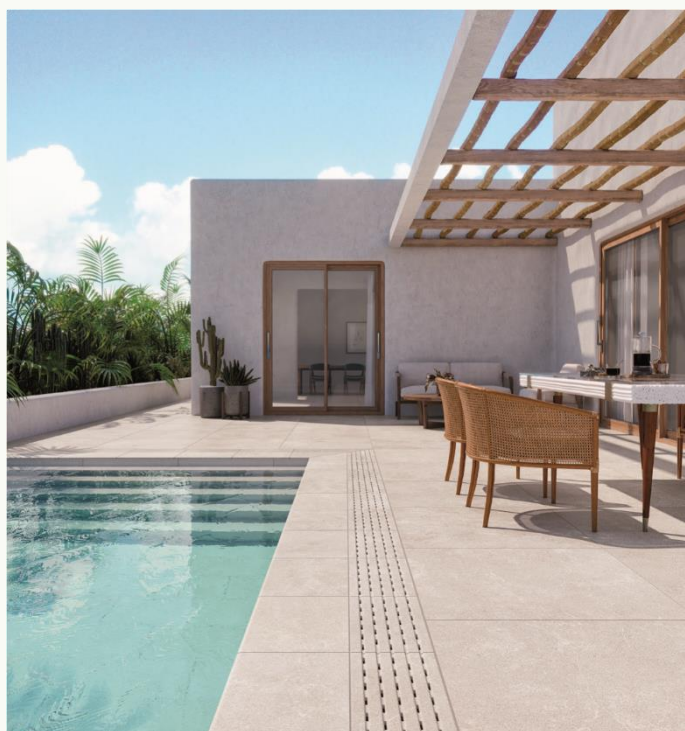


# Environmental Product Declaration

In accordance with ISO 14025 and  
EN 15804:2012+A2:2019 for:

**STONEWARE EXTRUDED TILES**  
from **CERÁMICA MAYOR, S.A.**



Programme: The International EPD® system. [www.environdec.com](http://www.environdec.com)

Programme operator: EPD International AB

EPD registration number: S-P-05854

Publication date: 2022-05-19

Valid until: 2027-05-12

*An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com)*

## 1. Programme information

<b>Programme:</b>	<b>The International EPD<sup>®</sup> System</b>
<b>Programme operator address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
<b>E-mail:</b>	<a href="mailto:info@environdec.com">info@environdec.com</a>

<p><b>CEN standard EN 15804 serves as the core Product Category Rules (PCR)</b></p>
<p><b>Product Category Rules (PCR)</b></p> <p>PCR 2019:14 Construction products, version 1.11</p> <p>C-PCR-002 Ceramic tiles (EN 17160:2019), version 2019-12-20</p>
<p><b>PCR review was conducted by:</b></p> <p>The Technical Committee of the International EPD<sup>®</sup> System. See <a href="http://www.environdec.com/TC">www.environdec.com/TC</a> for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a>.</p>
<p><b>Independent third-party verification of the declaration ISO 14025:2006:</b></p> <p><input type="checkbox"/> Internal      <input checked="" type="checkbox"/> External</p> <p><input type="checkbox"/> EPD process certification      <input checked="" type="checkbox"/> EPD verification</p>
<p><b>Third party verifier:</b></p> <p><i>Tecnalia R&amp;I Certificacion, SL</i></p> <p><i>Verifier: Maria Feced</i></p> <p><a href="mailto:info@tecnaliacertificacion.com">info@tecnaliacertificacion.com</a></p> <p><i>Accredited by:</i></p> <p><i>ENAC n°125/CPR283accreditation"</i></p> <p><i>Approved by: The International EPD<sup>®</sup> System</i></p>
<p>Procedure for follow-up of data during EPD validity involves third party verifier:</p> <p><input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p>

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable.

EPDs of construction products may not be comparable if they do not comply with EN 15804.

For further information about comparability, see EN 15804 and ISO14025.

## 2. Programme information

### **CERÁMICA MAYOR, S.A.**

Partida Planet Molinera S/N.

03510 Callosa d'en Sarrià (Alicante) - Spain

### **Contact**

+34 965 881 175

<https://www.ceramicamayor.com/>

[www.tempio.es](http://www.tempio.es)

### **Description of the organisation**

Cerámica Mayor S.A. is a leading company in the manufacture of extruded covering with a long tradition in the production of flooring and special pieces, both in natural and glazed finishes. The company was founded in the last century by Mr. Fernando Mayor Boluda and today it is managed by the Mayor brothers. Since its beginnings it has kept its values, beliefs and customs intact, transmitting them from generation to generation and applying them to each and every one of its forms of expression.

We are a family business with the know-how of three generations. From the first generation, from which we inherited the knowledge of clays and fire, through the enterprising generation that changed the concept of a manual company to a factory with cutting-edge technology and machinery, to the latest and most recent generation, which tries to make use of new technologies to enhance our product.

We are currently a team of 100 people who work with professionalism and perseverance to achieve a common goal: excellence in our products. Our technical department, experts in architecture, engineering, construction and design, is involved in each project, from its conception to its completion, creating synergies with each client throughout the entire process with the aim of achieving excellence in the product.



## Certification

Cerámica Mayor has obtained the following certification:

- ISO 9001. Quality Management System

## Name and location of production sites

For the production of the ceramic coverings included in this EPD, the following facility is considered.

**CERÁMICA MAYOR, S.A.**  
Partida Planet Molinera S/N.  
03510 Callosa d'en Sarrià (Alicante) - Spain



### 3. Product information

#### Product name

Glazed extruded stoneware ceramic tiles (Ala and Alb) for floor coverings of Cerámica Mayor.

Extruded, glazed and unglazed stoneware tiles (Alla and Alb) for Tempio ventilated façade cladding.

#### Product identification

The 345 formats included in this EPD cover ceramic tilings belonging to groups Ala, Alb and Alla (extruded stoneware tiles), classification based on standard EN 14411:2016 (equivalent to ISO13006:2018). The water absorption of the tiles is below 0.5% for Ala, between 0.5-3% for Alb and between 3-6% for Alla, and their forming process is by extrusion.

