



Certificate No. : TC-6265

NATIONAL CERA LAB

CERAMIC LABORATORY

Shop No. 16, 17, Ground Floor, Dariyalal Plaza,
Nr. Argil Ceramic, 8-A, N/H, Morbi - 363 642 (Guj.) INDIA.

Ph. : 02822 244049, Mo. : 98252 62649, 96622 97005, 98257 99418
E-mail : nationalceralab@rediffmail.com

As per all Countries Export report of Wall, Floor, Vitrified Tiles & Sanitary Wares

Ref. No.

Date :

NCL/Floor /Kenya /08/204/2020-21
URL - TC62651900001977P

Date of Issue 03rd, Aug. 2020

Receive date of test sample :- 22.07.2020

Issued To

M/S SIMPLON CERAMIC PVT LTD.
Sr. No. 247 p2, Opp. CNG Pump, Jetpar Road, At - Bela (Rangpar) Dist-Morbi, Gujarat, India

SAMPLE DESCRIPTION & NAME: Ceramic Glazed Floor Tile " First Grade", Nominal size 396x396x8.50 mm (Rectified)
as submitted by the party. Sample not drawn by National Cera Lab.

Teting as per As par KS ISO 13006 : 2018 Group BIIb Annex K

TEST DESIRED:

A Dimensions and surface quality	VI Thermal Shock Resistance
I Deviation in Length (l) & Width (w)	VII Crazing Resistance
II Thickness	VIII Moisture Expansion (in mm/mm)
III Straightness of Sides	IX Impact resistance
IV Rectangularity	X Scrach hardness of Srface (mohs scale)
V Surface Flatness	XI Bulk density , lin (g/cc)
VI Surface quality	C Chemical Property
B Physical Property	I Resistance to Stain
I Water Absorption %	II Resistance to Low Concentration of acid and alkali
II Breaking Strength in N	III Resistance to High Concentration of acid and alkali
III Modulus of Rupture (MOR) N/mm ²	IV Resistance to house chemical
IV Resistance to surface abrasion	V Resistance to swimming pool salt
V Coefficient of Liner Thermal Expansion	VI Lead and Cadmium release

TEST REPORT

A DIMENSION & SURFACE QUALITY

		Test Method	Require	Result
I DEVIATION IN LENGTH (l) & WIDTH(w) :-				
1 Length	The deviation in mm of the average size of each tile (2 sides) from the average of 10 test specimens (Sides)	KS ISO 10545 - 2	± 1 mm	Avg+ 0.47 mm Avg - 0.00 mm Pass
2 Width	The deviation in mm of the average size of each tile (2 sides) from the average of 10 test specimens (Sides)	KS ISO 10545 - 2	± 1 mm	Avg+ 0.48 mm Avg - 0.00 mm Pass
II THICKNESS				
The deviation in mm of the average thickness of 10 tile from the work size thickness	Party Givan Thickness 8.50 mm	10 Pices Average 8.56 mm	KS ISO 10545 - 2 ± 0.5 mm	Avg+ 0.06 mm Avg - 0.00 mm Pass
III STRAIGHTNESS OF SIDES :-				
Maximum deviation from straightness in mm related to the corresponding work size		KS ISO 10545 - 2	±0.8 mm	Max+ 0.14 mm Max - 0.15 mm Pass
IV RECTANGULARITY :-				
Maximum deviation from rectangularity in mm related to the corresponding work size		KS ISO 10545 - 2	±0.8 mm	Max+ 0.16 mm Max - 0.17 mm Pass

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TEST REPORT

V SURFACE FLATNESS :-

(a) Centre curvature
Centre curvature related to diagonal
calculated from the work size.

Test Method	Require	Result
KS ISO 10545 - 2	± 1.8 mm	Max+ 0.12 mm Max - 0.00 mm Pass

(b) Edge curvature
Edge curvature related to the
corresponding work size.

KS ISO 10545 - 2	± 1.8 mm	Max+ 0.14 mm Max - 0.00 mm Pass
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(c) Warpage
Warpage related to diagonal
calculated from the work size.

KS ISO 10545 - 2	± 1.8 mm	Max+ 0.15 mm Max - 0.00 mm Pass
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VI SURFACE QUALITY:-

A minimum of 95% of the tiles shall be free from visible defects
that would impair the appearance of a major area of tiles.

KS ISO 10545 - 2	95%	99% Pass
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B PHYSICAL PROPERTY:-

I WATER ABSORPTION:- %

1	6.98 %
2	5.66 %
3	6.73 %
4	6.95 %
5	6.45 %

Average 6.554 %

KS ISO 10545 - 3	Require 6% < E <E 10% Individual maximum 11%	Avg. 6.55% Max. 6.95% Pass
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II BREAKING STRENGTH IN N:

1	867.37 N	6	987.00 N
2	983.20 N	7	945.22 N
3	987.47 N	8	1001.72 N
4	947.60 N		
5	954.72 N		

Average 959.29 N

KS ISO 10545 - 4	Require Thickness ≥ 7.5 mm not less than 800N	Avg. 959.29 N Min. 868.37 N Pass
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III MODULUS OF RUPTUREE (M O R) :- N/mm²

1	24.73 N/mm ²	6	27.48 N/mm ²
2	26.64 N/mm ²	7	27.29 N/mm ²
3	26.54 N/mm ²	8	26.64 N/mm ²
4	27.11 N/mm ²		
5	27.02 N/mm ²		

Average 26.68 N/mm²

KS ISO 10545 - 4	Require Minimum 18 N/mm ² Individual Minimum 16N/mm ²	Avg. 26.68 N/mm ² Min. 24.73 N/mm ² Pass
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IV RESISTANCE TO SURFACE ABRASION :-

Visual failure was observed at 1500 revolution when the tiles
were subjected to abrasion stage of 150,600,750,
up to 1500 revolution, 750 revolution pass.

