

LEHIGH

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CEMENT TEST REPORT

Cement: ASTM C150-09, Type II/V, Low Alkali

Date Shipped: July 2011

Report Date: 8/12/2011

Destination: Lot 2011-07

STANDARD CHEMICAL REQUIREMENTS ASTM C 114	TEST RESULTS	ASTM C 150 SPECIFICATIONS	
		TYPE II	TYPE V
Silicon Dioxide (SiO ₂), %	20.1	----	----
Aluminum Oxide (Al ₂ O ₃), %	4.6	6.0 Max	----
Ferric Oxide (Fe ₂ O ₃), %	4.1	6.0 Max	----
Calcium Oxide (CaO), %	63.9	----	----
Magnesium Oxide (MgO), %	1.2	6.0 Max	6.0 Max
Sulfur Trioxide (SO ₃), %	3.0	3.0 Max	2.3 Max *
Loss on Ignition (LOI), %	2.2	3.0 Max	3.0 Max
Insoluble Residue, %	0.56	0.75 Max	0.75 Max
CO ₂ (%)	1.42	N/A	N/A
CaCO ₃ in limestone (%)	94	70 Min	70 Min
Limestone (%)	3	5 Max	5 Max
Total Alkalies (Na ₂ O equivalent), %	0.55	0.60 Max	0.60 Max
Tricalcium Silicate (C ₃ S), % ^a	60	----	----
Dicalcium Silicate (C ₂ S), % ^a	10	----	----
Tricalcium Aluminate (C ₃ A), % ^a	5	8 Max	5 Max
Tetracalcium Aluminoferrite (C ₄ AF), % ^a	12	----	----
Heat of Hydration (cal/g)	82	----	----
C ₃ S + 4.75*C ₃ A	84	100	----
2 (C ₃ A) + C ₄ AF	22	----	25 Max

PHYSICAL REQUIREMENTS			
(ASTM C 1038) Expansion @ 14 days, %	0.006	0.020 Max	0.020 Max
(ASTM C 204) Blaine Fineness, m ² /gm	429	280 Min	280 Min
(ASTM C 430) -325 Mesh, %	99.2	----	----
(ASTM C 191) Time of Setting - Initial (Vicat)	88	45 Min	45 Min
(ASTM C 191) Time of Setting - Final (Vicat)	165	375 Max	375 Max
(ASTM C 451) False Set, %	84	50 Min	50 Min
(ASTM C 185) Air Content, %	7.1	12 Max	12 Max
(ASTM C 151) Autoclave Expansion, %	0.01	0.80 Max	0.80 Max
(ASTM C 187) Normal Consistency, %	27.9	----	----
(ASTM C 109) Compressive Strength, psi (MPa)			
1 Day	2740 (18.9)	----	----
3 Day	4360 (30)	1500 (10.3) Min	1160 (8.0) Min
7 Day	5250 (36.2)	2500 (17.2) Min	2180 (15.0) Min
28 Day (Previous Month)	5910 (40.7)	----	3050 (21.0) Min

This cement meets the requirements of specification: ASTM C150-09 Type II/V, Low Alkali



^a Adjusted per ASTM C150-09 Section A 1.6
 ASTM 1157 Portland Cement Type HS
 Caltrans Section 90 - Type II/V Modified
 * See ASTM 1038 result

Steve Cooley - Quality Control Manager