

Cement Mill Test Report

Month of Issue: December 2023

Plant: **Richmond, British Columbia**
 Product: **Portland Cement Type GUL / MSL**
 Mill Test Report #: **R-GUL-23-012**
 Manufactured: **November 2023**

CSA A3001- 18 Standard Requirements

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray			Air content of mortar (%) (C 185)	---	6.0
SiO ₂ (%)	---	18.7	Blaine Fineness (m ² /kg)	---	450
Al ₂ O ₃ (%)	---	4.4	Passing 45 um (%)	72 min	99.3
Fe ₂ O ₃ (%)	---	3.1			
CaO (%)	---	62.9	Compressive strength (MPa)		
MgO (%)	---	0.8	3 days	14.5 min	28.7
SO ₃ (%)	3.0 max*	2.7	7 days	20.0 min	36.5
Loss on ignition @ 950 (%)	10.0 max	6.4	28 days (Reflects previous month's data)	26.5 min	45.4
			Time of setting (minutes)		
Insoluble residue (%)	---	0.34	Vicat Initial	45-375	102
Free Lime (%)	---	1.1	Sulphate Resistance (C8)	0.10	0.092
Inorganic Process Addition (%)		2.9	Sulphate Resistance (C6)	---	0.028
Limestone Content (%)		12.7	Colour (L*)	---	64
Potential Phase Composition**			Cement Density		3.09
C3S (%)	---	72			
C2S (%)	---	21			
C3A (%)	---	6			
C4AF (%)	---	9			

CSA A3001-18 Optional Chemical Requirements:

NaEq (Alkali) (%) 0.45

* May exceed 3.0% SO₃ maximum based on our A3004-C5 results of <0.020% expansion at 14 days.

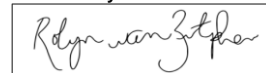
**Corrected by using ASTM Calculation for Limestone Cement

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of applicable specifications for Type GUL / MSL
 CSA A3001-18 STANDARD SPECIFICATIONS FOR TYPE GUL / MSL CEMENT;
 Cement complies with NSF 61

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Certified By:



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 12/13/2023