BALDOCER

ENVIRONMENTAL PRODUCT DECLARATION:
Glazed ceramic tiles (BIII clasification according to EN 14411:2016)

DAPcons®.NTe.201

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

According to the standards:
ISO 14025 and UNE-EN 15804:2012+A2:2020/AC:2021

cateb Arquitectura Tècnica Barcelona

ECO PLATFORM EPD VERIFIED

dapcons®

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GENERAL INFORMATION

Product

Ceramic tiles, wall tiles (BIII clasification according to EN 14411:2016)

Company

BALDOCER

Product description

The declared product includes different formats of dry-pressed ceramic tiles (BIII).

Reference RCP

UNE-EN 17160:2019 Product category rules for ceramic tiles.

Production plant

BALDOCER's BIII product is produced in plant 1 located in Vilafamés (Castellón).

Validity

From: 30/08/2024 Until: 30/08/2029

The validity of DAPcons®.NTe.201 is subject to the conditions of the regulation DAPcons®. The current edition of this DAPcons® is the one that appears in the registry maintained by Cateb; for informational purposes, it is included on the Program website www.csostenible.net

EXECUTIVE SUMMARY

Ceramic tiles, wall tiles (BIII clasification according to EN 14411:2016)

DAPconstruction® Programme Operator
Environmental Product Declarations in the Construction sector
www.csostenible.net

Programme Manager
Colegio de la Arquitectura Técnica de Barcelona (Cateb)
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Owner of the declaration
BALDOCER
CTRA. LA POBLA-VALL D´ALBA, KM.4 12192 - VILAFAMES/VILLAFAMES (España)
www.baldocer.com

Author of the Life cycle assessment:
ReMa-INGENIERÍA, S.L.
Calle Crevillente, 1, entlo., 12005 - CASTELLON, España

Declared product

Ceramic tiles, wall tiles (BIII clasification according to EN 14411:2016)

Geographic representation

Production: Spain.

Distribution and end of life: Global.

Variability between different products

In this document the results of each of the products are declared individually.

Declaration number

DAPcons®.NTe.201

Issue date

16/05/2024

Validity

This verified declaration authorizes its holder to carry the logo of the operator of the ecolabelling program DAPconstruction®. The declaration is applicable exclusively to the mentioned product and for five years from the date of registration. The information contained in this statement was provided under the responsibility of: **BALDOCER**

Programme Administrator Signature

Celestí Ventura Cisternas. President of Cateb

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Verifier Signature

Ferran Pérez Ibáñez. Institut de Tecnologia de la Construcció de Catalunya - ITeC. Verifier accredited by the administrator of the DAPcons® Programme

FERNANDO PÉREZ IBÁÑEZ FERNANDO PÉREZ IBÁÑEZ 02.09.2024 20:23:50 +0200

ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND USE

The product included is a medium tile that includes different models of group BIII according to the divisions of water absorption groups indicated by the UNE-EN 14411 standard (water absorption E > 10%), and produced during the year 2023 in the plant of BALDOCER located in Vilafamés, Castellón - Spain.

The formats considered within the scope of this EPD have a thickness that varies between 9 mm and 11 mm, with an average weight of 18,65 kg/m2.

The results expressed in this statement refer to an average product that groups various BIII series. The average product has been calculated taking into account the weights per m2 of the different series included and weighting by the production of the year studied.

The main recommended use for this product is as an interior wall and facade cladding.

