



Sizes	90x90 cm 35% <sup>*</sup> x35% <sup>*</sup> ± 20mm	75x150 cm 29 1/2"x59" ± 9mm	75x75 cm 29 1/2"x29 1/2" ± 9mm	60x60 cm 23% <sup>*</sup> x23% <sup>*</sup> ± 20mm	45x90 cm 17 3/4"x35% <sup>*</sup> ± 20mm	37,5x75 cm 14 3/4"x29 1/2" ± 9mm
-------	---	--------------------------------	-----------------------------------	---	---	-------------------------------------

		Technical features	Test method	Requisites for nominal size N			Klif		
				7 cm ≤ N < 15 cm	N ≥ 15 cm		Matte rectified	Grip rectified	Textured rectified
				(mm)	(%)	(mm)			
Regularity features		Length and width	ISO 10545-2	± 0,9 (*) Non-rect. ± 0,4 (*) Rect.	± 0,6 (*) Non-rect. ± 0,3 (*) Rect.	± 2,0 (*) Non-rect. ± 1,0 (*) Rect.	Suitable for	Suitable for	Suitable for
		Thickness		± 0,5 (**)	± 5 (**)	± 0,5 (**)	Suitable for	Suitable for	Suitable for
		Straightness of sides		± 0,8 (***) Non-rect. ± 0,4 (***) Rect.	± 0,5 (***) Non-rect. ± 0,3 (***) Rect.	± 1,5 (***) Non-rect. ± 0,8 (***) Rect.	Suitable for	Suitable for	Suitable for
		Perpendicularity (Measurement only on short edges when L/l ≥ 3)		± 0,8 (***) Non-rect. ± 0,4 (***) Rect.	± 0,5 (***) Non-rect. ± 0,3 (***) Rect.	± 2,0 (***) Non-rect. ± 1,5 (***) Rect.	Suitable for	Suitable for	Suitable for
		Surface flatness		c.c. ± 0,8 Non-rect. c.c. ± 0,6 Rect.	c.c. ± 0,5 Non-rect. c.c. ± 0,4 Rect.	c.c. ± 2,0 Non-rect. c.c. ± 1,8 Rect.	Suitable for	Suitable for	Suitable for
				e.c. ± 0,8 Non-rect. e.c. ± 0,6 Rect.	e.c. ± 0,5 Non-rect. e.c. ± 0,4 Rect.	e.c. ± 2,0 Non-rect. e.c. ± 1,8 Rect.			
Structural features		Water absorption level (in% by mass)	ISO 10545-3	E ≤ 0,5% Individual Maximum 0,6%			≤ 0.1%	≤ 0.1%	≤ 0.1%
			ASTM C373-18	Requirement ANSI A137.1-2017 Water Absorption Max < 0,5%			≤ 0.5%	≤ 0.5%	≤ 0.5%
Bulk mechanical features		Breaking strenght	ISO 10545-4	S ≥ 700N (for thickness < 7,5mm) S ≥ 1300N (for thickness ≥ 7,5mm)			S ≥ 1500 N	S ≥ 1500 N	S ≥ 10000 N
		Bending resistance		R ≥ 35 N/mm <sup>2</sup>			R ≥ 40 N/mm <sup>2</sup>	R ≥ 40 N/mm <sup>2</sup>	R ≥ 45 N/mm <sup>2</sup>
		Bending and breaking load resistance (4) (5)	EN 1339 Annex F	-					≥ T 11 60x60 90X90   ≥ U 4 45X90
		Impact resistance	ISO 10545-5	Declared value			≥ 0.55	≥ 0.55	≥ 0.55
Surface mechanical features		Mohs hardness	EN 101	-			MOHS 7	MOHS 8	MOHS 8
		Deep abrasion resistance of unglazed tiles	ISO 10545-6	≤ 175 mm <sup>3</sup>			≤ 150mm <sup>3</sup>	≤ 150mm <sup>3</sup>	≤ 150mm <sup>3</sup>

\* Permitted deviation, in % or mm, from the average size of each tile (2 or 4 sides) with respect to the manufacturing size (W).  
 \*\* Permitted deviation, in % or mm, from the average thickness of each tile with respect to the cited manufacturing thickness (W).  
 \*\*\* Maximum permitted straightness deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).  
 \*\*\*\* Maximum permitted perpendicularity deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).  
 \*\*\*\*\* Maximum permitted centre curvature deviation, in % or mm, with respect to the diagonal calculated according to manufacturing sizes (W).  
 e.c. Maximum permitted corner curvature deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).  
 w. Maximum permitted bending deviation, in % or mm, with respect to the diagonal calculated according to manufacturing sizes (W).  
 (1) Determining the slip resistance of pedestrian surfaces; not applicable to sports flooring or road traffic flooring.  
 (2) The anti-slip performance is guaranteed at the time of delivering the product.  
 (3) However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations."  
 (4) For further details, please refer to the outdoor design general catalogue.  
 (5) Only for products with 20 mm thickness



