<table>
<thead>
<tr>
<th><strong>Product</strong></th>
<th><strong>Medium Porcelain Stoneware</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Owner</strong></td>
<td>CIFRE CERÁMICA S.L.</td>
</tr>
<tr>
<td><strong>Product description</strong></td>
<td>The product covered is Medium Porcelain Stoneware that includes several models of Porcelain Stoneware.</td>
</tr>
<tr>
<td><strong>PCR Reference</strong></td>
<td>RCP002 - Productos de revestimiento cerámico – V.2 (2015)</td>
</tr>
</tbody>
</table>
| **Production plant** | CIFRE CERÁMICA S.L.  
Ctra. Vila-real – Onda km. 10  
12200 Onda – Castellón SPAIN |
| **Validity** | From: 07/05/2019  
To: 07/05/2024 |

The validity of DAPcons.002.023 is subject to the conditions of DAPcons® regulations. The relevant version of this DAPcons® is included in the register kept by the CAATEEB; for more information, consult the system’s website: www.csostenible.net
## EXECUTIVE SUMMARY

### PROGRAMME OPERATOR DAPconstrucción®
Environmental product declarations of construction sector
www.csontenible.net

### Administrator of Programme Operator
Col·legi d’Aparelladors, Arquitectes Tècnics de Barcelona i Enginyers de l’Edificació (CAATEEB)
Bon Pastor, 5 - 08021 Barcelona
www.apabcn.cat

### Owner of the Declaration
CIFRE CERÁMICA S.L.
Ctra. Vila-real – Onda km 10. 12200 Onda – Castellón, SPAIN.

### Declaration carried out by:
ReMa-INGENIERÍA, S.L.
Calle Crevillente 1, entlo - 12005 Castellón - SPAIN

### Declaration Number
DAPcons®:002.023

### Declared Product
Medium Porcelain Stoneware

### Product description
The product in question is a Medium Porcelain Stoneware that includes several models of Porcelain Stoneware. The variability of Life Cycle Inventory Assessment (LCIA) results doesn’t exceed 10%.

### Registration date
07/05/2019

### Validity
This verified declaration authorises the owner to use the DAPcons® eco-label logo. The declaration is applicable exclusively to the product in question and for five years as of the date of registration. The responsible for the information contained in this declaration is:
CIFRE CERÁMICA S.L.

### Endorsed by CAATEEB
Mr. Jordi Gosalves i López, President of the CAATEEB

### Endorsed by authorised verifier
Mr. Ferran Pérez, Verifier accredited by the DAPconstruction® Program

This environmental product declaration complies with standards ISO 14025 and UNE EN 15804 + A1 and contains information of an environmental nature about the life cycle of Medium Porcelain Stoneware by CIFRE at its plant in Vall d’Alba, Castellón, Spain. This declaration is based on the document RCP 002 Productos de revestimiento cerámico – Versión 2 – 2015.09.18. The environmental product declaration (DAPcons®) may not be comparable to another EPD if it is not based on the UNE EN 15804 + A1 standard.
ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND APPLICATION

The product covered is Medium Porcelain Stoneware that includes several models of porcelain stoneware whose variability of Life Cycle Inventory Assessment (LCIA) results doesn’t exceed 10%.

It includes the formats 20x120, 60x120, 30x60, 60x60, 75x75, 21,5x90, 90x90, 25x150, 75x150, 33,3x33,3 and 45x45, belonging the following water absorption groups:

- Group B1a: dry-pressed tiles with a rate of water absorption E ≤ 0.5%.
- Group B1b: dry-pressed tiles with a rate of water absorption between 0.5%< E ≤ 3%.

Average weight: 22.39 kg/m2

The main recommended use for this product is to tile floors and/or clad walls and façades, both exterior and interior.
2. LIFE CYCLE PHASES DESCRIPTION

2.1. Manufacture (A1, A2 and A3)

Raw materials (A1 and A2)

The Medium Porcelain Stoneware basically consists of clay, sand and feldspar with an enamel layer mainly comprising feldspar, carbonate, silicate and kaolin, amongst others.

