Cement Mill Test Report

Month of Issue: SEPTEMBER 2022

Plant:	**Richmond, British Columbia**
Product:	**Portland Cement Type GUL \ MSL**
Mill Test Report #	**C-GUL-22-09**
Manufactured:	**AUGUST 2022**

CSA A3001- 18 Standard Requirements

CHEMICAL ANALYSIS

Item	Spec limit	Test Result
Rapid Method, X-Ray		
SiO2 (%)	---	18.4
Al2O3 (%)	---	4.4
Fe2O3 (%)	---	3.0
CaO (%)	---	63.4
MgO (%)	---	0.6
SO3 (%)	3.0 max*	2.8
Loss on ignition @ 950 (%)	10.0 max	6.2
Insoluble residue (%)	---	0.31
Free Lime (%)	---	0.8
Potential Phase Composition		
C3S (%)	---	76
C2S*** (%)	---	16
C3A (%)	---	7
C4AF (%)	---	9

PHYSICAL ANALYSIS

Item	Spec limit	Test Result
Air content of mortar (%) (C 185)	---	5.7
Blaine Fineness (m2/kg)	---	459
Passing 45 um (%)	72 min	99.0
Compressive strength (MPa)		
3 days	14.5 min	30.4
7 days	20.0 min	37.4
28 days (Reflects previous month's data)	26.5 min	46.1
Time of setting (minutes)		
Vicat Initial	45-375	107
Sulphate Resistance (C8)	0.10	0.091
Colour (L*)	---	65
Cement Density		3.09

CSA A3001-18 Optional Chemical Requirements:

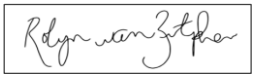
NaEq (Alkali) (%)	0.60 max	0.47

* 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

Certified By:



Robyn van Zutphen
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9/13/2022

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