

In accordance with ISO 14025
EN 15804:2012+A2:2019/AC:2021
ISO 21930:2017



THE INTERNATIONAL EPD® SYSTEM



ENVIRONMENTAL PRODUCT DECLARATION

SEMIGRES CERAMIC
FOR INTERNAL WALL COVERINGS
≅ 7 - 7,5 - 8,5 - 8,8 - 10,5 MM

FIORANO MODENESE SITE,
MO - ITALY



EPD Programme	The international EPD® System, www.environdec.com
Programme operator	EPD International AB
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The stated validity is therefore subject to the continued registration and publication at www.environdec.com



IRIS
CERAMICA
GROUP



FMG FABBRICA
MARMI E GRANITI **iris**

iris
Ceramica

STONEPEAK

SURFACES
ACTIVE
design for a better life

BRANDS OF  **IRIS
CERAMICA
GROUP**

PROGRAMME INFORMATION

Programme	Programme operator address	Web site	E-mail
The International EPD® System, www.environdec.com	EPD International AB Box 210 60, 100 31 Stockholm, Sweden	www.environdec.com	info@environdec.com

The EN 15804 standard is the reference for the Core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, versione 1.3.1 C-PCR-002 Ceramic tiles (EN 17160:2019), versione 2019-12-20
PCR review was conducted by	The Technical Committee of the International EPD® System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via www.environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006	<input type="checkbox"/> EPD process certification (Internal) <input checked="" type="checkbox"/> EPD verification (External)
Third party verifier	Bureau Veritas Italia S.P.A. Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up of data during EPD validity involves third party verifier	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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EPDs of construction products may not be comparable if they do not comply with EN 15804.
EPDs within the same product category but from different programmes may not be comparable.
For further information about comparability, see EN 15804 and ISO 14025.

COMPANY INFORMATION

OWNER OF THE EPD

GranitiFiandre S.p.A., Via Radici Nord 112, 42014 Castellarano (RE), Italy

COMPANY PROFILE

Iris Ceramica Group is a benchmark for the design and development of high-end natural ceramic surfaces used in innovative architecture, interior design and furnishing solutions and projects. With over 60 years of history, the Group produces porcelain stoneware materials for floor and wall coverings and the interior design and furnishing sectors, designing solutions that meet the aesthetic and functional needs of architects, interior designers and clients. Over the years, the company has introduced a number of sustainable innovation processes, acquiring many technological patents that have become a standard for the production of technical ceramics (porcelain stoneware). The materials are manufactured in compliance with the toughest regulatory standards, respecting both people and the environment. This process is based on constant research into knowledge and practices fostering more sustainable and responsible decisions and life styles.

With its brands, Iris Ceramica Group delivers high-end wall and floor coverings, kitchen tops and furnishing solutions, combining exceptional performance with a distinctive style and high degree of customisation.

The materials are designed to fully meet contemporary living needs, offering functional indoor and outdoor solutions that are ideal for use in residential, commercial and industrial spaces.

Sustainability, innovation and excellent quality are the values that have always inspired the Group, expressed through the creation of natural ceramic surfaces that stand out for their technology and beauty, embodying a profound value: re-engineering ceramics to obtain solutions that improve the interaction between people and the environment.

