

## Heidelberg Materials

## **Tanzania Portland Cement Public Limited Company**

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## **MONTHLY CERTIFICATE OF CHEMICAL & PHYSICAL TESTS**

## TWIGA MEGA CEM III/B-SR CLASS 42.5N AUGUST,2025

Sampled and tested in accordance with the requirements of the Tanzanian Bureau of Standards TZS 727-1/ EAS 18-1. Equivalent to EN 197-1

MgO         [%]         4.91         Not more than 5.0%           SO3         [%]         2.90         Less than 3.5%           K2O         [%]         0.42         No requirement           Na2O         [%]         0.13         No requirement           P2O5         [%]         0.35         No requirement           MnO         [%]         0.09         No requirement           TiO2         [%]         0.61         No requirement           Cl'         [%]         0.38         No requirement           Cl'         [%]         0.001         Less than 0.10%           PHYSICAL TEST RESULTS           Density         [kg/m²]         3102         No requirement           Specific Surface (Blaine)         [m²/kg]         495         No requirement           Sieving Residue on 45 mic.         [%]         5.5         No requirement           Sieving Residue on 45 mic.         [%]         5.5         No requirement           Initial Setting Time         [Minutes]         169         Not less than 60 minutes           Final Setting Time         [Minutes]         250         No requirement           Compressive Strength 2 days         [MPa]         11.5		CHEMICAL T	EST RESULTS	
Insoluble Residues   [%]   1.04   Less than 5.0%	Test	Unit	Test results	Specified requirements
CaO   [%]   46.9   No requirement	Loss on Ignition	[%]	3.79	No requirement
SiO2   [%]   26.1   No requirement	Insoluble Residues	[%]	1.04	Less than 5.0%
CaO/SiO2         [-]         1.80         Not less than 2.0%           Al <sub>2</sub> O <sub>3</sub> [%]         10.2         No requirement           Fe <sub>2</sub> O <sub>3</sub> [%]         2.13         No requirement           MgO         [%]         4.91         Not more than 5.0%           SO <sub>3</sub> [%]         2.90         Less than 3.5%           K <sub>2</sub> O         [%]         0.42         No requirement           Na <sub>2</sub> O         [%]         0.13         No requirement           P <sub>2</sub> O <sub>5</sub> [%]         0.35         No requirement           MnO         [%]         0.09         No requirement           TiO <sub>2</sub> [%]         0.61         No requirement           Close         PHYSICAL TEST RESULTS         No requirement           Density         [%]         0.001         Less than 0.10%           PHYSICAL TEST RESULTS           Density         [%]         495         No requirement           Specific Surface (Blaine)         [m²/kg]         495         No requirement           Sieving Residue on 45 mic.         [%]         5.5         No requirement           Initial Setting Time         [Minutes]         169         Not less than 60 minutes	CaO	[%]	46.9	No requirement
Al2O3	SiO <sub>2</sub>	[%]	26.1	No requirement
Fe2O3   [%]   2.13   No requirement	CaO/SiO <sub>2</sub>	[ <del>-</del> ]	1.80	Not less than 2.0%
MgO         [%]         4.91         Not more than 5.0%           SO3         [%]         2.90         Less than 3.5%           K2O         [%]         0.42         No requirement           Na2O         [%]         0.13         No requirement           P2O5         [%]         0.35         No requirement           MnO         [%]         0.09         No requirement           TiO2         [%]         0.61         No requirement           Cl'         [%]         0.38         No requirement           Cl'         [%]         0.001         Less than 0.10%           PHYSICAL TEST RESULTS           Density         [kg/m²]         3102         No requirement           Specific Surface (Blaine)         [m²/kg]         495         No requirement           Sieving Residue on 45 mic.         [%]         5.5         No requirement           Sieving Residue on 45 mic.         [%]         5.5         No requirement           Initial Setting Time         [Minutes]         169         Not less than 60 minutes           Final Setting Time         [Minutes]         250         No requirement           Compressive Strength 2 days         [MPa]         11.5	Al <sub>2</sub> O <sub>3</sub>	[%]	10.2	No requirement
