

Alpha Resources, Inc.

Certificate Of Analysis

AR 663

OXYGEN & NITROGEN PIN STANDARD

LOT # 301A98

PPM OXYGEN
MEAN = 43
ONE SIGMA = 5
TWO SIGMA = 10
RANGE = 33 - 54

PPM NITROGEN
MEAN = 1790
ONE SIGMA = 40
TWO SIGMA = 80
RANGE = 1715 - 1865

Method of analysis is ASTM E 1019
(Latest revision)

The following Primary Standards were used for calibration:

NIST	SRM 1091a, 368, 367
German	BAM SRM 02-a

Notes:

The mean values reported were derived from a number of data sets utilizing ASTM approved instruments.

The precision values are based on the standard deviation, two times the standard deviation, and complete range of analyses.

As of May 2002, it was discovered that the oxygen content may increase slightly over time. To assure good oxygen results process the samples in nine parts HNO₃, one part HF, and ten parts de-ionized H₂O. Bring the solution and samples to a vigorous boil for 3-5 minutes. Rinse samples with copious amounts of water. Immerse samples in acetone and dry under a stream of warm dry air.

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

Certified December, 1998

