



Cement Mill Test Report

Date of Issue: October 13, 2023

Plant: Exshaw, AB
 Product: Portland Cement Type III
 Mill Test Report Number: MTR-III-2023-09
 Manufactured during the month of: September 2023

ASTM C 150-22 and AASHTO M 85-22 Standard Requirements

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray (C114)			Air content of mortar (%) (C185)		
SiO ₂ (%)	---	19.1		12 max	6
Al ₂ O ₃ (%)	---	3.9	Blaine Fineness (m²/kg) (C204)		
Fe ₂ O ₃ (%)	---	3.5		---	541
CaO (%)	---	61.6	Passing 45 µm (%) (C430)		
MgO (%)	6.0 max	4.7		---	99.2
SO ₃ (%) **	3.5 max	3.3	Autoclave Expansion (%) (C151)*		
Loss on Ignition (%)	3.5 max	2.7		0.80 max	0.15
Insoluble Residue (%)	1.5 max	0.3	Compressive strength (MPa, [psi]) (C109)		
CO ₂ (%)	---	1.8	1 day	12.0 [1740] min	21.6 [3128]
Limestone (%)	5.0 max	4.2	3 days	24.0 [3480] min	31.9 [4630]
CaCO ₃ in Limestone (%)	70 min	96.0	28 days (Previous Month Results)		51.7 [7501]
Inorganic Process Addition (Lafarge Cement Kiln Dust)	5.0 max		Time of setting (minutes)		
Adjusted Potential Phase Composition (C150)			Vicat Initial (C191)	45 - 375	60
C ₃ S (%)	---	57	Mortar Bar Expansion (%) (C1038) *		
C ₂ S (%)	---	12		0.020 max	0.013
C ₃ A (%)	15 max	4			
C ₄ AF (%)	---	11			

ASTM C 150-22 and AASHTO M 85-22 Optional Chemical Requirements:

NaEq (%) Weekly Averages:	Week 1 0.55	Week 2	Week 3 0.58	Week 4 0.53	Max 0.60
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* Latest available result.

** May exceed 3.0% SO₃ maximum based on C1038 results of <0.020% expansion at 14 days.

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of ASTM C 150-22 & AASHTO M 85-22 STANDARD SPECIFICATIONS FOR TYPE III CEMENT; and ASTM C 150-22 & AASHTO M 85-22 OPTIONAL CHEMICAL REQUIREMENTS FOR TYPE III LOW ALKALI CEMENT.

Western Canada BU - Exshaw Plant
 P.O. Box 160, Highway 1A, Exshaw AB, T0L 2C0
 Phone: 403-673-3815

Certified By:


 John W Blair
 Quality Manager



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Additional Data

Item	Test Result	
	Limestone	Inorganic Process Addition Lafarge Cement Kiln Dust
Amount (%)	4.2	-
SiO ₂ (%)	2.1	n/a
Al ₂ O ₃ (%)	0.7	n/a
Fe ₂ O ₃ (%)	0.3	n/a
CaO (%)	48.7	n/a
SO ₃ (%)	0.2	n/a
CO ₂ (%)	42.2	n/a

Base Cement Phase Composition

Item	Test Result
C ₃ S (%)	59
C ₂ S (%)	12
C ₃ A (%)	5
C ₄ AF (%)	11

We certify that the data above reflects the materials used in cement manufacture during the production period indicated.

Note: Specific Gravity for Portland Cements is 3.15

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