PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc. has assessed the Organization:

Red Ball Technical Gas Services.

555 Craig Kennedy Way, Shreveport, LA 71107

and hereby declares that the Organization is accredited in accordance with the recognized International Standard:

ISO 17034:2016

& the relevant requirements of ISO/IEC 17025:2017

This accreditation demonstrates technical competence for a defined scope and the operation of a reference material producer quality management system (as outlined by the joint ISO-ILAC-IAF Communiqué dated 2017):

Gas Mixture Reference Materials and Certified Reference Materials

(As detailed in the supplement)

Accreditation claims for such reference material production shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation Body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President

Perry Johnson Laboratory Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
October 12, 2022	October 12, 2022	November 30, 2024

Accreditation No.:	*Certificate No.:*
62754	L22-692

The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: www.pjlabs.com

Certificate of Accreditation: Supplement

Red Ball Technical Gas Services
555 Craig Kennedy Way, Shreveport, LA 71107
Contact Nam: Ms. LaMeka Dennis Phone: 318-425-6300

Accreditation is granted to the Organization for the production of certified reference material and reference material as follows:

REFERENCE MATERIAL CATEGORIES	ITEMS, MATRIX MATERIALS OR PRODUCTS	SPECIFIC CONSTITUENTS OR PROPERTIES	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED	RANGE (IF APPLICABLE)	REFERENCE VALUE CAPABILITY	CRM OR RM
Chemical- Gas mixtures	Calibration Gas Cylinder	Gas Mixture Concentration	FTIR - Fourier Transform Infrared Spectroscopy	1.6 µmol/mol to 250 000 µmol/mol	$(4.84 \times 10^{-1} + 1.00 \times 10^{-2}C)$ µmol/mol	RM/CRM
			Electrolytic Moisture Analyzer	1.5 µmol/mol to 100 µmol/mol	$(4.85 \times 10^{-1} + 1.02 \times 10^{-2}C)$ µmol/mol	
			Flame Ionization Detector	0.1 µmol/mol to 30 µmol/mol	(1.66 x 10-2 + 1.38 x 10-2C) µmol/mol	
			Electrochemical Oxygen Analyzer	0.2 µmol/mol to 1 000 000 µmol/mol 0.4 µmol/mol to 500 mmol/mol	(4.90 x 10-2 + 1.50 x 10-2C) µmol/mol $(1.15 \times 10^{-1} + 1.21 \times 10^{-2}C)$ µmol/mol	
			Paramagnetic Oxygen Analyzer	20 mmol/mol to 250 mmol/mol	(1.14 + 8.26 10-3C) mmol/mol	
			GC with TCD GC with FID	2.08 mmol/mol to 1 000 mmol/mol 0.29 mmol/mol to 1 000 mmol/mol	(6.60 x 10-1 + 1.43 x 10-2C) mmol/mol $(9.07 \times 10^{-2} + 1.49 \times 10^{-2}C)$ mmol/mol	
			Gravimetric Scale	1 µmol/mol to 1 000 000 µmol/mol	0.3 µmol/mol	
			Chemiluminescent	1.0 µmol/mol to 5 000 µmol/mol	(7.03 x 10-1 + 1.17 x 10-2C) µmol/mol	
			NO Analyzer	1.2 µmol/mol to 100 µmol/mol 1.0 µmol/mol to 5 000 µmol/mol	$(3.66 \times 10^{-1} + 1.13 \times 10^{-2}C)$ µmol/mol $(7.03 \times 10^{-1} + 1.17 \times 10^{-2}C)$ µmol/mol	
			NDIR NO Analyzer	60 µmol/mol to 1 500 µmol/mol	$(5.31 \times 10^{-1} + 1.10 \times 10^{-2}C)$ µmol/mol	
			Gas Correlation IR	100 µmol/mol to 2 000 µmol/mol	$(1.49 + 1.11 \times 10^{-2}C)$ µmol/mol	
			NDIR SO2 Analyzer	100 µmol/mol to 2 000 µmol/mol	$(1.22 + 1.09 \times 10^{-2}C)$ µmol/mol	
			NDIR CO2 Analyzer	0.2 cmol/mol to 0.5 cmol/mol 1 cmol/mol to 0.5 cmol/mol	$(5.74 + 1.29 \times 10^{-2}C)$ cmol/mol (5.74 + 1.29 x 10-2C) cmol/mol	

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1. Per APLAC TC008 sections 6.5 & 6.6 "For CRMs, the scope of accreditation shall be expressed in terms of a best Reference Value Capability which shall include the RMP"s estimate of its least uncertainty of measurement (U_{CRM}) for each property value's range it reports. … CRMs that are an identification value (such as species identification) or where the property value is an ordinal number (such as a color fastness chart) do not require an uncertainty of measurement to be stated in the scope of accreditation." Per section 6.3 "An accredited RMP is not permitted to report on a RM certificate an uncertainty of property value which is less than or better than that stated in its scope of accreditation." Per section 6.12 "The uncertainty covered by the Reference Value Capability shall be expressed as the expanded uncertainty having a specific coverage probability (often 95 %). The unit of the uncertainty shall always be the same as that of the property value or in a term relative to the property value, for example a percentage or ratio of the property value." See sections 6.7 through 6.11 for additional information.