

# Alpha Resources, Inc.

## Certificate Of Analysis

AR 309  
CAST IRON STANDARD  
LOT # 1111B

**% CARBON**  
MEAN = 3.70  
One Sigma Standard Deviation = +/- 0.02  
Expanded Uncertainty = +/- 0.04  
(k=2, 95% confidence)

**% SULFUR**  
MEAN = 0.024  
One Sigma Standard Deviation = +/- 0.002  
Expanded Uncertainty = +/- 0.004  
(k=2, 95% confidence)

Method of Analysis is ASTM E 1019-08, and ARI 033

Primary (NMI) Standards Employed:

NIST	338, 337a
EURO	CKD 227
IPT	66
JSS	102-8, 102-6
NCS	HC16011, HC11003, HC11010

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 if needed. 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 sampled 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 in a cool dry place. This reference material was prepared in accordance to ISO Guide 34-2009.

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.

This calibration standard is accredited and meets the requirements of ISO/IEC 17025 as verified by the ANSI-ASQ National Accreditation board. Alpha Resources is an ISO/IEC 17025 accredited laboratory. For more information concerning our scope of accreditation contact Alpha Resources.

Certified January 18, 2012



Technical Manager

P.O Box 199 3090 Johnson Road Stevensville, MI 49127 Phone (269) 465-5559 Fax (269) 465-3629

[www.alpharesources.com](http://www.alpharesources.com)