

**AR 648
TITANIUM STANDARD
LOT # TA81114**

**PPM OXYGEN
MEAN = 1238
ONE SIGMA = 42
TWO SIGMA = 84
RANGE = 1154 - 1322**

**PPM NITROGEN
MEAN = 49
ONE SIGMA = 9
TWO SIGMA = 18
RANGE = 31 - 67**

**PPM HYDROGEN
MEAN = 142
ONE SIGMA = 3
TWO SIGMA = 6
RANGE = 135 - 148**

Method of Analysis
Inert Gas Fusion

Instruments Used
LECO TC-436, RH-404, RH-402

The following Primary Standards were used for calibration:

| | Gas Dose |
|------|------------|
| NIST | 352b, 352c |
| BCR | 276 |
| NCS | NC 57003 |

Notes

The mean values reported are derived from a number of data sets using the instruments listed above.

The precision value is based on the standard deviation; two times the standard deviation, and complete range of analyses. When necessary professional judgment is applied toward consideration of data and statistical information

The statistical analysis, 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.

Certified November, 2003

