

Tender Specifications

Supply of ceramic wall and floor tiles

Product characteristics

Unglazed Porcelain Tiles (UGL)

Unglazed porcelain stoneware consists of a mixture of quality clay with the addition of feldspar, quartz and kaolin. It is manufactured by dry pressing of atomized powder and then sintered by industrial burning at temperatures above 1200°C. The glazing level of the material makes it possible to obtain a compact, non-porous product, resistant to ice, bending, impact, staining, chemical attack and thermal shock.

The Subway and Linea Subway collection complies with the regulations required for top quality products in Europe according to EN 14411 - Annex G and internationally through ISO 13006 - Annex G.

Quality and environmental certifications

The conservation of the product characteristics is guaranteed by the Quality Management System put into practice by Gres Panaria Portugal in its plants and certified in accordance with EN ISO 9001. The collection is manufactured in plants with EN ISO 14001 certified Environmental Management Systems (internationally recognized standard) and EMAS (Regulation 1221/09 - eco-management and audit community system). The collection helps to meet the criteria for obtaining LEED credits.

Antibacterial properties - PR()TECT®

Thanks to Protect antibacterial technology, the tiles in the Linea Subway collection have continuous, effective and long-lasting protection against the proliferation of bacteria, tested and certified according to ISO 22196 and ASTM E3031.

Commercial description of the product	
Brand	Margres
Collection	Subway _ Linea Subway
Colours	White, Ash, Clay, Smoke
Sizes	100x300 _ 100x100 _ 50x100 (NR) _ 90x90 _ 45x90 (A) _ 60x60 (A, E ASR) _ 30x60 (A)
Finish - Surface	Natural (NR) _ Soft Shiny (A) _ Anti-Slip (E ASR)
Finish - Edge	Rectified
Thickness	20mm (60x60) 9,5mm (90x90) 8,5mm (60x60, 30x60) 3,5mm (100x300, 100x100, 50x100)



Tender Specifications

Technical features

Product type: **Unglazed Porcelain Tiles (UGL)**

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

Technical features		Test method	Prescribed Value	Typical Value
Dimensions	Lenght and width	EN ISO 10545-2	Rect. $\pm 0,3\%$, máx ± 1 mm	Conform
	Side straightness		Rect. $\pm 0,3\%$, máx $\pm 0,8$ mm	Conform
	Rectangularity		Rect. $\pm 0,3\%$, máx $\pm 1,5$ mm	Conform
	Warpage		Rect. $\pm 0,4\%$, máx $\pm 1,8$ mm	Conform
	Thickness		$\pm 5\%$ máx $\pm 0,5$ mm	Conform
Water absorption		EN ISO 10545-3	$\leq 0,5\%$	0,1%
Modulus of rupture		EN ISO 10545-4	≥ 35 N/mm ²	42 N/mm ² 60x60 20MM 45 N/mm ² 90x90_60x60_30x60 42 N/mm ² 45x90
Breaking strength (S)			≥ 1300 N	1000N 60x60 20mm 2500N 90x90 9,5mm 2200N 45x90 9,0mm 2000N 60x60_30x60 8,5mm
Abrasion resistance		EN ISO 10545-6	≤ 175 mm ³	139 mm ³
Linear thermal expansion		EN ISO 10545-8	As indicated by manufacturer	$\alpha \leq 7,5 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$
Thermal shock resistance		EN ISO 10545-9	Required	Resistant
Frost resistance		EN ISO 10545-12	Required	Resistant
Resistance against acids and alkalis		EN ISO 10545-13	As indicated by manufacturer	Minimum: LA 90x90_45x90 Minimum: LB 60x60_30x60
Resistance to household cleaning products			Minimum: B	Class A
Stain Resistance		EN ISO 10545-14	As indicated by manufacturer	4 Simple removal
Slip Resistance		DIN EN 16165 Annex B	As indicated by manufacturer	R10 E ASR R9 NR
		DIN EN 16165 Annex A		Class B E ASR Class A NR
		DIN EN 16165 Annex C		≥ 36 E ASR
		AS/NZS 4586		P3 NR
Shade Variation		ANSI A137.1	V0 None _ V1 Minor V2 Low _ V3 Medium _ V4 Major	V2 Slight variation
Recomended joint		Indoor Outdoor 20mm raised floor	-	Minimum 2mm Minimum 3mm (5mm colour Smoke) Minimum 3mm (5mm colour Smoke)

It is guaranteed the compliance with the values required by norm EN 14411 Group Bla UGL. Typical Value is merely indicative, which can vary from real data, and does not have the purpose of any trading proposal.

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	Warpage		Rect. $\pm 0,4\%$, máx $\pm 1,8$ mm	Conform
	Thickness		$\pm 5\%$ máx $\pm 0,5$ mm	Conform
Water absorption		EN ISO 10545-3	$\leq 0,5\%$	0,1% (*)
Modulus of rupture		EN ISO 10545-4	≥ 35 N/mm ²	50 N/mm ²
Abrasion resistance		EN ISO 10545-6	≤ 175 mm ³	Conform
Linear thermal expansion		EN ISO 10545-8	As indicated by manufacturer	$\alpha \leq 7 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$
Frost resistance		EN ISO 10545-12	Required	Resistant
Chemical resistance (**)		EN ISO 10545-13	As indicated by manufacturer UGL	LA - HA Resistent
Stain Resistance		EN ISO 10545-14	As indicated by manufacturer UGL	Class 5 Resistent
Slip Resistance		DIN EN 16165 Annex B	As indicated by manufacturer	R9 NR
		ANSI A326.3	DCOF ≥ 0.42	DCOF ≥ 0.42 NR
Shade Variation		ANSI A137.1	V0 None _ V1 Minor V2 Low _ V3 Medium _ V4 Major	V2 Slight variation
Recomended joint		Indoor Outdoor (wall)	-	Minimum 2mm Minimum 3mm (5mm colour Smoke)
Fire reaction		EN 13823 EN 9239-1	CPR (UE) 305/2011, 2000/147/E, UNI EN 13501-1	Class A2-s1,d0 (wall) Class A2fl-s1 (floor)
Thermal conductivity		EN 12524	-	$\lambda = 1,3$ W/m °K $\lambda = 0.7$ BTU/ft h ° F

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* Average value referred to ceramic material only.

** Excluding hydrofluoridric acid and its derivatives.

Linea Subway is not intended for use in areas subject to the passage of heavy concentrated loads (for example, hard-wheeled trolleys).