ENVIRONMENTAL PRODUCT DECLARATION

DAPcons®.002.018

IN ACCORDANCE WITH STANDARDS
ISO 14.025 and UNE EN 15804+A1

PRODUCT

Medium Porcelain Stoneware

COMPANY

ARGENTA

PRODUCT DESCRIPTION

The product covered is Medium Porcelain Stoneware that includes several models of Porcelain Stoneware.

PCR REFERENCE

RCP002 - Productos de revestimiento cerámico – V.2 (2015)

PRODUCTION PLANT

Argenta Cerámica S.L.
Polígono Industrial Vall d'Alba,
12194 Vall d´Alba, Castellón

VALIDITY

From: 29/08/2017
To: 29/08/2022

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www.csostenible.net/dapcons

Environmental Product Declaration: Medium Porcelain Stoneware Executive Summary

Porgram Operator DAPconstrucción® Environmental product declarations in the construction sector www.csostenible.net/dapcons
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HOLDER OF THE DECLARATION Argenta Ceramica S.L. Polígono Industrial Vall d'Alba, 12194 Vall d´Alba, Castellón DECLARATION CARRIED OUT BY: ReMa-INGENIERÍA, S.L. Calle Crevillente 1, entlo, Castellón - España

DECLARATION NUMBER	DAPcons® 002.018
PRODUCT DECLARED	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	August, 29th 2017

VALIDITY This verified declaration authorises the holder to use the eco-label logo of Program Operator DAPconstrucción®. The declaration is applicable exclusively to the product in question and for five years as of the date of registration. ARGENTA is responsible for the information contained in this declaration.

ENDORSED BY CAATEEB	ENDORSED BY AUTHORISED VERIFIER
Jordi Gosalves, President of the CAATEEB COL·LEGI D'APARELLADORS, ARQUITECTES TÈCNICS I ENGINYERS D'EDIFICACIÓ DE BARCELONA	Ferran Pérez, auditor acreditado del ITEC ITeC Institut de Tecnologia de la Construcció de Catalunya

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 manufactured by ARGENTA 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 with another DAP if it is not based on the UNE EN 15804 + A1 standard.

Environmental Product Declaration: Medium Porcelain Stoneware

1. Description of the product and its use

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 following water absortion groups:

- Group BIa: dry-pressed tiles with a rate of water absortion E ≤0,5%.
- Group BIb: dry-pressed tiles with a rate of water absortion 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.

Picture 1. Porcelain Stoneware ceramic tile

2. Description of the life clycle phases

2.1. Manufacture (A1, A2 and A3)

Raw materials (A1 y 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.

Manufacture (A3)

The ARGENTA plant has several providers for the spray-dried powder. The process of treatment and manufacture is very similar for all the providers.

Once the raw materials are at the spraying plant, they are unloaded and placed in hoppers at the production plants, from which they are sent to storage silos. Before its use, the raw materials are mechanically ground by a hammer mil to get them loose.

Once the mix is made, it is subjected to the processes of milling (or grinding) and then spraying. This stage of the production process serves to produce a homogeneous mixture of the various components with a given particle size and prepares it for moulding the tiles.The size of the particles of the raw materials mixture has a significant incluence on the plasticity and, therefore, also on the formation of the ceramic tile, on the drying speed of the tiles and on the contact surface between the particles, which affects the reactivity between the pieces and many of the physicochemical properties of the finished product, that is, porosity, mechanical resistance, etc. A wet milling is carried out because it provides a higher uniformity of the formula components, a smaller size of the particles, a better control of the process variables and better properties for the press powder than a dry milling would offer.

The barbotine resulting from the wet milling of the raw materials is dried by a continuous and automatic process which allows obtaining particle-hollow spherical agglomerations called atomized granules, with a controlled amount of moisture (aproximatelly 5 to 6% on weight) and ideal shape and size to flow at the next stage of the process. The resulting product is called atomized powder, and dry-spraying is the name of the process in which it is used. As for the companies providing the spraying, they use a process of cogeneration of heat and electrical energy for the spray-dryer. The cogeneration process generates electricity using residual heat produced by combustion used, in part, in the spray-drying process, thereby reducing the electrical requirements.

Once the spray-drying is completed, the resulting material is sent by bulk from the spray-dried powder providers' premises to the ARGENTA factory. Once at the plant, the spray-dried powder or clay is unloaded into storage hoppers and afterwards it is distributed amongst the silos according to its colour.