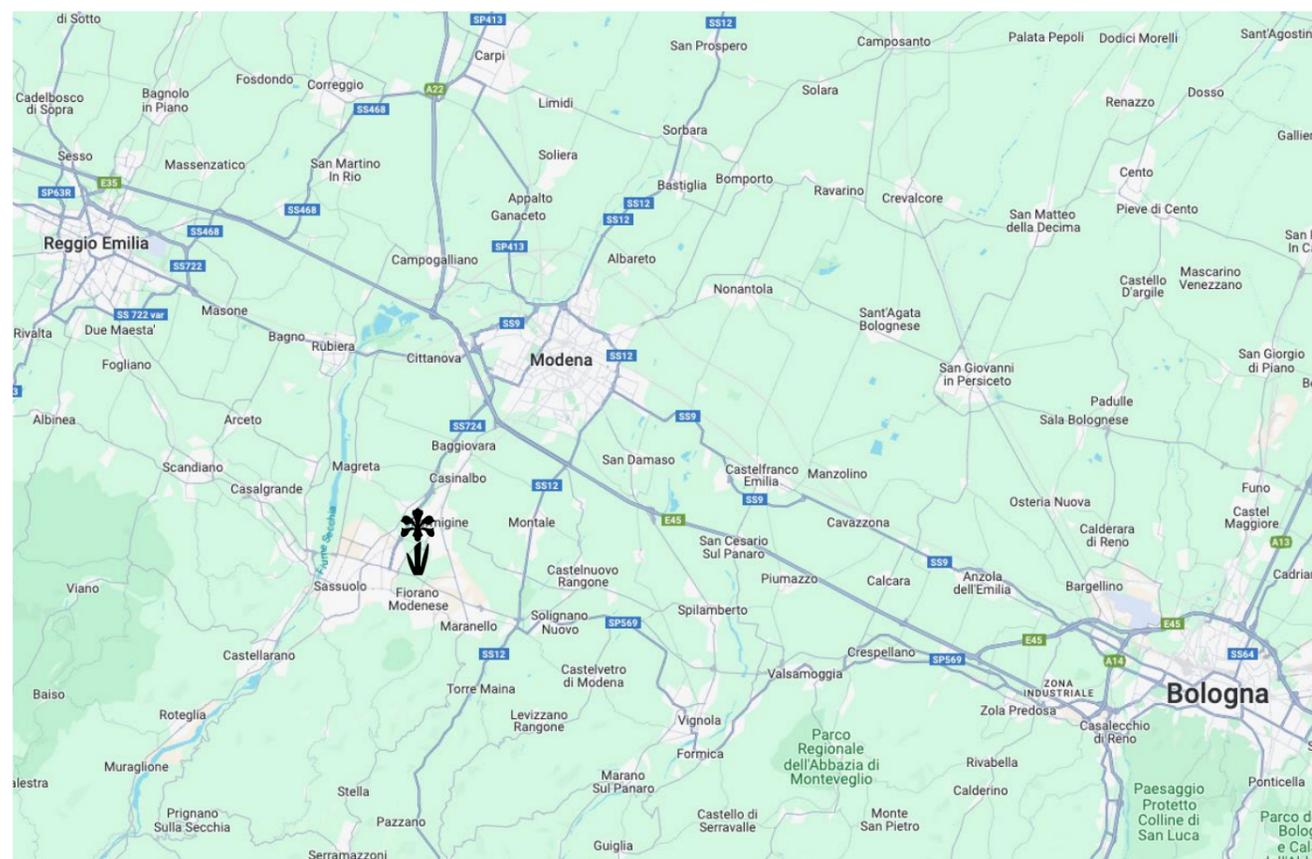
PRODUCTION SITES

The production process (from raw materials to finished product) does not always begin and end at the same plant, but the various process steps may be carried out at different sites.

For the production of the ceramic for internal wall coverings included in this EPD, the following facilities are considered:

LOCATIONS

Fiorano Modenese (MO), Via Ghiarola Nuova, 119



SUSTAINABILITY

We are **Ecopreneurs**, because for us responsible production is a real priority: Iris Ceramica Group's vision and mission are based on the equation "**Economy=Ecology**", the term coined in the 1960s by the group's pioneering Chairman and Founder Romano Minozzi, as demonstrated by over half a century of concrete commitment to sustainability. As **Eco-innovators**, we have always led the field: we work with latest-generation technologies, paving new ways for ceramic applications, all fully **respecting the environment**. We measure our commitment according to three **ESG criteria: environmental, social and corporate governance**, and for years we have been applying energy savings solutions to safeguard the environment, developing and investing in the related best practices.

Iris Ceramica Group's entire production process has also obtained the following certifications, thanks to the organisation and rigorous periodic inspections of its industrial processes:

- UNI EN ISO 9001: Quality Management System
- UNI CEI EN ISO 50001: Energy Management System
- UNI ISO 45001: Health & Safety Management System
- UNI/PdR 125: Gender Equality Management System



Iris Ceramica Group's ceramic surfaces have been certified as complying with the parameters set by the Green Building Council's **BREEAM** (BRE Environmental Assessment Method) and **LEED** (Leadership in Energy and Environmental Design) rating systems.



CONTACTS

For more information on Iris Ceramica Group or about this EPD, you can contact

Sustainability Dept. - Iris Ceramica Group
 Phone number: +39 0536 819611 - e-mail: sustainability@icgmail.com

Alternatively, the following site can be consulted: www.irisceramicagroup.com

PRODUCT INFORMATION

PRODUCT NAME

Semigres ceramics for internal wall coverings and interior decoration.

