



Cement Test Report

Mill Test Report Number: SEA_NEWCEM_March2023

YEAR: 2023

MONTH OF PRODUCTION: February

PLANT: Seattle

CEMENT TYPE: NewCem Grade 100

Reference Cement

Fineness by Air Permeability (m ² /kg; ASTM C204)	407		
Fineness by 45 µm (No. 325) Sieve (% retain; ASTM C430)	3.6		
Compressive Strength (ASTM C109/C109 M)		psi	Min Limit
7-day	5,250		-
28-day	6,310		5,000
Total Alkalies (Na₂O + 0.658 K₂O) (%, ASTM C114)	<u>Actual</u> 0.82		<u>Limits</u> 0.6-0.9

Slag

Fineness by Air Permeability (m ² /kg; ASTM C204)	417		
Fineness by 45 µm (No. 325) Sieve (% retain; ASTM C430)	5.5		
Compressive Strength (ASTM C109/C109 M)		SAI	SAI Limit
28-day (Previous Month)		103	95
Specific Gravity (Mg/m ³ ; ASTM C188)	2.88		
Air Content of Mortar (%, ASTM C185)	<u>Actual</u> 7.1		<u>Max Limit</u> 12
Sulfide Sulfur (% S, ASTM C114)	0.8		2.5
Sulfate Ion (% as SO ₃ , ASTM C114)	4.7		A
Autoclave expansion (%, CSA A3004-B5)	0.030		0.5
Color Value L*	85.5		

Slag

CHEMICAL ANALYSIS	Percent
Silica Dioxide (SiO ₂ ; ASTM C114)	30.9
Ferric Oxide (Fe ₂ O ₃ ; ASTM C114)	0.9
Aluminum Oxide (Al ₂ O ₃ ; ASTM C114)	12.4
Calcium Oxide (CaO; ASTM C114)	40.9
Sulfur Trioxide (SO ₃ ; ASTM C114)	5.55
Magnesium Oxide (MgO; ASTM C114)	6.0
Loss on Ignition (L.O.I.; ASTM C114)	0.34
Total Alkalies	0.51
Inorganic Process Addition	1.3

^A Not Applicable.

The ground granulated blast furnace slag complies with the current specification of the chemical physical requirement of ASTM C-989, AASHTO M-302 for grade 100 Ground Granulated Blast Furnace Slag (GGBFS) and and CSA A3001 Slag. Slag source is JFE Mineral Company in Kurashiki City, Japan. NewCem is ground and manufactured in Seattle, WA.



Certified by:

Robert S. Shogren

Rob Shogren
Technical Director

March 2, 2023