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Test Report

Test Report No.: HL/MT/220224003

ULR No.: TC902222000000429F

Issued To: ANTIEK VITRIFIED LLP

Issue Date: 10-03-2022

TEST REPORT OF TILE

Name of Agency : ANTIEK VITRIFIED LLP
Address : Survey No. 847/1 and 847/1/1, At. Ghuntu, Lakhdirpur Road,
8-A National highway, Morbi, Morbi, Gujarat, 363642
Sample Name : Pressed Ceramic Tiles (Glazed Vitrified Tiles)
Make : ANTIEK
Sample Code : Not Mentioned
Sample Received on : 24-02-2022
Analysis End On : 10-03-2022



SAMPLE DETAILS

Type : Dry Pressed Ceramic Tiles water absorption ($E_v \leq 0.08\%$)
Group : Bla (Table 9 cluse 6) Glazed Tiles
Work Size : 1200 x 600 x 9.0 mm
Nature of Surface : Glazed (GL) Matt
Quantity of sample : 52 Pieces
Batch No./Lot No. : 20
Date of Manufacturing : 17-10-2021
Design : NARROW WOOD
Indication of First Quality : Provided (Premium)
Country of Origin : India
Any Other Information : Declared Thickness 9.0 mm
Total Weight of Box : Provided (29.5 kg Approx per box)
Specification : IS 15622: 2017 (Pressed Ceramic Tiles) with All Effective Amendments
Reference Standards : IS 13630 (P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, P-12, P-13, P-14 and P-15)



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i). Determination of Dimensions and Surface Quality

Reference Standard : IS 13630 Part 1 :2019

(a) Length and Width

(i) Measurements of Average Size Lengthwise (Measurement of Length)

a) Description of tiles :	Pressed Ceramic Tiles					
b) Number of Specimen:	10 Whole Tiles					
c) Nominal Size:	1200	x	600	x	9.0	mm
d) Work Size:	1200	x	600	x	9.0	mm
e) Thickness:	9.0					
f) Instruments Used:	Vernier Caliper					

Average Size Lengthwise

Parameters	Number of Specimens									
	1	2	3	4	5	6	7	8	9	10
Individual Size (mm) side 1 Lengthwise	1200.10	1200.14	1200.20	1200.10	1200.14	1200.18	1200.22	1200.16	1200.14	1200.20
Individual Size (mm) side 2 Lengthwise	1200.14	1200.16	1200.10	1200.12	1200.16	1200.20	1200.20	1200.14	1200.18	1200.10
Average Size of each Specimen(mm) Both Sides Lengthwise	1200.12	1200.15	1200.15	1200.11	1200.15	1200.19	1200.21	1200.15	1200.16	1200.15
Average Size of 10 specimens (mm) Lengthwise	1200.154 mm									
Deviation of the average size of each specimen from the work size (mm) Lengthwise	0.120	0.150	0.150	0.110	0.150	0.190	0.210	0.150	0.160	0.150
Deviation of the average size for the average of 10 specimens (mm) lengthwise	0.154 mm									
Deviation of the average size of each specimen from the work size (%) Lengthwise	0.010	0.013	0.013	0.009	0.013	0.016	0.018	0.013	0.013	0.013
% Deviation of the average size from the average of 10 Specimens Lengthwise	0.013 %									
Deviation of the average size of each specimen from the average of 10 specimen (mm) Lengthwise	-0.034	-0.004	-0.004	-0.044	-0.004	0.036	0.056	-0.004	0.006	-0.004
Deviation of the average size of each specimen from average of 10 specimens (%) Lengthwise	-0.003	0.000	0.000	-0.004	0.000	0.003	0.005	0.000	0.000	0.000

Required Value: $\pm 0.10\%$

Remark: Conforms

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(ii) Measurements of Average Size Widthwise (Measurements of Width)

a) Description of tiles :	Pressed Ceramic Tiles					
b) Number of Specimen:	10 Whole Tiles					
c) Nominal Size:	1200	x	600	x	9.0	mm
d) Work Size:	1200	x	600	x	9.0	mm
e) Thickness:	9.0					
f) Instruments Used:	Vernier Caliper					

