

INDUSTRIAL TILES FOR THE MOST DEMANDING ENVIRONMENTS



Industrial Tiles



ANTI-SKID
CHARACTERISTICS



ABRASION
RESISTANT



STAIN
RESISTANT



SCRATCH
RESISTANT



LOW
MAINTENANCE



ACID/ALKALI
RESISTANT



EASY TO
INSTALL



HIGH BREAKING
STRENGTH



LOW WATER
ABSORPTION




FIRE
RESISTANT




HIGH DEGREE OF
TRACTION TO
VEHICLE WHEELS

Available in these thicknesses and dimensions:




1.2 cm

30x30 cm



1.5 cm

30x30 cm

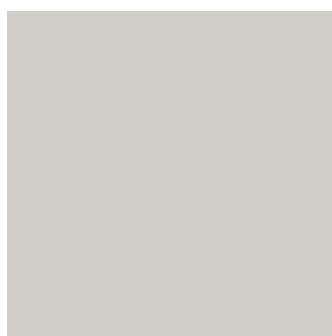


2 cm

20x10 cm | 30x30 cm



Plain Series 30X30 cm



Grey



Ivory



Terracotta



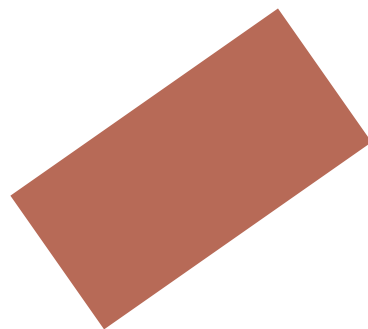
Plain Series 20X10 cm



Grey



Ivory



Terracotta

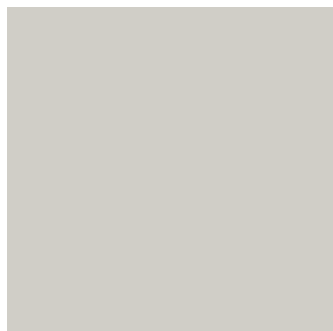




Ivory & Terracotta



Plain Series 30X30 cm



Grey

D/K



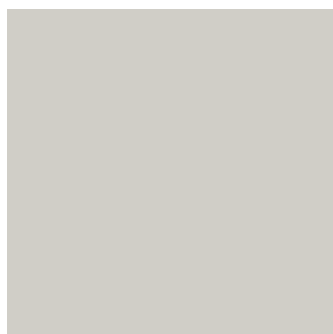
Ivory

D/K



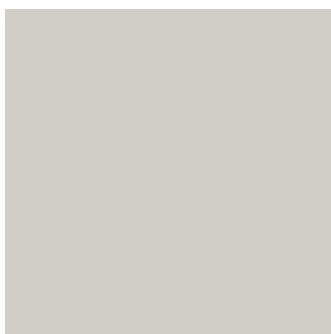
Terracotta

D/K



