

**TECHNICAL FEATURES**

Collection: Beton 20mm rectified	Brand: Emilgermany
Size (cm): 120x120	Thickness (mm): 20

Compliant with standard EN 14411:2016 annex G group Bla - GL  
 Compliant with standard ISO 13006:2018 annex G group Bla - GL

Technical Features	Testing Method	Meas. unit	Average Typical Values	Established limits		
<b>DIMENSIONAL PROPERTIES AND SURFACE QUALITY</b>						
Dimensions				Nominal Length of edge N (cm) 7≤N<15 Nominal Length of edge N (cm) N≥15		
<b>Length and width (*)</b>	ISO 10545-2	(mm) (%)	Complies with the standards	±2% (max 5mm)    ±2% (max 5mm)    ±2% (max 5mm)		
<b>Length and width (**)</b>						
Not Rectified			± 0.2% (±1.0 mm)	±0,9 mm	±0,6%	±2,0 mm
Rectified				± 0,4 mm	±0,3 %	±1,0 mm
<b>Thickness</b>						
Not Rectified			Complies with the standards	±0,5 mm	±5%	±0,5 mm
Rectified				±0,5 mm	±5%	±0,5 mm
<b>Straightness of sides</b>						
Not Rectified			± 0.2% (±1.5 mm)	±0,75 mm	±0,5 %	±1,5 mm
Rectified				±0,4 mm	±0,3 %	±0,8 mm
<b>Rectangularity</b>						
Not Rectified			± 0.2% (±1.5 mm)	±0,75 mm	±0,5%	±2,0 mm
Rectified				±0,4 mm	±0,3%	±1,5 mm
<b>Surface Flatness c.c - e.c. - w.</b>						
Not Rectified			± 0.3% (±1.5 mm)	±0,75 mm	±0,5%	±2,0 mm
Rectified				±0,6 mm	±0,4%	±1,8 mm
<b>Surface Quality</b>	Complies with the standards		≥95%			
<b>Technical Features</b>	<b>Standard Method</b>		<b>Average Declared Value</b>	<b>Requirements</b>		
Nominal Size	ASTM C499		Compliant	MIN - 3.00 %    MAX 2.00 %		
Caliber Range	ASTM C499		Compliant	MIN - 0.25% or -0.03 in (-0.8 mm)(1) MAX 0.25% or 0.03 (-0.8 mm)(1)		
Wedging	ASTM C502		Compliant	MIN - 0.25% or -0.03 in (-0.8 mm)(1) MAX 0.25% or 0.03 (-0.8 mm)(1)		
Warpage edge	ASTM C485		Compliant	MIN - 0.40% or - 0.05 in (- 1.3 mm)(3) or -1.8 mm(4) MAX 0.40% or 0.05 in ( 1.3 mm)(3) or 1.8 mm(4)		
Warpage Diagonal	ASTM C485		Compliant	MIN- 0.40% or - 0.07 in (- 1.8 mm)(1) MAX 0.40% or 0.07 in ( 1.8 mm)(1)		
Thickness (2)	ASTM C499		Not affected	Range: 0.040 in (1.02 mm)		

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<b>PHYSICAL PROPERTIES</b>				
Water absorption	ISO 10545-3	(%)	≤ 0,5	Eb ≤ 0,5 (Individual maximum value 0,6%)
Water absorption	ASTM C373-14	(%)	≤ 0,5	≤ 0.50%
Color Uniformity (8)	ASTM C609 and Section 9.3		Compliant	V0 – 3 Judds
Modulus of rupture	ISO 10545-4	(N/mm <sup>2</sup> )	≥ 45	R ≥ 35 (Individual minimum value 32 N/mm <sup>2</sup> )
Breaking Strength	ISO 10545-4	(N)	≥ 12000	≥ 1300 (Thickness ≥ 7,5 mm) ≥ 700 (Thickness < 7,5 mm)
Breaking Strength	ASTM C648-04	(LBF)	≥ 2500	Average ≥ 275 lbf (1.22 kN)  Individual ≥ 250 lbf (1.11 kN)
Resistance to surface abrasion	ISO 10545-7		See attached table	Abrasion class and cycles passed
Visible Abrasion Resistance	ASTM 1027		Dark Colors: IV Light Colors: V	Declared Value
Linear thermal expansion coefficient	ISO 10545-8	(x(10) <sup>-6</sup> /°C)	≤ 9	Declared value (EN 14411:2016) Test Method available (ISO 13006:2018)
Thermal shock resistance	ISO 10545-9		Complies with the standards	Declared value (EN 14411:2016) **** Test Method available (ISO 13006:2018)
Thermal Shock (5)	ASTM C484		Pass	Pass
Crazing Resistance	ISO 10545-11		Complies with the standards	Pass according to EN ISO 10545-1 (EN 14411:2016) Required (ISO 13006:2018)
Frost resistance	ISO 10545-12		Complies with the standards	Pass according to EN ISO 10545-1 (EN 14411:2016) Required (ISO 13006:2018)
Resistance to Freeze/ Taw Cycling	ASTM C1026		No damage	Declared Value
Color resistance to light exposure	DIN 51094		Complies with the standards	No sample must show noticeable colour modifications.
Bond Strength	ASTM C482		Compliant	≥ 50 psi (0.34 MPa)

