

# Alpha Resources, Inc.

## Certificate Of Analysis

AR-1702  
COAL STANDARD

LOT # 702512 LID ID # 702512

**DRIED BASIS VALUE**  
WEIGHT PERCENT SULFUR = 0.72  
STANDARD DEVIATION = 0.02

**METHOD:**  
ASTM D 4239-12 AND ARI-035

This CRM is traced to N.I.S.T. SRM 2682b, SRM 2692c, NCS FC28004b

The analytical values were derived by a number of data points (n=60) by instrumentation meeting ASTM D4239-12, and reported in mass fraction. The precision value represents the expanded degree of uncertainty based on errors from analytical assay at a 95% confidence level (k=2), and may not meet your testing capabilities. Formal testing procedures should be employed when using this standard; this includes using the *reproducibility* and *repeatability* factors of the method for establishing overall analytical uncertainty. 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 at Alpha Resources.

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. The analytical samples were dried under a nitrogen atmosphere at 107° C +/- 3° C until a steady mass is achieved.

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. The above values relate only to the material used to produce this standard. This certificate cannot be reproduced except in full. This bottle contains 50g, minus 60 mesh (250 micron) coal powder.

This is a Certified Reference Material (working standard), and is traceable to the above-mentioned NMI 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/IEC17025 as verified by the ANSI-ASQ National Accreditation Board. Contact Alpha Resources for details of our certification and scope of accreditation.

### EXPIRATION DATE

**THIS CRM IS VALID FOR TWO YEARS FROM THE DATE OF OPENING**

Certified June 18, 2012

