





















## Technical Specification

| CHARACTERISTICS  | Requirement as per ISO 13006:2018<br>Gr Bla E ≤ 0.5%   | Requirement as per IS 15622:2017<br>Gr Blb 0.08 ≤ E ≤ 3.0%   | AGL Value  | Test Method                           |
|--|--|--|--|---------------------------------------|
| <b>(A) DIMENSION &amp; SURFACE QUALITY</b>   |  |  |  |                                       |
|  Deviation In Length & Width  | ± 0.3%, ± 1.0 mm   | ± 0.1%   | ± 0.1%   | ISO 10545 Part-2<br>IS 13630 Part-1   |
|  Deviation In Thickness   | ± 5.0%, ± 0.5 mm   | ± 5.0%   | ± 3.0%   | ISO 10545 Part-2<br>IS 13630 Part-1   |
|  Straightness of Edge   | ± 0.3%, ± 0.8 mm   | ± 0.1%   | ± 0.1%   | ISO 10545 Part-2<br>IS 13630 Part-1   |
|  Rectangularity   | ± 0.3%, ± 1.5 mm   | ± 0.1%   | ± 0.1%   | ISO 10545 Part-2<br>IS 13630 Part-1   |
|  Surface Flatness   | ± 0.4%, ± 1.8 mm   | ± 0.5%   | ± 0.2%   | ISO 10545 Part-2<br>IS 13630 Part-1   |
|  Surface Quality  | Min. 95% of Tiles shall be free from visible defects that would impair the appearance of a major area of the tiles | Min. 95% of Tiles shall be free from visible defects that would impair the appearance of a major area of the tiles | Min. 95% of Tiles shall be free from visible defects that would impair the appearance of a major area of the tiles | ISO 10545 Part-2<br>IS 13630 Part-1   |
| <b>(B) PHYSICAL &amp; THERMAL PROPERTIES</b>   |  |  |  |                                       |
|  Water Absorption % By Wt.  | ≤ 0.5, Ind. 0.6 Max.   | 0.08 ≤ E ≤ 3.0 Ind. 3.3 Max.   | ≤ 0.5  | ISO 10545 Part-3<br>IS 13630 Part-2   |
|  Flexural Strength (MOR) In N/mm <sup>2</sup>  | Avr. 30, Ind. Min. 27  | Avr. 30, Ind. Min. 27  | ≥ 35 N/mm <sup>2</sup>   | ISO 10545 Part-4<br>IS 13630 Part-6   |
|  Breaking Strength in N   | 1300 N Min.  | 1100 N Min.  | > 1800 N   | ISO 10545 Part-4<br>IS 13630 Part-6   |
|  Bulk Density (gm/cc)   | 2.0 Min.   | 2.0 Min.   | ≥ 2.2  | ISO 10545 Part-3<br>IS 13630 Part-2   |
|  Resistance to Surface Abrasion   | Manufacturer to State Class  | PEI II Min   | Min. PEI IV  | ISO 10545 Part-7<br>IS 13630 Part-11  |
|  Co-efficient of Linear Thermal Expansion from ambient temp to 100°C (K <sup>-1</sup> ) | 9x10 <sup>-6</sup> Max.  | 7x10 <sup>-6</sup> Max.  | ≤ 6x10 <sup>-6</sup>   | ISO 10545 Part-8<br>IS 13630 Part-4   |
|  Thermal Shock Resistance   | 10 Cycle Min.  | 10 Cycle Min.  | No Damage after 10 Cycles  | ISO 10545 Part-9<br>IS 13630 Part-5   |
|  Moisture Expansion in mm/M   | Test Method Available  | 0.02 Max.  | Nil  | ISO 10545 Part-10<br>IS 13630 Part-3  |
|  Crazing Resistance   | Required   | 4 Cycle at 7.5 bar Min.  | Resistance   | ISO 10545 Part-11<br>IS 13630 Part-9  |
|  Frost Resistance   | Resistance   | Resistance   | Resistance   | ISO 10545 Part-12<br>IS 13630 Part-10 |
|  Moh'S Scratch Hardness   | Min. 5   | Min. 5   | ≥ 7  | EN 101<br>IS 13630 Part-13            |
| <b>(C) CHEMICAL PROPERTIES</b>   |  |  |  |                                       |
|  Resistance To House hold Chemicals   | No Damage  | Min. Class AA  | Class AA   | ISO 10545 Part-13<br>IS 13630 Part-8  |
|  Resistance To Acids & Alkalis (Except HF Acid)   | No Damage  | Min. Class AA  | Class AA   | ISO 10545 Part-13<br>IS 13630 Part-8  |
|  Stain Resistance   | Min. Class 3   | Min. Class 1   | Class 1  | ISO 10545 Part-14<br>IS 13630 Part-8  |

