

LEHIGH

HEIDELBERGCEMENT Group

TECHNICAL SERVICES

SALES & MARKETING

12667 Alcosta Blvd, Suite 400
 San Ramon, CA 94583
 Telephone (925) 244-6562
 FAX (925) 244-6586

PLANT LOCATION

Port A Harbor Road
 Port of Stockton, CA 95203
 Telephone (209) 465-1921
 FAX (209) 465-1083

ALLCEM GGBFS (SLAG CEMENT) TEST REPORT

Specification: ASTM C 989-05 Grades 100 & 120

Report Date: 11-May-11

STANDARD CHEMICAL AND PHYSICAL REQUIREMENTS	TEST RESULTS	ASTM C 989 SPECIFICATIONS	
		Grade 100	Grade 120
Sulfur Trioxide (SO ₃), %	2.07	4.0 Max	4.0 Max
Sulfur Sulfide (S),%	0.795	2.5 Max	2.5 Max
Chloride (Cl),%	0.015	----	----
(ASTM C 204) Blaine Fineness, m ² /km	471	----	----
(ASTM C 430) 325 Mesh, % Retained	0.00	20 Max	20 Max
Density	2.92	----	----
(ASTM C 185) Air Content, %	8.5	12 Max	12 Max
SLAG ACTIVITY INDEX, %			
7 Day Individual	138	70 Min	90 Min
7 Day Average of last 5	124	75 Min	95 Min
28 Day Individual	191	90 Min	110 Min
28 Day Average of last 5	153	95 Min	115 Min
REFERENCE CEMENT			
Total Alkali, %	0.72	0.60 - 0.90	0.60 - 0.90
(ASTM C 204) Blaine Fineness, m ² /km	355	----	----
C ₃ S, %	59	----	----
C ₂ S, %	15	----	----
C ₃ A, %	9	----	----
C ₄ AF, %	7	----	----
COMPRESSIVE STRENGTH, psi			
7 Day Reference Cement	4270	----	----
28 Day Reference Cement	4270	5000 psi Min	5000 psi Min
7 Day Slag and Cement Reference	5910	----	----
28 Day Slag and Cement Reference	8150	----	----

This GGBFS meets the requirements of ASTM C 989-05 (Grade 100 and Grade 120)



Alan Sabawi, Quality Control Manager