SIMBA CEMENT
STRENGTH WITHIN

DATE: 05/02/2020

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
		TZS 727-1:2002 = EN 197-1:2000
CHEMICAL TESTS:		CEM II/A-L 42.5N
Loss on Ignition (%)	8.87	
SiO_2 (%)	18.37	
Al_2O_3 (%)	5.01	
Fe_2O_3 (%)	2.72	
CaO (%)	61.20	
MgO (%)	0.81	5.0 Max.
SO_3 (%)	1.44	3.5 Max.
K_2O (%)	0.16	
Na_2O (%)	0.08	
Cl (%)	0.01	0.1 Max
TiO_2 (%)	0.36	
P_2O_5 (%)	0.05	
Total (%)	**99.08**	
Insoluble Residue (IR) (%)	4.62	
C3A (%)	8.68	
Freelime (CaO_f) (%)	1.19	
PHYSICAL TESTS:		
Air permeability - Blaine (cm^2/g)	4756	
Compressive Strength (Mpa): ISO 2days	16.6	≥10 N/mm^2
ISO 7days	32.8	-
ISO 28days	52.0	≥42.5 N/mm^2; ≤62.5 N/mm^2
Vicat test: Initial setting (minutes)	120	≥60 Minutes
Final setting (minutes)	198	-
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 December 2019.**

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 Mbilinyi~

Company Secretary: Quresh Ganijee

**South African, ~ Independent Non-executive # Non-executive

SIMBA CEMENT
STRENGTH WITHIN

DATE: 05/02/2020

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 32.5R
Loss on Ignition (%)	4.50	
SiO_2 (%)	23.60	
Al_2O_3 (%)	6.37	
Fe_2O_3 (%)	4.70	
CaO (%)	55.64	
MgO (%)	1.57	5.0 Max.
SO_3 (%)	1.93	3.5 Max.
K_2O (%)	0.19	
Na_2O (%)	0.30	
Cl (%)	0.01	0.1 Max
TiO_2 (%)	0.64	
P_2O_5 (%)	0.18	
Total (%)	**99.63**	
Insoluble Residue (IR) (%)	5.40	
C3A (%)	8.14	
Freelime (CaO_f) (%)	1.30	
PHYSICAL TESTS:		
Air permeability - Blaine (cm^2/g)	4401	
Compressive Strength (Mpa): ISO 2days	12.8	≥10 N/mm^2
ISO 7days	27.4	-
ISO 28days	46.3	≥32.5 N/mm^2; ≤52.5 N/mm^2
Vicat test: Initial setting (minutes)	120	≥75 Minutes
Final setting (minutes)	210	-
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 December 2019.

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 Mbilinyi~

Company Secretary: Quresh Ganijee

**South African, ~ Independent Non-executive # Non-executive

SIMBA CEMENT
STRENGTH WITHIN

DATE: 05/02/2020

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 (%)	11.00	
SiO_2 (%)	17.79	
Al_2O_3 (%)	4.21	
Fe_2O_3 (%)	2.79	
CaO (%)	61.10	
MgO (%)	0.78	5.0 Max.
SO_3 (%)	1.98	3.5 Max.
K_2O (%)	0.12	
Na_2O (%)	0.03	
Cl (%)	0.01	0.1 Max
TiO_2 (%)	0.13	
P_2O_5 (%)	0.03	
Total (%)	**99.97**	
C3A (%)	6.44	
Freelime (CaO_f) (%)	1.91	
PHYSICAL TESTS:		
Air permeability - Blaine (cm^2/g)	4692	
Compressive Strength (N/mm^2):		-
ISO 7days	25.6	≥16 N/mm^2
ISO 28days	40.5	≥32.5 N/mm^2; ≤52.5 N/mm^2
Vicat test: Initial setting (minutes)	110	≥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 December 2019.

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 Mbilinyi~

Company Secretary: Quresh Ganijee

**South African, ~ Independent Non-executive # Non-executive