

# GlobalEPD

A VERIFIED ENVIRONMENTAL DECLARATION



Environmental  
Product  
Declaration

EN ISO 14025:2010

EN 15804:2012+A2:2019

EN 15804:2012+A2:2019/AC:2021

EN 17160:2019



G R O U P

# AENOR

**WOW TILES, S.L.**

**Ceramic tiles. Earthenware (BIII)**

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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.

#### Owner of the Declaration



G R O U P

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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 PCR for Ceramic tiles and  
EN 15804:2012+A2:2019/AC:2021 serve as the basis for the PCR

Independent verification of the declaration and data, in accordance with the  
Standard ISO 14025:2010

☐ Internal

☒ External

Verification body

**AENOR**

Product certification organization accredited by ENAC with accreditation No.1/C-PR468

## 1. General information

### 1.1. Description of the organisation

Wow is a design studio specialising in the development of exclusive ceramic projects.

We are always on the lookout for the latest trends in colour and material finishes which, combined with cutting-edge technology and our creative and design flair, give rise to a distinctive image and recognisable style that is now present in over 90 countries around the world.

#### A METICULOUS DESIGN PROCESS

We pay close attention to detail throughout the entire process, from the initial concept right through to the moment the products are ready for use.

Working directly with architects and interior designers, we create and develop the concept in our design studio, produce prototypes in our laboratory and, finally, manufacture the products at our 41,500 m<sup>2</sup> facility based in Cabanes, Spain.

Backed by 25 years' experience and a young, enthusiastic team of professionals, we are constantly evolving and proud of each and every one of our creations.

### 1.2. Scope of the declaration

This Environmental Product Declaration includes environmental information for a group of products manufactured at WOW in the geographical and technological environment of Spain in 2024.

The location of the production centre is shown below:

Polígono Pont  
12180 Cabanes (Castellón), Spain

The location of the logistics centre where the distribution process takes place is as follows:

Ctra Castellon-Alcora CV-16, km 8  
12130 Sant Joan de Moro,  
Castellón, Spain

The results shown the environmental performance of the earthenware tiles (BIII), 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 and module D.

### 1.3. Life cycle and compliance

This EPD has been developed and verified in accordance with EN ISO 14025:2010 and EN 15804:2012+A2:2019/AC:2021 the following Category Rules:

| 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/AC:2021            |
| Programme administrator                  | AENOR                                    |

This Environmental Statement includes the following life cycle stages:

### 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 |
| 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 not relevant; ND = Module not declared |    |                                                          |   |

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 14025:2010 standard.

## 2. Product information

### 2.1. Product identification

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

The earthenware tiles included in this study include 101 commercial formats, all of them are glazed, with thicknesses of 9.5 mm and an average fired weight of 14.90 kg/m<sup>2</sup> and an average unfired weight of 16.90 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 models: SATEN BLEND 12.5 × 12.5 cm, 8.0 mm thick and with a minimum weight of 13.40 kg/m<sup>2</sup>, and ARCH ICE WHITE MATT, 12.5 × 12.5 cm, 24.5 mm thick, with a pre-firing weight of 25.89 kg/m<sup>2</sup> and post-firing weights of 12.71 kg/m<sup>2</sup> and 23.12 kg/m<sup>2</sup> respectively.

The CPC code of the product is 37370.

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

### 2.2. Product technical features

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

#### Product technical features

##### Group BIa unrectified

| Description                    | Standard        | Requirements                           |
|--------------------------------|-----------------|----------------------------------------|
| Dimensions and surface quality | EN-ISO 10545-2  | Complies with the standard             |
| Water absorption               | EN-ISO 10545-3  | E=17.3%<br>min 15.6%                   |
| Modulus of rupture             | EN-ISO 10545-4  | Average ≥ 22 N/mm <sup>2</sup>         |
| Modulus of rupture             | EN-ISO 10545-4  | <840 N                                 |
| Impact resistance              | EN-ISO 10545-5  | No visible defects /0,88               |
| Linear thermal expansion       | EN-ISO 10545-8  | 5.9 x10 <sup>-6</sup> °C <sup>-1</sup> |
| Resistance to thermal shock    | EN-ISO 10545-9  | Resist                                 |
| Moisture expansion             | EN-ISO 10545-10 | <0.2 mm/m                              |
| Crazing resistance             | EN-ISO 10545-11 | Complies with the standard             |
| Chemical resistance            | EN-ISO 10545-13 | LA/A                                   |
| Stain resistance               | EN-ISO 10545-14 | Class 5                                |

### 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 (grits, glazes and inks) | 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 last database version 2026.1. (SP40.0) [8] (SpheraSolutions). The characterisation factors used are those set out in standard EN 15804:2012+A2:2019/AC:2021, in accordance with the Environmental Footprint (E.F. 3.1) method. This DAP is based on LCA report C243734, prepared by the Ceramic Technology Institute (ITC) with version 1 and dated July 8, 2026.

