

Manufacturer's Certification

Report Date: 5/1/2025

We hereby certify that CalPortland Type I/II Cement meets the standard requirements of ASTM C150 and AASHTO M85 specification for Type I and Type II cements. Reported are the average chemical and physical data for the lot.

Lot #: 25-108

Type I / II Cement

Source: Nghe An, Vietnam

Chemical Properties, (ASTM C114)	ASTM C150 and AASHTO M85 Requirements		Analysis	Limestone
	Type I	Type II	Results	Analysis
Silicon dioxide (SiO ₂), %	---	---	19.4	2.4
Aluminum oxide (Al ₂ O ₃), max, %	---	6.0	4.3	0.6
Ferric oxide (Fe ₂ O ₃), max, %	---	6.0	4.4	0.6
Calcium oxide (CaO), %	---	---	62.0	49.0
Magnesium oxide (MgO), max, %	6.0	6.0	3.4	4.2
Sulfur trioxide (SO ₃), max, %	3.0	3.0	2.8	0.2
Loss on ignition (LOI), max, %	3.5	3.5	1.7	
Insoluble residue (IR), max, %	1.5	1.5	0.4	Base
Alkalies (Na ₂ O+0.658*K ₂ O), %	---	---	0.57	Cement
Tricalcium silicate (C ₃ S), %	---	---	57	59
Dicalcium silicate (C ₂ S), %	---	---	12	12
Tricalcium aluminate (C ₃ A), max, %	---	8	4	4
Tetracalcium aluminoferrite (C ₄ AF), %	---	---	13	14
CO ₂ , %	---	---	1.2	
Limestone addition, max, %	5.0	5.0	2.7	
CaCO ₃ in Limestone, min, %	70	70	98	

Physical Properties

Air content of mortar, max, volume %, (C185)	12	12	7
Blaine Fineness, min, m ² /kg, (C204)	260	260	400
Autoclave expansion, max, %, (C151)	0.80	0.80	0.05
Compressive Strength, min, (C109)			
1 Day, psi	---	---	2240
3 Day, MPa	12.0	10.0	25.6
3 Day, psi	1740	1450	3720
7 Day, MPa	19.0	17.0	31.5
7 Day, psi	2760	2470	4570
28 Day (from prior lot), MPa	---	---	41.4
28 Day (from prior lot), psi	---	---	6010
Vicat Setting Time, min-max, minutes, (C191)	45 - 375	45 - 375	130

Apparatus and methods used in this laboratory have been checked by the Cement and Concrete Reference Laboratory of the National Institute of Standards and Technology. A copy of the report detailing their findings is available upon request. Major oxides are analyzed in accordance with ASTM C114.



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Quality Control Manager