

# Environmental Product Declaration

EPD of multiple products, based on a representative product. In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

## Bricmate Porcelain Stoneware 9MM

J Stone Select 9mm, J Norrvange 9mm, J Jura Select 9mm, J Azul 9mm

from

**bricmate**<sup>®</sup>

Programme:	The International EPD System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products from a company
EPD registration number:	EPD-IES-0027460:001
Version date:	2025-12-11
Validity date:	2030-12-11

*An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see [www.environdec.com](http://www.environdec.com)*



## GENERAL INFORMATION

Programme Information	
<b>Programme:</b>	The International EPD® System
<b>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>
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Product Category Rules (PCR)
<b>CEN standard EN 15804 serves as the Core Product Category Rules (PCR)</b>
<b>Product Category Rules (PCR):</b> <i>Construction products 2019:14, version 2.0.1, valid until 2030-04-07, UN CPC code: 37310</i>
<p><b>PCR review was conducted by:</b>  <i>The Technical Committee of the International EPD® System.            See <a href="http://www.environdec.com">www.environdec.com</a> for a list of members.            Review chair: Rob Rouwette (chair), Noa Meron (cochair).            The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a></i></p>
<b>c-PCR:</b> C-PCR-002 CERAMIC TILES, EN 17160:2019

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
<p><b>Individual EPD verification without a pre-verified LCA/EPD tool</b>            Third-party verifier: <i>David Althoff Palm, Dalemarken AB, Sweden.</i></p>
Approved by: The International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier:
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

## INFORMATION ABOUT EPD OWNER

Owner of the EPD:

Bricmate AB

Address:

Odengatan 104, 113 22 Stockholm, Sweden

Contact:

Philip Carabi, philip.carabi@bricmate.se

Address and contact information of the LCA practitioner commissioned by the EPD owner:

Miljögiraff AB

Blåsgatan 2, 414 63 Göteborg, Sweden

Hannes Westberg, hanneswestberg@miljogiraff.se

Theodor Roos, theodor@miljogiraff.se

Description of the organisation:

Bricmate is a Swedish company founded in 2007 that specializes in porcelain stoneware and granite-ceramic tiles for floors, walls, countertops, and outdoor surfaces. Their products emphasize timeless Scandinavian design, high durability, and customization in finishes such as matt, honed, silk, and 3D textures.

Product-related or management system-related certifications:

The Swedish Environmental Base standard for environmental management systems

E-BVD (Byggvarubedömningen)

Basta

## PRODUCT INFORMATION

### Product name:

9mm porcelain tiles. EPD of multiple products, based on a representative product J Norrvange Natural 9mm.

### Product identification:

The 9mm porcelain tiles are floor and wall tiles with a thickness of 9mm and comes in various sizes, ranging from 48x48mm to 598x1198mm. The representative product of the EPD is the J Norrvange Natural 9mm porcelain tile. There are 4 design variations (with several different colours available each), and three possible surface treatments (Matt, Honed, and 3D). All colours are included for the list below, where all included products in the EPD are stated.

- Matt (Natural): J Norrvange 9mm, J Jura Select 9mm, J Azul 9mm, and J Stone Select 9mm
- Honed (Polished): J Norrvange 9mm, J Jura Select 9mm, J Azul 9mm, and J Stone Select 9mm
- 3D (Textured): J Jura Select 9mm, and J Stone Select 9mm

### Visual representation (e.g., an image) of the product



### UN CPC code:

37310 Porcelain tiles and other ceramic goods of siliceous earths

### Product description:

Bricmate's 9 mm porcelain stoneware is used for floor and wall coverings in areas such as bathrooms, kitchens, and hallways. Made from natural raw materials and fired at high temperatures, it becomes extremely durable with very low water absorption. The material resists stains, chemicals, and heavy wear, making it suitable for both residential and public spaces. It comes in various sizes, ranges from 48x48mm to 598x1198mm.