#### 3.2. Functional unit

The functional unit considered is *“Covering and decoration of 1 m<sup>2</sup> of an internal wall with ceramic tiles from group BIII (various sizes, 9.5 mm thick and with an average fired weight of 14.90 kg/m<sup>2</sup>) 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 per functional unit)                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference service life                                                                                     | Minimum 50 years                                                                                                                                                          |
| Declared product properties (on gate), coatings, etc.                                                      | Results of the relevant characteristic values in accordance with Annex L of standard EN 14411.<br>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)                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Installed from outside environment (for outdoor applications), e.g. weathering, pollutants, UV radiation and wind exposure, building orientation, shading, temperature, etc. | Results of the relevant characteristic values in accordance with Annex L of standard EN 14411.<br>For more information, request technical data sheets according to model. |
| Indoor environment (for indoor applications), e.g. temperature, humidity, chemical exposure                                                                                  | Results of the relevant characteristic values in accordance with Annex L of standard EN 14411.<br>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, for example the required frequency, type and quality, and replacement of replaceable components                                                                 | For further information, please request technical data sheets. You can also consult:<br><a href="https://www.wowdesigneu.com/faqs/">https://www.wowdesigneu.com/faqs/</a> |

#### 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 general, the inputs and outputs assigned to the declared unit have been weighted averages based on the classified saleable production, total production or specific weight of the tiles before and after firing, according to the criteria for each stage of the process.

### 3.5. Cutt of 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.
- Channelled atmospheric emissions, not regulated by law.
- Long-term emissions (>100 years)
- 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.
- The production of goods, machinery, infrastructure, and industrial equipment that can be replaced in less than a year.
- Some of the surface treatments carried out, as no data is available and they are estimated to account for less than the 1 per cent cut-off threshold.
- Mortar losses in stage A5.

### 3.6. Representativeness, quality and selection data

The primary data have been provided directly by WOW company, with one production centres located in Cabanes (Castellón). Secondary data was obtained from the most up-to-date Sphera-GaBi databases [8] and modelled using LCA for Experts (Sphera-GaBi) [7] and in one process, the Ecoinvent version 3.9.1 LCA method 'Cut-Off' database has been used. All data refers to a geographical scenario for Spain in 2024.

The results presented are representative of ceramic tiles, expressed as an average weighted by the production of the ceramic tiles belonging to the BIII 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 0.428 kgCO<sub>2</sub> eq/kWh. Furthermore, the company has a photovoltaic installation for self-consumption, the output of which accounts for 14% of the plant's total electricity consumption.

The product is manufactured entirely in Spain and marketed worldwide; however, its installation, use and end-of-life occur predominantly in Spain, Europe and the rest of the world, according to the company's sales data. Consequently, scenarios have been developed for the installation and end-of-life stages based on sales percentages. Further details are provided in the data quality information table.

| Information on data quality |                                                                                                                                                                                                                                                  |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data collection             | 01/01/2024 – 31/12/2024                                                                                                                                                                                                                          |
| Sites used                  | A manufacturing plant owned by WOW TILES S.L. in Cabanes (Castellón)                                                                                                                                                                             |
| Geography                   | 100% of production takes place in Spain. The BIII product accounts for 14.96% of sales in Spain, 38.40% in Europe and 46.64% in the rest of the world; consequently, its use and disposal take place in Spain, Europe and the rest of the world. |
| Technology                  | The product consists of a base and decorative material. The technologies involved are granule atomisation, tile firing and the manufacture of decorative materials.                                                                              |
| Average                     | Weighted average production covering the total production of WOW.                                                                                                                                                                                |
| ICV/ACV database            | Sphera databases. 2026.1 Edition. January 2024.<br>Ecoinvent 3.9.1 LCI Method Cut-Off                                                                                                                                                            |

| Information on data quality                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DAP used                                            | <p>ANFFECC, 2024. Grits - Spanish sector EPD. The International EPD® System. Registration number: EPD-IES-0015441.</p> <p>ANFFECC, 2024. Frits - Spanish sector EPD. The International EPD® System. Registration number: EPD-IES-0015440.</p> <p>ANFFECC, 2024. Liquid-basis glazes Spanish sector EPD. The International EPD® System. Registration number: EPD-IES-0015444.</p> <p>ANFFECC, 2024. Micronized glazes - Spanish sector EPD. The International EPD® System. Registration number: EPD-IES-0015445.</p> <p>ANFFECC, 2024. Inks of Digital inkjet - Spanish sector EPD. The International EPD® System. Registration number: EPD-IES-0015447.</p> <p>ASCER 2024. Sectoral EPD, Spanish Ceramic Tiles. Registration number: GlobalEPD EN 17160 – 035.</p> |
| Data quality scheme                                 | EN 15804:2012+A2:2019, Annex E, table E.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Use of regular data with more than 30% basic impact | Regular data with more than a 30% impact is not used                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Use of poor relevant data                           | Poor data is not used                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Use of very poor relevant data                      | Very poor data is not used                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

### 3.7. Other calculation rules and assumptions

Various factors have been taken into account:

- When selecting the representative minimum and maximum models, their representativeness was taken into account, choosing those manufactured in accordance with the production process described and excluding special parts that are manufactured by hand.

