

# LEA

CERAMICHE

## Tender specifications BIO RECOVER collection

Supply of LEA Ceramiche porcelain stoneware tiles for walls and floors.

### Product characteristics

LEA Ceramiche full 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 Bio Recover 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 LEA Ceramiche 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 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 Bio Recover collection based on its Life Cycle Assessment (LCA).

### Antibacterial properties

Thanks to Protect antibacterial technology, the tiles from the Bio Recover 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	LEA CERAMICHE (Panariagroup Industrie Ceramiche S.p.A.)
Collection	BIO RECOVER
Colours	WARM CREAM, GOLDEN FLAME, OLD WALNUT
Sizes	20X121,5cm NAT
	20X180cm RTT
Surfaces	NATURALE (NAT)
Edges	RECTIFIED (RECT), NOT RECTIFIED (NAT)
Thickness	9,5mm (20X121,5) – 10,5mm (20x180)

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### Technical features

Product type: full 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	Average values BIO RECOVER
Water absorption		ISO 10545-3	≤ 0,5 %	0,05 %
Breaking strength (S)		ISO 10545-4	≥ 1300 N	Thick. 9,5mm: 2200 N Thick. 10,5mm: 2500 N
Modulus of rupture		ISO 10545-4	≥ 35 N/mm <sup>2</sup>	50 N/mm <sup>2</sup>
Deep abrasion resistance		ISO 10545-6	≤ 175mm <sup>3</sup>	145mm <sup>3</sup>
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	Lenght and width	ISO 10545-2	RECT ± 0,3 %, max ± 1 mm	COMPLIANT
			± 0,6 %, max ± 2 mm	
	Straightness of sides	ISO 10545-2	RECT ± 0,3 %, max ± 0,8 mm	COMPLIANT
			± 0,5 %, max ± 1,5 mm	
	Rectangularity	ISO 10545-2	RECT ± 0,3 %, max ± 1,5 mm	COMPLIANT
± 0,5 %, max ± 2 mm				
Warpage	ISO 10545-2	RECT ± 0,4 %, max ± 1,8 mm	COMPLIANT	
		± 0,5 %, max ± 2 mm		
Thickness	ISO 10545-2	± 5 % ± 0,5mm	COMPLIANT	
Slip resistance		DIN 51130	-	R10
		DIN 51097	-	A+B
		BCR-TORTUS	-	$\mu > 0,40$
		ANSI A 137.1	-	DCOF≥0.42
Shade variation		ANSI A 137.1	As indicated by manufacturer	V4
Fire reaction		EN 13823	CPR (UE) 305/2011, 2000/147/CE, UNI EN 13501-1	Class A1 (wall)
		EN 9239-1		Class A1 <sub>f1</sub> (floor)
Thermal conductivity		EN 12524	-	$\lambda = 1,3 \text{ W/m } ^\circ\text{K}$
Recommended minimum joint (**)		Indoor	-	2mm

(\*) 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.