The extruded stoneware wall and floor tiles included in the study cover different models with different sizes. The formats included in the scope of this EPD vary between 19 kg/m<sup>2</sup> and 58kg/m<sup>2</sup>, with a production-weighted average weight of 27.3 kg/m<sup>2</sup>.

In this EPD, different average installation (stage A5) and maintenance (stage B2) scenarios have been established, depending on the purpose for which they are intended: floor covering and ventilated external wall cladding. The three different scenarios are presented in the table below:

Average scenarios	Features	Installation scenario	Installation material	Quantity of material for installation (kg/m <sup>2</sup> )	Maintenance scenario	Maintenance conditions
Scenario 1 floors	Floor covering	A5.1	Glue-mortar	3.5	B2.1	Once a week with water and every other week with water and detergent for 50 years.
			Water	0.8		
Scenario 2 ventilated external wall cladding	Ventilated external wall cladding with continuous installation profile	A5.2	Aluminium profile	3	B2.2	Once every ten years with water and detergent for 50 years.
			Screws (stainless steel)	1.2E-02		
Scenario 3 ventilated external wall cladding	Ventilated external wall cladding with discontinuous installation profile	A5.3	Aluminium profile	2.1		
			Screws (stainless steel)	1.2E-02		

## Product technical features

The function of the product is to cover surfaces. In this study the environmental behaviour of the stoneware extruded tiles coverings as interior flooring and ventilated external wall cladding. However, the versatility of these pieces allows them to be installed in other places, such as offices, shops, hospitals, etc., in indoor and outdoor environments, as well as wall cladding and other surfaces.

The product meets requirements defined by the EN 14411:2016 standard and ISO 13006 Annex A, Annex B and Annex C. Hereafter, a table with principal properties is presented.

Essential features		Values
Reaction to fire	EN 13501-1	A1FL/A1
Frost resistance	EN ISO 10545-12	Resists
Breaking strength	EN ISO 10545-4	> 1100 N
Impact resistance by measurement of coefficient of restitution	EN ISO 10545-5	0.7-0.9
Linear thermal expansion	EN ISO 10545-8	5.75 * 10-6 K-1 (±1)
Thermal shock resistance	EN ISO 10545-9	Complies

## UN CPC code

373 refractory products and structural nonrefractory clay products



## 4. LCA information

### Functional unit / declared unit

To cover 1 m<sup>2</sup> of a surface (interior flooring or ventilated external wall cladding) of a housing for 50 years.

### Reference service life

The Reference Service Life (RSL) 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 durable product which does not require substitution. A Reference Service Life of 50 years has been considered, although the products manufactured and marketed by Cerámica Mayor and Tempio have a longer durability.

Parameter	Result (expressed per functional unit)
Reference Service Life	Minimum 50 years
Declared product properties (on gate), coatings, etc.	Minimum values of the relevant characteristics according to Annex A, Annex B and Annex C of the EN 14411 standard. 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.
Estimation of the quality of work, when installed from outside environment (for outdoor applications), e.g. weathering, pollutants, UV radiation and wind exposure, building orientation, shading, temperature, etc.	Results of the values of the relevant characteristics according to Annex A, Annex B and Annex C of the EN 14411 standard. For more information request technical data sheets according to model.
Indoor environment (for indoor applications), e.g. temperature, humidity, chemical exposure	Results of the values of the relevant characteristics according to Annex A, Annex B and Annex C of the EN 14411 standard. For more information request technical data sheets according to model.
Conditions of use, e.g.: frequency of use, mechanical exposure, etc.	For more information request technical data sheets according to model.
Maintenance, e.g.: required frequency, type and quality and replacement of replaceable components	For more information request technical data sheets according to model.

### Representativeness, quality and selection of data

The raw data has been directly provided by Cerámica Mayor and Tempio and this data corresponds to one production centre of the enterprise property. For the secondary data, the most updated GaBi ts and ecoinvent 3.7.1 databases have been used and modelled with GaBi version 10.5.1.128. All data belong to a geographical scenario of Spain 2020.

### Time-related coverage

The manufacturer's specific data represented a full year and, at the time of the study were less than 5 years old. Specifically, the most recent stable data of the analysed product manufacturing plant were used (data relating to the year 2020).

### Geographic coverage

Wherever possible, data were used relating to the country in which the process at issue was developed or, when this was not possible, regional or global data were applied.

A global geographical scope has been considered, considering a % in Spain, Europe and the rest of the world for the distribution and end-of-life stages of the product.

### Technological coverage

The data used reflected the technological reality of the system analysed.

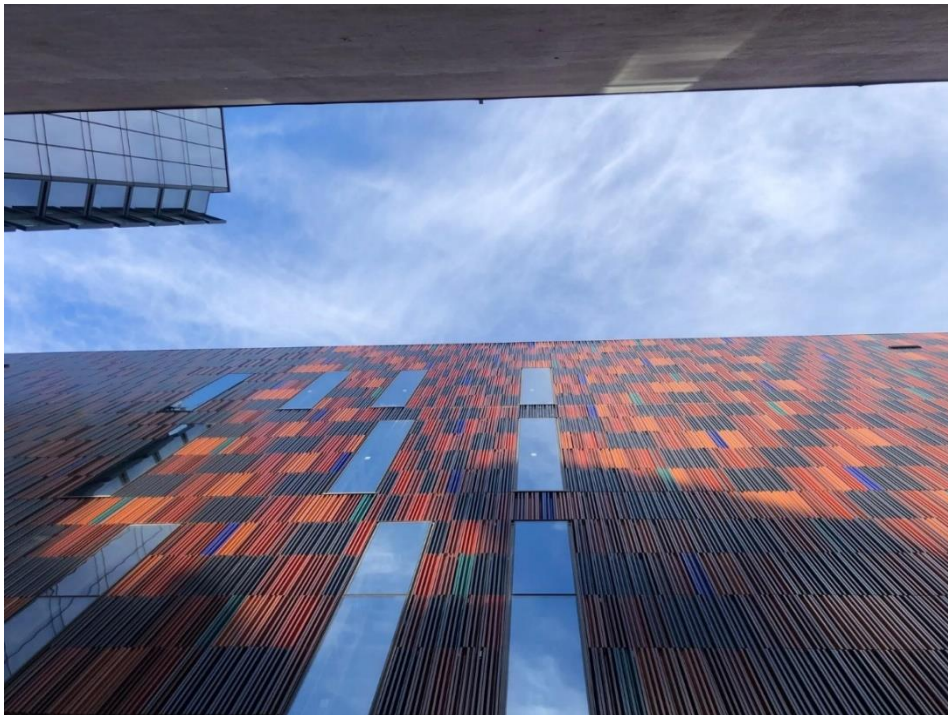
The results presented are representative of ceramic covering tiles, expressed as a production-weighted average of tiles belonging to groups Ala, Alb and Alla, used both as continuous and discontinuous ventilated external wall cladding and as floor coverings.

