



RAYAL INDUSTRIAL (PTY) LTD

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BRONKHORSTSPRUIT, PRETORIA, 1028
SOUTH AFRICA

Product Name: Stoneware Porcelain

Product Type: Slip Resistant Tile

Item	Test Method	Standard Requirements	Results
Product Size			600mm x 600mm x 10mm
Thickness	IS010545-2	$\pm 5\%$ (Max 0.45mm)	$10 \pm 0.3\text{mm}$
Straightness of Side (mm)	IS010545-2	$\pm 0.5\%$ (Max 1.5mm)	$\pm 0.5\text{mm}$
Rectangularity (Average)	IS010545-2	$\pm 0.5\%$ (Max 2.0mm)	$\pm 1.5\text{mm}$
Centre Curvature (mm)	IS010545-2	$\pm 0.5\%$ (Max 2.0mm)	- 0.65mm ~ +1.3mm
Edge Curvatue	IS010545-2	$\pm 0.5\%$ (Max 2.0mm)	- 0.5mm ~ +1mm
Warpage (mm)	IS010545-2	$\pm 0.5\%$ (Max 2.0mm)	- 0.4mm ~ +0.7mm
Water Absorption %	IS010545-3	$0.5\% < E \leq 3\%$	Average: 1.8 %
Modulus of Rupture (Mpa)	IS010545-4	Average $\geq 30\text{N/MM}^2$	Average $\geq 32\text{N/MM}^2$
Breaking Strength (N)	IS010545-4	Average $\geq 1100\text{N}$	Average $\geq 1451\text{N}$
Abrasion Resistance (PEI Rating)	IS010545-7	$\geq \text{Class}3$	Class4
Linear Thermal Expansion	IS010545-8	----	Pass
Resistance to Thermal shock	IS010545-9	Resistant	Resistant
Moisture Expansion	IS010545-10	----	0.034% (mm/m)
Resistance to Crazing	IS010545-11	No Cracking or Flacking	Resistant
Frost Resistance	IS010545-12	No Cracking or Flacking	Resistant
Chemical Resistance	IS010545-13	Resistant	Resistant
Stain Resistance	IS010545-14	$\geq \text{Class}3$	Class5
Small Color Difference	IS010545-16	Resistant	Resistant
Slip Resistance	IS010545-17	----	R11
Mohs Hardness	BS 6431-13-1986	----	Class5

Applications

Product features are with good abrasion resistance and significant scratch hardness.

As Such, It is indicated for flooring in Public Commercial areas as well for domestic use.

Table 1 - Classification of ceramic tiles with respect to water absorption and shaping

Shaping	Group I $E_v \leq 3\%$	Group II a $3\% < E_v \leq 6\%$	Group II b $6\% < E_v \leq 10\%$	Group III $E_v > 10\%$
A Extruded body	Group A I a $E_v \leq 0.5\%$ [see Annex M]	Group A II a-1 ^a [see Annex B]	Group A II b-1 ^a [see Annex D]	Group A III [see Annex F]
	Group A I b $0.5\% < E_v \leq 3\%$ [see Annex A]	Group A II a-2 ^a [see Annex C]	Group A II b-2 ^a [see Annex E]	
B Dry pressed body	Group B I a $E_v \leq 0.5\%$ [see Annex G]	Group B II a [see Annex J]	Group B II b [see Annex K]	Group B III b [see Annex L]
	Group B I b $0.5\% < E_v \leq 3\%$ [see Annex H]			

a, Groups A II a & A II b are divided into two subgroups [Part 2] with different product specifications.

b, Group B III covers glazed tiles only. There is a low quantity of dry-pressed unglazed tiles produced with water absorption greater than 10% mass fraction, which is not covered by this product group.

According to the ISO Standard, **Royal Tile** Belongs to **Group I**, (B I b), which is Stoneware Porcelain.

Adhesive Suitable for our tiles: TAL Pro-Bond or TAL Gold Star and other porcelian adhesive.