



Certified to
NSF/ANSI/CAN 61

Cement Mill Test Report

Month of Issue: JANUARY 2022

Plant: **Richmond, British Columbia**
 Product: **Portland Cement Type IL(15) MS**
 Mill Test Report #: **R-TIL-22-01**
 Manufactured: **DECEMBER 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	5.5	
SiO2 (%)	---	19.8	Blaine Fineness (m2/kg) (C 204)	---	410	
Al2O3 (%)	---	4.9	Passing 325 (%) (C 430)	---	98.8	
Fe2O3 (%)	---	3.2	Autoclave expansion (%) (C 151)	[-0.2 - 0.8]	0.06	
CaO (%)	---	63.2	Compressive strength (Mpa [PSI]) (C 109)			
MgO (%)	---	0.8				
SO3 (%)	3.0 max*	2.9				
Loss on ignition @ 950 (%)	10.0 max	3.3				
NaEq (Alkali) (%)	---	0.54				
Insoluble residue (%)	---	0.30				
Adjusted Potential Phase Composition***			3 days	13.0 [1890] min	<u>Mpa</u>	<u>PSI</u>
C3S (%)	---	48	7 days	20.0 [2900] min	29.5	4280
C2S (%)	---	20	28 days (Reflects previous month's data)	25.0 [3620] min	44.6	6470
C3A (%)	---	8	Time of setting (minutes)			
C4AF (%)	---	10	Vicat Initial (C 191)	45-420	82	
			Mortar Bar Expansion (C 1038)*			
			14 days, % max	0.020 max	0.004	
			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

Certified By:

Leila Saidi

Leila Saidi P.Eng
 Quality Supervisor
 1/4/2022

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