

# Alpha Resources, Inc.

## Certificate Of Analysis

AR 949  
STAINLESS STEEL CHIP STANDARD  
LOT # 82206

% CARBON  
MEAN = 0.0137  
ONE SIGMA = 0.0008  
TWO SIGMA = 0.0016  
RANGE = 0.0121 to 0.0153

% SULFUR  
MEAN = 0.027  
ONE SIGMA = 0.002  
TWO SIGMA = 0.004  
RANGE = 0.023 to 0.031

PPM NITROGEN  
MEAN= 860 PPM  
ONE SIGMA= 12 PPM  
TWO SIGMA= 24 PPM  
RANGE= 836 to 884 PPM

OXYGEN = 93 +/- 20 PPM (reference only)

Method of Analysis is ASTM E 1019-08, ARI 033 and ARI 034  
Primary Standards Employed:

NIST	55b, 2159, 166c, 131c, 14e, 343a
EURO (BAM, BCS, BAS)	238-1, 284-2, 227-1, 161/3
JSS	2-28
NCS	NS11011

Notes:

The mean analytical values were derived by a number of data sets (n=40) by various instrumentation meeting ASTM E1019-08. The precision values represent the standard deviation, two times the standard deviation (k=2, 95% confidence limit), and complete range of analysis. 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. This certificate was revised on October 21, 2014 to correct the range values for sulfur.

The material used in production of this standard was sampled in accordance with ARI 032. 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. This standard consists of 150g chipped material, with no expiration date.

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), and is traceable to the above-mentioned standards. For good laboratory practice it is recommended that all standards be verified prior to use.

This calibration standard is accredited and meets the requirements of ISO/IEC 17025 as verified by the ACLASS ANSI-ASQ National Accreditation board. Alpha Resources is an ISO/IEC 17025 accredited laboratory. For more information concerning our certificate and scope of accreditation contact Alpha Resources.

Certified December 6, 2010

  
Technical Manager

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