



# Cement Mill Test Report

Date of Issue: November 10, 2023

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

## CHEMICAL ANALYSIS

Item	Spec limit	Test Result
Rapid Method, X-Ray (C114)		
SiO <sub>2</sub> (%)		17.3
Al <sub>2</sub> O <sub>3</sub> (%)		3.6
Fe <sub>2</sub> O <sub>3</sub> (%)		3.2
CaO (%)		60.3
MgO (%)		4.5
SO <sub>3</sub> (%)	3.0 max*	3.3
K <sub>2</sub> O (%)		0.54
Na <sub>2</sub> O (%)		0.15
NaEq (%)		0.51
Loss on Ignition @ 950 (%)	10.0 max	6.5
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 <sub>3</sub> S (%)	---	49
C <sub>2</sub> S (%)	---	10
C <sub>3</sub> A (%)	---	4
C <sub>4</sub> AF (%)	---	9

## PHYSICAL ANALYSIS

Item	Spec limit	Test Result
Blaine Fineness (m <sup>2</sup> /kg) (C204)		510
Passing 45 µm (%) (C430)		99.6
Autoclave Expansion (%) (C151)**	-0.20 to 0.80	0.16
Air Content (%) (C186)	12 max	6
Compressive Strength (MPa[psi]) (C109)		
1 day		17.1 [2486]
3 days	13.0 [1890] min	30.1 [4361]
7 days	20.0 [2900] min	35.0 [5074]
28 days (Previous Month Results)	25.0 [3620] min	44.3 [6428]
Time of setting (minutes) (C191)		
Vicat Initial	45 min.	113
ASTM C1012 Expansion %, (6 months)***		0.05
Mortar Bar Expansion (%) (C1038)**	0.020 max	0.010

\* May exceed the SO<sub>3</sub> 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 (%)	13.3	-
SiO <sub>2</sub> (%)	2.2	n/a
Al <sub>2</sub> O <sub>3</sub> (%)	0.7	n/a
Fe <sub>2</sub> O <sub>3</sub> (%)	0.2	n/a
CaO (%)	49.4	n/a
SO <sub>3</sub> (%)	0.1	n/a
CO <sub>2</sub> (%)	42.3	n/a


## Base Cement Phase Composition - C150 - For information only.

Item	Test Result
C <sub>3</sub> S (%)	56
C <sub>2</sub> S (%)	11
C <sub>3</sub> A (%)	4
C <sub>4</sub> AF (%)	11

Specific Gravity: 3.11

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