



Cement Mill Test Report

Date of Issue: March 12, 2021

Plant: Exshaw, AB
 Product: Portland Cement Type III
 Mill Test Report Number: MTR-III-2021-02
 Manufactured: February 2021

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)		
SiO ₂ (%)	---	19.6		12 max	6
Al ₂ O ₃ (%)	---	3.9	Blaine Fineness (m ² /kg) (C204)		
Fe ₂ O ₃ (%)	---	3.6		---	636
CaO (%)	---	62.0	Passing 45 μm (%) (C430)		
MgO (%)	6.0 max	4.7		---	98.8
SO ₃ (%)	3.5 max	3.2	Autoclave Expansion (%) (C151)**		
Loss on Ignition (%)	3.5 max	2.5		0.80 max	0.09
Insoluble Residue (%)**	1.5 max	0.47	Compressive strength (MPa, [psi]) (C109)		
CO ₂ (%)	---	1.8	1 day	12.0 [1740] min	27.8 [4030]
Limestone (%)	5.0 max	4.3	3 days	24.0 [3480] min	35.7 [5180]
CaCO ₃ in Limestone (%)	70 min	95	28 days (Reflects previous month's data)		49.1 [7120]
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 (%)	---	54		45 - 375	71
C ₂ S (%)	---	15			
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	0.57			

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.

Certified By:

Lorraine Richards

Western Canada BU - Exshaw Plant
 P.O. Box 160, Highway 1A, Exshaw AB, T0L 2C0
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Lorraine Richards
 Quality Control Coordinator



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Additional Data

Item	Test Result	
	Limestone	Inorganic Process Addition Lafarge Cement Kiln Dust
Amount (%)	4.3	-
SiO ₂ (%)	1.4	n/a
Al ₂ O ₃ (%)	0.7	n/a
Fe ₂ O ₃ (%)	0.3	n/a
CaO (%)	52.4	n/a
SO ₃ (%)	0.2	n/a
CO ₂ (%)	42	n/a

Base Cement Phase Composition

Item	Test Result
C ₃ S (%)	57
C ₂ S (%)	16
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 3.15

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