### Database(s) and LCA software used

- GaBi database: Database for Life Cycle Engineering. SpheraSolutions (Content version 2021.2 - SP 40).
- GaBi v 10 software-system. SpheraSolutions. Compilation 10.5.1.128
- Ecoinvent v3.7.1

### Description of system boundaries

Cradle to grave and module D (A + B + C + D)





## Allocation and cut-off rules

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 allocations of inputs and outputs to the functional unit have been averaged weighted by production, both in mass and in m<sup>2</sup>.

Data for the inventory of the product manufacturing stage have been mostly provided by Cerámica Mayor and Tempio. For the rest of the stages, the typical scenarios included in the PCR for ceramic tiles are applied. The principle of modularity in the allocation of environmental burdens has been followed, i.e. environmental burdens apply where they occur, and the polluter pays principle has been applied".

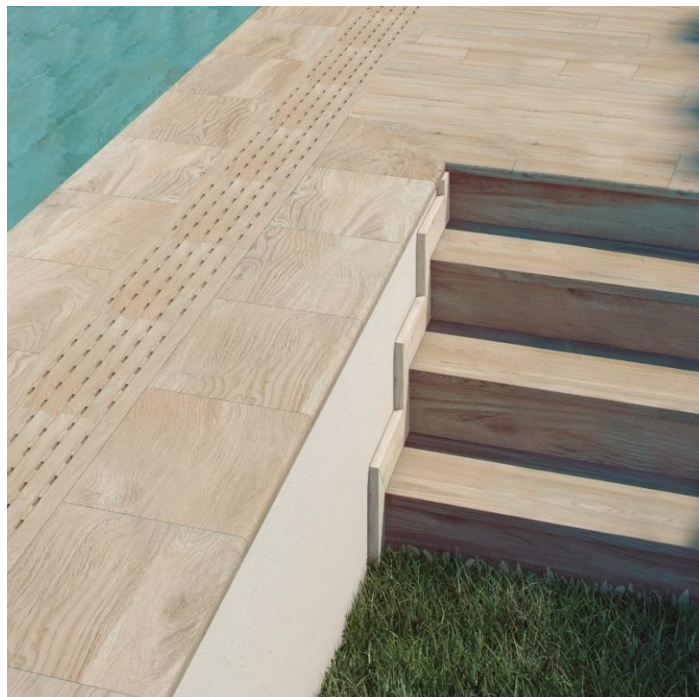
The excluded data are the following:

- Diffuse particle emissions to the atmosphere during the transportation and storage of powdery nature raw materials.
- *Unregulated* air emissions of pollutants emitted from ducted sources of combustion stages (spray drying, drying and firing stages).
- The process of recycling and reuse of waste generated throughout the life cycle of ceramic tilings that are to form part of another system, on the basis of the PCR. However, the burdens associated with the waste recycling process and the benefits obtained by this recycling shall be accounted for in module D.
- Production of industrial machinery and equipment.

