



Certified to
NSF/ANSI/CAN 61

Cement Mill Test Report

Month of Issue: MARCH 2021

Plant: **Richmond, British Columbia**
 Product: **Portland Cement Type GU / MS**
 Mill Test Report #: **C-GU-21-03**
 Manufactured: **FEBRUARY 2021**

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)	---	5.6
SiO ₂ (%)	---	20.6	Blaine Fineness (m ² /kg)	---	487
Al ₂ O ₃ (%)	---	4.9	Passing 45 um (%) (C 430)	72 min	98.4
Fe ₂ O ₃ (%)	---	3.3	Autoclave expansion (%)	1.0 max	0.02
CaO (%)	---	63.7	Compressive strength (Mpa)		
MgO (%)	5.0 max	1.1	3 days	14.5 min	30.5
SO ₃ (%)	3.0 max*	3.1	7 days	20.0 min	37.2
Loss on ignition @ 950 (%)	3.5 max	2.5	28 days (Reflects previous month's data)	26.5 min	43.9
Loss on ignition @ 550 (%)	3.0 max	0.9	Time of setting (minutes)		
Insoluble residue (%)	1.5 Max	0.1	Vicat Initial (C 191)	45 - 375	96
Potential Phase Composition			Colour (L*)		59
C3S (%)	---	49	Mortar Bar Expansion C5 (%) **	0.020 max	0.008
C2S (%)	---	22	Mortar Bar Resistance C6 (%) **	0.050 max	0.031
C3A (%)	8	7			
C4AF (%)	---	10			

CSA A3001-18 Optimal Chemical Requirements

NaEq (Alkali) (%) 0.60 max 0.55

* May exceed 3.0% SO₃ 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

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@lafargeholcim.com

Certified By:

Harold Ptachyk B.Sc., PChem
 Quality Manager
 3/3/2021