



HEIDELBERGCEMENT Group

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

SEPTEMBER, 2017

Sampled and tested in accordance with the requirements of the Tanzanian standard
TZS 727:2002. Equivalent to EN 197 - 1

Test	Unit	Test results monthly average	Specified requirements TZS 727:2002
Loss on ignition	[%]	13.1	No Requirement
Insoluble Residue	[%]	1.2	Less than 5.0%
CaO	[%]	62.5	No Requirement
SiO ₂	[%]	18.5	No Requirement
CaO/SiO ₂	[-]	3.4	Not less than 2.0%
Al ₂ O ₃	[%]	4.7	No Requirement
Fe ₂ O ₃	[%]	2.7	No Requirement
MgO	[%]	0.6	Not more than 5.0%
SO ₃	[%]	2.6	Less than 3.5%
Cl	[%]	0.001	Less than 0.10%
(Na ₂ O+0.658K ₂ O)	[%]	0.3	No Requirement
Specific Surface (Blaine)	[m ² /kg]	480	No Requirement
Density	[kg/m ³]	3100	No requirement
Sieving Residue on 45 mic.	[%]	11.5	No Requirement
Initial setting time	[minutes]	124	Not less than 75 minutes
Soundness (expansion)	[mm.]	1.0	Not more than 10 mm.
Compressive strength 2 days	[MPa]	15.2	More than 10 MPa.
Compressive strength 28 days*	[MPa]	37.5	Between 32.5 and 52.5 MPa

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

Wazo Hill, 2017/10/06th

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Quality Control Manager

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Quality & Process Control Manager

Yves Matigye
Commercial Director
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Commercial Director

Board Directors:
Jean-Marc Junon (French)
Alfonso Rodriguez (Spanish)
Hakan Gurdal (Turkish)

Gary Whitehead (British)
Luth Zaipuna (Tanzanian)
Oswald Urassa (Tanzanian)