The ceramic product falls under the classification of BI<sub>a</sub> when assessing water absorption and shaping method.

For more information regarding the products, see [Bricmate.se](http://Bricmate.se)

### Name and location of production site(s):

Bricmate outsource the production of their porcelain tiles to the producer Living Ceramics, with the facility located in Onda, Spain.

Most of the product are shipped and stored at a warehouse in Bjärnum before being sent out to customers.

Multiple products:

All products included in this EPD are porcelain tiles. Four variations will be included in this product group, and they all consist of a porcelain body, glaze, glaze cover and inkjet. All included products share the same geographical scope and production site. The product “J Norrvange Natural 9mm” was chosen as representative product as it is the most sold of all the products in this product group. The deviation of the GWP-GHG value relative to the representative product can be seen in “Additional LCA results”, as well as the variation of the environmental impact indicator results for modules A-C between any of the products that exceeds 10%.

The different material composition of the included products in this EPD are shown below.

Products in the group	Porcelain body	Glazing	Glaze Cover	Inkjet	Total weight (kg/product)
Natural	19,9	0,499	N.A	0,00306	20,4
Honed	19,5	0,515	0,361	0,00515	20,4
Textured	19,3	0,869	0,153	0,00716	20,4

## CONTENT DECLARATION

The content declaration presents the content of the representative product 1 m<sup>2</sup> of J Norrvange Natural 9mm tile to be used as wall or floor tiles for 50 years, together with the ranges in content for all included products. The weight of the representative product per m<sup>2</sup> is 20,4 kg.

Product content	Mass, kg/m <sup>2</sup>	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Porcelain body	19,9 (19,3 – 19,9)	0	0	0
Glazing	0,499 (0,499 – 0,869)	0	0	0
Glaze cover	0 (0 – 0,361)	0	0	0
Inkjet	0,00306 (0,00306 – 0,00716)	0	0	0
<b>TOTAL</b>	<b>20,4</b>	<b>0</b>	<b>0</b>	<b>0</b>

Packaging materials	Mass, kg/m <sup>2</sup>	Mass-% (versus the product)	Biogenic material, kg C/product or declared unit
Carboard	0,290	1,4%	0,131
Plastic HDPE	0,00458	0,02%	0
Plastic film	0,0179	0,1%	0
Pallet	0,509	2,5%	0,224
<b>TOTAL</b>	<b>0,822</b>	<b>4,0%</b>	<b>0,355</b>

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO<sub>2</sub>.

No substances from the Candidate List of Substances of Very High Concern (SVHC), which exceeds the limits for registration with the European Chemicals Agency have been reported for the included products.

## LCA INFORMATION

### Functional unit:

1 m<sup>2</sup> of ceramic tile for covering walls and floors for a period of 50 years

### Conversion factor to mass if mass is not used as functional/declared unit (not applicable for services):

1m<sup>2</sup> of ceramic tile equals 20,4kg

### Reference service life:

Reference service life is 50 years, technical lifespan is assumed to be 50 years if it is properly installed.

### Time representativeness:

The collected data is representative of the year 2023 and was obtained directly from the supplier

### Geographical scope:

The raw materials used in the products are locally sourced from suppliers in the region of Onda, Spain, where the manufacturing site is located. Finished products are transported from manufacturing site in Spain to warehouses in Sweden where Bricmate's main customers are located. Therefore is all downstream life cycle stages representative for Sweden.

### Database(s) and LCA software used:

Ecoinvent 3.11, SimaPro 10.2.

### LCIA method:

The LCIA method follows the standard for Construction Products EN 15804:2012+A2:2019/AC:2021. EN 15804:2012+A2:2019/AC:2021 uses the impact categories and characterization factors of the LCIA methods used in Environmental Footprint 3.1 (EF 3.1), with the only difference that biogenic carbon dioxide uptake is calculated as -1 and biogenic carbon dioxide emissions as +1, where EF 3.1 calculates this as 0 and 0, respectively.

