# Global EPD A VERIFIED ENVIRONMENTAL DECLARATION

# AENOR



**Environmental** 

**Product** 

**Declaration** 

EN ISO 14025: 2006

EN 15804: 2012+A2:2019

EN 17160: 2019

## **EQUIPE CERÁMICA, S.L.U.**

# Ceramic Tiles. Earthenware tiles (BIII)

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and publication at <u>miniachericem</u>

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# EGUIPE



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#### Owner of the Declaration

**EQUIPE CERÁMICA, S.L.U.** 

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#### LCA study



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

The Standards EN 17160:2019 and EN 15804:2012+A2:2019 serve as the basis for the PCR.		
Independent verification of the declara Standard ISO 140	·	
□ Internal	⊠External	

Verification Agency

### **AENOR**

Product certification body accredited by ENAC under accreditation No 1/C-PR468





#### 1. General Information

#### 1.1. Description of the organisation

Equipe Cerámicas SLU was established the 27<sup>th</sup> September, 1999, and after a significant growth within the ceramic industry in the last years, it's currently the leading company in the sector of small format floor and wall tiles.

Equipe additional value is based in a product with an excellent design and high quality, a real compromise with the clients, and transparency, closeness and flexibility. That makes Equipe a company adapted to the new changes and in a progressive pursue of improvement.

In 2017, Equipe was included by Cepyme in the Cepyme500 program, whose aim is to identify, select and promote the top 500 Spanish companies that lead business growth and where value added, innovation and international projection is awarded.

Today, Equipe has more than 300 employees and its products are present around the world, being Europe and América its main markets.

#### 1.2. Scope of the Declaration

This Environmental Product Declaration includes environmental information for a group of products manufactured in three production centres in a geographical and technological environment in Spain 2022.

The location of these production centres is shown below:

Ctra. CV-190, km 13,2 12122 Figueroles (Castellón), Spain

The results shown the environmental performance of the Earthenware tile, as average weighted by production, as well as the environmental data of the tiles with the lowest and highest impact, thus narrowing down the results obtained in the LCA. 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 EN ISO 14025:2006 and EN 15804:2012+A2:2019 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
Programme Manager	AENOR



This Environmental Statement includes the following life cycle stages:

### Limits of the system. Information modules considered

Considered			
#:	A1	Raw materials supply	X
Product Stage	A2	Transport	Х
	А3	Manufacturing	Х
uction	A4	Transport of the product	Х
Construction	A5	Installation and construction processes	Х
	B1	Use	Х
	B2	Maintenance	Х
Use	B3	Repair	Х
	B4	Replacement	Х
	B5	Refurbishment	Х
	B6	Use of energy in service	Х
	B7	Use of water in service	Х
<u>i</u> fe	C1	Deconstruction	Х
End of Life	C2	Transport	Х
End	C3	Waste management	Х
	C4	Waste disposal	Х
	D	Potential for reuse, recovery and recycling of materials	Х
X = Module included in the LCA			

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.



#### 2. Product information

#### 2.1. Product identification

The ceramic tiles included in this study belong to group BIII (earthenware tile), a classification based on standard EN 14411:2016 (equivalent to standard ISO 13006:2018), i.e. they have a water absorption of more than 10% and are formed by pressing. Its common name is earthenware tile.

The earthenware tile included in this study include 43 commercial formats, all of them are glazed and their thicknesses range from 7 mm to 9 mm, with an average weight of 12.9 kg/m<sup>2</sup>.

In the annexes, the results of the formats included in the scope of this EPD with the minimum and maximum environmental impact can be found, corresponding to the formats: 1.2x20 cm of 11.2 kg/m² and 7 mm of thick and 12.4x10.7HX, 12x12CUR, 10.6x12FAN, 10.8x12.4BZ, 10.8x12.4TR cm of 14.4 kg/m² and 9 thick, fired weight respectively.

The CPC code of the product is 37370.

#### 2.2. Product technical features

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

#### **Product technical features**

Description	Standard	Requirements
Dimensional stability and surface appearance	ISO 10545-2	Yes
Water absortion	ISO 10545-3	<10%
Modulus of Rupture	ISO 10545-4	<12 N/mm <sup>2</sup>
Breaking Strength	ISO 10545-4	<600 N
Thermal Shock	ISO 10545-9	Yes
Crazing Resistance	ISO 10545-11	Yes
Resistance to Chemicals	ISO 10545-13	GLA/GHA/GA
Stain Resistance	ISO 10545-14	5

This EPD contemplates the covering of residential interior walls as a study scenario, however, the versatility of these ceramic tiles allows their installation in other buildings such as hospitals, schools, offices or 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.)	94%
Decoration raw materials (quartz, clays, feldspars, etc.)	6%

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



#### 3. LCA information

#### 3.1. Life Cycle Assessment

The LCA has been carried out with the support of the LCA for Experts software (Sphera-GaBi) [7] and with the database version 2024.2 (SP40.0) [8]) (SpheraSolutions). The characterisation factors used are those included in the EN 15804:2012+A2:2019 standard. The LCA is included in Annex I of report C243417 (June 2025, version 1), issued by the Institute of Ceramic Technology.

#### 3.2. Functional unit / declared unit

The functional unit considered is "Covering 1 m<sup>2</sup> of the interior floor of a dwelling with ceramic tiles of group BIII, 12.9 kg/m<sup>2</sup> and 8.0 mm thick, for 50 years".

