

# CEMENT CERTIFICATE

## PORTLAND CEMENT CEMI 52.5 N

| DESCRIPTION                                         |         | LIMITATIONS<br>BS EN 197 - 1 (2011)<br>and ES 4756 - 1 (2013) | OBTAINED<br>RESULTS |
|-----------------------------------------------------|---------|---------------------------------------------------------------|---------------------|
| <b>PHYSICAL TEST</b>                                |         |                                                               |                     |
| Soundness (Expansion) (mm)                          |         | $\leq 10$                                                     | 0.0                 |
| Fineness , Blaine ( $\text{cm}^2/\text{g}$ )        |         | ..                                                            | 3900                |
| Insoluble Residue ( % )                             |         | $\leq 5.0$                                                    | 3.5                 |
| Intial setting time (minute)                        |         | $\geq 45$                                                     | 165                 |
| Water consistency (%)                               |         | ..                                                            | 27.5                |
| Compressive Strength (Mpa)                          | 2 days  | $\geq 20$                                                     | 24.0                |
|                                                     | 28 days | $\geq 52.5$                                                   | 55.0                |
| <b>CHEMICAL ANALYSIS</b>                            |         |                                                               |                     |
| Silicone Dioxide (SiO <sub>2</sub> ) %              |         | ..                                                            | 19.76               |
| Aluminium Oxide (Al <sub>2</sub> O <sub>3</sub> ) % |         | ..                                                            | 4.78                |
| Ferric Oxide (Fe <sub>2</sub> O <sub>3</sub> ) %    |         | ..                                                            | 3.71                |
| Calcium Oxide (CaO) %                               |         | ..                                                            | 63.10               |
| Magnesium Oxide (MgO) %                             |         | ..                                                            | 1.03                |
| Sulfur Trioxide (SO <sub>3</sub> ) %                |         | $\leq 4$                                                      | 3.50                |
| Sodium Oxide (Na <sub>2</sub> O) %                  |         | ..                                                            | 0.31                |
| Potassium Oxide (K <sub>2</sub> O) %                |         | ..                                                            | 0.25                |
| Chloride (Cl) %                                     |         | $\leq 0.1$                                                    | 0.04                |
| Hexavalent chromium (PPM)                           |         | $\leq 2$                                                      | 1.80                |
| Loss On Ignition (LOI) %                            |         | $\leq 5.0$                                                    | 3.50                |

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