Average Size Widthwise

Parameters	Number of Specimens									
	1	2	3	4	5	6	7	8	9	10
Individual Size (mm) side 1 Widthwise	599.90	599.94	599.92	599.88	599.96	599.90	599.94	599.86	599.92	599.96
Individual Size (mm) side 2 Widthwise	599.92	599.96	599.94	599.86	599.86	599.94	599.86	599.94	599.88	599.90
Average Size of each Specimen(mm) Both Sides Widthwise	599.910	599.950	599.930	599.870	599.910	599.920	599.900	599.900	599.900	599.930
Average Size of 10 specimens (mm) Widthwise	599.912 mm									
Deviation of the average size of each specimen from the work size (mm) Widthwise	-0.090	-0.050	-0.070	-0.130	-0.090	-0.080	-0.100	-0.100	-0.100	-0.070
Deviation of the average size for the average of 10 specimens (mm) Widthwise	-0.088 mm									
Deviation of the average size of each specimen from the work size (%) Widthwise	-0.015	-0.008	-0.012	-0.022	-0.015	-0.013	-0.017	-0.017	-0.017	-0.012
% Deviation of the average size from the average of 10 Specimens Widthwise	-0.015 %									
Deviation of the average size of each specimen from the average of 10 specimen (mm) Widthwise	-0.002	0.038	0.018	-0.042	-0.002	0.008	-0.012	-0.012	-0.012	0.018
Deviation of the average size of each specimen from average of 10 specimens (%) Widthwise	0.000	0.006	0.003	-0.007	0.000	0.001	-0.002	-0.002	-0.002	0.003

Remark: Conforms

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b). Measurements of Thickness

Reference Standard : IS 13630 Part 1 :2019

a) Description of tiles :	Pressed Ceramic Tiles					
b) Number of Specimen:	10 Whole Tiles					
c) Nominal Size:	1200	x	600	x	9.0	mm
d) Work Size:	1200	x	600	x	9.0	mm
e) Thickness:	9.0					
f) Instruments Used:	Micrometer					

Thickness Parameters	Number of Specimens									
	1	2	3	4	5	6	7	8	9	10
Thickness (mm) Position 1	9.18	9.15	8.98	8.96	9.22	8.99	9.26	9.10	9.12	9.23
Thickness (mm) Position 2	9.11	9.14	8.97	9.20	9.05	9.19	8.87	9.21	9.01	8.85
Thickness (mm) Position 3	8.89	9.25	9.13	9.17	8.93	9.16	8.86	9.08	9.09	9.04
Thickness (mm) Position 4	8.92	8.84	8.83	8.95	9.02	9.06	9.00	9.03	9.24	9.07
Average Thickness (mm)	9.025	9.095	8.978	9.070	9.055	9.100	8.998	9.105	9.115	9.048
Average Thickness of 10 specimens (mm) all positions	9.059 mm									
Deviation of the average thickness of each tile from the work size thickness(mm)	0.025	0.095	-0.022	0.070	0.055	0.100	-0.003	0.105	0.115	0.047
Deviation of the thickness from the average of 10 specimens (mm)	0.059 mm									
Deviation of the average thickness of each specimen from the work size (%)	0.278	1.056	-0.250	0.778	0.611	1.111	-0.028	1.167	1.278	0.528
% Deviation of the average thickness from the average of 10 Specimens	0.653 %									

Required Value: $\pm 5.0 \%$

Remark: Conforms

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c). Measurements of Straightness of Sides

