



Cement Mill Test Report

Date of Issue: March 20, 2024

Plant: Exshaw AB
 Product: Portland Cement Type I/II/V
 Mill Test Report Number: MTR-I/II/V-2024-2
 Manufactured during the month of: February 2024

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)	12 max	6
SiO ₂ (%)	---	19.4	Blaine Fineness (m ² /kg) (C204)	260 min	410
Al ₂ O ₃ (%)	6.0 max	3.8	Passing 45 μm (%) (C430)	---	98.7
Fe ₂ O ₃ (%)	6.0 max	3.6	Compressive strength (MPa, [psi]) (C 109)		
CaO (%)	---	61.7	3 days	12.0 [1740] min	28.3 [4101]
MgO (%)	6.0 max	4.7	7 days	19.0 [2760] min	32.1 [4649]
SO ₃ (%)	2.3 max *	3.1	28 days (Previous Month's Result)		45.3 [6567]
Loss on Ignition (%)	3.5 max	2.8	Time of setting (minutes)		
Insoluble Residue (%)*	1.5 max	0.3	Vicat Initial (C191)	45 - 375	124
CO ₂ (%)	---	1.8	Sulfate Resistance (%) (C452)**	0.040 max	0.023
Limestone (%)	5.0 max	4.3	Mortar Bar Expansion (%) (C1038)**	0.020 max	0.008
CaCO ₃ in Limestone (%)	70 min	96.0			
Inorganic Process Addition (Lafarge Cement Kiln Dust)	5.0 max				
Adjusted Potential Phase Composition (C50)					
C ₃ S (%)	---	56			
C ₂ S (%)	---	13			
C ₃ A (%)	5 max	4			
C ₄ AF (%)	---	11			
C ₄ AF + 2(C ₃ A)	25 max	19			
C ₃ S+4.75*C ₃ A (%)	100 max	75			
ASTM C 150-17 and AASHTO M 85-17 Optional Requirements:					
NaEq (%)	0.60 max	0.58	False set (%) (C451)	50 min	70

* May exceed the SO₃ maximum based on C 1038 results of <0.020% expansion at 14 days.

** Latest available results.

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 TYPES I, II & V CEMENTS; and
 ASTM C 150-22 & AASHTO M 85-22 OPTIONAL CHEMICAL REQUIREMENTS FOR TYPES I, II & V LOW ALKALI CEMENT.

AASHTO Accreditation Exceptions: C430

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 (%)	4.3	-
SiO ₂ (%)	2.0	n/a
Al ₂ O ₃ (%)	0.5	n/a
Fe ₂ O ₃ (%)	0.2	n/a
CaO (%)	49.6	n/a
SO ₃ (%)	0.2	n/a
CO ₂ (%)	42.4	n/a

Base Cement Phase Composition


Item	Test Result
C ₃ S (%)	58
C ₂ S (%)	14
C ₃ A (%)	4
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 3.14

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