





SIMBA
CEMENT
STRENGTH WITHIN

DATE: 03/09/2021

CERTIFICATE OF CHEMICAL & PHYSICAL TESTS
(SIMBA Brand Portland Composite Cement)

Sampled and tested in accordance with the requirements of Tanzania Bureau of Standards 'No. TZS 760'

PARAMETER	TEST RESULTS	SPECIFICATION
		TZS 727-1 = EN 197-1
CHEMICAL TESTS:		
		CEM II/B-M 32.5R
Loss on Ignition (%)	7.93	
SiO ₂ (%)	18.59	
Al ₂ O ₃ (%)	5.05	
Fe ₂ O ₃ (%)	2.62	
CaO (%)	61.67	
MgO (%)	0.83	5.0 Max.
SO ₃ (%)	2.44	3.5 Max.
K ₂ O (%)	0.15	
Na ₂ O (%)	0.07	
Cl (%)	0.01	0.1 Max
TiO ₂ (%)	0.32	
P ₂ O ₅ (%)	0.05	
Total (%)	99.73	
Insoluble Residue (IR) (%)	3.06	
C3A (%)	8.95	
Freelime (CaO _f) (%)	2.07	
PHYSICAL TESTS:		
Air permeability - Blaine (cm ² /g)	3621	
Compressive Strength (Mpa):	ISO 2days	≥10 N/mm ²
	ISO 7days	-
	ISO 28days	≥32.5 N/mm ² ; ≤52.5 N/mm ²
Vicat test: Initial setting (minutes)	121	≥75 Minutes
Final setting (minutes)	149	-
Expansion (Lechatelier's) (mm)	2.0	10 Max.
REMARKS: The average temperature during the test did not exceed 22°C; corresponding to 71.6°F. The test results shown are monthly composite cement sample for July 2021.		
 PLANT MANAGER		 QUALITY ASSURANCE MANAGER



TANGA CEMENT PLC

Head Office: Pongwe Factory Area, P O Box 5053, Tanga, Tanzania
Tel: +255 27 2644 500-2 / 2610 600 / 784 644 500, Fax: +255 27 2646 148 / 2646 425

Directors: L. Masha (Chairperson)*, P. Rutabanzibwa (Deputy Chairperson)*, R. Swart (Managing)**,
P de Jager (CFO)**, K. Omar*, Rob Wessels**, R. Mbilinyi*

Company Secretary: Quresh Ganjee*
*Tanzanian, **South African

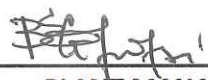



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CERTIFICATE OF CHEMICAL & PHYSICAL TESTS (SIMBA Brand Portland Limestone Cement)

Sampled and tested in accordance with the requirements of Tanzania Bureau of Standards 'No. TZS 760'

PARAMETER	TEST RESULTS	SPECIFICATION	
		TZS 727-1 = EN 197-1	
CHEMICAL TESTS:		CEM II/A-L 42.5N	
Loss on Ignition (%)	6.31		
SiO ₂ (%)	19.12		
Al ₂ O ₃ (%)	5.15		
Fe ₂ O ₃ (%)	2.65		
CaO (%)	62.44		
MgO (%)	0.83	5.0 Max.	
SO ₃ (%)	2.39	3.5 Max.	
K ₂ O (%)	0.13		
Na ₂ O (%)	0.10		
Cl (%)	0.01	0.1 Max	
TiO ₂ (%)	0.35		
P ₂ O ₅ (%)	0.05		
Total (%)	<u>99.53</u>		
Insoluble Residue (IR) (%)	2.99		
C3A (%)	9.17		
Freelime (CaO _f) (%)	1.88		
PHYSICAL TESTS:			
Air permeability - Blaine (cm ² /g)	3689		
Compressive Strength (Mpa):	ISO 2days	16.2	≥10 N/mm ²
	ISO 7days	28.6	-
	ISO 28days	48.2	≥42.5 N/mm ² ; ≤62.5 N/mm ²
Vicat test: Initial setting (minutes)	127	≥60 Minutes	
	Final setting (minutes)	159	-
Expansion (Lechatelier's) (mm)	1.0	10 Max.	
Specific gravity (g/cc)	3.0		
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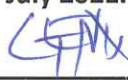


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PARAMETER	TEST RESULTS	SPECIFICATION
		TZS 727-1 = EN 197-1
CHEMICAL TESTS:		CEM II/B-M 32.5N
Loss on Ignition (%)	7.98	
SiO ₂ (%)	18.76	
Al ₂ O ₃ (%)	4.98	
Fe ₂ O ₃ (%)	2.60	
CaO (%)	61.37	
MgO (%)	0.82	5.0 Max.
SO ₃ (%)	2.40	3.5 Max.
K ₂ O (%)	0.14	
Na ₂ O (%)	0.06	
Cl (%)	0.01	0.1 Max
TiO ₂ (%)	0.33	
P ₂ O ₅ (%)	0.05	
Total (%)	99.50	
Insoluble Residue (IR) (%)	2.38	
C3A (%)	8.80	
Freelime (CaO _f) (%)	2.51	
PHYSICAL TESTS:		
Air permeability - Blaine (cm ² /g)	3520	
Compressive Strength (N/mm ²):		-
ISO 7days	23.9	≥16 N/mm ²
ISO 28days	35.9	≥32.5 N/mm ² ; ≤52.5 N/mm ²
Vicat test: Initial setting (minutes)	117	≥75 Minutes
Final setting (minutes)	154	-
Expansion (Lechatelier's) (mm)	2.0	10 Max.
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