



شركة الاسمنت والبيتلانج الجوزية

ATTOCK CEMENT PAKISTAN LTD.

QUALITY CERTIFICATE

Dated : 19.08.2019

We hereby Certify that our brand "Rock Cement" Portland Composite Cement Conforms and surpasses the Pakistan Standard PS-5313-2014 CEM II A-M (L) & European Standard EN 197-1:2000 (E) CEM II A-M 42.5N.

CHEMICAL COMPOSITION	"ROCK CEMENT" PORTLAND COMPOSITE CEMENT	PS 5313-2014 CEM II A-M (L) Strength class 42.5 N	EN 197-1 :2000 (E) CEM II/A-M Strength class 42.5 N
Calcium Oxide % (CaO)	63.00	-	-
Silicon Oxide % (SiO ₂)	20.74	-	-
Aluminium Oxide % (Al ₂ O ₃)	4.76	-	-
Ferric Oxide % (Fe ₂ O ₃)	3.81	-	-
Magnesium Oxide % (MgO)	1.45	-	-
Sulphur Oxide% (SO ₃),	2.43	≤ 3.5 %	≤ 3.5 %
Loss on Ignition % (L.O.I)	2.70	-	-
Insoluble Residue % (I.R)	0.34	-	-
Sodium Oxide % (Na ₂ O)	0.21	-	-
Potassium Oxide % (K ₂ O)	0.52	-	-
Total Alkalies as Na ₂ O= (Na ₂ O+0.658 x K ₂ O)	0.55	-	-
Chloride % (Cl)	0.012	≤ 0.10 %	≤ 0.10 %
Silica Modulus (S.M)	2.42	-	-
Alumina Modulus (A.M)	1.25	-	-
Lime Saturation Factor (L.S.F)	0.93	-	-
Tri Calcium Silicate (C ₃ S)	54.50	-	-
Di Calcium Silicate (C ₂ S)	18.34	-	-
Tri Calcium Aluminate (C ₃ A)	6.18	-	-
Tetra Calcium Alumino Ferrite (C ₄ AF)	11.59	-	-
PHYSICAL TEST:			
Fineness (Blaine cm ² /gm)	3248	-	-
Setting Time:			
Initial (minutes)	154	≥ 60 min	≥ 60 min
Final (minutes)	223	-	-
Soundness Expn.(Le Chatlier mm)	0.69	10 max	10 max
COMPRESSIVE STRENGTH:			
2-Days N/mm ² (Psi)	22.59 (3276)	≥ 10.0 (1450)	≥ 10.00 (1450) min.
*28-Days N/mm ² (Psi)	46.13 (6689)	≥ 42.50 ≤ 62.5 (6162.5 - 9062.5).	≥ 42.50 ≤ 62.5 (6162.5 - 9062.5).

*last month 28-Days Compressive Strength.

HOD (QUALITY CONTROL)

Sr. GENERAL MANAGER (WORKS)

