THE MOSAIC FACTORY

Certificate of Conformity

Product: Glazed porcelain mosaic TMF® Sevilla collection, Kitkat
Country of Origin: CN
Type designation: SEF20010, SEF20015, SEF20030, SEF20080, SEF20100, SEF20120, SEF20125, SEF20140, SEF20195, SEF20200, SEF20250, SEF20300, SEF20360, SEF20400, SEF20500, SEF20525, SEF20550, SEF20555, SEF20575, SEF20600, SEF20725, SEF20800, SEF-OH-MIX1, SEF-OH-MIX2, SEF-OH-20915, SEF-OH-20925

Technical Data: Dry-pressed ceramic tiles for floorings and wall finishes, interior and exterior, with water absorption *E*b < 0.5%, Group B I a, flat, Rough, glazed 145mm x 20mm

Name of product	Glazed Mosaic
Nature of the surface	Glazed (GL)
Group	B I a

Nominal size (N)	145x20mm
Work size	145mm x 20mm x 8,2mm
Intended use	Floorings and wall finishes Interior and exterior

Image:

The above product has been tested for CE marking according to:

EN 14411:2016 *Ceramic tiles – Definition, classification, characteristics, assessment and verification of constancy of performance and marking*

Clause	Properties	Test Method	Requirements	Results	Verdicts
A	**Dimensions and surface quality**				
	Length	EN ISO 10545-2:2018	±0,9mm	+0,2mm + 0,4mm	Pass
	Width	EN ISO 10545-2:2018	±0,5mm	-0,1mm - 0	Pass
	Thickness	EN ISO 10545-2:2018	±0,5mm	0 - 0,1mm	Pass
B	**Physical properties**				
	Water absorption	EN ISO 10545-3:2018	<0,5%	0,13%	Pass
	Breaking strength in N	EN ISO 10545-4:2019	>1300	1962	Pass
	Modulus of rupture, in Mpa	EN ISO 10545-4:2019	Minimum 35	55	Pass
	Thermal shock resistance	EN ISO 10545-9:2013	Pass	Fully resistance	Pass
	Crazing resistance Glazed tiles	EN ISO 10545-11:1996	Pass	Fully resistance	Pass
	Frost resistance	EN ISO 10545-12:1997	Pass	Fully resistance	Pass
	Slipperiness	DIN 51130:2014	Declared value	<5,0°	
		DIN 51097			
		BS 7976	PTV Slider 96 dry	~56	
			PTV Slider 96 wet	~10	
			PTV Slider 55 dry		
			PTV Slider 55 wet		
	Reaction to fire	CWT	Class A1 or A1FL	Wall Class A1	Pass
				Floor A1FL	Pass
C	**Chemical properties**				
	Resistance to staining	EN ISO 10545-14:2015	Minimum Class 3	Class 5	Pass
	Resistance to chemicals	EN ISO 10545-13:2016	Minimum Class B	Class A	Pass

Environmental Product Declaration

of two products (HP6470 and BTHT01042) based on average results.

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Porcelain Mosaic Tiles

From

Manufacturer for The Mosaic Factory

(original document is available upon request)

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0023055:001
Publication date:	2025-06-05
Valid until:	2030-06-05

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

1. Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification	
Product Category Rules (PCR):	PCR 2019:14, Construction Products (EN 15804+A2), version 1.3.4, and c-PCR-002 Ceramic tiles (EN 17160:2019), version 2025-04-08
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A Pena, University of Concepcion, -Chile. The review panel may be contacted via info@environdec.com
LCA accountability:	TÜV Rheinland (Shanghai) Co., Ltd., Qian Guan (qian.guan@tuv.com), Anna Zhao (anna.zhao@tuv.com).
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier	
Third-party verifier:	Rui Wang, IVL Swedish Environmental Research Institute
Approved by:	The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No	

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

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

2. Company information

Owner of the EPD: ***Manufacturer for The Mosaic Factory***

Description of the organisation: *This manufacturer is a well-established enterprise specializing in the manufacturing of glazed and unglazed porcelain mosaics since 1998. The company is recognised for its strong R&D capabilities and extensive manufacturing experience.*

Over the years, these mosaics has become a market leader in similar product categories thanks to its outstanding design aesthetics and superior quality, made from purified raw materials without radiation, these mosaic products are widely used in kitchen and bathroom decoration due to their excellent slip resistance and abrasion durability.

