



# Cement Mill Test Report

Date of Issue: August 08, 2023

Plant: Exshaw, AB  
 Product: Portland Cement Type III  
 Mill Test Report Number: MTR-III-2023-07  
 Manufactured during the month of: July 2023

## ASTM C 150-20 and AASHTO M 85-18 Standard Requirements

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray (C114)			Air content of mortar (%) (C185)	12 max	6
SiO <sub>2</sub> (%)	---	19.4	Blaine Fineness (m <sup>2</sup> /kg) (C204)	---	508
Al <sub>2</sub> O <sub>3</sub> (%)	---	3.9	Passing 45 μm (%) (C430)	---	98.9
Fe <sub>2</sub> O <sub>3</sub> (%)	---	3.5	Autoclave Expansion (%) (C151)**	0.80 max	
CaO (%)	---	61.7	Compressive strength (MPa, [psi]) (C109)		
MgO (%)	6.0 max	4.8	1 day	12.0 [1740] min	24.6 [3570]
SO <sub>3</sub> (%)	3.5 max	3.2	3 days	24.0 [3480] min	37.3 [5402]
Loss on Ignition (%)	3.5 max	2.4	28 days (Previous Month Results)		51.9 [7523]
Insoluble Residue (%)**	1.5 max		Time of setting (minutes)		
CO <sub>2</sub> (%)	---	1.6	Vicat Initial (C191)	45 - 375	79
Limestone (%)	5.0 max	4.1			
CaCO <sub>3</sub> in Limestone (%)	70 min	96.0			
Inorganic Process Addition (Lafarge Cement Kiln Dust)	5.0 max				
Adjusted Potential Phase Composition (C150)					
C <sub>3</sub> S (%)	---	57			
C <sub>2</sub> S (%)	---	12			
C <sub>3</sub> A (%)	15 max	4			
C <sub>4</sub> AF (%)	---	10			

ASTM C 150-17 and AASHTO M 85-17 Optional Chemical Requirements:

NaEq (%) Weekly Averages: 06/26 0.55 07/03 0.55 07/10 0.55 07/17 NA 07/24 0.56 07/31 0.56 Max 0.60

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of ASTM C 150-20 & AASHTO M 85-18 STANDARD SPECIFICATIONS FOR TYPE III CEMENT; and ASTM C 150-20 & AASHTO M 85-18 OPTIONAL CHEMICAL REQUIREMENTS FOR TYPE III LOW ALKALI CEMENT.

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



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### Additional Data

Item	Test Result	
	Limestone	Inorganic Process Addition Lafarge Cement Kiln Dust
Amount (%)	3.9	-
SiO <sub>2</sub> (%)	1.9	n/a
Al <sub>2</sub> O <sub>3</sub> (%)	0.6	n/a
Fe <sub>2</sub> O <sub>3</sub> (%)	0.2	n/a
CaO (%)	50.0	n/a
SO <sub>3</sub> (%)	0.1	n/a
CO <sub>2</sub> (%)	42.2	n/a

### Base Cement Phase Composition

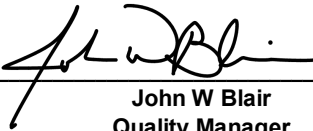
Item	Test Result
C <sub>3</sub> S (%)	60
C <sub>2</sub> S (%)	13
C <sub>3</sub> A (%)	5
C <sub>4</sub> AF (%)	11

We certify that the data above reflects the materials used in cement manufacture during the production period indicated.

Note: Specific Gravity for Portland Cements is 3.15

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