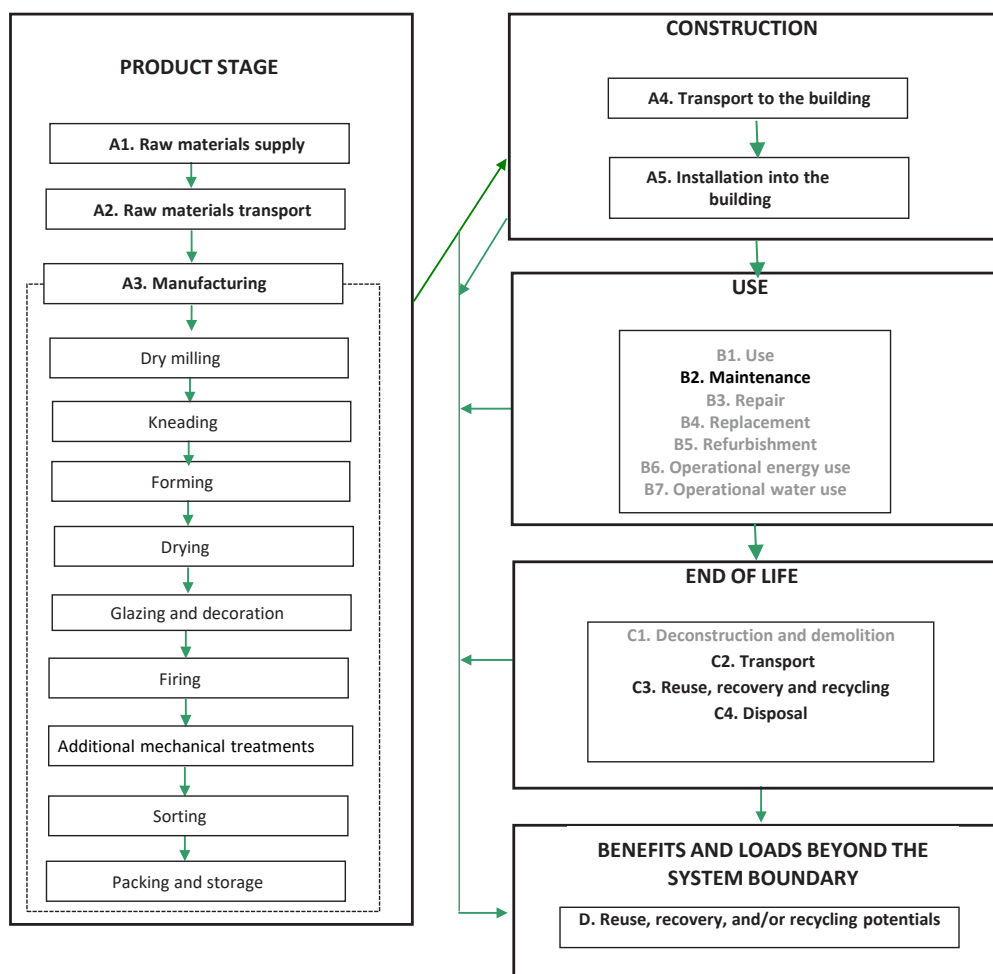
## Electric mix

Renewables: 6%; Nuclear: 39.3%; Fossil: 58.2%. (*Spanish Residual Mix 2020, CNMC*).

Climate impact of electricity production: 0.378kg CO<sub>2</sub> eq./kWh



## System diagram



## Environmental impact methodologies

The selected impact categories and flow indicators, the applied impact assessment methods and the characterisation factors used were those recommended by standard EN 15804+A2 included in the Environmental Footprint method. The applied characterisation factors were those available at the following Web link: <https://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml>.

## **A1-A3 Product Stage**

### **Raw materials supply and transport (A1 and A2)**

The raw materials required for the ceramic tiles manufacturing are classified as: plastic raw materials and non-plastic or degreasing raw materials. Specifically, the raw materials included in the composition of the support are clays, feldspars and sands, as well as waste from the factory itself, which can be sludge or ceramic pieces generated before and after the firing stage, introduced in the grinding stage of the raw materials.

Regarding glaze raw materials, the most used in the formulation are the following ones: quartz, kaolin, borax, alkaline feldspars, nepheline, calcium carbonate, dolomite, zircon, wollastonite, calcined alumina and ceramic frits.

The ceramic frits are insoluble glasses, prepared in an external company by complete fusion of their original raw materials, called "frits". It is estimated that around 36% of the raw materials used in the glaze applied stoneware extruded tiles are submitted to fritting process.

The raw materials used have different origins according to their nature and properties. The raw materials coming from outside Spain are transported by freighter to the port of Castelló, and from there by truck to the production plant. For sea transport the freighter selected is a transoceanic one, whose distance traversed depends on the origin of each case, whereas for road transport a 27t truck which meets the Euro 6 standard has been chosen. All raw materials are transported in bulk, that is, they do not require packaging material, except the decoration materials which are transported in a 17.3t payload truck, from the frits and glaze factory to Cerámica Mayor and Tempio plant.

The preparation of raw materials for the support of Cerámica Mayor and Tempio's ceramic coverings is carried out in the company's own forming plant. In this process, the proportion of raw materials is defined and their origin is adjusted to the characteristics of the production process and the final performance required.

### **Manufacturing (A3)**

This process and the following treatments applied to the tiles are carried out in Cerámica Mayor and Tempio facilities.

The grinding of the raw materials in Cerámica Mayor and Tempio is done dry, with different types of mills depending on the nature of the raw materials and materials used in the composition.

Prior to the extrusion forming process, the already milled materials are dosed in the right proportions for the composition and water is added to form a kind of paste with a moisture content of 15% to facilitate extrusion forming. This process is called kneading.

The extrusion process consists of passing a column of paste, in a plastic state, through a die, by means of the thrust of a propulsion system. Once the extrusion has been carried out, the material obtained is cut or die-cut to obtain the size of the required part.

The extruded pieces are introduced into a continuous dryer to reduce their humidity, thus doubling or tripling their mechanical resistance, which allows them to be processed further.

The pieces from the dryer can be coated with a thin layer or several layers of engobe and glaze and are applied to the support using spraying techniques or discs. In addition, in some cases, the product is decorated using different types of applications, the most common being the injection of inkjet inks. This treatment is carried out to give the surface of the fired product a series of technical and aesthetic

properties, such as impermeability, ease of cleaning, gloss, colour, surface texture, chemical and mechanical resistance.

Firing is the most important stage of the ceramic tiles production process, as it is when the pieces, previously shaped, experience a fundamental modification of their features, resulting in a tough, water and chemical resistant product. The ceramic pieces are subject to a single firing single-deck roller kiln.

After passing the quality control processes, the sorted pieces are packed in a primary cardboard container and packed on wooden pallets, covered with LDPE film and strapped to prevent load movement.





## A4-A5 Construction Process Stage

### A4 Transport

Product distribution is as follows: 55% in Spain, 22% in Europe and 23% for the rest of the world.

For road transport, a 27t truck classified Euro 6 has been considered (national transport and European, average distance of 300km and 1390km, respectively). For transcontinental transport, an average transoceanic freighter has been estimated (transport to the rest of the world, 6520km), as indicated in EN 17160.

Parameter	Result (expressed per functional unit)
Fuel type and consumption	According to the destinations in the distribution as described above: 0.283 l diésel (camión Euro 6, 27 t) 0.040 l fueloil (carguero)
Distance	300 km national distribution: 41% 1390 km European distribution: 34% 6520 km resto f the wolrd distribution: 25%
Capacity utilisation (including no-load return)	85% in truck 100% freighter
Bulk density of transported products	≈1800kg/m <sup>3</sup>

### A5 A5 Product installation and construction process

Once the product is unpacked, it is installed. Three product installation scenarios have been considered, according to the guidelines dictated by the company, as shown in the table below.