Later on, 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 its carried out by one-way dry pressing with single-acting press, where only one of the surfaces of the piece receives pressure. This process is carried out by a hydraulic press.

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).

Once the glazing is completed, the pieces are sent to decoration. At this stage, the patterns and designs are applied on the pieces, mainly using the digital printing machine.

After that the pieces already glazed and decorated are sent to the kiln. 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. The dry squaring consists of some burrs or discs that polish the edges to meet the allowerd size standards.

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.

To reduce atmospheric emissions, bag filters and wet filters are used, comprising a textile membrane that is permeable to gases but retains the dust. It is placed on the surface and the interior of the fabric and as soon as the surface layer is fromed, it becomes the main filtering mean.

At the company, waste water resulting from glazing preparations and line cleaning is kept and transported to the atomizer, where it is reincorporated to the production process of spray-dried clay.

Water may be lost by evaporation or by being retained in the product (before ultimately evaporating). To make up for this loss, well water is brought in for the production process

2.2. Construction

Transporting the product (A4)

The main destination of the Medium Porcelain Stoneware manufactured by ARGENTA is Spain, then USA, Israel, Switzerland, Albania and Saudi Arabia.

According to the data provided by ARGENTA, there are three transport scenarios for the finished products:

Table 2. Scenarios for transport of the product to the place of installation.

Destination	Type of transport	Percentage (%)
Spain	27 t truck	19
Europe	27 t truck t	5
Rest of the world	Transoceanic freighter	76
Total		

The truck used meets the Euro III standards, consumes 1,25E-05 kg of diesel / kg of cargo and km.

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

Process of installing the product and construction (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 ($CaSO_4$). 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. Use of product

The use phase is divided into the following modules:

- Use (B1)
- Maintenance (B2)
- Repair (B3)
- Replacement (B4)
- Rehabilitation (B5)
- Use of operational energy (B6)
- 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 ARGENTA, the life cyle of the reference product is the same as that of the building in which it is used. Prrovided 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.

Table 3. Scenarios for the maintenance of 1 m^2 of medium stoneware product	
Cleaning products	Scenario 1
Water (kg/wash)	0.1
Detergent (kg/wash)	0.0006
Frequency of washing (num. of times)	1

2.4. End of life

The end-of-life phase includes the following modules:

- 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. In this estimation of the 50 km between the demolished building and the closest landfill site, only the Spanish market has been taken into account, extrapolating the results to the overall ceramics market. At present, Spain has over 80 authorized CDW sites. However, these landfill sites are mostly concentrated in certain areas such as Catalonia (55%), Galicia (12%) and Andalusia (11%). The main Spanish cities are expected to have an installation of this kind nearby.

- Waste management for reuse, recovery and recycling (C3)
At present, 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. Módulo D: beneficios y cargas ambientales potenciales derivados de actividades de reutilización, recuperación y reciclaje

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 ARGENTA 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 DAPconstrucción® and the ELCD 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 boundaries

