



Certified to  
NSF/ANSI/CAN 61

## Cement Mill Test Report

Month of Issue: OCTOBER 2021

Plant: **Richmond, British Columbia**  
 Product: **Portland Cement Type IL(15) MS**  
 Mill Test Report #: **R-TIL-21-10**  
 Manufactured: **SEPTEMBER 2021**

### ASTM C595 - 21 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	5.4
SiO2 (%)	---	19.7	Blaine Fineness (m2/kg) (C 204)	---	416
Al2O3 (%)	---	4.7	Passing 325 (%) (C 430)	---	98.8
Fe2O3 (%)	---	3.1	Autoclave expansion (%) (C 151)	[-0.2 - 0.8]	0.04
CaO (%)	---	62.9	Compressive strength (Mpa [PSI]) (C 109)		
MgO (%)	---	0.9			
SO3 (%)	3.0 max*	2.9			
Loss on ignition @ 950 (%)	10.0 max	3.9			
NaEq (Alkali) (%)	---	0.55			
Insoluble residue (%)	---	0.40			
Adjusted Potential Phase Composition***					
C3S (%)	---	47	3 days	13.0 [1890] min	29.7 4310
C2S (%)	---	21	7 days	20.0 [2900] min	35.7 5180
C3A (%)	---	7	28 days (Reflects previous month's data)	25.0 [3620] min	44.7 6480
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 (Q3/2021) 0.091

\* 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 595-21 & AASHTO M 240-21 STANDARD SPECIFICATIONS FOR TYPE IL(15), TYPE IL(15) MS CEMENT

Cement complies with NSF 61

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Questions or enquiries can be directed to Rob Shogren

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 10/18/2021