In addition to their functional performance, these mosaics are designed to provide rich artistic expression, offering a variety of sizes, shapes, colors, textures, and finishes. The brand continues to innovate and deliver high-quality mosaics that combine advanced technical performance with distinctive visual appeal.

Production site: *Dajiang Road, Zhangcha Subdistrict, Chancheng District, Foshan City, Guangdong Province, P.R. China.*

Certifications: *ISO 9001(00223Q21291R5M) and ISO 14001(00223E30854R5M) Certificates.*

Contacts: *For more information on Yulong or about this EPD, you can contact info@themosaicfactory.com*

3. Product information

Product: *Porcelain mosaic tiles.*

Product identification: *Porcelain mosaic tiles, dry-pressed porcelain tiles, belonging to Group BI_a according to EN 14411:2016, used for internal and external walls and floors over a 50-year period.*

In this EPD report, the average results for each indicator of the two included products produced in the Yulong are presented. The details of the two included products are shown below.

Products	The size of individual mosaic tiles, millimeter	The size of a mosaic tile sheet, millimeter	Weight, kg/m^2
HP6470	48*48*6	306*306*6	1.17E+01
BTHT01042	20*145*8	296*299*8	1.56E+01

Product description: *Porcelain mosaic tiles are a typical type of architectural decorative material, composed of small square tiles and crafted through various processes. They feature delicate textures, fresh colors, and diverse patterns, making them increasingly popular for indoor and outdoor wall and floor decorations. In addition to their stylish and aesthetically pleasing design, ceramic mosaics are known for their low water absorption, anti-slip properties, wear resistance, chemical resistance, stain resistance, crack resistance, and frost resistance, ensuring a long service life. The installation process of ceramic mosaics is relatively complex, requiring a smooth base layer to be prepared first. Tiles are then arranged according to specific dimensions and color schemes based on customer requirements and bonded securely to the base layer using adhesive to ensure both aesthetic appeal and durability.*

UN CPC code: *3737 Ceramic flags and paving, hearth or wall tiles; ceramic mosaic cubes and the like*

Geographical scope: *Modules A1-A3 are modelled with Chinese scope. Other Modules are modelled with Global and Europe scope.*

Production process: *The production process of the porcelain mosaic tiles covered by this EPD is divided into a series of working phases as described below:*

- ***Ingredients:*** *First, the sand/glaze materials are added to the feeder using a loader. The feeder meters the materials according to the preset production formula and adds them to the ball mill according to the formula ratio. This process generates dust and noise.*

- ***Ball Milling:*** *According to the product requirements, a certain amount of water is conveyed to the ball mill through pipelines. The prepared materials and water are processed into slurry in the ball mill. There are two types of ball mills in this project: slurry ball mills and glaze ball mills. The slurry ball mill does not require cleaning during use. The glaze ball mill needs to be cleaned after producing a batch of formulas. Therefore, the slurry ball milling process generates noise, and the glaze ball milling process generates noise and cleaning wastewater.*

- ***Stirring:*** *The slurry and glaze processed by the ball mill are separately conveyed to the slurry pool agitator and the glaze pool agitator through pipelines for stirring and mixing. This process generates noise.*

- ***Spray Tower Material Preparation:*** *The slurry stirred by the slurry pool agitator is conveyed to the spray tower for drying and processing into powder. This process generates noise, dust, and fuel exhaust.*

- ***Pressing and Shaping:*** *The powder processed by the spray tower is conveyed to the brick press for pressing and shaping to form the ceramic body. This process generates noise.*