PRODUCT IDENTIFICATION

The product range included in this EPD includes semi-gres ceramic materials for interior wall coverings under the brands FMG Fabbrica Marmi e Graniti, Iris Ceramica, Stonepeak Ceramics and Active Surfaces® in thicknesses 7 mm, 7.5 mm, 8.5 mm, 8.8 mm, 10 mm and 10.5 mm.

PRODUCT DESCRIPTION

The Iris Ceramica Group produces top of the range natural ceramic surfaces for interior wall coverings and interior decoration for residential, contract and architectural projects. A vocation for experimentation and innovation, the ability to anticipate the evolution of living and attention to the wellbeing of people and the environment are the strengths that have enabled the Iris Ceramica Group to represent the best Made in Italy design throughout the world.

UN CPC CODE

3732 Refractory bricks, blocks, tiles and similar refractory ceramic constructional goods, other than those of siliceous earths

GEOGRAPHICAL SCOPE

Global

TECHNICAL SPECIFICATIONS

The materials meet requirements defined by the European standard EN 14411 and ISO 13006 Annex G, according to criteria established by test method ISO 10545 - "International Organization for Standardization Specifications for Ceramic Tile", reported below.

Technical Properties	Standard or Measuring Method	Value required EN14411 ANNEX L	Average values of production
Water Absorption	ISO 10545-3	> 10%	16%
Length and width	ISO 10545-2	± 0.5%	Compliant
Thickness		± 10%	
Streightness of sides		± 0.3%	
Rectangularity		± 0.5%	
Planarity		± 0.5% / - 0.3%	
Modulus of rupture (R)	ISO 10545-4	$R \geq 15 \text{ N/mm}^2$	20 N/mm ²
Resistance to superficial abrasion	ISO 10545-7	Available test method	Variable depending on colour
Coefficient of linear thermal expansion	ISO 10545-8	Available test method	$8 \times 10^{-6} \text{ C}^{-1}$
Resistance to thermal shock	ISO 10545-9	Available test method	Compliant
Resistance to chemicals* - Household chemicals - Swimming pool salts	ISO 10545-13	Min. Classe B	Compliant
Resistance to staining	ISO 10545-14	Min. Classe 3	Compliant
Reaction to fire	Decision 96/603 CE Test absent	-	A1 – A1 _{FL}

(*) With the exception of HYDROFLUORIC acid (HF) or its derivatives and compounds

PRODUCTION PROCESS

The production process of the ceramic materials covered by this EPD is divided into a series of working phases as described below:

Raw materials acquisition: mineral raw materials (clay, sand, feldspar, kaolin, pigments) arrive at the production facilities and are stored in special warehouses.

The clay fraction performs a plasticizing function; the inert fraction (sand) a slimming and structural function, capable of limiting shrinkage and expansion during the firing of the ceramic piece; the feldspathic fraction has a melting function, which allows the glass formation during the baking of the piece.

Mixture preparation: the mineral raw materials suitably pre-mixed are dosed (in a variable percentage according to the production recipe) inside the milling plants, consisting of continuous mills.

At the same time and in appropriate percentages, water (taken from wells and recirculation), fluidifying agent and grinding bodies (consisting of pebbles and alumina spheres) are added to the raw materials. The dough that is formed with a percentage of water equal to about 30% is called "slip".

Spray-drying: the "slip" is sprayed inside steel cylinders (spray-dryers), where it is sprayed to obtain very fine droplets. Subsequently, hot air is introduced for the drying of the drops of slip producing the atomized, mixture of granules with controlled humidity.

Forming: the atomized powders are mixed, sieved and then compacted by pressing between two surfaces in order to obtain a raw compacted product, the so-called "green slab".

