



Heidelberg Materials

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# MONTHLY CERTIFICATE OF CHEMICAL & PHYSICAL TESTS

## TWIGA ORDINARY, CEM I CLASS 42.5 N

### SEPTEMBER, 2026

Sampled and tested in accordance with the applicable standard test methods, and assessed for compliance with the requirements of the Tanzanian Bureau of Standards

**TZS 727-1/EAS 18-1. Equivalent to EN 197-1**

| CHEMICAL TEST RESULTS                        |                      |              |                                  |                           |
|----------------------------------------------|----------------------|--------------|----------------------------------|---------------------------|
| Test Parameters                              | Unit                 | Test results | Standard Test Methods            | Specified requirements    |
| Loss on Ignition                             | [%]                  | 4.63         | EN 196-2                         | Less than 5.0%            |
| Insoluble Residues                           | [%]                  | 1.22         | EN 196-2                         | Less than 5.0%            |
| CaO                                          | [%]                  | 61.5         | EN 196-2 (XRF)                   | No requirement            |
| SiO <sub>2</sub>                             | [%]                  | 20.2         | EN 196-2 (XRF)                   | No requirement            |
| CaO/SiO <sub>2</sub>                         | [-]                  | 3.05         | Calculated from EN 196-2 results | Not less than 2.0%        |
| Al <sub>2</sub> O <sub>3</sub>               | [%]                  | 5.36         | EN 196-2 (XRF)                   | No requirement            |
| Fe <sub>2</sub> O <sub>3</sub>               | [%]                  | 3.05         | EN 196-2 (XRF)                   | No requirement            |
| MgO                                          | [%]                  | 0.88         | EN 196-2 (XRF)                   | Not more than 5.0%        |
| SO <sub>3</sub>                              | [%]                  | 2.59         | EN 196-2 (XRF)                   | Less than 3.5%            |
| K <sub>2</sub> O                             | [%]                  | 0.56         | EN 196-2 (XRF)                   | No requirement            |
| Na <sub>2</sub> O                            | [%]                  | 0.19         | EN 196-2 (XRF)                   | No requirement            |
| P <sub>2</sub> O <sub>5</sub>                | [%]                  | 0.18         | EN 196-2 (XRF)                   | No requirement            |
| TiO <sub>2</sub>                             | [%]                  | 0.42         | EN 196-2 (XRF)                   | No requirement            |
| MnO                                          | [%]                  | 0.05         | EN 196-2 (XRF)                   | No requirement            |
| (Na <sub>2</sub> O + 0.658 K <sub>2</sub> O) | [%]                  | 0.56         | Calculated from EN 196-2 results | No requirement            |
| Cl <sup>-</sup>                              | [%]                  | 0.001        | EN 196-2 (XRF)                   | Less than 0.10%           |
| PHYSICAL TEST RESULTS                        |                      |              |                                  |                           |
| Test Parameters                              | Unit                 | Test results | Standard Test Methods            | Specified requirements    |
| Density                                      | [kg/m <sup>3</sup> ] | 3000         | SOP / validated method           | No requirement            |
| Specific Surface (Blaine)                    | [m <sup>2</sup> /kg] | 373          | EN 196-6                         | No requirement            |
| Sieving Residue on 45 mic. mesh              | [%]                  | 13.3         | SOP / validated method           | No requirement            |
| Initial Setting Time                         | [Minutes]            | 121          | EN 196-3                         | Not less than 60 minutes  |
| Final Setting Time                           | [Minute]             | 191          | EN 196-3                         | No requirement            |
| Soundness (Expansion)                        | [mm]                 | 1.0          | EN 196-3                         | Not more than 10.0 mm     |
| Compressive Strength 2 days                  | [MPa]                | 21.9         | EN 196-1                         | More than 10.0 MPa        |
| Compressive Strength 28 days*                | [MPa]                | 51.3         | EN 196-1                         | Between 42.5 and 62.5 MPa |

Remarks: \* The 28-days strength is the average of previous month.

Wazo Hill, 2026/10/02<sup>nd</sup>

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