



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. NCL/Wall Tile SASO ISO/07/184/2018-19

Date :  
Jan.07.2019

Receive date of test sample :- 03.07.2018

Issued To  
M/s ROYAL EXPORTERS  
1101/1102, Nakshtra Heights , 150 Feet Ring Road  
Opp. Raiya Telphon Exchange , Rajkot - 360005 , Gujarat, India

**SAMPLE DECRPTION & NAME:** Ceramic Glazed Wall Tile - size 450x300mm as submitted by .the party.  
Sample drawn by National Cera Lab.

### 2 TEST DESIRED:

As Par SASO ISO 13006:2015

- 2.1 DIMENSION & SURFACE QUALITY  
2.2 DEVIATION IN LENGTH & WIDTH  
2.3 THICKNESS  
2.4 STRAIGHTNESS OF SIDES  
2.5 RECTANGULARITY  
2.6 SURFACE FLATNESS  
SURFACE QUALITY

- 3.4 CRAZING RESISTANCE  
3.5 COEFFICIENT OF LINER THERMAL EXPANTION  
3.6 THERMAL SHOCK RESISTANCE  
3.7 MOISTURE EXPANSION

- 3  
3.1 PHYSICAL PROPERTIES  
3.2 WATER ABSORPTION %  
3.3 BREAKING STRENGTH In N  
MODULUS OF RUPTURE ( MOR ) N/mm<sup>2</sup>

- 4 CHEMICAL PROPERTIES  
4.1 Resistance to staining of glaze tiles  
4.2 RESISTANCE TO CHEMICAL  
4.2.1 RESISTACE TO LOW CONCENTRATION OF ACID & ALKALI  
4.2.2 Resistance to House Hold Chemical & Swimming Pool Salt

- 5 RESISTANCE TO STAIN  
6 LEAD AND AND CADMIUM RELEASE

### 2 TEST REPORT

#### 2.1 DIMENSION & SURFACE QUALITY

DEVIATION IN LENGTH (l) & WIDTH(w) :-

(a) The deviatio in percent of the average size of each tile( 2 or 4 sides ) from the work size

Test Method

SASO ISO 10545 2

Require

±0.50

Result

Avg+ 0.06%

Avg - 0.00%

(b) The deviation in percent of the average size of each tile ( 2 or 4 sides ) from the average size of the 10 test specimens ( 20 or 40 sides )

SASO ISO 10545 2

±0.50

Avg+ 0.04%

Avg - 0.00%

#### 2.2

THICKNESS :- 8.25 mm

The deviation in percent of the average thickness of each tile from the work size thickness

SASO ISO 10545 2

± 10%

Avg+ 0.00%

Avg - 0.73%

#### 2.3

STRAIGHTNESS OF SIDES :-

Maxmum deviation from straightness in percent related to the corresponding work size

SASO ISO 10545 2

± 0.30%

Max+ 0.06%

Max - 0.05%

#### 2.4

RECTANGULARITY :-

Maximum deviation from rectangularity in percent related to the corresponding

SASO ISO 10545 2

±0.50%

Max+ 0.05%

Max - 0.06%



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### TEST REPORT

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**2.5 SURFACE FLATNESS :-**

**(a) Centre curvature**

Centre curvature related to diagonal calculated from the work size.

SASO ISO 10545 2	<b>Require</b>	<b>Result</b>
	+ 0.30%	Max+ 0.06%
	- 0.30%	Max - 0.00%

**(b) Edge curvature**

Edge curvature related to the corresponding work size.

SASO ISO 10545 2		
	+ 0.30%	Max+ 0.05%
	- 0.30%	Max - 0.00%

**(c) Warpage**

Warpage related to diagonal calculated from the work size.

SASO ISO 10545 2	±0.50%	Max+ 0.04%
		0.00%

**2.6 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.

SASO ISO 10545 2      95%      95%

**3 PHYSICAL PROPERTY:-**

**3.1 WATER ABSORPTION %**

1	16.87 %	6	18.37 %
2	19.28 %	7	19.29 %
3	18.16 %	8	18.69 %
4	19.87 %	9	18.82 %
5	19.02 %	10	17.94 %

**Average      18.63 %**

**Test Method**

SASO ISO 10545 3

**Require**

Average > 10% When the average exceeds 20% , this shall be indicated by the manuf. Individual minimum value 9%

