

Alpha Resources, Inc.

Certificate Of Analysis

AR 640
ZIRCONIUM STANDARD
LOT # M20335506

PPM OXYGEN
MEAN = 1405
ONE SIGMA = 42
TWO SIGMA = 84
RANGE = 1321 to 1489

PPM NITROGEN
MEAN = 50
ONE SIGMA = 6
TWO SIGMA = 12
RANGE = 38 to 62

PPM HYDROGEN
MEAN = 14
ONE SIGMA = 2
TWO SIGMA = 4
RANGE = 10 - 18

Methods used:

HYDROGEN
LECO® RH404/RH402 TC Cell Detection

OXYGEN/NITROGEN
LECO® TC436 TC/IR Cell Detection

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 following Primary Standards were used for calibration/validation:

Gas Dose
NIST SRM 358
Belgium BCR 276, 318

The overall direction and coordination of the analytical measurements and statistical data leading to certification was 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 standard was produced in accordance to Guide 34. Alpha Resources has become accredited under the ISO Guide 34:2009 for RMP and holds a ISO 17025 accreditation. Refer to certificate and scope of accreditation for details.

Certified May, 2006



Kent Dyer - Technical Manager