



Cement Mill Test Report

Date of Issue: March 13, 2023

Plant: Exshaw, AB
 Product: Portland Cement Type HE
 Manufactured: February 1-28, 2023

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray					
SiO ₂ (%)	---	19.2	Blaine Fineness (m ² /kg)	---	524
Al ₂ O ₃ (%)	---	4.0	Retained 45 um (%)	---	0.5
Fe ₂ O ₃ (%)	---	3.5	Autoclave expansion (%)*	1.0 max	0.13
CaO (%)	---	61.9	Compressive strength (MPa)		
MgO (%)	5.0 max	4.7	1 day	13.5 min	26.3
SO ₃ (%)	3.5 max **	3.3	3 day	24.0 min	36.8
Loss on ignition @ 950 (%)	3.0 (3.5) max ***	2.4	28 day (January 2023 Results)	---	52.1
Loss on ignition @ 550(%)	3.0 max	0.6	Time of setting (minutes)		
Insoluble residue (%)*	1.5 max	0.4	Vicat Initial	45 - 375	79
Inorganic Process Addition (Cement Kiln Dust)	5.0 max	-	Mortar Bar Expansion (%) (C ₅)*	0.020 max	0.010
Potential Phase Composition			Colour (For Information Purposes Only)		31
C ₃ S (%)	---	65			
C ₂ S (%)	---	6			
C ₃ A (%)	---	5			
C ₄ AF (%)	---	11			
Other Chemical Information:					
NaEq (%)		0.56			

* Latest available value

** May exceed 3.5% SO₃ maximum based on our A3004-C5 results of <0.020% expansion at 14 days.

*** May exceed 3.0% LOI maximum based on our LOI at 550C <3.0%.

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of the applicable specification for Type HE.

CSA A3001-18 STANDARD SPECIFICATIONS FOR TYPE HE CEMENT.



Certified to
NSF/ANSI/CAN 61

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Certified By:

Lorraine Johnson

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