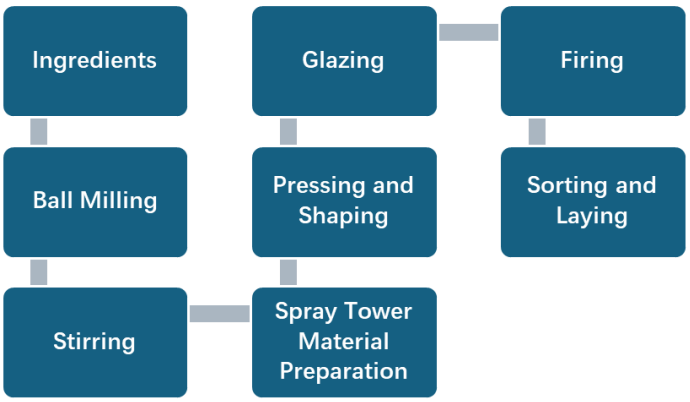
- ***Glazing:*** *Refers to spraying glaze on the surface of the formed ceramic body. When completing different production batches of products, the glazing equipment needs to be cleaned. All the glazes used in this project are inorganic fillers, so there is no exhaust gas generated in this process. The main pollutants generated are noise and cleaning wastewater.*

- ***Firing:*** *The glazed ceramics are sent to the roller kiln for calcination. This process generates noise and fuel exhaust.*

- ***Sorting and Laying:*** *According to the product requirements, the ceramic bodies after firing are first manually laid on the carrier board. Then, fiber mesh coated with adhesives is pressed onto the surface of the ceramic bodies. Finally, the fiber mesh and ceramic bodies are bonded together under the heating action of hot air. This process generates noise and waste ceramic tiles.*

- ***Packaging:*** *The products after sorting and laying are manually packaged as finished products.*

Production Process of Porcelain Mosaic Tiles



4. LCA information

Functional unit (FU): *Covering 1 m² of walls and floors for a period of 50 years, using porcelain mosaic tiles, dry-pressed porcelain tiles (Group BI_a according to EN 14411:2016).*

Conversion factor: 13.8 kg/FU.

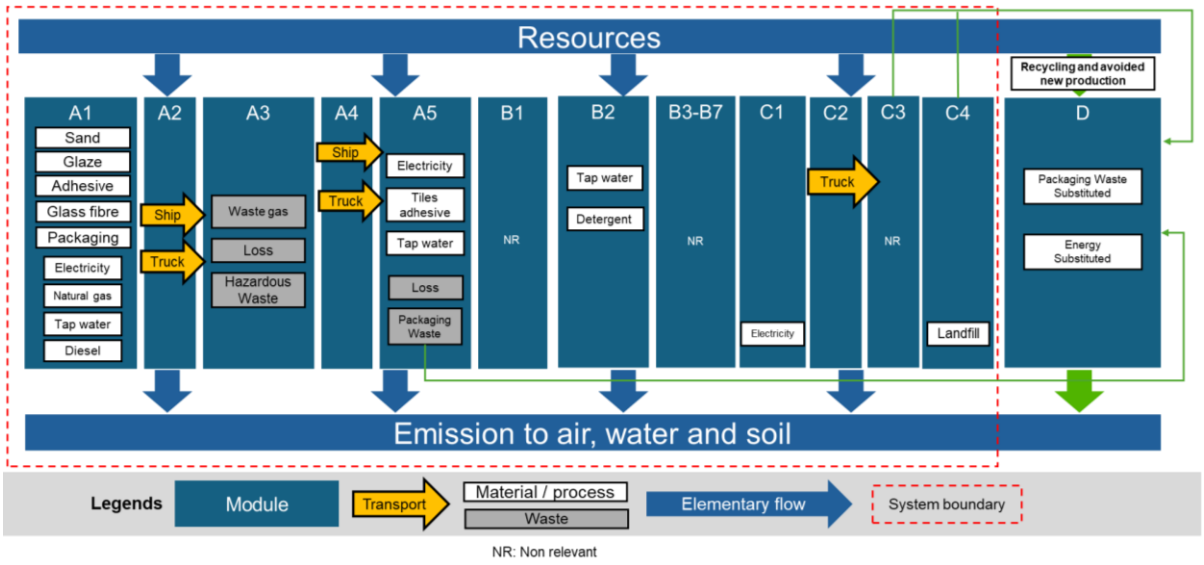
Reference service life (RSL): *The reference service life of the Porcelain mosaic tiles recommended by Foshan Shiwan Yulong Ceramic Co., Ltd. is 50 years for covering walls and floors with well-maintenance.*

