



Certified to  
NSF/ANSI/CAN 61

## Cement Mill Test Report

Month of Issue: FEBRUARY 2023

Plant: **Richmond, British Columbia**  
 Product: **Portland Cement Type GU / MS**  
 Mill Test Report #: **C-GU-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)	---	6.5	
SiO <sub>2</sub> (%)	---	20.3	Blaine Fineness (m <sup>2</sup> /kg)	---	405	
Al <sub>2</sub> O <sub>3</sub> (%)	---	4.8	Passing 45 um (%) (C 430)	72 min	98.5	
Fe <sub>2</sub> O <sub>3</sub> (%)	---	3.3	Compressive strength (Mpa)			
CaO (%)	---	63.5		3 days	14.5 min	28.2
MgO (%)	5.0 max	0.8		7 days	20.0 min	37.3
SO <sub>3</sub> (%)	3.0 max*	3.1		28 days (Reflects previous month's data)	26.5 min	48.3
Loss on ignition @ 950 (%)	3.5 max	2.6	Time of setting (minutes)			
Loss on ignition @ 550 (%)	3.0 max	0.9		Vicat Initial (C 191)	45 - 375	100
Insoluble residue (%)	1.5 Max	0.6	Colour (L*)		62	
Potential Phase Composition			Mortar Bar Expansion C5 (%) **	0.020 max	-0.001	
C3S (%)	---	58	Mortar Bar Resistance C6 (%) **	0.050 max	0.034	
C2S (%)	---	14				
C3A (%)	8	7				
C4AF (%)	---	10				
CSA A3001-18 Optimal Chemical Requirements						
NaEq (Alkali) (%)	0.60 max	0.51				

\* May exceed 3.0% SO<sub>3</sub> maximum based on our A3004-C5 results of <0.02% expansion at 14 days

\*\* Current Production run not available - most recent provided

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of applicable specifications for Type GU & Type MS  
 CSA A3001-18 STANDARD SPECIFICATIONS FOR TYPE GU / MS CEMENT;  
 CSA A3001-18 OPTIONAL CHEMICAL REQUIREMENTS FOR TYPES GU / MS LOW ALKALI CEMENT.  
 Cement complies with NSF 61

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Certified By:

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 2/6/2023