The raw materials used have different origins (provincial, national, Turkey, Ukraine, Italy or the United Kingdom). This variation is due to the inability to obtain these materials from a single source. The raw materials from outside Spain are transported by freighter to the port of Castellón and then by truck to the plants. For marine transport, a transoceanic freighter was chosen, with transport distance differing according to the source (Turkey, UK, Ukraine). All raw materials are transported by bulk, i.e. they do not require any packaging materials.

Manufacturing (A3)

The production plant has several suppliers of spray-dried powder. The raw materials arrive at the spraying plant and are stored in silos. Before use, the raw materials are mechanically ground by a hammer mill to get them loose. Once the mixture is made, it is subjected to the processes of grinding and spraying. This stage of the production process consists of obtaining a homogeneous mixture of the different components with a determined particle size and conditioning it for the appropriate molding of the piece.

The spray-dried powder is transported in bulk to the production plant, where it is stored in silos. Subsequently, the spray-dried clay is sent to the press through a sieve. As flat tiles have an easy shape (rectangular, square, etc.) and hold a small thickness-surface ratio, its moulding is carried out by one-way dry pressing with single-acting press, where only one of the surfaces of the piece receives pressure. The freshly-moulded pieces are introduced in a drying system similar to a wheel with a given lap-time according to each product in order to reduce its moisture, doubling or tripling its mechanical resistance, which allows a later processing. The tiles leaving the drying plant are covered by one or more glazing layers by using bell-shaped glaze application or under pressure glazing application system (airless). The firing is the most important stage of the production process of ceramic tiles, as this is when the previously moulded tiles undergo a fundamental modification of their properties. Once fired, some tiles are sent to classification, whereas others are sent to the squaring process to meet the client requirements. Finally, the tiles are packaged using cardboard, pallets and polyethylene. Once the pallet is made up, it is stored in the logistics area of the plant.
2.2. Construction (A4 and A5)

**Product transport to the building site (A4)**

Using the data provided by the company from the country sales of the products, an average transport distance has been calculated.

The truck used complies with the Euro III standard, consumes $1.25 \times 10^{-5}$ kg of diesel / kg of transported cargo and km traveled.

For transcontinental transport, medium-sized transoceanic freighters are considered appropriate.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Type of transport</th>
<th>Percentage (%)</th>
<th>Average Km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>27 t truck</td>
<td>35,57</td>
<td>390</td>
</tr>
<tr>
<td>Europe</td>
<td>27 t truck</td>
<td>31,45</td>
<td>1180,36</td>
</tr>
<tr>
<td></td>
<td>freighter</td>
<td></td>
<td>1444,08</td>
</tr>
<tr>
<td>Rest of the world</td>
<td>27 t truck</td>
<td>32,98</td>
<td>589,19</td>
</tr>
<tr>
<td></td>
<td>freighter</td>
<td></td>
<td>6480,80</td>
</tr>
</tbody>
</table>

*Total 100%*

**Construction and installation process (A5)**

Once the product is unpacked, it can be installed. According to the data obtained and with a view to applying a real scenario, it is established that installation calls for the use of adhesive mortar (CaSO4). Tile adhesives are cement-based adhesives comprising a mixture of hydraulic binders, mineral fillers and organic additives, mixed with water or added liquid just before use. They consist of a mixture of white or grey cement, siliceous and/or limestone mineral fillers and organic additives, water retainers, water redispersible polymers, rheology modifiers, fibres, etc.
2.3. Product use (B1-B7)

The use phase is divided into the following modules: Use (B1), Maintenance (B2), Repair (B3), Replacement (B4), Rehabilitation (B5), Use of operational energy (B6) and Use of operational water (B7).

