

Alpha Resources, Inc.

Certificate Of Analysis

AR-1684
ULTRA LOW SULFUR COAL STANDARD

LOT # 684610 LID ID # 684610

DRIED BASIS VALUE

WEIGHT PERCENT SULFUR = 0.101
STANDARD DEVIATION = 0.012

METHOD:

Combustion by Resistance Furnace with IR Detection

This Reference Material is traced to N.I.S.T. 2682a*

This Reference Material (RM) was prepared by gravimetric blending. The analytical value was calculated from a number of data points (n=23) obtained on instrumentation using combustion by resistance furnace with IR detection. The precision value represents the expanded degree of uncertainty based on errors from analytical assay at a 95% confidence level (k=2). 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. Normal ASTM procedures should be employed when using this standard this includes using the *reproducibility* and *repeatability* factors of the method for establishing analytical uncertainty.

The samples for 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 for a minimum of 70 minutes at $107^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 is a RM, and is traceable to the above-mentioned standard. For good laboratory practice it is recommended that all standards be verified prior to use. Contact Alpha Resources for details of our certification and scope of accreditation.

*N.I.S.T. 2682a was prepared in the same manner as the CRM.

EXPIRATION DATE

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

Certified March 9, 2011

M. J. Gummus