Time representativeness: *Data are mainly based on statistics for year 2023 (January to December).*

Database and LCA software: *GaBi 10.9, MLC Database 2024.2.*

System boundaries: *From cradle to grave and module D (A+B+C+D).*

System diagram:



Allocation: *Allocation rules for co-products and waste are mentioned in the PCR and c-PCR.*
The data at the plant level in the A1-A3 stage are assigned to each product based solely on the total weight of each product.

There are no co-products produced in the production stage for each product. Thus, within the system boundaries of each product, there is no allocation rule for co-products applied.
The allocation of waste follows the polluter-pays principle.

Cut-off: *In accordance with EN 15084 and PCR2019:14, the cut-off criteria of 1 % of renewable and non-renewable primary energy usage and 1 % of the total mass input of the unit process in case of insufficient input data or data gaps for a unit process are met. And a minimum of 95% of the total mass and energy flows per module has been included.*

Exclusions: *Based on the goal and scope of the study, some inputs and outputs were excluded from the system boundary such as production of capital equipment and infrastructure, human activities and transport of workers and capital expenditure.*

Electric Mix (Module A3): *Climate impact of electricity production is 0.831 kg CO_2 eq./kWh. 73.57% electricity from thermal power, 17.57% electricity from nuclear power, 4.54% electricity from wind power, 2.99% electricity from hydropower, and 1.33% electricity from solar power.*

Modules declared, geographical scope, share of specific 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	CN			GLO	EU													EU
Specific data used	81.18%			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Variation – products	-20.22% / 17.41%			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-		-

Scenario information：

- ***A1-A3 "PRODUCTION STAGE"***

A1 - Raw materials supply

All raw materials, packaging and other auxiliaries are produced in China. The production of porcelain mosaic tiles begins with the mining process. This supply chain involves the extraction and preparation of raw materials, as well as transport of resources to refinement and waste treatment of waste generated during upstream processes and so on.

A2 - Transportation

Transport is relevant for delivery of raw materials and other materials to the plant and the transport of materials within the plant. The data are based on the real situation.

A3 - Manufacturing

The module includes the porcelain mosaic tiles manufacturing activities at the production site and the treatment processes of the waste produced. The direct carbon dioxide emissions from the use of natural gas and diesel fuel are included in the output flow. In addition, this study also concerns the process-related carbon dioxide emissions resulting from the use of carbonate raw materials in the production process.

- ***A4-A5 "CONSTRUCTION PROCESS STAGE"***

A4 - Transport from the plant to the installation site

The target market for the porcelain mosaic tiles includes Europe, America and other regions. The finished porcelain mosaic tiles are first transported by truck to the port of Shenzhen, China from the plant, then by container ship to the world and finally by truck to the installation site.

The transport scenarios used (distances and transport vehicles) are shown in the following table.

The scenarios information of module A4

Value	Unit	Trans distance	Unit	Transportation type
1.43E+01	kg	90	km	truck, more than 45t gross weight
		8313	km	Container ship, 200000t gross weight
		300	km	truck, 27t gross weight

A5 - Product Installation

In the installation process, some tile glue and water are consumed to fix the porcelain mosaic tiles on the wall or the floor. The waste generated in this stage includes the packaging and loss of products, and it will be treated in landfills, recycled or incinerated.

The installation scenarios used are shown in the following table.

