

Cement Mill Test Report

Month of Issue: November 2023

Plant: **Richmond, British Columbia**
 Product: **OneCem**
 Mill Test Report #: **R-TIL-23-011**
 Manufactured: **October 2023**

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 (%)	---	18.7	Blaine Fineness (m2/kg) (C 204)	---	446		
Al2O3 (%)	---	4.5	Passing 325 (%) (C 430)	---	99.0		
Fe2O3 (%)	---	3.1	Autoclave expansion (%) (C 151)	[-0.2 - 0.8]	0.02		
CaO (%)	---	62.6	Compressive strength (Mpa [PSI]) (C 109)				
MgO (%)	---	0.9					
SO3 (%)	3.0 max*	2.7					
Loss on ignition @ 950 (%)	10.0 max	6.5					
NaEq (Alkali) (%)	---	0.46					
Insoluble residue (%)	---	0.34					
Inorganic Process Addition (%)		3.9					
Adjusted Potential Phase Composition**							
C3S (%)	---	43	3 days	13.0 min	29.7	4300	
C2S (%)	---	21	7 days	20.0 min	36.9	4350	
C3A (%)	---	7	28 days (Reflects previous month's data)	25.0 min	45.0	6530	
C4AF (%)	---	9					
			Time of setting (minutes)				
			Vicat Initial (C 191)	45-420	105		
			Mortar Bar Expansion (C 1038)*				
			14 days, % max	0.020 max	0.002		
			Cement Density (C186)		3.09		
Sulphat Resistance C1012 (Q2/2023)		0.10 max					
Sulphate Resistance ASTM C-462 (Q2/2023)		0.028					

* 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

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

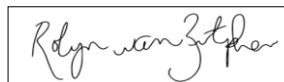
Cement complies with NSF 61

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Certified By:



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 Quality Manager
 11/20/2023