### Cut-off criteria:

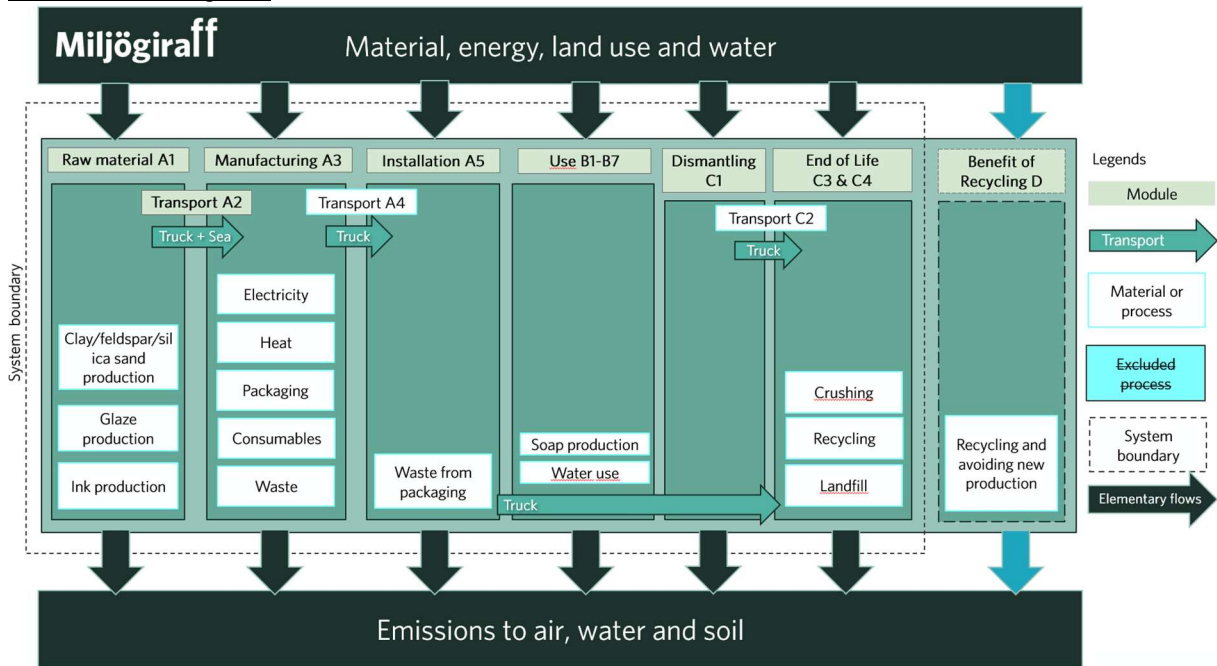
The cut-off criteria established by the PCR is 1% of all material and energy flows to a single unit process and 5% of total inflows (mass and energy) per module. No cut-offs exceeding this limit have been made.

In this study, the infrastructure and capital goods are included in the LCA analysis since it is not possible within reasonable effort to subtract the data on infrastructure/capital goods.

### Description of system boundaries:

The system boundary for the study follows option c). Cradle to grave and module D (A + B + C + D). All processes needed for raw material extraction, manufacturing, transport, usage, and end-of-life are included in the study.

Process flow diagram:



More information:

(A1-A3) The main raw materials in the products consist of clay and glaze which are sourced from local suppliers in the region of Onda, Spain and are transported by truck to the manufacturing site which is also located in this region. Bricmate outsource the production of their porcelain tiles to their partner Living Ceramics which owns the manufacturing site in Onda. The manufacturing of porcelain tiles uses a kiln to fire the raw materials in various steps. The kiln is mainly fired with natural gas, but electricity is also used at the facility. As Living Ceramics do not buy any electricity with Guarantees of Origin, the electricity was modelled with the Spanish residual electricity mix. This was represented with the ecoinvent dataset *Electricity, medium voltage {ES} | electricity, medium voltage, residual mix | Cut-off, U*, which has a carbon footprint of 0,412 kg CO<sub>2</sub>-eq/kWh.