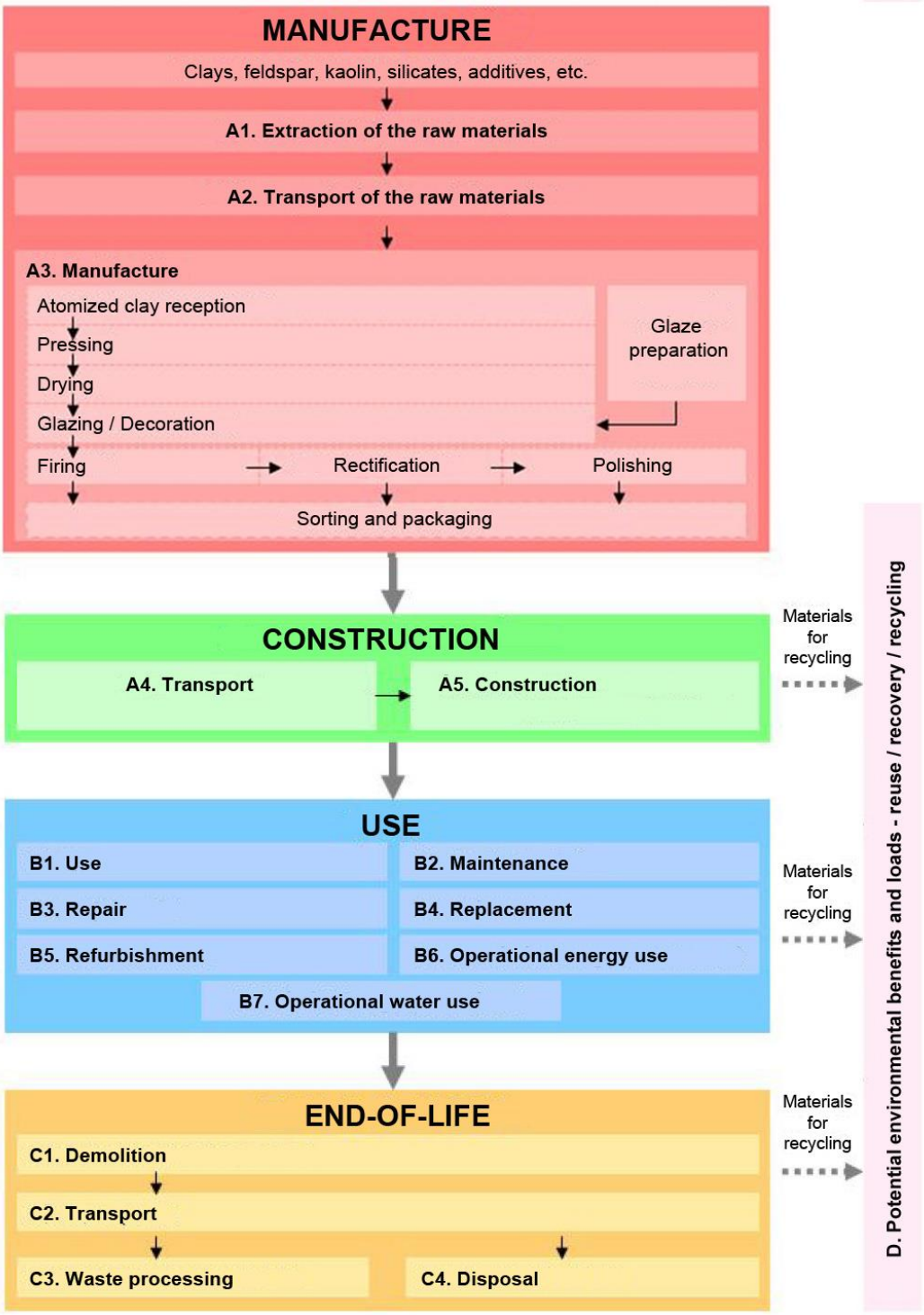

Figure 1. System boundaries

3.3. Indicators of impact evaluation

Table 4. Indicators of impact evaluation

Parameter	Unit per m² of panel	Life Cycle Phase													
		Manufacture	Construction		Use							End Of Life			
		A1. – A3.	A4.	A5.	B1.	B2.	B3.	B4.	B5.	B6.	B7.	C1.	C2.	C3.	C4.
Global Warming Potential	kg of CO_2 eq.	11,45	1,09	0,64	-	2,75	-	-	-	-	-	-	0,10	0,01	0,10
Ozone Depletion Potential	Kg of CFC11 eq.	2,47E-06	1,66E-07	2,57E-08	-	3,34E-07	-	-	-	-	-	-	1,60E-08	1,68E-09	2,93E-08
Acidification Potential	Kg of SO_2 eq.	5,02E-02	1,31E-02	2,63E-03	-	1,27E-02	-	-	-	-	-	-	6,43E-04	1,23E-04	8,84E-04
Eutrophication Potential	Kg of PO_4^{-3} eq.	6,66E-03	1,69E-03	7,81E-04	-	8,47E-03	-	-	-	-	-	-	1,11E-04	7,03E-06	1,57E-04
Abiotic Resources Depletion Potential (Elements)	Kg of Sb eq.	9,85E-02	7,43E-03	4,52E-03	-	1,03E-02	-	-	-	-	-	-	6,73E-04	8,47E-05	1,37E-03
Abiotic Resources Depletion Potential (Fossil fuels)	MJ, net calorific value	204,18	15,47	9,36	-	21,36	-	-	-	-	-	-	1,40	0,18	2,84
Photochemical Ozone Formation Potential	kg of ethene eq.	2,07E-03	4,62E-04	1,69E-04	-	2,32E-03	-	-	-	-	-	-	1,42E-05	5,81E-06	3,72E-05

A1. Supply of raw materials
A2. Transport
A3 Manufacture according to figure 1)
A4. Transport
A5. Precesses of installation and construction

B1. Use
B2. Maintenance
B3. Repair
B4. Replacement
B5. Refurbishment
B6. Operational energy use
B7. Operational wáter use

C1. Deconstruction and demolition
C2. Transport
C3. Waste management for reuse, recovery and recycling
C4. Disposal

-: The PCR do not provide for the calculation of this impact, as it is not relevant to this type of product.