Reference Standard : IS 13630 Part 1 :2019

Straightness of Sides

Number of Specimens

(a) Lengthwise	1	2	3	4	5	6	7	8	9	10
Straightness of sides (mm) side 1	-0.18	-0.09	-0.12	0.00	-0.13	0.21	-0.11	0.11	0.13	-0.16
Straightness of sides (mm) side 2	-0.10	-0.25	0.25	0.19	0.28	-0.23	0.24	0.17	0.09	-0.21
Maximum deviation of Straightness of both sides (mm)	0.28 mm									
Maximum deviation from straightness related to the corresponding work size (%)	-0.021 %									
	Required Value: ± 0.1 %									

(b) Widthwise	1	2	3	4	5	6	7	8	9	10
Straightness of sides (mm) side 1	-0.15	0.23	-0.18	0.20	0.01	0.17	0.12	0.04	-0.19	0.18
Straightness of sides (mm) side 2	0.27	-0.13	-0.12	-0.10	-0.07	-0.23	0.02	0.11	-0.11	0.10
Maximum deviation of Straightness of both sides (mm)	0.27 mm									
Maximum deviation from straightness related to the corresponding work size (%)	-0.038 %									
	Required Value: ± 0.1 %									

Remark: Conforms

d). Measurements of Rectangularity

Rectangularity of Sides

Number of Specimens

(a) Lengthwise	1	2	3	4	5	6	7	8	9	10
Rectangularity (mm) side 1	0.25	-0.06	0.13	-0.19	-0.24	-0.21	-0.22	0.20	-0.29	0.22
Rectangularity (mm) side 2	0.15	-0.11	0.29	0.18	0.30	-0.20	0.12	-0.16	-0.12	-0.04
Maximum deviation of Rectangularity of both sides (mm)	0.30 mm									
Maximum deviation from Rectangularity related to the corresponding work size (%)	-0.024 %									
	Required Value: ± 0.1 %									

(b) Widthwise	1	2	3	4	5	6	7	8	9	10
Rectangularity (mm) side 1	-0.08	-0.25	-0.27	-0.31	0.04	0.11	0.06	0.01	0.09	-0.19
Rectangularity (mm) side 2	0.12	0.00	-0.23	-0.30	0.22	0.05	0.07	0.14	-0.11	0.20
Maximum deviation of Rectangularity of both sides (mm)	0.22 mm									
Maximum deviation from Rectangularity related to the corresponding work size (%)	-0.052 %									
	Required Value: ± 0.1 %									

Remark: Conforms

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e). Measurements of Surface Flatness

Reference Standard : IS 13630 Part 1 :2019

1. Centre Curvature:

Number of Specimens

Centre Curvature	1	2	3	4	5	6	7	8	9	10
Centre curvature (mm) Diagonal 1	0.08	-0.34	-0.23	-0.35	-0.07	0.23	-0.09	0.21	0.14	-0.32
Centre curvature (mm) Diagonal 2	-0.27	0.05	-0.13	0.18	0.20	-0.08	-0.16	0.25	-0.30	-0.25
Maximum centre curvature related to the diagonal work size (mm)	0.25 mm -0.35 mm									
Maximum centre curvature related to the diagonal calculated from work size (%)	0.019 % -0.026 %									

Required Value: ± 0.5 %

Remark: Conforms

2. Edge Curvature of Length

(a) Lengthwise

	1	2	3	4	5	6	7	8	9	10
Edge curvature(mm) side 1	0.34	0.07	0.00	-0.09	0.29	-0.31	0.31	-0.04	0.04	-0.21
Edge curvature(mm) side 2	0.26	0.27	-0.19	0.13	-0.02	0.24	0.16	-0.16	0.18	-0.03
Maximum edge curvature related to the corresponding work size (mm)	0.34 mm -0.31 mm									
Maximum edge curvature related to the corresponding work size (%)	0.028 % -0.026 %									

Required Value: ± 0.5 %

(b) Widthwise

	1	2	3	4	5	6	7	8	9	10
Edge curvature(mm) side 1	-0.08	0.16	-0.27	-0.29	0.21	-0.32	-0.16	-0.18	-0.05	0.13
Edge curvature(mm) side 2	-0.15	0.25	-0.10	-0.09	-0.31	-0.25	0.20	-0.01	0.15	0.24
Maximum edge curvature related to the corresponding work size (mm)	0.25 mm -0.32 mm									
Maximum edge curvature related to the corresponding work size (%)	0.042 % -0.053 %									

