



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

DATE: 30/06/2023

## 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 (%)	9.12	
SiO <sub>2</sub> (%)	17.08	
Al <sub>2</sub> O <sub>3</sub> (%)	5.09	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.94	
CaO (%)	62.23	
MgO (%)	0.72	5.0 Max.
SO <sub>3</sub> (%)	2.17	3.5 Max.
K <sub>2</sub> O (%)	0.11	
Na <sub>2</sub> O (%)	0.04	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.39	
P <sub>2</sub> O <sub>5</sub> (%)	0.10	
<b>Total (%)</b>	<b>100.00</b>	
Insoluble Residue (IR) (%)	2.50	
C3A (%)	8.52	
Free lime (CaO <sub>f</sub> ) (%)	2.23	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4286	
Compressive Strength (Mpa):	ISO 2days	≥10 N/mm <sup>2</sup>
	ISO 7days	-
	ISO 28days	≥42.5 N/mm <sup>2</sup> ; ≤62.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)	121	≥60 Minutes
Final setting (minutes)	155	-
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 May 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



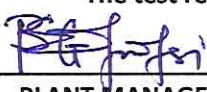
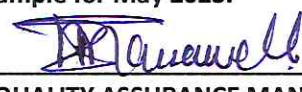


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## CERTIFICATE OF CHEMICAL & PHYSICAL TESTS (SIMBA Brand Portland Composite Cement)

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 (%)	10.28	
SiO <sub>2</sub> (%)	16.79	
Al <sub>2</sub> O <sub>3</sub> (%)	4.89	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.66	
CaO (%)	62.00	
MgO (%)	0.74	5.0 Max.
SO <sub>3</sub> (%)	2.05	3.5 Max.
K <sub>2</sub> O (%)	0.11	
Na <sub>2</sub> O (%)	0.02	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.35	
P <sub>2</sub> O <sub>5</sub> (%)	0.10	
<b>Total (%)</b>	<b>100.00</b>	
Insoluble Residue (IR) (%)	2.53	
C3A (%)	8.46	
Freelime (CaO <sub>f</sub> ) (%)	2.13	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4090	
Compressive Strength (Mpa):	ISO 2days	≥10 N/mm <sup>2</sup>
	ISO 7days	-
	ISO 28days	≥32.5 N/mm <sup>2</sup> ; ≤52.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)	118	≥75 Minutes
Final setting (minutes)	130	-
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 May 2023.		
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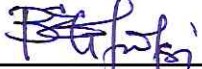



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PARAMETER	TEST RESULTS	SPECIFICATION
		TZS 727-1 = EN 197-1
<b>CHEMICAL TESTS:</b>		CEM II/B-M 32.5N
Loss on Ignition (%)	10.77	
SiO <sub>2</sub> (%)	16.67	
Al <sub>2</sub> O <sub>3</sub> (%)	4.80	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.78	
CaO (%)	61.73	
MgO (%)	0.70	5.0 Max.
SO <sub>3</sub> (%)	2.00	3.5 Max.
K <sub>2</sub> O (%)	0.09	
Na <sub>2</sub> O (%)	0.02	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.34	
P <sub>2</sub> O <sub>5</sub> (%)	0.09	
<b>Total (%)</b>	<b>100.00</b>	
Insoluble Residue (IR) (%)	2.53	
C3A (%)	8.02	
Free lime (CaO <sub>f</sub> ) (%)	2.18	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4208	
Compressive Strength (N/mm <sup>2</sup> ):		
ISO 7days	27.8	≥16 N/mm <sup>2</sup>
ISO 28days	37.5	≥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)	134	-
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 May 2023.		
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