PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Red Ball Technical Gas Services

555 Craig Kennedy Way, Shreveport, LA 71107

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025:2005

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

Calibration of Specialty Gases

(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services 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/Operations Manager

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

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
July 3, 2008	August 3, 2018	October 31, 2020

Accreditation No.:	*Certificate No.:*
62754	L18-396

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 Name: LaMeka Dennis Phone: 318-425-3211

Accreditation is granted to the facility to perform the following calibration:

Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Electrolytic Moisture Analysis [F]	1.5 µmol/mol to 100 µmol/mol	$(4.85 \times 10^{-1} + 1.02 \times 10^{-2} C)$ µmol/mol	Electrolytic Moisture Analysis
Total Trace Hydrocarbon Analysis [F]	0.1 µmol/mol to 30 µmol/mol	$(2.67 \times 10^{-2} + 1.34 \times 10^{-2} C)$ µmol/mol	Flame Ionization Detector
Electrochemical Oxygen Analysis [F]	0.2 µmol/mol to 1 000 000 µmol/mol	$(4.90 \times 10^{-2} + 1.50 \times 10^{-2} C)$ µmol/mol	Electrochemical Oxygen Analyzer
Electrochemical Trace Oxygen Analysis [F]	0.4 µmol/mol to 500 mmol/mol	$(1.15 \times 10^{-1} + 1.21 \times 10^{-2} C)$ µmol/mol	
Paramagnetic Percent Oxygen Analysis [F]	20 mmol/mol to 250 mmol/mol	$(1.14 + 8.26\ 10^{-3} C)$ mmol/mol	Paramagnetic Oxygen Analyzer
Gas Mixture Chemical Analysis [F]	2.08 mmol/mol to 1 000 mmol/mol	$(6.60 \times 10^{-1} + 1.43 \times 10^{-2} C)$ mmol/mol	GC with TCD
	0.29 mmol/mol to 1 000 mmol/mol	$(9.07 \times 10^{-2} + 1.49 \times 10^{-2} C)$ mmol/mol	GC with FID
Gas Mixture Gravimetric Analysis [F]	1 µmol/mol to 1 000 000 µmol/mol	0.3 µmol/mol	Gravimetric Scale Fill System
Nitric Oxide Concentration [F]	1.2 µmol/mol to 5 000 µmol/mol	$(3.66 \times 10^{-1} + 1.13\ 10^{-2} C)$ µmol/mol	Chemiluminescent
Carbon Monoxide Concentration [F]	100 µmol/mol to 5 000 µmol/mol	$(1.49 + 1.11\ 10^{-2} C)$ µmol/mol	Gas Correlation IR
Sulfur Dioxide Concentration [F]	100 µmol/mol to 2 000 µmol/mol	$(1.22 + 1.09\ 10^{-2} C)$ µmol/mol	NDIR
Carbon Dioxide Concentration [F]	0.2 cmol/mol to 0.5 cmol/mol	$(5.74 + 1.29\ 10^{-2} C)$ cmol/mol	
	1 cmol/mol to 0.5 cmol/mol	$(5.74 + 1.29\ 10^{-2} C)$ cmol/mol	
Gas Mixture Analysis [F]	14 µmol/mol to 250 000 µmol/mol	$(4.37 + 9.98\ 10^{-3} C)$ µmol/mol	FTIR

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Digi-Meter Welding Machine [FO]	0 V to 100 V	1.7 V	Clamp Meter and Load Bank
	0 A to 800 A	3.0 A	

1. The CMC (Calibration and Measurement Capability) stated for calibrations included on this scope of accreditation represents the smallest measurement uncertainty attainable by the laboratory when performing a more or less routine calibration of a nearly ideal device under nearly ideal conditions. It is typically expressed at a confidence level of 95 % using a coverage factor *k* (usually equal to 2). The actual measurement uncertainty associated with a specific calibration performed by the laboratory will typically be larger than the CMC for the same calibration since capability and performance of the device being calibrated and the conditions related to the calibration may reasonably be expected to deviate from ideal to some degree.

Certificate of Accreditation: Supplement

Red Ball Technical Gas Services
555 Craig Kennedy Way, Shreveport, LA 71107
Contact Name: LaMeka Dennis Phone: 318-425-3211

Accreditation is granted to the facility to perform the following calibration:

2. The laboratories range of calibration capability for all disciplines for which they are accredited is the interval from the smallest calibrated standard to the largest calibrated standard used in performing the calibration. The low end of this range must be an attainable value for which the laboratory has or has access to the standard referenced. Verification of an indicated value of zero in the absence of a standard is common practice in the procedure for many calibrations but by its definition it does not constitute calibration of zero capacity.

3. The presence of a superscript F means that the laboratory performs calibration of the indicated parameter at its fixed location. Example: Outside Micrometer^{F} would mean that the laboratory performs this calibration at its fixed location.

4. The presence of a superscript FO means that the laboratory performs calibration of the indicated parameter both at its fixed location and onsite at customer locations. Example: Outside Micrometer^{FO} would mean that the laboratory performs this calibration at its fixed location and onsite at customer locations.

5. Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratories fixed location for similar calibrations. This is due to the effects of transportation of the standards and equipment and upon environmental conditions at the customer site which are typically not controlled as closely as at the laboratories fixed location.

6. The term C represents concentration in moles or micromoles appropriate to the uncertainty statement.