

Alpha Resources, Inc.

Certificate Of Analysis

AR 511
HIGH SULFUR STEEL PIN STANDARD
LOT # 1215B

% CARBON
MEAN = 0.064
One Sigma Standard Deviation = +/- 0.002
Expanded Uncertainty = +/- 0.004
(k=2, 95% confidence) (n=48)

% SULFUR
MEAN = 0.278
One Sigma Standard Deviation = +/- 0.006
Expanded Uncertainty = +/- 0.012
(k=2, 95% confidence) (n=48)

Method of Analysis is ASTM E 1019-11 and ARI 033

Primary (NMI) Standards Employed:

NIST SRM 133b, 123c, 129c
EURO 286-1, 085-1

Notes:

The mean analytical values were derived by data sets showing traceability to the above mentioned reference standards, and reported in mass fraction. The precision values represent the estimated uncertainty derived from the data sets and may not represent your testing capabilities. Refer to your test method for additional uncertainty information. When necessary, professional judgment is applied toward consideration of data and statistical information. The statistical analysis and the overall direction and coordination of the analytical measurements leading to certification were performed by K.E. Dyer, Technical Manager, at Alpha Resources.

The material used in production of this standard was evaluated and accepted in accordance with ARI 032. The samples for round robin testing were selected in accordance with ARI 014. The above values relate only to the material used to produce this standard. This bottle contains 250g, 0.5g pins (nominal weight), to be used directly from the bottle with no preparation needed. This standard has an indefinite shelf life. Keep sealed and store under normal laboratory conditions.

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 certificate cannot be reproduced except in full. This reference was produced in accordance to ISO Guide 34 and ISO Guide 31.

This is a Certified Reference Material (working standard), and is traceable to the above-mentioned standards. For good laboratory practice it is recommended that all standards be verified prior to use. These test results are accredited under the Alpha Resources Inc. laboratory's ISO/IEC 17025 and ISO Guide 34 accreditation issued by ANSI-ASQ/ANAB. Refer to certificate and scope of accreditation(s) AC-1200 and AR-1920.

Certified June 2, 2016



Technical Manager