



Heidelberg Materials

Tanzania Portland Cement Public Limited Company

P.O.Box 1950, Dar es Salaam-Tanzania

Telephone: +255 746 810930

Fax: +255 746 810931

Info@twigacement.com

www.twigacement.com

MONTHLY CERTIFICATE OF CHEMICAL AND PHYSICAL TESTS
TWIGA EXTRA, CEM II/B-L CLASS 32.5 R
NOVEMBER, 2024

Sampled and tested in accordance with the requirements of the Tanzanian Bureau of Standards

TZS 727-1/EAS 18-1. Equivalent to EN 197-1

CHEMICAL TEST RESULTS			
Test	Unit	Test results monthly average	Specified requirements
Loss on ignition	[%]	12.0	No Requirement
Insoluble Residue	[%]	1.24	Less than 5.0%
CaO	[%]	55.8	No Requirement
SiO ₂	[%]	18.3	No Requirement
CaO/SiO ₂	[-]	3.05	Not less than 2.0%
Al ₂ O ₃	[%]	4.83	No Requirement
Fe ₂ O ₃	[%]	2.97	No Requirement
MgO	[%]	1.43	Not more than 5.0%
SO ₃	[%]	2.56	Less than 3.5%
K ₂ O	[%]	0.39	No Requirement
Na ₂ O	[%]	0.19	No Requirement
P ₂ O ₅	[%]	0.43	No Requirement
TiO ₂	[%]	0.48	No Requirement
MnO	[%]	0.06	No Requirement
(Na ₂ O+0.658K ₂ O)	[%]	0.45	No Requirement
Cl	[%]	0.002	Less than 0.10%
PHYSICAL TEST RESULTS			
Density	[kg/m ³]	3100	No requirement
Specific Surface (Blaine)	[m ² /kg]	460	No Requirement
Sieving Residue on 45 mic.	[%]	11.5	No Requirement
Initial setting time	[minutes]	151	Not less than 75 minutes
Final setting time	[minutes]	203	Not Requirement
Soundness (expansion)	[mm.]	1.0	Not more than 10 mm.
Compressive strength 2 days	[MPa]	14.9	More than 10 MPa.
Compressive strength 28 days*	[MPa]	34.5	Between 32.5 and 52.5 MPa

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

Wazo Hill, 2024/12/03rd

Quality Control Manager

Plant Manager

Commercial Director

Board Directors:
Hakan Gurdal (Turkish)
Alfonso Velez (Spanish)
Francesco Brambilla (Italian)

Ruth Zaipuna (Tanzanian)
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