



Cement Mill Test Report

Date of Issue: November 10, 2023

Plant: Exshaw, AB
 Product: Portland Cement Type III
 Mill Test Report Number: MTR-III-2023-09
 Manufactured during the month of: October 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 (%)	---	19.2		12 max	7
Al ₂ O ₃ (%)	---	3.9	Blaine Fineness (m²/kg) (C204)		
Fe ₂ O ₃ (%)	---	3.6		---	515
CaO (%)	---	61.8	Passing 45 μm (%) (C430)		
MgO (%)	6.0 max	4.7		---	99.5
SO ₃ (%) **	3.5 max	3.3	Autoclave Expansion (%) (C151)*		
Loss on Ignition (%)	3.5 max	2.6		0.80 max	
Insoluble Residue (%)	1.5 max	0.4	Compressive strength (MPa, [psi]) (C109)		
CO ₂ (%)	---	1.9	1 day	12.0 [1740] min	23.3 [3374]
Limestone (%)	5.0 max	4.4	3 days	24.0 [3480] min	35.4 [5126]
CaCO ₃ in Limestone (%)	70 min	96.0	28 days (Previous Month Results)		46.7 [6769]
Inorganic Process Addition (Lafarge Cement Kiln Dust)	5.0 max		Time of setting (minutes)		
Adjusted Potential Phase Composition (C150)			Vicat Initial (C191)		
C ₃ S (%)	---	57		45 - 375	63
C ₂ S (%)	---	12	Mortar Bar Expansion (%) (C1038) *		
C ₃ A (%)	15 max	4		0.020 max	0.013
C ₄ AF (%)	---	11			

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

NaEq (%) Weekly Averages:	Week 1 0.54	Week 2 0.57	Week 3 0.57	Week 4 0.58	Max 0.60
----------------------------------	--------------------	--------------------	--------------------	--------------------	-----------------

* 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



Certified to
 NSF/ANSI/CAN 61



AASHTO
 ACCREDITED



Cement Mill Test Report

Date of Issue: November 10, 2023

Plant: Exshaw, AB
Product: Portland Cement Type III
Mill Test Report Number: MTR-III-2023-09
Manufactured: October 2023

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

Additional Data

Item	Test Result	
	Limestone	Inorganic Process Addition Lafarge Cement Kiln Dust
Amount (%)	4.4	-
SiO ₂ (%)	2.0	n/a
Al ₂ O ₃ (%)	0.6	n/a
Fe ₂ O ₃ (%)	0.2	n/a
CaO (%)	49.8	n/a
SO ₃ (%)	0.1	n/a
CO ₂ (%)	42.3	n/a

Base Cement Phase Composition

Item	Test Result
C ₃ S (%)	60
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

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