

Alpha Resources, Inc.

Certificate Of Analysis

AR 948

CARBON STEEL CHIP STANDARD

LOT # 102599

% CARBON
MEAN = 0.534
ONE SIGMA = 0.004
TWO SIGMA = 0.008
RANGE = 0.526 – 0.542

% SULFUR
MEAN = 0.089
ONE SIGMA = 0.003
TWO SIGMA = 0.006
RANGE = 0.083 – 0.095

% NITROGEN
MEAN = 0.0082
ONE SIGMA = 0.0005
TWO SIGMA = 0.0010
RANGE = 0.0073 – 0.0090

Method of Analysis is ASTM E 1019
(Latest Revision)

Carbon & Sulfur is combustion / IR detection/titration
Nitrogen is inert gas fusion

The certified mean values were derived by a number of data sets acquired over different days by different analysts utilizing ASTM E 1019 approved instruments.

The precision values represent the standard deviation, two times the standard deviation, and complete range of analyses.

Standards Employed were:

| | | |
|----------|-----|---|
| NIST | SRM | 2160, 8j, 122f, 363, 361, 12h, 368, 163 |
| German | SRM | 079-1, 021-1, 035-1 |
| Japanese | JSS | 150-8, 154-9 |

Notes:

The statistical analysis, overall direction and coordination of the analytical measurements leading to certification were performed by K.E. Dyer 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 is traceable to the above-mentioned standards. For good laboratory practice it is recommended that all standards be verified prior to use.

Certified November, 1999

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