Installation scenario	Quantity of materials for installation (kg/m <sup>2</sup> )
<b>A5.1. Floors</b>	Glue mortar: 3.5kg/m <sup>2</sup> Water: 0.8kg/m <sup>2</sup>
<b>A5.2. Continuous ventilated external wall cladding</b>	Aluminium profile: 3kg/m <sup>2</sup> Screws (stainless steel): 1.2E-02 kg/m <sup>2</sup>
<b>A5.3. Discontinuous ventilated external wall cladding</b>	Aluminium profile: 2.1kg/m <sup>2</sup> Screws (stainless steel): 1.2E-02kg/m <sup>2</sup>

Glue mortars are cementitious adhesives consisting of a mixture of hydraulic binders, mineral fillers and organic additives, which only need to be mixed with water or liquid addition just before use. They consist of a mixture of white or grey cement, mineral fillers of siliceous and/or limestone nature and organic additives: water retaining agents, water re-dispersible polymers, rheology modifiers, fibres, etc.

The waste derived from the packaging of the pieces is managed separately according to the geographical location of the installation site. Otherwise, 3% of product losses have been considered at the installation stage.

Parameter	Result (expressed per functional unit)
<b>Scenario A5.1.</b> Material 1.1: Glue mortar	3.5 kg
<b>Scenario A5.2.</b> Material 2.1: Aluminium profile	3 kg
<b>Scenario A5.3.</b> Material 3.1: Aluminium profile	2.1 kg
<b>Scenario A5.2 and A5.3.</b> Material 2.2 and 3.2: Stainless steel	1.2E-2 kg
<b>Scenario A5.1.</b> Water use	0.8 l
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: 820g Packaging wastes: - Cardboard: 13 g - Plastic: 67g - Wood: 1501 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: 574g Product losses for final deposition: 246g Carboard for incinerating: 0g Carboard for recycling: 13g Cardboard for final deposition: 0 g Plastic for incinerating: 5 g Plastic for recycling: 52g Plastic for final deposition: 9 g Wood for incinerating: 289g Wood for recycling: 1172g Wood for final deposition: 39 g
Direct emissions to ambient air, soil and water	Not applicable

## B1-B7 Use Stage

### B1 Use

Once installed, the ceramic coverings do not require any energy input for their use, nor do they require maintenance after installation, except for normal cleaning operations. For this reason, of all the aforementioned modules, only the environmental loads attributable to product maintenance (module B2) are considered.

## B2 Maintenance

Cleaning is done with a damp cloth and, if the surface is dirty or greasy, cleaning agents such as detergents or bleaches can be used. In this study, two different maintenance scenarios have been considered, depending on the installation of the product. Both scenarios are described in the table below.

scenario	Parameter	Result (expressed per functional unit)
<b>Scenario B2.1</b> <b>Floors</b>	Maintenance process	According to PCRs for ceramic tiles (EN17160) residential floor cleaning scenario
	Maintenance cycle	Washing 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> once every two weeks with detergent during 50 years.
	Material wastage during maintenance (specify type)	Not applicable
	Net tap water consumption	0.1 l/m <sup>2</sup> one a week during 50 years
	Energy input during maintenance (e.g. vacuum cleaning), type of energy carrier (e.g. electricity) and amount, if applicable and relevant	Not applicable
<b>Scenario B2.2</b> <b>Ventilated external wall cladding</b>	Maintenance process	According to the company
	Maintenance cycle	Once every 10 years with water and once every 50 years with detergent
	Auxiliary materials for maintenance (e.g. cleaning products) (specify each material)	Detergent: 1,34E-04 kg/m <sup>2</sup> (once every ten years)
	Material wastage during maintenance (specify type)	Not applicable
	Net tap water consumption	0,1 l/m <sup>2</sup> (once every year)
	Energy input during maintenance (e.g. vacuum cleaning), type of energy carrier (e.g. electricity) and amount, if applicable and relevant	Not applicable

## B3-B4-B5 – Repair, replacement and refurbishment

The ceramic coverings do not require repair, replacement or renovation, according to EN 17160.

## B6-B7 – Operational energy use and Operational water use

These modules are not relevant for ceramic coverings, according to EN 17160.

## **C1-C4 End of Life Stage**

### **C1 Deconstruction and demolition**

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

### **C2 Transport**

The product waste is transported in a heavy-duty truck (27 t) that complies with Euro 6 standards to be managed either by deposition in inert landfills or recycling. An average distance of 50km from the building site to the destination is considered. Also included is the return of the trucks (100% empty return).

### **C3 Waste management for reuse, recovery and recycling**

It has been estimated that 70% of tiles are recycled and/or reused, as indicated in the PCR.





## C4 Final disposal

It is estimated that 30% of the product is sent to controlled landfill after the end of its service life.

Scenario	Parameter	Result (expressed per functional unit)
<b>Scenario 1. Floors</b>	Collection process, specified by type	30.8 kg/m <sup>2</sup>
	Recovery system, specified by type	21.6 kg recycled as filler material
	Disposal, specified by type	9.2 kg to controlled landfill
<b>Scenario 2. Continuous ventilated external wall cladding</b>	Collection process, specified by type	30.3 kg/m <sup>2</sup>
	Recovery system, specified by type	19.1 kg recycled as filler material 3.0 kg recycled metal
	Disposal, specified by type	8.2 kg to controlled landfill
<b>Scenario 3. Discontinuous ventilated external wall cladding</b>	Collection process, specified by type	29.4 kg/m <sup>2</sup>
	Recovery system, specified by type	19.1 kg recycled as filler material 2.1 kg recycled metal
	Disposal, specified by type	8.2 kg to controlled landfill
<b>Scenario 1, Scenario 2 and Scenario 3</b>	Assumptions for scenario development (e.g.: transport)	The product waste is transported in a heavy-duty truck (27 t) that complies with Euro 6 standards to be managed either by deposition in inert landfills or recycling. An average distance of 50km from the building site to the destination is considered. Also included is the return of the trucks (100% empty return).

## Module D Potential environmental benefits and burdens of reuse, recovery and recycling activities

The environmental burdens and benefits of obtaining secondary material from waste generated at the installation stage (waste tiles, waste from tile packaging: cardboard, plastic and wood) and at the end of life of the product (coating and material used in installation stage such as mortar or aluminium profiles and steel screws) have been considered.

**Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:**

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Raw material supply	Transport	Manufacturing	Transport	Use
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	EU		ES	GLO													GLO
Specific data used	>90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-29%/+109%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	n.a.			-	-	-	-	-	-	-	-	-	-	-	-	-	-

*n.a.: Not applicable*

## 5. Content information

Product components		Weight (%)	Post-consumer material, weight-%	Renewable material, weight-%
CERAMIC'S BODY	Clay, feldspar, kaolin, sand, etc	98.62%	0%	0%
GLAZE	Borates, feldspar, clay, etc	1.35%		0%
INKS		0,03%		0%
<b>TOTAL</b>		<b>100%</b>	<b>0%</b>	<b>0%</b>

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

Packaging materials	Weight, kg/m2	Weight-% (versus the product)
Cardboard	1.6E-02	0.06%
Plastic	6.7E-02	0.25%
Wood	1.5	5.49%

### Information about biogenic carbon content

As required by standard EN 15804+A2, the carbon content of both the product and its packaging was separately declared. In the case of the product at issue, coverings, the covering components were inorganic, so that the biogenic carbon calculation did not apply.

In regard to the packaging used for tile distribution, the mass of the pallets (wood) use was less than 5% of the total product mass, so that the declaration of packaging biogenic carbon content was omitted. The mass percentage of the packaging used was declared for each type of studied tile in the following table.

Biogenic carbon content	Value	Unit (expressed by functional unit)
Biogenic carbon content in the product	n.a.	Kg C
Biogenic carbon content in the accompanying packaging (only wood)	3.9E-01	Kg C
NOTE: 1 kg of biogenic carbon is equivalent to 44/12 kg de CO <sub>2</sub>		

n.a. Not applicable

## 6. Environmental Information

The results refer to 1 m<sup>2</sup> of a surface (floors covering, ventilated external wall cladding) of a residential area for 50 years with stoneware extruded tiles coverings (27.3kg/m<sup>2</sup> average weight).

The following sections show the results of the environmental information for the three different installation and maintenance scenarios.

The results of the Life Cycle Impact Assessment are relative expressions and do not predict final impacts by category, threshold exceedances, safety margins or risks.

### 6.1. Scenario 1. Floors Covering

#### Potential environmental impact – mandatory indicators according to EN 15804

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
<b>GWP-GHG<sup>1</sup></b>	kg CO <sub>2</sub> eq,	24.3	9.7E-01	2.6	0	5.9E-01	0	0	0	0	0	0	1.6E-01	0	1.6E-01	-3.5E-01
<b>GWP-fossil</b>	kg CO <sub>2</sub> eq,	24.7	9.9E-01	2.6	0	7.7E-01	0	0	0	0	0	0	1.6E-01	0	1.6E-01	-3.6E-01
<b>GWP-biogenic</b>	kg CO <sub>2</sub> eq,	2.1E-01	-8.9E-04	5.1E-02	0	6.3E-03	0	0	0	0	0	0	-2.0E-04	0	1.7E-03	-6.9E-04
<b>GWP-luluc</b>	kg CO <sub>2</sub> eq,	8.0E-03	6.9E-03	1.6E-03	0	6.1E-05	0	0	0	0	0	0	1.3E-03	0	6.9E-04	-8.0E-04
<b>GWP-total</b>	kg CO <sub>2</sub> eq,	24.9	1.0	2.7	0	0.8	0	0	0	0	0	0	1.6E-01	0	1.6E-01	-3.6E-01
<b>ODP</b>	kg CFC 11 eq,	1.0E-07	1.2E-16	3.0E-09	0	2.8E-07	0	0	0	0	0	0	2.0E-17	0	9.2E-14	-5.1E-09

<sup>1</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.



Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
AP	mol H <sup>+</sup> eq,	1.3E-01	6.1E-03	7.3E-03	0	6.6E-03	0	0	0	0	0	0	1.3E-04	0	1.2E-03	-1.6E-03
EP-freshwater	kg P <sup>-</sup> eq,	2.5E-04	2.5E-06	1.0E-05	0	1.7E-05	0	0	0	0	0	0	4.7E-07	0	3.4E-06	-1.7E-06
EP-freshwater	kg PO <sub>4</sub> <sup>3-</sup> eq,	7.7E-04	7.8E-06	3.2E-05	0	5.1E-05	0	0	0	0	0	0	1.4E-06	0	1.0E-05	-5.2E-06
EP-marine	kg N eq,	5.2E-02	1.6E-03	2.7E-03	0	7.4E-04	0	0	0	0	0	0	3.5E-05	0	3.3E-04	-4.1E-04
EP-terrestrial	mol N eq,	5.6E-01	1.8E-02	3.0E-02	0	2.7E-02	0	0	0	0	0	0	4.3E-04	0	3.5E-03	-4.5E-03
POCP	kg NMVOC eq,	1.4E-01	4.7E-03	7.5E-03	0	4.9E-03	0	0	0	0	0	0	1.2E-04	0	9.5E-04	-1.3E-03
ADP-minerals&metals*	kg Sb eq,	1.9E-05	6.9E-08	6.3E-07	0	2.6E-08	0	0	0	0	0	0	1.2E-08	0	1.7E-08	-1.3E-07
ADP-fossil*	MJ	464.0	13.0	23.3	0	3.9	0	0	0	0	0	0	2.1	0	2.1	-4.7
WDP	m <sup>3</sup> global private equivalent	3.6	7.6E-03	2.9E-01	0	43.0	0	0	0	0	0	0	1.4E-03	0	1.2E-02	-1.4E-01
Acronyms	Potential Global Warming, UNE EN15804:2012+A1:2014 (GWP-GHG); GWP-total = Global Warming Potential Total; 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.															

