PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

CEMYR Instrumentos, S.A. de C.V.

Av. Las Puentes No. 207, Col. Las Puentes 2do. Sector
San Nicolás de los Garza, Nuevo León, México C.P. 66460

(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):

Optical, Time and Frequency, Chemical, Dimensional, Mass, Force and Weighing Devices, Electrical 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

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

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
March 30, 2008	December 20, 2018	January 31, 2021

Accreditation No.:	*Certificate No.:*
60097	L18-586

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

CEMYR Instrumentos, S.A. de C.V.

Av. Las Puentes No. 207, Col. Las Puentes 2do. Sector
San Nicolás de los Garza, Nuevo León, México C.P. 66460
Contact Name: Orlando Reyes. Phone: 818-057-5931

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

Optical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	BEST MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Reflectance Spectrometers Reflectance Color Spectrometers[FO]	400 nm to 700 nm 0 % to 100 % reflectance (ρ) Color Values: CIE L*: 0 to 100 CIE a*: -40 to 40 CIE b*: -40 to 88	 CIE L*: 0.21 CIE a*: 0.09 CIE b*: 0.15	Ceramic Tiles II-PCAL-OPT-02 ASTM E-1164 ASTM E-308
Transmittance Spectrophotometers[FO]	τ : 10 % T to 90 % T Spectral Bandwidth (2 nm)	(500 x 10^{-4} + 500 x 10^{-5}X) 90 % T reading in % T	Neutral Density Glass Filters Interference Filters II-PCAL-OPT-01 ASTM E-275
	λ : 279.46 nm to 638.02 nm Spectral Bandwidth (2 nm)	0.11 nm	
Gloss Meters[FO]	Angle 20°: 92 Gloss Units	0.17 Gloss Units	High Gloss Glass II-PCAL-OPT-04 ASTM D-523
	Angle 60°: 95 Gloss Units	0.16 Gloss Units	
	Angle 85°: 99 Gloss Units	0.25 Gloss Units	
Hi Gloss Tiles[F]	Angle 20°: 92 Gloss Units	0.17 Gloss Units	
	Angle 60°: 95 Gloss Units	0.16 Gloss Units	
	Angle 85°: 99 Gloss Units	0.25 Gloss Units	
Equipment for Visual Appraisal of the Colors and Color Difference[O]	900 lux to 11 000 lux Light Chambers	(17.16 + 3.35 x 10^{-4}L) lux	Light Meter II-PCAL-OPT-05 ASTM D-1729
Light Meters[F]	1 lux to 20 000 lux	(0.658 + 4.19 x 10^{-4}L) lux	Quartz Tungsten Halogen Lamps Light Meter II-PCAOPT-06 NIST SP 230-57

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
Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J[F]	-180 °C to 750 °C	0.12 °C	Output Fluke 724 Electrical Simulation of Thermocouple Output
Temperature Calibration. Indication and Control Equipment used with RTD Pt 100[F] (27.08 Ω to 360.55 Ω)	-180 °C to 750 °C	0.08 °C	Output Fluke 724 Electrical Simulation of RTD

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Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	BEST MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Kinematic Viscometers[FO] Flow Cups, Glass Capillary Kinematic Viscometers Note: All ranges are at 25°C	68.4 mm^2/s	0.5 % of reading	CENAM Certified Liquids Standards II-PCAL-MEC-03 ISO 2431 ASTM D1200 ASTM D4212 ASTM D446
	160.4 mm^2/s	0.3 % of reading	
	477 mm^2/s	0.1 % of reading	
Dynamic Viscometers - Rotational Viscometers[FO] Note: All ranges are at 25°C	500 Pa·s	1.1 % of reading	Brookfield and Cannon Viscosity Standards Calibration ASTM E-2975 II-PCAL-MEC-01
	1 000 Pa·s	1.1 % of reading	
	5 000 Pa·s	1.1 % of reading	
	12 500 Pa·s	1.1 % of reading	
Potential of Hydrogen - pH Meters[FO]	4 pH	0.34 % of reading	pH 4 BUFFER pH 7 BUFFER pH 10 BUFFER II-PCAL-ELEQ-02 ASTM D-1293
	7 pH	0.24 % of reading	
	10 pH	0.19 % of reading	
Conductivity Meters[FO]	84 µS/cm	1.1 µS/cm	Control, Thermo Electron, HANNA Ricca Chemical Companies Standard Solutions II-PCAL-ELEQ-01 STM D-1125
	1 423 µS/cm	5.5 µS/cm	
	12 880 µS/cm	60 µS/cm	
Turbidity Meters[FO]	20 NTU	2 NTU	Formazin Standards II-PCAL-OPT-07 HACH METHOD 8195
	800 NTU	49 NTU	
	1 000 NTU	51 NTU	
	4 000 NTU	85 NTU	

