

EP Nitrogen (N₂) Analysis Report

Client Contact Information

AAL Number:
Received On:
Report Date:
PO Number:

Sample ID. : Nitrogen - Building # __, Room # __, Port # __
Sample ID. : Lot # _____, Received in 1L AAL Cylinder # _____

Sampled On:
Sampled By:

FT-IR Results

<u>Analysis</u>	<u>Result</u>	<u>D.L.</u>	<u>Specification</u>
Carbon Dioxide (CO ₂ , ppm v/v): -----	nd	0.1	NMT 300
Carbon Monoxide (CO, ppm v/v): -----	0.1	0.1	NMT 5

Instrumentation: Nicolet Magna FT-IR 550 Series II S/N AD19503475, 10M IR Gas Cell.

Calibration: MGI NIST traceable standard cylinder # CC2185, 4.7ppm v/v CO, 7.9ppm v/v CO₂ in N₂, Exp. Date 03/23/07.

Reference: Ultra High Purity Nitrogen, Airgas UHPN₂ 99.999 % Cyl, S/N 4900259.

Procedure: SRM—6001.3-C-V – “The Analysis of Common Hetero-Atomic Species in Oxygen and Inert Gases by Gas Cell FT-IR, 08/14/2006.

Moisture Analysis

<u>Analysis</u>	<u>Result</u>	<u>D.L.</u>	<u>Specification</u>
Water Vapor (H ₂ O, ppm v/v): -----	nd	1	NMT 67

Instrumentation: Panametrics Series 35 Moisture Monitor.

Calibration: Panametrics NIST traceable hygrometer probe S/N 298146-PR, Calibration Date 10/05/05, C/F 12 months.

Reference: Ultra High Purity Nitrogen, Airgas UHPN₂ 99.999 % Cyl, S/N 4900259.

Procedure: SRM5002.3 – “Analysis of Moisture Content in Gases Using Panametrics Series 35 Moisture Monitor Probe ” 01/23/2006.

Oxygen Analysis

<u>Analysis</u>	<u>Result</u>	<u>D.L.</u>	<u>Specification</u>
Oxygen (O ₂ , ppm v/v): -----	0.5	0.1	NMT 50

Instrumentation: Delta F Nanotrace Oxygen Analyzer, Mod #PNT-0010, S/N PT-12608-V6

Calibration: Airgas certified standard cylinder # CC201867, 8.8 ppm O₂, in N₂, Exp. Date 01/20/09.

Reference: Ultra High Purity Nitrogen, Scott UHP N₂ 99.9995% cylinder S/N 4900259.

Procedure: SRM 5001.3-C-D-V “Analysis of Oxygen Content in Gases Using a Delta F Nanotrace Platinum Series Oxygen Analyzer,” 05/08/2006.

Atlantic Analytical Laboratory, LLC

Mailing address: P.O. Box 220 • Whitehouse, NJ 08888 USA

Shipping address: 291 Rt 22 East • Salem Industrial Park – Building # 4 • Whitehouse, NJ 08888 USA

Phone +1.908.534.5600 • Fax +1.908.534.2017 • www.AtlanticAnalytical.com • www.ImpurityProfiling.com



Sample ID:

AAL Number:

GC/TCD Analysis

Analysis

Result

Specification

Assay (N₂, % v/v): ----- G.T. 99.5% 99.5% minimum

Identification Test A: The retention time of the principal peak in the chromatogram obtained with sample is the same as the retention time of the principal peak in the chromatogram obtained with the reference gas, both being eluted at 5.62 min.

Instrumentation: Varian Model 3400 Gas Chromatograph S/N 15616 w/ TCD.

Reference: Ultra High Purity Nitrogen, Lot #38-116842349-1 Cyl. # AGE352.

Background: Ultra High Purity Helium, Lot #38-116775779 Cyl. # T-1631

Procedure: SRM1003.2-M- "Operation of the Varian 3400 Gas Chromatograph with TCD for EP Nitrogen Assay," Rev. 2, 01/31/2006.

Identification

Analysis

Result

Specification

Identification Test A: ----- PASS Peak R.T. Match

Identification Test B: Following the procedure in the Official Monograph the flame of a burning splinter is immediately extinguished when inserted into a test tube filled with nitrogen.

Instrumentation: None.

Reference: None.

Background: None.

Procedure: Official Monograph. EP 5.0 N₂ 01/2005:1247

Units and Measures:

D.L. = report detection limit. **NMT** = not more than the amount indicated. **nd** = indicates the concentration is less than the report detection limit. **na** = not applicable. **np** = information not provided or available. **G.T.** = greater than amount specified. **L.T.** = less than the concentration indicated. **--** = test not performed. **%** = percent. **ppm** = parts per million. **ppb** = parts per billion. **v/v** = volume analyte/volume sample. **w/w** = weight analyte/weight sample. **Unit Conversions:** 0.0001% = 1 ppm.

Comment: Passes EP Specifications for Nitrogen

Approved by,

Data Reviewed by,

Richard Frisch
President

Date

John W. Leatherdale, PE
Director - Quality

Date

Attachments: None

Addendum: Raw Data, Notebook data on file, Calibrations and Certificates of Analysis on file.

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