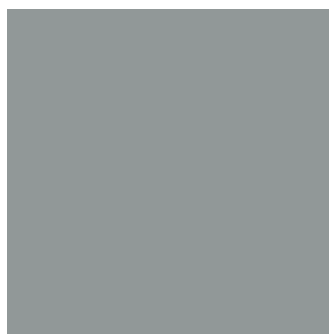
Coated Grey Plus

D/K



Grey Plus

D/K



Silver Grey Plus

D/K



Silver Grey Plus Special D



Maxcir Grey R11

D/K



Maxcir Ivory R11

D/K



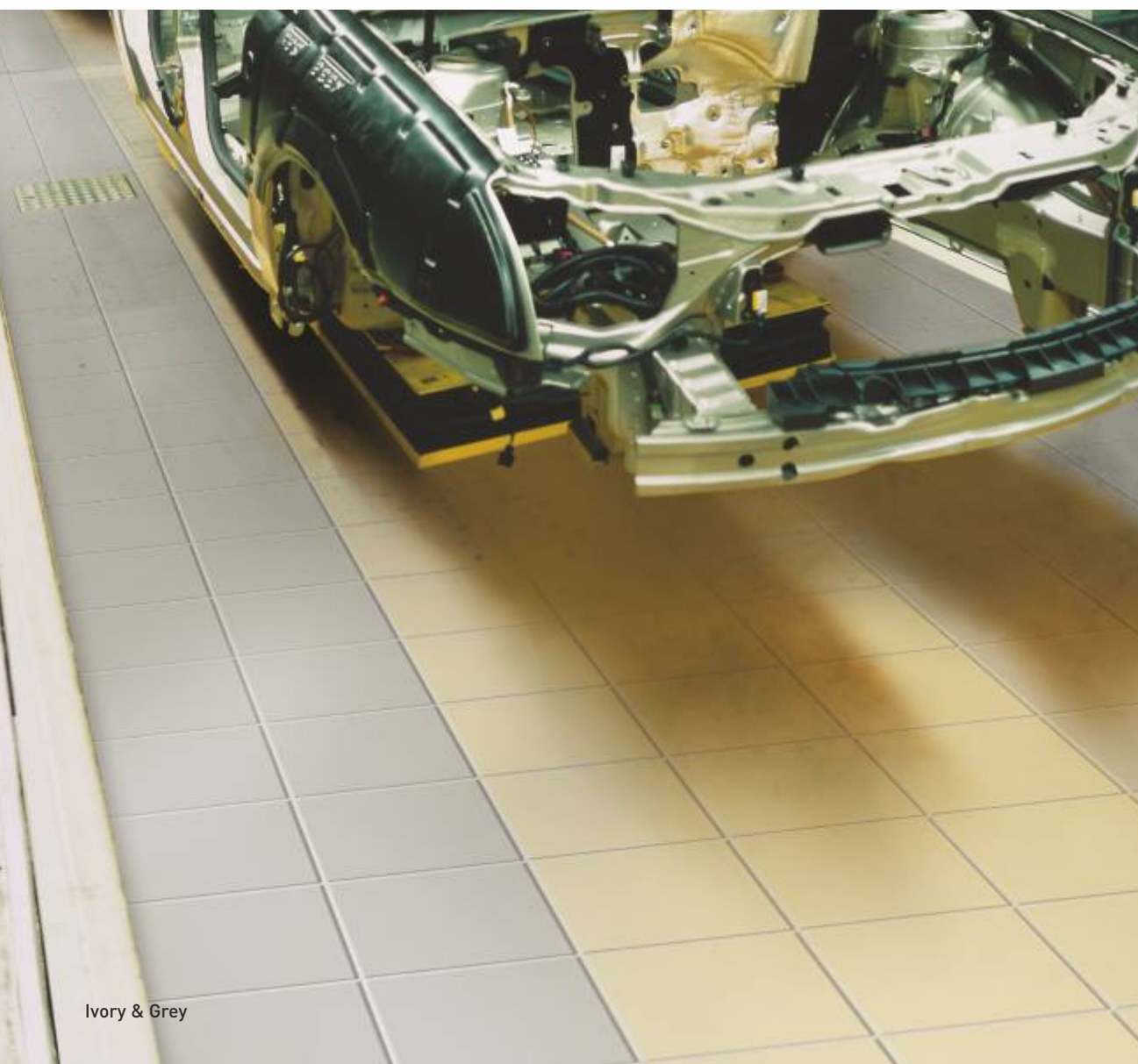
Speciality Series 30X30 cm



Caranz



Cavelo



Ivory & Grey

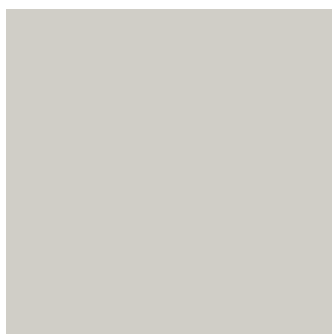


Plain Series 30X30 cm



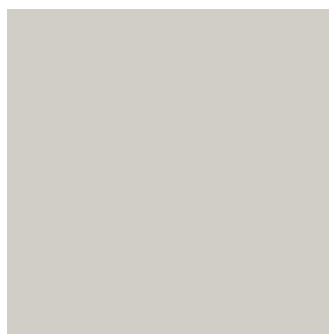
Benaulim

D



Grey

D/K



Grey Plus

D/K



Ivory

D/K



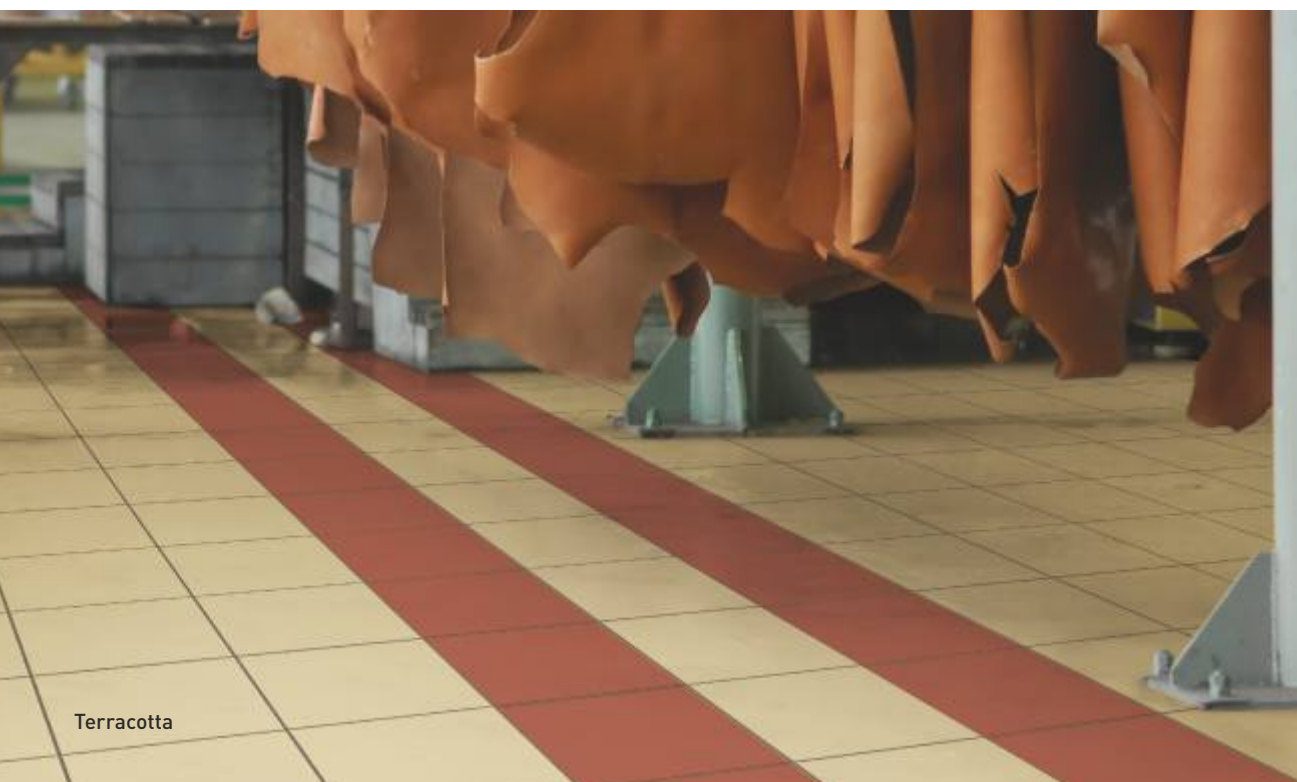
Majorda

D



Terracotta

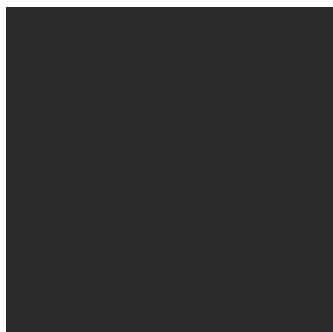
D/K



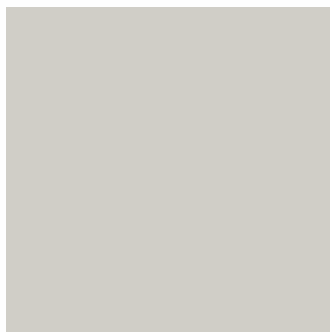
Terracotta



Colour Series 30X30 cm



Coated Black Plus D



Coated Grey Plus D/K



Ivory Plus D



Silver Grey Plus D/K



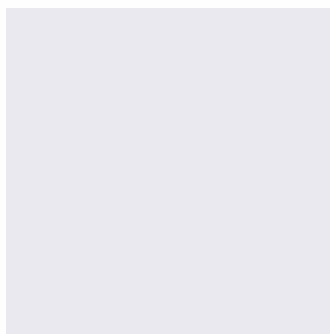
To Blue Plus D



To Green Plus D



Yellow Plus D/K



White Plus D/K



Textured Series 30X30 cm



