Airgas Specialty Gases
Airgas USA LLC
630 United Drive
Durham, NC 27713
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Customer:	MESSER - COLUMBIA SA		
Part Number:	E04NI83E15A0019	Reference Number:	122-402743085-1
Cylinder Number:	EB0158046	Cylinder Volume:	151.0 CF
Laboratory:	124 - Durham (SAP) - NC	Cylinder Pressure:	2015 PSIG
PGVP Number:	B22023	Valve Outlet:	350
Gas Code:	CO2,CO,PPN,BALN	Certification Date:	May 17, 2023

Expiration Date: May 17, 2031

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted. The results relate only to the items tested. The report shall not be reproduced except in full without approval of the laboratory. Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
PROPANE	1200 PPM	1210 PPM	G1	+/- 0.7% NIST Traceable	05/17/2023
CARBON MONOXIDE	4.000 %	4.119 %	G1	+/- 0.7% NIST Traceable	05/16/2023
CARBON DIOXIDE	12.00 %	11.89 %	G1	+/- 0.9% NIST Traceable	05/17/2023
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	02010403	K-001591	1186 PPM PROPANE/AIR	+/- 0.6%	Jul 20, 2026
NTRM	99010212	ALM015960	7.66 % CARBON MONOXIDE/NITROGEN	+/- 0.7%	Jan 10, 2029
NTRM	19060412	6162703Y	11.105 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Dec 04, 2025

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet iS50 AUP2110292 CO2	FTIR	May 17, 2023
Horiba VIA510 CO 40212430054	Nondispersive Infrared (NDIR)	Apr 26, 2023
Nicolet iS50 AUP2110292 C3H8	FTIR	May 17, 2023

Triad Data Available Upon Request

NOTES:GROSS WEIGHT: 29.00 kg
NET WEIGHT: 5.307 kg

Signature on file
Approved for Release