E-03
RWD	kg	5.4E-03	2.0E-05	1.0E-03	0	1.0E-05	0	0	0	0	0	0	3.1E-06	1.0E-04	2.4E-05	-1.5E-05

HWD: Hazardous waste disposed of; **NHWD**: Non-hazardous waste disposed of; **RWD**: Radioactive waste disposed of; **NR:** Not relevant

Output flows

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RAW	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	1.8E-01	0	2.4	0	0	0	0	0	0	0	0	0	17.6	0	0
MORE	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CRU: Components for reuse; **MFR**: Materials for recycling; **MER:** Materials for energy recovery; **EE:** Exported energy; **NR:** Not relevant

6. Additional environmental information.

Indoor air emissions

Ceramic tiles undergo a thermal process exceeding 1000°C during their manufacture. At these temperatures, any organic compounds present in the composition decompose, resulting in an inert end product free of volatile organic compounds that could be emitted during use.

The concentration of volatile organic compounds (TVOC) is less than or equal to 0.5 mg/m3 n accordance with the CDPH/EHLB v1.2-2017 standard method.

Release to soil and water

Ceramic tiles do not emit any compounds into the soil or water during the use phase, as it is a totally inert product, which does not undergo physical, chemical or biological transformations, is not soluble or combustible, does not react physically, chemically or in any other way, is not biodegradable, does not adversely affect other materials with which it comes into contact in a way that could lead to environmental pollution or harm human health. It is a non-leaching product and therefore does not pose a risk to surface or groundwater quality.

Environmental information about the company

The spray-dried granules used in the manufacture of BIa and BIb (BPN spray dried porcelain) have the radioactive isotope activity concentration indices defined by the European Union (IUE), as well as the limits set out in standard GB6566-2010 in force in the Republic of China (IINT, IEXT).

PAMESA's manufacturing companies are members of ECOEMBES, a non-profit organisation that manages the recycling of waste deposited in yellow and blue bins.

ISO 14021 certification of recycled content for different spray-dried granules with inventory data from 2023.

Arcillas Atomizadas

Minimum recycled material content in c white pulp powder: 7.2%

% waste recycling in the spray-dried white pulp powder manufacturing process: 24.1%

TAU Porcelánico

Minimum recycled material content in BPN spray-dried powder: 7%

% waste recycling in the BPN spray-dried powder manufacturing process: 14.2%

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Annex I. Declaration of the environmental parameters of the LCA and LCI for the format with MINIMUM impacts

Environmental impacts.

The estimated impact results are relative and do not indicate the final value of the impact categories, nor do they refer to threshold values, safety margins or risks

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	9.9	8.1E-01	2.7	0	1.9E-01	0	0	0	0	0	0	1.2E-01	2.2E-02	1.1E-01	-1.8E-01
GWP-biogenic	kg CO2 eq	4.4E-04	8.5E-05	3.5E-02	0	4.4E-03	0	0	0	0	0	0	0	1.1E-05	1.2E-03	-8.8E-05
GWP-luluc	kg CO2 eq	1.2E-02	1.1E-02	5.2E-03	0	2.3E-05	0	0	0	0	0	0	1.9E-03	3.0E-06	5.0E-04	-4.9E-04
GWP-total	kg CO2 eq	9.9	8.2E-01	2.7	0	1.9E-01	0	0	0	0	0	0	1.3E-01	2.2E-02	1.2E-01	-1.8E-01
ODP	kg CFC11 eq	7.6E-09	1.1E-13	1.1E-09	0	6.5E-11	0	0	0	0	0	0	1.7E-14	6.4E-14	6.6E-14	-3.8E-09
AP	mol H+ eq	2.0E-02	3.4E-03	5.8E-03	0	6.0E-04	0	0	0	0	0	0	1.3E-04	2.7E-05	8.5E-04	-4.8E-04
EP-freshwater	kg P eq	1.1E-04	2.9E-06	1.9E-05	0	6.1E-06	0	0	0	0	0	0	4.8E-07	2.4E-09	2.4E-06	-1.9E-06
EP-marine	kg N eq	5.4E-03	9.0E-04	1.7E-03	0	1.4E-04	0	0	0	0	0	0	4.5E-05	7.3E-06	2.3E-04	-1.9E-04
EP-terrestrial	mol N eq	5.9E-02	1.0E-02	1.9E-02	0	1.4E-03	0	0	0	0	0	0	5.4E-04	7.9E-05	2.5E-03	-2.0E-03
POCP	Kg NMVOC eq	1.6E-02	2.7E-03	4.9E-03	0	3.8E-04	0	0	0	0	0	0	1.5E-04	2.3E-05	6.8E-04	-4.6E-04
ADP-minerals& metals [2]	kg Sb eq	6.0E-05	6.0E-08	9.0E-06	0	3.1E-09	0	0	0	0	0	0	9.8E-09	1.0E-09	1.2E-08	-8.9E-08
ADP-fossil [2]	MJ	145.7	9.8	29.3	0	3.2	0	0	0	0	0	0	1.5	5.3E-01	1.5	-2.3E+00
WDP [2]	m^3	1.9	1.0E-02	4.1E-01	0	21.7	0	0	0	0	0	0	1.8E-03	7.7E-03	8.8E-03	4.4E-02

