



HEIDELBERGCEMENT Group

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

JULY, 2023

Sampled and tested in accordance with the requirements of the Tanzanian Bureau of Standards

TZS 727-1/EAS 18-1

CHEMICAL TEST RESULTS			
Test	Unit	Test results monthly average	Specified requirements
Loss on ignition	[%]	4.4	Less than 5.0%
Insoluble residue	[%]	1.0	Less than 5.0%
CaO	[%]	59.7	No Requirement
SiO ₂	[%]	20.2	No Requirement
CaO/SiO ₂	[-]	3.5	Not less than 2.0%
Al ₂ O ₃	[%]	5.2	No Requirement
Fe ₂ O ₃	[%]	3.5	No Requirement
MgO	[%]	1.0	Not more than 5.0%
SO ₃	[%]	2.5	Less than 3.5%
K ₂ O	[%]	0.36	No Requirement
Na ₂ O	[%]	0.12	No Requirement
P ₂ O ₅	[%]	0.11	No Requirement
TiO ₂	[%]	0.43	No Requirement
MnO	[%]	0.05	No Requirement
(Na ₂ O+0.658K ₂ O)	[%]	0.36	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]	366	No Requirement
Sieving Residue on 45 mic.	[%]	12.6	No Requirement
Initial setting time	[minutes]	123	Not less than 60 minutes
Soundness (expansion)	[mm.]	1.0	Not more than 10 mm.
Compressive strength 2 days	[MPa]	21.2	More than 10 MPa.
Compressive strength 28 days*	[MPa]	50.0	Between 42.5 and 62.5 MPa

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

Wazo Hill, 2023/08/09th


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Quality Control Manager


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Plant Manager


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Commercial Director

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

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