



**SIMBA**  
**CEMENT**  
STRENGTH WITHIN

DATE: 01/09/2023

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

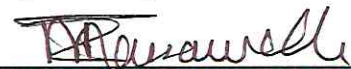
Sampled and tested in accordance with the requirements of Tanzania Bureau of Standards 'No. TZS 760'

PARAMETER	TEST RESULTS		SPECIFICATION	
			TZS 727-1 = EN 197-1	
<b>CHEMICAL TESTS:</b>			CEM II/A-L 42.5N	
Loss on Ignition (%)	9.11			
SiO <sub>2</sub> (%)	17.73			
Al <sub>2</sub> O <sub>3</sub> (%)	4.79			
Fe <sub>2</sub> O <sub>3</sub> (%)	2.89			
CaO (%)	62.10			
MgO (%)	0.70		5.0 Max.	
SO <sub>3</sub> (%)	2.10		3.5 Max.	
K <sub>2</sub> O (%)	0.09			
Na <sub>2</sub> O (%)	0.05			
Cl (%)	0.01		0.1 Max	
TiO <sub>2</sub> (%)	0.37			
P <sub>2</sub> O <sub>5</sub> (%)	0.06			
<b>Total (%)</b>	<b>100.00</b>			
Insoluble Residue (IR) (%)	2.50			
C3A (%)	7.81			
Free lime (CaO <sub>f</sub> ) (%)	2.12			
<b>PHYSICAL TESTS:</b>				
Air permeability - Blaine (cm <sup>2</sup> /g)	4304			
Compressive Strength (Mpa):	ISO 2days	18.0	≥10 N/mm <sup>2</sup>	
	ISO 7days	35.1	-	
	ISO 28days	47.9	≥42.5 N/mm <sup>2</sup> ; ≤62.5 N/mm <sup>2</sup>	
Vicat test: Initial setting (minutes)	109		≥60 Minutes	
	Final setting (minutes)	126		-
Expansion (Lechatelier's) (mm)	1.0		10 Max.	
Specific gravity (g/cc)	3.16			

**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 2023.



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:** P Rutabanzibwa (Chairperson)\*, R Swart (Managing)\*\*, P de Jager (CFO)\*\*, R Mbilinyi\*

**Company Secretary:** Quresh Ganijee \*

\*Tanzanian. \*\* South African

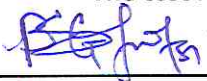
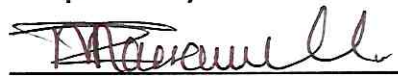


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## CERTIFICATE OF CHEMICAL & PHYSICAL TESTS (SIMBA Brand Portland Composite Cement)

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
<b>CHEMICAL TESTS:</b>		CEM II/B-M 32.5R
Loss on Ignition (%)	10.97	
SiO <sub>2</sub> (%)	17.34	
Al <sub>2</sub> O <sub>3</sub> (%)	4.72	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.75	
CaO (%)	60.89	
MgO (%)	0.70	5.0 Max.
SO <sub>3</sub> (%)	2.04	3.5 Max.
K <sub>2</sub> O (%)	0.10	
Na <sub>2</sub> O (%)	0.04	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.36	
P <sub>2</sub> O <sub>5</sub> (%)	0.08	
<b>Total (%)</b>	<b><u>100.00</u></b>	
Insoluble Residue (IR) (%)	2.50	
C3A (%)	7.86	
Freelime (CaO <sub>f</sub> ) (%)	2.06	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4217	
Compressive Strength (Mpa): ISO 2days	15.0	≥10 N/mm <sup>2</sup>
ISO 7days	29.2	-
ISO 28days	38.4	≥32.5 N/mm <sup>2</sup> ; ≤52.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)	110	≥75 Minutes
Final setting (minutes)	135	-
Expansion (Lechatelier's) (mm)	1.0	10 Max.
<b>REMARKS:</b> 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 2023.		
 _____ PLANT MANAGER	 _____ QUALITY ASSURANCE MANAGER	



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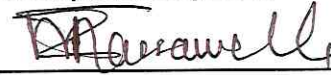
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PARAMETER	TEST RESULTS	SPECIFICATION
		TZS 727-1 = EN 197-1 CEM II/B-M 32.5N
<b>CHEMICAL TESTS:</b>		
Loss on Ignition (%)	10.23	
SiO <sub>2</sub> (%)	17.31	
Al <sub>2</sub> O <sub>3</sub> (%)	4.78	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.76	
CaO (%)	61.39	
MgO (%)	0.72	5.0 Max.
SO <sub>3</sub> (%)	2.20	3.5 Max.
K <sub>2</sub> O (%)	0.10	
Na <sub>2</sub> O (%)	0.05	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.36	
P <sub>2</sub> O <sub>5</sub> (%)	0.09	
<b>Total (%)</b>	<b>100.00</b>	
Insoluble Residue (IR) (%)	2.51	
C3A (%)	8.00	
Free lime (CaO <sub>f</sub> ) (%)	2.11	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4192	
Compressive Strength (N/mm <sup>2</sup> ):		
ISO 7days	26.9	≥16 N/mm <sup>2</sup>
ISO 28days	37.2	≥32.5 N/mm <sup>2</sup> ; ≤52.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)	115	≥75 Minutes
Final setting (minutes)	133	-
Expansion (Lechatelier's) (mm)	1.0	10 Max.

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