



Cement Mill Test Report

Date of Issue: June 10, 2024

Plant: Exshaw AB
 Product: OneCem
 Mill Test Report Number: MTR-IL-2024-5
 Manufactured during the month of: May 2024

CHEMICAL ANALYSIS

Item	Spec limit	Test Result
Rapid Method, X-Ray (C114)		
SiO ₂ (%)		17.2
Al ₂ O ₃ (%)		3.9
Fe ₂ O ₃ (%)		2.8
CaO (%)		60.3
MgO (%)		4.3
SO ₃ (%)	3.0 max*	3.5
K ₂ O (%)		0.54
Na ₂ O (%)		0.15
NaEq (%)		0.51
Loss on Ignition @ 950 (%)	10.0 max	6.7
Loss on Ignition @ 550 (%)		1.0
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 (%)	---	10
C ₃ A (%)	---	5
C ₄ AF (%)	---	8

PHYSICAL ANALYSIS

Item	Spec limit	Test Result
Blaine Fineness (m ² /kg) (C204)		529
Passing 45 µm (%) (C430)		99.5
Air Content (%) (C186)	12 max	6
Compressive Strength (MPa [psi]) (C109)		
1 day		18.7 [2708]
3 days	13.0 [1890] min	30.6 [4443]
7 days	20.0 [2900] min	35.5 [5153]
28 days (<u>Previous Month Results</u>)	25.0 [3620] min	41.5 [6013]
Time of setting (minutes) (C191)		
Vicat Initial	45 min.	81
ASTM C1012 Expansion % ***		
6 Months	0.10 max (MS) 0.05 max (HS)	0.099
12 Months	0.10 max (HS)	Pending
Mortar Bar Expansion (%) (C1038)	0.020 max	0.003

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

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



Certified to NSF/ANSI/CAN 61



AASHTO ACCREDITED

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of ASTM C595/C595M-23 & AASHTO M 240-23 STANDARD SPECIFICATIONS FOR TYPE IL (13) and (HS) CEMENT.

Exceptions: ASTM C430 is not within the current Scope of Accreditation.

Western 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 - For information only.

Item	Test Result	Test Result
	Limestone	Inorganic Process Addition Lafarge Cement Kiln Dust
Amount (%)	13.5	-
SiO ₂ (%)	2.3	n/a
Al ₂ O ₃ (%)	0.6	n/a
Fe ₂ O ₃ (%)	0.2	n/a
CaO (%)	49.5	n/a
SO ₃ (%)	0.1	n/a
CO ₂ (%)	42.3	n/a

Base Cement Phase Composition - C150 - For information only.

Item	Test Result
C ₃ S (%)	58
C ₂ S (%)	12
C ₃ A (%)	6
C ₄ AF (%)	10

Specific Gravity: 3.14 For information purposes only.

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