



Heidelberg Materials

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MONTHLY CERTIFICATE OF CHEMICAL AND PHYSICAL TESTS TWIGA ORDINARY, CEM I CLASS 42.5 N

AUGUST, 2026

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

CHEMICAL TEST RESULTS

Test	Unit	Test results monthly average	Specified requirements
Loss on ignition	[%]	4.61	Less than 5.0%
Insoluble residue	[%]	1.04	Less than 5.0%
CaO	[%]	61.2	No Requirement
SiO ₂	[%]	20.1	No Requirement
CaO/SiO ₂	[-]	3.04	Not less than 2.0%
Al ₂ O ₃	[%]	5.24	No Requirement
Fe ₂ O ₃	[%]	3.19	No Requirement
MgO	[%]	0.99	Not more than 5.0%
SO ₃	[%]	2.49	Less than 3.5%
K ₂ O	[%]	0.50	No Requirement
Na ₂ O	[%]	0.16	No Requirement
P ₂ O ₅	[%]	0.27	No Requirement
TiO ₂	[%]	0.44	No Requirement
MnO	[%]	0.04	No Requirement
(Na ₂ O+0.658K ₂ O)	[%]	0.45	No Requirement
Cl ⁻	[%]	0.001	Less than 0.10%

PHYSICAL TEST RESULTS

Density	[kg/m ³]	3000	No requirement
Specific Surface (Blaine)	[m ² /kg]	364	No Requirement
Sieving Residue on 45 mic.	[%]	13.1	No Requirement
Initial setting time	[minutes]	125	Not less than 60 minutes
Final setting time	[minutes]	196	No Requirement
Soundness (expansion)	[mm.]	1.0	Not more than 10 mm.
Compressive strength 2 days	[MPa]	21.1	More than 10 MPa.
Compressive strength 28 days*	[MPa]	50.8	Between 42.5 and 62.5 MPa

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

Wazo Hill, 2026/09/04th

Quality Control Manager

Plant Manager

Commercial Director

Board Directors:

Hakan Gurdal (Turkish)

Alfonso Velez (Spanish)

Francesco Brambilla (Italian)

Ruth Zambuna (Tanzanian)

Gary Whitehead (British)

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