Finished products are thereafter transported by truck and ships to warehouse in Sweden. The ship transport was modelled with *Transport, freight, sea, container ship, heavy fuel oil {GLO} | transport, freight, sea, container ship, heavy fuel oil | Cut-off, U*. The truck transport was modelled with the ecoinvent process *Transport, freight, lorry 16-32 metric ton, EURO6 {RER} | transport, freight, lorry 16-32 metric ton, EURO6 | Cut-off, U*.

The warehouse uses electricity to heat and run their facilities. No certified electricity is bought for the warehouses, and therefore the electricity has been modelled with Swedish residual electricity mix, which was represented with the ecoinvent dataset *Electricity, low voltage {SE} | electricity, low voltage, residual mix | Cut-off, U*. The carbon footprint of the dataset is 0,092 kg CO<sub>2</sub>-eq / kWh.

(A4) Bricmate’s customers are mainly located in Sweden, but also Norway, Denmark and Finland. The average transport distance was based on statistics for the year 2024. The average transportation distance from warehouses in Sweden to customers was 433 km with trucks, and 3,8 km with ferry. The truck transport was modelled with the ecoinvent process *Transport, freight, lorry 16-32 metric ton,*

*EURO6 {RER}* | transport, freight, lorry 16-32 metric ton, *EURO6* | Cut-off, U. Other mandatory information from table 10 from section 7.3.2.1 in EN15804+A2 regarding A4 is declared below:

- Fuel type and amount: Heavy Fuel Oil, 2,52E-03 per tkm,
- Capacity utilization: ca 50%
- Bulk density of transported goods: ca 400 kg/m<sup>3</sup>
- Volume capacity utilization factor: <1

(A5) Installation of the tiles require 3,3kg mortar and 0,8l water per m<sup>2</sup>. No other consumables or energy is assumed. The waste treatment of the packaging materials that comes with the product, which follows the end-of-life treatment in module C are included.

(B2) Wall and floor tiles are assumed to be maintained regularly. According to the c-PCR, wall tiles are cleaned once every 3 month and floor tiles are cleaned once every two week and wiped once every week. 0,134ml soap and 0,1l water is used per m<sup>2</sup> and per cleaning, and 0,1l water is used per m<sup>2</sup> and wiping. All other B modules have no impact.

(C1-C4) After use, the product is deinstalled and transported to waste processing. C1 is negligible and therefore below cutoff. The ceramic tile demolition waste is transported from the building site to a container or treatment plant by truck and it is considered an average distance of 20 km. It is considered that the average distance from the container or treatment plant to final destination is 30 km. The transport is modelled using the ecoinvent 3.10 dataset "Transport, freight, lorry 16-32 metric ton, *EURO6 {RER}* | transport, freight, lorry 16-32 metric ton, *EURO6* | Cut-off, U". Other mandatory information from table 10 from section 7.3.2.1 in EN15804+A2 regarding A4 is declared below:

- Fuel type and amount: Heavy Fuel Oil, 2,52E-03 per tkm,
- Capacity utilization: ca 50%
- Bulk density of transported goods: ca 400 kg/m<sup>3</sup>
- Volume capacity utilization factor: <1

Based on a report from WSP and Byggkeramikrådet on the pathways of waste ceramics, the product are assumed to be used as construction materials at landfill, where it is used to build landfill cells, provide intermediate cover, or form leveling layers beneath the sealing system. Prior to that, the product do not need to be processed any further. C3 is therefore zero. The material are assumed to replace backfilling material, however no credits are given as a conservative assumption.

(D) Module D accounts for the potential environmental benefits or burdens resulting from material recycling and energy recovery during incineration.