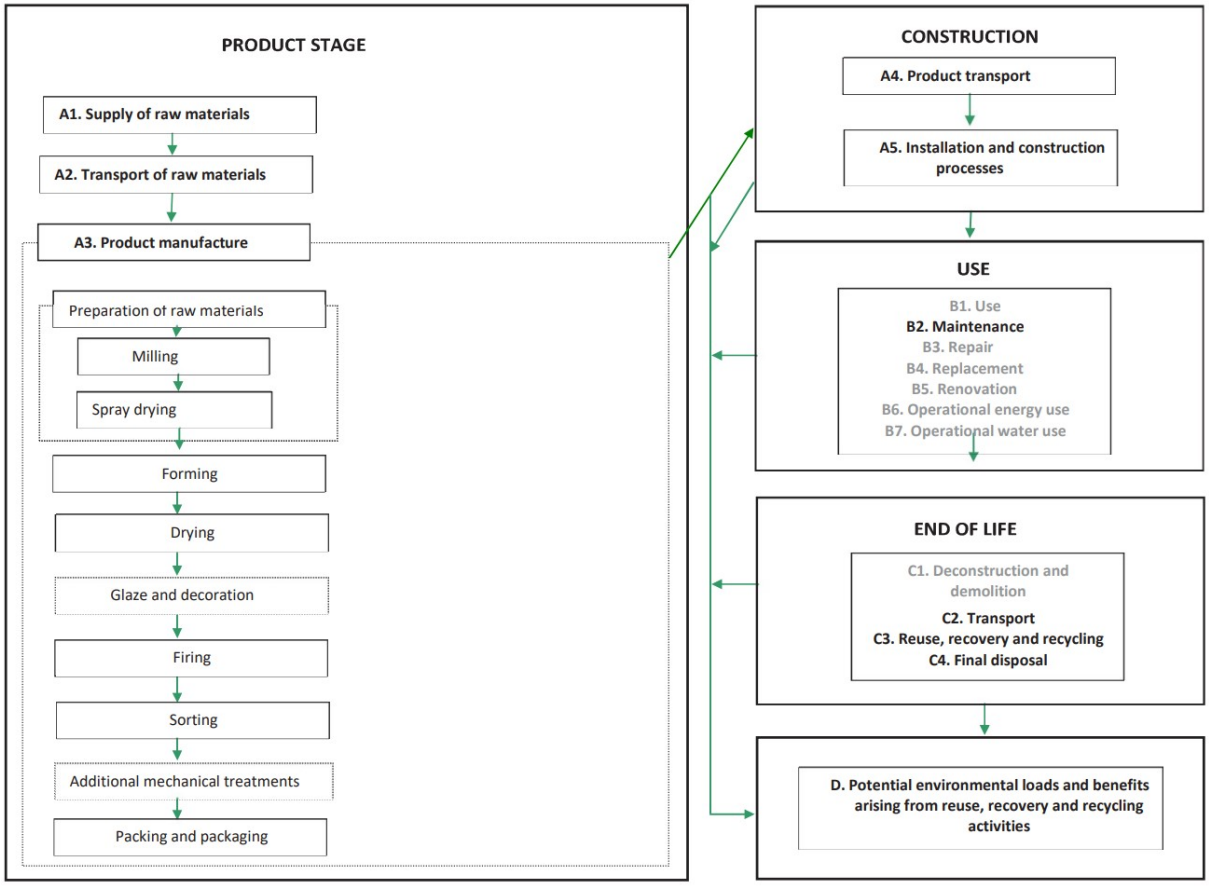
1.1 Content information

Product components

The components of the BIII tile are:
- Clays: 47%
-Siliceous sands: 25%
-Calcium carbonate: 12%
- Reintroduced unfired tile scrap: 14%
- Glaze: 2%

Packaging materials

The packaging materials are:
- Cardboard box.
- LDPE film
- PET strapping
- Polystyrene
- Wooden pallet



2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

The wall tile product is basically composed of clay, sand, carbonate and a layer of glaze composed mainly of feldspar, carbonate, silicates and kaolin among others. The raw materials used have different origins (national, Ukraine, Italy). This variation is due to the impossibility of obtaining said raw materials from the same origin. Raw materials from outside Spain are transported by freighter to the port of Castellón, and from there by truck to the atomized manufacturing plant. For sea transport, a type of transoceanic freighter has been chosen, whose transport distance differs in each case depending on the origin.

