

# Alpha Resources, Inc. Certificate Of Analysis

AR-2781

## ULTIMATE COAL STANDARD

LOT # 781411

LID # 781411

### DRIED BASIS VALUES

Proximate Analysis	ASTM	Ultimate Analysis	ASTM
% Ash.....	17.98+/-0.17 D3174/D5142	% Carbon.....	67.68 +/-0.8 D5373
% Volatile Matter.....	26.33+/-0.3 D3175/D5142	% Hydrogen.....	3.97 +/-0.03 D5373
% Fixed Carbon (calculated)	55.69 D3172	% Nitrogen.....	1.29 +/-0.07 D5373
% Sulfur.....	1.91+/-0.05 D4239B	% Oxygen (calculated)...	7.17 D5373
Btu.....	11949 D5865	MAF/DAF BTU	14568 D5865
%Mineral Analysis	ASTM	Sulfur Forms	ASTM
Silica.....	51.53 +/- 0.42 D4326/D3682	% Pyritic.....	0.34 D2492
Alumina.....	25.96 +/- 0.34 D4326/D3682	% Organic (calculated)...	0.75 D2492
Titanium Oxide.....	1.23 +/- 0.02 D4326/D3682	% Sulfate.....	0.82 D2492
Ferric Oxide.....	11.27 +/- 0.46 D4326/D3682		
Calcium Oxide.....	2.54 +/- 0.1 D4326/D3682	Ash Fusion Temperature	Degrees F
Magnesium Oxide.....	0.97 +/-0.07 D4326/D3682	ASTM D1857	Reducing
Potassium Oxide.....	2.55 +/-0.06 D4326/D3682	Initial deformation...	2404
Sodium Oxide.....	(0.36) D4326/D3682	Softening.....	2467
Sulfur Trioxide.....	2.58 +/-0.08 D4326/D3682	Hemispherical.....	2533
Phosphorus Pentoxide.....	0.44 +/-0.1 D4326/D3682	Fluid/Final.....	2597
Strontium Oxide.....	0.09 D4326/D3682	% Chlorine.....	(0.12)
Barium Oxide.....	<0.01 D4326/D3682		Reference
Manganese Oxide...	0.02 D4326/D3682		
Undetermined (calculated)	0.46		

The material used in production of this standard was sampled in accordance with ARI 031. The uncertainty values represent the normal standard deviation (k=1, one sigma, 68% confidence) obtained through analytical testing, and may not reflect your testing capabilities. Normal ASTM procedures should be employed when using this standard; this includes using the *reproducibility* and *repeatability* factors of the method for establishing method expanded 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 should be dried under a nitrogen atmosphere for a minimum of 70 minutes 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. 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 June 14, 2011



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