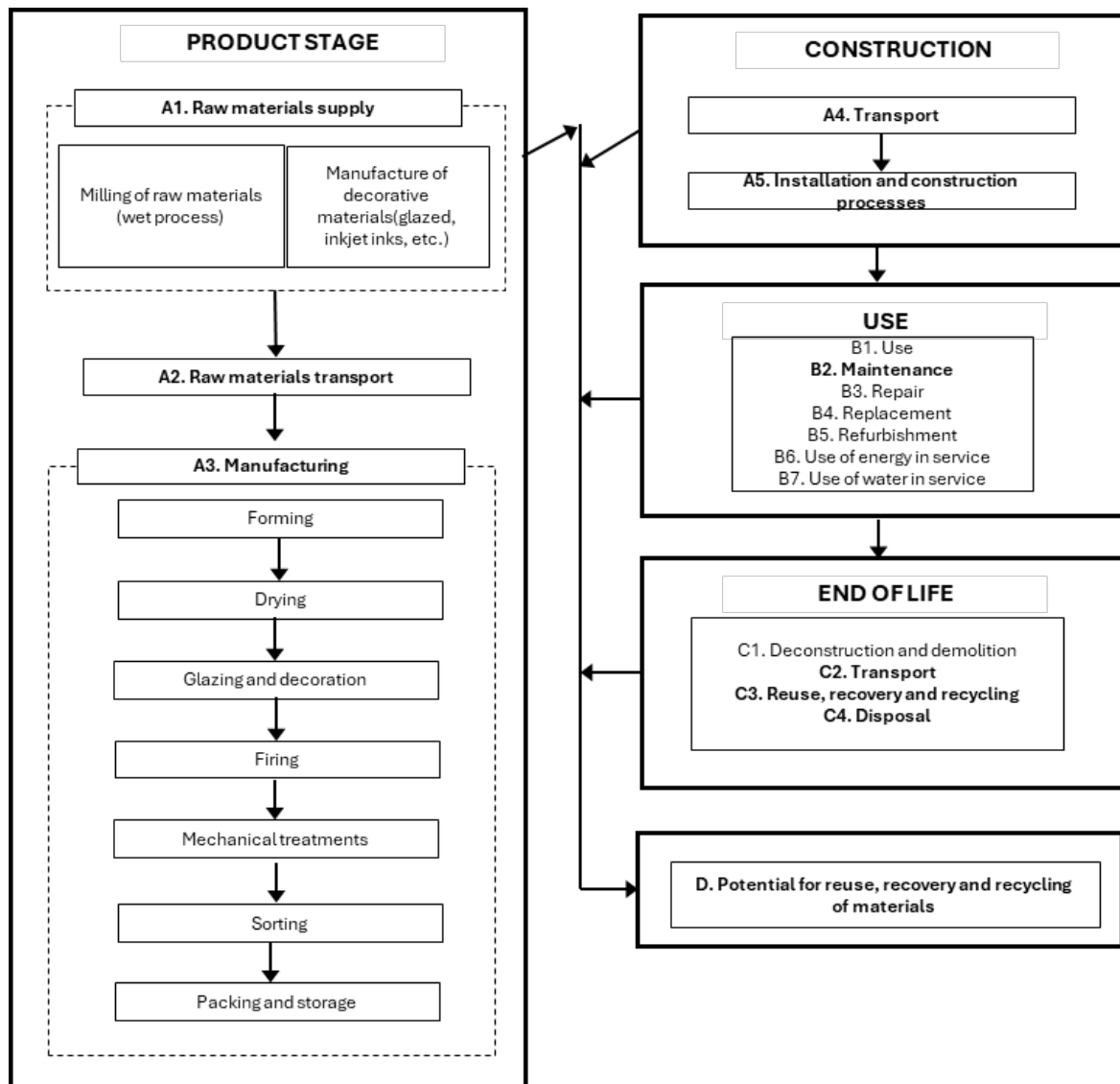
The 101 ceramic tile references have different weights and environmental impacts.

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). Annex I and Annex II show the environmental impact results, expressed in absolute values and for all modules of the life cycle of the format that has the lowest and highest environmental impact, respectively.

| Impact Indicator | Relative variation from the average |
|------------------|-------------------------------------|
| GWP-total        | -47%/+17%                           |
| AP               | -44%/+12%                           |
| POCP             | -37%/+11%                           |

## 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, carbonates, sands, and ceramic waste generated during 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)

At supplier WOW's granule manufacturing plant, raw materials are prepared by wet grinding and spray drying, using a high-performance cogeneration system.

Once at the WOW plant, this spray-dried granule is shaped by unidirectional dry pressing and placed in a continuous dryer. The pieces fresh out of the dryer are coated with one or more thin layers of slip and glaze, sometimes with pigments, and then decorated, mainly by ink injection and the application of grits.

Part of WOW's total production (5.25%) involves a mechanical processing stage. This mainly consists of cutting or marking (pre-cutting the tiles).

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

After passing quality control processes, the sorted pieces are assembled and packaged.

#### 4.3. Construction processes

##### Transport (A4)

The product is distributed 14.96% in Spain, 38.40% in Europe and 46.64% in the rest of the world.