Required Value: ± 0.5 %

Remark: Conforms

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3. Determination of Warpage

Reference Standard : IS 13630 Part 1 :2019

(a) Lengthwise	1	2	3	4	5	6	7	8	9	10
Warpage (mm) side 1	-0.27	-0.05	0.01	0.11	0.14	0.30	0.09	0.03	0.16	-0.21
Warpage (mm) side 2	0.08	-0.20	-0.31	0.22	-0.14	-0.25	0.26	0.32	0.28	0.07
Maximum warpage related to the diagonal from work size (mm)	0.32 mm									
	-0.31 mm									
Maximum warpage related to the diagonal from work size (%)	0.024 %									
	-0.023 %									

Remark: Conforms



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e). Measurements of Surface Quality

Reference Standard : IS 13630 Part 1 :2019

- a) Description of tiles : Pressed Ceramic Tiles
b) Number of Specimen: 10 Whole Tiles
c) Nominal Size: 1200 x 600 x 9.0 mm
d) Work Size: 1200 x 600 x 9.0 mm
e) Thickness: 9.0
f) Instruments Used: Fluorescent Lighting of Colour, Temp., Meter Rule, Light

Number of Specimen	Cracks	Crazing	Dry Spot	Unevenness	Pin Hole	Glaze Devitrification	Specks and Spots	Under glaze fault	Decorating fault	Chip	Blister	Rough Edge	Polishing defect
1	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C

Remark: - C = Conform the Requirement

Procedure: Tile have been Placed in the observation table under 275 ± 25 lux light by 6000 K lighting source and observed for the surface defects and Intentional effects-

Observation: No cracks, crazing, dry spots, unevenness, pin hole, glaze devitrification, specks or spots, underglaze fault, polishing defects, polishing effects, decorating fault, chip, blister, rough edge, welt, etc. have been Observed. Also In order to judge whether there is a defect or an intentional decorative effect, the intentionality and aesthetics of the effect have been assessed, including a review of the manufacturer documentation. Cracks, chipped edges and chipped corners have not been detected. 100 % Tile is free from Visual Defects.

Required Value: Tiles should not have Above mentioned Defects in 95 % Tiles Observed

Remark: Conforms

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ii). Physical Properties

a) Water Absorption

Reference Standard : IS 13630 Part 2 :2019

Sample Size: 600x600x9.0 mm

Specimen Number	Mass of the Dry Sample (gm) (M1)	Mass of the Wet Sample (gm) (M2)	Water absorption of Individual Specimen (%) (M2-M1) x 100/M1
1	7325.80	7327.50	0.0232
2	7336.10	7337.50	0.0191
3	7321.70	7323.80	0.0287
4	7337.30	7339.20	0.0259
5	7319.90	7321.70	0.0246
6	7328.40	7329.80	0.0191
7	7341.90	7343.02	0.0153
8	7326.20	7328.00	0.0246
9	7340.60	7342.20	0.0218
10	7324.30	7326.00	0.0232

Average Water Absorption of the all specimens tested in %

0.0225 %

Required Value Max. 0.08 %

Individual Max. Value of Water Absorption of the Specimen in %

0.0287 %

Required Value Max. 0.1 %

Remark: Conforms

b) Bulk Density

Reference Standard : IS 13630 Part 2 :2019

Sample Size: 100x100x9.0 mm

Specimen Number	Mass of the Dry Sample (gm) (M1)	Mass of the Wet Sample (gm) (M2)	Mass of Suspended Tiles (M3)	Bulk Density
1	202.35	202.39	114.36	2.30
2	201.81	201.86	116.55	2.37
3	201.67	201.72	114.29	2.31
4	201.92	201.96	115.64	2.34
5	202.64	202.69	115.99	2.34
6	202.36	202.42	115.37	2.32
7	201.66	201.69	116.19	2.36
8	202.74	202.79	115.33	2.32
9	203.01	203.06	115.79	2.33
10	202.49	202.55	114.96	2.31