**3.2 BREAKING STRENGTH IN N:**

1	681.93 N	6	612.75 N
2	647.18 N	7	687.28 N
3	688.71 N	8	668.65 N
4	647.86 N	9	612.91 N
5	650.73 N	10	614.18 N

Thickness ≥ 7.5 mm

**Average:- 651.22 N**

**Test Method**

SASO ISO 10545 4

**Require**

**not less than 600N**

**3.3 MODULUS OF RUPTURE ( M C N/mm<sup>2</sup> )**

1	18.92 N/mm <sup>2</sup>	6	18.56 N/mm <sup>2</sup>
2	17.98 N/mm <sup>2</sup>	7	18.76 N/mm <sup>2</sup>
3	18.49 N/mm <sup>2</sup>	8	18.49 N/mm <sup>2</sup>
4	18.91 N/mm <sup>2</sup>	9	18.06 N/mm <sup>2</sup>
5	18.36 N/mm <sup>2</sup>	10	18.58 N/mm <sup>2</sup>

**Average      18.51 N/mm<sup>2</sup>**

**Test Method**

SASO ISO 10545 4      **Require**

**Minimum 12.0 N/mm<sup>2</sup>**  
Thickness ≥ 7.5mm

**3.4 CRAZING RESISTANCE :-**

**Test Method**

SASO ISO 10545 - 11

NO CRAZING IN TWO CYCLE ONE HOUR DURATION At a steam pressure of 750±20Kpa  
6 Nos of tiles were subjected to autoclaving at a steam pressure 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 glaze surface and the lot pass the test

**Result**

**Confirm**

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	Test Method	Require	Result
<b>3.5</b> COEFFICIENT OF LINEAR THERMAL EXPANTION:- From ambient temperature to 100°C	SASO ISO 10545 - 8	MAX 9X10 <sup>-6</sup>	5.86x10 <sup>-6</sup>
<b>3.6</b> THERMAL SHOCK RESISTANCE. 15/145°C	10cycle SASO ISO 10545 - 9	<b>10 cycle Pass</b>	<b>Confirm</b>
<b>3.7</b> MOISTURE EXPANSION ( in mm/mm)	SASO ISO 10545 - 10	0.06mm/m	0.002mm/m
<b>4 CHEMICAL PROPERTIES:</b>			
<b>Aqueous test solution</b>			
<b>4.1</b> House hold chemical resistance:- Ammonium chloride solution 100g/L	SASO ISO 10545 - 13	<b>Require</b> Class GB	<b>Result</b> ClassGA
	No visual changes observed after immersion for 24 hrs ; Pencil lines removed with soft wet cloth.		
<b>4.2</b> Swimming pool salt : Sodium hypochlorite solution , 20mg/L	No visual changes observed after immersion for 24 hrs ; Pencil lines removed with soft wet cloth.	Class GB	ClassGA
<b>4.3</b> Acid & Alkalies :-			
<b>4.3.1</b> Low Concentrations ( L ) Hydrochloric Acid solution 3% (V/V )	No visual changes observed after immersion for 4 days ; Pencil lines removed with soft wet cloth.	Class GLB	Class GLA
<b>5 RESISTANCE TO STAIN</b>			
	SASO ISO 10545 - 14		
<b>5.1</b> Red Staining agent :-	Stain put on tiles up to 24 hrs		
a Red Past in Light Oil ( Fe2O3 )	Stain remove by hot water	Min Class - 3	Class -5
b Iodine in Alcohol 13g/l	Stain remove by weak cleaning agent	Min Class - 3	Class -4
c Olive Oil	Stain remove by hot water	Min Class - 3	Class -5
<b>6 LEAD AND CADMIUM RELEASE in mg/dm<sup>2</sup></b>			
	SASO ISO 10545 - 15		
<b>LEAD RELEASES</b>			
Test Solution		<b>Limit</b>	<b>Result</b>
Acetic Acid Solution 4% ( v/v ), ( in 960ml distilled water )	Digestion time- 24 hrs ( 20±2° ) Detected by ED XRF	0.1mg/dm <sup>2</sup>	0.00 mg/dm <sup>2</sup>
<b>CADMIUM RELEASE</b>			
Test Solution			<b>Result</b>
Acetic Acid Solution 4% ( v/v ), ( in 960ml distilled water )	Digestion time- 24 hrs ( 20± Detected by ED XRF	0.1mg/dm <sup>2</sup>	0.00 mg/dm <sup>2</sup>
<b>SMALL COLOUR DIFFERENCES</b>	SASO ISO 10545 - 16	ΔE < 0.75	<b>No Difference</b>

**CONCLUSION:**

The sample drawn by party from the above lot complies with SASO-ISO. Standard specification SASO- ISO 13006 : 2015 ( Group B III )  
Test Procedure as per I S O 10545 Require parts  
Authorised signatory :

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Name of signatory : J.M. Kavar ( Diploma in Ceramic Technology)

For

Designation of signatory :

National Cera LAB

NATIONAL CERA LAB

PROPRIETOR