#### A4 Transport to site

| Scenario information                                                                                                 | Unit (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:<br>0.195 l diesel (Truck Euro 6, 27 t)<br>0.025 fuel oil (Ship) |
| Distance                                                                                                             | 300 km national distribution: 14.96%<br>1390 km resto of Europe: 38.40%<br>6520 km resto of the world distribution: 46.64%            |
| Capacity utilisation (including no-load return)                                                                      | 85% in trucks<br>100% Ship                                                                                                            |
| Bulk density of transported products                                                                                 | 244 kg/m <sup>3</sup>                                                                                                                 |
| Usable capacity factor (factor: = 1 or < 1 or ≥ 1 for products that are packed compressed or nested)                 | 1                                                                                                                                     |

#### Product installation and construction process (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.

On the other hand, a 5.6% product loss during the tile installation stage has been considered as a hypothesis, a percentage used in the ASCER EPD for Spanish ceramic coverings.

**A5 - Installation**

| Scenario information                                                                                                                                                                           | Unit (expressed per functional unit)                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supplementary materials for installation (specify each material)                                                                                                                               | 3.3 kg/m <sup>2</sup> de mortár                                                                                                                                                                                                                                                                                                                                   |
| Water use                                                                                                                                                                                      | 0.8 l/m <sup>2</sup>                                                                                                                                                                                                                                                                                                                                              |
| 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: 834 g<br>Packaging wastes:<br>Cardboard: 67 g<br>Plastic: 35 g<br>Wood: 84 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: 584 g<br>Product losses for final deposition: 250 g<br>Incinerated cardboard: 2 g<br>Recycled cardboard: 57 g<br>Cardboard for final deposition: 8 g<br>Incinerated plastic: 4 g<br>Recycled plastic: 25 g<br>Plastic for final deposition: 6 g<br>Incinerated wood: 25 g<br>Recycled wood: 33 g<br>Wood for final deposition: 26 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.

**B2 Maintenance**

| Scenario information                                                                                                                     | Unit (expressed per functional unit)                                             |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Maintenance process                                                                                                                      | According to RCP for ceramic tiles (EN17160) residential walls cleaning scenario |
| 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 <sup>2</sup> per wash                                   |
| Material wastage during maintenance (specify type))                                                                                      | Not applicable                                                                   |
| Net tap water consumption                                                                                                                | 0.1 l/m <sup>2</sup> 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 Energy and water use for operation**

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 as part of a building renovation or during its demolition are negligible, as specified in the PCR for ceramic tiles.

**C2 Transport**

The product waste is transported 50 km by truck for management, either by disposal in inert waste 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.

#### End of life

| Parameter                                              | Unit (expressed per functional unit)                                                                                                          |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Collection process, specified by type                  | 18.92 kg total                                                                                                                                |
| Recovery system, specified by type                     | 13.24 kg for recycling                                                                                                                        |
| Disposal, specified by type                            | 5.68 kg to landfill                                                                                                                           |
| Assumptions for scenario development (e.g.: transport) | <ul style="list-style-type: none"> <li>- Euro 6 compliant heavy-duty truck (27 t)</li> <li>- Distance of 50km (100% empty return).</li> </ul> |

### 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. It has been considered that burdens are avoided in the recycling of packaging generated during the construction stage and in the recovery of waste generated at the end of the life of ceramic tiles as filler material.

### 4.8. Information on biogenic carbon content

Ceramic tiles are mineral products and therefore do not contain biogenic carbon; and plastic packaging contains carbon from fossil sources. However, other packaging such as cardboard or wooden pallets contains biogenic carbon. In this regard, the information corresponding to each product studied is shown.

#### Biogenic carbon content

| Parameter                                | Unit (expressed per functional unit) | Value |
|------------------------------------------|--------------------------------------|-------|
| Biogenic carbon content of the product   | kg C/m <sup>2</sup>                  | -     |
| Biogenic carbon content of the packaging | kg C/m <sup>2</sup>                  | 0.148 |

