



# WORK TEST CERTIFICATE

## 53 Grade Ordinary Portland Cement

|                            |                                                                                      |             |               |                  |                                                                                            |             |
|----------------------------|--------------------------------------------------------------------------------------|-------------|---------------|------------------|--------------------------------------------------------------------------------------------|-------------|
| Despatched during Week No. |                                                                                      | 2           | From          | 8-Jan-2020       | To                                                                                         | 14-Jan-2020 |
| Test Certificate No.       |                                                                                      | 2           | Reference No. |                  | WCW/IMS/QA/FM/08                                                                           |             |
| Dated                      |                                                                                      | 22-Jan-2020 |               |                  |                                                                                            |             |
| S.N.                       | Parameters                                                                           |             |               | Results Obtained | Requirement as per IS 269 : 2015<br>(Variety: OPC 53)                                      |             |
| 1                          | Chemical Composition                                                                 |             |               |                  |                                                                                            |             |
|                            | Lime Saturation Factor<br>( CaO – 0.7 *SO3) / (2.8* SiO2 + 1.2* Al2O3 + 0.65* Fe2O3) |             |               | 0.90             | Not greater than 1.02 and not less than 0.80                                               |             |
|                            | Ratio of % Alumina to that of Iron Oxide<br>Al2O3 / Fe2O3                            |             |               | 1.25             | Not less than 0.66                                                                         |             |
|                            | Insoluble Residue (% by mass)                                                        |             |               | 0.50             | Not more than 5.0 %                                                                        |             |
|                            | Magnesia (% by mass)                                                                 |             |               | 0.90             | Not more than 6.0 %                                                                        |             |
|                            | Sulphuric Anhydride (% by mass)                                                      |             |               | 3.10             | Not More than 3.5 %                                                                        |             |
|                            | Total loss on Ignition (%)                                                           |             |               | 1.50             | Not More than 4.0 %                                                                        |             |
|                            | Chloride Content (%)                                                                 |             |               | 0.010            | Not more than 0.1 % for general purpose & not more than 0.05 % for pre-stressed structures |             |
| Physical Analysis          |                                                                                      |             |               |                  |                                                                                            |             |
| 2                          | Fineness                                                                             |             |               |                  |                                                                                            |             |
|                            | Blaine’s Specific Surface Area (m2 / kg)                                             |             |               | 320              | Not Less than 225                                                                          |             |
| 3                          | Compressive Strength (MPa)                                                           |             |               |                  |                                                                                            |             |
|                            | 72 ± 1h (3 Days)                                                                     |             |               | 39.8             | Not less than 27.0                                                                         |             |
|                            | 168 ± 2h (7 Days)                                                                    |             |               | 49.0             | Not less than 37.0                                                                         |             |
|                            | 672 ± 4h (28 Days) *                                                                 |             |               | Awaited          | Not less than 53.0                                                                         |             |
| 4                          | Setting Time (Minutes)                                                               |             |               |                  |                                                                                            |             |
|                            | Initial                                                                              |             |               | 170              | Not less than 30                                                                           |             |
|                            | Final                                                                                |             |               | 240              | Not more than 600                                                                          |             |
| 5                          | Soundness                                                                            |             |               |                  |                                                                                            |             |
|                            | Le-Chatelier Expansion (mm)                                                          |             |               | 1.00             | Not more than 10.0                                                                         |             |
|                            | Auto-Clave Expansion (%)                                                             |             |               | 0.060            | Not more than 0.8                                                                          |             |
| 6                          | Normal Consistency (%)                                                               |             |               | 27.50            |                                                                                            |             |
|                            | Temp. During Testing (0C)                                                            |             |               | 27.00            | (27 ± 2)0C                                                                                 |             |

The above cement complies with the requirements of IS 269 : 2015 (Variety: OPC 53) for 53 Grade Ordinary Portland Cement

Manager (QA)

Registered Office: Cement House, 121, Maharishi Karve Road, Mumbai - 400020