#### 3.3. Reference service life (RSL)

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

#### Reference service life

Parameter	Unit (expressed per functional unit or per declared unit)
Reference service life	Minimum 50 years
Declared product properties (on gate), coatings, etc.	Minimum values of the relevant characteristics according to Annex L 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 request technical data sheets according to model.
Estimated quality of work, when installed according to the manufacturer's specifications	For more information request technical data sheets according to model.

Parameter	Unit (expressed per functional unit or per declared unit)
Installed from outside environment (for outdoor applications), e.g. weathering, pollutants, UV radiation and	Results of the values of the relevant characteristics according to Annex L of the EN 14411.
wind exposure, building orientation, shading, temperature, etc.	For more information request technical data sheets according to model.
Indoor environment (for indoor applications), e.g. temperature, humidity, chemical exposure	Results of the values of the relevant characteristics according to Annex L of the EN 14411.
	For more information request technical data sheets according to model.
Conditions of use, e.g.: frequency of use, mechanical exposure, etc.	For more information request technical data sheets according to model.
Maintenance, e.g.: required frequency, type and quality and replacement of replaceable components	For more information request technical data sheets according to model.

#### 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 the allocation of inputs and outputs to the declared unit, production-weighted averages have been carried out.





#### 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 particle emissions to the atmosphere
- Atmospheric emissions of pollutants, nonregulated
- Long-term emissions (>100 years)
- The processes of recycling and reuse of waste generated throughout the life cycle of ceramic tiles that are to form part of another system, based on the PCR.
- The production of some auxiliary materials used in the production of tiles representing less than 0.01% by total mass.
- Machinery and industrial equipment production.
- Mortar losses and its packaging at stage A5.

# 3.6. Representativeness, quality and selection of data

The primary data have been provided directly by the company EQUIPE, with a production centre located in Figueroles (Castellón), Spain. For the secondary data, the most updated Sphera-GaBi databases [8] have been used and modelled with the version of LCA for Experts (Sphera-GaBi) [7]. All data belong to a geographical scenario of Spain 2022.

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

The global warming potential (GWPtotal) of the different technologies that make up the electricity mix used is 0.38 kgCO2 eg/kWh.

# 3.7. Other calculation rules and assumptions

The 43 tile references have different weights and environmental impacts. The following table shows the deviations of the format with the highest and lowest environmental impact with respect to the average, in relation to the product stage (A1-A3). Annex I and Annex II show the environmental impact results of the reference with minimum and maximum impact values respectively.

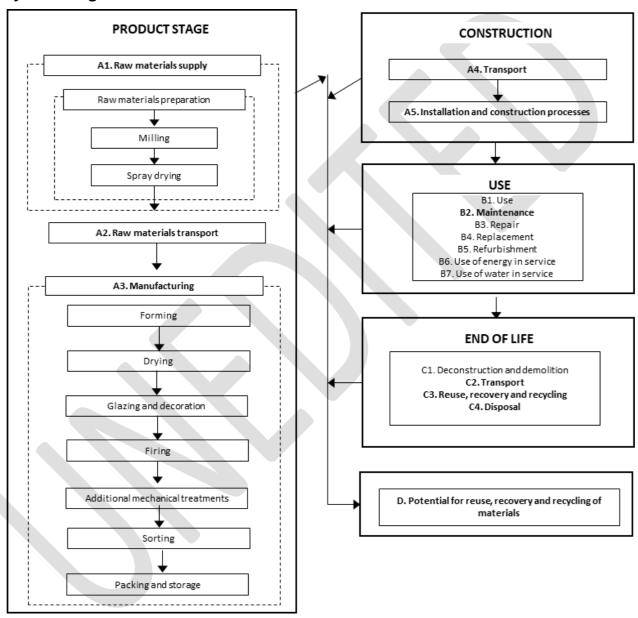
Impact Indicator	Relative variation from the average
GWP-total	-8%/+12%
AP	-5%/+9%
POCP	-4%/+10%



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

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

#### System diagram







# 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 support are mainly clays, feldspars, sands and ceramic waste generated during the manufacture.

The raw materials for decoration (glazes, engobes and inks) are produced in specialised plants.

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)

In the spray granule manufacturing plant of EQUIPE's supplier, the raw materials are prepared by wet milling and spray drying with a high-performance cogeneration system.

Once at the EQUIPE plant, this spray-dried granule is forming by unidirectional dry pressing and then fed into a continuous dryer.

The pieces just out of the dryer are covered with a thin layer or several layers of engobe and glazes, and in some cases, they are decorated mainly by digital inks.

Subsequently, the pieces are fired in singlelayer roller kilns to produce a hard, water- and chemical-resistant material.

Optionally, the parts are subjected to mechanical surface treatments such as cutting.

After passing the quality control processes, the sorted parts are boxed and packaged.

# 4.3. Construction process Transport (A4)

The product is distributed 11.8% in Spain, 40.2% in Europe and 48.0% in the rest of the world.

**Module A4 Transport to site** 

Parameter	Result (expressed per 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: 0.2 I diesel (Euro truck 6, 27 t) 0.02 I fueloil (ship)
Distance	300 km national distribution: 11.8% 1390 km rest of Europe distribution: 40.2% 6520 km rest of the world distribution: 48.0%
Capacity utilisation (including no-load return)	85% in truck 100% ship
Bulk density of transported products	812 kg/m <sup>3</sup>
Usable capacity factor (factor: = 1 or < 1 or ≥ 1 for products that are packed compressed or nested)	Not applicable



# Product installation and construction process (A5).

Once the product is unpacked, it is installed. According to the PCRs for ceramic tiles, it has been established that the application of mortar is required for installation.

