

Alpha Resources, Inc.

Certificate Of Analysis

AR1517

PORTLAND CEMENT STANDARD

LOT #1517

CONSTITUENT	PERCENT BY WEIGHT
CALCIUM OXIDE	60.80
SILICA	20.20
IRON OXIDE	3.28
ALUMINA	4.83
MAGNESIUM OXIDE	3.98
SULFUR OXIDE	2.60
SODIUM OXIDE	0.25
POTASSIUM OXIDE	0.89
TITANIUM OXIDE	0.26
LOSS ON IGNITION	2.70

Notes

Wet chemical gravimetric methods were used for the major constituents, Calcium oxide, Silica, Alumina, and magnesium oxide. The methods were those of ASTM C114 using a half gram sample size. Iron oxide was determined by dichromate titration and Sulfur trioxide by Barium Sulfate precipitation in an acid solution. Atomic absorption techniques were used to determine Titanium oxide. Loss on ignition was determined at 1000 degrees Celsius.

The overall direction, coordination and statistical analysis leading to certification were performed by D.M. Reasons at Alpha Resources.

Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event shall Alpha Resources be liable for incidental or consequential damages.

This is a certified reference material (CRM) and should be verified, prior to use, against a primary standard material provided by a governing agency such as N.I.S.T., when available.

Certified November, 1986



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