



Cement Mill Test Report

Date of Issue: July 7, 2023

Plant: Exshaw, AB
 Product: Portland Cement Type III
 Mill Test Report Number: MTR-III-2023-06
 Manufactured: June 1 - 30, 2023

ASTM C 150-20 and AASHTO M 85-18 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)	---	581
Al ₂ O ₃ (%)	---	3.9	Passing 45 μm (%) (C430)	---	99.0
Fe ₂ O ₃ (%)	---	3.6	Autoclave Expansion (%) (C151)**	0.80 max	0.17
CaO (%)	---	62.3	Compressive strength (MPa, [psi]) (C109)		
MgO (%)	6.0 max	4.8	1 day	12.0 [1740] min	26.1 [3785]
SO ₃ (%)	3.5 max	3.4	3 days	24.0 [3480] min	36.6 [5300]
Loss on Ignition (%)	3.5 max	2.6	28 days (Previous Month Results)		51.5 [7470]
Insoluble Residue (%)**	1.5 max		Time of setting (minutes)		
CO ₂ (%)	---	1.9	Vicat Initial (C191)	45 - 375	72
Limestone (%) (ASTM C150 A2)	5.0 max	4.5	Mortar Bar Expansion (%) (C5)*	0.020 max	0.007
CaCO ₃ in Limestone (%)	70 min	96.0			
Inorganic Process Addition (Lafarge Cement Kiln Dust)	5.0 max				
Adjusted Potential Phase Composition (C150)					
C ₃ S (%)	---	61			
C ₂ S (%)	---	8			
C ₃ A (%)	15 max	4			
C ₄ AF (%)	---	10			
ASTM C 150-17 and AASHTO M 85-17 Optional Chemical Requirements:					
NaEq (%)	0.56	0.60 max			

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of ASTM C 150-20 & AASHTO M 85-18 STANDARD SPECIFICATIONS FOR TYPE III CEMENT; and ASTM C 150-20 & AASHTO M 85-18 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 (%)	4.5	-
SiO ₂ (%)	1.6	n/a
Al ₂ O ₃ (%)	0.5	n/a
Fe ₂ O ₃ (%)	0.2	n/a
CaO (%)	49.9	n/a
SO ₃ (%)	0.2	n/a
CO ₂ (%)	42.4	n/a

Base Cement Phase Composition

Item	Test Result
C ₃ S (%)	42
C ₂ S (%)	12
C ₃ A (%)	3
C ₄ AF (%)	8

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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