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Use of resources

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	79.0	6.3E-01	4.6	0	14.6	0	0	0	0	0	0	1.2E-01	0	2.5E-01	-25.1
PERM	MJ	29.0	0	8.7E-01	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	108.0	6.3E-01	5.4	0	14.6	0	0	0	0	0	0	1.2E-01	0	2.5E-01	-25.1
PENRE	MJ	464.0	13.0	23.3	0	3.9	0	0	0	0	0	0	2.1	0	2.1	-4.7
PENRM	MJ,	2.8	0	8.4E-02	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	466.8	13.0	23.4	0	3.9	0	0	0	0	0	0	2.1	0	2.1	-4.7
SM	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m³	6.2E-02	7.3E-04	6.1E-03	0	5.5E-01	0	0	0	0	0	0	1.4E-04	0	4.1E-04	-5.0E-03
Acronyms	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 production and output flows

### Waste production

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.4E-03	5.8E-10	4.3E-05	0	1.1E-10	0	0	0	0	0	0	1.1E-10	0	3.4E-08	-5.0E-08
Non-hazardous waste disposed	kg	1.9E-01	1.9E-03	5.0E-01	0	1.6E-01	0	0	0	0	0	0	3.1E-04	0	9.9	-2.8E-03
Radioactive waste disposed	kg	2.1E-02	1.6E-05	9.6E-04	0	4.9E-05	0	0	0	0	0	0	2.6E-06	0	2.9E-05	2.9E-04

### Output flows

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	3.6E-02	0	1.8	0	0	0	0	0	0	0	0	0	21.6	0	0
Materials for energy valuation, energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## 6.2. Scenario 2. Continuous ventilated external wall cladding

### Potential environmental impact – mandatory indicators according to EN 15804

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
<b>GWP-GHG<sup>2</sup></b>	kg CO <sub>2</sub> eq,	24.3	9.7E-01	38.0	0	2.0E-03	0	0	0	0	0	0	1.5E-01	0	1.4E-01	-25.9
<b>GWP-fossil</b>	kg CO <sub>2</sub> eq,	24.7	9.9E-01	38.4	0	2.6E-03	0	0	0	0	0	0	1.5E-01	0	1.4E-01	-26.3
<b>GWP-biogenic</b>	kg CO <sub>2</sub> eq,	2.1E-01	-8.9E-04	7.4E-02	0	1.5E-05	0	0	0	0	0	0	-1.9E-04	0	1.4E-03	-2.9E-03
<b>GWP-luluc</b>	kg CO <sub>2</sub> eq,	8.0E-03	6.9E-03	1.6E-02	0	1.5E-07	0	0	0	0	0	0	1.2E-03	0	5.9E-04	-8.1E-03
<b>GWP-total</b>	kg CO <sub>2</sub> eq,	24.9	1.0	38.4	0	2.7E-03	0	0	0	0	0	0	1.5E-01	0	1.4E-01	-26.3
<b>ODP</b>	kg CFC 11 eq,	1.0E-07	1.2E-16	3.0E-09	0	9.8E-10	0	0	0	0	0	0	1.9E-17	0	7.8E-14	-5.1E-09
<b>AP</b>	mol H <sup>+</sup> eq,	1.3E-01	6.1E-03	1.8E-01	0	2.3E-05	0	0	0	0	0	0	1.2E-04	0	1.0E-03	-9.8E-02
<b>EP-freshwater</b>	kg P <sup>-</sup> eq,	2.5E-04	2.5E-06	2.8E-05	0	4.7E-08	0	0	0	0	0	0	4.5E-07	0	2.9E-06	-1.3E-05
<b>EP-freshwater</b>	kg PO <sub>4</sub> <sup>3-</sup> eq,	7.7E-04	7.8E-06	8.6E-05	0	1.5E-07	0	0	0	0	0	0	1.4E-06	0	8.9E-06	-4.0E-05
<b>EP-marine</b>	kg N eq,	5.2E-02	1.6E-03	2.5E-02	0	2.5E-06	0	0	0	0	0	0	3.3E-05	0	2.8E-04	-1.7E-02
<b>EP-terrestrial</b>	mol N eq,	5.6E-01	1.8E-02	2.8E-01	0	9.5E-05	0	0	0	0	0	0	4.1E-04	0	3.0E-03	-1.9E-01
<b>POCP</b>	kg NMVOC eq,	1.4E-01	4.7E-03	7.8E-02	0	1.7E-05	0	0	0	0	0	0	1.1E-04	0	8.1E-04	-5.1E-02

<sup>2</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.



Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
<b>ADP-minerals&amp;metals*</b>	kg Sb eq,	1.9E-05	6.9E-08	8.7E-06	0	8.1E-11	0	0	0	0	0	0	1.1E-08	0	1.4E-08	-2.6E-06
<b>ADP-fossil*</b>	MJ	464.0	13.0	502.3	0	0.0	0	0	0	0	0	0	2.0	0	1.8	-351.0
<b>WDP</b>	m <sup>3</sup> global private equivalent	3.6	7.6E-03	5.7	0	0.1	0	0	0	0	0	0	1.3E-03	0	1.0E-02	-1.6
Acrónimos	Potential Global Warming, UNE EN15804:2012+A1:2014 (GWP-GHG); GWP-total = Global Warming Potential Total; 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.															

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator

## Use of resources

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	79.0	6.3E-01	215.4	0	5.1E-02	0	0	0	0	0	0	1.1E-01	0	2.1E-01	-139.0
PERM	MJ	29.0	0	8.7E-01	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	108.0	6.3E-01	216.3	0	5.1E-02	0	0	0	0	0	0	1.1E-01	0	2.1E-01	-139.0
PENRE	MJ	464.0	13.0	503.3	0	1.3E-02	0	0	0	0	0	0	2.0	0	1.8	-351.0
PENRM	MJ,	2.8	0	8.4E-02	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	466.8	13.0	503.4	0	1.3E-02	0	0	0	0	0	0	2.0	0	1.8	-351.0
SM	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m <sup>3</sup>	6.2E-02	7.3E-04	5.2E-01	0	1.0E-03	0	0	0	0	0	0	1.3E-04	0	3.5E-04	-2.4E-01
Acronyms	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 production and output flows

