



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

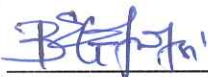
DATE: 04/01/2022

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

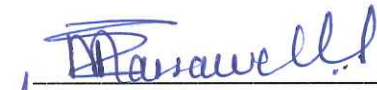
Sampled and tested in accordance with the requirements of Tanzania Bureau of Standards 'No. TZS 760'

PARAMETER	TEST RESULTS		SPECIFICATION
			TZS 727-1 = EN 197-1
<b>CHEMICAL TESTS:</b>			CEM II/A-L 42.5N
Loss on Ignition (%)		6.53	
SiO <sub>2</sub> (%)		19.65	
Al <sub>2</sub> O <sub>3</sub> (%)		5.70	
Fe <sub>2</sub> O <sub>3</sub> (%)		2.96	
CaO (%)		61.44	
MgO (%)		0.79	5.0 Max.
SO <sub>3</sub> (%)		2.24	3.5 Max.
K <sub>2</sub> O (%)		0.14	
Na <sub>2</sub> O (%)		0.14	
Cl (%)		0.01	0.1 Max
TiO <sub>2</sub> (%)		0.35	
P <sub>2</sub> O <sub>5</sub> (%)		0.04	
<b>Total (%)</b>		<b>99.95</b>	
Insoluble Residue (IR) (%)		2.72	
C3A (%)		10.10	
Freelime (CaO <sub>f</sub> ) (%)		2.02	
<b>PHYSICAL TESTS:</b>			
Air permeability - Blaine (cm <sup>2</sup> /g)		3871	
Compressive Strength (Mpa):	ISO 2days	17.5	≥10 N/mm <sup>2</sup>
	ISO 7days	35.2	-
	ISO 28days	48.9	≥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)	174	-
Expansion (Lechatelier's) (mm)		1.0	10 Max.
Specific gravity (g/cc)		3.0	

**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 November 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\*


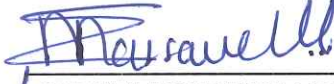
**Company Secretary:**

Ouresh Ganijee\*  
\*Tanzanian, \*\*South African

DATE: 04/01/2022

## 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 CEM II/B-M 32.5R
<b>CHEMICAL TESTS:</b>		
Loss on Ignition (%)	9.08	
SiO <sub>2</sub> (%)	19.65	
Al <sub>2</sub> O <sub>3</sub> (%)	4.91	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.71	
CaO (%)	59.78	
MgO (%)	0.85	5.0 Max.
SO <sub>3</sub> (%)	2.32	3.5 Max.
K <sub>2</sub> O (%)	0.15	
Na <sub>2</sub> O (%)	0.14	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.32	
P <sub>2</sub> O <sub>5</sub> (%)	0.04	
<b>Total (%)</b>	<b>99.96</b>	
<b>PHYSICAL TESTS:</b>		
Insoluble Residue (IR) (%)	3.05	
C3A (%)	8.43	
Freelime (CaO <sub>f</sub> ) (%)	1.52	
Air permeability - Blaine (cm <sup>2</sup> /g)	4123	
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)	115	≥75 Minutes
Final setting (minutes)	155	-
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 November 2021.		
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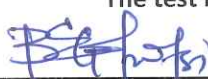
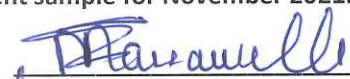


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## CERTIFICATE OF CHEMICAL & PHYSICAL TESTS (SIMBA Brand Portland Composite Cement)

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
		CEM II/B-M 32.5N
<b>CHEMICAL TESTS:</b>		
Loss on Ignition (%)	9.12	
SiO <sub>2</sub> (%)	18.88	
Al <sub>2</sub> O <sub>3</sub> (%)	5.48	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.61	
CaO (%)	59.91	
MgO (%)	0.81	5.0 Max.
SO <sub>3</sub> (%)	2.23	3.5 Max.
K <sub>2</sub> O (%)	0.13	
Na <sub>2</sub> O (%)	0.01	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.29	
P <sub>2</sub> O <sub>5</sub> (%)	0.02	
<b>Total (%)</b>	<b>99.50</b>	
Insoluble Residue (IR) (%)	2.42	
C3A (%)	10.11	
Freelime (CaO <sub>f</sub> ) (%)	1.52	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4276	
Compressive Strength (N/mm <sup>2</sup> ):		-
ISO 7days	22.8	≥16 N/mm <sup>2</sup>
ISO 28days	36.9	≥32.5 N/mm <sup>2</sup> ; ≤52.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)	119	≥75 Minutes
Final setting (minutes)	162	-
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 November 2021.		
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