For road transport, the use of a 27 t EUROVI Truck has been estimated. All clay raw materials are transported in bulk, meaning they do not require packaging material.

Manufacturing (A3)

Once the raw materials have arrived at the spraying factory, they are unloaded into hoppers at the production plant from where they are sent to storage silos. Before use, the raw material is mechanically crushed (using a hammer mill) to loosen it.

Next, the raw materials are mixed and subjected to the grinding and, subsequently, atomization processes. 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 proper molding of the part. The particle size of the raw material mixture significantly influences the plasticity and, therefore, the shaping of the ceramic piece, the drying speed of the pieces and the contact surface between the particles, which conditions the reactivity between these and many of the physical-chemical properties of the finished product (porosity, mechanical resistance, etc.). Wet

grinding is used since it provides greater homogenization of the formula components, smaller particle size, better control of the process variables and better characteristics of the press powder than dry grinding.
The slip obtained after wet grinding of the raw materials is dried, in a continuous and automatic process, which allows the obtaining of hollow spherical agglomerates of particles, called atomized granules, with a controlled humidity content (approximately 5- 6% by weight) and with an ideal shape and size so that they flow in the next forming phase. The product obtained is called spray-dried powder and the process by which spray drying is carried out.

Once the spray-dried powder is manufactured, it is sent in bulk from the supplier to the BALDOCER factory.
Upon arrival at the factory, the spray-dried powder is discharged into storage hoppers and then distributed among the silos depending on their color. Subsequently, the spray-dried powder are sent through a sieve to the press. The molding of flat pieces, due to their simple shape (rectangular, square, etc.), and the small ratio thickness/surface, is carried out by unidirectional dry pressing in single-acting presses, where the pressure is applied only on one of the surfaces of the piece. This operation is carried out using a hydraulic press. The newly molded pieces are placed in a dryer to reduce their humidity, thus doubling or tripling their mechanical resistance, which allows their subsequent processing.

The pieces just out of the dryer are covered with one or several layers of enamel using bells. Once the enameling is finished, the pieces are sent to be decorated. In this phase, apply the motifs and drawings to the piece. Digital printing is the most widely used technique, due to its ease of application on enamel lines. A posteriori, the already enameled and decorated piece is sent to the kiln. Firing is the most important stage in the production process of ceramic tiles, since it is the moment in which the pieces undergo a fundamental change in their properties. Once fired, some tiles are sent for classification while others, according to the customer's needs, are sent for grinding. Grinding consists of grinding wheels or discs that polish the pieces obtaining some edges within the adequate dimensional tolerances.
Finally, the rectified tiles are packed using cardboard, pallets and polyethylene to be stored in the logistics area of the plant.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

BALDOCER produces tiles that are marketed both nationally, in Europe and in the rest of the world. A 27t EURO VI truck is used for road transport. For transcontinental transport, an average transoceanic freighter has been estimated and the model from the Ecoinvent database has been used.

Table 1. Basic of a scenario with the parameters described in the following table

Destinations	Type of transport	Percentage	Average km
Spain	EUROVI 27 t truck	26	600
Europe	EUROVI 27 t truck	51	1437
	Freighter		490
Rest of the world	EUROVI 27 t truck	23	485
	Freighter		5601

Product installation process and construction (A5)

Once the product is unpacked, it is installed. In accordance with the data obtained and in order to apply a real scenario, it has been established that the application of adhesive mortar is required for the installation.
Adhesive mortars are cementitious adhesives made up of a mixture of hydraulic binders, mineral fillers and organic additives, which only have to be mixed with water or liquid addition just before use.
They are made up of a mixture of white or gray cement, siliceous and/or limestone mineral fillers and organic additives: water retainers, water-redispersible polymers, rheological modifiers, fibers, etc.

2.3. Product use (B1-B7)

Use (B1)

The impact of the product at this stage is null since no material is consumed nor is there any emission to the environment during its useful life.