GWP - total: Global warming potential; **GWP - fossil**: Global warming potential of fossil fuels; **GWP - biogenic**: Biogenic Global Warming Potential; **GWP - luluc** : Global warming potential of land use and land use change; **ODP**: Stratospheric ozone depletion potential; **AP:** Acidification potential, accumulated surplus; **EP-freshwater**: Eutrophication potential, fraction of nutrients that reach the final freshwater compartment; **EP-marine**: Eutrophication potential, fraction of nutrients that reach the final compartment of seawater; **EP-terrestrial**: Eutrophication potential, accumulated surplus; **POCP:** Tropospheric ozone formation potential; **ADP-minerals&metalsAbiotic** resource depletion potential for non-fossil resources; **APD-fossil**: Abiotic resource depletion potential for fossil resources; **WDP**: Water deprivation potential (user), water-weighted deprivation consumption. **NR:** Not relevant

Additional environmental impacts

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Incidence of diseases	1.9E-05	5.6E-08	2.9E-06	0	3.6E-09	0	0	0	0	0	0	1.4E-09	2.4E-10	1.0E-08	-2.2E-09
IRP [1]	kBq U235 eq	4.2E-01	2.5E-03	9.6E-02	0	2.1E-02	0	0	0	0	0	0	3.9E-04	5.6E-03	2.0E-03	-1.0E-02
ETP-fw [2]	CTUe	57.3	7.2	12.7	0	4.3	0	0	0	0	0	0	1.1	6.6E-02	9.3E-01	-1.5E+00
HTP-c [2]	CTUh	2.9E-09	1.4E-10	6.1E-10	0	2.6E-10	0	0	0	0	0	0	2.2E-11	2.9E-12	1.2E-10	2.7E-13
HTP-nc [2]	CTUh	9.8E-08	6.1E-09	2.7E-08	0	2.8E-08	0	0	0	0	0	0	1.0E-09	2.8E-11	1.2E-08	-1.5E-09
SQP [2]	-	79.1	4.3	24.4	0	7.2E-01	0	0	0	0	0	0	7.3E-01	1.2E-03	3.6E-01	-1.8E+00

PM: Potential incidence of diseases due to particulate matter (PM) emissions; **IRP** : Exposure efficiency of human potential relative to U235; **ETP-fw** : Comparative toxic unit potential for ecosystems - freshwater; **HTP-c** : Comparative toxic unit potential for ecosystems - carcinogenic effects; **HTP-nc** : Comparative toxic unit potential for ecosystems - non-carcinogenic effects; **SQP** : Soil Quality Potential Index; **NR:** Not relevant

Notice 1: This impact category deals primarily with the eventual impacts of low doses 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 the disposal of radioactive waste in underground facilities. The potential for ionizing radiation in the soil, due to radon or some building materials, is not measured with this parameter either.

Notice 2: The results of this environmental impact indicator should be used with caution, as the uncertainties of the results are high and experience with this parameter is limited.

Use of resources

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	43.0	7.6E-01	2.1	0	4.2	0	0	0	0	0	0	1.3E-01	2.9E-02	1.8E-01	-5.2E-01
PERM	MJ	5.6	0	8.4E-01	0	0	0	0	0	0	0	0	0	0	0	0
PERTH	MJ	48.6	7.6E-01	2.9	0	4.2	0	0	0	0	0	0	1.3E-01	2.9E-02	1.8E-01	-5.2E-01
PENRE	MJ	145.7	9.8	6.0	0	3.2	0	0	0	0	0	0	1.5	5.3E-01	1.5	-2.3E+00
PENRM	MJ	7.8E-01	0	1.2E-01	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	146.5	9.8	6.1	0	3.2	0	0	0	0	0	0	1.5	5.3E-01	1.5	-2.3E+00
SM	kg	8.3E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	4.0E-02	8.5E-04	8.5E-03	0	2.9E-01	0	0	0	0	0	0	1.4E-04	1.0E-04	2.9E-04	-1.1E-03

PERE: Use of renewable primary energy excluding renewable primary energy resources used as feedstock; **PERM:** Use of renewable primary energy used as feedstock; **PERT:** Total use of renewable primary energy; **PENRE:** Use of non-renewable primary energy, excluding non-renewable primary energy resources used as feedstock; **PENRM:** Use of non-renewable primary energy used as feedstock; **PENRT:** Total use of non-renewable primary energy; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW**: Net use of piped water resources; **NR:** Not relevant