The scenarios information of module A5

Inputs	Value	Unit	Trans distance	Unit	Transportation type
Tiles glue	3.50E+00	kg	10	km	truck, 3t gross weight
Tap water	8.75E-01	kg			/
Electricity	7.50E-02	kWh			/
Outputs	**Value**	**Unit**	**Trans distance**	**Unit**	**Transportation type**
Waste for recycling	5.20E-01	kg			/
Waste for landfill	2.77E-01	kg	30	km	truck, 5t gross weight
Waste for incineration	2.86E-03	kg	30	km	truck, 5t gross weight

- ***B1-B7 "USE STAGE"***

B1 - Use

The environmental impacts generated during the use phase are very low and therefore can be neglected.

B2 - Maintenance

During the service life of the porcelain mosaic tiles, usually detergent and water are required for cleaning in stage B2. The environmental performance results reported in Module B2 refer to the total environmental burden caused by the maintenance process of the product during its reference service life (50 years).

The scenarios of the B2 stage for 1 year

Inputs	Value	Unit
Detergent	1.95E-03	L
Water	5.20E+00	L

B3-B4-B5 - Repair, replacement and refurbishment

These types of interventions are not necessary: if correctly installed, the slabs do not require repair, replacement or renovation.

B6-B7 - Operational energy use and Operational water use

Generally, the environmental impacts generated during the B6 and B7 phases are not applicable and thus neglected.

- ***C1-C4 "END OF LIFE STAGE"***

In the deconstruction stage, power tools will be used to dismantle the porcelain mosaic tiles from the floor or wall. The dismantled porcelain mosaic tiles will be transported to nearby sites for recycling or final disposal by diesel truck.

In the end-of-life stage, 70% of the weight of the waste products will be treated by recycling, and the rest will be treated in a landfill.

Below list illustrates the scenario information about the end-of-life stage.

The scenarios of the End-of-life stage

Parameter	***unit expressed per FU***
Collection process	*17.94 kg collected separately.* *0.06 kWh of electricity.*
Transportation	*50 km (truck, 3t gross weight) for the recycling plant and landfill.*
Recovery system	*12.56 kg for recycling*
Disposal specified	*5.38 kg product or material for landfill*

- ***MODULE D "REUSE-RECOVERY-RECYCLING POTENTIAL"***

Module D accounts for the potential net environmental benefits produced beyond the boundaries of the system studied, deriving from reuse, recovery and recycling processes.

For porcelain mosaic tiles included in this LCA report, the net environmental benefits come from the recycling of waste porcelain mosaic tiles in the end-of-life stage, and the recycling of packaging in the A5 stage, the exported energy of waste incineration in the A5 stage.

Below list illustrates the scenario information about the Module D.

The scenario information of module D

Benefit from	***unit expressed per FU***
A5	*0.52 kg waste for recycling* *Exported energy :0.01 MJ electricity* *Exported energy :0.01 MJ steam*
C	*12.56 kg waste for recycling*

5. Content information

The porcelain mosaic tiles body is mainly composed of mineral raw materials (sand and kaolin). The glaze is mainly composed of feldspar, quartz and calcite, etc.

Auxiliary additives, such as the PVAC adhesive and glass fibre also form part of the product composition.

The packaging materials are corrugated paper, wood pallet and PVC film, etc.

The weight content of the porcelain mosaic tiles is the average results of two products included in this EPD and is shown in the following tables.

Product components	**Weight, kg**	**Post-consumer material, weight-%**	**Biogenic material, weight-% of product**	**Biogenic material, kg C/DU**
Mosaic`s body	1.20E+01	0.00E+00	0.00%	0.00E+00
Glaze	1.63E+00	0.00E+00	0.00%	0.00E+00
PVAC adhesive	2.11E-01	0.00E+00	0.00%	0.00E+00
Glass fibre	3.53E-02	0.00E+00	0.00%	0.00E+00
Total	1.38E+01	0.00%	0.00%	0.00E+00
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/DU**	
Corrugated paper	2.40E-01	1.73%	1.03E-01	
Wood pallet	2.44E-01	1.76%	1.10E-01	
PVC film	1.99E-02	0.14%	0.00E+00	
PVC fibre	9.11E-03	0.07%	0.00E+00	
Total	5.12E-01	3.70%	2.12E-01	

