



# Cement Mill Test Report

Date of Issue: January 12, 2022

Plant: Exshaw AB  
 Product: Portland Cement Type HSL  
 Manufactured: December 1-31, 2021

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray					
SiO2 (%)	---	18.6	Blaine Fineness (m2/kg)	---	489
Al2O3 (%)	---	3.8	Retained 45 um (%)	24 max	0.6
Fe2O3 (%)	---	3.5	Autoclave expansion (%)	1.0 max	0.05
CaO (%)	---	61.4	Compressive strength (MPa)		
MgO (%)	---	4.3	1 Day		23.7
SO3 (%)	3.0 max **	3.2	3 day	14.5 min	35.7
Loss on ignition @ 950 (%)	10.0 max	4.7	7 day	20.0 min	40.5
Loss on ignition @ 550(%)		0.8	28 day (November 2021 Results)	26.5 min	42.8
Insoluble residue (%)	1.5 max	0.36	Time of setting (minutes)		
Specific Gravity		3.11	Vicat Initial	60- 480	112
Limestone Addition		9.5	Mortar Bar Expansion (%) (C5)*	0.020 max	0.005
<i>Clinker chemistry used in the manufacture of above Type HSL. (For information purposes only.)</i>			Sulphate Resistance (%) (C8)	0.05 max	0.03
C3S (%)	---	62.2	Colour (For Information Purposes Only)		33
C2S (%)	---	14.9			
C3A (%)	---	4.6			
C4AF (%)	---	12.2			

**Other Chemical Information:**

NaEq (%) Weekly Averages

Week Ending: 12/04 0.50 12/11 0.53 12/18 0.51 12/25 0.53

\* 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 HSL.

CSA A3001-18 STANDARD SPECIFICATIONS FOR TYPE HSL CEMENT.

Certified By: *Lorraine Richards*

Quality Control Coordinator

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