Checkered Grey

D/K



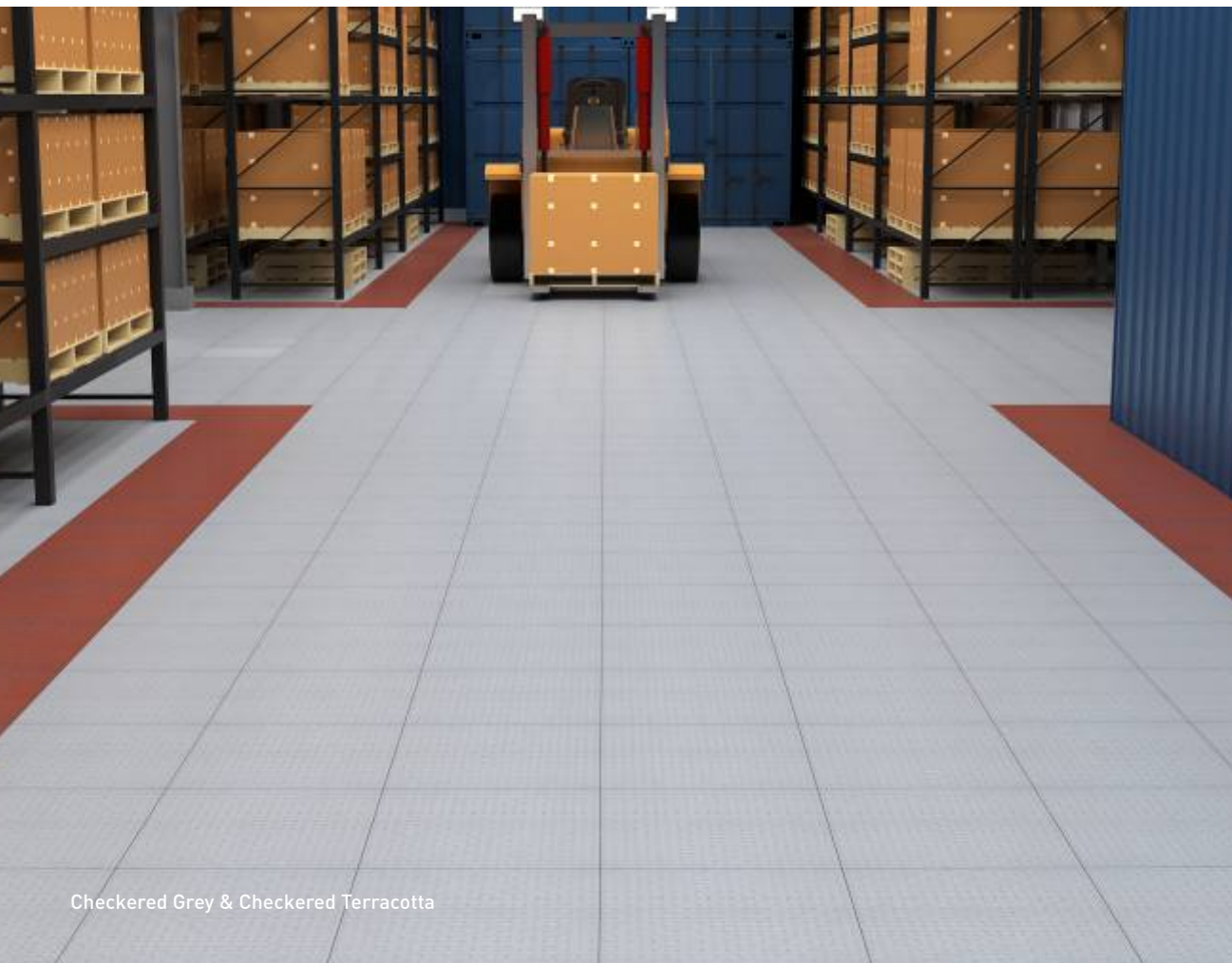
Checkered Ivory

D

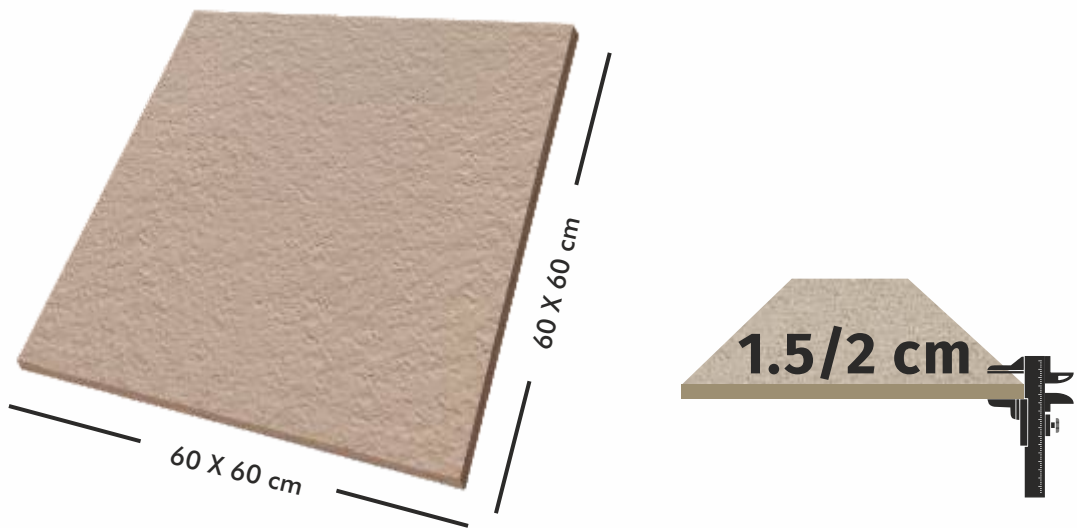


Checkered Terracotta

D



Checkered Grey & Checkered Terracotta



MULTIFOLD BENEFITS



Easy to clean



Easy to install



Color retention



Resistant to
thermal shock



High breakage
resistant



Removable*,
Easy to inspect
& Reusable



Frost resistant



Resistant to
corrosion from salt



Anti skid



Environment friendly



Versatile



Resistant to stains,
acids & chemicals

Methods of Installation



RAISED FLOORING WITH SUPPORTS

The raised installation allows for the creation of a technical gap of variable height between the substrate and the foot plan. It can be replaced and inspected at any time without damaging the surface and allows wires, pipe ducts and lighting systems to be concealed.



DRY INSTALLATION GRAVEL