## 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.

| Indicator                         | Unit                  | A1-A3     | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|-----------------------------------|-----------------------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| GWP-total                         | kg CO <sub>2</sub> eq | 1.27E+01  | 7.58E-01 | 2.13E+00 | 0.00E+00 | 2.80E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.08E-02 | 1.81E-02 | 9.39E-02 | -1.50E-01 |
| GWP-fossil                        | kg CO <sub>2</sub> eq | 1.29E+01  | 7.48E-01 | 1.82E+00 | 0.00E+00 | 2.75E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.00E-02 | 1.81E-02 | 9.25E-02 | -1.50E-01 |
| GWP-biogenic                      | kg CO <sub>2</sub> eq | -2.38E-01 | 8.17E-05 | 3.13E-01 | 0.00E+00 | 5.38E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.59E-06 | 9.59E-04 | 0.00E+00  |
| GWP-luluc                         | kg CO <sub>2</sub> eq | 6.86E-03  | 1.01E-02 | 2.39E-03 | 0.00E+00 | 1.11E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.70E-04 | 4.33E-06 | 4.03E-04 | -3.54E-04 |
| ODP                               | kg CFC11 eq           | 1.60E-08  | 1.06E-13 | 8.95E-10 | 0.00E+00 | 1.01E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.75E-15 | 8.94E-14 | 5.34E-14 | -1.80E-09 |
| AP                                | mol H <sup>+</sup> eq | 1.89E-02  | 3.58E-03 | 3.38E-03 | 0.00E+00 | 9.10E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.34E-05 | 2.74E-05 | 6.88E-04 | -4.29E-04 |
| EP-freshwater                     | kg P eq               | 1.22E-04  | 2.59E-06 | 9.43E-06 | 0.00E+00 | 7.00E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.96E-07 | 2.17E-09 | 1.98E-06 | -1.16E-06 |
| EP-marine                         | kg N eq               | 5.09E-03  | 9.37E-04 | 1.09E-03 | 0.00E+00 | 2.03E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.84E-05 | 7.27E-06 | 1.90E-04 | -1.37E-04 |
| EP-terrestrial                    | mol N eq              | 5.50E-02  | 1.05E-02 | 1.18E-02 | 0.00E+00 | 2.10E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.18E-04 | 7.89E-05 | 2.02E-03 | -1.46E-03 |
| POCP                              | Kg NMVOC eq           | 1.70E-02  | 2.77E-03 | 3.22E-03 | 0.00E+00 | 5.59E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.96E-05 | 2.26E-05 | 5.53E-04 | -3.59E-04 |
| ADP-minerals& metals <sup>2</sup> | kg Sb eq              | 4.25E-05  | 5.54E-08 | 2.41E-06 | 0.00E+00 | 4.01E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.99E-09 | 1.33E-09 | 9.59E-09 | -6.67E-08 |
| ADP-fossil <sup>2</sup>           | MJ                    | 1.89E+02  | 9.05E+00 | 1.68E+01 | 0.00E+00 | 4.74E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.03E-01 | 4.25E-01 | 1.24E+00 | -2.17E+00 |
| WDP <sup>2</sup>                  | m <sup>3</sup>        | 2.30E+00  | 9.47E-03 | 2.45E-01 | 0.00E+00 | 1.74E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.09E-04 | 7.20E-03 | 7.12E-03 | 2.76E-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. NR: Not relevant.

## Additional environmental impacts

| Indicator           | Unit                  | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|---------------------|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PM                  | Incidence of diseases | 7.04E-07 | 5.97E-08 | 7.91E-08 | 0.00E+00 | 5.09E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.61E-10 | 2.49E-10 | 8.37E-09 | -2.56E-09 |
| IRP <sup>1</sup>    | kBq U235 eq           | 5.59E-01 | 2.24E-03 | 6.39E-02 | 0.00E+00 | 3.17E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.59E-04 | 4.29E-03 | 1.64E-03 | -6.35E-03 |
| ETP-fw <sup>2</sup> | CTUe                  | 4.51E+01 | 6.70E+00 | 5.70E+00 | 0.00E+00 | 6.53E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.48E-01 | 6.54E-02 | 7.51E-01 | -9.97E-01 |
| HTP-c <sup>2</sup>  | CTUh                  | 2.74E-09 | 1.31E-10 | 3.04E-10 | 0.00E+00 | 3.84E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.05E-12 | 2.46E-12 | 9.52E-11 | -2.86E-12 |
| HTP-nc <sup>2</sup> | CTUh                  | 6.93E-08 | 5.54E-09 | 1.46E-08 | 0.00E+00 | 4.20E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.06E-10 | 2.76E-11 | 1.01E-08 | -9.28E-10 |
| SQP <sup>2</sup>    | -                     | 7.26E+01 | 3.91E+00 | 1.61E+01 | 0.00E+00 | 1.07E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.97E-01 | 1.27E-03 | 2.92E-01 | -1.35E+00 |

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       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|-----------|------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PERE      | MJ   | 4.74E+01 | 6.89E-01 | 2.07E+00  | 0.00E+00 | 6.46E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.20E-02 | 3.69E-02 | 1.45E-01 | -6.12E-01 |
| PERM      | MJ   | 2.54E+00 | 0.00E+00 | 1.42E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PERT      | MJ   | 4.99E+01 | 6.89E-01 | 2.21E+00  | 0.00E+00 | 6.46E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.20E-02 | 3.69E-02 | 1.45E-01 | -6.12E-01 |
| PENRE     | MJ   | 1.89E+02 | 9.05E+00 | 5.70E+00  | 0.00E+00 | 4.74E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.03E-01 | 4.25E-01 | 1.24E+00 | -2.17E+00 |
| PENRM     | MJ   | 1.50E+00 | 0.00E+00 | -8.39E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PENRT     | MJ   | 1.90E+02 | 9.05E+00 | 5.62E+00  | 0.00E+00 | 4.74E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.03E-01 | 4.25E-01 | 1.24E+00 | -2.17E+00 |
| SM        | kg   | 3.17E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| RSF       | MJ   | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| NRSF      | MJ   | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| FW        | m3   | 4.01E-02 | 7.67E-04 | 4.69E-03  | 0.00E+00 | 2.36E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.79E-05 | 9.40E-05 | 2.37E-04 | -9.09E-04 |

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

## Waste categories

| Indicator | Unit | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| HWD       | kg   | 1.01E-03 | 3.50E-10 | 5.63E-05 | 0.00E+00 | 1.35E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.31E-11 | 8.88E-11 | 1.97E-08 | -2.78E-08 |
| NHWD      | kg   | 2.30E-01 | 1.37E-03 | 4.53E-01 | 0.00E+00 | 5.93E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.85E-05 | 5.88E-05 | 5.67E+00 | -1.01E-03 |
| RWD       | kg   | 8.21E-03 | 1.56E-05 | 6.71E-04 | 0.00E+00 | 6.25E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.10E-06 | 6.70E-05 | 1.70E-05 | 1.75E-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       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D        |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| CRU       | kg   | 0.00E+00 | 0.00E+00 | 5.31E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR       | kg   | 1.86E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.32E+01 | 0.00E+00 | 0.00E+00 |
| MER       | kg   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE        | MJ   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**CRU:** Components for reuse; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE:** Energy exported; **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.