#### Data quality summary according to EN 15941:

The EPD is based on data collected by Bricmate AB from their supplier's site in Onda, Spain over one year from 2023. The EPD is representative of the production of 9mm wall and floor tiles in various sizes produced in Onda, Spain and data are collected directly from supplier and production site. The end-of-life stage of the EPD covers Sweden. The EPD uses background data from the Ecoinvent database v3.11. The quality of the relevant data used for the EPD in terms of its time, geography and technology representativeness using EN 15804:2012+A2:2019, Annex E, E.1 is very good or good. The relevant data assessed included no other poor or very poor data.

Modules declared, geographical scope, share of primary data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
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	ES	ES	EUR	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
Share of primary data	81%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	1,1%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Declaration of data sources, reference years, data categories, and share of primary data:

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Natural gas for manufacturing	Database	Ecoinvent v3.11	2023	Primary data	64,7%
Transport of raw materials	Database	Ecoinvent v3.11	2024	Primary data	0,4%
Transport of product from manufacturing to warehouse	Database	Ecoinvent v3.11	2024	Primary data	15,9%
Total share of primary data, of GWP-GHG results for A1-A3					81%

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

## ENVIRONMENTAL PERFORMANCE

### LCA results of the product(s) - main environmental performance results

#### Mandatory impact category indicators according to EN 15804

Results per m2 of ceramic tile for covering walls and floors for a period of 50 years																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	1,1E+01	1,6E+00	2,1E+00	0,0E+00	3,0E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	4,0E-01	0,0E+00	0,0E+00	2,5E-02
GWP-fossil	kg CO <sub>2</sub> eq.	1,2E+01	1,6E+00	7,8E-01	0,0E+00	1,6E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	4,0E-01	0,0E+00	0,0E+00	9,6E-03
GWP-biogenic	kg CO <sub>2</sub> eq.	-1,3E+00	3,5E-04	1,3E+00	0,0E+00	9,7E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	9,0E-05	0,0E+00	0,0E+00	1,4E-02
GWP-luluc	kg CO <sub>2</sub> eq.	9,1E-03	5,5E-04	1,6E-04	0,0E+00	1,4E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,4E-04	0,0E+00	0,0E+00	1,4E-03
ODP	kg CFC 11 eq.	4,4E-07	3,6E-08	2,3E-09	0,0E+00	3,0E-09	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	8,7E-09	0,0E+00	0,0E+00	1,6E-09
AP	mol H <sup>+</sup> eq.	8,9E-02	3,6E-03	2,0E-03	0,0E+00	1,6E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	8,4E-04	0,0E+00	0,0E+00	-1,8E-04
EP-freshwater	kg P eq.	1,0E-04	1,2E-05	1,1E-05	0,0E+00	1,7E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,3E-06	0,0E+00	0,0E+00	3,1E-06
EP-marine	kg N eq.	2,5E-02	8,4E-04	5,5E-04	0,0E+00	1,4E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,9E-04	0,0E+00	0,0E+00	1,3E-04
EP-terrestrial	mol N eq.	2,7E-01	9,2E-03	6,5E-03	0,0E+00	5,4E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,1E-03	0,0E+00	0,0E+00	-5,7E-04
POCP	kg NMVO C eq.	8,1E-02	5,6E-03	1,8E-03	0,0E+00	8,4E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,3E-03	0,0E+00	0,0E+00	-2,4E-04
ADP-minerals & metals*	kg Sb eq.	2,0E-05	5,6E-06	9,0E-07	0,0E+00	1,8E-06	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,7E-06	0,0E+00	0,0E+00	-6,1E-07
ADP-fossil*	MJ	2,0E+02	2,3E+01	3,1E+00	0,0E+00	2,2E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	5,6E+00	0,0E+00	0,0E+00	-4,7E-01
WDP*	m <sup>3</sup>	2,0E+00	9,2E-02	1,8E-01	0,0E+00	9,1E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,2E-02	0,0E+00	0,0E+00	3,0E-02
Acronyms	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 estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Note: Biogenic carbon in packaging is balanced in A1-A3.

