

Alpha Resources, Inc.

Certificate Of Analysis

AR 645
OXYGEN & NITROGEN PIN STANDARD
LOT # 1212F

% OXYGEN
MEAN = 0.0050
One Sigma Standard Deviation = +/- 0.0004
Expanded Uncertainty = +/- 0.0008
(k=2, 95% confidence) (n=110)

% NITROGEN*
MEAN = 0.0058*
One Sigma Standard Deviation = +/- 0.0005*
Expanded Uncertainty = +/- 0.0010*
(k=2, 95% confidence) (n=130)

*Significant analytical bias between NMI reference materials was observed

Method of Analysis is ASTM E 1019-11, and ARI 034

Primary (NMI) Standards Employed:

JSS	GS-1d*, SS-3-37*
NIST	163*, 1754*, 1093
BAM/BCS	079-1*, O4, 026-2, 284-2, 318a
NCS	NS22006

Notes:

The mean analytical values were derived by direct comparison showing traceability to the above mentioned NMI standards, and reported in mass fraction. The precision values represent the estimated uncertainty derived from the data sets and may not represent your testing capabilities. Refer to your test method for the expanded method derived uncertainty if needed. 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, Technical Manager, 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. This reference contains 100g, 1.0g pins (nominal), to be used directly from the bottle with no preparation. This standard has an indefinite shelf life. Keep sealed and store in a dry location. This reference material was produced in accordance to ISO Guide 34-2009.

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 Standard (working standard), 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 the ANSI-ASQ National Accreditation board. Alpha Resources is an ISO/IEC 17025 accredited laboratory. For more information concerning our scope of accreditation contact Alpha Resources.

Certified June 18, 2013



Technical Manager

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