## Packing Specification

| Size (mm)             | Thickness (mm) | Weight (Kg.) | No. of Tiles / Box | Area Sq. mtr./ Box |
|-----------------------|----------------|--------------|--------------------|--------------------|
| 300x300mm (Grandura+) | 9 mm           | 14.5 kg.     | 08 pcs.            | 0.72m <sup>2</sup> |
| 400x400mm (Grandura+) | 12 mm          | 18.7 kg.     | 05 pcs.            | 0.80m <sup>2</sup> |
| 300x300mm (Grandura)  | 9 mm           | 17.5 kg.     | 10 pcs.            | 0.90m <sup>2</sup> |

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Report Date: 26<sup>th</sup> October 2018

**3. Results of the measurement:**

**Solar Direct Reflectance**

| Sample name         | Sample ID      | Measurement 1 | Measurement 2 | Measurement 3 | Average |
|---------------------|----------------|---------------|---------------|---------------|---------|
| Parking Floor Tiles | SRI/10/18/1392 | 0.7067        | 0.7091        | 0.7083        | 0.7080  |

**Emissivity**

| Sample name         | Sample ID      | Measurement 1 | Measurement 2 | Measurement 3 | Average |
|---------------------|----------------|---------------|---------------|---------------|---------|
| Parking Floor Tiles | SRI/10/18/1392 | 0.918         | 0.919         | 0.919         | 0.919   |

**Solar Reflectance Index (SRI) under different wind conditions**

| Sample name         | Sample ID      | Solar Reflectance Index (SRI)                       |   |   |
|---------------------|----------------|---|---|---|
|                     |                | Low Wind( $h_c=5 \text{ W m}^{-2} \text{ K}^{-1}$ ) | Medium Wind( $h_c=12 \text{ W m}^{-2} \text{ K}^{-1}$ ) | High Wind( $h_c=30 \text{ W m}^{-2} \text{ K}^{-1}$ ) |
| Parking Floor Tiles | SRI/10/18/1392 | 87  | 87  | 88  |

**Surface Temperature ( $T_s$ ) under different wind conditions**

| Sample name         | Sample ID      | Surface Temperature ( $^{\circ}\text{C}$ )          |   |   |
|---------------------|----------------|---|---|---|
|                     |                | Low Wind( $h_c=5 \text{ W m}^{-2} \text{ K}^{-1}$ ) | Medium Wind( $h_c=12 \text{ W m}^{-2} \text{ K}^{-1}$ ) | High Wind( $h_c=30 \text{ W m}^{-2} \text{ K}^{-1}$ ) |
| Parking Floor Tiles | SRI/10/18/1392 | 56.5  | 49.4  | 43.2  |

**4. Certificate of Accuracy:**

This is to certify that the test results herein presented are, to the best of my knowledge, true and accurate representations of the samples submitted.



Jigar Patel  
Lab. Technician
























Yashkumar Shukla  
Technical Director

**Disclaimer:**

1. The CEPT Research and Development Foundation, CEPT University is not responsible for any kind of alterations in the physical property of the sample and the customer is solely responsible for it and its consequences.
2. Result relates to the sample tested only. Sample will be destroyed after 7 days of issue of the report unless specified by the customer.
3. Any complains about this report should be communicated in writing within 7 days of issue of the report.
4. The test report shall not be reproduced fully or partially or in parts and cannot be used as an evidence in a court of law and shall be used in advertising media without written approval of Director, CEPT Research and Development Foundation, CEPT University.

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|  Deviation In Thickness   | ± 5.0%, ± 0.5 mm   | ± 5.0%   | ± 3.0%   | ISO 10545 Part-2<br>IS 13630 Part-1   |
|  Straightness of Edge   | ± 0.3%, ± 0.8 mm   | ± 0.1%   | ± 0.1%   | ISO 10545 Part-2<br>IS 13630 Part-1   |
|  Rectangularity   | ± 0.3%, ± 1.5 mm   | ± 0.1%   | ± 0.1%   | ISO 10545 Part-2<br>IS 13630 Part-1   |
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|  Solar Reflectance Index (SRI)  |  |  | Min 75   |                                       |
| <b>(B) PHYSICAL &amp; THERMAL PROPERTIES</b>   |  |  |  |                                       |
|  Water Absorption % By Wt.  | ≤ 0.5, Ind. 0.6 Max.   | 0.08 ≤ E ≤ 3.0, Ind. 3.3 Max.  | ≤ 0.5%   | ISO 10545 Part-3<br>IS 13630 Part-2   |
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|  Moisture Expansion in mm/M   | Test Method Available  | 0.02 Max.  | Nil  | ISO 10545 Part-10<br>IS 13630 Part-3  |
|  Crazing Resistance   | Required   | 4 Cycle at 7.5 bar Min.  | Resistance   | ISO 10545 Part-11<br>IS 13630 Part-9  |
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| <b>(C) CHEMICAL PROPERTIES</b>   |  |  |  |                                       |
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|  Stain Resistance   | Min. Class 3   | Min. Class 1   | Class 1  | ISO 10545 Part-14<br>IS 13630 Part-8  |

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