



Cement Mill Test Report

Date of Issue: February 15, 2022

Plant: Exshaw, AB
 Product: Portland Limestone Cement Type IL(10) (HS)
 Mill Test Report Number: MTR-IL-2022-01
 Manufactured: January 1-31, 2022

CHEMICAL ANALYSIS

Item	Spec limit	Test Result
Rapid Method, X-Ray (C114)		
SiO ₂ (%)		18.8
Al ₂ O ₃ (%)		3.8
Fe ₂ O ₃ (%)		3.5
CaO (%)		61.4
MgO (%)		4.3
SO ₃ (%)	3.0 max*	3.3
Loss on Ignition @ 950 (%)	10.0 max	4.2
Loss on Ignition @ 550 (%)		0.8
Inorganic Process Addition (Lafarge Cement Kiln Dust)	5.0 max	-
Adjusted Potential Phase Composition (C 150 - For information only)		
C ₃ S (%)	---	51
C ₂ S (%)	---	15
C ₃ A (%)	---	4
C ₄ AF (%)	---	11

PHYSICAL ANALYSIS

Item	Spec limit	Test Result
Blaine Fineness (m ² /kg) (C204)		483
Passing 45 µm (%) (C430)		99.3
Autoclave Expansion (%) (C151)	-0.20 to 0.80	-0.05
Air Content (%) (C186)	12 max	4
Compressive Strength (MPa[psi]) (C109)		
1 day		20.8 [3020]
3 days	13.0 [1890] min	34.9 [5060]
7 days	20.0 [2900] min	40.3 [5840]
28 days (Reflects previous month's data)	25.0 [3620] min	47.1 [6820]
Time of setting (minutes) (C191)		
Vicat Initial	45 min.	119
ASTM C1012 Expansion %, (6 months)***		0.048
Mortar Bar Expansion (%) (C1038)	0.020 max	0.008

NaEq (%) 0.51

* May exceed the SO₃ maximum based on C1038 results of <0.020% expansion at 14 days.

** Most recent result provided

*** Performed by Lafarge Edmonton and/or Seattle Labs

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of ASTM C 595-20 & AASHTO M 240-20 STANDARD SPECIFICATIONS FOR TYPE IL CEMENT.

Prepared By:

Lorraine Richards

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

Lorraine Richards
 Quality Control Coordinator



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Additional Data - For information only.

Item	Test Result	Test Result
	Limestone	Inorganic Process Addition Lafarge Cement Kiln Dust
Amount (%)	8.3	-
SiO ₂ (%)	1.5	n/a
Al ₂ O ₃ (%)	0.7	n/a
Fe ₂ O ₃ (%)	0.3	n/a
CaO (%)	51.5	n/a
SO ₃ (%)	0.2	n/a
CO ₂ (%)	42.4	n/a

Base Cement Phase Composition - C150 - For information only.

Item	Test Result
C ₃ S (%)	56
C ₂ S (%)	16
C ₃ A (%)	4
C ₄ AF (%)	12

Specific Gravity: 3.11

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