6. Results of the environmental performance indicators

Potential environmental impacts

Results per functional unit											
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B2**	**B1, B3-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	1.48E+01	1.67E+00	1.10E+00	2.75E-01	0.00E+00	1.74E-02	2.44E-01	0.00E+00	2.60E-01	-1.68E+00
GWP-total	kg CO_2 eq.	1.40E+01	1.67E+00	1.88E+00	2.75E-01	0.00E+00	1.74E-02	2.44E-01	0.00E+00	2.60E-01	-1.68E+00
GWP-fossil	kg CO_2 eq.	1.47E+01	1.67E+00	1.08E+00	2.73E-01	0.00E+00	1.72E-02	2.39E-01	0.00E+00	8.24E-02	-1.67E+00
GWP-biogenic	kg CO_2 eq.	-7.09E-01	1.37E-03	8.02E-01	1.55E-03	0.00E+00	1.60E-04	6.73E-04	0.00E+00	1.78E-01	-1.34E-02
GWP-luluc	kg CO_2 eq.	2.71E-03	5.58E-03	1.17E-03	5.39E-05	0.00E+00	2.62E-06	3.92E-03	0.00E+00	4.46E-05	-3.35E-03
ODP	kg CFC 11 eq.	1.64E-10	9.59E-14	2.59E-12	4.27E-13	0.00E+00	3.90E-13	3.44E-14	0.00E+00	2.20E-13	-3.10E-12
AP	mol H^+ eq.	2.81E-02	2.45E-02	2.28E-03	3.03E-04	0.00E+00	3.31E-05	1.35E-03	0.00E+00	6.12E-04	-4.13E-03
EP-freshwater	kg P eq.	4.30E-05	1.54E-06	1.73E-06	3.39E-06	0.00E+00	7.17E-08	9.96E-07	0.00E+00	4.08E-07	-2.77E-05
EP-marine	kg N eq.	6.44E-03	1.04E-02	8.07E-04	1.06E-04	0.00E+00	8.28E-06	6.60E-04	0.00E+00	1.70E-04	-1.20E-03
EP-terrestrial	mol N eq.	7.09E-02	1.14E-01	8.80E-03	1.01E-03	0.00E+00	8.67E-05	7.34E-03	0.00E+00	1.86E-03	-1.27E-02
POCP	kg NMVOC eq.	1.93E-02	2.83E-02	2.25E-03	3.47E-04	0.00E+00	2.19E-05	1.27E-03	0.00E+00	5.78E-04	-3.31E-03
ADP-minerals &metals[2]	kg Sb eq.	9.37E-05	4.78E-08	3.29E-08	1.45E-08	0.00E+00	3.21E-09	2.03E-08	0.00E+00	3.43E-09	-5.27E-07
ADP-fossil[2]	MJ	2.01E+02	2.12E+01	6.18E+00	6.90E+00	0.00E+00	3.60E-01	3.07E+00	0.00E+00	1.07E+00	-1.31E+01
WDP[2]	m^3	2.90E+00	8.41E-03	9.63E-02	1.12E+01	0.00E+00	4.68E-03	3.61E-03	0.00E+00	8.92E-03	-2.15E-01
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										

1: 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 equal to the GWP indicator originally defined in EN 15804:2012+A2:2019.
2: 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.

Resource use

Results per functional unit											
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B2**	**B1, B3-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2.01E+01	4.13E-01	2.50E+00	2.39E-01	0.00E+00	2.60E-01	2.65E-01	0.00E+00	1.58E-01	-8.35E+00
PERM	MJ	4.27E+00	0.00E+00	-4.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.44E+01	4.13E-01	-1.77E+00	2.39E-01	0.00E+00	2.60E-01	2.65E-01	0.00E+00	1.58E-01	-8.35E+00
PENRE	MJ	2.01E+02	2.12E+01	6.18E+00	6.90E+00	0.00E+00	3.60E-01	3.07E+00	0.00E+00	1.07E+00	-1.31E+01
PENRM	MJ	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
PENRT	MJ	2.01E+02	2.12E+01	6.18E+00	6.90E+00	0.00E+00	3.60E-01	3.07E+00	0.00E+00	1.07E+00	-1.31E+01
SM	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
RSF	MJ	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
NRSF	MJ	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
FW	m^3	6.30E-02	5.00E-04	2.72E-03	2.61E-01	0.00E+00	1.99E-04	2.95E-04	0.00E+00	4.66E-04	-6.98E-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

