HEIDELBERGCEMENT Group

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MONTHLY CERTIFICATE OF CHEMICAL AND PHYSICAL TESTS

TWIGA EXTRA, CEM II/B-L CLASS 32.5 R

OCTOBER, 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 monthly average**	**Specified requirements**
Loss on ignition	[%]	12.0	No Requirement
Insoluble Residue	[%]	1.2	Less than 5.0%
CaO	[%]	56.5	No Requirement
SiO_2	[%]	18.4	No Requirement
CaO/SiO_2	[-]	3.1	Not less than 2.0%
Al_2O_3	[%]	4.9	No Requirement
Fe_2O_3	[%]	3.6	No Requirement
MgO	[%]	1.0	Not more than 5.0%
SO_3	[%]	2.8	Less than 3.5%
K_2O	[%]	0.44	No Requirement
Na_2O	[%]	0.04	No Requirement
P_2O_5	[%]	0.10	No Requirement
TiO_2	[%]	0.42	No Requirement
MnO	[%]	0.04	No Requirement
$(Na_2O+0.658K_2O)$	[%]	0.32	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]	459	No Requirement
Sieving Residue on 45 mic.	[%]	8.6	No Requirement
Initial setting time	[minutes]	130	Not less than 75 minutes
Soundness (expansion)	[mm.]	1.0	Not more than 10 mm.
Compressive strength 2 days	[MPa]	14.4	More than 10 MPa.
Compressive strength 28 days*	[MPa]	34.6	Between 32.5 and 52.5 MPa

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

Wazo Hill, 2023/11/06th

Quality Control Manager

Plant Manager

Commercial Director

Yves Delaigne
Commercial Director
TPC PLC

Board Directors:
Hakan Gurdal (Turkish)
Alfonso Velez (Spanish)
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