



Laboratory Test Certificate

PORTLAND CEMENT - TYPE I/II

Source: Asia Cement-Hualein Plant, Taiwan

Chemical (C114)

Item (%)	Value	Limit
Silicon Dioxide (SiO ₂)	20.8	
Aluminum Oxide (Al ₂ O ₃)	4.0	6.0 Max
Ferric Oxide (Fe ₂ O ₃)	3.17	6.0 Max
Calcium Oxide (CaO)	63.6	
Magnesium Oxide (MgO)	3.1	6.0 Max
Sulfur Trioxide (SO ₃)	2.8	3.0 Max
Sodium Oxide (Na ₂ O)	0.18	
Potassium Oxide (K ₂ O)	0.59	
Loss on Ignition (LOI)	2.81	3.5 Max
Insoluble Residue	0.76	1.50 Max
Limestone %	4.8	5.0 Max
Potential phase composition (%)		
C ₃ S	62.0	
C ₂ S	12.6	
C ₃ A	5.4	8 Max
C ₄ AF	9.4	
Alkali Equivalent (NaEq)	0.56	

Physical Properties

Comp. Strength	Value	(Min.)
3 Days	4130 psi	1740 psi
	(28.5 MPa)	(12.0 MPa)
7 Days	5340 psi	2760 psi
	(36.8 MPa)	(19.0 MPa)
28 Days**	6900 psi	4060*psi
	(47.5 MPa)	(28.0*MPa)
Blaine Fineness:	3960 cm ² /gr	2600 Min.
Air Content:	8.4 %	12.0 %Max
Vicat C191 Init Set:	175	min. 45 Min
Vicat C191 Final Set:	260	min. 375 Max
Paste False Set:	86 %	50*% Min

* - optional requirements , Table 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 C150-22, Type I/II, low alkali (Table 1).

Cement Division

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