Once installed, the Medium Porcelain Stoneware product requires no further energy input for use, nor does it call for maintenance, except normal cleaning operations. For this reason, of all the modules listed above, only the environmental impacts attributable to product maintenance are applicable (module B2). According to CIFRE, the life cycle of the reference product is the same as that of the building in which it is used. Provided that it is correctly installed, it is a lasting and difficult to Access product. Therefore, it is not easy to replace.

Maintenance (B2): The product should be cleaned with a damp cloth. If the surface is dirty or greasy, cleaning agents such as detergents or bleach may be added. This study considers the consumption of water and disinfectant for a scenario of residential use.

Scenario 1: residential use – 0.03 kg of detergent and 5 l of water are used to wash 50 m² of tiles, once a week.

2.4. End-of-life (C1-C4)

- Deconstruction and demolition (C1): Once it reaches the end of its life cycle, the product will be removed, either in the framework of rehabilitation of the building or during its demolition. In the case of the demolition of a building, the impacts attributable to the removal of the product are negligible.

- Transport (C2): The product waste is transported by truck in compliance with Euro III norms, to its destination at a distance of 50 km.

- Waste management for reuse, recovery and recycling (C3): Nowadays, in Spain there is no specific basic legislation on the production and management of waste produced by construction and demolition (CDW). Therefore it is covered by Basic Law 10/1998 on waste. The most usual type of treatment of CDW in Spain is to place it in a landfill site (83%), and the rest is recycled. This is the scenario applied in this report; 17% of the product is recycled.

- Disposal (C4): 83% of the product is sent to a landfill site.

2.5. Benefits and loads beyond the system boundary (D)

It is considered that impacts are avoided in the installation (waste of packaging such as cardboard, plastic and pallets) and at the end of the product life.
3. LIFE CYCLE ASSESSMENT

The life cycle assessment on which this declaration is based was carried out in keeping with ISO standards 14040 and 14044 and the document RCP 002 Productos de revestimiento cerámico Version 2 – 2015.09.18.

This LCA is "cradle to grave", that is, it covers the phases of manufacture of the product, construction, use and end of life.

Specific data from the production plant in Vall d’Alba, Castellón, Spain corresponding to the year 2016 has been used to inventory the manufacturing phase. For the rest of the phases, generic data has been used, taken mostly from the official database of the Program Operator DAPcontruccion and the Ecoinvent v3.2 database.

3.1. Functional unit

The functional unit is “1 m2 of flooring of a dwelling with Medium Porcelain Stoneware for 50 years of residential use”.

3.2. System boundary

Table 2. Declared modules

<table>
<thead>
<tr>
<th>Product stage</th>
<th>Construction Process Stage</th>
<th>Use stage</th>
<th>End of life stage</th>
<th>Benefits and loads beyond the system boundaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw materials supply</td>
<td>Transport</td>
<td>Manufacturing</td>
<td>Transport</td>
<td>Construction – Installation process</td>
</tr>
<tr>
<td>A1</td>
<td>A2</td>
<td>A3</td>
<td>A4</td>
<td>A5</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

X = Included in LCA   MND = Module Not Declared
### 3.3. Data analysis for the life cycle (ACV)

#### Table 3. Indicators of the environmental impact

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replacement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refurbishment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational Energy use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational water use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decommission and demolition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reuse, recovery, recycling potential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replacement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refurbishment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational Energy use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational water use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decommission and demolition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reuse, recovery, recycling potential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- A1. Raw materials supply
- A2. Transport
- A3. Manufacturing Product
- A4. Transport
- A5. Construction – Installation process
- B1. Use
- B2. Maintenance
- B3. Repair
- B4. Replacement
- B5. Refurbishment
- B6. Operational Energy use
- B7. Operational water use
- C1. Decommission and demolition
- C2. Transport
- C3. Waste management for reuse, recovery and recycling.
- C4. Disposal