The waste derived from the packaging of the pieces is managed separately according to the geographical location of the installation site. Otherwise, 5% of product losses have been considered at the installation stage.

#### Module A5 - Installation

Parameter	Result (expressed per functional unit)
Supplementary materials for installation	3.3 kg
Water use	0.81
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	Product losses: 761 g
construction site before	Packaging wastes:
processing of waste generated at the product installation (specified	Cardboard: 143 g Plastic: 34 g
by type)	Wood: 342 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: 533 g Product losses for final deposition: 228 g Incinerated cardboard: 1g Recycled cardboard: 143 g Cardboard for final deposition: 0 g Incinerated plastic: 5 g Recycled plastic: 34 g Plastic for final deposition: 5 g Incinerated wood: 129 g Recycled wood: 342 g Wood for final deposition: 10 g
Direct emissions to ambient air, soil and water	Not applicable

#### **B1** Use

Once it had been installed, the product needed neither water nor energy input for use and do not emissions into the environment. At this stage, there are no processes that generate environmental impacts. For this reason, only the environmental burdens attributable to the maintenance of the product (module B2) are considered.

#### **B2 Maintenance**

It can be done with a damp cloth and, if the surface is dirty or greasy, cleaning agents such as detergents or bleaches can be used.

Use linked to the building structure

Parameter	Result (expressed per functional unit)	
B2 Maintenance		
Maintenance process	According to RCP for ceramic tiles (EN17160) residential floor and wall cleaning scenario	
Maintenance cycle	Wash once every three months with water and detergent.	
Auxiliary materials for maintenance (e.g. cleaning products) (specify each material)	Detergent: 1.34E-04 kg/m <sup>2</sup> per cleaning cycle	
Material wastage during maintenance (specify type))	Not applicable	
Net tap water consumption	0.1 l/m <sup>2</sup> per cleaning cycle	
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

The tiles do not require repair, replacement or renovation if the tiles are correctly installed.

# 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

At the end of its service life, the product will be removed, either as part of a building renovation or during demolition. In the context of the demolition of a building, the impacts attributable to the removal of the product are negligible.

#### **C2 Transport**

The product waste is transported in a truck to be managed either by deposition in inert landfills or recycling.

# C3 Waste management for reuse, recovery and recycling

Seventy percent 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.

#### End of life

Parameter	Result (expressed per functional unit)
Collection process, specified by type	19.2 kg total
Recovery system, specified by type	13.5 kg for recycling
Disposal, specified by type	5.8 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; therefore, they do not contain biogenic carbon and plastic packaging contains carbon from fossil sources. However, other packaging such as cardboard or wooden pallets contain biogenic carbon. In this respect, the information for each product studied is shown below.

Biogenic carbon content	Unit	Value
Biogenic carbon content in the product (at the door)	kg C/m²	-
Biogenic carbon content in the packaging (at the door)	kg C/m²	2.6E-01



#### 5. Environmental Information.

#### **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.

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq	13.2	6.9E-01	1.7	0	3.6E-01	0	0	0	0	0	0	9.2E-02	1.5E-02	8.5E-02	-1.8E-01
GWP-biogenic	kg CO₂ eq	-3.8E-03	8.7E-05	2.2E-02	0	7.0E-03	0	0	0	0	0	0	0	7.8E-06	8.8E-04	-5.4E-06
GWP-luluc	kg CO₂ eq	8.2E-03	9.4E-03	2.4E-03	0	2.4E-05	0	0	0	0	0	0	1.4E-03	2.0E-06	3.7E-04	-3.3E-04
GWP-total	kg CO₂ eq	13.2	7.0E-01	1.8	0	3.7E-01	0	0	0	0	0	0	9.3E-02	1.5E-02	8.6E-02	-1.8E-01
ODP	kg CFC11 eq	7.2E-09	9.0E-14	3.6E-10	0	1.3E-10	0	0	0	0	0	0	1.2E-14	4.2E-14	4.9E-14	-4.7E-09
AP	mol H⁺ eq	1.7E-02	3.3E-03	3.1E-03	0	1.2E-03	0	0	0	0	0	0	9.8E-05	1.5E-05	6.3E-04	-6.9E-04
EP-freshwater	kg P eq	8.0E-05	2.4E-06	6.0E-06	0	9.1E-06	0	0	0	0	0	0	3.6E-07	1.3E-09	1.8E-06	-1.8E-06
EP-marine	kg N eq	5.7E-03	8.7E-04	1.1E-03	0	2.6E-04	0	0	0	0	0	0	3.4E-05	4.5E-06	1.7E-04	-2.0E-04
EP-terrestrial	mol N eq	6.1E-02	9.7E-03	1.2E-02	0	2.7E-03	0	0	0	0	0	0	4.0E-04	4.9E-05	1.9E-03	-2.1E-03
POCP	Kg NMVOC eq	1.6E-02	2.6E-03	3.0E-03	0	7.3E-04	0	0	0	0	0	0	1.1E-04	1.4E-05	5.1E-04	-5.3E-04
ADP-minerals& metals <sup>2</sup>	kg Sb eq	3.3E-05	5.1E-08	1.7E-06	0	4.8E-09	0	0	0	0	0	0	7.3E-09	7.4E-10	8.8E-09	-6.7E-08
ADP-fossil <sup>2</sup>	MJ	153.7	8.4	13.8	0	6.2	0	0	0	0	0	0	1.1	3.9E-01	1.1	-3.3
WDP <sup>2</sup>	$m^3$	1.8	8.8E-03	2.0E-01	0	22.7	0	0	0	0	0	0	1.3E-03	5.4E-03	6.5E-03	-2.1E-02

