


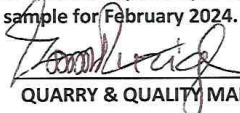


Heidelberg Materials

DATE: 02/04/2024

**CERTIFICATE OF CHEMICAL & PHYSICAL TESTS**  
**SIMBA BORA, CEMII/A-L CLASS 42.5N**  
**FEBRUARY, 2024**

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 (%)	8.43	
SiO <sub>2</sub> (%)	19.01	
Al <sub>2</sub> O <sub>3</sub> (%)	5.52	
Fe <sub>2</sub> O <sub>3</sub> (%)	3.53	
CaO (%)	60.02	
MgO (%)	0.56	5.0 Max.
SO <sub>3</sub> (%)	2.36	3.5 Max.
K <sub>2</sub> O (%)	0.08	
Na <sub>2</sub> O (%)	0.03	
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) (%)	2.50	
C3A (%)	8.66	
Free lime (CaO <sub>f</sub> ) (%)	1.57	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4174	
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)	110	≥60 Minutes
Final setting (minutes)	124	-
Expansion (Lechatelier's) (mm)	1.0	10 Max.
Specific gravity (g/cc)	3.16	
<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 February 2024.		
 PLANT MANAGER	 QUARRY & QUALITY MANAGER	



**TANGA CEMENT PLC**

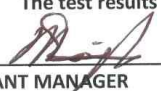
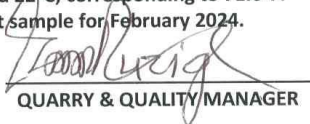
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**Directors:** Mr H Gurdal (Chairperson)\*\*\*, Mr C. Mikli \*\*\*\*, P de Jager (CFO)\*\*, R Mbilinyi\*  
Mr F Brambilla\*\*\*\*\*, Mr G Puppo\*\*\*\*\*

**Company Secretary:** Quresh Ganjjee \*  
\* Tanzanian \*\* South African \*\*\* Turkish \*\*\*\* German \*\*\*\*\* Italian

**CERTIFICATE OF CHEMICAL & PHYSICAL TESTS  
SIMBA IMARA, CEMII/B-M CLASS 32.5R  
FEBRUARY, 2024**

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 (%)		5.65	
SiO <sub>2</sub> (%)		22.87	
Al <sub>2</sub> O <sub>3</sub> (%)		5.73	
Fe <sub>2</sub> O <sub>3</sub> (%)		3.91	
CaO (%)		57.99	
MgO (%)		0.97	5.0 Max.
SO <sub>3</sub> (%)		2.15	3.5 Max.
K <sub>2</sub> O (%)		0.11	
Na <sub>2</sub> O (%)		0.05	
Cl (%)		0.01	0.1 Max
TiO <sub>2</sub> (%)		0.48	
P <sub>2</sub> O <sub>5</sub> (%)		0.08	
<b>Total (%)</b>		<b>100.00</b>	
Insoluble Residue (IR) (%)		2.51	
C3A (%)		8.58	
Free lime (CaO <sub>f</sub> ) (%)		1.88	
<b>PHYSICAL TESTS:</b>			
Air permeability - Blaine (cm <sup>2</sup> /g)		4034	
Compressive Strength (Mpa):	ISO 2days	14.3	≥10 N/mm <sup>2</sup>
	ISO 7days	27.6	-
	ISO 28days	37.8	≥32.5 N/mm <sup>2</sup> ; ≤52.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)		116	≥75 Minutes
	Final setting (minutes)	139	-
Expansion (Lechatelier's) (mm)		2.0	10 Max.
<b>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 February 2024.</b>			
 PLANT MANAGER	 QUARRY & QUALITY MANAGER		



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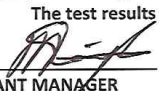



Heidelberg Materials

DATE: 02/04/2024

**CERTIFICATE OF CHEMICAL & PHYSICAL TESTS**  
**SIMBA BARABARA, CEMII/B-M CLASS 32.5N**  
**FEBRUARY, 2024**

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 32.5N			
Loss on Ignition (%)	9.11		
SiO <sub>2</sub> (%)	21.02		
Al <sub>2</sub> O <sub>3</sub> (%)	5.61		
Fe <sub>2</sub> O <sub>3</sub> (%)	3.70		
CaO (%)	57.02		
MgO (%)	0.80		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> (%)	0.40		
P <sub>2</sub> O <sub>5</sub> (%)	0.09		
<b>Total (%)</b>	<b>100.00</b>		
Insoluble Residue (IR) (%)	2.50		
C3A (%)	8.61		
Free lime (CaO <sub>f</sub> ) (%)	1.81		
<b>PHYSICAL TESTS:</b>			
Air permeability - Blaine (cm <sup>2</sup> /g)	4124		
Compressive Strength (N/mm <sup>2</sup> ):			
ISO 7days	26.3		≥16 N/mm <sup>2</sup>
ISO 28days	37.4		≥32.5 N/mm <sup>2</sup> ; ≤52.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)			
	112		≥75 Minutes
Final setting (minutes)			
	140		-
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 February 2024.			
 PLANT MANAGER		 QUARRY & QUALITY MANAGER	



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