



Cement Mill Test Report

Date of Issue: April 12, 2023

Plant: Exshaw, AB
 Product: OneCem
 Mill Test Report Number: MTR-IL-2023-03
 Manufactured: March 1-31, 2023

ASTM C 595-21 and AASHTO M240-20 Standard Requirements

CHEMICAL ANALYSIS

Item	Spec limit	Test Result
Rapid Method, X-Ray (C114)		
SiO ₂ (%)		17.4
Al ₂ O ₃ (%)		3.6
Fe ₂ O ₃ (%)		3.1
CaO (%)		60.5
MgO (%)		4.5
SO ₃ (%)	3.0 max*	3.2
Loss on Ignition @ 950 (%)	10.0 max	6.5
Loss on Ignition @ 550 (%)		0.7
CaCO ₃ in Limestone (%)	70 min	88.6
Inorganic Process Addition	5.0 max	-
Adjusted Potential Phase Composition (C 150 - For information only)		
C ₃ S (%)	---	48
C ₂ S (%)	---	11
C ₃ A (%)	---	4
C ₄ AF (%)	---	9

PHYSICAL ANALYSIS

Item	Spec limit	Test Result
Blaine Fineness (m ² /kg) (C204)		530
Passing 45 µm (%) (C430)		99.5
Autoclave Expansion (%) (C151)*	-0.20 to 0.80	0.13
Air Content (%) (C186)	12 max	5
Compressive Strength (MPa[psi]) (C109)		
1 day		20.3 [2940]
3 days	13.0 [1890] min	31.4 [4550]
7 days	20.0 [2900] min	37.1 [5380]
28 days (Reflects previous month's data)	25.0 [3620] min	42.0 [6100]
Time of setting (minutes) (C191)		
Vicat Initial	45 min.	109
ASTM C1012 Expansion %, (6 months)***		0.048
Mortar Bar Expansion (%) (C1038)*	0.020 max	0.010

NaEq (%) 0.53

* 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 595-21 & AASHTO M 240-20 STANDARD SPECIFICATIONS FOR TYPE IL (13) and (HS) CEMENT.

Our laboratory is AASHTO accredited. Grey highlighted tests are not within current Scope of Accreditation.



AASHTO
ACCREDITED

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Certified to
NSF/ANSI/CAN 61

Prepared By:

Lorraine Johnson

Lorraine Johnson
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 (%)	13.7	-
SiO ₂ (%)	2.0	n/a
Al ₂ O ₃ (%)	0.5	n/a
Fe ₂ O ₃ (%)	0.2	n/a
CaO (%)	49.5	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 (%)	55
C ₂ S (%)	13
C ₃ A (%)	5
C ₄ AF (%)	11

Specific Gravity: 3.11**

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