

Alpha Resources, Inc. Certificate Of Analysis

AR-2780
ULTIMATE COAL STANDARD
LOT #780408 LID # 780408
DRIED BASIS VALUES

Proximate Analysis

% Ash.....	22.86
% Volatile Matter.....	25.99
% Fixed Carbon.....	51.15
% Sulfur.....	3.42

Ultimate Analysis

% Carbon.....	62.99
% Hydrogen.....	3.81
% Nitrogen.....	1.11
Btu.....	11,255
% Chlorine.....	0.16

Mineral Analysis

Silica.....	49.49
Alumina.....	24.58
Titania.....	1.25
Ferric Oxide.....	18.42
Calcium Oxide.....	1.15
Magnesium Oxide.....	0.87
Potassium Oxide.....	2.62
Sodium Oxide.....	0.18
Sulfur Trioxide.....	1.06
Phosphorus Pentoxide.....	0.20
Strontium Oxide.....	0.05
Barium Oxide.....	0.09
Manganese Oxide.....	0.03
Undetermined.....	0.00

Sulfur Forms

% Pyritic.....	1.43
% Organic.....	1.08
% Sulfate.....	0.91

Ash Fusion Temperature

Initial Deformation Red.....	2163
Initial Deformation Oxd.....	2538
Softening-Red H=W.....	2370
Softening-Oxd H=W.....	2589
Softening-Red H=1/2w.....	2454
Softening-Oxd H=1/2w.....	2621
Fluid-Reducing.....	2546
Fluid-Oxidizing.....	2656
Temperature In Degrees F	

The Following ASTM Procedures Were Employed In The Analysis Of All Samples:

Preparation.....	ASTM D 2013	Ash Analysis.....	ASTM D 3682
Carbon & Hydrogen.....	ASTM D 3178	Chlorine.....	ASTM D 2361
Volatile Matter.....	ASTM D 3175	Fusibilities.....	ASTM D 1857
Sulfur.....	ASTM D 3177	BTU.....	ASTM D 2015
Nitrogen.....	ASTM D 3179	Sulfur Forms.....	ASTM D 2492
Ash.....	ASTM D 3174		

The material used in production of this standard was sampled in accordance with ARI 031. The above values relate only to the material used to produce this standard. The overall direction and coordination of the analytical measurements leading to certification were performed by J.R. Shingledecker at Alpha Resources. This certificate was revised on December 12, 2008 to correct the fixed carbon and organic sulfur values, (calculated), by K.E. Dyer.

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 PURCHASE WHICH
APPEARS ON THE BOTTLE

J.R. Shingledecker

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