### 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.

## 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       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|----------------------------------|-----------------------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| GWP-total                        | kg CO <sub>2</sub> eq | 1.05E+01  | 6.10E-01 | 2.00E+00 | 0.00E+00 | 2.82E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.29E-02 | 1.53E-02 | 7.93E-02 | -1.32E-01 |
| GWP-fossil                       | kg CO <sub>2</sub> eq | 1.08E+01  | 6.02E-01 | 1.68E+00 | 0.00E+00 | 2.77E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.23E-02 | 1.53E-02 | 7.82E-02 | -1.32E-01 |
| GWP-biogenic                     | kg CO <sub>2</sub> eq | -2.42E-01 | 6.58E-05 | 3.13E-01 | 0.00E+00 | 5.42E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.10E-06 | 8.10E-04 | 0.00E+00  |
| GWP-luluc                        | kg CO <sub>2</sub> eq | 5.84E-03  | 8.15E-03 | 2.20E-03 | 0.00E+00 | 1.11E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.51E-04 | 3.65E-06 | 3.41E-04 | -2.99E-04 |
| ODP                              | kg CFC11 eq           | 1,53E-08  | 8,50E-14 | 8,58E-10 | 0,00E+00 | 1,02E-11 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,70E-15 | 7,55E-14 | 4,51E-14 | -1,80E-09 |
| AP                               | mol H <sup>+</sup> eq | 1,66E-02  | 2,89E-03 | 3,20E-03 | 0,00E+00 | 9,17E-05 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,51E-05 | 2,32E-05 | 5,81E-04 | -3,98E-04 |
| EP-freshwater                    | kg P eq               | 1,06E-04  | 2,09E-06 | 8,53E-06 | 0,00E+00 | 7,06E-07 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,65E-07 | 1,83E-09 | 1,67E-06 | -1,05E-06 |
| EP-marine                        | kg N eq               | 4,48E-03  | 7,54E-04 | 1,04E-03 | 0,00E+00 | 2,05E-05 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,56E-05 | 6,14E-06 | 1,60E-04 | -1,23E-04 |
| EP-terrestrial                   | mol N eq              | 4,82E-02  | 8,44E-03 | 1,13E-02 | 0,00E+00 | 2,12E-04 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,85E-04 | 6,67E-05 | 1,71E-03 | -1,32E-03 |
| POCP                             | Kg NMVOC eq           | 1,51E-02  | 2,23E-03 | 3,08E-03 | 0,00E+00 | 5,63E-05 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,03E-05 | 1,91E-05 | 4,68E-04 | -3,26E-04 |
| ADP-minerals&metals <sup>2</sup> | kg Sb eq              | 3,79E-05  | 4,46E-08 | 2,16E-06 | 0,00E+00 | 4,04E-10 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,37E-09 | 1,12E-09 | 8,11E-09 | -5,69E-08 |
| ADP-fossil <sup>2</sup>          | MJ                    | 1,60E+02  | 7,29E+00 | 1,51E+01 | 0,00E+00 | 4,77E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,10E-01 | 3,59E-01 | 1,05E+00 | -2,01E+00 |
| WDP <sup>2</sup>                 | m <sup>3</sup>        | 2,11E+00  | 7,63E-03 | 2,35E-01 | 0,00E+00 | 1,75E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 6,00E-04 | 6,08E-03 | 6,01E-03 | 1,79E-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. NR: Not relevant.

## Additional environmental impacts

| Indicator           | Unit                  | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|---------------------|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PM                  | Incidence of diseases | 6.41E-07 | 4.81E-08 | 7.48E-08 | 0.00E+00 | 5.13E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.74E-10 | 2.10E-10 | 7.08E-09 | -2.38E-09 |
| IRP <sup>1</sup>    | kBq U235 eq           | 5.19E-01 | 1.80E-03 | 6.16E-02 | 0.00E+00 | 3.20E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.35E-04 | 3.62E-03 | 1.39E-03 | -5.46E-03 |
| ETP-fw <sup>2</sup> | CTUe                  | 4.12E+01 | 5.40E+00 | 5.39E+00 | 0.00E+00 | 6.58E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.79E-01 | 5.53E-02 | 6.35E-01 | -8.54E-01 |
| HTP-c <sup>2</sup>  | CTUh                  | 2.30E-09 | 1.06E-10 | 2.77E-10 | 0.00E+00 | 3.87E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.64E-12 | 2.08E-12 | 8.05E-11 | -2.53E-12 |
| HTP-nc <sup>2</sup> | CTUh                  | 6.22E-08 | 4.46E-09 | 1.41E-08 | 0.00E+00 | 4.23E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.43E-10 | 2.33E-11 | 8.53E-09 | -8.03E-10 |
| SQP <sup>2</sup>    | -                     | 6.97E+01 | 3.15E+00 | 1.58E+01 | 0.00E+00 | 1.08E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.51E-01 | 1.07E-03 | 2.47E-01 | -1.16E+00 |

