



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

DATE: 05/07/2021

## 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 (%)	9.64	
SiO <sub>2</sub> (%)	18.84	
Al <sub>2</sub> O <sub>3</sub> (%)	4.86	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.53	
CaO (%)	59.65	
MgO (%)	0.75	5.0 Max.
SO <sub>3</sub> (%)	2.48	3.5 Max.
K <sub>2</sub> O (%)	0.13	
Na <sub>2</sub> O (%)	0.11	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.32	
P <sub>2</sub> O <sub>5</sub> (%)	0.05	
<b>Total (%)</b>	<b>99.37</b>	
Insoluble Residue (IR) (%)	2.31	
C3A (%)	8.60	
Freelime (CaO <sub>f</sub> ) (%)	1.99	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	3769	
Compressive Strength (N/mm <sup>2</sup> ):		-
ISO 7days	25.4	≥16 N/mm <sup>2</sup>
ISO 28days	36.8	≥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)	137	-
Expansion (Lechatelier's) (mm)	2.0	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 2021.		
 PLANT MANAGER		 QUALITY ASSURANCE MANAGER



### TANGA CEMENT PLC

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Company Secretary:

Quresh Ganjjee\*

\*Tanzanian, \*\*South African

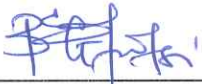



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**CEMENT**  
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DATE: 05/07/2021

**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 (%)	9.56	
SiO <sub>2</sub> (%)	19.00	
Al <sub>2</sub> O <sub>3</sub> (%)	4.66	
Fe <sub>2</sub> O <sub>3</sub> (%)	2.46	
CaO (%)	59.87	
MgO (%)	0.74	5.0 Max.
SO <sub>3</sub> (%)	2.39	3.5 Max.
K <sub>2</sub> O (%)	0.13	
Na <sub>2</sub> O (%)	0.11	
Cl (%)	0.01	0.1 Max
TiO <sub>2</sub> (%)	0.31	
P <sub>2</sub> O <sub>5</sub> (%)	0.05	
<b>Total (%)</b>	<b>99.29</b>	
Insoluble Residue (IR) (%)	3.01	
C3A (%)	8.19	
Freelime (CaO <sub>f</sub> ) (%)	2.48	
<b>PHYSICAL TESTS:</b>		
Air permeability - Blaine (cm <sup>2</sup> /g)	3784	
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)	113	≥75 Minutes
	Final setting (minutes)	140
Expansion (Lechatelier's) (mm)	2.0	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 2021.		
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Quresh Ganjee\*

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DATE: 05/07/2021

## 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	
<b>CHEMICAL TESTS:</b>		CEM II/A-L 42.5N	
Loss on Ignition (%)	6.50		
SiO <sub>2</sub> (%)	19.92		
Al <sub>2</sub> O <sub>3</sub> (%)	5.07		
Fe <sub>2</sub> O <sub>3</sub> (%)	2.68		
CaO (%)	60.95		
MgO (%)	0.72	5.0 Max.	
SO <sub>3</sub> (%)	2.54	3.5 Max.	
K <sub>2</sub> O (%)	0.15		
Na <sub>2</sub> O (%)	0.08		
Cl (%)	0.01	0.1 Max	
TiO <sub>2</sub> (%)	0.33		
P <sub>2</sub> O <sub>5</sub> (%)	0.06		
<b>Total (%)</b>	<b><u>99.01</u></b>		
Insoluble Residue (IR) (%)	2.98		
C3A (%)	8.91		
Freelime (CaO <sub>f</sub> ) (%)	2.16		
<b>PHYSICAL TESTS:</b>			
Air permeability - Blaine (cm <sup>2</sup> /g)	3946		
Compressive Strength (Mpa):	ISO 2days	15.8	≥10 N/mm <sup>2</sup>
	ISO 7days	26.8	-
	ISO 28days	48.7	≥42.5 N/mm <sup>2</sup> ; ≤62.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)	138	≥60 Minutes	
Final setting (minutes)	171	-	
Expansion (Lechatelier's) (mm)	2.0	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 May 2021.			
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