LAFARGE CEMENT

NSF Certified to NSF/ANSI/CAN 61

Cement Mill Test Report

Month of Issue: APRIL 2023

Plant:	**Richmond, British Columbia**
Product:	**Portland Cement Type I/II**
Mill Test Report #	**R-TI-23-04**
Manufactured:	**MARCH 2023**

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 (%)	---	20.6
Al2O3 (%)	6.0 max	4.9
Fe2O3 (%)	6.0 max	3.4
CaO (%)	---	64.4
MgO (%)	6.0 max	0.8
SO3 (%)	3.0 max*	2.8
Loss on ignition (%)	3.5 max	2.3
Insoluble residue (%)	1.5 max	0.7
CO2 (%)	---	1.3
Limestone (%)	5.0 max	3.1
CaCO3 in Limestone (%)	70 min	98
Adjusted Potential Phase Composition (C 150)		
C3S (%)	---	53
C2S (%)	---	19
C3A (%)	8 max	7
C4AF (%)	---	10
C3S+4.75*C3A (%)	100 max	88

PHYSICAL ANALYSIS

Item	Spec limit	Test Result	
Air content of mortar (%) (C 185)	12 max	6.7	
Blaine Fineness (m2/kg) (C 204)***	260 - 430	437	
Passing 45 um (%) (C 430)	72 min	99.2	
Autoclave expansion (%) (C 151)	0.80 max	0.03	
Compressive strength (MPa, [PSI]) (C 109)			
		Mpa	PSI
3 days	12.0 [1740] min	32.0	4640
7 days	19.0 [2760] min	41.4	6000
28 days (Reflects previous month's data)	28.0 [4060] min	49.7	7210
Time of setting (minutes)			
Vicat Initial (C 191)	45 - 375	78	
False Set (%) (C451)	50 min	86	
Heat of Hydration (C186)** - 28 day (Kj/Kg)		399	
Colour (L*)		62.515	
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	0.54

* 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

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:

Robyn van Zutphen

Robyn van Zutphen
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4/3/2023

Questions or enquiries can be directed to Rob Shogren

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