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 # 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:

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:*
July 02, 2013	November 26, 2023	January 31, 2026

Accreditation No.:	*Certificate No.:*
71793	L23-858-1

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 # 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 (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES 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	CENAM Technical Guide
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		
Ceramic Color in space CIE Optical Geometry [F] d/8°	0 % reflectance to 100 % reflectance CIE L*: 0 - 100 CIE a* -75 to 75 CIE b* -75 to 75	1 % reflectance L* 0.23 a* 0.16 b* 0.05	Spectrophotometer Konica Minolta with Optical Geometry d/8°	ASTM C609
Ceramic Color in Space [F] Optical Geometry 45°/0°	0 % RH to 100 % RH CIE L*: 0 - 100 CIE a* -75 to 75 CIE b* -75 to 75	1.3 % reflectance L* 0.12 a* 0.09 b* 0.06	Spectrophotometer Konica Minolta with Optical Geometry 45°/0°	
Ceramic Color in Space CIE Optical Geometry [F] d/0°	CIE L*: 0 – 100 CIE a* -75 to 75 CIE b* -75 to 75	L* 0.51 a* 0.41 b* 0.26	Spectrophotometer Konica Minolta with Optical Geometry d/0°	
Transmittance Spectrophotometers [FO]	10 % T to 50 % T Spectral Bandwidth (1 n·m)	0.036 % T	Neutral Density Glass Filters, Interference Filters	CENAM Technical Guide
Gloss Meters [FO] Fixed Points	Angle 20°: 94 Gloss Units	0.17 Gloss Units	High Gloss Glass	ASTM D-523
	Angle 60°: 96 Gloss Units	0.19 Gloss Units		
	Angle 85°: 100 Gloss Units	0.2 Gloss Units		

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Gloss Ceramic Tile[F]	Angle 20°: Up to 2 000 Gloss Units	0.15 Gloss Units	Gloss Meter Konica Minolta	ASTM D-523
	Angle 60°: Up to 1 000 Gloss Units	0.17 Gloss Units		
	Angle 85°: Up to 160 Gloss Units	0.19 Gloss Units		
Eν Illuminance[FO] Light Booth, Light bBox	10 Lux to 2 900 Lux	1.3 Lux	Light Meter Konica Minolta CL-200A	ASTM D1729
Eν Light Color[FO] Light Booth, Light Box	2 856 K	5.8 K		
Polarized Light Meters, Polarimeter[FO]	Angle of rotation: -34° and +34°	0.029°	Control Quartz Board	CENAM Technical Guide

Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Dynamic Viscometers Rotational[FO]	1 000 mPa·s	4 mPa·s	Viscosity Standards Cannon	CENAM Technical Guide
	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	
Conductivity Meters Fixed Points[FO]	100 µS/cm	0.4 µS/cm	Conductivity Solutions	
	1 408 µS/cm	3.3 µS/cm		
Kinematic Viscosity[F]	118.5 mm^2/sec	0.34 mm^2/sec	Viscosity Standards Cannon	
	396.5 mm^2/sec	1.2 mm^2/sec		
CAP Type Viscometer Calibration[FO] / Rheometer	3.042 mPa.s to 36.32 mPa.s	0.3 % of reading	Paragon Viscosity Standards	ASTM D4287
	44.98 mPa.s to 135.2 mPa.s	0.31 % of reading		
	385.3 mPa.s to 551.2 mPa.s	0.32 % of reading	Cannon Viscosity Standards	
	759.6 mPa.s to 1 083 mPa.s	0.33 % of reading		

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Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Thickness Gages[FO]	49 µm	0.41 µm	Thickness Gages	CENAM Technical Guide
	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	
Calipers[F]	0.5 mm to 252 mm	0.01 mm		

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Liquid in Glass Thermometer[F] (Partial Immersion)	25 °C to 100 °C	0.7 °C	RTD Digital and Temperature Bath	CENAM Technical Guide
	100 °C to 150 °C	0.71 °C		
Bimetal Thermometer[F]	25 °C to 100 °C	0.76 °C	RTD Digital and Temperature Bath Dry Well	
	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		
Indicators Temperature with Thermocouple Type T[FO]	25 °C to 100 °C	0.53 °C		
	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	CENAM Technical Guide

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Thermodynamic

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Termohygrometer Temperature[F]	5 °C to 60 °C	0.26 °C	RTD Digital and Chamber Climatic	CENAM Technical Guide
Termohygrometer Humidity[F]	10 % HR to 80 % HR	0.78 % HR	Hygrometer Digital	

Mass, Force and Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Analytical Balances[O]	1 mg to 200 g (Res.= 0.1 mg)	0.3 mg	Class OIML E2 Weights	CENAM Technical Guide
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	
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	
	2 g	0.015 mg		
	5 g	0.018 mg		
	10 g	0.021 mg		
	20 g	0.028 mg		
	50 g	0.034 mg		
	100 g	0.078 mg		
	200 g	0.12 mg		
	500 g	0.64 mg		
	1 kg	0.79 mg		