Sizes	90x90 cm 35% <sup>*</sup> x35% <sup>*</sup> ±20mm	75x150 cm 29 1/2"x59" ±9mm	75x75 cm 29 1/2"x29 1/2" ±9mm	60x60 cm 23% <sup>*</sup> x23% <sup>*</sup> ±20mm	45x90 cm 17 3/4"x35% <sup>*</sup> ±20mm	37,5x75 cm 14 3/4"x29 1/2" ±9mm
-------	--	-------------------------------	----------------------------------	--	--	------------------------------------

		Technical features	Test method	Requisites for nominal size N			Klif		
				7 cm ≤ N < 15 cm		N ≥ 15 cm	Matte rectified	Grip rectified	Textured rectified
				(mm)	(%)	(mm)			
Thermo-igrometric features		Coefficient of linear thermal expansion	ISO 10545-8	Declared value			≤7MK <sup>-1</sup>	≤7MK <sup>-1</sup>	≤7MK <sup>-1</sup>
		Thermal shock resistance	ISO 10545-9	Test passed in accordance with ISO 10545-1			Resistant	Resistant	Resistant
		Moisture expansion (in mm/m)	ISO 10545-10	Declared value			≤0.01% (0.1mm/m)	≤0.01% (0.1mm/m)	≤0.01% (0.1mm/m)
		Frost resistance	ISO 10545-12	Test passed in accordance with ISO 10545-1			Resistant	Resistant	Resistant
Physical properties		Bond strenght	EN 1348	Declared value			≥1.0 N/mm <sup>2</sup> (Class C2 - EN 12004)	≥1.0 N/mm <sup>2</sup> (Class C2 - EN 12004)	≥1.0 N/mm <sup>2</sup> (Class C2 - EN 12004)
		Reaction to fire	-	Class A1 or A1 <sub>fl</sub>			A1 - A1 <sub>fl</sub>	A1 - A1 <sub>fl</sub>	A1 - A1 <sub>fl</sub>
Chemical features		Resistance to household chemicals and swimming pool salts	ISO 10545-13	Minimum B class			A	A	A
		Resistance to low concentrations of acids and alkalis		Declared class			LA	LA	LA
		Resistance to high concentrations of acids and alkalis		Declared class			HA	HA	HA
		Stain resistance	ISO 10545-14	Declared class			5	5	5
Safety characteristics (1)(2)		Booted ramp test	DIN 51130	Declared class			R10	R11	R11
		Barefoot Ramp test	DIN 51097	Declared value			A+B	A+B+C	A+B+C
		Pendulum friction Test	BS 7976	PTV ≥ 36 classifies the surface as "low slip risk"			≥36Dry ≥36Wet	≥36Dry ≥36Wet	≥36Dry ≥36Wet
			AS 4586	Declared Classification of the new pedestrian surface materials according to the Pendulum Test			Class P3	Class P4	Class P4
		Coefficient of friction	UNE-ENV 12633 UNE 41901:2017 EX	Declared value			Class C2	Class C3	Class C3
			B.C.R.A. Rep. CEC/81	Min. Dec. 236/89 of 14/06/89 μ >0.40 for a sliding leather element on a dry floor μ >0.40 for a sliding hard rubber element on a wet floor			>0.40Asciutto >0.40Bagnato	>0.40Asciutto >0.40Bagnato	>0.40Asciutto >0.40Bagnato
Dynamic coefficient of friction (DCOF)	ANSI A.137.1	ANSI A.137.1-2017 Requires a minimum value of 0.42 for level interior space expected to be walked upon when wet. (3)			> 0.42 Wet	> 0.42 Wet	> 0.42 Wet		

\* Permitted deviation, in % or mm, from the average size of each tile (2 or 4 sides) with respect to the manufacturing size (W).  
 \*\* Permitted deviation, in % or mm, from the average thickness of each tile with respect to the cited manufacturing thickness (W).  
 \*\*\* Maximum permitted straightness deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).  
 \*\*\*\* Maximum permitted perpendicularity deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).  
 \*\*\*\*\* Maximum permitted centre curvature deviation, in % or mm, with respect to the diagonal calculated according to manufacturing sizes (W).  
 e.c. Maximum permitted corner curvature deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).  
 w. Maximum permitted bending deviation, in % or mm, with respect to the diagonal calculated according to manufacturing sizes (W).  
 (1) Determining the slip resistance of pedestrian surfaces; not applicable to sports flooring or road traffic flooring.  
 (2) The anti-slip performance is guaranteed at the time of delivering the product.  
 (3) However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations."  
 (4) For further details, please refer to the outdoor design general catalogue.  
 (5) Only for products with 20 mm thickness