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. weighted water consumption



#### **Additional environmental impacts**

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	B4	В5	В6	В7	C1	C2	C3	C4	D
PM	Incidence of diseases	5.7E-07	5.6E-08	6.7E-08	0	6.6E-09	0	0	0	0	0	0	1.0E-09	1.4E-10	7.7E-09	-3.9E-09
IRP <sup>1</sup>	kBq U235 eq	5.1E-01	2.1E-03	5.8E-02	0	4.2E-02	0	0	0	0	0	0	2.9E-04	4.0E-03	1.5E-03	-7.2E-03
ETP-fw <sup>2</sup>	CTUe	41.8	6.2	5.2	0	8.5	0	0	0	0	0	0	8.2E-01	2.0E-02	6.9E-01	-1.1
HTP-c <sup>2</sup>	CTUh	2.1E-09	1.2E-10	2.5E-10	0	5.0E-10	0	0	0	0	0	0	1.7E-11	1.7E-12	8.8E-11	-1.5E-12
HTP-nc <sup>2</sup>	CTUh	5.7E-08	5.1E-09	1.3E-08	0	5.5E-08	0	0	0	0	0	0	7.5E-10	1.2E-11	9.3E-09	-1.2E-09
SQP <sup>2</sup>	-	88.3	3.6	16.4	0	1.4	0	0	0	0	0	0	5.5E-01	1.9E-03	2.7E-01	-1.4

PM: Potential for disease incidence due to emissions of particulate matter (PM); IRP: Exposure efficiency of human potential relative to U235; ETP-fw: Ecosystem toxic unit comparative potential - freshwater; HTP-c: Ecosystem toxic unit comparative potential - carcinogenic effects; HTP-nc: Ecosystem toxic unit comparative potential - non-carcinogenic effects; SQP: Soil quality potential index; NR: Not relevant

Note 1: This impact category deals mainly with potential impacts of low doses of ionising radiation on human health from the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents or occupational exposure due to disposal of radioactive waste in underground facilities. Ionising radiation potential of soil, due to radon or some building materials is also not measured by this parameter.

Note 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

Indicator         Unit         A1-A3         A4         A5         B1           PERE         MJ         37.2         6.4E-01         2.1         0	<b>B2 B3</b> 8.4 0				B6	B7	C1	C2	C3	C4	D
PERE MJ 37.2 6.4E-01 2.1 0		) (	0	0	_						
				0	0	0	0	9.6E-02	2.1E-02	1.3E-01	-1.3
PERM MJ 11.2 0 5.6E-01 0	0 0	) (	0	0	0	0	0	0	0	0	0
PERT MJ 48.4 6.4E-01 2.6 0	8.4 0	) (	0	0	0	0	0	9.6E-02	2.1E-02	1.3E-01	-1.3
PENRE MJ 153.7 8.4 5.7 0	6.2 0	) (	0	0	0	0	0	1.1	3.9E-01	1.1	-3.3
PENRM MJ 1.9 0 9.4E-02 0	0 0	) (	0	0	0	0	0	0	0	0	0
PENRT MJ 155.6 8.4 5.8 0	6.2 0	) (	0	0	0	0	0	1.1	3.9E-01	1.1	-3.3
SM kg 3.2 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 <sup>3</sup> 3.3E-02 7.1E-04 4.1E-03 0 3	.1E-01 0	) (	0	0	0	0	0	1.1E-04	7.0E-05	2.2E-04	-1.9E-03

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water





#### Waste categories

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
HWD	kg	1.0E-03	3.2E-10	5.0E-05	0	1.7E-10	0	0	0	0	0	0	4.2E-11	6.5E-11	1.8E-08	-2.5E-08
NHWD	kg	2.2E-01	1.3E-03	3.7E-01	0	7.7E-02	0	0	0	0	0	0	1.8E-04	4.5E-05	5.3	-7.3E-04
RWD	kg	6.9E-03	1.5E-05	5.6E-04	0	1.0E-05	0	0	0	0	0	0	2.0E-06	6.3E-05	1.6E-05	-7.0E-06

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

#### **Output flows**

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	В4	B5	В6	В7	C1	C2	СЗ	C4	D
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	3.7	0	1.3	0	0	0	0	0	0	0	0	0	13.5	0	0
MER	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: Energy exported; NR: Not relevant.





#### 6. Additional environmental impacts

#### Indoor air emissions

Ceramic tiles, in their manufacturing process, are subjected to a thermal process that exceeds 1000°C. At these temperatures, any organic compounds present in the compositions decompose, resulting in a final product that is inert and free of volatile organic compounds that may be emitted during the use phase.