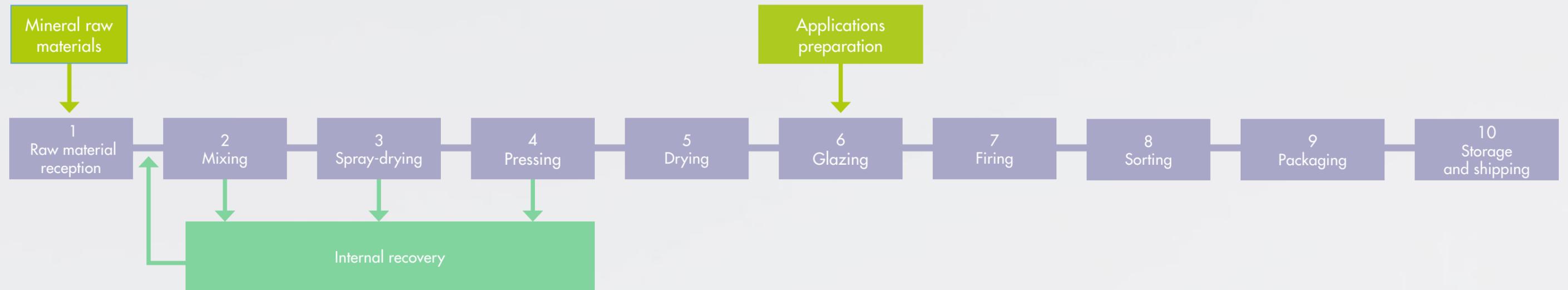
Drying: the formed tile undergoes a drying process by means of a recirculation of hot air which considerably reduces its humidity to almost negligible levels, and gives it an even higher mechanical load, which allows it to be subjected to various surface processes to confer appropriate aesthetic properties.

Surface processing/glazing: the desired final aesthetic effect is obtained by a superficial application of a small quantity of glaze.

Firing: the firing phase has the aim of reinforcing the ceramic material so as to give mechanical characteristics, inertia and physical-chemical resistance appropriate to the different uses. The dried sheet is placed in ovens and cooked. During the cooking cycle, the ceramic is preheated, cooked and cooled; the durability of these phases and the temperature reached determine the mechanical and resistance characteristics pursued.

Sorting, packaging and storage: during the sorting phase all the dimensional and qualitative characteristics are checked. This phase is carried out in appropriately equipped automatic lines. The finished packed material is ready to be shipped by lorries or containers to the final user.

FLOW DIAGRAM OF THE PRODUCTION PROCESS



LCA INFORMATION

Functional Unit	Coverage of 1 m ² of flooring in buildings for residential and commercial use for a duration of over 50 years. Weight: 22.22 kg/m ² Conversion factor for 1 kg is 0.045.
Reference Service Life (RSL)	The RLS of the tiles is generally over 50 years (BNB 2011). Furthermore, according to the US Green Building Council, the RLS of the tiles could have the same duration as the building itself; therefore, 60 years represents an alternative RSL value for tiles. The environmental performance results reported in this EPD refer to the product RSL with the exception of the B2-Maintenance module for which they refer to 1 year (multiplying the B2 values by 50 or 60 it is possible to obtain performance values relating to the useful life). An RSL has not been defined in accordance with ISO 15686.
Temporal representativeness	Primary data relating to the production facilities refer to the year 2022.
Database and LCA software	Ecoinvent 3.8 and Simapro 9.5.0.1
System boundaries	From cradle to grave and module D (A+B+C+D)
Allocations	Allocations relating to input and output flows were made on a mass basis
Cut-off	In accordance with EN 15084, a minimum of 95% of the total mass and energy flows per module has been included
Electric Mix (Module A3)	<p>Sassuolo and Fiorano site: Renewable sources: 41.19%, fossil sources: 54.28%; Nuclear: 4.52% (Italian Residual Mix 2022) Climate impact of electricity production: 0.358 kg CO₂ eq./kWh</p> <p>Castellarano site: Renewable sources: 100% Climate impact of electricity production: 0.00652 kg CO₂ eq./kWh</p>
Exclusions	Processes found to be not significant with respect to overall environmental performance were excluded. The environmental impacts of administrative activities, the movement of workers to and from the workplace, cleaning activities, the construction of machinery and plants were excluded, as they were not directly related to the product.
Technical support for the LCA	Bureau Veritas Nexta Srl – www.nexta.bureauveritas.it

DECLARED MODULES, GEOGRAPHICAL REPRESENTATION, DATA VARIATION

	Product stage			Construction Process stage		Use stage							End of life stage				Resource Recovery Stage
	Raw materials supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse - recovery Recycling - potential
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Declared modules	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Geography	GLO	GLO	IT	GLO													GLO
Specific data	> 90%																

X = Module Declared; ND = Module not declared

	A1 - A3				
	7 mm	7,5 mm	8,5 mm	8,8 mm	10 mm
Variation - products %	<10%	<10%	<10%	<10%	<10%
Variation - Sites %	Not relevant				

A1-A3 “PRODUCTION STAGE”

A1 - Raw materials supply

Ceramic tiles for interior wall coverings are mainly composed of mineral raw materials (clay, quartz, kaolin, feldspar) that come partly directly from the quarry and partly from mainly pre-consumer recycled material and/or ceramic waste from other ceramic factories.