Waste Categories

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
etc.	kg	6.1E-04	3.7E-10	9.2E-05	0	1.7E-10	0	0	0	0	0	0	5.7E-11	7.9E-11	2.4E-08	-3.7E-08
DWD	kg	2.9E-01	1.5E-03	1.2	0	7.6E-02	0	0	0	0	0	0	2.4E-04	6.2E-05	7.1	-1.3E-03
RWD	kg	4.9E-03	1.7E-05	9.5E-04	0	1.0E-05	0	0	0	0	0	0	2.7E-06	8.7E-05	2.1E-05	-1.6E-05

HWD: Hazardous waste disposed of; **NHWD**: Non-hazardous waste disposed of; **RWD**: Radioactive waste disposed of; **NR:** Not relevant

Output flows

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RAW	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	3.7E-02	0	2.1	0	0	0	0	0	0	0	0	0	15.7	0	0
MORE	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CRU: Components for reuse; **MFR**: Materials for recycling; **MER:** Materials for energy recovery; **EE:** Exported energy; **NR:** Not relevant

Annex II. Declaration of the environmental parameters of the LCA and LCI for the format with MAXIMUM impact

Environmental impacts.

The estimated impact results are relative and do not indicate the final value of the impact categories, nor do they refer to threshold values, safety margins or risks

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO2 eq	13.2	1.1	3.2	0	1.9E-01	0	0	0	0	0	0	1.6E-01	2.8E-02	1.5E-01	-2.3E-01
GWP-biogenic	kg CO2 eq	2.0E-02	1.2E-04	3.8E-02	0	4.3E-03	0	0	0	0	0	0	0	1.4E-05	1.5E-03	-1.4E-04
GWP-luluc	kg CO2 eq	1.6E-02	1.5E-02	6.5E-03	0	2.3E-05	0	0	0	0	0	0	2.5E-03	3.9E-06	6.5E-04	-6.5E-04
GWP-total	kg CO2 eq	13.2	1.1	3.3	0	1.9E-01	0	0	0	0	0	0	1.6E-01	2.8E-02	1.5E-01	-2.3E-01
ODP	kg CFC11 eq	8.4E-09	1.5E-13	1.3E-09	0	6.5E-11	0	0	0	0	0	0	2.2E-14	8.4E-14	8.6E-14	-3.8E-09
AP	mol H+ eq	2.7E-02	4.7E-03	7.0E-03	0	6.0E-04	0	0	0	0	0	0	1.7E-04	3.5E-05	1.1E-03	-5.7E-04
EP-freshwater	kg P eq	1.3E-04	3.9E-06	2.3E-05	0	6.0E-06	0	0	0	0	0	0	6.3E-07	3.1E-09	3.2E-06	-2.1E-06
EP-marine	kg N eq	7.1E-03	1.2E-03	2.0E-03	0	1.4E-04	0	0	0	0	0	0	5.9E-05	9.5E-06	3.1E-04	-2.2E-04
EP-terrestrial	mol N eq	7.7E-02	1.4E-02	2.2E-02	0	1.4E-03	0	0	0	0	0	0	7.0E-04	1.0E-04	3.3E-03	-2.4E-03
POCP	Kg NMVOC eq	2.0E-02	3.6E-03	5.8E-03	0	3.7E-04	0	0	0	0	0	0	1.9E-04	3.0E-05	8.9E-04	-5.5E-04
ADP-minerals& metals [2]	kg Sb eq	7.0E-05	8.2E-08	1.1E-05	0	3.1E-09	0	0	0	0	0	0	1.3E-08	1.3E-09	1.5E-08	-1.2E-07
ADP-fossil [2]	MJ	191.9	13.3	36.9	0	3.2	0	0	0	0	0	0	1.9	7.0E-01	2.0	-2.7E+00
WDP [2]	m^3	2.5	1.4E-02	4.9E-01	0	21.5	0	0	0	0	0	0	2.3E-03	1.0E-02	1.1E-02	7.0E-02

GWP - total: Global warming potential; **GWP - fossil**: Global warming potential of fossil fuels; **GWP - biogenic**: Biogenic Global Warming Potential; **GWP - luluc** : Global warming potential of land use and land use change; **ODP**: Stratospheric ozone depletion potential; **AP:** Acidification potential, accumulated surplus; **EP-freshwater**: Eutrophication potential, fraction of nutrients that reach the final freshwater compartment; **EP-marine**: Eutrophication potential, fraction of nutrients that reach the final compartment of seawater; **EP-terrestrial**: Eutrophication potential, accumulated surplus; **POCP:** Tropospheric ozone formation potential; **ADP-minerals&metalsAbiotic** resource depletion potential for non-fossil resources; **APD-fossil**: Abiotic resource depletion potential for fossil resources; **WDP**: Water deprivation potential (user), water-weighted deprivation consumption. **NR:** Not relevant