#### 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 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

In September 2024, EQUIPE CERÁMICAS presented its innovative 100% electric kiln at its facilities in Onda, Castellón. The event was attended by local authorities, industry professionals, and the general public, who were able to witness firsthand this milestone in the ceramic industry. This kiln, the result of an R&D&I project, has been developed in collaboration with the Universitat Jaume I, the Institute of Ceramic Technology (ITC-AICE), SYSTEM FOC, and EQUIPE Cerámicas

As part of the ITALCER GROUP, EQUIPE reaffirms its commitment to sustainability, a fundamental and distinctive pillar of the group.

The project aims at the complete elimination of  $CO_2$  emissions in the ceramic firing phase, without compromising either the technical quality or the sustainability of the manufactured products. This breakthrough represents a decisive first step towards meeting the  $CO_2$  reduction targets of the United Nations 2030 Agenda.

It is worth noting that traditional ceramic kilns, powered by natural gas (the fossil fuel with the lowest environmental impact), consume approximately 60% of the total energy used in the production process during the firing stage. Therefore, decarbonizing this stage is essential to reducing emissions in the sector.

The new electric kiln is powered mainly by renewable energy sources and is more efficient than conventional models, achieving a significant reduction in energy consumption. This innovation is tangible proof of EQUIPE's commitment to a more sustainable and environmentally responsible future.

With this initiative, EQUIPE Cerámicas continues to position itself as a leader in the transition towards a greener and more responsible ceramic production model, in line with the demands of a world increasingly aware of the urgency of climate action.

#### **ECOVADIS CERTIFICATION**

As part of our commitment to society, our people, and the environment, EQUIPE Cerámicas completed this year a comprehensive assessment of its corporate sustainability practices through EcoVadis, a global standard for business sustainability ratings.

The EcoVadis assessment includes 21 sustainability criteria across four key areas:



Environment, Labor & Human Rights, Ethics, and Sustainable Procurement.

In this assessment, we were awarded a Silver Medal, placing EQUIPE Cerámicas in the top 15% worldwide.

# PHOTOVOLTAIC ENERGY AT EQUIPE (SOLAR PANEL INSTALLATIONS)

EQUIPE has taken a strong step towards decarbonizing its energy supply through the installation of 3,526 photovoltaic panels generating 1.6 MWp of electricity across an area of 7,653 m². This installation supplies 18% of the energy consumption of our plants, reducing 585 tons of CO<sub>2</sub> emissions, equivalent to planting 29,000 trees.

Thanks to the Recovery, Transformation and Resilience Plan, financed by the European Union – NextGenerationEU, and the collaboration of IVACE and IDAE, our company has been able to take this major step towards reducing our carbon footprint and significantly improving our energy efficiency.

# UNITED NATIONS GLOBAL COMPACT

EQUIPE Cerámicas supports the United Nations international initiative that promotes Sustainable Development and corporate social responsibility, as expressed in our Letter of Commitment, in which we pledge to integrate the 10 Principles of the Global Compact into our corporate objectives



#### 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.

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	B4	B5	B6	В7	C1	C2	C3	C4	D
GWP-fossil	kg CO₂ eq	12.1	6.1E-01	1.7	0	3.6E-01	0	0	0	0	0	0	8.3E-02	1.3E-02	7.7E-02	-1.7E-01
GWP-biogenic	kg CO₂ eq	-4.0E-03	7.6E-05	2.2E-02	0	7.0E-03	0	0	0	0	0	0	0	7.0E-06	7.9E-04	6.9E-06
GWP-luluc	kg CO₂ eq	7.7E-03	8.2E-03	2.3E-03	0	2.4E-05	0	0	0	0	0	0	1.3E-03	1.8E-06	3.3E-04	-3.0E-04
GWP-total	kg CO₂ eq	12.1	6.2E-01	1.7	0	3.7E-01	0	0	0	0	0	0	8.4E-02	1.3E-02	7.8E-02	-1.7E-01
ODP	kg CFC11 eq	7.2E-09	7.9E-14	3.6E-10	0	1.3E-10	0	0	0	0	0	0	1.1E-14	3.8E-14	4.4E-14	-4.7E-09
AP	mol H+ eq	1.6E-02	2.9E-03	3.1E-03	0	1.2E-03	0	0	0	0	0	0	8.8E-05	1.4E-05	5.7E-04	-6.7E-04
EP-freshwater	kg P eq	8.0E-05	2.1E-06	5.9E-06	0	9.2E-06	0	0	0	0	0	0	3.2E-07	1.1E-09	1.6E-06	-1.7E-06
EP-marine	kg N eq	5.4E-03	7.6E-04	1.1E-03	0	2.7E-04	0	0	0	0	0	0	3.0E-05	4.1E-06	1.6E-04	-1.9E-04
EP-terrestrial	mol N eq	5.8E-02	8.5E-03	1.1E-02	0	2.7E-03	0	0	0	0	0	0	3.6E-04	4.4E-05	1.7E-03	-2.1E-03
POCP	Kg NMVOC eq	1.5E-02	2.3E-03	3.0E-03	0	7.3E-04	0	0	0	0	0	0	9.9E-05	1.3E-05	4.6E-04	-5.1E-04
ADP-minerals& metals <sup>2</sup>	kg Sb eq	3.3E-05	4.4E-08	1.7E-06	0	4.8E-09	0	0	0	0	0	0	6.6E-09	6.7E-10	7.9E-09	-6.1E-08
ADP-fossil <sup>2</sup>	MJ	141.7	7.3	13.1	0	6.2	0	0	0	0	0	0	1.0E+00	3.5E-01	1.0	-3.2
WDP <sup>2</sup>	m <sup>3</sup>	1.7	7.7E-03	2.0E-01	0	22.8	0	0	0	0	0	0	1.2E-03	4.8E-03	5.9E-03	-2.7E-02

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.