Results per functional unit											
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B2**	**B1, B3-B7**	**C1**	**C2**	**C3**	**C4**	**D**
HW	kg	7.01E-06	4.61E-10	3.58E-09	6.31E-10	0.00E+00	5.20E-10	1.18E-10	0.00E+00	2.62E-10	-3.08E-08
NHW	kg	3.57E+00	1.36E-03	3.82E-01	8.30E-02	0.00E+00	2.97E-04	5.02E-04	0.00E+00	5.34E+00	-4.88E-01
RW	kg	4.44E-03	1.30E-05	2.93E-04	3.25E-05	0.00E+00	5.74E-05	5.60E-06	0.00E+00	9.78E-06	-4.89E-04
Acronyms	HW = Hazardous waste disposed; NHW = Non-hazardous waste disposed; RW = Radioactive waste disposed										

Output flows

Results per functional unit											
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B2**	**B1, B3-B7**	**C1**	**C2**	**C3**	**C4**	**D**
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
RECYCLE	kg	0.00E+00	0.00E+00	5.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E+01	0.00E+00	0.00E+00
EN-REC	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
EE-E	MJ	0.00E+00	0.00E+00	7.54E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE-T	MJ	0.00E+00	0.00E+00	1.36E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acronyms	REUSE = Components for reuse; RECYCLE = Materials for recycling; EN-REC = Materials for Energy Recovery; EE-E= Exported Energy Electricity; EE-T= Exported Thermal Energy										

EN 15804 reference package based on EF 3.1 was used as LCIA method.
It is discouraged the use of the results of modules A1-A3 without considering the results of module C.
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.

7. Additional environmental information

Variation between the average results and the specific results of each product

Since this EPD covers two types of porcelain mosaic tiles, the variation table below compares the average results of different indicators from stages A to C between the specific results of each product.

