

Heidelberg Materials

Tanzania Portland Cement Public Limited Company

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

APRIL, 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

Insoluble Residue [%] 1.22 Less than 5.0%		CHEMICA	L TEST RESULTS	
Insoluble Residue [%] 1.22 Less than 5.0%	Test	Unit		Specified requirements
CaO [%] 57.0 No Requirement	Loss on ignition	[%]	10.4	No Requirement
18 20.0 No Requirement	Insoluble Residue	[%]	1.22	Less than 5.0%
The compressive strength 2 days The	CaO	[%]	57.0	No Requirement
Al2O3 [%] 5.13 No Requirement	SiO ₂	[%]	20.0	No Requirement
No Requirement No Requirement	CaO/SiO ₂	[-]	2.85	Not less than 2.0%
MgO	Al ₂ O ₃	[%]	5.13	No Requirement
SO3 [%] 2.65 Less than 3.5% K2O [%] 0.44 No Requirement Na2O [%] 0.18 No Requirement P2O5 [%] 0.44 No Requirement P2O5 [%] 0.57 No Requirement MnO [%] 0.57 No Requirement MnO [%] 0.07 No Requirement (Na2O+0.658K2O) [%] 0.47 No Requirement Cl [%] 0.002 Less than 0.10% PHYSICAL TEST RESULTS Density [kg/m³] 3100 No requirement Specific Surface (Blaine) [m²/kg] 440 No Requirement Sieving Residue on 45 mic. [%] 8.7 No Requirement Not Requirement Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] 8.7 Not Requirement Sieving Residue on 45 mic. [%] Not Requirement Sieving Residue on 45 mic. [%	Fe ₂ O ₃	[%]	3.28	No Requirement
No Requirement No Requirement	MgO	[%]	1.34	Not more than 5.0%
Na2O	SO ₃	[%]	2.65	Less than 3.5%
P2Os [%] 0.44 No Requirement	K ₂ O	[%]	0.44	No Requirement
TiO2	Na ₂ O	[%]	0.18	No Requirement
MnO [%] 0.07 No Requirement	P ₂ O ₅	[%]	0.44	No Requirement
(Na ₂ O+0.658K ₂ O) [%] 0.47 No Requirement Cl [%] 0.002 Less than 0.10% PHYSICAL TEST RESULTS Density [kg/m³] 3100 No requirement Specific Surface (Blaine) [m²/kg] 440 No Requirement Sieving Residue on 45 mic. [%] 8.7 No Requirement (mitial setting time [minutes] 158 Not less than 75 minutes (Final setting time [minutes] 217 Not Requirement (Soundness (expansion) [mm.] 1.0 Not more than 10 mm. (Compressive strength 2 days [MPa] 14.8 More than 10 MPa.	TiO ₂	[%]	0.57	No Requirement
CI [%] 0.002 Less than 0.10% PHYSICAL TEST RESULTS Density [kg/m³] 3100 No requirement Specific Surface (Blaine) [m²/kg] 440 No Requirement Sieving Residue on 45 mic. [%] 8.7 No Requirement Initial setting time [minutes] 158 Not less than 75 minutes Final setting time [minutes] 217 Not Requirement Soundness (expansion) [mm.] 1.0 Not more than 10 mm. Compressive strength 2 days [MPa] 14.8 More than 10 MPa.	MnO	[%]	0.07	No Requirement
PHYSICAL TEST RESULTS [kg/m³] 3100 No requirement Specific Surface (Blaine) [m²/kg] 440 No Requirement Sieving Residue on 45 mic. [%] 8.7 No Requirement Initial setting time [minutes] 158 Not less than 75 minutes Final setting time [minutes] 217 Not Requirement Soundness (expansion) [mm.] 1.0 Not more than 10 mm. Compressive strength 2 days [MPa] 14.8 More than 10 MPa.	(Na ₂ O+0.658K ₂ O)	[%]	0.47	No Requirement
Compressive strength 2 days [kg/m³] 3100 No requirement	Cl	[%]	0.002	Less than 0.10%
Specific Surface (Blaine) [m²/kg] 440 No Requirement Sieving Residue on 45 mic. [%] 8.7 No Requirement Initial setting time [minutes] 158 Not less than 75 minutes Sinal setting time [minutes] 217 Not Requirement Soundness (expansion) [mm.] 1.0 Not more than 10 mm. Compressive strength 2 days [MPa] 14.8 More than 10 MPa.		PHYSICAL	L TEST RESULTS	
Sieving Residue on 45 mic. [%] 8.7 No Requirement Initial setting time [minutes] 158 Not less than 75 minutes Final setting time [minutes] 217 Not Requirement Soundness (expansion) [mm.] 1.0 Not more than 10 mm. Compressive strength 2 days [MPa] 14.8 More than 10 MPa.	Density	[kg/m ³]	3100	No requirement
Initial setting time[minutes]158Not less than 75 minutesFinal setting time[minutes]217Not RequirementSoundness (expansion)[mm.]1.0Not more than 10 mm.Compressive strength 2 days[MPa]14.8More than 10 MPa.	Specific Surface (Blaine)	[m²/kg]	440	No Requirement
Final setting time [minutes] 217 Not Requirement Soundness (expansion) [mm.] 1.0 Not more than 10 mm. Compressive strength 2 days [MPa] 14.8 More than 10 MPa.	Sieving Residue on 45 mic.		8.7	No Requirement
Soundness (expansion)[mm.]1.0Not more than 10 mm.Compressive strength 2 days[MPa]14.8More than 10 MPa.	Initial setting time	[minutes]	158	Not less than 75 minutes
Compressive strength 2 days [MPa] 14.8 More than 10 MPa.		[minutes]	217	
				Not more than 10 mm.
Compressive strength 28 days* [MPa] 38.5 Between 32.5 and 52.5 MPa		[MPa]	14.8	
	Compressive strength 28 days*	[MPa]	38.5	Between 32.5 and 52.5 MPa

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

Wazo Hill, 2025/05/05th

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