#### Additional environmental impacts

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
PM	Incidence of diseases	5.6E-07	4.9E-08	6.7E-08	0	6.6E-09	0	0	0	0	0	0	9.3E-10	1.3E-10	6.9E-09	-3.8E-09
IRP <sup>1</sup>	kBq U235 eq	4.9E-01	1.8E-03	5.7E-02	0	4.2E-02	0	0	0	0	0	0	2.6E-04	3.6E-03	1.4E-03	-6.7E-03
ETP-fw <sup>2</sup>	CTUe	41.0	5.4	5.1	0	8.6	0	0	0	0	0	0	7.4E-01	1.8E-02	6.2E-01	-1.0
HTP-c <sup>2</sup>	CTUh	2.1E-09	1.1E-10	2.5E-10	0	5.0E-10	0	0	0	0	0	0	1.5E-11	1.5E-12	7.9E-11	-1.5E-12
HTP-nc <sup>2</sup>	CTUh	5.7E-08	4.5E-09	1.3E-08	0	5.5E-08	0	0	0	0	0	0	6.7E-10	1.1E-11	8.4E-09	-1.1E-09
SQP <sup>2</sup>	-	88.5	3.2	16.4	0	1.4	0	0	0	0	0	0	4.9E-01	1.7E-03	2.4E-01	-1.3

PM: Potential for disease incidence due to emissions of particulate matter (PM); IRP: Exposure efficiency of human potential relative to U235; ETP-fw: Ecosystem toxic unit comparative potential - freshwater; HTP-c: Ecosystem toxic unit comparative potential - carcinogenic effects; HTP-nc: Ecosystem toxic unit comparative potential - non-carcinogenic effects; SQP: Soil quality potential index; NR: Not relevant

Note 1: This impact category deals mainly with potential impacts of low doses of ionising radiation on human health from the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents or occupational exposure due to disposal of radioactive waste in underground facilities. Ionising radiation potential of soil, due to radon or some building materials is also not measured by this parameter.

Note 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

Indicator	Unit	A1-A3	A4	<b>A</b> 5	B1	B2	В3	B4	B5	В6	В7	<b>C</b> 1	C2	C3	C4	D
PERE	MJ	37.4	5.6E-01	2.1	0	8.5	0	0	0	0	0	0	8.6E-02	1.9E-02	1.2E-01	-1.3
PERM	MJ	11.2	0	5.6E-01	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	48.7	5.6E-01	2.6	0	8.5	0	0	0	0	0	0	8.6E-02	1.9E-02	1.2E-01	-1.3
PENRE	MJ	141.7	7.3	5.7	0	6.2	0	0	0	0	0	0	1.0E	3.5E-01	1.0	-3.2
PENRM	MJ	1.9	0	9.4E-02	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	143.6	7.3	5.8	0	6.2	0	0	0	0	0	0	1.0	3.5E-01	1.0	-3.2
SM	kg	2.8	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	3.2E-02	6.2E-04	4.0E-03	0	3.1E-01	0	0	0	0	0	0	9.6E-05	6.3E-05	2.0E-04	-1.9E-03

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; PERM = Use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water.



#### Waste categories

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	B7	C1	C2	СЗ	C4	D
HWD	kg	1.0E-03	2.8E-10	5.0E-05	0	1.8E-10	0	0	0	0	0	0	3.8E-11	5.9E-11	1.6E-08	-2.3E-08
NHWD	kg	2.4E-01	1.1E-03	3.5E-01	0	7.8E-02	0	0	0	0	0	0	1.6E-04	4.0E-05	4.8	-6.3E-04
RWD	kg	6.6E-03	1.3E-05	5.4E-04	0	1.0E-05	0	0	0	0	0	0	1.8E-06	5.7E-05	1.4E-05	-7.3E-06

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

#### **Output flows**

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	В4	B5	В6	В7	C1	C2	C3	C4	D
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	3.7	0	1.2	0	0	0	0	0	0	0	0	0	12.1	0	0
MER	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: Energy exported; NR: Not relevant.



#### Annex II. Declaration of the environmental parameters of the LCA and LCI for the format with maximum 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.