The dry installation allows for the positioning of the slabs directly onto substrates in gravel to create pedestrian pathways that can be immediately walked upon. This type of application is easy & quick and does not require the use of adhesive for installation.



TRADITIONAL ADHESIVE SYSTEM

The traditional adhesive installation onto screed guarantees an excellent breakage load thanks to the performance of 2cm thickness. This installation method represents the perfect solution for carriageable lanes as well as lanes with vehicular movement.



DRY INSTALLATION SAND

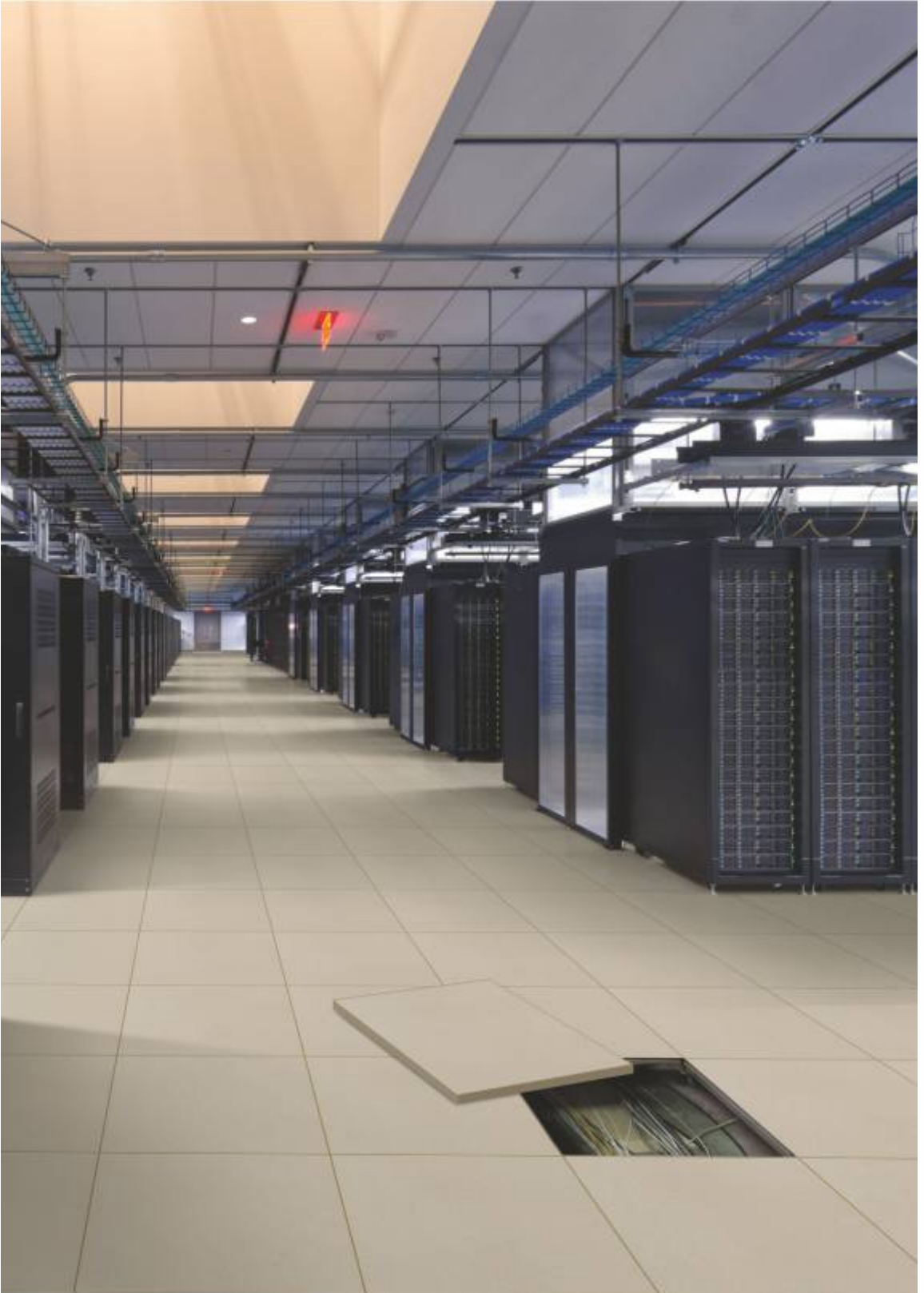
The dry installation allows for the positioning of the slabs directly onto substrates in sand to create pedestrian pathways that can be immediately walked upon. This type of application is easy & quick and does not require the use of adhesive for installation.