Maintenance (B2)

To characterize the cleaning scenario, what is indicated in UNE-EN 17160 has been followed:
Scenario for the maintenance of ceramic wall tiles:
– Residential use: 0.134 ml of detergent and 0.1 l of water are used to clean 1 m2 of ceramic tiles once every three months.

Repair (B3)

According to BALDOCER, the reference useful life of the product will be the same as that of the building where it is installed, since as long as it is installed correctly, it is a durable product. So it does not require any repair.

Replacement (B4)

The product does not require any substitution.

Refurbishment (B5)

The product does not require any rehabilitation.

Operational energy use (B6)

Ceramic products do not use energy during the use of the building. The default environmental impacts are zero.

Operational water use (B7)

Ceramic products do not use water during the use of the building. The default environmental impacts are zero.

2.4. End of life (C1-C4)

Deconstruction and demolition (C1)

At the end of its useful life, the product will be removed, either within the framework of a rehabilitation of the building or during its demolition. Within the framework of the demolition of a building, the impacts attributable to the removal of the product are negligible. For all these reasons, it has been estimated that the impact of stage C1 Deconstruction, demolition is negligible.

Transport to waste processing (C2)

The transport of waste materials is carried out with a EURO VI 27t truck and an average distance from the demolition place to the landfill of 50 km and to the recycling plant has been estimated, following what is

indicated in the PCRs.

Waste processing for reuse, recovery and/or recycling (C3)

It has been estimated that 70% of the waste material is destined for recycling, following what is indicated by the PCRs. Collection charges have been assumed to be negligible.

Disposal (C4)

It has been estimated that 30% of the waste material is destined for landfill, following what is indicated by the PCRs.

2.5. Reuse/recovery/recycling potential (D)

This module accounts for the benefits derived from recycling waste (net impacts derived from secondary materials).
It has been considered that burdens are avoided in manufacturing (waste such as cardboard, film, pallet), in installation (packaging waste such as cardboard, plastic and pallet) and at the end of life of the product.

3. LIFE CYCLE ASSESSMENT

This study has been carried out using the LCA tool SimaPro 9.5.0.2. of PRé Sustainability, whose development is based on the UNE-EN ISO 14040-14044 standards, and the Ecoinvent v3.9.1 (2022) database. This LCA is of the "cradle to grave" type, that is, it covers the stages of product manufacturing, construction, use and end of life.

Specific data from plant 1 of BALDOCER (Vilafamés, Castellón, Spain) corresponding to the year 2023 have been used to inventory the manufacturing stage.

3.1. Functional Unit

Covering 1 m2 of a surface (interior wall) of a home for 50 years with ceramic tile for residential use

Additional comments

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3.2. Scope and modules that are declared

Table 2. Declared modules

Product stage			Construction Process Stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw materials supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Reuse, recovery, recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

