



**SIMBA  
CEMENT**  
STRENGTH WITHIN

DATE: 03/02/2021

## 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
<b>CHEMICAL TESTS:</b>		CEM II/B-M 32.5N
Loss on Ignition (%)	9.80	
SiO <sub>2</sub> (%)	18.16	
Al <sub>2</sub> O <sub>3</sub> (%)	4.89	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.74	
CaO (%)	60.25	
MgO (%)	0.82	5.0 Max.
SO <sub>3</sub> (%)	2.19	3.5 Max.
K <sub>2</sub> O (%)	0.13	
Na <sub>2</sub> O (%)	0.06	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.34	
P <sub>2</sub> O <sub>5</sub> (%)	0.08	
<b>Total (%)</b>	<b><u>99.47</u></b>	
Insoluble Residue (IR) (%)	3.24	
C3A (%)	8.33	
Freelime (CaO <sub>f</sub> ) (%)	2.08	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4318	
Compressive Strength (N/mm <sup>2</sup> ):		-
ISO 7days	24.5	≥16 N/mm <sup>2</sup>
ISO 28days	38.5	≥32.5 N/mm <sup>2</sup> ; ≤52.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)	130	≥75 Minutes
Final setting (minutes)	167	-
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 December 2020.		
 PLANT MANAGER	 QUALITY ASSURANCE MANAGER	



### TANGA CEMENT PLC

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Directors:

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Company Secretary:

Quresh Ganijee\*

\*Tanzanian, \*\*South African



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

DATE: 03/02/2021

**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
<b>CHEMICAL TESTS:</b>		
		CEM II/B-M 32.5R
Loss on Ignition (%)	9.40	
SiO <sub>2</sub> (%)	19.11	
Al <sub>2</sub> O <sub>3</sub> (%)	4.90	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.75	
CaO (%)	60.33	
MgO (%)	0.71	5.0 Max.
SO <sub>3</sub> (%)	2.19	3.5 Max.
K <sub>2</sub> O (%)	0.14	
Na <sub>2</sub> O (%)	0.05	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.34	
P <sub>2</sub> O <sub>5</sub> (%)	0.07	
<b>Total (%)</b>	<b>100.00</b>	
Insoluble Residue (IR) (%)	3.04	
C3A (%)	8.34	
Freelime (CaO <sub>f</sub> ) (%)	2.42	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4404	
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)	133	≥75 Minutes
	Final setting (minutes)	174
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 December 2020.		
		
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**CEMENT**  
STRENGTH WITHIN

DATE: 03/02/2021

## 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
		CEM II/A-L 42.5N
<b>CHEMICAL TESTS:</b>		
Loss on Ignition (%)	7.95	
SiO <sub>2</sub> (%)	18.97	
Al <sub>2</sub> O <sub>3</sub> (%)	4.67	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.80	
CaO (%)	61.31	
MgO (%)	0.79	5.0 Max.
SO <sub>3</sub> (%)	2.28	3.5 Max.
K <sub>2</sub> O (%)	0.14	
Na <sub>2</sub> O (%)	0.06	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.33	
P <sub>2</sub> O <sub>5</sub> (%)	0.08	
<b>Total (%)</b>	<b>99.39</b>	
Insoluble Residue (IR) (%)	2.55	
C3A (%)	7.64	
Freelime (CaO <sub>f</sub> ) (%)	2.32	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	4504	
Compressive Strength (Mpa):	ISO 2days	15.8
	ISO 7days	28.5
	ISO 28days	49.9
		≥10 N/mm <sup>2</sup>
		≥42.5 N/mm <sup>2</sup> ; ≤62.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)	131	≥60 Minutes
Final setting (minutes)	168	-
Expansion (Lechatelier's) (mm)	1.0	10 Max.
Specific gravity (g/cc)	3.0	
<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 December 2020.		
 PLANT MANAGER		 QUALITY ASSURANCE MANAGER



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