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq	15.0	7.8E-01	1.8	0	3.6E-01	0	0	0	0	0	0	1.0E-01	1.6E-02	9.3E-02	-1.9E-01
GWP-biogenic	kg CO <sub>2</sub> eq	-9.8E-04	9.7E-05	2.2E-02	0	7.0E-03	0	0	0	0	0	0	0	8.5E-06	9.6E-04	-1.7E-05
GWP-luluc	kg CO₂ eq	9.1E-03	1.1E-02	2.5E-03	0	2.4E-05	0	0	0	0	0	0	1.5E-03	2.2E-06	4.1E-04	-3.7E-04
GWP-total	kg CO₂ eq	15.0	7.9E-01	1.9	0	3.6E-01	0	0	0	0	0	0	1.0E-01	1.6E-02	9.4E-02	-1.9E-01
ODP	kg CFC11 eq	7.2E-09	1.0E-13	3.6E-10	0	1.3E-10	0	0	0	0	0	0	1.4E-14	4.6E-14	5.4E-14	-4.7E-09
AP	mol H+ eq	1.9E-02	3.7E-03	3.2E-03	0	1.2E-03	0	0	0	0	0	0	1.1E-04	1.7E-05	6.9E-04	-7.0E-04
EP-freshwater	kg P eq	8.1E-05	2.7E-06	6.0E-06	0	9.1E-06	0	0	0	0	0	0	3.9E-07	1.4E-09	2.0E-06	-1.8E-06
EP-marine	kg N eq	6.3E-03	9.8E-04	1.1E-03	0	2.6E-04	0	0	0	0	0	0	3.7E-05	4.9E-06	1.9E-04	-2.1E-04
EP-terrestrial	mol N eq	6.8E-02	1.1E-02	1.2E-02	0	2.7E-03	0	0	0	0	0	0	4.4E-04	5.3E-05	2.0E-03	-2.2E-03
POCP	Kg NMVOC eq	1.8E-02	2.9E-03	3.1E-03	0	7.3E-04	0	0	0	0	0	0	1.2E-04	1.5E-05	5.6E-04	-5.5E-04
ADP-minerals& metals <sup>2</sup>	kg Sb eq	3.3E-05	5.7E-08	1.7E-06	0	4.8E-09	0	0	0	0	0	0	8.0E-09	8.1E-10	9.6E-09	-7.2E-08
ADP-fossil <sup>2</sup>	MJ	171.6	9.4	14.8	0	6.2	0	0	0	0	0	0	1.2	4.2E-01	1.2	-3.4
WDP <sup>2</sup>	m³	1.9	9.9E-03	2.1E-01	0	22.6	0	0	0	0	0	0	1.4E-03	5.9E-03	7.2E-03	-1.6E-02

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.



#### Additional environmental impacts

Unit	A1-A3	A4	<b>A</b> 5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
Incidence of diseases	5.8E-07	6.2E-08	6.8E-08	0	6.6E-09	0	0	0	0	0	0	1.1E-09	1.5E-10	8.4E-09	-4.0E-09
kBq U235 eq	5.5E-01	2.4E-03	6.0E-02	0	4.2E-02	0	0	0	0	0	0	3.2E-04	4.4E-03	1.7E-03	-7.7E-03
CTUe	44.7	6.9	5.4	0	8.5	0	0	0	0	0	0	9.0E-01	2.2E-02	7.5E-01	-1.2E+00
CTUh	2.3E-09	1.4E-10	2.6E-10	0	5.0E-10	0	0	0	0	0	0	1.8E-11	1.9E-12	9.6E-11	-1.6E-12
CTUh	6.0E-08	5.8E-09	1.4E-08	0	5.4E-08	0	0	0	0	0	0	8.2E-10	1.3E-11	1.0E-08	-1.2E-09
-	90.3	4.1	16.5	0	1.4	0	0	0	0	0	0	6.0E-01	2.0E-03	2.9E-01	-1.4
	Incidence of diseases kBq U235 eq CTUe CTUh	Incidence of diseases  kBq U235 eq 5.5E-01  CTUe 44.7  CTUh 2.3E-09  CTUh 6.0E-08	Incidence of diseases         5.8E-07         6.2E-08           kBq U235 eq         5.5E-01         2.4E-03           CTUe         44.7         6.9           CTUh         2.3E-09         1.4E-10           CTUh         6.0E-08         5.8E-09	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02           CTUe         44.7         6.9         5.4           CTUh         2.3E-09         1.4E-10         2.6E-10           CTUh         6.0E-08         5.8E-09         1.4E-08	Incidence of diseases  kBq U235 eq 5.5E-01 2.4E-03 6.0E-02 0  CTUe 44.7 6.9 5.4 0  CTUh 2.3E-09 1.4E-10 2.6E-10 0  CTUh 6.0E-08 5.8E-09 1.4E-08 0	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02           CTUe         44.7         6.9         5.4         0         8.5           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10           CTUh         6.0E-08         5.8E-09         1.4E-08         0         5.4E-08	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0           CTUe         44.7         6.9         5.4         0         8.5         0           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10         0           CTUh         6.0E-08         5.8E-09         1.4E-08         0         5.4E-08         0	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0         0           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0         0           CTUe         44.7         6.9         5.4         0         8.5         0         0           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10         0         0           CTUh         6.0E-08         5.8E-09         1.4E-08         0         5.4E-08         0         0	Incidence of diseases  kBq U235 eq 5.5E-01 2.4E-03 6.0E-02 0 4.2E-02 0 0 0  CTUe 44.7 6.9 5.4 0 8.5 0 0 0  CTUh 2.3E-09 1.4E-10 2.6E-10 0 5.0E-10 0 0  CTUh 6.0E-08 5.8E-09 1.4E-08 0 5.4E-08 0 0 0	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0         0         0         0           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0         0         0         0           CTUe         44.7         6.9         5.4         0         8.5         0         0         0         0           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10         0         0         0         0           CTUh         6.0E-08         5.8E-09         1.4E-08         0         5.4E-08         0         0         0         0	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0         0         0         0         0         0           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0 </td <td>Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0         0         0         0         0         0         0         1.1E-09           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0         0         0         0         0         0         0         3.2E-04           CTUe         44.7         6.9         5.4         0         8.5         0         0         0         0         0         0         9.0E-01           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10         0         0         0         0         0         0         0         0         8.2E-10</td> <td>Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0         0         0         0         0         0         1.1E-09         1.5E-10           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0         0         0         0         0         0         3.2E-04         4.4E-03           CTUe         44.7         6.9         5.4         0         8.5         0         0         0         0         0         9.0E-01         2.2E-02           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10         0         0         0         0         0         0         1.8E-11         1.9E-12           CTUh         6.0E-08         5.8E-09         1.4E-08         0         5.4E-08         0         0         0         0         0         0         8.2E-10         1.3E-11</td> <td>Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0         0         0         0         0         1.1E-09         1.5E-10         8.4E-09           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0         0         0         0         0         3.2E-04         4.4E-03         1.7E-03           CTUe         44.7         6.9         5.4         0         8.5         0         0         0         0         0         9.0E-01         2.2E-02         7.5E-01           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10         0         0         0         0         0         1.8E-11         1.9E-12         9.6E-11           CTUh         6.0E-08         5.8E-09         1.4E-08         0         5.4E-08         0         0         0         0         0         0         8.2E-10         1.3E-11         1.0E-08</td>	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0         0         0         0         0         0         0         1.1E-09           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0         0         0         0         0         0         0         3.2E-04           CTUe         44.7         6.9         5.4         0         8.5         0         0         0         0         0         0         9.0E-01           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10         0         0         0         0         0         0         0         0         8.2E-10	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0         0         0         0         0         0         1.1E-09         1.5E-10           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0         0         0         0         0         0         3.2E-04         4.4E-03           CTUe         44.7         6.9         5.4         0         8.5         0         0         0         0         0         9.0E-01         2.2E-02           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10         0         0         0         0         0         0         1.8E-11         1.9E-12           CTUh         6.0E-08         5.8E-09         1.4E-08         0         5.4E-08         0         0         0         0         0         0         8.2E-10         1.3E-11	Incidence of diseases         5.8E-07         6.2E-08         6.8E-08         0         6.6E-09         0         0         0         0         0         1.1E-09         1.5E-10         8.4E-09           kBq U235 eq         5.5E-01         2.4E-03         6.0E-02         0         4.2E-02         0         0         0         0         0         3.2E-04         4.4E-03         1.7E-03           CTUe         44.7         6.9         5.4         0         8.5         0         0         0         0         0         9.0E-01         2.2E-02         7.5E-01           CTUh         2.3E-09         1.4E-10         2.6E-10         0         5.0E-10         0         0         0         0         0         1.8E-11         1.9E-12         9.6E-11           CTUh         6.0E-08         5.8E-09         1.4E-08         0         5.4E-08         0         0         0         0         0         0         8.2E-10         1.3E-11         1.0E-08

