



Cement Mill Test Report

Date of Re-issue: April 12, 2023

Plant: Exshaw, AB
 Product: Portland Limestone Cement - Type GUL
 Manufactured: March 1-31, 2023

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray					
SiO ₂ (%)	---	17.4	Blaine Fineness (m ² /kg)	---	530
Al ₂ O ₃ (%)	---	3.6	Retained 45 um (%)	28 max	0.8
Fe ₂ O ₃ (%)	---	3.1	Autoclave expansion (%)*	1.0 max	0.13
CaO (%)	---	60.5	Compressive strength (MPa)		
MgO (%)	---	4.5	1 Day		20.3
SO ₃ (%)	3.0 max **	3.2	3 day	14.5 min	31.4
Loss on ignition @ 950 (%)	10.0 max	6.5	7 day	20.0 min	37.1
Loss on ignition @ 550(%)		0.7	28 day (February 2023 Results)	26.5 min	42.0
Insoluble residue (%)*	1.5 max	0.58	Time of setting (minutes)		
Specific Gravity		3.11	Vicat Initial	45 - 375	109
Limestone Addition		13.7	Mortar Bar Expansion (%) (C5)*	0.020 max	0.010
<i>Clinker chemistry used in the manufacture of above Type GUL.</i>			Colour (For Information Purposes Only)		33
<i>(For information purposes only.)</i>					
C ₃ S (%)	---	67.1			
C ₂ S (%)	---	9.7			
C ₃ A (%)	---	5.0			
C ₄ AF (%)	---	11.7			

Other Chemical Information:

NaEq (%) Weekly Average Wk1 0.52 Wk2 0.54 Wk3 0.54 Wk4 0.52

* Latest available value

** May exceed 3.0% SO₃ maximum based on A3004-C5 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 the applicable specification for Type GUL.

CSA A3001-18 STANDARD SPECIFICATIONS FOR TYPE GUL CEMENT.



Certified to NSF/ANSI/CAN 61

Certified By: *Lorraine Johnson*

Lorraine Johnson
Quality Manager

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