



Certified to  
NSF/ANSI/CAN 61

## Cement Mill Test Report

Month of Issue: FEBRUARY 2023

Plant: **Richmond, British Columbia**  
 Product: **Portland Cement Type GUL / MSL**  
 Mill Test Report #: **C-GUL-23-02**  
 Manufactured: **JANUARY 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 <sub>2</sub> (%)	---	18.5	Blaine Fineness (m <sup>2</sup> /kg)	---	488
Al <sub>2</sub> O <sub>3</sub> (%)	---	4.5	Passing 45 um (%)	72 min	99.2
Fe <sub>2</sub> O <sub>3</sub> (%)	---	3.0	Compressive strength (MPa)		
CaO (%)	---	62.6	3 days	14.5 min	31.2
MgO (%)	---	0.8	7 days	20.0 min	38.4
SO <sub>3</sub> (%)	3.0 max*	2.8	28 days (Reflects previous month's data)	26.5 min	46.7
Loss on ignition @ 950 (%)	10.0 max	6.3	Time of setting (minutes)		
Insoluble residue (%)	---	0.81	Vicat Initial	45-375	101
Free Lime (%)	---	1.2	Sulphate Resistance (C8)	0.10	0.091
Potential Phase Composition			Colour (L*)	---	64
C3S (%)	---	72	Cement Density		3.09
C2S*** (%)	---	20			
C3A (%)	---	7			
C4AF (%)	---	9			

**CSA A3001-18 Optional Chemical Requirements:**

NaEq (Alkali) (%) **0.60 max** **0.48**

\* May exceed 3.0% SO<sub>3</sub> 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

Western BU - Richmond  
 7611 No 9 Rd Richmond, BC  
 604 244 4300

Questions or enquiries can be directed to Matt Dalkie

Matt Dalkie, P.Eng., LEED AP BD+C  
 Lafarge - Technical Services Engineer  
 7591 #9 Road, Richmond, BC, V6W 0A6 Canada  
 P +1 604 233 9516, C +1 604 328 7793, F +1 604 270 1731  
 E matt.dalkie@lafarge.com

Certified By:

Robyn van Zutphen  
 Quality Supervisor  
 2/6/2023