



# Cement Mill Test Report

Date of Issue: September 8, 2023

Plant: Exshaw AB  
 Product: OneCem  
 Mill Test Report Number: MTR-IL-2023-08  
 Manufactured during the month of: August 2023

## CHEMICAL ANALYSIS

Item	Spec limit	Test Result
Rapid Method, X-Ray (C114)		
SiO <sub>2</sub> (%)		17.4
Al <sub>2</sub> O <sub>3</sub> (%)		3.5
Fe <sub>2</sub> O <sub>3</sub> (%)		3.2
CaO (%)		59.7
MgO (%)		4.5
SO <sub>3</sub> (%)	3.0 max*	3.1
K <sub>2</sub> O (%)		0.53
Na <sub>2</sub> O (%)		0.17
NaEq (%)		0.52
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 (%)	---	50
C <sub>2</sub> S (%)	---	12
C <sub>3</sub> A (%)	---	4
C <sub>4</sub> AF (%)	---	10

## PHYSICAL ANALYSIS

Item	Spec limit	Test Result
Blaine Fineness (m <sup>2</sup> /kg) (C204)		495
Passing 45 μm (%) (C430)		99.0
Autoclave Expansion (%) (C151)**	-0.20 to 0.80	0.12
Air Content (%) (C186)	12 max	6
Compressive Strength (MPa[psi]) (C109)		
1 day		17.4 [2516]
3 days	13.0 [1890] min	29.0 [4212]
7 days	20.0 [2900] min	34.3 [4979]
28 days (Previous Month Results)	25.0 [3620] min	43.1 [6244]
Time of setting (minutes) (C191)		
Vicat Initial	45 min.	100
ASTM C1012 Expansion %, (6 months)***		0.05
Mortar Bar Expansion (%) (C1038)**	0.020 max	0.011

\* 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



# Cement Mill Test Report

Date of Issue: September 8, 2023

Plant: Exshaw AB  
Product: OneCem  
Mill Test Report Number: MTR-IL-2023-08  
Manufactured: August 2023

## 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> (%)	1.7	n/a
Al <sub>2</sub> O <sub>3</sub> (%)	0.4	n/a
Fe <sub>2</sub> O <sub>3</sub> (%)	0.2	n/a
CaO (%)	49.1	n/a
SO <sub>3</sub> (%)	0.1	n/a
CO <sub>2</sub> (%)	42.5	n/a

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

Item	Test Result
C <sub>3</sub> S (%)	57
C <sub>2</sub> S (%)	13
C <sub>3</sub> A (%)	4
C <sub>4</sub> AF (%)	11

Specific Gravity: 3.11

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

Certified By:

  
John W Blair  
Quality Manager