Additional environmental impacts

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Incidence of diseases	2.6E-05	7.7E-08	4.0E-06	0	3.6E-09	0	0	0	0	0	0	1.8E-09	3.1E-10	1.3E-08	-2.7E-09
IRP [1]	kBq U235 eq	5.3E-01	3.4E-03	1.1E-01	0	2.1E-02	0	0	0	0	0	0	5.1E-04	7.3E-03	2.7E-03	-1.2E-02
ETP-fw [2]	CTUe	76.2	9.9	16.0	0	4.3	0	0	0	0	0	0	1.4	8.6E-02	1.2	-1.9E+00
HTP-c [2]	CTUh	3.5E-09	1.9E-10	7.2E-10	0	2.6E-10	0	0	0	0	0	0	2.9E-11	3.8E-12	1.5E-10	2.2E-13
HTP-nc [2]	CTUh	1.2E-07	8.3E-09	3.1E-08	0	2.8E-08	0	0	0	0	0	0	1.3E-09	3.7E-11	1.6E-08	-1.8E-09
SQP [2]	-	101.2	5.9	28.0	0	7.1E-01	0	0	0	0	0	0	9.6E-01	1.6E-03	4.7E-01	-2.2E+00

PM: Potential incidence of diseases due to particulate matter (PM) emissions; **IRP** : Exposure efficiency of human potential relative to U235; **ETP-fw** : Comparative toxic unit potential for ecosystems - freshwater; **HTP-c** : Comparative toxic unit potential for ecosystems - carcinogenic effects; **HTP-nc** : Comparative toxic unit potential for ecosystems - non-carcinogenic effects; **SQP** : Soil Quality Potential Index; **NR:** Not relevant

Notice 1: This impact category deals primarily with the eventual impacts of low doses 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 the disposal of radioactive waste in underground facilities. The potential for ionizing radiation in the soil, due to radon or some building materials, is not measured with this parameter either.

Notice 2: The results of this environmental impact indicator should be used with caution, as the uncertainties of the results are high and experience with this parameter is limited.

Use of resources

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	58.6	1.0	2.1	0	4.2	0	0	0	0	0	0	1.7E-01	3.8E-02	2.3E-01	-5.1E-01
PERM	MJ	5.6	0	8.4E-01	0	0	0	0	0	0	0	0	0	0	0	0
PERTH	MJ	64.1	1.0	3.0	0	4.2	0	0	0	0	0	0	1.7E-01	3.8E-02	2.3E-01	-5.1E-01
PENRE	MJ	191.9	13.3	6.2	0	3.2	0	0	0	0	0	0	1.9	7.0E-01	2.0	-2.7E+00
PENRM	MJ	7.8E-01	0	1.2E-01	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	192.7	13.3	6.3	0	3.2	0	0	0	0	0	0	1.9	7.0E-01	2.0	-2.7E+00
SM	kg	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m3	5.2E-02	1.2E-03	1.0E-02	0	2.8E-01	0	0	0	0	0	0	1.9E-04	1.3E-04	3.8E-04	-1.1E-03

PERE: Use of renewable primary energy excluding renewable primary energy resources used as feedstock; **PERM:** Use of renewable primary energy used as feedstock; **PERT:** Total use of renewable primary energy; **PENRE:** Use of non-renewable primary energy, excluding non-renewable primary energy resources used as feedstock; **PENRM:** Use of non-renewable primary energy used as feedstock; **PENRT:** Total use of non-renewable primary energy; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW**: Net use of piped water resources; **NR:** Not relevant

Waste Categories

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
etc.	kg	8.1E-04	5.1E-10	1.2E-04	0	1.7E-10	0	0	0	0	0	0	7.4E-11	1.0E-10	3.2E-08	-4.9E-08
DWD	kg	3.9E-01	2.1E-03	1.5	0	7.6E-02	0	0	0	0	0	0	3.2E-04	8.1E-05	9.3	-1.8E-03
RWD	kg	6.1E-03	2.3E-05	1.1E-03	0	1.0E-05	0	0	0	0	0	0	3.5E-06	1.1E-04	2.7E-05	-1.5E-05

HWD: Hazardous waste disposed of; **NHWD**: Non-hazardous waste disposed of; **RWD**: Radioactive waste disposed of; **NR:** Not relevant

Output flows

Parameter	Units	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RAW	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	4.6E-02	0	2.9	0	0	0	0	0	0	0	0	0	21.0	0	0
MORE	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CRU: Components for reuse; **MFR**: Materials for recycling; **MER:** Materials for energy recovery; **EE:** Exported energy; **NR:** Not relevant

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