



Cement Mill Test Report

Date of Issue: December 12, 2023

Plant: Exshaw AB
 Product: OneCem
 Mill Test Report Number: MTR-IL-2023-09
 Manufactured during the month of: November 2023

CHEMICAL ANALYSIS

Item	Spec limit	Test Result
Rapid Method, X-Ray (C114)		
SiO ₂ (%)		17.3
Al ₂ O ₃ (%)		3.6
Fe ₂ O ₃ (%)		3.2
CaO (%)		60.4
MgO (%)		4.5
SO ₃ (%)	3.0 max*	3.3
K ₂ O (%)		0.54
Na ₂ O (%)		0.15
NaEq (%)		0.52
Loss on Ignition @ 950 (%)	10.0 max	6.4
Loss on Ignition @ 550 (%)		0.9
Inorganic Process Addition (Lafarge Cement Kiln Dust)	5.0 max	-
Adjusted Potential Phase Composition (C 150 - For information only)		
C ₃ S (%)	---	52
C ₂ S (%)	---	9
C ₃ A (%)	---	4
C ₄ AF (%)	---	10

PHYSICAL ANALYSIS

Item	Spec limit	Test Result
Blaine Fineness (m ² /kg) (C204)		523
Passing 45 μm (%) (C430)		99.7
Air Content (%) (C186)	12 max	6
Compressive Strength (MPa [psi]) (C109)		
1 day		19.6 [2838]
3 days	13.0 [1890] min	32.1 [4654]
7 days	20.0 [2900] min	36.9 [5357]
28 days (Previous Month Results)	25.0 [3620] min	42.8 [6205]
Time of setting (minutes) (C191)		
Vicat Initial	45 min.	109
ASTM C1012 Expansion %, (6 months)***		0.05
Mortar Bar Expansion (%) (C1038)**	0.020 max	0.012

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

** Current Production run not available - most recent 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 C595/C595M-23 & AASHTO M 240-23 STANDARD SPECIFICATIONS FOR TYPE IL (13) and (HS) CEMENT.

Our laboratory is AASHTO accredited. However, ASTM C1012 and C1038 are 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 to NSF/ANSI/CAN 61



AASHTO ACCREDITED

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 (%)	13.1	-
SiO ₂ (%)	2.0	n/a
Al ₂ O ₃ (%)	0.5	n/a
Fe ₂ O ₃ (%)	0.2	n/a
CaO (%)	50.0	n/a
SO ₃ (%)	0.1	n/a
CO ₂ (%)	42.4	n/a


Base Cement Phase Composition - C150 - For information only.

Item	Test Result
C ₃ S (%)	60
C ₂ S (%)	11
C ₃ A (%)	4
C ₄ AF (%)	11

Specific Gravity: 3.11

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