

Alpha Resources, Inc.

Certificate Of Analysis

AR-2776

ULTIMATE COAL STANDARD

LOT # 776711

LID # 776711

DRIED BASIS VALUES

Proximate Analysis	ASTM	Ultimate Analysis	ASTM
% Ash.....	20.57+/-0.05 D3174/D5142	% Carbon.....	68.65+/-0.29 D5373
% Volatile Matter.....	23.01+/-0.64 D3175/D5142	% Hydrogen.....	3.94 +/-0.15 D5373
% Fixed Carbon (calculated)	56.42 D3172	% Nitrogen.....	1.18 +/-0.04 D5373
% Sulfur.....	0.84+/-0.02 D4239B	% Oxygen (calculated)...	4.82 D5373
Btu.....	12034 D5865	MAF/DAF BTU	15151 D5865
Mineral Analysis	ASTM	Sulfur Forms	ASTM
Silica.....	61.14 +/-0.97 D4326/D3682	% Pyritic.....	0.04 D2492
Alumina.....	26.80 +/-1.04 D4326/D3682	% Organic (calculated)...	0.51 D2492
Titania.....	1.49 +/-0.08 D4326/D3682	% Sulfate.....	0.29 D2492
Ferric Oxide.....	4.86 +/-0.18 D4326/D3682		
Calcium Oxide.....	0.58 +/-0.07 D4326/D3682	Ash Fusion Temperature	Degrees F
Magnesium Oxide.....	1.13 +/-0.03 D4326/D3682	ASTM D1857	Reducing
Potassium Oxide.....	2.96 +/-0.26 D4326/D3682	Initial deformation...	2658
Sodium Oxide.....	0.27 +/-0.04 D4326/D3682	Softening.....	2700
Sulfur Trioxide.....	0.53 +/-0.17 D4326/D3682	Hemispherical.....	2700
Phosphorus Pentoxide.....	0.13 +/-0.02 D4326/D3682	Fluid/Final.....	2700
Strontium Oxide.....	0.04 D4326/D3682		
Barium Oxide.....	0.03 D4326/D3682	% Chlorine.....	0.14
Manganese Oxide...	0.02 D4326/D3682		
Undetermined (calculated)	0.02		

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 by the mentioned ASTM methods, 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 analytical 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 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 December 15, 2011



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

www.alpharesources.com