DRY INSTALLATION GRASS

The dry installation allows for the positioning of the slabs directly onto substrates in grass to create pedestrian pathways that can be immediately walked upon. This type of application is easy & quick and does not require the use of adhesive for installation.

Disclaimer: Tiles should be placed with a minimum gap of 0.4 cm to 0.5 cm between two tiles.



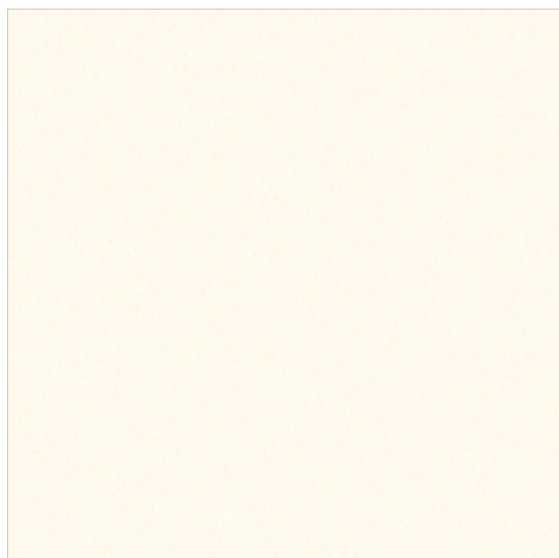


Iris Crema



80x80cm

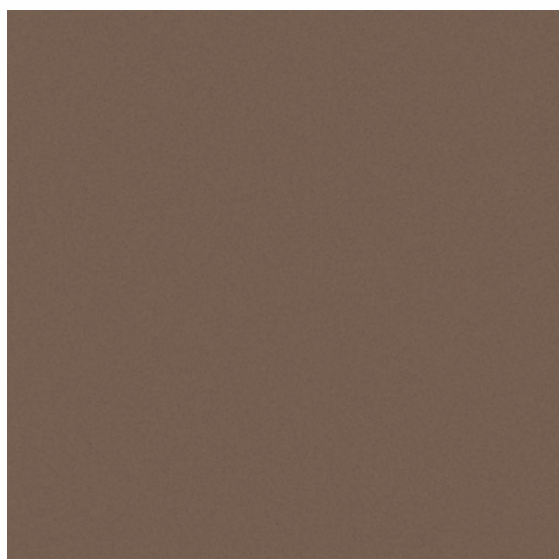
METEOR



Iris Crema (P0)



S & P Choco (P0)