The module covers the processes of extraction of local mineral raw materials, manufacture of the fluidifier and coloured pigments, and generation of the electricity necessary for production at Iris Ceramica Group production site.

A2 – Raw material transport

The module includes the transport of raw materials by road to the production site.

A3 – Manufacturing

The module covers the manufacturing activities at the production sites covered by this study, the production of packaging and auxiliary materials and the transport and treatment processes of the waste produced.

A4-A5 “CONSTRUCTION PROCESS STAGE”

A4 – Product transport to building site

The module includes the transport of ceramic materials from Iris Ceramica Group production site to the customer or to the point of installation. The marketing of the products takes place all over the world.

The transport scenarios used (distances and transport vehicles) are shown in the following table and refer to average data reported in the EN 17160: 2019 standard (Product category rules for ceramic tiles).

Scenario Information	Unit / description
Fuel type and consumption	Diesel – 31.2 l/100 km (National and European destination)
Distance	National destination (Truck with a capacity of 16-32 tons): 300 km European destination (Truck with a capacity of 16-32 tons): 1390 km International (non-European) destination (Transoceanic freight ship): 6520 km
Capacity utilization	% assumed in Ecoinvent 3.8
Bulk density of transported product	0.08-1.03 kg/m ³ per Functional Unit, depending on product thickness

A5 – Product Installation

The module includes the product installation phases and the treatment of the waste produced (e.g. from packaging). The ceramic materials are fixed to the surfaces of walls and floors using specific materials and in different quantities: the installation scenarios used are shown in the following table and refer to average data reported in the EN 17160: 2019 standard (Product category rules for ceramic tiles).

The production of ceramic waste in the installation phase is negligible.

Scenario Information	Unit / description
Ancillary materials for installation	6 kg/FU of cementitious adhesive
Use of water	No use of water resulting from product installation
Use of other resources	No use of other resources resulting from product installation
Quantitative description of the type of energy and the consumption during the installation process	No consumption of energy resulting from product installation
Waste materials on the building site generated by the product's installation	Packaging waste: Wood: 1.5 kg/FU depending on product thickness Cardboard: 0.23 kg/FU depending on product thickness PE stretch Film: 0.012 kg/FU depending on product thickness
Output materials as a result of waste processing at the building's site	Wood: 42% recycling, 23% energy recovery, 35% landfill Cardboard: 70% recycling, 5% energy recovery, 25% landfill PE Stretch Film: 33% recycling, 27% energy recovery, 40% landfill
Direct emissions to ambient air, soil and water	No emissions to air, soil or water resulting from product installation

B1-B7 “USE STAGE”

B1 - Use

During use, ceramic materials do not require the use of resources nor generate emissions into the environment. At this stage there are no processes that generate environmental impacts.

B2 - Maintenance

The maintenance of the ceramic consists of cleaning operations with detergents, which varies according to the type of building (residential, commercial, sanitary). The module therefore includes the water supply and detergent production processes. The maintenance scenarios used are shown in the following table and refer to average data reported in the EN 17160: 2019 standard (Product category rules for ceramic tiles). The values declared in this stage refer to a time period of 1 year.

Scenario Information	Unit / description
Maintenance process	Periodic cleaning using floor disinfectants
Maintenance cycle	52/year
Ancillary materials for maintenance	Liquid detergent: 0.2 ml/week
Waste materials resulting from maintenance	Not relevant
Net fresh water consumption during maintenance	0.1 l/week
Energy input during maintenance	No energy input during maintenance

B3-B4-B5 – Repair, replacement and refurbishment

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

B6 – B7 – Operational energy use and Operational water use

These modules are not relevant for ceramics.

C1-C4 “END OF LIFE STAGE”

C1 – De-construction demolition

This module includes the processes of de-construction and removal of ceramic material at the end of their life. It is not relevant from the point of view of environmental impacts.

C2 – Transport

The module includes the transportation of the demolished ceramic material to a recycling or disposal process.