Sizes	40x80 cm 15 1/4"x31 1/2" ± 8.5mm	40x80 cm 15 1/4"x31 1/2" ± 10mm
-------	-------------------------------------	------------------------------------

	Technical features	Test method	Requisites for nominal size N			Klif	
			7 cm ≤ N < 15 cm	N ≥ 15 cm		Matte rectified 8.5mm 40x80 cm	Matte rectified 10mm 40x80 cm
			(mm)	(%)	(mm)		
Regularity features   	Length and width	ISO 10545-2	± 0,4 (*) Rect.	± 0,3 (*) Rect.	± 1,0 (*) Rect.	Suitable for	Suitable for
	Thickness		± 0,5 (**)	± 10 (**)	± 0,5 (**)	Suitable for	Suitable for
	Straightness of sides		± 0,4 (***) Rect.	± 0,3 (***) Rect.	± 0,8 (***) Rect.	Suitable for	Suitable for
	Perpendicularity		± 0,4 (***) Rect.	± 0,3 (***) Rect.	± 1,5 (***) Rect.	Suitable for	Suitable for
	Surface flatness		c.c. ± 0,6 Rect. e.c. ± 0,6 Rect. w. ± 0,6 Rect.	c.c. ± 0,4 Rect. e.c. ± 0,4 Rect. w. ± 0,4 Rect.	c.c. ± 1,8 Rect. e.c. ± 1,8 Rect. w. ± 1,8 Rect.	Suitable for	Not applicable
Structural features 	Water absorption level (in% by mass)	ISO 10545-3	Average >10%. If this value > 20%, it must be indicated. Single value > 9%			10%<EV≤20%	10%<EV≤20%
Bulk mechanical features  	Breaking strenght	ISO 10545-4	S ≥ 600N			S ≥600 N	S ≥600 N
	Bending resistance		R ≥ 12 N/mm <sup>2</sup>			R ≥15 N/mm <sup>2</sup>	R ≥15 N/mm <sup>2</sup>
Thermo-igrometric features    	Coefficient of linear thermal expansion	ISO 10545-8	Declared value			≤7MK <sup>-1</sup>	≤7MK <sup>-1</sup>
	Thermal shock resistance	ISO 10545-9	Test passed in accordance with ISO 10545-1			Resistant	Resistant
	Moisture expansion (in mm/m)	ISO 10545-10	Declared value			≤0.06% (0.6mm/m)	≤0.06% (0.6mm/m)
	Craziing resistance: glazed tiles	ISO 10545-11	Test passed in accordance with ISO 10545-1			Resistant	Resistant
Physical properties  	Bond strenght	EN 1348	Declared value			≥1.0 N/mm <sup>2</sup> (Class C2 - EN 12004)	≥1.0 N/mm <sup>2</sup> (Class C2 - EN 12004)
	Reaction to fire	-	Class A1			A1	A1
Chemical features    	Resistance to household chemicals and swimming pool salts	ISO 10545-13	Minimum B class			A	A
	Resistance to low concentrations of acids and alkalis		Declared class			LA	LA
	Resistance to high concentrations of acids and alkalis		Declared class			HA	HA
	Stain resistance of glazed tiles	ISO 10545-14	Minimum Class 3			5	5
	Release of dangerous substances: Cadmium (in mg/dm <sup>2</sup> ) and Lead (in mg/dm <sup>2</sup> )	ISO 10545-15	Declared value			≤0.01mg/dm <sup>2</sup> Cd ≤0.1mg/dm <sup>2</sup> Pb	≤0.01mg/dm <sup>2</sup> Cd ≤0.1mg/dm <sup>2</sup> Pb

- \* Permitted deviation, in % or mm, from the average size of each tile (2 or 4 sides) with respect to the manufacturing size (W).
  - \*\* Permitted deviation, in % or mm, from the average thickness of each tile with respect to the cited manufacturing thickness (W).
  - \*\*\* Maximum permitted straightness deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).
  - \*\*\*\* Maximum permitted perpendicularity deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).
  - \*\*\*\* Maximum permitted centre curvature deviation, in % or mm, with respect to the diagonal calculated according to manufacturing sizes (W).
  - e.c. Maximum permitted corner curvature deviation, in % or mm, with respect to the corresponding manufacturing sizes (W).
  - w. Maximum permitted bending deviation, in % or mm, with respect to the diagonal calculated according to manufacturing sizes (W).
- (1) Determining the slip resistance of pedestrian surfaces; not applicable to sports flooring or road traffic flooring.
  - (2) The anti-slip performance is guaranteed at the time of delivering the product.
  - (3) However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations."
  - (4) For further details, please refer to the outdoor design general catalogue.
  - (5) Only for products with 20 mm thickness