Average Bulk Density of the all specimens g/cm³

2.3287 g/cm³

Required Value Min. 2.2 g/cm³

Remark: Conforms

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c) Modulus of Rupture

Reference Standard : IS 13630 Part 6 :2019

Specimen Number	Breaking Load (Newton) F	Span between the support rods (mm) l_2	Width of the test Specimen (mm) b	Minimum thickness of the test specimen measured after the along the broken edge (mm) h	Modulus of Rupture of Individual Specimen (N/mm ²) $3Fl_2/2bh^2$
1	1190.5	580	300	8.85	44.08
2	1191.0	580	300	8.85	44.10
3	1183.5	580	300	8.85	43.82
4	1176.0	580	300	8.85	43.54
5	1112.5	580	300	8.85	41.19
6	1187.0	580	300	8.85	43.95
7	1102.5	580	300	8.85	40.82

Average Breaking Load, N

1163.29 Newton

Average Modulus of Rupture, N/mm²

43.07 N/mm²

Required Value: 35 N/mm²

Individual Minimum Modulus of Rupture, N/mm²

40.82 N/mm²

Required Value: 32 N/mm²

** Note: Testing has been performed on cut tiles test, specimen size (600x300)

Remark: Conforms

d) Breaking Strength

Reference Standard : IS 13630 Part 6 :2019

Specimen Number	Breaking Load (Newton) F	Span between the support rods (mm) l_2	Width of the test Specimen (mm) b	Breaking Strength of Individual Specimen (N) Fl_2/b
1	1190.5	580	300	2301.63
2	1191.0	580	300	2302.60
3	1183.5	580	300	2288.10
4	1176.0	580	300	2273.60
5	1112.5	580	300	2150.83
6	1187.0	580	300	2294.87
7	1102.5	580	300	2131.50

Average Breaking Load, N

1163.29 Newton

Average Breaking Strength, N

2249.02 Newton

Required Value: Min 1300 Newton

** Note: Testing has been performed on cut tiles test, specimen size (600x300)

Remark: Conforms

e) Scratch Hardness of Surface

Reference Standard : IS 13630 Part 13 :2019

Specimen Number	Moh's Hardness of Specimens	Average Moh's Hardness
1	5	5
2	5	
3	5	

Remark: Conforms

Req. Value: 5 Min.

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f) Determination of Moisture Expansion

Reference Standard : IS 13630 Part 3 :2019

Specimen Number	Length of Specimen after re-firing (mm)		Length of Specimen after treatment in boiling water (mm)		Moisture Expansion of each test Specimen (mm/m)
	Initial Length (mm)	Length after 3 h from the initial measurement	Length After 1 h removal from the boiling	Length after 3 h from the first measurement	
1	100.239	100.239	100.241	100.240	0.00998
2	100.266	100.266	100.269	100.267	0.00997
3	100.218	100.218	100.220	100.219	0.00998
4	100.300	100.300	100.302	100.301	0.00997
5	100.209	100.209	100.212	100.210	0.00998
Average Moisture Expansion (mm/m)					0.00998

Maximum Value of Moisture Expansion (mm/m)

0.00998

Required Value

Max. 0.02 mm/m

Remark: Conforms

g) Determination of Impact Resistance by measurement of coefficient of restitution

Reference Standard : IS 13630 Part 14 :2019

Specimen Number	Dropping height of the ball (h1) mm	Indentation or Cracking	Coefficient of restitution of Specimen
1	1000	No Indentation or Cracking	0.788
2	1000	No Indentation or Cracking	0.782
3	1000	No Indentation or Cracking	0.798
4	1000	No Indentation or Cracking	0.782
5	1000	No Indentation or Cracking	0.799