PM: Potential for disease incidence due to emissions of particulate matter (PM); IRP: Exposure efficiency of human potential relative to U235; ETP-fw: Ecosystem toxic unit comparative potential - freshwater; HTP-c: Ecosystem toxic unit comparative potential - non-carcinogenic effects; SQP: Soil quality potential index; NR: Not relevant

Note 1: This impact category deals mainly with potential impacts of low doses of ionising radiation on human health from the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents or occupational exposure due to disposal of radioactive waste in underground facilities. Ionising radiation potential of soil, due to radon or some building materials is also not measured by this parameter.

Note 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

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
PERE	MJ	40.4	7.2E-01	2.1	0	8.4	0	0	0	0	0	0	1.0E-01	2.3E-02	1.5E-01	-1.3
PERM	MJ	11.2	0	5.6E-01	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	51.6	7.2E-01	2.6	0	8.4	0	0	0	0	0	0	1.0E-01	2.3E-02	1.5E-01	-1.3
PENRE	MJ	171.6	9.4	5.7	0	6.2	0	0	0	0	0	0	1.2	4.2E-01	1.2	-3.4
PENRM	MJ	1.9	0	9.4E-02	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	173.5	9.4	5.8	0	6.2	0	0	0	0	0	0	1.2	4.2E-01	1.2	-3.4
SM	kg	3.6	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	3.5E-02	8.0E-04	4.2E-03	0	3.1E-01	0	0	0	0	0	0	1.2E-04	7.7E-05	2.4E-04	-1.9E-03

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 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 categories

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	B4	B5	В6	B7	C1	C2	СЗ	C4	D
HWD	kg	1.0E-03	3.5E-10	5.0E-05	0	1.7E-10	0	0	0	0	0	0	4.6E-11	7.1E-11	2.0E-08	-2.8E-08
NHWD	kg	2.7E-01	1.4E-03	4.0E-01	0	7.7E-02	0	0	0	0	0	0	2.0E-04	4.9E-05	5.8	-8.3E-04
RWD	kg	7.5E-03	1.6E-05	5.8E-04	0	1.0E-05	0	0	0	0	0	0	2.2E-06	6.9E-05	1.7E-05	-6.7E-06

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

#### **Output flows**

Indicator	Unit	A1-A3	A4	A5	B1	B2	В3	В4	B5	В6	В7	C1	C2	СЗ	C4	D
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	3.7	0	1.4	0	0	0	0	0	0	0	0	0	14.7	0	0
MER	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: Energy exported; NR: Not relevant.



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- [7] LCA for experts (Sphera-GaBi) v 10 software-system. SpheraSolutions. Compilation 10.9.0.31. Further information: https://sphera.com/life-cycle-assessment-lca-software/
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Una declaración ambiental verificada

GlobalEPD