



Heidelberg Materials

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**MONTHLY CERTIFICATE OF CHEMICAL AND PHYSICAL TESTS**  
**TWIGA EXTRA, CEM II/B-L CLASS 32.5 R**  
**SEPTEMBER, 2025**

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	[%]	9.33	No Requirement
Insoluble Residue	[%]	1.22	Less than 5.0%
CaO	[%]	57.0	No Requirement
SiO <sub>2</sub>	[%]	19.2	No Requirement
CaO/SiO <sub>2</sub>	[-]	2.97	Not less than 2.0%
Al <sub>2</sub> O <sub>3</sub>	[%]	5.90	No Requirement
Fe <sub>2</sub> O <sub>3</sub>	[%]	3.19	No Requirement
MgO	[%]	1.46	Not more than 5.0%
SO <sub>3</sub>	[%]	2.62	Less than 3.5%
K <sub>2</sub> O	[%]	0.41	No Requirement
Na <sub>2</sub> O	[%]	0.06	No Requirement
P <sub>2</sub> O <sub>5</sub>	[%]	0.45	No Requirement
TiO <sub>2</sub>	[%]	0.62	No Requirement
MnO	[%]	0.04	No Requirement
(Na <sub>2</sub> O+0.658K <sub>2</sub> O)	[%]	0.33	No Requirement
Cl	[%]	0.002	Less than 0.10%
PHYSICAL TEST RESULTS			
Density	[kg/m <sup>3</sup> ]	3100	No requirement
Specific Surface (Blaine)	[m <sup>2</sup> /kg]	461	No Requirement
Sieving Residue on 45 mic.	[%]	10.5	No Requirement
Initial setting time	[minutes]	151	Not less than 75 minutes
Final setting time	[minutes]	211	Not Requirement
Soundness (expansion)	[mm.]	1.0	Not more than 10 mm.
Compressive strength 2 days	[MPa]	16.0	More than 10 MPa.
Compressive strength 28 days*	[MPa]	36.2	Between 32.5 and 52.5 MPa

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

Wazo Hill, 2025/10/06<sup>th</sup>

For   
Quality Control Manager

  
Plant Manager

  
Ag Commercial Director

Board Directors:

Hakan Gurdal (Turkish)

Alfonso Velez (Spanish)

Francesco Brambilla (Italian)

Ruth Zaipuna (Tanzanian)

Gary Whitehead (British)

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