C3 – Waste processing and C4 - Disposal

The modules include the treatment processes aimed at recycling (C3) and final disposal in landfills (C4) of the ceramic materials at the end of life.

Scenario Information	Unit
Collection process	kg/FU collected separately: 0%
	Kg/FU collected with mixed construction waste: 100% for all products
Recovery system	kg/FU for re-use: 0
	kg/FU for recycling (depending on product thickness): 14.88 (10.5 mm)
	kg/FU for energy recovery: 0
Disposal	kg/FU for final disposal (depending on product thickness): 7.33 (10.5 mm)
Waste transportation (distance)	50 km. The return trip is included in the system.

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 ceramic included in this EPD, the net environmental benefits from recycling, packaging and the net environmental benefits from energy recovery of packaging are calculated.

CONTENT DECLARATION

Ceramics for interior wall coverings is mainly composed of mineral raw materials (clay, quartz and feldspathic).

The aesthetic aspect is obtained before firing through surface decorations with inks or through glazing (the glaze is mainly made up of silicate glass).

Auxiliary additives, such as the fluidifying agents necessary to facilitate the grinding process of mineral raw materials, also form part of the product composition.

The packaging materials are cardboard, polyethylene stretch film and wood. The quantity of packaging materials varies according to the thickness and size of the tiles.

Ceramic materials DO NOT contain substances with a high degree of concern SVHC contemplated in the ECHA Candidate List in concentrations greater than 0,1% by mass.

The weight content of the ceramic for internal coverings included in the EPD is shown in the following tables.

Product components		Weight % Average Value	Post-consumer material. weight-%	Pre-consumer material. weight-%	Biogenic carbon content. kgC/kg
Mineral raw materials	Clay	94.8%	0%	>20%	0
	Feldspar				0
	Kaolin				0
	Sand				0
	Others				0
Coloring pigments		0%	0%	0%	0
Inks/glaze*		5.2%	0%	0%	0
Auxiliary additives		<1%	0%	0%	0
Total		100%	0%	>20%	0
		22.22 kg/m ²			

* inks and glaze are alternative

Packaging materials	Weight. %		Biogenic carbon content. kgC/kg
	Kg/mq	% on FU	
Cardboard	0.23	1.03	9.35E-02
Polyethylene film	0.0012	0.0054	0
Wood	1.5	6.75	6.70E-01

ENVIRONMENTAL PERFORMANCE

POTENTIAL ENVIRONMENTAL IMPACTS - 10,5 mm

Indicators	Units	A1-A3	A4	A5	B1 - B3 B4 - B5 B6 - B7 C1	B2	C2	C3	C4	D
GWP-total	kg CO ₂ eq	1.88E+01	3.61E+00	3.93E+00	0.00E+00	4.51E-02	3.97E-01	1.74E-01	4.81E-02	7.66E+00
GWP-fossil	kg CO ₂ eq	1.87E+01	3.61E+00	3.83E+00	0.00E+00	3.46E-02	3.96E-01	1.73E-01	4.81E-02	7.66E+00
GWP-biogen.	kg CO ₂ eq	9.66E-02	1.16E-03	9.71E-02	0.00E+00	1.14E-04	1.16E-04	3.18E-04	2.29E-05	1.08E-04
GWP-luluc	kg CO ₂ eq	5.71E-03	1.39E-03	1.87E-03	0.00E+00	1.04E-02	1.43E-04	1.63E-04	1.46E-05	4.38E-04
GWP-GHG ¹	kg CO ₂ eq	1.88E+01	3.93E+00	4.51E-02	0.00E+00	4.51E-02	1.74E-01	4.81E-02	3.61E+00	7.66E+00
ODP	kgCFC11eq	3.17E-06	2.49E-07	2.44E-09	0.00E+00	2.44E-09	2.97E-08	2.02E-08	8.12E-07	1.30E-07
AP	mol H+ eq	7.73E-02	1.51E-02	2.28E-04	0.00E+00	2.28E-04	1.38E-03	4.66E-04	2.62E-02	6.17E-02
EP-freshw.	kg P eq	3.21E-03	5.99E-04	1.27E-05	0.00E+00	1.27E-05	3.96E-05	5.04E-06	3.00E-04	2.25E-03
EP-marine	kg N eq	1.54E-02	4.41E-03	1.44E-04	0.00E+00	1.44E-04	5.04E-04	1.61E-04	6.48E-03	7.01E-03
EP-terrestrial	mol N eq	1.64E-01	4.62E-02	6.31E-04	0.00E+00	6.31E-04	5.47E-03	1.77E-03	7.16E-02	7.32E-02
POCP	kgNMVOC	4.26E-02	1.12E-02	9.95E-05	0.00E+00	9.95E-05	1.33E-03	4.35E-04	1.77E-02	2.06E-02
ADPmin&met ²	kg Sb eq	1.20E-04	2.50E-04	8.68E-07	0.00E+00	8.68E-07	1.11E-06	4.49E-07	8.43E-05	-1.35E-05
ADPfossil ²	MJ	2.74E+02	2.70E+01	6.76E-01	0.00E+00	6.76E-01	2.58E+00	1.37E+00	5.45E+01	6.35E+01
WDP ²	m3.depriv.	6.14E+00	3.87E-01	2.59E-01	0.00E+00	2.59E-01	3.64E-02	6.14E-02	1.76E-01	-4.30E-01