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
Weight Class F1, F2, M1, M2, M3[F]	1 g	0.03 mg	ABBA Substitution Method. Analytical Scale. Mettler Toledo (Res.= 0.1 mg) OIML E2 Weights
	2 g	0.03 mg	
	5 g	0.05 mg	
	10 g	0.05 mg	
	20 g	0.05 mg	

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Mass, Force and Weighing Devices

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Weight Class F1, F2, M1, M2, M3[F]	50 g	0.07 mg	ABBA Substitution Method. Analytical Scale. Mettler Toledo (Res.= 0.1 mg) OIML E2 Weights
	100 g	0.09 mg	
Weight Class F2, M1, M2, M3[F]	200 g	0.9 mg	ABBA Substitution Method. Analytical Scale. Sartorius (Res.= 1 mg) OIML F1 Weights
	500 g	1.6 mg	
	1 000 g	2.5 mg	
Weight Class F2, M1, M2, M3[F]	2 000 g	5 mg	ABBA Substitution Method. Scale Mettler (Res.= 10 mg) OIML F1 Weights
	5 000 g	5 mg	
Weight Class M2, M3[F]	5 000 g	0.23 g	ABBA Substitution Method. Scale Sartorius (Res.= 0.1 g) OIML M1 Weights
	10 000 g	0.3 g	
	20 000 g	0.4 g	
Scales and Balances[O]	1 g to 200 g	(314 x 10-5 + 847 x 10^{-6}Wt) mg	OIML Class E2, F1 and M1 Weights II-PCAL-MEC-02 ASTM E-617
	1 g to 6 000 g	(3.14 x 10^{-5} + 1.67 x 10^{-6}Wt) g	
	0.1 kg to 100 kg	(5.1 x 10^{-5} + 165 x 10^{-4}Wt) g	

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	BEST MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Thickness Gages[FO]	23 µm to 1 453 µm	0.3 µm	Certified Shim Set II-PCAL-DIM-01 ASTM E-376

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
Temperature Calibration Liquid in Glass Thermometer[F]	5 °C to 60 °C	0.9 °C	Circulation Bath
Temperature Measurement Thermocouple Type T[F]	40 °C to 300 °C	0.16 °C	Reed BX-150 Dry Block Temperature Calibrator

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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
Temperature measurement Thermocouple Type K[F]	40 °C to 300 °C	0.16 °C	Reed BX-150 Dry Block Temperature Calibrator
Temperature Measurement Thermocouple Type J[F]	40 °C to 300 °C	0.16 °C	
Temperature Measurement RTD Pt 1 000 (1 155.4 Ω to 2 120.5 Ω)[F]	40 °C to 300 °C	0.16 °C	
Thermometer of Mercury in Glass[F]	40 °C to 300 °C	0.16 °C	
Temperature Controllers with Thermocouple Type K[FO]	20 °C to 550 °C	(0.24 + 11 x 10^{-4}T) °C	Digital Thermometer II-PCAL-TEMP-01

Time and Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	BEST MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Stopwatch[F]	3 600 s	0.5 s	Stop Watch Direct Comparison Method II-PCAL-TIEMP-01 NIST SP 960-12

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 T represents temperature in ºC or ºF as appropriate to the uncertainty statement.
9. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.