



HEIDELBERGCEMENT Group

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MONTHLY CERTIFICATE OF CHEMICAL AND PHYSICAL TESTS TWIGA EXTRA, CEM II/B-L CLASS 32.5 R

NOVEMBER, 2023

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

TZS 727-1/EAS 18-1

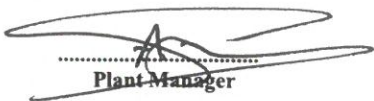
CHEMICAL TEST RESULTS			
Test	Unit	Test results monthly average	Specified requirements
Loss on ignition	[%]	12.4	No Requirement
Insoluble Residue	[%]	1.2	Less than 5.0%
CaO	[%]	57.2	No Requirement
SiO ₂	[%]	18.3	No Requirement
CaO/SiO ₂	[-]	3.1	Not less than 2.0%
Al ₂ O ₃	[%]	4.6	No Requirement
Fe ₂ O ₃	[%]	3.0	No Requirement
MgO	[%]	1.0	Not more than 5.0%
SO ₃	[%]	2.7	Less than 3.5%
K ₂ O	[%]	0.38	No Requirement
Na ₂ O	[%]	0.10	No Requirement
P ₂ O ₅	[%]	0.08	No Requirement
TiO ₂	[%]	0.38	No Requirement
MnO	[%]	0.05	No Requirement
(Na ₂ O+0.658K ₂ O)	[%]	0.34	No Requirement
Cl	[%]	0.002	Less than 0.10%
PHYSICAL TEST RESULTS			
Density	[kg/m ³]	3100	No requirement
Specific Surface (Blaine)	[m ² /kg]	457	No Requirement
Sieving Residue on 45 mic.	[%]	8.2	No Requirement
Initial setting time	[minutes]	129	Not less than 75 minutes
Soundness (expansion)	[mm.]	1.0	Not more than 10 mm.
Compressive strength 2 days	[MPa]	14.5	More than 10 MPa.
Compressive strength 28 days*	[MPa]	34.5	Between 32.5 and 52.5 MPa

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

Wazo Hill, 2023/12/06th


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)


Commercial Director