



Certified to  
NSF/ANSI/CAN 61

## Cement Mill Test Report

Month of Issue: JUNE 2023

Plant: **Richmond, British Columbia**  
 Product: **Portland Cement Type I/II**  
 Mill Test Report #: **R-TI-23-06**  
 Manufactured: **MAY 2023**

### ASTM C 150-21 and AASHTO M 85-21 Standard Requirements

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS			
Item	Spec limit	Test Result	Item	Spec limit	Test Result	
Rapid Method, X-Ray (C 114)			Air content of mortar (%) (C 185)	12 max	6.6	
SiO <sub>2</sub> (%)	---	20.3	Blaine Fineness (m <sup>2</sup> /kg) (C 204)***	260 - 430	397	
Al <sub>2</sub> O <sub>3</sub> (%)	6.0 max	5.0	Passing 45 um (%) (C 430)	72 min	98.6	
Fe <sub>2</sub> O <sub>3</sub> (%)	6.0 max	3.3	Autoclave expansion (%) (C 151)	0.80 max	0.05	
CaO (%)	---	63.9	Compressive strength (MPa, [PSI]) (C 109)			
MgO (%)	6.0 max	0.8				
SO <sub>3</sub> (%)	3.0 max*	3.1				
Loss on ignition (%)	3.5 max	2.5				
Insoluble residue (%)	1.5 max	0.6				
CO <sub>2</sub> (%)	---	1.7				
Limestone (%)	5.0 max	4.0				
CaCO <sub>3</sub> in Limestone (%)	70 min	98				
Adjusted Potential Phase Composition (C 150)						
C <sub>3</sub> S (%)	---	59	3 days	12.0 [1740] min	28.4	4110
C <sub>2</sub> S (%)	---	14	7 days	19.0 [2760] min	37.1	5390
C <sub>3</sub> A (%)	8 max	8	28 days (Reflects previous month's data)	28.0 [4060] min	49.1	7120
C <sub>4</sub> AF (%)	---	10	Time of setting (minutes)			
C <sub>3</sub> S+4.75*C <sub>3</sub> A (%)	100 max	95	Vicat Initial (C 191)	45 - 375	98	
			False Set (%) (C451)	50 min	94	
			Heat of Hydration (C186)** - 28 day (KJ/Kg)		399	
			Colour (L*)		62.2	
			Mortar Bar Expansion (%) (C 1038)**	0.020 max	-0.001	

#### ASTM C 150 and AASHTO M 85 Optional Chemical Requirements:

NaEq (Alkali) (%) 0.60 max 0.48

\* May exceed 3.0% SO<sub>3</sub> maximum based on our C 1038 results of <0.02% expansion at 14 days.

\*\* Current Production run not available - most recent provided, \*\*\* Maximum Blaine can be exceeded if C<sub>3</sub>S + 4.75\*C<sub>3</sub>A(%) meets limit

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of applicable DOT Specifications for Type I and Type II;

ASTM C 150-21 & AASHTO M 85-21 STANDARD SPECIFICATIONS FOR TYPE I AND TYPE II CEMENT;

ASTM C 150-21 & AASHTO M 85-21 OPTIONAL CHEMICAL REQUIREMENTS FOR TYPES I & II LOW ALKALI CEMENT.

Cement complies with NSF 61

Certified By:

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