X = Declared module **MND** = Undeclared module

3.3. LCA results of potential environmental impact referred to the declared unit (ACV)

Table 3. Parameters of environmental impact

Parameter	Unit	Life cycle stage														Module D
		Product stage	Construction Process Stage		Use stage							End of life stage				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Climate change - total (GWP-total)	kg CO2 eq	1,03E+01	1,90E+00	8,32E-01	0,00E+00	6,66E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,40E-01	8,15E-03	3,40E-02	-1,01E-01
Climate change - fossil (GWP-fossil)	kg CO2 eq	1,05E+01	1,90E+00	8,13E-01	0,00E+00	9,17E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,40E-01	8,13E-03	3,40E-02	-2,09E-01
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	-1,74E-01	3,42E-04	1,93E-02	0,00E+00	-3,31E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,61E-05	9,73E-06	1,95E-05	1,12E-01
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	6,67E-03	3,26E-04	3,98E-04	0,00E+00	7,96E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,28E-06	5,70E-06	2,05E-05	-3,83E-03
Ozone layer depletion (ODP)	kg CFC 11 eq	4,50E-07	4,14E-08	3,71E-09	0,00E+00	8,89E-10	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,24E-09	8,66E-11	9,84E-10	-4,46E-09
Acidification (AP)	mol H+ eq	2,72E-02	1,19E-02	3,05E-03	0,00E+00	5,94E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,33E-04	5,73E-05	2,56E-04	-1,84E-03
Eutrophication of fresh water (EP-freshwater)	kg P eq	8,91E-05	3,53E-06	1,42E-05	0,00E+00	5,60E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,02E-07	2,22E-07	3,32E-07	-5,45E-05
Eutrophication of sea water (EP-marine)	kg N eq.	8,24E-03	3,12E-03	7,88E-04	0,00E+00	3,16E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,28E-05	1,88E-05	9,78E-05	-6,04E-04
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	8,83E-02	3,40E-02	8,78E-03	0,00E+00	1,70E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,60E-04	2,05E-04	1,05E-03	-5,86E-03
Photochemical ozone formation (POCP)	kg NMVOC eq	3,40E-02	1,16E-02	2,52E-03	0,00E+00	6,09E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,17E-04	6,90E-05	3,67E-04	-1,44E-03
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	3,51E-05	5,09E-07	1,93E-06	0,00E+00	7,30E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,80E-08	1,54E-08	4,72E-08	-1,24E-06
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	1,50E+02	2,64E+01	5,15E+00	0,00E+00	1,97E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,99E+00	9,56E-02	8,47E-01	-4,83E+00
Water consumption (WDP)	m3 worldwide eq. private	2,03E+00	3,71E-02	2,09E-01	0,00E+00	9,90E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,51E-03	2,56E-02	3,74E-02	-1,33E+00
The Indicador includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This Indicador is thus equal to the GWP Indicador originally defined in EN 15804:2012+A1:2013. Can be obtained from IPCC characterization factors.																
Global Warming Potential (GHG)	kg CO2 eq	9,99E+00	1,90E+00	8,13E-01	0,00E+00	9,97E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,40E-01	8,14E-03	3,40E-02	-2,13E-01

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 4. Parameters for the use of resources, waste and output material flows

Parameter	Unit	Life cycle stage														Module D
		Product stage	Construction Process Stage		Use stage							End of life stage				
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ, net calorific value	6,68E+00	9,04E-02	7,59E-01	0,00E+00	9,19E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,58E-03	1,54E-02	7,17E-03	-1,69E+00
Use of renewable primary energy used as raw material	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	6,68E+00	9,04E-02	7,59E-01	0,00E+00	9,19E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,58E-03	1,54E-02	7,17E-03	-1,69E+00
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	1,64E+02	2,80E+01	5,47E+00	0,00E+00	2,14E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,12E+00	1,01E-01	9,01E-01	-5,17E+00
Use of non-renewable primary energy used as raw material	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	1,64E+02	2,80E+01	5,47E+00	0,00E+00	2,14E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,12E+00	1,01E-01	9,01E-01	-5,17E+00
Use of secondary materials	kg	2,96E+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
Use of renewable secondary fuels	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	0,00E+00	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	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of freshwater resources	m3	4,36E-02	7,91E-04	5,28E-03	0,00E+00	2,64E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,14E-05	6,18E-04	8,76E-04	-3,21E-02
Hazardous waste removed	kg	1,12E-03	1,69E-04	1,96E-05	0,00E+00	2,24E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,32E-05	4,26E-07	4,49E-06	-1,19E-05
Non-hazardous waste eliminated	kg	4,85E-01	1,71E-02	1,24E-01	0,00E+00	1,08E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,56E-04	4,99E-04	5,59E+00	-3,39E-02
Radioactive waste disposed of	kg	1,78E-04	2,17E-06	4,20E-06	0,00E+00	1,86E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,55E-07	8,33E-08	1,25E-07	-8,36E-06
Components for reuse	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
Materials for recycling	kg	4,17E+00	0,00E+00	1,91E-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	1,59E+01	0,00E+00	0,00E+00
Materials for energy recovery (energy recovery)	kg	0,00E+00	0,00E+00	5,69E-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
Exported energy	MJ by energy vector	0,00E+00	0,00E+00	4,44E-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