3.4. Life cycle inventory data (LCI)

Table 5. Life cycle inventory data

Parameter	Unit per m² of panel	Life Cycle Phase													
		Manufacture	Construction		Use							End Of Life			
		A1. – A3.	A4.	A5.	B1.	B2.	B3.	B4.	B5.	B6.	B7.	C1.	C2.	C3.	C4.
primary energy excluding renewable primary energy resources used as raw	MJ (net calorific value)	8,42	1,65E-01	9,34E-01	-	5,20E	-	-	-	-	-	-	3,89E-03	1,94E-02	6,82E-02
Use of renewable primary energy resources used as raw	MJ (net calorific value)	0,00E+00	0,00E+00	0,00E+00	-	0,00E+00	-	-	-	-	-	-	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources, PERT	MJ (net calorific value)	8,42	1,65E-01	9,34E-01	-	5,20E	-	-	-	-	-	-	3,89E-03	1,94E-02	6,82E-02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material, PENRE	MJ (net calorific value)	2,05E+02	1,67E+01	9,38E+00	-	3,41E+01	-	-	-	-	-	-	1,52E+00	2,09E-01	3,05E+00
Use of non-renewable primary energy resources used as raw materials, PENRM	MJ (net calorific value)	0,00E+00	0,00E+00	0,00E+00	-	0,00E+00	-	-	-	-	-	-	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources, PENRT	MJ (net calorific value)	2,05E+02	1,67E+01	9,38E+00	-	3,41E+01	-	-	-	-	-	-	1,52E+00	2,09E-01	3,05E+00
Use of secondary material, SM	kg	1,28E+00	0,00E+00	0,00E+00	-	0,00E+00	-	-	-	-	-	-	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels, RSF	MJ (net calorific value)	0,00E+00	0,00E+00	0,00E+00	-	0,00E+00	-	-	-	-	-	-	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels, NRSF	MJ (net calorific value)	0,00E+00	0,00E+00	0,00E+00	-	0,00E+00	-	-	-	-	-	-	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water, FW	m3	6,07E-02	1,62E-03	9,30E-03	-	7,14E-01	-	-	-	-	-	-	1,25E-04	3,99E-05	3,07E-03
Hazardous waste disposed, HWD	kg	3,70E-04	5,72E-06	1,48E-05	-	3,35E-05	-	-	-	-	-	-	3,54E-07	1,02E-07	1,91E-06
Non-hazardous waste disposed, NHWD	kg	1,78E+00	8,99E-03	6,48E-01	-	3,56E-01	-	-	-	-	-	-	2,66E-04	1,68E-04	1,86E+01
Radioactive waste disposed, RWD	kg	2,14E-04	1,09E-04	4,58E-05	-	5,77E-05	-	-	-	-	-	-	1,04E-05	1,17E-06	1,90E-05
Components for reuse, CRU	kg	0,00E+00	0,00E+00	0,00E+00	-	0,00E+00	-	-	-	-	-	-	0,00E+00	0,00E+00	0,00E+00
Materials for recycling, MFR	kg	5,39E+00	0,00E+00	6,12E-01	-	0,00E+00	-	-	-	-	-	-	0,00E+00	3,81E+00	0,00E+00
Materials for energy recovery, MER	kg	2,62E-03	0,00E+00	7,25E-02	-	0,00E+00	-	-	-	-	-	-	0,00E+00	4,06E+00	0,00E+00
Export energy, EE	MJ (per energy carrier)	6,44E+00	0,00E+00	9,19E-01	-	0,00E+00	-	-	-	-	-	-	0,00E+00	0,00E+00	0,00E+00

A1. Supply of raw materials
A2. Transport
A3 Manufacture according to figure 1)
A4. Transport
A5. Precesses of installation and construction

B1. Use
B2. Maintenance
B3. Repair
B4. Replacement
B5. Refurbishment
B6. Operational energy use
B7. Operational wáter use

C1. Deconstruction and demolition
C2. Transport
C3. Waste management for reuse, recovery and recycling
C4. Disposal

-: The PCR do not provide for the calculation of this impact, as it is not relevant to this type of product.