Average Coefficient of Restitution of the all
specimens tested

0.790

Required Value : Min 0.55 Conforms

Any indentation or Cracking in the Test
Specimen

No Indentation or Cracking Observed in all the test specimen tested

h) Determination of Resistance to surface abrasion for glazed tiles

Reference Standard : IS 13630 Part 11 :2019

Specimen Number	Abrasion stage at Revolutions	Failure Occur	Class of stain resistance for tiles of Abrasion	Average Class of stain resistance for tiles of Abrasion
1	100	No	NA	4
2	150	No	NA	
3	600	No	NA	
4	750	No	NA	
5	1500	No	NA	
6	2100	No	NA	4
7	6000	Yes	4	
8	12000	NA	NA	

Resistance to surface abrasion of glazed tiles
intended for use on floors

Class 4, Passed 2100 Revolutions

Required Vale: Min Class 2

Remark: Conforms

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i) Determination of Linear Thermal Expansion

Reference Standard : IS 13630 Part 4 :2019

Coefficient of Linear Thermal Expansion

Test Parameters	Length of Test Specimen at Ambient Temperature	Ambient Temperature	Length Increase at 100°C in mm	Required	Results
a. Coefficient of linear thermal expansion, ambient to 100°C, Specimen 2	25.20	29.7	0.006	NA	3.39×10^{-6}
b. Coefficient of linear thermal expansion, ambient to 100°C, Specimen 2	25.36	29.3	0.006	NA	3.35×10^{-6}

Average Coefficient of linear thermal expansion, ambient to 100°C

3.37×10^{-6}

Required Value Max. 6×10^{-6}

Remark: Conforms

j) Determination of Resistance to Thermal Shock

Reference Standard : IS 13630 Part 5 :2019

i) Water Absorption Coefficient: 0.0225 %

Specimen Number	Visual defect examine before the test				Visual defect examine after the test				
	Cracks (Naked eye)	Crazing (Naked eye)	Dryspot (Naked eye)	Using Methylene Blue Staining (Naked eye)	Cracks (Naked eye)	Crazing (Naked eye)	Dryspot (Naked eye)	Using Methylene Blue Staining (Naked eye)	
1	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
2	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
3	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
4	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
5	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.

Remarks and Observation: No visual defects like Crack, Crazing, Dry Spots in all the 5 test specimen after 10 cycles.

Remark: Conforms

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k) Determination of Frost Resistance

Reference Standard : IS 13630 Part 10 :2019

Specimen Number	Visual defect examine before the test			Visual defect examine after the test						
	Cracks	Crazing	Dryspot	Using	Cracks	Crazing	Dryspot	Using	Cracks	Crazing
1	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
2	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
3	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
4	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
5	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
6	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
7	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
8	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
9	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.
10	Satisfac.	Satisfac.	Satisfac.	Satisfac.	Satisfac.	No Def.	No Def.	No Def.	No Def.	No Def.

Remark: All the test specimen having no visual defect after 100 cycles freeze thaw test

Remark: Conforms

l) Determination of Coefficient of Friction

Reference Standard : IS 2386 (p-4) & CEN/TS 16165

Specimen Number	Individual PTV Values	Average PTV Value
1	34	35
2	34	
3	36	
4	34	
5	36	

m) Determination of Crazing Resistance for glazed tiles

Reference Standard : IS 13630 Part 9 :2019

Specimen Number	Examine the test Specimen for Crazing	Test Condition for the Specimen
1	No Crazing	Kept in Autoclave at Pressure 750±20 kPa, Steam Temperature 168±1°C
2	No Crazing	
3	No Crazing	
4	No Crazing	
5	No Crazing	

Remark: No test specimen shows any sign of Crazing after performing the tests four cycles.

