



Cement Mill Test Report

Date of Issue: March 4, 2025

Plant: Exshaw, AB
Product: Portland Cement Type III
Mill Test Report Number: ESW_Type III 2025-02
Manufactured during the month of: February 2025

ASTM C 150-24 and AASHTO M 85-24 Standard Requirements

| CHEMICAL ANALYSIS | | | PHYSICAL ANALYSIS | | |
|---|------------|-------------|---|-----------------|-------------|
| Item | Spec limit | Test Result | Item | Spec limit | Test Result |
| Rapid Method, X-Ray (XRF) (C114) | | | Air content of mortar (%) (C185) | | |
| SiO ₂ (%) | --- | 19.0 | | 12 max | 6 |
| Al ₂ O ₃ (%) | --- | 4.0 | Blaine Fineness (m ² /kg) (C204) | | |
| Fe ₂ O ₃ (%) | --- | 3.3 | | --- | 477 |
| CaO (%) | --- | 61.5 | Passing 45 µm (%) (C430) | | |
| MgO (%) | 6.0 max | 4.7 | | --- | 99.1 |
| SO ₃ (%) ** | 3.5 max | 3.4 | Compressive strength (MPa, [psi]) (C109) | | |
| Loss on Ignition (%) | 3.5 max | 2.5 | 1 day | 12.0 [1740] min | 20.9 [3028] |
| Insoluble Residue (%) | 1.5 max | 0.3 | 3 days | 24.0 [3480] min | 32.8 [4760] |
| CO ₂ (%) | --- | 1.9 | 28 days (Previous Month's Result) | | 47.5 [6887] |
| Limestone (%) | 5.0 max | 4.4 | Time of setting (minutes) | | |
| CaCO ₃ in Limestone (%) | 70 min | 97.0 | Vicat Initial (C191) | 45 - 375 | 85 |
| Inorganic Process Addition (Lafarge Cement Kiln Dust) | 5.0 max | 0.4 | Mortar Bar Expansion (%) (C1038) | | |
| Adjusted Potential Phase Composition (C150) | | | | 0.020 max | 0.012 |
| C ₃ S (%) | --- | 57 | | | |
| C ₂ S (%) | --- | 11 | | | |
| C ₃ A (%) | 15 max | 5 | | | |
| C ₄ AF (%) | --- | 10 | | | |

ASTM C 150-24 and AASHTO M 85-24 Optional Chemical Requirements:

Na₂Oeq (%) Weekly Averages: Week 1 0.56 Week 2 0.50 Week 3 0.53 Week 4 0.59 Max 0.60

** May exceed 3.0% SO₃ maximum based on C1038 results of <0.020% expansion at 14 days.

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of:

ASTM C 150-24 & AASHTO M 85-24 STANDARD SPECIFICATIONS FOR TYPE III CEMENT; and
ASTM C 150-24 & AASHTO M 85-24 OPTIONAL CHEMICAL REQUIREMENTS FOR TYPE III LOW ALKALI CEMENT.

Exceptions: C430 is excluded from the scope of the AASHTO accreditation.

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 (%) | 4.4 | -- |
| SiO ₂ (%) | 2.4 | 13.0 |
| Al ₂ O ₃ (%) | 0.5 | 3.5 |
| Fe ₂ O ₃ (%) | 0.3 | 1.8 |
| CaO (%) | 48.8 | 46.0 |
| SO ₃ (%) | 0.1 | 2.8 |
| CO ₂ (%) | 42.4 | n/a |

Base Cement Phase Composition

| Item | Test Result |
|-----------------------|-------------|
| C ₃ S (%) | 60 |
| C ₂ S (%) | 12 |
| C ₃ A (%) | 5 |
| C ₄ AF (%) | 11 |

Specific Gravity (For Information Purposes Only) 3.15

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

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