SO3   [%]   2.90   Less than 3.5%     K2O   [%]   0.42   No requirement     Na2O   [%]   0.13   No requirement     P2O5   [%]   0.35   No requirement     MnO   [%]   0.09   No requirement     TiO2   [%]   0.61   No requirement     Na2O+ 0.658K2O)   [%]   0.38   No requirement     Cr   [%]   0.001   Less than 0.10%     PHYSICAL TEST RESULTS     Density   [kg/m³]   3102   No requirement     Specific Surface (Blaine)   [m²/kg]   495   No requirement     Sieving Residue on 45 mic.   [%]   5.5   No requirement     Initial Setting Time   [Minutes]   169   Not less than 60 minutes     Final Setting Time   [Minutes]   250   No requirement     Soundness (Expansion)   [mm]   1.0   Not more than 10.0 mm     Compressive Strength 2 days   [MPa]   11.5   More than 10.0 MPa     Compressive Strength 7 days   [MPa]   29.5   No requirement     No requirement   1.00 mpa   1.00 mpa     Compressive Strength 7 days   [MPa]   29.5   No requirement     No requirement   1.00 mpa   1.00 mpa     Compressive Strength 7 days   [MPa]   29.5   No requirement     No requirement   1.00 mpa   1.00 mpa     Compressive Strength 7 days   [MPa]   29.5   No requirement     No requirement   1.00 mpa   1.00 mpa     Compressive Strength 7 days   [MPa]   29.5   No requirement     No requirement   1.00 mpa     No req	Fe <sub>2</sub> O <sub>3</sub>	[%]	2.13	No requirement
Na2O	MgO	[%]	4.91	Not more than 5.0%
Na2O	SO <sub>3</sub>	[%]	2.90	Less than 3.5%
P2Os   [%]   0.35   No requirement	K <sub>2</sub> O	[%]	0.42	No requirement
MnO  [%]  0.09  No requirement  Resolutes  PHYSICAL TEST RESULTS  [kg/m³]  Specific Surface (Blaine)  [kg/m³]  Specific Surface (Blaine)  [m²/kg]  495  No requirement  Sieving Residue on 45 mic.  [%]  No requirement  Initial Setting Time  [Minutes]  Initial Setting Time  [Minutes]  Soundness (Expansion)  [mm]  1.0  Not more than 10.0 mm  Compressive Strength 2 days  [MPa]  11.5  No requirement  No requirement	Na <sub>2</sub> O	[%]	0.13	No requirement
TiO2 [%] 0.61 No requirement (Na2O+ 0.658K2O) [%] 0.38 No requirement Cl' [%] 0.001 Less than 0.10%  PHYSICAL TEST RESULTS  Density [kg/m³] 3102 No requirement Specific Surface (Blaine) [m²/kg] 495 No requirement Sieving Residue on 45 mic. [%] 5.5 No requirement (mitial Setting Time [Minutes] 169 Not less than 60 minutes Final Setting Time [Minutes] 250 No requirement Soundness (Expansion) [mm] 1.0 Not more than 10.0 mm Compressive Strength 2 days [MPa] 11.5 More quirement Compressive Strength 7 days [MPa] 29.5 No requirement	P <sub>2</sub> O <sub>5</sub>	[%]	0.35	No requirement
(Na <sub>2</sub> O+ 0.658K <sub>2</sub> O) [%] 0.38 No requirement Cl <sup>-</sup> [%] 0.001 Less than 0.10%  PHYSICAL TEST RESULTS  Density [kg/m³] 3102 No requirement Specific Surface (Blaine) [m²/kg] 495 No requirement Sieving Residue on 45 mic. [%] 5.5 No requirement Initial Setting Time [Minutes] 169 Not less than 60 minutes Final Setting Time [Minutes] 250 No requirement Soundness (Expansion) [mm] 1.0 Not more than 10.0 mm Compressive Strength 2 days [MPa] 11.5 More than 10.0 MPa	MnO	[%]	0.09	No requirement
Cr   [%]   0.001   Less than 0.10%	TiO <sub>2</sub>	[%]	0.61	No requirement
PHYSICAL TEST RESULTS  [kg/m³] 3102 No requirement  Specific Surface (Blaine) [m²/kg] 495 No requirement  Sieving Residue on 45 mic. [%] 5.5 No requirement  Initial Setting Time [Minutes] 169 Not less than 60 minutes  Final Setting Time [Minutes] 250 No requirement  Soundness (Expansion) [mm] 1.0 Not more than 10.0 mm  Compressive Strength 2 days [MPa] 11.5 More than 10.0 MPa  Compressive Strength 7 days [MPa] 29.5 No requirement	(Na <sub>2</sub> O+ 0.658K <sub>2</sub> O)	[%]	0.38	No requirement
Density [kg/m³] 3102 No requirement Specific Surface (Blaine) [m²/kg] 495 No requirement Sieving Residue on 45 mic. [%] 5.5 No requirement Initial Setting Time [Minutes] 169 Not less than 60 minutes Final Setting Time [Minutes] 250 No requirement Soundness (Expansion) [mm] 1.0 Not more than 10.0 mm Compressive Strength 2 days [MPa] 11.5 More than 10.0 MPa Compressive Strength 7 days [MPa] 29.5 No requirement	Cl	[%]	0.001	Less than 0.10%
Specific Surface (Blaine) [m²/kg] 495 No requirement Sieving Residue on 45 mic. [%] 5.5 No requirement Initial Setting Time [Minutes] 169 Not less than 60 minutes Final Setting Time [Minutes] 250 No requirement Soundness (Expansion) [mm] 1.0 Not more than 10.0 mm Compressive Strength 2 days [MPa] 11.5 More than 10.0 MPa Compressive Strength 7 days [MPa] 29.5 No requirement		PHYSICAL TE	ST RESULTS	
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Compressive Strength 2 days [MPa] 11.5 More than 10.0 MPa Compressive Strength 7 days [MPa] 29.5 No requirement	Final Setting Time	[Minutes]	250	No requirement
Compressive Strength 7 days [MPa] 29.5 No requirement	Soundness (Expansion)	[mm]	1.0	Not more than 10.0 mm
Compressive Strength 7 days [MPa] 29.5 No requirement	Compressive Strength 2 days	[MPa]	11.5	More than 10.0 MPa
Compressive Strength 28 days* [MPa] 52.8 Between 42.5 and 62.5 MPa	Compressive Strength 7 days	[MPa]	29.5	No requirement
	Compressive Strength 28 days*	[MPa]	52.8	Between 42.5 and 62.5 MPa

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

Wazo Hill, 2025/09/10th

**Quality Control Manager** 

Board Directors: Hakan Gurdal (Turkish) Alfonso Velez (Spanish) Francesco Brambilla (Italian) Plant Manager

Ruth Zaipuna (Tanzanian) Gary Whitehead (British) Oswald Urassa (Tanzanian) Compercial Director