**Legend:**
- DAPcons® Medium
- Porcelain Stoneware
### Table 4. Indicators of resources use

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw materials supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing Product</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction - Installation process</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replacement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refurbishment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational Energy use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational water use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disruption and demolition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste management for reuse,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>recovery and recycling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MND. Module not declared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAPcons® Medium Porcelain Stoneware</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MND.: Module not declared**
3.4. Potential environmental benefits and impacts derived from activities of reuse, recovery and recycling

Table 5. Indicators of impact evolution. Reuse, recovery and recycling

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit expressed by functional unit or declared unit</th>
<th>D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential depletion of abiotic resources (ADP-elements)*</td>
<td>Kg Sb eq</td>
<td>-1,67E-03</td>
</tr>
<tr>
<td>Potential depletion of abiotic resources (ADP-fossil fuels)*</td>
<td>MJ, net calorific value</td>
<td>-2,98E+00</td>
</tr>
<tr>
<td>Potential acidification of the ground and water resources, AP</td>
<td>Kg SO₂ eq</td>
<td>-6,86E-04</td>
</tr>
<tr>
<td>Ozone depletion potential, ODP</td>
<td>Kg CFC-11 eq</td>
<td>-2,68E-06</td>
</tr>
<tr>
<td>Global warming potential, GWP</td>
<td>Kg CO₂ eq</td>
<td>-1,47E-01</td>
</tr>
<tr>
<td>Eutrophication potential, EP</td>
<td>Kg (PO₄)₃ eq</td>
<td>-2,58E-04</td>
</tr>
<tr>
<td>Photochemical ozone creation potential, POCP</td>
<td>Kg ethene eq</td>
<td>-3,71E-05</td>
</tr>
</tbody>
</table>

* ADP-elements: including all the non-renewable abiotic material resources  
* ADP-fossil fuels: Including all the fossil resources

Table 6. Life cycle inventory data. Reuse, recovery and recycling

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit expressed by functional unit or declared unit</th>
<th>D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of renewable primary energy, excluding the resources of non-renewable primary energy used as a raw material</td>
<td>MJ</td>
<td>-6,01E-03</td>
</tr>
<tr>
<td>Use of renewable primary energy used as raw material</td>
<td>MJ</td>
<td>0,00E+00</td>
</tr>
<tr>
<td>Total use a renewable primary energy (primary energy and resources of renewable primary energy used as raw materials)</td>
<td>MJ</td>
<td>-6,01E-03</td>
</tr>
<tr>
<td>Use of non-renewable primary energy, excluding the resources of non-renewable primary energy used as a raw material</td>
<td>MJ</td>
<td>-8,06E-01</td>
</tr>
<tr>
<td>Use of non-renewable primary energy used as raw material</td>
<td>MJ</td>
<td>0,00E+00</td>
</tr>
<tr>
<td>Total use of non-renewable primary energy (primary energy and resources of renewable primary energy used as raw materials)</td>
<td>MJ</td>
<td>-8,06E-01</td>
</tr>
<tr>
<td>Use of secondary materials</td>
<td>kg</td>
<td>0,00E+00</td>
</tr>
<tr>
<td>Use of renewable secondary fuels</td>
<td>MJ</td>
<td>0,00E+00</td>
</tr>
<tr>
<td>Use of non-renewable secondary fuels</td>
<td>MJ</td>
<td>0,00E+00</td>
</tr>
<tr>
<td>Net use of fresh water</td>
<td>m³</td>
<td>-1,33E-05</td>
</tr>
<tr>
<td>Hazardous waste disposed</td>
<td>kg</td>
<td>-6,85E-07</td>
</tr>
<tr>
<td>Non-hazardous waste disposed</td>
<td>kg</td>
<td>-3,42E-04</td>
</tr>
<tr>
<td>Radioactive waste disposed</td>
<td>kg</td>
<td>-2,21E-07</td>
</tr>
<tr>
<td>Components for its reutilization</td>
<td>kg</td>
<td>0,00E+00</td>
</tr>
<tr>
<td>Materials to recycle</td>
<td>kg</td>
<td>0,00E+00</td>
</tr>
<tr>
<td>Materials for the energetic valorization</td>
<td>kg</td>
<td>0,00E+00</td>
</tr>
<tr>
<td>Exported energy</td>
<td>MJ</td>
<td>0,00E+00</td>
</tr>
</tbody>
</table>