Palolem



Vaga





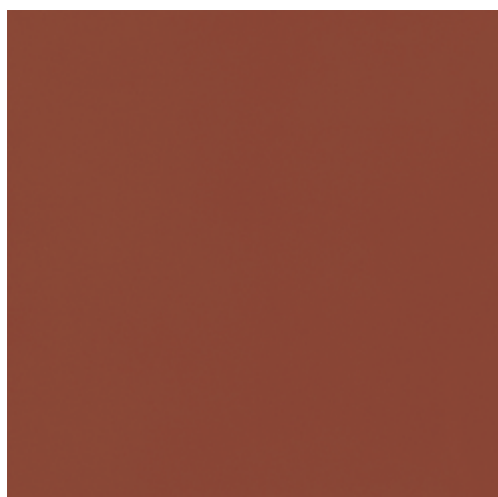
60x60cm



Kreo Gris



Kreo Ivory



Kreo Terracotta



Kreo Beige





Korneto Beige



Korneto Gris

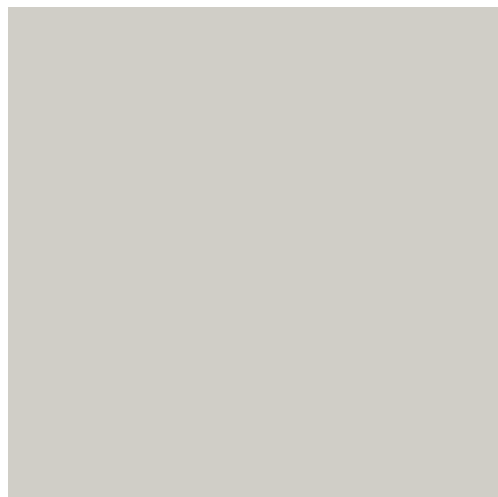


Korneto Ivory

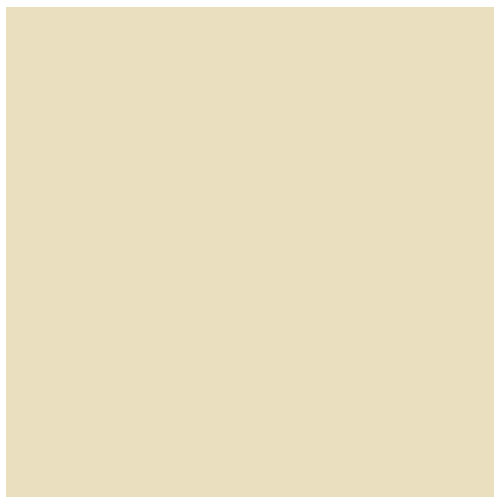




60x60cm



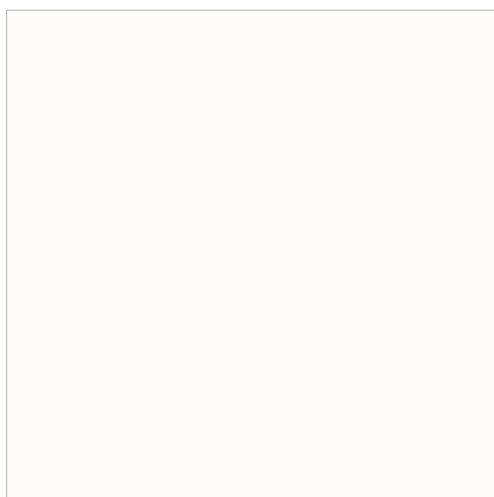
Coated Grey Plus



Ivory



Plain Grey



Plain White





Plain Benaulim

P



Plain Donapaula

P



Triumph Grey

P



Nova Cement

P

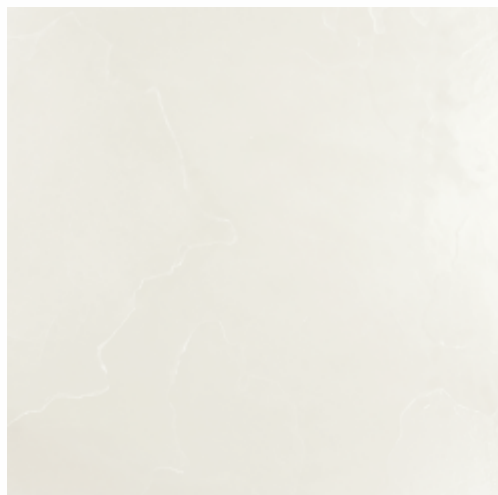


Slate Nero



60x60cm

METEOR



Slate Bianco



Slate Kota green



Slate Nero



Terracotta



Technical Specification (Industrial Tiles)

