

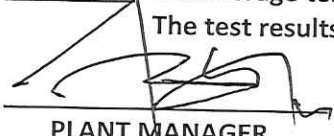



SIMBA
CEMENT
STRENGTH WITHIN

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 | ≥10 N/mm ² |
| | ISO 7days | - |
| | ISO 28days | ≥32.5 N/mm ² ; ≤52.5 N/mm ² |
| Vicat test: Initial setting (minutes) | 90 | ≥75 Minutes |
| Final setting (minutes) | 180 | - |
| 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. | | |
|  PLANT MANAGER |  QUALITY ASSURANCE MANAGER | |



TANGA CEMENT PLC

Head Office:

Pongwe Factory Area, P O Box 5053, Tanga, Tanzania
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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

**South African,

~ Independent Non-executive

Non-executive

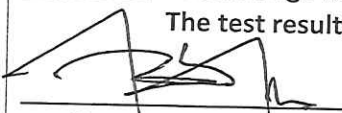



SIMBA
CEMENT
STRENGTH WITHIN

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 | |
| Final setting (minutes) | 180 | ≥60 Minutes |
| Expansion (Lechatelier's) (mm) | 1.0 | - |
| Specific gravity (g/cc) | 3.0 | 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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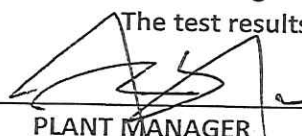



SIMBA
CEMENT
STRENGTH WITHIN

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 |
|---|--------------|---|---|
| | | | 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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