

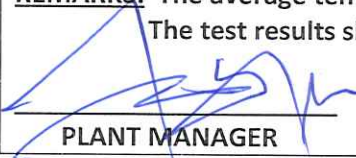
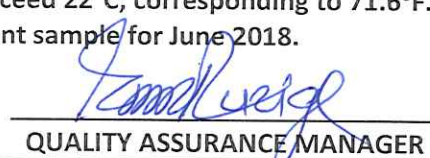


**SIMBA**  
**CEMENT**  
STRENGTH WITHIN

DATE: 03/08/2018

**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 : 2002'

PARAMETER	TEST RESULTS		SPECIFICATION
			TZS 727-1:2002 = EN 197-1:2000
<b>CHEMICAL TESTS:</b>			CEM II/B-M 32.5N
Loss on Ignition (%)	10.61		
SiO <sub>2</sub> (%)	18.04		
Al <sub>2</sub> O <sub>3</sub> (%)	4.37		
Fe <sub>2</sub> O <sub>3</sub> (%)	2.83		
CaO (%)	60.68		
MgO (%)	1.49		5.0 Max.
SO <sub>3</sub> (%)	2.11		3.5 Max.
K <sub>2</sub> O (%)	0.15		
Na <sub>2</sub> O (%)	0.15		
Cl (%)	0.01		0.1 Max
<b>Total (%)</b>	<b>100.43</b>		
C3A (%)	6.80		
Freelime (CaO <sub>f</sub> ) (%)	2.43		
<b>PHYSICAL TESTS:</b>			
Air permeability - Blaine (cm <sup>2</sup> /g)	4694		
Compressive Strength (N/mm <sup>2</sup> ): ISO 2days	11.0		-
	ISO 7days	23.8	≥16 N/mm <sup>2</sup>
	ISO 28days	36.7	≥32.5 N/mm <sup>2</sup> ; ≤52.5 N/mm <sup>2</sup>
Vicat test: Initial setting (minutes)	90		≥75 Minutes
Final setting (minutes)	201		-
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 June 2018.			
 PLANT MANAGER		 QUALITY ASSURANCE MANAGER	



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# Non-executive