LAFARGE CEMENT

NSF Certified to NSF/ANSI/CAN 61

Cement Mill Test Report

Month of Issue: NOVEMBER 2021

Plant:	**Richmond, British Columbia**
Product:	**Portland Cement Type I/II**
Mill Test Report #	**R-TI-21-11**
Manufactured:	**OCTOBER 2021**

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

CHEMICAL ANALYSIS

Item	Spec limit	Test Result
Rapid Method, X-Ray (C 114)		
SiO2 (%)	---	20.5
Al2O3 (%)	6.0 max	5.0
Fe2O3 (%)	6.0 max	3.3
CaO (%)	---	63.4
MgO (%)	6.0 max	0.8
SO3 (%)	3.0 max*	3.1
Loss on ignition (%)	3.5 max	2.3
Insoluble residue (%)	1.5 max	0.3
CO2 (%)	---	1.4
Limestone (%)	5.0 max	3.2
CaCO3 in Limestone (%)	70 min	97
Adjusted Potential Phase Composition (C 150)		
C3S (%)	---	49
C2S (%)	---	22
C3A (%)	8 max	8
C4AF (%)	---	10
C3S+4.75*C3A (%)	100 max	85

PHYSICAL ANALYSIS

Item	Spec limit	Test Result	
Air content of mortar (%) (C 185)	12 max	5.8	
Blaine Fineness (m2/kg) (C 204)***	260 - 430	393	
Passing 45 um (%) (C 430)	72 min	98.8	
Autoclave expansion (%) (C 151)	0.80 max	0.05	
Compressive strength (MPa, [PSI]) (C 109)			
		Mpa	PSI
3 days	12.0 [1740] min	28.0	4060
7 days	19.0 [2760] min	35.5	5140
28 days (Reflects previous month's data)	28.0 [4060] min	46.1	6680
Time of setting (minutes)			
Vicat Initial (C 191)	45 - 375	86	
False Set (%) (C451)	50 min	96	
Heat of Hydration (C186)** - 28 day (Kj/Kg)		399	
Colour (L*)		57	
Mortar Bar Expansion (%) (C 1038)**	0.020 max	0.002	

ASTM C 150 and AASHTO M 85 Optional Chemical Requirements:

NaEq (Alkali) (%)	0.60 max	0.58

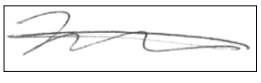
* May exceed 3.0% SO3 maximum based on our C 1038 results of <0.02% expansion at 14 days.

** Current Production run not available - most recent provided, *** Maximum Blaine can be exceeded if C3S + 4.75*C3A(%) meets limit

Note: Specific gravity for Portland cement is considered to be 3.15

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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11/1/2021

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