3.5. Potential environmental benefits and impacts derived from activities of reuse, recovery and recycling

Anex 1 - Table 4. Indicators of impact evaluation		
Reuse, recovery and recycling		
Parameter evaluated	Unit per m² of panel	D.
Global Warming Potential	kg of CO_2 eq.	-1,62E-01
Ozone Depletion Potential	Kg of CFC11 eq	-2,69E-08
Acidification Potential	Kg of SO_2 eq.	-6,83E-04
Eutrophication Potential	Kg of PO_4- eq.	-2,49E-04
Abiotic Resources Depletion Potential (Elements)	Kg of Sb eq.	-1,43E-03
Abiotic Resources Depletion Potential (Fossil fuels)	MJ (net calorific value	-2,95
Photochemical Ozono Formation Potential	kg of ethane eq.	-4,47E-05

D. Potential environmental benefits and impacts derived from activities of reuse, recovery and recycling

Anex 1 - Table 5. Life cycle inventory data		
Reuse, recovery and recycling		
Parameter evaluated	Unit per m² of panel	D.
Use of renewable primary energy excluding renewable primary energy resources used as raw material, PERE	MJ (net calorific value)	-7,65E-01
Use of renewable primary energy resources used as raw materials, PERM	MJ (net calorific value)	0,00E+00
Total use of renewable primary energy resources, PERT	MJ (net calorific value)	-7,65E-01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material, PENRE	MJ (net calorific value)	-3,18E+00
Use of non-renewable primary energy resources used as raw materials, PENRM	MJ (net calorific value)	0,00E+00
Total use of non-renewable primary energy resources, PENRT	MJ (net calorific value)	-3,18E+00
Use of secondary material, SM	kg	0,00E+00
Use of renewable secondary fuels, RSF	MJ (net calorific value)	0,00E+00
Use of non-renewable secondary fuels, NRSF	MJ (net calorific value)	0,00E+00
Net use of fresh water, FW	m3	-7,57E-03
Hazardous waste disposed, HWD	kg	-2,85E-06
Non-hazardous waste disposed, NHWD	kg	-1,20E-02
Radioactive waste disposed, RWD	kg	-8,93E-06
Components for reuse, CRU	kg	0,00E+00
Materials for recycling, MFR	kg	0,00E+00
Materials for energy recovery, MER	kg	0,00E+00
Export energy, EE	MJ (per energy carrier)	-3,70E-01

D. Potential environmental benefits and impacts derived from activities of reuse, recovery and recycling

3.6. 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 manufactured ARGENTA.

3.7. 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.

3.8. Additional environmental information

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

3.9. Otros datos

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

4. Technical information and scenarios

A) Transport

Parameter	Parameter expressed by functional unit
Consumption of fuel or transport vehicle used	*17 tn truck:* 1,19E-05 kg diesel/kgkm *27 tn truck:* 1,25E-05 kg diesel/kgkm
Capacity of use (including return full)	85% for road transport and 100% for freighter
Density of load of product transported	1,490 kg/m3
Factor for calculating the capacity of the volume used	1,260 kg/m3 for a truck 1,490 kg/m3 for a freighter

B) Processes of installation

Parameter	Parameter expressed by functional unit
Auxiliary materials for installation	Mortar: 3.5 kg
Consumption of other resources	0.875 kg of water
Quantitative description of the type of energy and consumption during the process of installing the product	Not detected
Waste on the construction site, generated by the installation of the product	*Spain:* Cardboard for incineration: 4,14E-03 kg Cardboard for recyling: 4,35E-02 kg Cardboard to landfill sites: 2,14E-02 kg Pallet for incineration: 9,13E-04 kg Pallet for recycling: 1,30E-03 kg

