

# Alpha Resources, Inc.

## Certificate Of Analysis

AR 637  
TITANIUM STANDARD  
LOT # T115013410

PPM OXYGEN  
MEAN = 509  
ONE SIGMA = 51  
TWO SIGMA = 102  
RANGE = 407 to 611

PPM NITROGEN  
MEAN = 101  
ONE SIGMA = 13  
TWO SIGMA = 26  
RANGE = 75 to 127

PPM HYDROGEN  
MEAN = 12  
ONE SIGMA = 2  
TWO SIGMA = 4  
RANGE = 8 to 16

Method(s) of Analysis is ASTM E 1409-08, E 1447-09, E 1937-04 E 146-83, ARI 034, and ARI 036

**Primary Standards used for calibration:**

NIST SRM 352c, 356, 173c, 173b  
NCS NS57101, NS57102, NS57103  
BCR CRM 024, 318

**Notes**

The mean analytical values were derived by a number of data sets (n=60) by various instrumentation meeting above ASTM and ARI methods. The precision values represent the standard deviation, two times the standard deviation (k=2, 95% confidence), and complete range of analysis within the accepted data. 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 at Alpha Resources.

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.

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 ACLASS the ANSI-ASQ National Accreditation board. Alpha Resources is an ISO/IEC 17025 accredited laboratory. For more information concerning our scope and certificate of accreditation contact Alpha Resources.

Certified July 2010,

