



Duraton CEMENT

India's Most Advanced Cement

Vill. Rajgarh, Near Shambu Barrier, Rajpura, Punjab 140417

| Despatched during Week No. | | 37 | From | 10/09/2018 | To | 16/09/2018 |
|-----------------------------|---|------------------------------------|--|------------|----------------------|------------|
| Test Certificate No./ Dated | | 28/ 29 th Sept. 2018 | Reference No. | | AFCL/P&QC/TC/18/0028 | |
| S.N. | Parameters | Results Obtained | Requirement as per IS 1489 (Part I):2015 | | | |
| 1 | Chemical Composition (% by mass) | | | | | |
| | Loss on Ignition | 2.5 | Not More than 5.0 | | | |
| | Magnesia (MgO) | 1.5 | Not More than 6.0 | | | |
| | Sulphuric Anhydride (SO ₃) | 2.6 | Not More than 3.5 | | | |
| | Chloride Content | 0.01 | Not More than 0.1 (for general purpose) & not more than 0.05 for pre-stressed structures | | | |
| 1 | Insoluble Residue | 26.4 | Max. Insoluble Residue Not More than $[X + 4.0 (100-X) / 100]$, | | | |
| | | | Min. Insoluble Residue Not less than $(0.6 X)$, | | | |
| | | | Where "X" is the declared Pozzolana content in cement. | | | |
| Physical Analysis | | | | | | |
| 2 | Fineness (m²/kg) | | | | | |
| | Blaine's Specific Surface Area | 411 | Not Less than 300 | | | |
| 3 | Compressive Strength (MPa) | | | | | |
| | 72 ± 1h (3 Days) | 27.5 | Not less than 16.0 | | | |
| | 168 ± 2h (7 Days) | 37.0 | Not less than 22.0 | | | |
| | 672 ± 4h (28 Days)* | 52.6 | Not less than 33.0 | | | |
| 4 | Setting Time (Minutes) | | | | | |
| | Initial | 155 | Not less than 30 | | | |
| | Final | 210 | Not more than 600 | | | |
| 5 | Soundness | | | | | |
| | Le-Chatelier Expansion (mm) | 0.5 | Not more than 10.0 | | | |
| | Auto-Clave Expansion (%) | 0.22 | Not more than 0.8 | | | |
| 6 | Drying Shrinkage (%)* | 0.017 | Not More than 0.15 | | | |
| 7 | Normal Consistency (%) | | | | | |
| | Temp. During Testing (°C) | 27.0 | $(27 \pm 2)^{\circ}C$ | | | |

| | |
|--|----------------------|
| * Declared Pozzolana (Fly-Ash) Content in Cement is (%) | 28.0 |
| * Compressive Strength (in MPa) of 28 Days & Drying Shrinkage (in %) values are of Week No | 34 & 33 respectively |

The above cement complies with the requirements of IS 1489 (Part I): 2015 for Portland Pozzolana Cement.

K.S. Birdi

P&QC Manager

Plant Head