

# Alpha Resources, Inc.

## Certificate Of Analysis

AR 309  
CAST IRON STANDARD  
LOT # 914J

**% CARBON**  
MEAN = 3.71

One Sigma Standard Deviation = +/- 0.02  
Expanded Uncertainty = +/- 0.04  
(k=2, 95% confidence)

**% SULFUR**  
MEAN = 0.021

One Sigma Standard Deviation = +/- 0.001  
Expanded Uncertainty = +/- 0.002  
(k=2, 95% confidence)

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

Primary (NMI) Standards Employed:

NIST: 338, 16f, NCS: HC11003  
JSS: 102-8, CTIF: FB12  
CKD: 227, IPT: 66

Notes:

The mean analytical values were derived by 5 data sets (n=50) showing traceability to the above mentioned NMI 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 the expanded method derived uncertainty, and typical analysis sample size. 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. This standard was produced in accordance to ISO Guide 31 and ISO Guide 34.

The material used in production of this standard was selected and evaluated 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 150g, cast iron powder, 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 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 accreditation issued by ANSI-ASQ National Accreditation Board/ACCLASS. Refer to certificate and scope of accreditation AC-1200.

This standard was produced in accordance to Guide 34 at the time of certification. These same methods for producing reference materials have now been reviewed by an accreditation body. As of February 2015 our facility has become accredited under the ISO Guide 34:2009 for RMP issued by ANSI-ASQ National Accreditation Board, certificate AR1920.

Certified October 22, 2014



Technical Manager

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