NABL ACCREDITATION LAB



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CERAMIC LABORATORY

Ref. No.

NCL/Vitrified Tile /SASO ISO/10/228/2017-18

Receive date of test sample :- 02.10.2017

Issue to M/s Velsaa Vitrified LLP 8A N.H. , New Jambudia Tal & Dist - Morbi ; Gujarat ; India

SAMPLE DECRIPTION & NAME: Polished Glazed Vitrified Tiles size 1200x600mm as submitted by the party

TEST DESIRED: A) Dimantion and surface quality (i) LENGTH & WIDTH (ii) THICKNESS (iii)STRAIGHTNESS OF SIDES (Facial sides) (iv)RECTANGULARITY (v) SURFACE FLATNESS (vi) SURFACE QUALITY

B) Physical Property (i)WATER ABSORPTION % (ii)MODULUS OF RUPTURE (MOR) N/mm⁴ (iiii)BREAKING STRENGTH iv) CRAZING RESISTANCE

A) DIMANTION AND SURFACE QUALITY

As SASO ISO 13006:2012 Group BI a

(v) THERMAL SHOCK RESISTANCE (vi) CO EFFICIENT OF LINEAR THERMAL EXPANTION (vii) RESISTANCE TO SURFACE ABRASION (viii) SCRACH HARDNESS (x) BIHLK DENSITY xi MOISTURE EXPANSION

C) Chemical Property (i) Resistance to house chemical (II) Resistance to swimming pool salt (III) Resistance To Low Concentration OF Acid & Alkali (IV) Resistance to Stain

TEST REPORT

III) DEVIATION IN LENGTH (I) & WIDTH(W) :-The deviation in percentage of the average size 3.1) (a) Result Test Method Require of each tile (2 or 4 sides) from the work + 0.02% SASO ISO10545 - 2 ± 0.60% size (W) - 0.00% (b) The deviation in percentage of the average size of each tile (2 or 4 sides) from the average size of the 10 test specimen (20 or 40 sides) +0.01%SASO (SO10545 - 2 + 0.50% - 0.00% 3.2) THICKNESS :-10.25 mm The deviation in percent of the average + 0.42% SASO ISO 10545 - 2 + 5% thickness of each tile from the work size - 0.00% thickness 3.3) STRAIGHTNESS OF SIDES :-The maxmum deviation from straightness, + 0.05% SASO ISO 10545 - 2 ± 0.50% in percent related to the corresponding - 0.04% work size 3.4) RECTANGULARITY :-The maximum deviation from rectangularity + 0.05% SASO ISO10545 - 2 ± 0.50% in percent related to the corresponding - 0.04% work size.

