

**HEIDELBERGCEMENT****Zuari Cement**  
HEIDELBERGCEMENT Group**Zuari Cement Ltd**SOLAPUR GRINDING UNIT  
SOLAPUR, MAHARASHTRA**ENGINEERED FOR DURABILITY**

| TEST CERTIFICATE          |                           | Week No                          | 25   |
|---------------------------|---------------------------|----------------------------------|------|
| PORTLAND POZZOLANA CEMENT |                           | Year                             | 2022 |
| SAMPLE TEST TYPE          | RESULT OBTAINED FROM TEST | REQUIREMENT IS-1489(PART-1):2015 |      |

**PHYSICAL REQUIREMENTS**

|   |       |                                      |
|---|-------|--------------------------------------|
| 1. Fineness -Blaine(M <sup>2</sup> /Kg) | 322   | Not less than 300 M <sup>2</sup> /Kg |
| <b>2.Soundness:</b>                     |       |                                      |
| A.Autoclave Expansion (%)               | 0.024 | Not more than 0.8 %                  |
| B.Le Chatelier Expansion (in mm)        | 1.00  | Not more than 10 mm                  |
| <b>3.Setting Time (in minutes)</b>      |       |                                      |
| A.Initial                               | 165   | Not less than 30 minutes             |
| B.Final                                 | 235   | Not more than 600 minutes            |
| <b>4.Compressive Strength (MPa)</b>     |       |                                      |
| A.72 ± 1 hr.(3 days)                    | 23.2  | Not Less than 16 MPa                 |
| B.168 ± 2 hr.(7 days)                   | 32.9  | Not Less than 22 MPa                 |
| C.672 ± 4 hr.(28 days)                  | UT    | Not Less than 33 MPa                 |
| 5.Dry Shrinkage %                       | UT    | Not more than 0.15 %                 |

**CHEMICAL REQUIREMENTS**

|  |       |  |
|--|-------|--|
| 1.Loss on Ignition (% by mass)                                       | 1.51  | 5 % Maximum  |
| <b>2.Insoluble Residue (% by mass)</b>                               |       |  |
| A.Max  | 32.00 | $x+4(100-x)/100$   |
| B.Min  |       | $x*0.6$  |
|  |       | where $x$ is the declared % Fly ash in the given Portland Pozzolana Cement |
| 3.Magnesium Oxide (MgO) (% by mass)                                  | 1.31  | 6.0 % Maximum  |
| 4.Total Sulphur content calculated as (SO <sub>3</sub> ) (% by mass) | 2.64  | 3.5 % Maximum  |
| 5.Chlorides (% by mass)  | 0.030 | 0.10 % Maximum   |
| 6.Declared % Fly Ash   | 35.00 | 15.0% TO 35.0 %  |

Water required for paste of standard consistency (%) **30.50**

The above cement complies with the requirements of IS 1489(PART-1) : 2015 For PORTLAND POZZOLANA CEMENT

Computer generated Report, hence Signature is not required  
For BIS certification details see website bis.org.inFor Zuari Cement Ltd  
**MANAGER (QC)**