MJ, net calorific value
3.5. Recommendations of this DAP

Construction products should be compared by applying the same functional unit and level of building, i.e. including the product’s behaviour throughout its life cycle. Environmental product declarations of different systems of type III eco-labelling are not directly comparable, as the rules of calculation may be different. This declaration represents the average behaviour of the Medium Porcelain Stoneware product by CIFRE.

3.6. Cut-off rules

Over 95% of all the inputs and outputs of mass and energy of the system have been included, excluding, among others, diffuse emissions in the factory.

3.7. Additional environmental information

The porcelain stoneware does not release hazardous substances in indoor air, soil and water during the use phase.

3.8. Other data

Waste from the ceramics industry is included as “non-hazardous waste” in the European List of Waste under LOW code 17 01 03 “tiles and ceramics” and EWC 17 01 07 “Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06”.

4. TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport from the factory to the building site (A4)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Parameter expresed by declared unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type and consumption of fuel or vehicle used</td>
<td>17t truck:1,19E-05 kg diesel/kgkm</td>
</tr>
<tr>
<td></td>
<td>27t truck:1,25E-05 kg diesel/kgkm</td>
</tr>
<tr>
<td>Distance</td>
<td>Road transport: 767 km</td>
</tr>
<tr>
<td></td>
<td>Sea transport: 4547 km</td>
</tr>
<tr>
<td>Utilization of the vehicle (including the empty return)</td>
<td>85% for road transport and 100% for freighter</td>
</tr>
<tr>
<td>Density of the transported product</td>
<td>1.490 kg/m3</td>
</tr>
<tr>
<td>Factor of calculating the capacity of the volume used</td>
<td>1</td>
</tr>
</tbody>
</table>
### 4.2. Installation processes (A5)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Parameter expressed by declared unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auxiliary materials for installation</td>
<td>Mortar: 3.5 kg</td>
</tr>
<tr>
<td>Water consumption</td>
<td>0.875 kg of water</td>
</tr>
<tr>
<td>Consumption of other resources</td>
<td>There is no consumption of other resources</td>
</tr>
<tr>
<td>Quantitive description of the type of energy and consumption during the installation process</td>
<td>There is no energy consumption</td>
</tr>
<tr>
<td>Waste in the construction site, generated by the installation of the product (specify types)</td>
<td>Plastic waste: 1,86E-02 kg</td>
</tr>
<tr>
<td></td>
<td>Wood waste: 1,59E-01 kg</td>
</tr>
<tr>
<td></td>
<td>Cardboard waste: 1,96E-01</td>
</tr>
<tr>
<td>Material output as a result of the waste management processes in the place of installation. For example: collection for recycling, for energetic recovery and final disposal</td>
<td>See previous point, “Waste on the construction site, generated by the installation of the product”</td>
</tr>
<tr>
<td>Emisions to the air, ground or water</td>
<td>Not detected</td>
</tr>
</tbody>
</table>
### 4.3. Reference service life (B1)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Parameter expressed by declared unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference service life</td>
<td>50 years</td>
</tr>
<tr>
<td>Properties and characteristics of the product</td>
<td>material for wall and floor covering</td>
</tr>
<tr>
<td>Requirements ( maintenance frequency, ways of using, repair, etc.)</td>
<td>-</td>
</tr>
</tbody>
</table>