Remark: Conforms

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iii). Chemical Property (Stains and Reagents)

(1) Resistance to Staining

Reference Standard : IS 13630 Part 8 :2019

a. Methylene Blue:

Specimen Number	Characteristic/ Test	Requirements	Test Results	Remark
1	Methylene Blue 10g/l	Min Class 1	Class 1	Conforms
2		Min Class 1	Class 1	
3		Min Class 1	Class 1	
4		Min Class 1	Class 1	
5		Min Class 1	Class 1	

b. Potassium permanganate solution:

Specimen Number	Characteristic/ Test	Requirements	Test Results	Remark
1	Potassium permanganate solution 10g/l	Min Class 1	Class 1	Conforms
2		Min Class 1	Class 1	
3		Min Class 1	Class 1	
4		Min Class 1	Class 1	
5		Min Class 1	Class 1	

Remark: Stains Removed by water Class 1, Stain Removed by Cleaning agent class 2, stains not removed at all by cleaning agent class 3

(2) Resistance to household chemicals and swimming pool water cleansers

Reference Standard : IS 13630 Part 8 :2019

a. House hold chemical Resistance:

Specimen Number	Characteristic/ Test	Requirements	Test Results	Remark
1	Ammonium Chloride solution 100 gm/L	Min. class AA	Class-AA No visible effect	Conforms
2		Min. class AA	Class-AA No visible effect	
3		Min. class AA	Class-AA No visible effect	
4		Min. class AA	Class-AA No visible effect	
5		Min. class AA	Class-AA No visible effect	

(3) Resistance to swimming pool water cleansers

Swimming Pool Salt:

a. Sodium Hypochlorite Solution 20mg/l

Specimen Number	Characteristic/ Test	Requirements	Test Results	Remark
1	Sodium Hypochlorite Solution 20mg/l	Min. class AA	Class-AA No visible effect	Conforms
2		Min. class AA	Class-AA No visible effect	
3		Min. class AA	Class-AA No visible effect	
4		Min. class AA	Class-AA No visible effect	
5		Min. class AA	Class-AA No visible effect	

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b. Copper Sulphate Solution 20mg/l

Specimen Number	Characteristic/ Test	Requirements	Test Results	Remark
1	Copper Sulphate Solution 20mg/l	Min. class AA	Class-AA No visible effect	Conforms
2		Min. class AA	Class-AA No visible effect	
3		Min. class AA	Class-AA No visible effect	
4		Min. class AA	Class-AA No visible effect	
5		Min. class AA	Class-AA No visible effect	

(4) Resistance to acids and alkalies

a. Hydrochloric acid solution 3 % v/v

Specimen Number	Characteristic/ Test	Requirements	Test Results	Remark
1	Hydrochloric Acid solution 3 % v/v	Not indicated by Manufacturer	Class-AA No visible effect	Conforms
2			Class-AA No visible effect	
3			Class-AA No visible effect	
4			Class-AA No visible effect	
5			Class-AA No visible effect	

b. Citric acid solution 100 g/l

Specimen Number	Characteristic/ Test	Requirements	Test Results	Remark
1	Citric Acid solution 100 g/l	Not indicated by Manufacturer	Class-AA No visible effect	Conforms
2			Class-AA No visible effect	
3			Class-AA No visible effect	
4			Class-AA No visible effect	
5			Class-AA No visible effect	

c. Potassium hydroxide solution 200 g/l

Specimen Number	Characteristic/ Test	Requirements	Test Results	Remark
1	Potassium Hydroxide Solution 200 g/l	Not indicated by Manufacturer	Class-AA No visible effect	Conforms
2			Class-AA No visible effect	
3			Class-AA No visible effect	
4			Class-AA No visible effect	
5			Class-AA No visible effect	

Conclusion: The Sample provided by the Party for testing as per IS 15622: 2017, Conforms the Requirements of the Specifications mentioned and other test methods used.

Opinion and interpretation: Not applicable

Reviewed By



Karan Singh



For, Hexiqon Laboratory



(Authorised Signatory)

Note:

1. This report, in full or in part, shall not be published, advertised, used for any legal action, unless prior permission has been secured from the CEO of Laboratory. 2. This test report is ONLY FOR THE SAMPLE TESTED.

.....End of Report.....