PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Tecmelab Monterrey, S.A. de C.V.
15 de Mayo #1012 Pte., Colonia Centro
Monterrey, Nuevo León, México. CP. 64000

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

ISO/IEC 17025:2017

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):

Mass, Force and Weighing Devices, Chemical, Volume and Thermodynamic Calibration
(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

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
April 09, 2020	April 09, 2020	May 11, 2022

Accreditation No.:	*Certificate No.:*
52315	L20-189

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

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

Tecmelab Monterrey, S.A. de C.V.
15 de Mayo #1012 Pte., Colonia Centro
Monterrey, Nuevo León, México. CP. 64000
Contact Name: Sergio Flores Ruiz Phone: 818-345-5077

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

Mass, Force and Weighing Devices

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
Balance[FO]	1 g to 200 g (Res.= 0.1 mg)	(0.082 + 2.4 x 10^{-3}Wt) mg	Class E2 Internal Procedure PST-02
	1 g to 600 g (Res.= 1 mg)	(0.82 + 2.1 x 10^{-3}Wt) mg	Class F1 Internal Procedure PST-02
	10 g to 6 000 g (Res.= 10 mg)	(8.1 + 2.1 x 10^{-3}Wt) mg	
	100 g to 20 000 g (Res.= 0.1 g)	(0.081 + 3 x 10^{-6}Wt) g	Class F2 Internal Procedure PST-02
Scale[O]	10 kg to 500 kg (Res.= 1 g)	(0.83 + 1.5 x 10^{-5}Wt) g	Class M1 Internal Procedure PST-02

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
pH Meter Fixed Point[FO]	4 pH	0.013 pH	Buffer Solutions Internal Procedure PST-01
	7 pH	0.013 pH	
	10 pH	0.024 pH	
Conductivity Meter[FO]	84 µS/cm	1 µS/cm	Conductivity Buffer Solutions Internal Procedure PST-05
	1 413 µS/cm	16 µS/cm	
	5 000 µS/cm	58 µS/cm	
	12.88 mS/cm	150 µS/cm	
Dynamic Viscosity[FO] (@ 15 °C to 45 °C)	100 mPa·s @15 °C to 45 °C	0.52 % of reading	Cannon Certified Viscosity Reference Standard (25 °C) Internal Procedure PST-04
	500 mPa·s @15 °C to 45 °C	0.57 % of reading	
	1 000 mPa·s @15 °C to 45 °C	0.55 % of reading	
	5 000 mPa·s @15 °C to 45 °C	0.6 % of reading	
	12 500 mPa·s @15 °C to 45 °C	0.62 % of reading	
	30 000 mPa·s @15 °C to 45 °C	0.63 % of reading	
	60 000 mPa·s @15 °C to 45 °C	0.63 % of reading	
	100 000 mPa·s @15 °C to 45 °C	0.63 % of reading	

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

Volume

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
Micropipettes[F]	100 µL to 1 000 µL	2.4 µL	Analytical Balance (Res.= 0.1 mg) Method Gravimetric Internal Procedure PST-07
	1 000 µL to 5 000 µL	12 µL	
	5 000 µL to 10 000 µL	24 µL	
Pipettes[F]	0.1 mL to 1 mL	0.001 7 mL	
	1 mL to 2 mL	0.003 2 mL	
	2 mL to 5 mL	0.007 7 mL	
	5 mL to 10 mL	0.016 mL	
	10 mL to 25 mL	0.031 mL	
	25 mL to 50 mL	0.059 mL	
	50 mL to 100 mL	0.15 mL	
Burettes[F]	1 mL to 5 mL	0.003 2 mL	Analytical Balance (Res.= 0.1 mg) Method Gravimetric Internal Procedure PST-08
	5 mL to 10 mL	0.006 1 mL	
	10 mL to 25 mL	0.015 mL	
	25 mL to 50 mL	0.03 mL	
	50 mL to 100 mL	0.06 mL	
Graduated Cylinders[F]	1 mL to 5 mL	0.029 mL	Analytical Balance (Res.= 0.1 mg) and Electronic Balance (Res.= 0.01 g) Method Gravimetric Internal Procedure PST-08
	5 mL to 10 mL	0.05 mL	
	10 mL to 25 mL	0.1 mL	
	25 mL to 50 mL	0.18 mL	
	50 mL to 100 mL	0.23 mL	
	100 mL to 250 mL	0.43 mL	
	250 mL to 500 mL	0.82 mL	
	500 mL to 1 000 mL	1.5 mL	
	1 000 mL to 2 000 mL	2.8 mL	
Flasks[F]	1 mL	0.011 mL	Analytical Balance (Res.= 0.1 mg) and Electronic Balance (Res.= 0.01 g) Method Gravimetric Internal Procedure PST-08
	2 mL	0.011 mL	
	5 mL	0.011 mL	
	10 mL	0.012 mL	
	20 mL	0.019 mL	
	25 mL	0.019 mL	
	50 mL	0.028 mL	
	100 mL	0.041 mL	

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

Volume

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Flasks[F]	200 mL	0.059 mL	Analytical Balance (Res.= 0.1 mg) and Electronic Balance (Res.= 0.01 g) Method Gravimetric Internal Procedure PST-08
	250 mL	0.069 mL	
	500 mL	0.099 mL	
	1 000 mL	0.15 mL	
	2 000 mL	0.23 mL	
Flask and Container[F]	1 000 mL to 20 000 mL	4.1 mL	Electronic Balance (Res.= 0.01 g and 0.1 g) Method Gravimetric Internal Procedure PST-09

Thermodynamic

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
Freezer, Dry Block, Baths Circulators[FO]	-150 °C to 500 °C	0.1 °C	Resistance Thermometer Internal Procedure PST-06
Climatic Chambers, Incubators, Oven, Sterilizer[FO]	-40 °C to 400 °C	1.6 °C	Thermocouple Type K, Procedure PST-06
Furnaces and Hot Plate[FO]	0 °C to 1 200 °C	1.6 °C	

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.
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.

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

4. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations. Example: Outside Micrometer^{O} would mean that the laboratory performs this calibration onsite at the customer's location.
5. 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.
6. 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.
7. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.
8. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.