PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Metrological COM IN TEC Services, S.C.

Calle Zacamixtle No. 108 Col. Petrolera
Delegación Azcapotzalco, Ciudad de México, México C.P. 02480

(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):

Optical, Chemical, Dimensional, Thermodynamic, Mass, Force and Weighing Devices and Mechanical 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:

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
July 02, 2013	September 14, 2019	November 30, 2021

Accreditation No.:	*Certificate No.:*
71793	L19-456-1

Tracy Szerszen
President/Operations Manager

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

Metrological COM IN TEC Services, S.C.

Calle Zacamixtle No. 108 Col. Petrolera
Delegación Azcapotzalco, Ciudad de México, México C.P. 02480
Contact Name: María del Refugio Castañeda Avelar Phone: 555-369-4971

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

Optical

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
Reflectance Color [FO] Spectrometers, Reflectance Geometric d/0°	CIE L*: 0 to 100 CIE a*: -60 to 60 CIE b*: -60 to 60	L*: 0.36 a*: 0.31 b*: 0.12	Ceramic Tiles Konica Minolta Model: BCRA Technical Guide CENAM
Reflectance Color [FO] Spectrometers, Geometric 45/0° CIE Lab	400 nm to 700 nm 0 % reflectance to 100 % reflectance CIE L*: 0 to 100 CIE a*: -80 to 80 CIE b*: -80 to 80	1.2 % reflectance L*:0.11 a*: 0.08 b*: 0.06	
Reflectance Color [FO] Spectrometers, Geometric d/8 CIE Lab	400 nm to 700 nm 0 % reflectance to 100 % reflectance CIE L*: 0 to 100 CIE a*: -80 to 80 CIE b*: -80 to 80	0.9 % reflectance L*: 0.22 a*: 0.15 b*: 0.04	
Transmittance Spectrophotometers[FO]	10 % T to 50 % T Spectral Bandwidth (1 n·m)	0.036 % T	Neutral Density Glass Filters, Interference Filters Technical Guide CENAM
Gloss Meters[FO] Fixed Points	Angle 20°: 94 Gloss Units	0.17 Gloss Units	High Gloss Glass ASTM D-523-89
	Angle 60°: 96 Gloss Units	0.19 Gloss Units	
	Angle 85°: 100 Gloss Units	0.2 Gloss Units	
Ev Illuminance[FO]	10 Lux to 2 900 Lux	1.3 Lux	Light Meter Konica Minolta CL-200A ASTM D1729-16
Ev Light Color[FO]	2 856 K	5.8 K	

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
Dynamic Viscometers Rotational[FO]	1 000 mPa·s	4 mPa·s	Viscosity Standards Cannon Technical Guide CENAM
	5 000 mPa·s	21 mPa·s	
	12 500 mPa·s	55 mPa·s	
pH Meters (Potential of Hydrogen)[FO]	4 pH to 10 pH	0.012 pH	pH Buffer Solutions Technical Guide CENAM

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Chemical

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Conductivity Meters Fixed Points[FO]	100 µS/cm	0.4 µS/cm	Conductivity Solutions Technical Guide CENAM
	1 408 µS/cm	3.3 µS/cm	
Kinematic Viscosity[F]	118.5 mm^2/sec	0.34 mm^2/sec	Viscosity Standards Cannon Technical Guide CENAM
	396.5 mm^2/sec	1.2 mm^2/sec	

Dimensional

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
Thickness Gages[FO]	49 µm	0.41 µm	Thickness Gages Technical Guide CENAM
	351 µm	0.41 µm	
	977 µm	0.41 µm	
Micrometers[F]	0.5 mm to 252 mm	0.001 3 mm	Master Gage Blocks Technical Guide CENAM
Calipers[F]	0.5 mm to 252 mm	0.01 mm	

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
Liquid in Glass Thermometer[F] (Partial Immersion)	25 °C to 100 °C	0.7 °C	RTD Digital and Temperature Bath Technical Guide CENAM
	100 °C to 150 °C	0.71 °C	
Bimetal Thermometer[F]	25 °C to 100 °C	0.76 °C	
	100 °C to 200 °C	0.77 °C	
Indicators Temperature with Thermocouple Type E[FO]	25 °C to 100 °C	0.54 °C	
	100 °C to 200 °C	0.54 °C	
	200 °C to 300 °C	0.57 °C	
Indicators Temperature with Thermocouple Type J[FO]	25 °C to 100 °C	0.52 °C	
	100 °C to 200 °C	0.52 °C	
	200 °C to 300 °C	0.55 °C	
Indicators Temperature with Thermocouple Type K[FO]	25 °C to 100 °C	0.53 °C	
	100 °C to 200 °C	0.53 °C	
	200 °C to 300 °C	0.54 °C	

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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
Indicators Temperature with Thermocouple Type T[FO]	25 °C to 100 °C	0.53 °C	RTD Digital and Temperature Bath Technical Guide CENAM
	100 °C to 200 °C	0.53 °C	
	200 °C to 300 °C	0.55 °C	
Digital Thermometer[FO]	5 °C to 400 °C	0.48 °C	RTD Digital and Dry Well Technical Guide CENAM
Termohygrometer Temperature[F]	5 °C to 60 °C	0.26 °C	RTD Digital and Chamber Climatic Technical Guide CENAM
Termohygrometer Humidity[F]	10 % HR to 80 % HR	0.78 % HR	Hygrometer Digital Technical Guide CENAM

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
Analytical Balances[O]	1 mg to 200 g (Res.= 0.1 mg)	0.3 mg	Class OIML E2 Weights Technical Guide CENAM
Balances[O]	10 mg to 500 g (Res.= 0.2 mg)	0.7 mg	
	200 g to 5 000 g (Res.= 0.005 g)	6.3 mg	
	5 kg to 10 kg (Res.= 0.1 g)	0.6 g	Class OIML M1 Weights Technical Guide CENAM
Scales[O]	10 kg to 100 kg (Res.= 20 g)	18 g	
	100 kg to 200 kg (Res.= 20 g)	18 g	
	100 kg to 200 kg (Res.= 10 g)	10 g	
	100 kg to 250 kg (Res.= 20 g)	18 g	
	200 kg to 300 kg (Res.= 50 g)	42 g	
Mass Weight Class F1, F2[F]	1 g	0.007 mg	Double Substitution Class E2 Weights Set Technical Guide CENAM
	2 g	0.015 mg	
	5 g	0.018 mg	
	10 g	0.021 mg	
	20 g	0.028 mg	

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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
Mass Weight Class F1, F2[F]	50 g	0.034 mg	Double Substitution Class E2 Weights Set Technical Guide CENAM
	100 g	0.078 mg	
	200 g	0.12 mg	
	500 g to 1 kg	0.64 mg	
	2 kg to 5 kg	5.9 mg	
Mass Weight Class F2, M1, M2, M3[F]	5 kg to 20 kg	6.4 mg	Double Substitution Class F1 Weights Set Technical Guide CENAM

Mechanical

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
Vacuum Gauges[FO]	-12 psi to 0 psi	0.35 psi	Digital Pressure Gauge Technical Guide CENAM
Pressure Gauges and Transducer[FO]	0 psi to 300 psi	0.021 psi	

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.
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.

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

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 MicrometerFO 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 T represents torque in N•m (including SI multiple and submultiple units) for the international system of units (the SI) or ozf•in, lbf•in and lbf•ft for the USC system of units.