Average results	*Difference*	*HP6410*	*Average results*	*BTHT01042*	*Difference*
1. Environmental impact indicators					
GWP-GHG	*-18.05%*	1.50E+01	**1.84E+01**	2.12E+01	*15.54%*
01 Climate Change - total [kg CO2 eq.]	*-18.05%*	1.50E+01	**1.84E+01**	2.12E+01	*15.54%*
02 Climate Change, fossil [kg CO2 eq.]	*-18.12%*	1.48E+01	**1.81E+01**	2.09E+01	*15.60%*
03 Climate Change, biogenic [kg CO2 eq.]	*-13.95%*	2.37E-01	**2.75E-01**	3.08E-01	*12.00%*
04 Climate Change, land use and land use change [kg CO2 eq.]	*-14.43%*	1.15E-02	**1.35E-02**	1.52E-02	*12.42%*
05 Ozone depletion [kg CFC-11 eq.]	*-12.35%*	1.47E-10	**1.67E-10**	1.85E-10	*10.63%*
06 Acidification [Mole of H+ eq.]	*-22.71%*	4.41E-02	**5.71E-02**	6.83E-02	*19.55%*
07 Eutrophication, freshwater [kg P eq.]	*-29.37%*	3.61E-05	**5.12E-05**	6.41E-05	*25.29%*
08 Eutrophication, marine [kg N eq.]	*-19.21%*	1.50E-02	**1.86E-02**	2.17E-02	*16.53%*
09 Eutrophication, terrestrial [Mole of N eq.]	*-18.74%*	1.66E-01	**2.04E-01**	2.37E-01	*16.13%*
10 Photochemical ozone formation, human health [kg NMVOC eq.]	*-19.46%*	4.19E-02	**5.20E-02**	6.08E-02	*16.75%*
11 Resource use, mineral and metals [kg Sb eq.]	*-95.59%*	4.14E-06	**9.38E-05**	1.71E-04	*82.28%*
12 Resource use, fossils [MJ]	*-18.45%*	1.95E+02	**2.40E+02**	2.78E+02	*15.88%*
13 Water use [m³ world equiv.]	*-7.64%*	1.31E+01	**1.42E+01**	1.51E+01	*6.58%*
2. Resource use indicators					
01 Use of renewable primary energy (PERE) [MJ]	*-26.46%*	1.76E+01	**2.39E+01**	2.94E+01	*22.77%*
02 Use of renewable primary energy resources used as raw materials (PERM) [MJ]	/	0.00E+00	**0.00E+00**	0.00E+00	/
03 Total use of renewable primary energy resources (PERT) [MJ]	*-26.46%*	1.76E+01	**2.39E+01**	2.94E+01	*22.77%*
04 Use of non-renewable primary energy (PENRE) [MJ]	*-18.45%*	1.95E+02	**2.40E+02**	2.78E+02	*15.88%*
05 Use of non-renewable primary energy resources used as raw materials (PENRM)	/	0.00E+00	**0.00E+00**	0.00E+00	/
06 Total use of non-renewable primary energy resources (PENRT) [MJ]	*-18.45%*	1.95E+02	**2.40E+02**	2.78E+02	*15.88%*
07 Input of secondary material (SM) [kg]	/	0.00E+00	**0.00E+00**	0.00E+00	/
08 Use of renewable secondary fuels (RSF) [MJ]	/	0.00E+00	**0.00E+00**	0.00E+00	/
09 Use of non renewable secondary fuels (NRSF) [MJ]	/	0.00E+00	**0.00E+00**	0.00E+00	/
10 Use of net fresh water (FW) [m3]	*-5.00%*	3.12E-01	**3.28E-01**	3.42E-01	*4.31%*
3. Waste categories	/				
01 Hazardous waste disposed (HWD) [kg]	*-32.00%*	4.77E-06	**7.01E-06**	8.95E-06	*27.55%*
02 Non-hazardous waste disposed (NHWD) [kg]	*-30.42%*	6.52E+00	**9.37E+00**	1.18E+01	*26.19%*
03 Radioactive waste disposed (RWD) [kg]	*-21.71%*	3.80E-03	**4.85E-03**	5.76E-03	*18.69%*
4. Output flows					
04 Components for re-use (CRU) [kg]	/	0.00E+00	**0.00E+00**	0.00E+00	/
05 Materials for Recycling (MFR) [kg]	*-11.92%*	1.15E+01	**1.31E+01**	1.44E+01	*10.26%*
06 Material for Energy Recovery (MER) [kg]	/	0.00E+00	**0.00E+00**	0.00E+00	/
07 Exported electrical energy (EEE) [MJ]	*-7.13%*	7.00E-03	**7.54E-03**	8.00E-03	*6.14%*
08 Exported thermal energy (EET) [MJ]	*-11.84%*	1.20E-02	**1.36E-02**	1.50E-02	*10.20%*
5. Optional indicators					
01 Particulate matter [Disease incidences]	*-21.60%*	8.64E-07	**1.10E-06**	1.31E-06	*18.59%*
02 Ionising radiation, human health [kBq U235 eq.]	*-23.41%*	3.31E-01	**4.32E-01**	5.19E-01	*20.15%*
03 Ecotoxicity, freshwater [CTUe]	*-14.25%*	8.85E+01	**1.03E+02**	1.16E+02	*12.27%*
04 Human toxicity, cancer [CTUh]	*-16.06%*	9.76E-09	**1.16E-08**	1.32E-08	*13.82%*
05 Human toxicity, non-cancer [CTUh]	*-30.47%*	6.85E-08	**9.85E-08**	1.24E-07	*26.22%*
06 Land Use [Pt]	*-17.12%*	4.40E+01	**5.31E+01**	6.09E+01	*14.74%*

8. Differences versus previous version

First edition of the EPD.

References

General Programme Instructions of the International EPD® System. Version 5.0.0
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