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       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|-----------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PERE      | MJ             | 4.43E+01 | 5.55E-01 | 2.07E+00 | 0.00E+00 | 6.51E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.39E-02 | 3.11E-02 | 1.22E-01 | -6.11E-01 |
| PERM      | MJ             | 2.54E+00 | 0.00E+00 | 1.42E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PERT      | MJ             | 4.69E+01 | 5.55E-01 | 2.21E+00 | 0.00E+00 | 6.51E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.39E-02 | 3.11E-02 | 1.22E-01 | -6.11E-01 |
| PENRE     | MJ             | 1.60E+02 | 7.29E+00 | 5.68E+00 | 0.00E+00 | 4.77E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.10E-01 | 3.59E-01 | 1.05E+00 | -2.01E+00 |
| PENRM     | MJ             | 1.50E+00 | 0.00E+00 | 8.39E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PENRT     | MJ             | 1.62E+02 | 7.29E+00 | 5.76E+00 | 0.00E+00 | 4.77E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.10E-01 | 3.59E-01 | 1.05E+00 | -2.01E+00 |
| SM        | kg             | 3.17E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| RSF       | MJ             | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| NRSF      | MJ             | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| FW        | m <sup>3</sup> | 3.66E-02 | 6.18E-04 | 4.48E-03 | 0.00E+00 | 2.38E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.89E-05 | 7.94E-05 | 2.00E-04 | -8.96E-04 |

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

### Waste categories

| Indicator | Unit | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| HWD       | kg   | 1.00E-03 | 2.82E-10 | 5.62E-05 | 0.00E+00 | 1.36E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.95E-11 | 7.51E-11 | 1.66E-08 | -2.35E-08 |
| NHWD      | kg   | 1.93E-01 | 1.11E-03 | 4.01E-01 | 0.00E+00 | 5.98E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.33E-05 | 4.97E-05 | 5.02E+00 | -8.34E-04 |
| RWD       | kg   | 7.66E-03 | 1.25E-05 | 6.40E-04 | 0.00E+00 | 6.30E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.29E-07 | 5.66E-05 | 1.44E-05 | 1.24E-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       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D        |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| CRU       | kg   | 0.00E+00 | 0.00E+00 | 5.31E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR       | kg   | 1.86E+00 | 0.00E+00 | 6.13E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.17E+01 | 0.00E+00 | 0.00E+00 |
| MER       | kg   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE        | MJ   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**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 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.

| Indicator                         | Unit                  | A1-A3     | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|-----------------------------------|-----------------------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| GWP-total                         | kg CO <sub>2</sub> eq | 1.87E+01  | 1.16E+00 | 2.49E+00 | 0.00E+00 | 2.77E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.23E-02 | 2.57E-02 | 1.34E-01 | -2.00E-01 |
| GWP-fossil                        | kg CO <sub>2</sub> eq | 1.89E+01  | 1.15E+00 | 2.18E+00 | 0.00E+00 | 2.71E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.12E-02 | 2.57E-02 | 1.32E-01 | -1.99E-01 |
| GWP-biogenic                      | kg CO <sub>2</sub> eq | -2.13E-01 | 1.25E-04 | 3.13E-01 | 0.00E+00 | 5.31E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.36E-05 | 1.36E-03 | 0.00E+00  |
| GWP-luluc                         | kg CO <sub>2</sub> eq | 9.95E-03  | 1.55E-02 | 2.91E-03 | 0.00E+00 | 1.09E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.10E-03 | 6.16E-06 | 5.74E-04 | -5.05E-04 |
| ODP                               | kg CFC11 eq           | 1.83E-08  | 1.62E-13 | 1.03E-09 | 0.00E+00 | 9.98E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.61E-15 | 1.27E-13 | 7.60E-14 | -1.80E-09 |
| AP                                | mol H <sup>+</sup> eq | 2.73E-02  | 5.49E-03 | 3.98E-03 | 0.00E+00 | 8.98E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.60E-05 | 3.91E-05 | 9.79E-04 | -5.15E-04 |
| EP-freshwater                     | kg P eq               | 1.73E-04  | 3.97E-06 | 1.25E-05 | 0.00E+00 | 6.92E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.78E-07 | 3.09E-09 | 2.81E-06 | -1.45E-06 |
| EP-marine                         | kg N eq               | 7.42E-03  | 1.44E-03 | 1.25E-03 | 0.00E+00 | 2.01E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.62E-05 | 1.03E-05 | 2.70E-04 | -1.73E-04 |
| EP-terrestrial                    | mol N eq              | 8.02E-02  | 1.61E-02 | 1.36E-02 | 0.00E+00 | 2.07E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.11E-04 | 1.12E-04 | 2.88E-03 | -1.86E-03 |
| POCP                              | Kg NMVOC eq           | 2.34E-02  | 4.24E-03 | 3.68E-03 | 0.00E+00 | 5.52E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.48E-05 | 3.22E-05 | 7.88E-04 | -4.51E-04 |
| ADP-minerals& metals <sup>2</sup> | kg Sb eq              | 6.36E-05  | 8.49E-08 | 3.60E-06 | 0.00E+00 | 3.96E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.68E-09 | 1.89E-09 | 1.37E-08 | -9.35E-08 |
| ADP-fossil <sup>2</sup>           | MJ                    | 2.65E+02  | 1.39E+01 | 2.14E+01 | 0.00E+00 | 4.68E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.59E-01 | 6.04E-01 | 1.77E+00 | -2.61E+00 |
| WDP <sup>2</sup>                  | m <sup>3</sup>        | 2.95E+00  | 1.45E-02 | 2.82E-01 | 0.00E+00 | 1.72E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.01E-03 | 1.02E-02 | 1.01E-02 | 5.41E-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. NR: Not relevant.