### Waste production

Results per functional unit																
Indicator	Uniy	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.4E-03	5.8E-10	4.9E-05	0	2.0E-13	0	0	0	0	0	0	1.0E-10	0	2.9E-08	-6.8E-08
Non-hazardous waste disposed	kg	1.9E-01	1.9E-03	10.8	0	2.9E-04	0	0	0	0	0	0	3.0E-04	0	8.4	-5.8
Radioactive waste disposed	kg	2.1E-02	1.6E-05	3.1E-02	0	1.4E-07	0	0	0	0	0	0	2.4E-06	0	2.5E-05	-2.7E-02

### Output flows

Results per functional unit																
Indicator	Uniy	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	3.6E-02	0	1.8	0	0	0	0	0	0	0	0	0	22.1	0	0
Materials for energy valuation, energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

### 6.3. Scenario 3. Discontinuous ventilated external wall cladding

#### Potential environmental impact – mandatory indicators according to EN 15804

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
<b>GWP-GHG<sup>3</sup></b>	kg CO <sub>2</sub> eq,	24.3	9.7E-01	27.0	0	1.9E-03	0	0	0	0	0	0	1.4E-01	0	1.4E-01	-17.5
<b>GWP-fossil</b>	kg CO <sub>2</sub> eq,	24.7	9.9E-01	27.3	0	2.5E-03	0	0	0	0	0	0	1.4E-01	0	1.4E-01	-17.8
<b>GWP-biogenic</b>	kg CO <sub>2</sub> eq,	2.1E-01	-8.9E-04	7.2E-02	0	1.5E-05	0	0	0	0	0	0	-1.8E-04	0	1.4E-03	-2.1E-03
<b>GWP-luluc</b>	kg CO <sub>2</sub> eq,	8.0E-03	6.9E-03	1.1E-02	0	1.5E-07	0	0	0	0	0	0	1.2E-03	0	5.9E-04	-5.6E-03
<b>GWP-total</b>	kg CO <sub>2</sub> eq,	24.9	1.0	27.3	0	2.6E-03	0	0	0	0	0	0	1.4E-01	0	1.4E-01	-17.8
<b>ODP</b>	kg CFC 11 eq,	1.0E-07	1.2E-16	3.0E-09	0	9.4E-10	0	0	0	0	0	0	1.8E-17	0	7.8E-14	-5.1E-09
<b>AP</b>	mol H <sup>+</sup> eq,	1.3E-01	6.1E-03	1.3E-01	0	2.2E-05	0	0	0	0	0	0	1.2E-04	0	1.0E-03	-6.6E-02
<b>EP-freshwater</b>	kg P <sup>-</sup> eq,	2.5E-04	2.5E-06	2.2E-05	0	4.6E-08	0	0	0	0	0	0	4.3E-07	0	2.9E-06	-9.2E-06
<b>EP-freshwater</b>	kg PO <sub>4</sub> <sup>3-</sup> eq,	7.7E-04	7.8E-06	6.8E-05	0	1.4E-07	0	0	0	0	0	0	1.3E-06	0	8.8E-06	-2.8E-05
<b>EP-marine</b>	kg N eq,	5.2E-02	1.6E-03	1.8E-02	0	2.4E-06	0	0	0	0	0	0	3.2E-05	0	2.8E-04	-1.2E-02
<b>EP-terrestrial</b>	mol N eq,	5.6E-01	1.8E-02	2.0E-01	0	9.1E-05	0	0	0	0	0	0	3.9E-04	0	2.9E-03	-1.3E-01
<b>POCP</b>	kg NMVOC eq,	1.4E-01	4.7E-03	5.6E-02	0	1.6E-05	0	0	0	0	0	0	1.1E-04	0	8.0E-04	-3.5E-02

<sup>3</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
<b>ADP-minerals&amp;metals*</b>	kg Sb eq,	1.9E-05	6.9E-08	7.6E-06	0	7.8E-11	0	0	0	0	0	0	1.1E-08	0	1.4E-08	-1.8E-06
<b>ADP-fossil*</b>	MJ	464.0	13.0	356.3	0	1.2E-02	0	0	0	0	0	0	1.9	0	1.8	-237.0
<b>WDP</b>	m <sup>3</sup> global private equivalent	3.6	7.6E-03	4.0	0	7.5E-02	0	0	0	0	0	0	1.3E-03	0	1.0E-02	-1.1
Acronyms	Potential Global Warming, UNE EN15804:2012+A1:2014 (GWP-GHG); GWP-total = Global Warming Potential Total; 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.															

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Use of resources

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	79.0	6.3E-01	151.4	0	4.9E-02	0	0	0	0	0	0	1.1E-01	0	2.1E-01	-102.0
PERM	MJ	29.0	0	8.7E-01	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	108.0	6.3E-01	152.3	0	4.9E-02	0	0	0	0	0	0	1.1E-01	0	2.1E-01	-102.0
PENRE	MJ	464.0	13.0	357.3	0	1.2E-02	0	0	0	0	0	0	1.9	0	1.8	-237.0
PENRM	MJ,	2.8	0	8.4E-02	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	466.8	13.0	357.4	0	1.2E-02	0	0	0	0	0	0	1.9	0	1.8	-237.0
SM	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m <sup>3</sup>	6.2E-02	7.3E-04	3.7E-01	0	9.7E-04	0	0	0	0	0	0	1.2E-04	0	3.4E-04	-1.6E-01
Acronyms	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 production and output flows

### Waste production

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.4E-03	5.8E-10	4.9E-05	0	2.0E-13	0	0	0	0	0	0	9.7E-11	0	2.9E-08	-5.9E-08
Non-hazardous waste disposed	kg	1.9E-01	1.9E-03	7.7	0	2.7E-04	0	0	0	0	0	0	2.9E-04	0	8.4	-3.9
Radioactive waste disposed	kg	2.1E-02	1.6E-05	2.2E-02	0	1.3E-07	0	0	0	0	0	0	2.3E-06	0	2.5E-05	-1.8E-02

### Output flows

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	3.6E-02	0	1.8	0	0	0	0	0	0	0	0	0	21.2	0	0
Materials for energy valuation, energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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