



Certified to
NSF/ANSI/CAN 61

Cement Mill Test Report

Month of Issue: SEPTEMBER 2021

Plant: **Richmond, British Columbia**
 Product: **Portland Cement Type IL(15) MS**
 Mill Test Report #: **R-TIL-21-09**
 Manufactured: **AUGUST 2021**

ASTM C595 - 20 Standard Requirements

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray (C 114)			Air content of mortar (%) (C 185)	12 max	5.3
SiO2 (%)	---	18.9	Blaine Fineness (m2/kg) (C 204)	---	476
Al2O3 (%)	---	4.5	Passing 325 (%) (C 430)	---	99.1
Fe2O3 (%)	---	3.0	Autoclave expansion (%) (C 151)	[-0.2 - 0.8]	0.00
CaO (%)	---	63.5	Compressive strength (Mpa [PSI]) (C 109)		
MgO (%)	---	0.8			
SO3 (%)	3.0 max*	2.8			
Loss on ignition @ 950 (%)	10.0 max	5.3			
NaEq (Alkali) (%)	---	0.50			
Insoluble residue (%)	---	0.30			
Adjusted Potential Phase Composition***					
C3S (%)	---	50	3 days	13.0 [1890] min	31.0 4500
C2S (%)	---	16	7 days	20.0 [2900] min	36.9 5350
C3A (%)	---	7	28 days (Reflects previous month's data)	25.0 [3620] min	44.3 6430
C4AF (%)	---	9	Time of setting (minutes)		
			Vicat Initial (C 191)	45-420	89
			Mortar Bar Expansion (C 1038)*		
			14 days, % max	0.020 max	0.002
			Cement Density (C186)		3.09

Sulphate Resistance C1012 (Q2/2021) 0.084

* May exceed 3.0% SO3 maximum based on our C 1038 results of <0.02% expansion at 14 days.

*** Corrected by using ASTM Calculation for Limestone Cement

Cement meets ASTM C 1157 Type MS

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of:
 ASTM C 595-20 & AASHTO M 240-20 STANDARD SPECIFICATIONS FOR TYPE IL(15), TYPE IL(15) MS CEMENT

Cement complies with NSF 61

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Certified By:

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 9/10/2021