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Cement Mill Certificate of Analysis

Alaska Basic Industries hereby certify that cement represented by this analysis complies with the current requirements for Type I and Type II of ASTM C150-11 specifications, and AASHTO M85-11.

Portland Cement: Type III Low Alkali

Date Shipped: March 31, 2022

Meets: ASTM C150-11 AASHTO M85-18

Lot # / Ship: #00003222022 MV ISHIZUCHI Star

<u>Chemical Composition:</u>	<u>Results:</u>	<u>Type III Requirements</u>
Silicon Dioxide (SiO ₂):	19.8%	---
Aluminum Oxide (Al ₂ O ₃): %Max	4.7%	---
Ferric Oxide (Fe ₂ O ₃):% Max	3.2%	---
Calcium Oxide (CaO):	62.3%	---
Magnesium Oxide (MgO): % Max	4.0%	6.0%
Sulfur Trioxide (SO ₃):% Max	3.2%	3.5%
Loss On Ignition% Max:	1.3%	3.0%
Insoluble Residue:% Max	0.49%	0.75%
Tricalcium Silicate (C ₃ S):	57	--
Dicalcium Silicate (C ₂ S):	14	--
Tricalcium Aluminate (C ₃ A):% Max	7.1%	15.0%
Tetracalcium Aluminoferrite (C ₄ AF):	9.70%	--
Total Alkali as NaEq:% Max	0.54%	0.60%
Limestone, 5 % max	0.9%	5.0%
CaCO ₃ in Limestone, 70% min	85%	70%

Physical Properties:

Blaine (min m ² /kg.):	558	260
Vicat, Initial Set (mins.) N Min	110	45
Vicat, Final Set (mins.): Max	225	375
Autoclave Expansion:% Max	0.07%	0.80%
False Set:	79%	--
Air Content (% Max by vol.):	4.10%	12.00%

Mortar Cube Breaks:

Compressive Strength (PSI):		
1 Day	2930	1740
3 Days	4822	3480
7 Days	5703	-

Notes

1. Test Results: This mill test represents typical data.
2. The percent of Limestone is slowly being increased, which has no effect on the performance of concrete
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Patrick Walter

Type III

Quality Assurance & Lab Manager
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Terminals in
Anchorage • Fairbanks