

## Tender specifications | BOREALIS collection

Supply of Panaria Ceramica porcelain stoneware tiles for walls and floors.

### Product characteristics

Panaria Ceramica coloured-body porcelain stoneware tiles, unglazed, composed of a very fine mixture of quality clay with the addition of feldspar, quartz and kaolin, manufactured by dry pressing of atomized powders and subsequently sintered by industrial firing at temperatures above 1200°C.

The complete vitrification of the tiles allows for a compact, non-absorbent, frost-proof product, resistant to bending, impacts, staining, chemical attack and thermal shock.

### Compliance with EN 14411-G / ISO 13006-G

The BOREALIS collection is in compliance with the regulations required for first quality products in Italy and Europe UNI EN 14411-G and internationally through ISO 13006-G.

### Quality and environmental certifications

The conservation of the product characteristics is guaranteed by the Quality Management System put into practice by Panaria Ceramica in its plants and certified in accordance with UNI EN ISO 9001.

The collection is manufactured in plants with UNI EN ISO 14001 certified Environmental Management Systems (internationally recognized standard) and EMAS (Regulation CE 1221/09 - eco-management and audit community system).

The collection helps to meet the criteria for obtaining LEED credits. The content of "pre-consumer" recycled material is 40%, as certified by a qualified external body (LEED V4 Regulations - MR Credit).

The product contains no VOC (volatile organic compounds) and got the GREENGUARD GOLD certification.

The Environmental Product Declaration (EPD) is available, this tool communicates clearly the environmental performances of the BOREALIS collection based on its Life Cycle Assessment (LCA).

For all the items in the collection, the calculation of the carbon footprint (PCF) over the entire life cycle is available, expressed as CO<sub>2</sub> equivalent per unit of product, certified according to ISO 14067.

The collection complies with the technical specifications and contractual conditions applicable to porcelain stoneware outlined in the Ministerial Decree of 23 June 2022 "Minimum environmental criteria for the contracting of the design and execution of works for building projects".

### Antibacterial properties

Thanks to Protect antibacterial technology, the tiles from the BOREALIS collection have continuous, effective and durable protection against the proliferation of bacteria, tested and certified in accordance with ISO 22196 and ASTM E3031.

Commercial description of the product	
Company	PANARIA CERAMICA (Panariagroup Industrie Ceramiche S.p.A.)
Collection	BOREALIS
Colours	INARI, ABISKO, DONEGAL
Sizes	30x180 cm Rect NATURALE
	20x120 cm Rect NATURALE
	20x120 cm Rect EXT (Abisko)
	40x120 cm Rect STRUTTURATO 20 mm (Abisko)
Surfaces	NATURALE, EXT*, STRUTTURATO*
Edges	RECTIFIED (RECT)
Thickness	9 mm - 10,5 mm - 20 mm

(\*) The antimicrobial protection is not applied.

## Tender specifications | BOREALIS collection

### Technical features

Product type: coloured-body porcelain stoneware (UGL)

According to: ISO 13006-G (Group Bla), EN 14411-G (Group Bla)

Technical features	Test method	Required values ISO 13006-G / EN 14411-G Bla-UGL Group	Average values BOREALIS
Water absorption	ISO 10545-3	$\leq 0,5\%$	0,05%
Breaking strength (S)	ISO 10545-4	$\geq 1300 \text{ N}$	Thickness 9 mm: 2200 N Thickness 10,5 mm: 2500 N Thickness 20 mm: 13600 N
Modulus of rupture	ISO 10545-4	$\geq 35 \text{ N/mm}^2$	$50 \text{ N/mm}^2$
Deep abrasion resistance	ISO 10545-6	$\leq 175 \text{ mm}^3$	$145 \text{ mm}^3$
Linear thermal expansion	ISO 10545-8	No provision	$\alpha \leq 7 \cdot 10^{-6} \text{ }^{\circ}\text{C}^{-1}$
Stain resistance	ISO 10545-14	Class 3 min.	5 RESISTANT
Chemical resistance (*)	ISO 10545-13	As indicated by manufacturer	LA, HA RESISTANT
Frost resistance	ISO 10545-12	No alteration	RESISTANT
Dimensions	Length and width	RECT $\pm 0,3\%$ , max $\pm 1 \text{ mm}$	COMPLIANT
	Straightness of sides	RECT $\pm 0,3\%$ , max $\pm 0,8 \text{ mm}$	COMPLIANT
	Rectangularity	RECT $\pm 0,3\%$ , max $\pm 1,5 \text{ mm}$	COMPLIANT
	Warpage	RECT $\pm 0,4\%$ , max $\pm 1,8 \text{ mm}$	COMPLIANT
	Thickness	$\pm 5\% \pm 0,5 \text{ mm}$	COMPLIANT
Slip resistance	DIN EN 16165 - Annex B	-	R10 (NATURALE) R11 (EXT, STRUTTURATO 20 mm)
	DIN EN 16165 - Annex A	-	C (EXT, STRUTTURATO 20 mm)
	BCR-TORTUS	-	$\mu > 0,40$ (NATURALE, EXT, STRUTTURATO 20 mm)
	ANSI A326.3	-	ID - DCOF $\geq 0,42$ (Dry): NATURALE IW - DCOF $\geq 0,42$ (Wet): NATURALE IW+: NATURALE (***) EW: EXT, STRUTTURATO 20 mm
	AS/NZS 4586	-	P4 (EXT, STRUTTURATO)
	BS EN 16165 - Annex C	-	PTV 36+Wet (SI.96- SI.55): EXT, STRUTTURATO 20 mm
Shade variation	ANSI A137.1	As indicated by manufacturer	V3
Fire reaction	EN 13823	CPR (UE) 305/2011, 2000/147/CE, UNI EN 13501-1	Class A1 (wall)
	EN 9239-1		Class A1 <sub>fl</sub> (floor)
Thermal conductivity	EN 12524	-	$\lambda = 1,3 \text{ W/m }^{\circ}\text{K}$
Recommended minimum joint (**)	Indoor	-	2 mm (RECT)
	Outdoor	-	5-6 mm approx

(\*) Excluding hydrofluoric acid and its derivatives.

(\*\*) The width of grout joints must be established by the installation supervisor, unless grout widths are regulated by national laying standards.

(\*\*\*) With the exception of areas characterized by a higher risk of slipping (such as public showers, indoor swimming pools, etc.) for which an anti-slip surface is recommended (EXT).