Mass, Force and Weighing Devices

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Mass Weight Class F1, F2[F]	2 kg	1.2 mg	Double Substitution Class E2 Weights Set	CENAM Technical Guide
	5 kg	6.4 mg		
Mass Weight Class M1, M2, M3[F]	5 kg	6.4 mg	Double Substitution Class F2 Weights Set	
	10 kg	79 mg		
	20 kg	120 mg		
Force - Tension Instruments (Dynamometer and Universal Machine)[FO]	20 N to 1 000 N	$(3.93 \times 10^{-3} + 7.75 \times 10^{-3}F)$ N	OIML Class M1	ASTM E4 CENAM Technical Guide
Force – Compression Instruments (Dynamometer and Universal Machine)[FO]	20 N to 1 000 N	$(3.93 \times 10^{-3} + 7.75 \times 10^{-3}F)$ N		

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION OR MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Vacuum Gauges[FO]	-12 psi to 0 psi	0.35 psi	Digital Pressure Gauge	CENAM Technical Guide
Pressure Gauges and Transducer[FO]	Up to 300 psi	0.021 psi		
Piston Pipette (Micropipette)[F]	10 µL	1 % of reading	Balance Discovery DV 215 D	
	20 µL	0.3 % of reading		
	50 µL	0.3 % of reading		
	100 µL	0.3 % of reading		
	200 µL	0.3 % of reading		
	500 µL	0.3 % of reading		
	1 mL	0.3 % of reading		
	2 mL	0.3 % of reading		
	5 mL	0.3 % of reading		
	10 mL	0.2 % of reading		
Pipettes[F]	1 mL	0.25 % of reading		
	2 mL	0.18 % of reading		
	5 mL	0.15 % of reading		
	10 mL	0.15 % of reading		
	20 mL	0.15 % of reading		

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Pipettes[F]	25 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide
	50 mL	0.15 % of reading		
	100 mL	0.15 % of reading		
Piston Burette with Motor[F]	1 mL	0.32 % of reading		
	2 mL	0.32 % of reading		
	5 mL	0.32 % of reading		
	10 mL	0.32 % of reading		
	20 mL	0.32 % of reading		
	25 mL	0.32 % of reading		
	50 mL	0.31 % of reading		
	100 mL	0.15 % of reading		
Piston Burette Manuals[F]	1 mL	0.32 % of reading		
	2 mL	0.32 % of reading		
	5 mL	0.32 % of reading		
	10 mL	0.32 % of reading		
	20 mL	0.32 % of reading		
	25 mL	0.32 % of reading		
	50 mL	0.31 % of reading		
	100 mL	0.15 % of reading		
Pycnometers[F]	25 mL	0.15 % of reading		
	50 mL	0.15 % of reading		
	100 mL	0.15 % of reading		
Pycnometer Gay-Lussac[F]	25 mL	0.15 % of reading		
	50 mL	0.15 % of reading		
	100 mL	0.15 % of reading		
Dispensers[F]	0.01 mL	0.88 % of reading		
	0.02 mL	0.7 % of reading		
	0.05 mL	0.5 % of reading		
	0.1 mL	0.5 % of reading		
	0.2 mL	0.3 % of reading		
	0.5 mL	0.3 % of reading		
	1 mL	0.2 % of reading		
	2 mL	0.2 % of reading		

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Dispensers[F]	5 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide
	10 mL	0.2 % of reading		
	25 mL	0.2 % of reading		
	50 mL	0.2 % of reading		
	100 mL	0.2 % of reading		
	200 mL	0.2 % of reading		
Dilutors[F]	0.05 mL	0.6 % of reading		
	0.1 mL	0.5 % of reading		
	0.2 mL	0.3 % of reading		
	0.5 mL	0.3 % of reading		
	1 mL	0.3 % of reading		
	2 mL	0.2 % of reading		
	5 mL	0.2 % of reading		
	10 mL	0.2 % of reading		
	25 mL	0.2 % of reading		
	50 mL	0.2 % of reading		
	100 mL	0.2 % of reading		
Volumetric Flask[F]	1 mL	1.2 % of reading		
	5 mL	0.27 % of reading		
	10 mL	0.15 % of reading		
	25 mL	0.15 % of reading		
	50 mL	0.15 % of reading		
	100 mL	0.15 % of reading		
	200 mL	0.15 % of reading	Balance Ohaus EX1103	
	250 mL	0.15 % of reading		
	500 mL	0.15 % of reading		
	1 000 mL	0.15 % of reading		
Probe[F]	200 mL	0.85 % of reading		
	250 mL	0.85 % of reading		
	500 mL	0.43 % of reading		
	1 000 mL	0.43 % of reading		

1. The CMC (Calibration and Measurement Capability) stated for calibrations included on this scope of

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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.

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 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.

8. The term F represents Force in N (including SI multiple and submultiple units) for the international system of units (the SI) or lbf for the USC system of units.

9. This is the primary site for all quality management system activities.