

Alpha Resources, Inc. Certificate Of Analysis

AR 149
COPPER PIN STANDARD
OXYGEN & SULFUR
LOT # 534985304

PPM OXYGEN
MEAN = 322 PPM
ONE SIGMA = +/- 5 PPM
TWO SIGMA = +/- 10 PPM
RANGE = 312 - 332 PPM

PPM SULFUR
MEAN = 10 PPM
ONE SIGMA = +/- 2
TWO SIGMA = +/- 4
RANGE = 6 - 14 PPM

PPM CARBON = 8 PPM (REFERENCE ONLY)
PPM NITROGEN = 3 PPM (REFERENCE ONLY)

Oxygen	Inert Gas Fusion IR Detection
Sulfur	Combustion - IR Detection
Carbon	Combustion - IR Detection
Nitrogen	Inert Gas Fusion TC Detection

Standard Reference Materials employed:

NIST	343a, 396, 495, 496, 1034
BAM	029-1, 379/3
INFM	Cu300, Cu600
JSS	611-10

Notes:

The mean analytical values were derived by a number of data sets utilizing ASTM approved instruments.

The precision value is based on the standard deviation, two times the standard deviation, and complete range of analysis obtained by the data sets. When necessary, professional judgment is applied toward consideration of data and statistical information. Carbon and Nitrogen given for reference only.

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.

Alpha Resources is an ISO/IEC 17025 accredited laboratory. For more information concerning our scope of accreditation contact Alpha Resources.

Certified July, 2004

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