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

**Additional mandatory and voluntary impact category indicators**

Results per m2 of ceramic tile for covering walls and floors for a period of 50 years																
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.	1,2E+01	1,6E+00	7,8E-01	0,0E+00	3,0E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	4,0E-01	0,0E+00	0,0E+00	2,5E-02
<b>PM</b>	disease inc.	6,0E-07	1,2E-07	2,3E-08	0,0E+00	2,4E-08	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,4E-08	0,0E+00	0,0E+00	-3,5E-09
<b>IR<sup>2</sup></b>	kBq U-235 eq	5,5E-01	1,0E-02	1,7E-02	0,0E+00	9,3E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,2E-03	0,0E+00	0,0E+00	-2,6E-02
<b>ETP – FW*</b>	CTUe	1,3E+01	3,1E+00	8,7E-01	0,0E+00	5,3E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	9,3E-01	0,0E+00	0,0E+00	-6,6E-02
<b>HTP – C*</b>	CTUh	2,7E-09	2,7E-10	1,0E-10	0,0E+00	4,3E-10	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	7,0E-11	0,0E+00	0,0E+00	-5,6E-11
<b>HTP – NC*</b>	CTUh	4,2E-08	1,5E-08	5,0E-09	0,0E+00	1,0E-08	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,4E-09	0,0E+00	0,0E+00	-1,0E-09
<b>Land use, SQP*</b>	Pt	1,1E+02	1,4E+01	5,2E+00	0,0E+00	1,1E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,7E+00	0,0E+00	0,0E+00	-1,3E+01
<b>Acronyms</b>	GWP-GHG: Global Warming Potential, Greenhouse Gases, PM: Particulate Matter, IRP: Ionizing Radiation - Human Health, ETP-FW: Ecotoxicity Potential – Freshwater, HTP-C: Human Toxicity Potential – Cancer, HTP-NC: Human Toxicity Potential – Non-Cancer, SQP: Soil Quality Potential Index															

*Disclaimer: The results of the impact categories land use, human toxicity (cancer), human toxicity, non-cancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.*

\* 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.

<sup>1</sup> This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

<sup>2</sup> This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

**Resource use indicators**

**Results per m2 of ceramic tile for covering walls and floors for a period of 50 years**

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,9E+01	3,9E-01	1,0E+00	0,0E+00	6,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,2E-01	0,0E+00	0,0E+00	-3,5E+00
PERM	MJ	1,4E+01	0,0E+00	-1,4E+01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
PERT	MJ	3,4E+01	3,9E-01	-1,3E+01	0,0E+00	6,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,2E-01	0,0E+00	0,0E+00	-3,5E+00
PENRE	MJ	2,2E+02	2,5E+01	3,3E+00	0,0E+00	2,5E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	6,0E+00	0,0E+00	0,0E+00	-3,9E-01
PENRM	MJ	7,0E-01	0,0E+00	-7,0E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
PENRT	MJ	2,2E+02	2,5E+01	2,6E+00	0,0E+00	2,5E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	6,0E+00	0,0E+00	0,0E+00	-3,9E-01
SM	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
RSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
NRSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
FW	m³	8,1E-02	3,5E-03	1,3E-02	0,0E+00	2,7E-01	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	8,4E-04	0,0E+00	0,0E+00	-3,1E-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 indicators**

**Results per m2 of ceramic tile for covering walls and floors for a period of 50 years**

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Non-hazardous waste disposed	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Radioactive waste disposed	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

## Output flow indicators

Results per m2 of ceramic tile for covering walls and floors for a period of 50 years																
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	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Material for recycling	kg	2,6	0,0	0,22	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	20	0,0	0,0
Materials for energy recovery	kg	0,0	0,0	0,00	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Exported energy, electricity	MJ	0,0	0,0	2,7	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Exported energy, thermal	MJ	0,0	0,0	6,4	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

## Additional LCA results (other environmental performance results) of the product(s)

The deviation of the GWP-GHG value for A1-A3 relative the representative product for the different products included in this EPD can be seen in the table below.

