

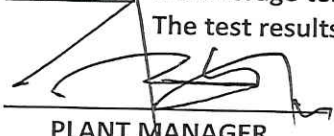



SIMBA
CEMENT
STRENGTH WITHIN

DATE: 01/06/2018

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
CHEMICAL TESTS:		
TZS 727-1:2002 = EN 197-1:2000		
CEM II/B-M 32.5R		
Loss on Ignition (%)	9.76	
SiO ₂ (%)	18.87	
Al ₂ O ₃ (%)	4.12	
Fe ₂ O ₃ (%)	3.33	
CaO (%)	59.27	
MgO (%)	2.24	5.0 Max.
SO ₃ (%)	2.22	3.5 Max.
K ₂ O (%)	0.04	
Na ₂ O (%)	0.17	
Cl (%)	0.01	0.1 Max
Total (%)	<u>100.02</u>	
Insoluble Residue (IR) (%)	5.27	
C3A (%)	5.29	
Freelime (CaO _f) (%)	2.51	
PHYSICAL TESTS:		
Air permeability - Blaine (cm ² /g)	4846	
Compressive Strength (Mpa):	ISO 2days	11.5
	ISO 7days	24.0
	ISO 28days	38.5
Vicat test: Initial setting (minutes)	90	≥10 N/mm ²
Final setting (minutes)	180	≥32.5 N/mm ² ; ≤52.5 N/mm ²
Expansion (Lechatelier's) (mm)	1.0	≥75 Minutes
10 Max.		
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 April 2018.		
 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**, T. Wagner**, R. Mbiliyi~

Company Secretary: Quresh Ganijee

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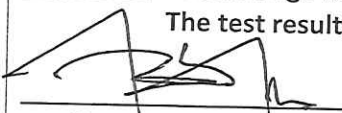



SIMBA
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DATE: 01/06/2018

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 : 2002'

PARAMETER	TEST RESULTS	SPECIFICATION
CHEMICAL TESTS:		TZS 727-1:2002 = EN 197-1:2000
		CEM II/A-L 42.5N
Loss on Ignition (%)	7.46	
SiO ₂ (%)	19.06	
Al ₂ O ₃ (%)	4.13	
Fe ₂ O ₃ (%)	3.15	
CaO (%)	61.54	
MgO (%)	2.22	5.0 Max.
SO ₃ (%)	2.31	3.5 Max.
K ₂ O (%)	0.00	
Na ₂ O (%)	0.18	
Cl (%)	0.01	0.1 Max
Total (%)	<u>100.05</u>	
Insoluble Residue (IR) (%)	4.79	
C3A (%)	5.62	
Freelime (CaO _f) (%)	2.51	
PHYSICAL TESTS:		
Air permeability - Blaine (m ² /kg)	4539	
Compressive Strength (Mpa):	ISO 2days	14.2
	ISO 7days	31.3
	ISO 28days	48.1
		≥10 N/mm ²
		≥42.5 N/mm ² ; ≤62.5 N/mm ²
Vicat test: Initial setting (minutes)	100	≥60 Minutes
Final setting (minutes)	180	-
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 April 2018.		
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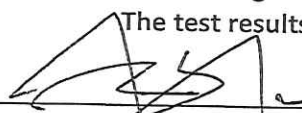



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DATE: 01/06/2018

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
CHEMICAL TESTS:			CEM II/B-M 32.5N
Loss on Ignition (%)	8.76		
SiO ₂ (%)	19.32		
Al ₂ O ₃ (%)	4.23		
Fe ₂ O ₃ (%)	3.37		
CaO (%)	59.39		
MgO (%)	2.19		5.0 Max.
SO ₃ (%)	2.13		3.5 Max.
K ₂ O (%)	0.03		
Na ₂ O (%)	0.17		
Cl (%)	0.01		0.1 Max
Total (%)	99.59		
C3A (%)	5.48		
Freelime (CaO _f) (%)	2.63		
PHYSICAL TESTS:			
Air permeability - Blaine (cm ² /g)	4344		
Compressive Strength (N/mm ²): ISO 2days	11.6		-
	ISO 7days	24.3	≥16 N/mm ²
	ISO 28days	39.3	≥32.5 N/mm ² ; ≤52.5 N/mm ²
Vicat test: Initial setting (minutes)	100		≥75 Minutes
	Final setting (minutes)	200	-
Expansion (Lechatelier's) (mm)	1.0		10 Max.
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 April 2018.			
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