

# Alpha Resources, Inc. Certificate Of Analysis

AR2751

## MINERAL ANALYSIS STANDARD

LOT # 751110

LID ID 775309

### WEIGHT PERCENT MINERAL ANALYSIS OF COAL ASH

Mineral Analysis	Weight %	ASTM
Silica.....	34.1 +/-1.1	D4326/D3682
Alumina.....	17.00 +/-0.63	D4326/D3682
Titania.....	1.35 +/-0.04	D4326/D3682
Ferric Oxide.....	5.26 +/-0.13	D4326/D3682
Calcium Oxide.....	22.24 +/-0.79	D4326/D3682
Magnesium Oxide.....	5.19 +/-0.23	D4326/D3682
Potassium Oxide.....	0.42 +/-0.06	D4326/D3682
Sodium Oxide.....	1.66 +/-0.15	D4326/D3682
Sulfur Trioxide.....	10.85 +/-2.0	D4326/D3682
Phosphorus Pentoxide.....	0.88 +/-0.28	D4326/D3682
Strontium Oxide.....	0.28 +/-0.03	D4326/D3682
Barium Oxide.....	0.69 +/- 0.04	D4326/D3682
Manganese Oxide...	0.01	D4326/D3682
Undetermined (calculated)	0.08%	
The ash content of this coal is	6.23%	D3174/D5142

The material used in production of this standard was sampled in accordance with ARI 031. The precision values represent the standard deviation ( $k=1$ ) obtained through analytical testing, and are given for reference only. 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. 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 are recommended to be 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. This is a Certified Reference Material (CRM). For good laboratory practice it is recommended that all standards be verified prior to use.

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

CERTIFIED January 20, 2010

