



Cement Mill Test Report

Date of Issue: September 25, 2024

Plant: Exshaw AB
 Product: Portland Cement Type I/II
 Mill Test Report Number: ESW_Type I-II 2024-8
 Manufactured during the month of: August 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	5
SiO ₂ (%)	---	19.5	Blaine Fineness (m ² /kg) (C204)	260 min	401
Al ₂ O ₃ (%)	6.0 max	4.1	Passing 45 μm (%) (C430)	---	98.6
Fe ₂ O ₃ (%)	6.0 max	3.4	Compressive strength (MPa, [psi]) (C 109)		
CaO (%)	---	61.9	3 days	12.0 [1740] min	28.6 [4142]
MgO (%)	6.0 max	4.6	7 days	19.0 [2760] min	35.7 [5182]
SO ₃ (%)*	3.0 max *	3.3	28 days (Previous Month's Result)		45.2 [6561]
Loss on Ignition (%)	3.5 max	2.4	Time of setting (minutes)		
Insoluble Residue (%)	1.5 max	0.3	Vicat Initial (C191)	45 - 375	86
CO ₂ (%)	---	1.7	Mortar Bar Expansion (%) (C1038)**	0.020 max	0.010
Limestone (%)	5.0 max	4.0			
CaCO ₃ in Limestone (%)	70 min	97.0			
Inorganic Process Addition (Lafarge Cement Kiln Dust)	5.0 max				
Adjusted Potential Phase Composition (C50)					
C ₃ S (%)	---	55			
C ₂ S (%)	---	14			
C ₃ A (%)	8 max	5			
C ₄ AF (%)	---	10			
C ₃ S+4.75*C ₃ A (%)	100 max	79			

ASTM C 150-17 and AASHTO M 85-17 Optional Requirements:

Na ₂ O _{eq}	0.60 max	0.53	False set (%) (C451)	50 min	85
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* 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 CEMENTS; and

ASTM C 150-22 & AASHTO M 85-22 OPTIONAL CHEMICAL REQUIREMENTS FOR TYPES I / II LOW ALKALI CEMENT.

AASHTO Accrediation 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



Certified to
NSF/ANSI/CAN 61



AASHTO
ACCREDITED



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Additional Data

Item	Test Result	
	Limestone	Inorganic Process Addition Lafarge Cement Kiln Dust
Amount (%)	4.0	-
SiO ₂ (%)	2.6	n/a
Al ₂ O ₃ (%)	0.6	n/a
Fe ₂ O ₃ (%)	0.2	n/a
CaO (%)	48.4	n/a
SO ₃ (%)	0.1	n/a
CO ₂ (%)	42.4	n/a

Base Cement Phase Composition

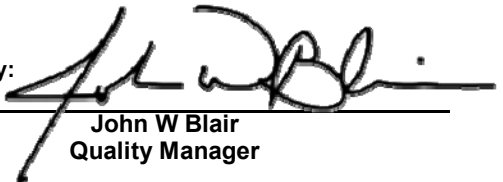
Item	Test Result
C ₃ S (%)	58
C ₂ S (%)	15
C ₃ A (%)	5
C ₄ AF (%)	11

Specific Gravity: 3.15 For information purposes only.

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

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