

# Alpha Resources, Inc.

## Certificate Of Analysis

AR-4013

CARBON AND SULFUR IN LIMESTONE

LOT # 51999

**% CARBON**  
**MEAN = 2.93**  
**ONE SIGMA = 0.08**  
**TWO SIGMA = 0.16**  
**RANGE = 2.77 – 3.09**

**% SULFUR**  
**MEAN = 0.020**  
**ONE SIGMA = 0.003**  
**TWO SIGMA = 0.006**  
**RANGE = 0.014 – 0.026**

### Notes:

This data was reported using various induction and resistance type furnaces. The use of accelerants like vanadium pentoxide and tungsten oxide were used in the resistance furnace techniques in order to properly liberate the sulfur.

The data represents the mean value, one sigma standard deviation, two sigma standard deviation, and complete range of analysis.

There were no primary standards of this type of matrix available at the time of certification. Many types of reference materials were used in the certification process, ranging from steel to high purity inorganics for calibration.

This certificate was revised in December 2002 to correct a typographical error on the sulfur values.

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.

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) without any traceability to primary standards, and should be verified prior to use, against a primary standard material or other reference materials provided by a governing agency, such as N.I.S.T., when available.

Certified April, 2000