### 4.4. Maintenance (B2), repair (B3), replacement (B4) or refurbishment (B5)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Parameter expressed by declared unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance, for example: cleaning agent, type of surfactant</td>
<td>Cleaning: detergent + water</td>
</tr>
<tr>
<td>Maintenance cycle</td>
<td>1 cleaning / week</td>
</tr>
<tr>
<td>Auxiliary materials for the maintenance process</td>
<td>Detergent 0.00006 kg / cleaning</td>
</tr>
<tr>
<td>Energy input for the maintenance process</td>
<td>-</td>
</tr>
<tr>
<td>Net consumption of fresh water during the maintenance or repair process</td>
<td>0.1 kg / cleaning</td>
</tr>
<tr>
<td>Inspection, maintenance or repair process</td>
<td>-</td>
</tr>
<tr>
<td>Inspection, maintenance or repair cycle</td>
<td>-</td>
</tr>
<tr>
<td>Auxiliary materials, e.g. lubricant</td>
<td>-</td>
</tr>
<tr>
<td>Changing of parts during the product life cycle</td>
<td>-</td>
</tr>
<tr>
<td>Energy input during the process of maintenance, type of energy, e.g. electricity and quantity</td>
<td>-</td>
</tr>
<tr>
<td>Energy input during the process of reparation, renovation, replacement, if it is applicable and significant</td>
<td>-</td>
</tr>
<tr>
<td>Loss of material during maintenance or repair</td>
<td>-</td>
</tr>
<tr>
<td>Service life of the product for inclusion as a basis to calculate the number of times a change is needed in the building</td>
<td>50 years</td>
</tr>
</tbody>
</table>

### 4.5. Operational use of energy (B6) and water (B7)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Parameter expressed by declared unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy type, for example: electricity, natural gas, use of heat for a district</td>
<td>Does not require water or energy</td>
</tr>
<tr>
<td>Output power potential of equipments</td>
<td>-</td>
</tr>
<tr>
<td>Net consumption of fresh water</td>
<td>-</td>
</tr>
<tr>
<td>Characteristic representation (energy efficiency, emissions...)</td>
<td>-</td>
</tr>
</tbody>
</table>

### 4.6. End of life (C1-C4)

<table>
<thead>
<tr>
<th>Process</th>
<th>Parameter expressed for declared unit of the components, products or materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection processes</td>
<td>22,39 kg collected together with construction waste</td>
</tr>
<tr>
<td>Recycling systems</td>
<td>3,81 kg</td>
</tr>
<tr>
<td>Disposal</td>
<td>18,58 kg</td>
</tr>
</tbody>
</table>
5. ADDITIONAL INFORMATION

Declaration of Performance:
Nº001-CPR-PRBR-2013-07-01
Nº004-CPR-PR-2013-07-01
Nº006-CPR-PRAD-2013-07-01
Nº008-CPR-GPAD-2013-07-01
Nº009-CPR-PRF-2013-07-01

- Euroclass reaction to fire: A1 / A1fl
- Breaking strength: Bla Group ≥ 1300 N  Blb Group ≥ 1100 N
- Water absorption: Bla Group E ≤ 0,5%  Blb Group 0,5%< E ≤3%.

6. PCR AND VERIFICATION

This declaration is based on the Document

Independent verification of the declaration and data according to ISO 14025 and UNE EN15804 + A1

Internal  External

Independent verifier appointed
Mr. Ferran Pérez, Verifier accredited by the DAPconstruction® Program

Verification date
24 / 04 / 2019

References
• ANÁLISIS DE CICLO DE VIDA DE LOS PRODUCTOS: GRES PORCELÁNICO MEDIO (Bla - Blb) CIFRE CERÁMICA, S.L. ReMa-INGENIERÍA, S.L. 2019 (no publicado)
• ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework y Requirements and guidelines
• ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures

ADMINISTRATOR OF PROGRAMME OPERATOR
Col·legi d’Aparelladors, Arquitectes Tècnics i Enginyers de l’Edificació de Barcelona (CAATEEB)
Bon Pastor 5, 08021 Barcelona
www.apabcn.cat