GWP-total = Climate change; GWP-fossil = Climate change – fossil; GWP-biogenic = Climate change – biogenic; GWP-luluc = Climate change - land use and land use change; GWP-GHG = GWP total excluded biogenic carbon dioxide emissions and biogenic carbon stored in the product; 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 use

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 - 10,5 mm

Indicators	Units	A1-A3	A4	A5	B1 - B3 B4 - B5 B6 - B7 C1	B2	C2	C3	C4	D
PERE	MJ	6.59E+01	2.86E+00	3.05E-01	0.00E+00	8.51E-02	1.00E-01	1.11E-02	8.37E-01	0.00E+00
PERM	MJ	2.47E+01	0.00E+00	-2.52E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	9.06E+01	2.86E+00	-2.49E+01	0.00E+00	8.51E-02	1.00E-01	1.11E-02	8.37E-01	0.00E+00
PENRE	MJ	2.99E+02	2.86E+01	7.44E-01	0.00E+00	6.40E+00	2.75E+00	1.46E+00	5.79E+01	0.00E+00
PENRM	MJ	-3.55E+00	0.00E+00	-4.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.95E+02	2.86E+01	3.38E-01	0.00E+00	6.40E+00	2.75E+00	1.46E+00	5.79E+01	0.00E+00
SM	Kg	3.27E+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
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
FW	m³	1.52E-01	6.40E-03	1.39E-02	0.00E+00	7.02E-03	6.23E-04	1.06E-03	1.45E-03	0.00E+00

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 resources; SM = Use of secondary material; RM: Use of recycled materials and by-products (according to Green Building Protocols as LEED and BREEAM); RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

WASTE PRODUCTION - 10,5 mm

Indicators	Units	A1-A3	A4	A5	B1 - B3 B4 - B5 B6 - B7 C1	B2	C2	C3	C4	D
HW	Kg	9.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHW	Kg	3.05E-01	0.00E+00	1.76E+00	0.00E+00	0.00E+00	0.00E+00	1.49E+01	7.33E+00	0.00E+00
RW	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

HW = Hazardous waste disposed; NHW = Non-hazardous waste disposed; RW = Radioactive waste disposed

OUTPUT FLOWS - 10,5 mm

Indicators	Units	A1-A3	A4	A5	B1 - B3 B4 - B5 B6 - B7 C1	B2	C2	C3	C4	D
REUSE	Kg	3.37E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RECYCLE	Kg	7.95E+00	0.00E+00	8.04E-01	0.00E+00	0.00E+00	0.00E+00	1.49E+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
EE-E	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
EE-T	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

REUSE = Components for reuse; RECYCLE = Materials for recycling; EN-REC = Materials for Energy Recovery; EE-E= Exported Energy Electricity; EE-T= Exported Thermal Energy

