



HEIDELBERGCEMENT Group

Tanzania Portland Cement Public Limited Company  
P.O.Box 1950, Dar es Salaam-Tanzania  
Telephone: +255 746 810930  
Fax: +255 746 810931  
[www.twigacement.com](http://www.twigacement.com)

## MONTHLY CERTIFICATE OF CHEMICAL & PHYSICAL TESTS TWIGA PLUS, CEM II/B-M CLASS 42.5 N DECEMBER, 2023

Sampled and tested in accordance with the requirements of the Tanzanian Bureau of Standards  
TZS 727-1/EAS 18-1

CHEMICAL TEST RESULTS			
Test	Unit	Test results	Specified requirements
Loss on Ignition	[%]	8.4	No requirement
Insoluble Residues	[%]	1.2	Less than 5.0%
CaO	[%]	57.1	No requirement
SiO <sub>2</sub>	[%]	20.0	No requirement
CaO/SiO <sub>2</sub>	[-]	2.9	Not less than 2.0%
Al <sub>2</sub> O <sub>3</sub>	[%]	5.1	No requirement
Fe <sub>2</sub> O <sub>3</sub>	[%]	3.2	No requirement
MgO	[%]	1.2	Not more than 5.0%
SO <sub>3</sub>	[%]	2.5	Less than 3.5%
K <sub>2</sub> O	[%]	0.38	No requirement
Na <sub>2</sub> O	[%]	0.13	No requirement
P <sub>2</sub> O <sub>5</sub>	[%]	0.12	No requirement
TiO <sub>2</sub>	[%]	0.58	No requirement
MnO	[%]	0.07	No requirement
(Na <sub>2</sub> O+ 0.658 K <sub>2</sub> O)	[%]	0.38	No requirement
Cl <sup>-</sup>	[%]	0.001	Less than 0.10%
PHYSICAL TEST RESULTS			
Density	[kg/m <sup>3</sup> ]	3100	No requirement
Specific Surface (Blaine)	[m <sup>2</sup> /kg]	465	No requirement
Sieving Residue on 45 mic. mesh	[%]	8.6	No requirement
Initial Setting Time	[Minutes]	141	Not less than 60 minutes
Soundness (Expansion)	[mm]	1.0	Not more than 10.0 mm
Compressive Strength 2 days	[MPa]	17.8	More than 10.0 MPa
Compressive Strength 28* *days*	[MPa]	44.5	Between 42.5 and 62.5 Mpa

Remarks: \* The 28 days strength is the average of previous month.

Wazo Hill, 2024/01/04<sup>th</sup>

  
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Plant Manager

  
Commercial Director

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