- (1) Whichever is less.
- (2) May not apply to textured surfaces or tiles with uneven back patterns.
- (3) Whichever is less, for tiles up to 24" (610 mm) on any side
- (4) Applies to tiles larger than 24" (610 mm) on any side
- (5) Glazed tiles only.
- (6) When installation subject to freeze/thaw conditions.
- (7) For Level interior spaces expected to be walked upon when wet (see Section 6.2.2.1.10)
- (8) Class V0 tile only

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<b>CHEMICAL PROPERTIES</b>				
Resistance to chemicals for household use and swimming pool salts	ISO 10545-13		A	GB Minimum (EN 14411:2016) GB Minimum (ISO 13006:2018)
Resistance to low concentrations of acids and alkalis	ISO 10545-13		LA	Declared value (EN 14411:2016) Test Method available (ISO 13006:2018)
Resistance to high concentrations of acids and alkalis	ISO 10545-13		HA	Declared value (EN 14411:2016) Test Method available (ISO 13006:2018)
Chemical Resistance	ASTM C650-04		Not affected	Declared Value
Stain resistance	ISO 10545-14		Class 5	Minimum class 3 (EN 14411:2016) Minimum class 3 (ISO 13006:2018)
Stain resistance	ASTM C1378-04		Not affected	Declared Value
<b>ANTISLIPPERY PROPERTIES</b>				
Slipperiness Resistance: Ramp Method	DIN EN 16165 Annex B (ex DIN 51130); ASR A1.5		R11	from R9 to R13
Slipperiness Resistance: Ramp Method	DIN EN 16165 Annex A (ex DIN 51097) DGUV Information 207-006		B(A+B)	from A to C
Slipperiness Resistance: B.C.R.	D.M. N.236 14/6/89		$\mu > 0,40$	$\mu > 0,40$
Slipperiness Resistance: Pendulum	UNE EN 16165 Appendix C (ex UNE 41901:2017 EX - DB SUA)		Class 3	From Class 0 to Class 3
Slipperiness Resistance: Pendulum	BS7976-2:2002 / BSEN13036-4:2011		>36	0 - 24 Slippery; 25 - 35 Moderately slippery; 36+ Low slipping risk
Dynamic coefficient of friction (DCOF)	ANSI 326:3:2021		$\geq 0,65$ - EW	Interior Dry (ID) $\geq 0,42$ dry, Interior Wet (IW) $\geq 0,42$ wet, Interior Wet+ (IW+): Declared Value, Exterior Wet (EW): Declared value
Slipperiness Resistance: Wet Pendulum Test Method	AS 4586-2013 Annex A		P4	from P0 to P5

\* The work size shall be chose, for non-modular tiles, so that the difference between the work size and the nominal size is:

\*\* The deviation, in percent, of the average size for each tile (2 or 4 sides) from the work size..

\*\*\*\* See Table 2 for uses where it is applicable

c.c. Centre curvature, related to diagonal calculated from the work sizes

e.c. Edge curvature, related to the corresponding work sizes.

w. Warpage, related to diagonal calculated from the work sizes.

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Resistance to surface	abrasion – ISO 10545-7
Dark colors	Class 4 - Visible abrasion after 2100 cycles
Light colors	Class 5 - Visible abrasion after > 12000 cycles