S. No.	Test Description							Test Method
		I.S. - 4457:2007	20X10CM (UR)	IS - 15622:2017 Group B1b	30X30 CM (R)			
A)	Dimension Quality		2.0cm		1.2cm	1.5cm	2.0cm	IS 4457:2007 Annex B / IS 13630-1
1	Deviation in Length & Width	±0.75%	±0.6%	±0.1%	±0.1%	±0.1%	±0.1%	
2	Deviation in Thickness	±5%	±4%	±5%	±4%	±4%	±4%	
3	Straightness of Sides	±0.5%	±0.5%	±0.1%	±0.1%	±0.1%	±0.1%	
4	Rectangularity	±0.6%	±0.6%	±0.1%	±0.1%	±0.1%	±0.1%	
5	Surface Flatness	±0.5%	±0.4%	±0.5%	±0.3%	±0.3%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	Min 95%	Min 95%	Min 95%	
B)	Physical Properties							
1	Water Absorption	<0.5%	<0.5%	0.08<E≤3	<0.5%	<0.5%	<0.5%	IS 4457:2007 Annex C / IS 13630-2
2	a) Scratch hardness of surface (Moh's scale) - Unglazed tile	—	≥7	≥5	≥7	≥7	≥7	IS 13630 part 13
	b) Scratch hardness of surface (Moh's scale) - Glazed tile	—	≥6	≥5	≥6	≥6	≥6	
3	Flexural Strength (Average MOR)	>35N/mm²	>38 N/mm²	>30N/mm²	>38 N/mm²	>38 N/mm²	>38 N/mm²	IS 4457:2007 Annex D / IS 13630-6
4	Breaking Strength	≥1300N	>8000N	≥1100N	>3000N	>5500N	>8000N	IS 4457:2007 Annex D / IS 13630-6
5	Impact Resistance	Manufacturer to declare	≥0.55	≥0.55	≥0.55	≥0.55	≥0.55	IS 13630 -14
6	Deep Abrasion Resistance (Unglazed tile)	<175mm³	<120 mm³	<175mm³	<120 mm³	<120 mm³	<120 mm³	IS 4457:2007 Annex E / IS 13630-12
7	Resistance to Surface Abrasion of Glazed Tiles for Floor Application	—	Min PEI IV - V	Class II, Min	Min PEI IV - V	Min PEI IV - V	Min PEI IV - V	IS 13630 - 11
8	# Skid Resistance							
	a) Skid Resistance - Ramp Test	—	>R9	—	>R9	>R9	>R9	DIN 51130
	b) Coefficient of Friction	—	>0.42		>0.42	>0.42	>0.42	ISO 10545 -17 / ANSI A 326.3
9	Frost Resistance	—	No damage	Manufacture to declare	No damage	No damage	No damage	IS 13630-10
10	Density (gm/cc)	—	>2.2	≥2	>2.2	>2.2	>2.2	IS 13630 part 2
11	Moisture Expansion	Manufacturer to declare	≤0.02mm/m	Max0.02mm/m	≤0.02mm/m	≤0.02mm/m	≤0.02mm/m	IS 13630-part 3
12	Color Resistance to UV Light	—	No change in color	—	No change in color	No change in color	No change in color	DIN 51094
C)	Chemical Properties							
1	Resistance to Concentrated HNO ₃ & H ₂ SO ₄ Acid (wt. Loss)	<1.5 %	<0.8 %	—	<0.8 %	<0.8 %	<0.8 %	IS 4457:2007 Annex G
2	Resistance to Chemicals							ISO 10545-13 / IS 13630 part 8
	a) Resistance to Low concentrations of acids & alkalies	Manufacturer to declare	ULA/GLA	Manufacturer to declare	ULA/GLA	ULA/GLA	ULA/GLA	
	b) Resistance to High concentrations of acids & alkalies	Manufacturer to declare	UHA/GHA	Manufacturer to declare	UHA/GHA	UHA/GHA	UHA/GHA	
	c) Resistance to household chemicals and swimming pool salts	Manufacturer to declare	AA min	AA min	AA min	AA min	AA min	
3	Stain Resistance		Class 1 min	Class 1 min	Class 1 min	Class 1 min	Class 1 min	IS 13630 part 8
D)	Thermal Properties							
1	Linear Thermal Expansion	—	<7x10 ⁻⁶ K ⁻¹	<7x10 ⁻⁶ K ⁻¹	<7x10 ⁻⁶ K ⁻¹	<7x10 ⁻⁶ K ⁻¹	<7x10 ⁻⁶ K ⁻¹	IS 13630 part 4 / ISO 10545-8
2	Thermal Shock Resistance	—	No damage	10 cycle, Min	No damage	No damage	No damage	IS 13630 part 5 / ISO 10545-9

Ramp Test: Suitable for all kind of surfaces (Plain, structural, etc.)

Slider (BOT-3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

Technical Specification (Anti-Static Tiles)

S. No.	Property	Indian Standard IS 15622:2017 Group B1a Requirement		Test Method
A) Dimensions & Surface Quality				
1	Deviation in Length & Width	± 0.1 %	± 0.1%	ISO 10545-2 / IS 13630-1
2	Deviation in Thickness	± 5 %	± 4%	
3	Straightness of Sides	± 0.1 %	± 0.1%	
4	Rectangularity	± 0.1 %	± 0.1%	
5	Surface Flatness	± 0.5 %	± 0.2%	
6	Surface Quality	Min 95% free from visible defects	>95% free from visible defects	
B) Physical Property				
7	Water Absorption	Average ≤0.08, Individual 0.1%, Max	≤0.05%	ISO 10545-3 / IS 13630-2
8	Modulus of Rupture	Average 35N/mm ² , Individual 32N/mm ² , Min	≥38N/mm ²	ISO 10545-4 / IS 13630-6
9	Breaking Strength	700 N Min for thickness < 7.5 mm, 1300 Min for thickness ≥7.5mm	≥1800N	ISO 10545-4 / IS 13630-6
10	Moisture Expansion	0.02 mm/m, Max	≤0.02 mm/m	ISO 10545-10 / IS 13630-3
11	Scratch Hardness of Surface (Moh's scale)	5, Min	≥5	IS 13630 -13
12	Resistance to Surface Abrasion of Glazed Tiles for Floor Application	Class II, Min	PEI III-IV	ISO 10545-7 / IS 13630 -11
13	Coefficient of Linear Thermal Expansion	Max, $6 \times 10^{-6} K^{-1}$	≤ $6 \times 10^{-6} K^{-1}$	ISO 10545-8 / IS 13630-4
14	Thermal Shock Resistance	10 cycles Min	No Damage	ISO 10545-9 / IS 13630 -5
15	Crazing Resistance of Glazed Tiles	4 cycles @7.5 bar Min	No Damage	ISO 10545-11 / IS 13630-9
16	Impact Resistance	0.55, Min	≥0.55	ISO 10545-5 / IS 13630-14
17	# Skid Resistance			
	a) Skid Resistance - Ramp Test	Manufacturer to declare	>R9	DIN 51130
	b) Coefficient of Friction	Manufacturer to declare	>0.42	ISO 10545 -17 / ANSI A 326.3
18	Frost Resistance	Required if requested by purchaser	No damage	ISO 10545-12 / IS 13630-10
19	Bulk Density (g/cc)	2.2, Min	≥2.2	ASTM C373-16 / IS 13630-2
20	Color Resistance to UV Light	–	No change in color	DIN 51094
21	Resistance to Chemicals			ISO 10545-13 / IS 13630-8
	1) Resistance to Low concentrations of acids & alkalies	Manufacturer to declare	GLA	
	2) Resistance to High concentrations of acids & alkalies	Manufacturer to declare	GHA	
	3) Resistance to household chemicals and swimming pool salts	AA min	AA min	
22	Resistance to Staining - Glazed Tiles	Class 1 min	Class 1 min	ISO 10545-14 / IS 13630-8
23	Lead & Cadmium Release-for Glazed Tiles, where required	–	Nil	ISO 10545-15
24	Surface Electrical Resistance (ANSI Norms)	Below 1 Mega Ohm (Conductive)	< 50 Kilo Ohm	ANSI ESD S7.1
		Between 1Mega Ohm to 1 Giga Ohm (Dissipative)	1Mega Ohm to 1 Giga Ohm	
	Static Decay Time	<0.5 Sec (Conductive)	<0.5Sec	MIL-B-8170 Para 4.8.3 & FED-STD- 101C. Method 4046
		< 2 Sec (Dissipative)	<0.5Sec	