KS ISO 10545 - 7	Class - III 750 Revolution pass Pass
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Test Method	Require	Result
V COEFFICIENT OF LINEAR THERMAL EXPANTION:- Expantion from ambient temperature to 100°C (K - 1)	KS ISO 10545 - 8	9X10 ⁻⁶ Max 5.14x10 ⁻⁶ Pass
VI THERMAL SHOCK RESISTANCE. 15/145 10cycle	KS ISO 10545 - 9	10 cycle, Min Confirm Pass
VII CRAZING RESISTANCE :- No crazing in two cycle one hour duration at a steam pressure of 750±20Kpa 6 Nos of tiles ware subjected to autoclaving at a steam pressuure of 750±20 kpa of saturated steam for Two hour consisting of Two cycle. None of the tiles show any sign of the crazing on the the glaze surface and the lot pass the test	KS ISO 10545 - 11	No Crazing in two cycle Confirm Pass
VIII MOISTURE EXPANSION mm/m	KS ISO 10545 - 10	0.02 mm/m max 0.01 mm/m max Pass
IX IMPACT RESISTANCE Coefficient of restitution (COR)	KS ISO 10545 - 5	0.55 Min 0.69 pass
X SRACH HARDNESS OF SURFACE (MOH'S SCALE) :-	IS 13630 - 13	5 moh's scal 5 Moh's Pass
XI BULK DENSITY , IN (g/cc)	KS ISO 10545 - 3	2.2 min 2.2334 g/cc pass
C CHEMICAL PROPERTIES:		
I RESISTANCE TO STAIN	Stain put on tiles up to 24 hrs	
Red Past in Light Oil (Fe2O3)	Stain remove by hot water	KS ISO 10545 - 14 Min Class - 3 Class - 5
Iodine in Alcohol 13g/l	Stain remove by weak cleaning agent	Min Class - 3 Class - 4
Olive Oil	Stain remove by hot water	Min Class - 3 Class - 5 pass
II Resistance To Low Concentration OF Acid & Alkali		
a Hydrochloric Acid solution 3% (V/V)	No visual changes observed after immersion for 4 days ; Pencil lines removed with wet wiping removed	KS ISO 10545 - 13 Min Class-GLC Class GLA pass
b Citric Acid Soln. 100gm/l	No visual changes observed after immersion for 4 days ; Pencil lines removed with wet wiping removed	KS ISO 10545 - 13 Min Class-GLC Class GLA pass
c Potassium Hydroxide Soln 30gm/l	No visual changes observed after immersion for 4 days ; Pencil lines removed with wet wiping removed	KS ISO 10545 - 13 Min Class-GLC Class GLA pass



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<u>TEST REPORT</u>		Test Method	Require	Result
III Resistance To High Concentration OF Acid & Alkali				
a Hydrochloric Acid solution 18%(V/V)	No visual changes observed after immersion for 4 days ; Pencil lines removed with wet wiping removed	KS ISO 10545 - 13	Min Class GHC	Class GHA pass
b Lactic Acid Soln. 5% (v/v)	No visual changes observed after immersion for 4 days ; Pencil lines removed with wet wiping removed	KS ISO 10545 - 13	Min Class GHC	Class GHA pass
c Potassium Hydroxide Soln. 200gm/l	visual changes observed after immersion for 4 days ; Pencil lines removed with wet wiping removed	KS ISO 10545 - 13	Min Class GHC	Class GHB pass
IV House hold chemical resistance				
Ammonium chloride solution 100G/L	No visual changes observed after immersion for 24 hrs ; Pencil lines removed with wet wiping removed	KS ISO 10545 - 13	Min Class-GC	Class GA pass
V Swimming pool salt : Sodium hypochlorite solution , 20mg/L	No visual changes observed after immersion for 24 hrs ; Pencil lines removed with wet wiping removed	KS ISO 10545 - 13	Min Class-GC	Class GA pass
VI LEAD AND CADMIUM RELEASE in mg/dm²				
a Lead release Test Solution Acetic Acid Solution 4% (v/v), (in 960ml distilled water)	Digestion time- 24 hrs (20±2°) Detected by ED XRF	KS ISO 10545 - 15	Limit 0.1mg/dm ²	Result 0.00 mg/dm ² pass
b Cadmium release Test Solution Acetic Acid Solution 4% (v/v), (in 960ml distilled water)	Digestion time- 24 hrs (20±2°) Detected by ED XRF		0.1mg/dm ²	0.00 mg/dm ² pass

CONCLUSION:

The sample drawn by party from the above lot complies with Kenya KS ISO 13006 Group BII b
Test Procedure as per KS ISO 10545

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Verify by Nimesh J. Kavar
Testing Engineer (Nimesh J. Kavar)

For
National Cera Lab

Name of Authorised signatory : J.M. Kavar
Designation of signatory : Technical Manager



NATIONAL CERA LAB

PROPRIETOR 31/8/2020

