



Cement Mill Test Report

Date of Issue: January 11, 2023

Plant: Exshaw, AB
 Product: Portland Cement Type III
 Mill Test Report Number: MTR-III-2022-12
 Manufactured: December 1-31, 2022

ASTM C 150-21 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 (%)	---	19.8	Blaine Fineness (m ² /kg) (C204)	---	594
Al ₂ O ₃ (%)	---	4.0	Passing 45 μm (%) (C430)	---	99.5
Fe ₂ O ₃ (%)	---	3.6	Autoclave Expansion (%) (C151)**	0.80 max	0.15
CaO (%)	---	62.1	Compressive strength (MPa, [psi]) (C109)		
MgO (%)	6.0 max	4.7	1 day	12.0 [1740] min	22.8 [3300]
SO ₃ (%)	3.5 max	3.2	3 days	24.0 [3480] min	33.3 [4830]
Loss on Ignition (%)	3.5 max	2.4	28 days (Reflects previous month's data)		53.6 [7770]
Insoluble Residue (%)*	1.5 max	0.58	Time of setting (minutes)		
CO ₂ (%)	---	1.9	Vicat Initial (C191)	45 - 375	80
Limestone (%)	5.0 max	4.4	Mortar Expansion (%) (C1038)	0.02 max	0.010
CaCO ₃ in Limestone (%)	70 min	90.9			
Inorganic Process Addition (Lafarge Cement Kiln Dust)	5.0 max	-			
Adjusted Potential Phase Composition (C150)					
C ₃ S (%)	---	53			
C ₂ S (%)	---	16			
C ₃ A (%)	15 max	4			
C ₄ AF (%)	---	11			
ASTM C 150-17 and AASHTO M 85-17 Optional Chemical Requirements:					
NaEq (%)	0.60 max	0.58			

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of ASTM C 150-21 & AASHTO M 85-18 STANDARD SPECIFICATIONS FOR TYPE III CEMENT; and ASTM C 150-21 & AASHTO M 85-18 OPTIONAL CHEMICAL REQUIREMENTS FOR TYPE III LOW ALKALI CEMENT.

Certified By:

Lorraine Johnson

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

Lorraine Johnson
 Quality Manager



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Additional Data

Item	Test Result	
	Limestone	Inorganic Process Addition Lafarge Cement Kiln Dust
Amount (%)	4.4	-
SiO ₂ (%)	1.8	n/a
Al ₂ O ₃ (%)	0.7	n/a
Fe ₂ O ₃ (%)	0.2	n/a
CaO (%)	50.9	n/a
SO ₃ (%)	0.2	n/a
CO ₂ (%)	42.0	n/a

Base Cement Phase Composition

Item	Test Result
C ₃ S (%)	56
C ₂ S (%)	17
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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