Ramp Test: Suitable for all kind of surfaces (Plain, structural...etc)

Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface

Technical Specification (Meteor Tiles)

S. No.	Test Description	ISO 13006:2018 / EN 14411 Group Bla Requirement	IS - 15622:2017 Group B1b			Test Method
				1.5 cm	2.0 cm	
A) Dimension Quality		Whichever is less applicable. Rectified	Rectified			
1	Deviation in Length & Width	± 0.3% or ±1.0mm	±0.1%	±0.1%	±0.1%	ISO 10545-2 / IS 13630-1
2	Deviation in Thickness	± 5% or ± 0.5mm	±5%	±4%	±4%	
3	Straightness of Sides	± 0.3% or ±0.8mm	±0.1%	±0.1%	±0.1%	
4	Rectangularity	± 0.3% or ± 1.5mm	±0.1%	±0.1%	±0.1%	
5	Surface Flatness	± 0.4% or ±1.8mm	±0.5%	±0.3%	±0.3%	
6	Surface Quality	Min 95%	Min 95%	Min 95%	Min 95%	
B) Physical Properties						
1	Water Absorption	≤ 0.5%, individual Max 0.6%	0.08%<E≤3	≤0.5%	≤0.5%	ISO 10545-3 / IS 13630-2
2	Scratch Hardness of Surface (Moh's scale)	-	≥5	>6	>6	IS 13630 part 13
3	Flexural Strength (Average MOR)	≥35 N/mm ² , Individual 32N/mm ² , Min	≥30N/mm ² , Individual 27 min	>38N/mm ²	>38N/mm ²	ISO 10545-4 / IS 13630-6
4	Breaking Strength	≥1300 N	≥1100 N	>5500 N	>8000 N	
5	Impact Resistance	Report value	≥0.55	≥0.55	≥0.55	ISO 10545-5 / IS 13630 -14
6	Surface Abrasion Resistance (PEI Rating) Glazed	Report cycle	Class II, Min	Min PEI IV - V	Min PEI IV - V	ISO 10545-7 / IS 13630 - 11
7	Deep Abrasion Resistance (Ungalzed)	Report abrasion class	<175mm ³	<120mm ³	<120mm ³	ISO 10545- 6 / IS 13630-12
8	# Skid Resistance					
	a) Skid Resistance - Ramp Test	Manufacturer to declare	Manufacturer to declare	>R9	>R9	DIN 51130
	b) Coefficient of Friction	Manufacturer to declare	Manufacturer to declare	>0.42	>0.42	ISO 10545 -17 /ANSI A 326.3
9	Bulk Density, in (g/cc)	≥2.0	≥2.0	>2.2	>2.2	ASTM C373-16 / IS 13630-2
10	Moisture Expansion	Manufacturer to declare	Max 0.02 mm/m	≤0.02 mm/m	≤0.02 mm/m	IS 13630-part 3 /ISO 10545-10
11	Frost Resistance	Manufacturer to declare	Manufacturer to declare	No damage	No damage	ISO 10545-12 / IS 13630-10
12	Color Resistance to UV Light	Manufacturer to declare	report result	No change in color	No change in color	DIN 51094
C) Chemical Properties						
1	Resistance to Concentrated HNO ₃ & H ₂ SO ₄ Acid (wt. Loss)	-	<1.5 %	<0.8%	<0.8 %	IS 4457:2007 Annex G
2	Resistance to Chemicals					ISO 10545-13 / IS 13630-8
	a) Resistance to Low concentrations of acids & alkalies	Manufacturer to declare	Manufacturer to declare	ULA/GLA	ULA/GLA	
	b) Resistance to High concentrations of acids & alkalies	Manufacturer to declare	Manufacturer to declare	UHA/GHA	UHA/GHA	
	c) Resistance to household chemicals and swimming pool salts	Min B	AA min	B(ISO)/AA (IS)	B(ISO)/AA(IS)	
3	Stain Resistance	Min Class 3	Class 1 min	Class 3 (ISO)/ Class 1 (IS)	Class 3 (ISO)/ Class 1 (IS)	ISO 10545-14 / IS 13630-8
D) Thermal Properties						
1	Linear Thermal Expansion	Report value	≤7x10 ⁻⁶ K ⁻¹	≤7 x 10 ⁻⁶ K ⁻¹	≤7 x 10 ⁻⁶ K ⁻¹	ISO 10545-8 / IS 13630 -4
2	Thermal Shock Resistance	-	10 Cycle, Min	No damage	No damage	ISO 10545-9 / IS 13630 -5

Ramp Test: Suitable for all kind of surfaces (Plain, structural..etc)

Slider (BOT -3000E Digital Tribometer): Suitable for plain / smooth surface and not working for structural / profiled surface