

# Alpha Resources, LLC

## Certificate Of Analysis

AR 883  
CARBON STEEL PIN STANDARD  
LOT # 216B

**% CARBON**  
MEAN = 0.192  
One Sigma Standard Deviation = +/- 0.002  
Expanded Uncertainty = +/- 0.005  
(k=2.5, @ 95% confidence limit) (n=58)

**% SULFUR**  
MEAN = 0.0195  
One Sigma Standard Deviation = +/- 0.0008  
Expanded Uncertainty = +/- 0.0016  
(k=2, @ 95% confidence limit) (n=59)

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

Primary (NMI) Standards Employed:

NIST SRM	337a, 19h, 293
NCS	NS13016, NS11011
JSS	151-18
BCS/BAS	238/2, 232/2, 086-1
IPT	26

Notes:

The mean analytical values were derived by 6 data sets showing traceability to the above mentioned NMI standards, and reported in mass fraction. The sample size for testing was 1g per ASTM E1019. The intended use is for the calibration and continued QC validation following ASTM E1019 method. 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 identified 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 454g, 1g 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. Produced in accordance to ISO Guide 31 and ISO Guide 34.

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 (RMP) issued by ANSI-ASQ/ANAB. Refer to certificate and scope of accreditation(s) AC-1200 and AR-1920.

Certified October 18, 2016

  
Technical Manager