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 5. Kg of biogenic carbon

Carbon content (biogenic) - packaging	2,35E-01
Carbon content (biogenic) - product	0,00E+00

3.4. Recommendations of this EPD

The comparison of construction products must be made applying the same functional unit and at the building level, that is, including the behavior of the product throughout its entire life cycle.
The environmental product declarations of different type III ecolabelling systems are not directly comparable, since the calculation rules may be different.
This declaration represents the average behavior of the dry-pressed ceramic tile (BIII) product manufactured by BALDOCER.

3.5. Cut-off rules

More than 95% of all mass and energy inputs and outputs of the system have been included, leaving out, among others, diffuse emissions in the factory.

3.6. Additional environmental information

During the life cycle of the product, no dangerous substances listed in the "Candidate List of Substances of Very High Concern (SVHC) for authorization" are used.

3.7. Other data

Waste from the ceramic industry is included as "non-hazardous waste" in the European list of waste with LOW codes 101201: "Waste from the preparation of mixtures before the firing process", 101208 "Waste of ceramics, bricks, tiles and construction materials (after the firing process) and 101299 "Waste not specified in another category" (Commission Decision 2014/955/UE).

4. ADDITIONAL TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport to the building site (A4)

Parameter	Parameter expressed per functional unit
Type and fuel consumption, type of vehicle used for transportation	EURO VI 27t truck: 2.23E-05 kg diesel/kgkm
Distance	Road transport: 1011 km Sea transport: 1611 km
Capacity utilization (including empty return)	85% for road transport and 100% for sea freighter.
Apparent density of transported product	1784 kg/m2
Useful capacity factor (1, <1 or >1 for products that are packed compressed or nested)	1

4.2. Installation processes (A5)

Parameter	Parameter expressed per functional unit
Auxiliary materials for construction (specifying each material)	Mortar:3,3 kg
Water use	0,8 kg
Use of other resources	are not detected
Quantitative description of the type of energy (regional mix) and consumption during the installation process	are not detected
Waste of materials in the work before the treatment of waste, generated by the installation of the product (specify by type)	3,06E-1 kg packaging materials
Material outputs (specified by type) as a result of waste treatment on the building site. For example: collection for recycling, energy recovery, disposal (specified by route)	cardboard to be recycled 1.39E-01 kg cardboard to be incinerated 1.36E-02 kg cardboard to landfill 1.17E-02 kg Pallet to be recycled 3.14E-02 kg Pallet to be incinerated 2.61E-02 kg Pallet to landfill 2.95E-02 kg Plastic to be recycled 2.03E-02 kg Plastic to be incinerated 1.72E-02 kg Plastic to landfill 1.71E-02 kg
Direct emissions to air, soil and water	are not detected

4.3. Reference life (B1)

Parameter	Parameter expressed per functional unit
Reference Lifetime (RSL)	50 years
Characteristics and properties of the product	Tile for interior wall covering
Requirements (conditions of use, frequency of maintenance, repair, etc.)	1 cleaning/quarter

4.4. Maintenance (B2), Repair (B3), Replacement (B4), or Refurbishment (B5)

Maintenance (B2)

Parameter	Parameter expressed per functional unit
Maintenance process, for example; cleaning agent, surfactant type	0.134 ml of detergent and 0.1 l of water to clean 1 m2 of ceramic tiles once every three months.
Maintenance cycle	1 cleaning/quarter
Auxiliary materials for the maintenance process (specifying each material)	0.134 ml of detergent once every quarter
Energy inputs for the maintenance process (quantity and type of energy vector)	not detected
Net consumption of fresh water during maintenance or repair	0,020 m^3
Material waste during maintenance (specifying the type)	not detected

Repair (B3)