Product	Difference relative to representative product
Tiles (Norrvange natural, Marais natural, Azul Olive Natural, Azul Gray Natural) <b>Representative product</b>	0%
Tiles (Norrvange Honed, Jura selected Honed, Azul Olive Honed, Azul Grey Honed, Stone selected Honed)	0,5%
Tiles (Jura selected soft textured, Stone selected soft textured)	0,03%

The variation of the environmental impact indicators which differ more than 10% between any of the included products are declared below.

Indicator	Variation between products (A1-A3)
Climate change - Land use and LU change	42,14%

## ABBREVIATIONS

Abbreviation	Definition
<b>General Abbreviations</b>	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
c-PCR	Complementary Product Category Rules
CEN	European Committee for Standardization
CPC	Central product classification
GHG	Greenhouse Gas
PEF	Product Environmental Footprint
<b>Environmental Impact Indicators (EN 15804)</b>	
GHG	Greenhouse Gas
GWP	Global Warming Potential (kg CO <sub>2</sub> eq.)
GWP-fossil	Global Warming Potential from fossil sources (kg CO <sub>2</sub> eq.)
GWP-biogenic	Global Warming Potential from biogenic sources (kg CO <sub>2</sub> eq.)
GWP-luluc	Global Warming Potential from land use and land use change (kg CO <sub>2</sub> eq.)
GWP-total	Total Global Warming Potential (kg CO <sub>2</sub> eq.)
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO <sub>2</sub> eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification Potential (mol H <sup>+</sup> eq.)
EP	Eutrophication Potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-minerals&metals	Abiotic depletion potential for non-fossil resources (kg Sb eq.)
ADP-fossil	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m <sup>3</sup> )
<b>Resource Use Indicators</b>	
PERE	Renewable primary energy (excluding as raw materials) (MJ)
PERM	Renewable primary energy used as raw materials (MJ)
PERT	Total renewable primary energy (MJ)
PENRE	Non-renewable primary energy (excluding as raw materials) (MJ)
PENRM	Non-renewable primary energy used as raw materials (MJ)
PENRT	Total non-renewable primary energy (MJ)
SM	Use of secondary material (kg)
RSF	Use of renewable secondary fuels (MJ)
NRSF	Use of non-renewable secondary fuels (MJ)
FW	Use of net fresh water (m <sup>3</sup> )
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
<b>Output Flow Indicators</b>	
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)
MER	Materials for Energy Recovery (kg)
EEE	Exported Energy, Electricity (MJ)
EET	Exported Energy, Thermal (MJ)
<b>Lifecycle Stages / Modules</b>	

A1	Raw material supply
A2	Transport
A3	Manufacturing
A4	Transport to site
A5	Construction/Installation
B1	Use
B2	Maintenance
B3	Repair
B4	Replacement
B5	Refurbishment
B6	Operational energy use
B7	Operational water use
C1	Deconstruction/Demolition
C2	Transport to waste processing
C3	Waste processing
C4	Disposal
D	Reuse-Recovery-Recycling potential
<b>Other Relevant Terms</b>	
SVHC	Substances of Very High Concern
EC No.	European Community Number
CAS No.	Chemical Abstracts Service Number
MJ	Megajoule
kg	Kilogram
m <sup>3</sup>	Cubic Meter
NMVOG	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO <sub>2</sub> eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO <sub>2</sub> eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared

## REFERENCES

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## VERSION HISTORY

Original Version of the EPD, 2025-12-11