CONVERSION FACTORS

Indicators	Units	7 mm	7,5 mm	8,5 mm	8,8 mm	10mm	10,5mm
GWP-total	kg CO ₂ eq	1.50	1.38	1.33	1.23	1.02	1
GWP-fossil	kg CO ₂ eq	1.51	1.38	1.33	1.24	1.02	1
GWP-biogen.	kg CO ₂ eq	1.23	1.17	1.16	1.12	1.01	1
GWP-luluc	kg CO ₂ eq	1.09	1.08	1.07	1.05	1.01	1
GWP-GHG	kg CO ₂ eq	1.50	1.38	1.33	1.23	1.02	1
ODP	kgCFC11eq	1.60	1.41	1.39	1.27	1.00	1
AP	mol H+ eq	1.51	1.39	1.34	1.24	1.03	1
EP-freshw.	kg P eq	1.48	1.37	1.32	1.22	1.03	1
EP-marine	kg N eq	1.46	1.35	1.31	1.22	1.02	1
EP-terrestrial	mol N eq	1.46	1.35	1.31	1.22	1.02	1
POCP	kgNMVOC	1.47	1.36	1.32	1.22	1.02	1
ADPmin&met	kg Sb eq	1.21	1.16	1.15	1.11	1.01	1
ADPfossil	MJ	1.56	1.39	1.37	1.26	1.00	1
WDP	m3.depriv.	1.56	1.40	1.37	1.25	1.01	1

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

The values of the following additional environmental impact indicators have been calculated by LCA analysis and are available on request by writing to sustainability@icgmail.com

Indicator	Particulate matter emissions	Ionising radiation, human health*	Ecotoxicity (freshwater)**	Human toxicity, cancer effects**	Human toxicity, non-cancer effects**	Land use related impacts / soil quality**
Unit	Disease incidence	kBq U235eq	CTUe	CTUe	CTUe	dimensionless

* 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.

** 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 experience with the indicator.

ADDITIONAL INFORMATION

PRODUCT CIRCULARITY

Iris Ceramica Group materials are manufactured using variable amounts of pre and post consumer materials as raw materials input, in quantities exceeding 40% by weight of the product.

At the end of the reference service life of the product, which can be assessed in at least 50 years, the product could be entirely subjected to a simple mechanical crushing treatment for the recovery of material that can be used in various other sectors (for example concrete production, road construction) instead of primary materials.

Iris Ceramica Group production is a closed-circuit and all the raw materials waste and wastewater are reused into the production cycle.

AIR QUALITY (USE STAGE)

Our materials do not contain added VOC (volatile organic compounds). With regard to emissions of VOCs and formaldehyde in indoor environments, emissions of Iris Ceramica Group ceramic slabs are classified A +.

No need for sealants or waxes that could contribute to the emission of harmful VOCs in buildings. The stain-resistant surface reduces the need to use strong detergents. For routine cleaning, a pH-neutral detergent is all that is needed.



GREENGUARD – GREENGUARD GOLD

The GREENGUARD Certification ensures that materials intended for indoor use are characterized by the absence of emissions of volatile substances, helping to create healthier environments.

The GREENGUARD Gold Certification includes safety factors that take account of sensitive subjects (such as children and elderly) and ensures that the use of a product is acceptable in environments such as schools and health facilities. This certification is widely recognized and accepted by sustainable building programs and building codes worldwide. In the US, it is taken as a reference of the evaluation system of the CHPS buildings (The Collaborative for High Performance Schools) and LEED (Leadership in Energy and Environmental Design).

For more information on the GREENGUARD certified products, refer to the website: www.spot.ul.com



END OF LIFE

Iris Ceramica Group Porcelain Stoneware slabs offer an additional guarantee of respect for the environment even in the end of life stage. In fact all the materials at the end of their life cycle do not require treatments since, by virtue of the high chemical inertia, do not release substances into the environment. Precisely for this reason they are considered to all effects inert materials. They can be used as fill material for construction sites and as background material for road beds, thus reducing the need for quarried gravel.

DIFFERENCES VERSUS PREVIOUS VERSION

This EPD is the first edition and it is not possible to conduct analyses using earlier versions.

REFERENCES

- International EPD® System - General Programme Instructions, Version 4.0
- International EPD® System - PCR 2019:14 Construction products, versione 1.3.1
- International EPD® System - C-PCR-002 Ceramic tiles (EN 17160:2019), version 2019-12-20
- EN 15804:2012+A2:2019 Sustainability of Construction Works
- EN 17160:2019 Product category rules for ceramic tiles
- ISO 14020:2000 Environmental labels and declarations-General principles
- ISO 14025:2010 Environmental labels and declarations-Type III Environmental Declarations-Principles and procedures
- ISO 14040:2006 Environmental management-Life Cycle Assessment-Principles and framework
- ISO 14044:2018 Environmental management-Life Cycle AssessmentRequirements and guidelines
- Report LCA "Superfici ceramiche IRIS CERAMICA GROUP" - Rev1, December 2023



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