	Pallet for landfill sites: 4,30E-03 kg Plastic for incineration: 2,63E-02 kg Plasctic for recycling: 2,46E-02 kg Plastic for landfill sites: 5,04E-03 kg Tile losses for recycling: 2,62E-02 kg Tile losses for landfill sites: 1,28E-01 kg *Europe:* Cardboard for incineration: 1,02E-03 kg Cardboard for recyling: 3,78E-02 kg Cardboard to landfill sites: 1,23E-02 kg Pallet for incineration: 1,26E-03 kg Pallet for recycling: 1,30E-03 kg Pallet for landfill sites: 2,27E-03 kg Plastic for incineration: 8,30E-03 kg Plasctic for recycling: 1,58E-02 kg Plastic for landfill sites: 1,74E-02 kg Tile losses for recycling: 1,94E-02 kg Tile losses for landfill sites: 9,48E-02 kg *World:* Cardboard for incineration: 1,60E-02 Cardboard for recyling: 8,02E-03 Cardboard to landfill sites: 5,61E-02 Pallet for incineration: 1,52E-03 Pallet for recycling: 7,58E-04 Pallet for landfill sites: 5,31E-03 Plastic for incineration: 1,30E-02 Plasctic for recycling: 3,25E-02 Plastic for landfill sites: 1,95E-02 Tile losses for recycling: 3,05E-02 Tile losses for landfill sites: 1,50 E-01
Material output as a result of the processes of waste management in the place of installation. For example: collection for recycling, for energy recovery and disposal	See previous point, *"Waste on the construction site, generated by the installation of the product"*
Emissions to the air, land and water	Not detected

C) Operational use of energy and water

Parámetro	Parámetro expresado por unidad funcional
Type of energy, for example: electricity, natural gas, use of heat for a district	Not detected
Outputs	Not detected
Net consumption of fresh water	Not detected
Service life (reference)	50 years

D) Maintenance and repair

Parameter	Parameter expressed by functional unit
Maintenance, for example; cleaning agent, type of surfactant	Quantities for cleaning 1 m2 (once)= - 0.00006 kg detergent - 0.1 kg water
Maintenance cycle	Cleaning for residential use = once/week* 52 weeks/year* 50 years =2600 washes
Energy input for the maintenance process	Not detected
Net consumption of fresh water during maintenance or repair	0.260 m3
Inspection, maintenance or repair process	Not detected
Inspection, maintenance or repair cycle	Not detected
Auxiliary materials, e.g. lubricant	Not detected
Changing of parts during product life cycle	Not detected
Energy input during maintenance, type of energy, e.g.: electricity, and amount	Not detected
Energy input during the process of repair, renovation, changing parts if applicable and significant	Not detected
Loss of material during maintenance or repair	Not detected
Service life of the product for inclusion as a basis to calculate the number of times a change is needed in the building	50 years

E) End of life

Parameter	Parameter expressed by functional unit
Collection processes	22,39 kg collected together with construction waste
Recycling systems	3,81 kg
Disposal	18,58 kg of material for disposal including loss of material.

5. **Additional information**

Technical characteristics of the product	- CE marking - Euroclass reaction to fire: A1 / A1fl - Breaking strength: Group BIa > 1300 N Group BIb > 1300 N

	- Water absorption: Group BIa E ≤0,5% Group BIb 0,5%<E ≤3%.
Transport and construction	- Density of load transported: 1,490 Kg/m3 - Mortar:3.5 kg
Use and maintenance	- Useful life (years): 50 - Maintenance and cleaning recommendations: use 0.1 kg water/wash and 0.0006 kg detergent. Frequency of washing indicated is once a week.
End of life	- LOW code according to European List of Waste (Directive 2000/532/EC): LOW 17 01 03 "tiles and ceramics" and LOW 17 01 07 "Mixtures of concrete, bricks, tiles and ceramics other tan those mentioned in 17 01 06"

- Declaration *of Performance according to Regulation (EU) No* 305/2011*, BIa and BIb*
- ISO 9001 Quality Management System Certificate
- ISO 14001 Environmental Management System Certificate

6. **PCR and verification**

This declaration is based on the document RCP 002 Productos de revestimiento cerámico - Versión 2 – 2015.09.18.

RCP 002- Productos de revestimiento cerámico V.2. was revised by the Advisory Board of the Program Operator DAPconstrucción®.
Independent verification of the declaration and data, in accordance with standards ISO 14025 and UNE EN 15804 + A1 ☐internal ☒ external
Third-party verifier: *- Ferran Pérez Ibáñez* Oficina d'Acreditació d'Entitats Col·laboradores Verificació VEDAP-001-10 ITeC
Date of verification: 13/07/2017

References

- ANÁLISIS DE CICLO DE VIDA DE LOS PRODUCTOS: GRES PORCELÁNICO MEDIO (Bla - Blb), GRES ESMALTADO MEDIO (BIIa) Y AZULEJO MEDIO (BIII). ARGENTA CERÁMICA, S.L. ReMa-INGENIERÍA, S.L. 2017 (not published)

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