### Additional environmental impacts

| Indicator           | Unit                  | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|---------------------|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PM                  | Incidence of diseases | 1.11E-06 | 9.15E-08 | 1.04E-07 | 0.00E+00 | 5.02E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.98E-10 | 3.54E-10 | 1.19E-08 | -3.06E-09 |
| IRP <sup>1</sup>    | kBq U235 eq           | 6.73E-01 | 3.43E-03 | 7.03E-02 | 0.00E+00 | 3.13E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.27E-04 | 6.10E-03 | 2.34E-03 | -8.78E-03 |
| ETP-fw <sup>2</sup> | CTUe                  | 6.68E+01 | 1.03E+01 | 7.14E+00 | 0.00E+00 | 6.45E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.38E-01 | 9.31E-02 | 1.07E+00 | -1.39E+00 |
| HTP-c <sup>2</sup>  | CTUh                  | 3.55E-09 | 2.01E-10 | 3.56E-10 | 0.00E+00 | 3.79E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.29E-11 | 3.50E-12 | 1.36E-10 | -3.75E-12 |
| HTP-nc <sup>2</sup> | CTUh                  | 1.04E-07 | 8.49E-09 | 1.70E-08 | 0.00E+00 | 4.14E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.78E-10 | 3.93E-11 | 1.44E-08 | -1.27E-09 |
| SQP <sup>2</sup>    | -                     | 9.91E+01 | 5.98E+00 | 1.77E+01 | 0.00E+00 | 1.06E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.23E-01 | 1.81E-03 | 4.16E-01 | -1.86E+00 |

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       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|-----------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| PERE      | MJ             | 6.53E+01 | 1.06E+00 | 2.08E+00 | 0.00E+00 | 6.38E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.40E-02 | 5.25E-02 | 2.06E-01 | -6.15E-01 |
| PERM      | MJ             | 2.54E+00 | 0.00E+00 | 1.42E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PERT      | MJ             | 6.78E+01 | 1.06E+00 | 2.22E+00 | 0.00E+00 | 6.38E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.40E-02 | 5.25E-02 | 2.06E-01 | -6.15E-01 |
| PENRE     | MJ             | 2.65E+02 | 1.39E+01 | 5.76E+00 | 0.00E+00 | 4.68E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.59E-01 | 6.04E-01 | 1.77E+00 | -2.61E+00 |
| PENRM     | MJ             | 1.50E+00 | 0.00E+00 | 8.39E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PENRT     | MJ             | 2.67E+02 | 1.39E+01 | 5.84E+00 | 0.00E+00 | 4.68E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.59E-01 | 6.04E-01 | 1.77E+00 | -2.61E+00 |
| SM        | kg             | 4.85E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| RSF       | MJ             | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| NRSF      | MJ             | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| FW        | m <sup>3</sup> | 5.38E-02 | 1.18E-03 | 5.49E-03 | 0.00E+00 | 2.33E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.24E-05 | 1.34E-04 | 3.37E-04 | -9.45E-04 |

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

## Waste categories

| Indicator | Unit | A1-A3    | A4       | A5       | B1       | B2       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D         |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| HWD       | kg   | 1.00E-03 | 5.37E-10 | 5.60E-05 | 0.00E+00 | 1.34E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.29E-11 | 1.26E-10 | 2.80E-08 | -3.96E-08 |
| NHWD      | kg   | 3.44E-01 | 2.11E-03 | 5.96E-01 | 0.00E+00 | 5.86E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.40E-04 | 8.36E-05 | 8.14E+00 | -1.49E-03 |
| RWD       | kg   | 9.75E-03 | 2.39E-05 | 7.58E-04 | 0.00E+00 | 6.17E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.56E-06 | 9.54E-05 | 2.42E-05 | 3.14E-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       | B3       | B4       | B5       | B6       | B7       | C1       | C2       | C3       | C4       | D        |
|-----------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| CRU       | kg   | 0.00E+00 | 0.00E+00 | 5.31E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR       | kg   | 1.88E+00 | 0.00E+00 | 1.02E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.90E+01 | 0.00E+00 | 0.00E+00 |
| MER       | kg   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| EE        | MJ   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

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

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