

# Alpha Resources, Inc. Certificate Of Analysis

AR-2772  
**ULTIMATE COKE STANDARD**  
 LOT # 772LTV97      LID ID LTV97  
 DRIED BASIS VALUES

**Proximate Analysis**

% Ash.....	6.728
% Volatile Matter.....	0.562
% Fixed Carbon.....	92.73
% Sulfur.....	0.81
Btu.....	12,996

**Ultimate Analysis**

% Carbon.....	89.42
% Hydrogen.....	0.11
% Nitrogen.....	1.28
% Sulfur.....	0.81
% Chlorine.....	0.037
% Ash.....	6.728

**Sulfur Forms**

% Pyritic.....	0.01	% Sulfate.....	0.00
% Organic.....	0.80	% Total.....	0.81

**Mineral Analysis**

Silica.....	49.36	Sodium Oxide.....	0.91
Alumina.....	27.75	Sulfur Trioxide.....	1.02
Titania.....	1.51	Phosphorus Pentoxide.....	0.20
Ferric Oxide.....	12.97	Strontium Oxide.....	0.045
Calcium Oxide.....	1.87	Barium Oxide.....	0.021
Magnesium Oxide.....	0.94	Manganese Oxide.....	0.085
Potassium Oxide.....	1.93	Undetermined.....	0.21

**Ash Fusion Temperature**

Initial Deformation Red.....	2172
Initial Deformation Oxd.....	2571
Softening-Red H=W.....	2407
Softening-Oxd H=W.....	2613
Softening-Red H=1/2w.....	2435
Softening-Oxd H=1/2w.....	2647
Fluid-Reducing.....	2541
Fluid-Oxidizing.....	2700

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		

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.

**EXPIRATION DATE**

**THIS CRM IS VALID FOR TWO YEARS FROM THE DATE OF PURCHASE WHICH  
 APPEARS ON THE BOTTLE**

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