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3.5) SURFACE FLA	TNESS :-					Result	Test Method	Require
The maximu	m deviation from	n flatness,in (perc	ent)					
(a) C	Centre Curvatu	re				+ 0.05%	SASO ISO10545 - 2	± 0.50%
C	centre curvature	related to diagona	al			- 0.00%		
c	alculated from t	he work size.						
(b) E	dge curvature					+ 0.06%		± 0.50%
E	dge curvature i	elated to the corre	spo	nding		- 0.00%		
W	ork size.			-				
(c) V	Varpage					+ 0.03%		± 0.50%
V	Varpage related	to diagonal calcuit	ated	1		- 0.00%		
fi	rom the work siz	te.						
II) SURFACE OUA	YTH							
Tested by the	e visually							
Minimum 95	percent of tile s	hall be free from v	/isibl	e defect t	hat			
would impair	the appearance	e of the major area	a of t	tiles.				
No any defe	ct found in the t	iles surface area a	Ind k	ot pass th	e test.	95%	SASO ISO10545 - 2	95%
PHYSICAL I	PROPERTIES :		Tes	st Method	d —			
I) WATER ABSOR	RPTION:- %		SAS	O ISO 1054	15 - 3			
1	0.116 %	6		0.099 %	6		Require As perSASO	ISO 13006
2	0.137 %	7		0.096 9	6		< e 0.50%	
3	0.098 %	8		0.098 %	6		Individual maximu	m 0.60%
4	0.102 %	9	n.d	. 9	6			
5	0.104 %	10	n.d	9	6			
				9	6			
	Ave	erege 0.11	%					
II) MODULUS OF	RUPTUREE (M O	R):- N/mm ²						
1	43.63 N/m	nm² 6	i i	42.68 N	Vmm ²		SASO ISO 10545 - 4	
2	38.86 N/n	1m² 7		43.16 N	I/mm ²	Require	Minimum 35	
3	40.26 N/m	nm² 8		40.98 N	l/mm²		Individual mini mu	m 32
4	41.28 N/m	nm² 9	n.d	. N	Vmm ²			
5	42.56 N/m	nm² 10	n.d		l/mm²			
			Ave	egerege	41.6	8 N/mm ²		1
III) BREAKING ST								
1	2593.16 N	6	2	466.48 N	1	Test Met	hod	
2	2624.41 N	7	2	562.18 N	1	SASO ISO 1	0545 - 4	
3	1518.62 N	8	2	516.88 N	1			
4	2612.24 N	9		n.d. N	1			
5	2588.69 N	10		n.d. N	a 👘	Require		
						Thicknes	s > e 7.5 mm	
A	verage:-	2435.33	N			Not lass	than 1300	
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PER PERPER SASE 105 (15) (15) (15) (15) (15) (15) (15) (15							
TEST REPORT NO CRAZING IN TWO CYCLE ONE HOUR DURATION At a steam pressure of 750 ± 20 Kpa 6 Nos of tiles ware subjected to autoclaving at a steam pressure of 750 ± 20 Confirm Result NO CRAZING IN TWO CYCLE ONE HOUR DURATION At a steam pressure of 750 ± 20 Confirm School 51 bits No of the tiles show any sign of the crazing on the glaze surface and the tot pass the test. If /145°c 10cycle Result Test Method Require V) THERMAL SHOCK RESISTANCE 15/145°c 10cycle Result School 10545 - 9 Require VI) COEFFICIENT OF LINEAR THERMAL EXPANTION: Result School 10545 - 9 Require School form ambient temperature to 100°c (K - 1) 5.86x10°6 Require Sthool 0545 - 7 Class - IV VIII) COEFFICIENT OF LINEAR THERMAL EXPANTION: Result Isoo 10545 - 10 Require Sthool 0545 - 7 Class - IV Visual failure was observed at 12000 revolution when the tiles ware subjected to abrasion stage of 150,600.750,1500 - 2100,6000, etc up to 12000 rest Method Require VIII) MOISTURE EXPANSION mm/m Result iso 10545 - 10 Require 0.02 mm/m max X) SPACH HARDNESS OF SURFACE (MOHTS SCALE): Result is mon's scal Require Class GA Min Class-GC C C HEMICAL PROPERTIES: SASO ISO 10545 - 13 R				1		-	V
IV CRAZING RESISTANCE: SASD ISO 10545-11 NO CRAZING IN TWO CYCLE ONE HOUR DURATION At a steam pressure of 750 ± 20 Confirm Kpa of saturated steam for Two hour consisting of Two cycle. None of the lise show any sign of the crazing on the glaze surface and the tot pass the test. Require V) THERMAL SHOCK RESISTANCE. 15/145°c 10cycle Result Test Method Require VI) COEFFICIENT OF LINEAR THERMAL EXPANTION: Result Saso ISO 10545 - 8 Require Statistic Constraints 10 cycle, Min No Saso ISO 10545 - 8 Require VII) COEFFICIENT OF LINEAR THERMAL EXPANTION: Result Saso ISO 10545 - 8 Require Stato 1050 10545 - 7 Class - IV Visual failure was observed at 12000 revolution when the lies ware subjected to abrasion stage of 150,500,750,1500 . 2100,6000, etc up to 12000 Test Method Require VIII) MOISTURE EXPANSION mm/m Result iso 10545 - 10 Require 0.02 mm/m max Require 0.02 mm/m max X) SRACH HARDNESS OF SURFACE (MOH'S SCALE): Result iso 10545 - 10 Require 0.02 mm/m max Require 0.02 mm/m max X) BULK DENSITY , IN (grcc) Require 2.2 min Result 2.2664g/cc Class GA Min Class-GC C OHEMICAL PROPERTIES: SASO ISO 10545-13 Result <t< td=""><td></td><td>TEST</td><td>REPORT</td><td></td><td></td><td></td><td></td></t<>		TEST	REPORT				
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ii) Citric Acid Soln. 100gm/l No visual changes observed after immersion for 24 hrs ; Pencil lines removed with wet wiping removed (page 3 of 4)	A 1)	Low Concentrations (L) Hydrochloric Acid solution 3% (V/V)	for 4 days ; Pencil wiping removed	ines remo	ved with wet	Class GLA	MIN Class-GLC
for 24 hrs ; Pencil lines removed with wet wiping removed (page 3 of 4)	ii)	Citric Acid Soln. 100gm/l	No visual changes	observed	after immersion	Class GLA	Min Class-GLC
(page 3 of 4)			for 24 hrs ; Pencil	lines remov	ved with wet		1
(page 3 of 4) a Contractor			wiping removed				101414 C
					25.	(page 3 of 4)	A Contactor

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TEST REPORT

řii)) Potassium Hydroxide Soln 30gm/l	No visual changes for 4 days ; Pencil wiping removed	s observed after immersion I lines removed with wet	Class GLA	Min Class-GLC
		Test Method	SASO ISO 10545-14		
IV]	RESISTANCE TO STAIN	Stain p	put on tiles up to 24 hrs	Result	Require
	Red Past in Light Oil (Fe2O3)	Stain r	emove by hot water	Class -5	Min Class - 3
	lodine in Alcohol 13g/l	Stain r	remove by hot water	Class -5	Min Class - 3
	Olive Oil	Stain r	remove by hot water	Class -5	Min Class - 3
V	LEAD AND CADIUM RELEASE in mg/	dm²	SASO ISO 10545 -	15	Result

CONCLUSION:

The sample drawn by party fron the above lot complies with SASO ISO 13006 : 2012 Group BI a

Test Procedure as per ISO 10545

Designation of signatory :

Authorised signaatory	:- J.M. Kavar
	(Dip in Ceramic Technology)
Name of signatory :	J.M. Kavar

For National Cera Lab

J.M. Kavar (Dip in Ceramic Technology



No Release

Result

Require

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