Parameter	Parameter expressed per functional unit
Repair process	does not need repair
Proceso de inspección	-
Repair cycle	-
Auxiliary materials (specifying each material], for example lubricant	-
Interchange of parts during the product life cycle	-

Parameter	Parameter expressed per functional unit
Energy inputs during maintenance, type of energy, example: electricity, and quantity	-
Energy input during the repair, renovation, replacement process if applicable and relevant (quantity and type of energy vector)	-
Material waste during repair (specifying each material)	-
Consumo neto de agua dulce	-

Replacement (B4)

Parameter	Parameter expressed per functional unit
Energy input during substitution, for example for the use of cranes (quantity and energy vector)	Does not need replacement
Change of worn parts in the product life cycle (specifying each material)	-
Net freshwater consumption	-

Refurbishment (B5)

Parameter	Parameter expressed per functional unit
Rehabilitation process	Does not need rehabilitation
Rehabilitation cycle	-
Energy input during rehabilitation, for example for the use of cranes (quantity and energy vector)	-
Input material for rehabilitation, including auxiliary materials (specifying by material)	-
Waste of material during rehabilitation (specifying each material)	-
Other scenario development assumptions	-

4.5. Reference life

Parameter	Parameter expressed per functional unit
Reference life	50 years
Declared properties of the product, finishes, etc.	Water absorption Group BIII E > 10% (UNE-EN 14411)
Application design parameters (manufacturer's instructions)	See installation instructions
Estimation of the quality of execution, when installed according to the manufacturer's instructions	The useful life of the product is equal to that of the building
Outdoor environment for outdoor applications. For example, weather, pollutants, UV radiation, temperature, etc.	The product is not suitable for outdoor applications
Indoor environment for indoor applications. For example, temperature, humidity, chemical exposure	The product is suitable for interior applications
Terms of use. For example, frequency of use, mechanical exposure, etc.	Does not apply
Maintenance. For example, the required frequency, etc.	1 cleaning/quarter

4.6. Operational energy use (B6) and operational water use (B7)

Parameter	Parameter expressed per functional unit
Auxiliary materials (specified by material)	No water or energy consumption
Type of energy vector. For example, electricity, natural gas, district heating	-
Equipment output power	-
Net freshwater consumption	-
Characteristic features (energy efficiency, emissions, etc.)	-
Other scenario development assumptions. For example, transportation	-

4.7. End of life (C1-C4)

	Process				
	Collection processes (specified by types)	Recovery systems (specified by type)			Elimination
	kg collected with mixed construction waste	kg for reuse	kg for recycling	kg for energy recovery	kg for final disposal
	18.65	0	13.05	0	5.60
Assumptions for scenario development	Following what is indicated in the PCRs, an end-of-life scenario of 70% recycling management and 30% landfill management has been estimated. The transport of waste materials is carried out with a EURO VI 27t truck and an average distance of 50 km from the demolition place to the landfill and recycling plant has been estimated.				

5. ADDITIONAL INFORMATION

- Euroclass of reaction to fire: A1.
- Water absorption Group BIII E > 10%.

6. PCR AND VERIFICATION

This statement is based on Document

UNE-EN 17160:2019 Product category rules for ceramic tiles. Ceramic tile

Independent verification of the declaration and data, in accordance with ISO 14025 and IN UNE-EN 17160:2019

☑ External

Third party Verifier

Ferran Pérez Ibáñez
Accredited by the administrator of the DAPcons® Programme

Verification date:

02/09/2024

References

- Life Cycle Assessment BALDOCER BIa-BIII dry-pressed ceramic tiles. - ReMa- INGENIERÍA, S.L. 2024 (unpublished)
- Documentation for Duty Vehicle Processes in GaBi. Report version 1.0. February 2021
- Annex_C_Annex C to the PEF-OEF Methods V2.1_May2020.
- Handbook of Emission Factors for Road Transport (HBEFA) 4.2. 2022.
- Informe Inventarios GEI 1990-2021 (Edición 2023). Anexo 7.

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