



Laboratory Test Certificate

PORTLAND CEMENT - TYPE I/II


Source: Asia Cement-Hualein Plant, Taiwan

Chemical (C114)			Physical Properties		
Item (%)	Value	Limit	Comp. Strength	Value	(Min.)
Silicon Dioxide (SiO ₂)	20.5		3 Days	4040 psi	1740 psi
Aluminum Oxide (Al ₂ O ₃)	3.86	6.0 Max		(27.8 MPa)	(12.0 MPa)
Ferric Oxide (Fe ₂ O ₃)	2.97	6.0 Max	7 Days	5010 psi	2760 psi
Calcium Oxide (CaO)	62.9			(34.5 MPa)	(19.0 MPa)
Magnesium Oxide (MgO)	4.0	6.0 Max	28 Days**	6820 psi	4060*psi
Sulfur Trioxide (SO ₃)	2.7	3.0 Max		(47.0 MPa)	(28.0*MPa)
Sodium Oxide (Na ₂ O)	0.17				
Potassium Oxide (K ₂ O)	0.54		Blaine Fineness:	3860 cm ² /gr	
Loss on Ignition (LOI)	1.66	3.0 Max	Air Content:	8.2 %	12.0 %Max
Insoluble Residue	0.17	1.50 Max			
Potential phase composition (%)			Gilmore Initial Set:	165 min.	60 Min
C ₃ S	62.4		Gilmore Final Set:	225 min.	600 Max
C ₂ S	11.6		Autoclave Expansion:	0.04 %	0.80 %Max
C ₃ A	5.2	8 Max	Paste False Set:	84 %	50*% Min
C ₄ AF	9.0				
Alkali Equivalent (NaEq)	0.53	0.60*Max			

* - optional requirements , Table 2 & 4.
 ** - 28 Days Compressive Strength from previous month.

We certify that the above described cement, at the time of shipment, meets the standard chemical and physical requirements of ASTM C150-18, Type I/II, low alkali (Tables 1 & 3).

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