PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Soluciones y Calibraciones, S.A. de C.V.

Carlos Denegrí #79, Local 1, Col. Preconcreto
Delegación Álvaro Obregón, Ciudad de México, México. C.P. 01400

(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):

Mechanical, Electrical, Chemical 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:*
December 15, 2016	November 18, 2018	January 31, 2021
Revision Date:	*Accreditation No.:*	*Certificate No.:*
January 15, 2020	89055	L18-536-R1

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

Soluciones y Calibraciones, S.A. de C.V.
Carlos Denegrí #79 Local 1, Col. Preconcreto
Delegación Álvaro Obregón, Ciudad de México, México. C.P. 01400
Contact Name: Alan Zamora Phone: 552-065-0314

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

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
Indirect Verification of Rockwell Hardness Testers HRB [FO]	20 HRB to 50 HRB	0.35 HRB	Test Block ISO 6508-2 ASTM E18 ASTM E110
	50 HRB to 80 HRB	0.25 HRB	
	80 HRB to 100 HRB	0.4 HRB	
Indirect Verification of Rockwell Hardness Testers HRC [FO]	20 HRC to 30 HRC	0.39 HRC	
	30 HRC to 55 HRC	0.33 HRC	
	55 HRC to 70 HRC	0.32 HRC	
Indirect Verification of Rockwell Hardness Testers HRA [FO]	20 HRA to 40 HRA	0.43 HRA	
	40 HRA to 75 HRA	0.42 HRA	
	75 HRA to 88 HRA	0.17 HRA	
Indirect Verification of Rockwell Hardness Testers HR15T [FO]	73 HR15T to 80 HR15T	0.28 HR15T	
	80 HR15T to 87 HR15T	0.3 HR15T	
	87 HR15T to 93 HR15T	0.45 HR15T	
Indirect Verification of Rockwell Hardness Testers HR30T [FO]	43 HR30T to 56 HR30T	0.56 HR30T	
	56 HR30T to 69 HR30T	0.23 HR30T	
	70 HR30T to 82 RH30T	0.28 HR30T	
Indirect Verification of Rockwell Hardness Tester HR45T[FO]	13 HR45T to 32 HR45T	0.63 HR45T	
	33 HR45T to 52 HR45T	0.62 HR45T	
	53 HR45T to 73 HR45T	0.41 HR45T	
Indirect Verification of Rockwell Hardness Testers HR15N [FO]	70 HR15N to 77 HR15N	0.43 HR15N	
	77 HR15N to 88 HR15N	0.42 HR15N	
	88 HR15N to 92 HR15N	0.5 HR15N	
Indirect Verification of Rockwell Hardness Testers HR30N [FO]	42 HR30N to 54 HR30N	0.43 HR30N	
	54 HR30N to 73 HR30N	0.29 HR30N	
	73 HR30N to 80 HR30N	0.28 HR30N	
Indirect Verification of Rockwell Hardness Tester HR45N[FO]	20 HR45N to 31 HR45N	0.47 HR45N	
	31 HR45N to 61 HR45N	0.46 HR45N	
	61 HR45N to 70 HR45N	0.18 HR45N	
Indirect Verification of Brinell Hardness Tester HBW 10/3 000[FO]	95 HBW to 653 HBW	1.1 HBW	Test Block ISO 6506-2 ASTM E10 ASTM E110
Indirect Verification of Brinell Hardness Tester HBW 10/1500 [FO]	47.7 HBW to 327 HBW	0.93 HBW	

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Indirect Verification of Brinell Hardness Tester HBW 10/1000 FO	31.8 HBW to 218 HBW	2.6 HBW	Test Block ISO 6506-2 ASTM E10 ASTM E110
Indirect Verification of Brinell Hardness Tester HBW 5/750 FO	95.5 HBW to 592 HBW	1.9 HBW	
Indirect Verification of Brinell Hardness Tester HBW 10/500 FO	70 HBW to 160 HBW	0.94 HBW	
Indirect Verification of Brinell Hardness Tester HBW 5/250FO	31.8 HBW to 200 HBW	0.68 HBW	
Indirect Verification of Brinell Hardness Tester HBW 2.5/187.5FO	90 HBW to 650 HBW	1.1 HBW	
Indirect Verification of Brinell Hardness Tester HBW 2.5/62.5FO	31.8 HBW to 220 HBW	1 HBW	
Indirect Verification of Vickers Hardness Tester HV 0.1 kg FO	100 HV to 800 HV	1.7 HV	Test Block ISO 6507-2 ASTM E384 ASTM E92
Indirect Verification of Vickers Hardness Tester HV 0.2 kg FO	100 HV to 800 HV	1.9 HV	
Indirect Verification of Vickers Hardness Tester HV 0.3 kg FO	100 HV to 800 HV	6.2 HV	
Indirect Verification of Vickers Hardness Tester HV 0.5 kg FO	100 HV to 800 HV	6.7 HV	
Indirect Verification of Vickers Hardness Tester HV 1 kg FO	200 HV to 800 HV	3.6 HV	
Indirect Verification of Vickers Hardness Tester HV 5 kg FO	200 HV to 800 HV	2.7 HV	
Indirect Verification of Vickers Hardness Tester HV 10 kg FO	200 HV to 800 HV	1.5 HV	

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Mechanical

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Indirect Verification of Vickers Hardness Tester HV 30 kg [FO]	200 HV to 800 HV	2.9 HV	Test Block ISO 6507-2 ASTM E384 ASTM E92
Indirect Verification of Knoop Hardness Tester HK 0.3 kg [FO]	100 HK to 800 HK	12 HK	Test Block ISO 4545-2 ASTM E384 ASTM E92
Indirect Verification of Knoop Hardness Tester HK 0.5 kg [FO]	100 HK to 800 HK	9.6 HK	
Indirect Verification of Leeb Hardness Tester LD[FO]	500 LD to 800 LD	16 HLD	Test Block ASTM A956

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[FO]	-210 ºC to 1 200 ºC	1.2 ºC	Electrical Simulation of Thermocouple Output Fluke 725 Euramet-cg11
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type K[FO]	-200 ºC to 1 372 °C	1.4 ºC	
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type T[FO]	-250 ºC to 400 ºC	1.4 ºC	
Temperature Calibration, Indication, and Control Equipment used with Thermocouple Type RTD PT 100, 385 Ω[FO]	-200 ºC to 800 ºC	0.4 °C	

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Chemical

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Indicator, Controller pH Meter[FO]	4 pH	0.01 pH	Buffer Solution SRM NIST/CENAM Technical Guide CENAM
	7 pH	0.01 pH	
	10 pH	0.01 pH	

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
Thermocouples Type K, J, T and Pt 100, 385 Ω[FO]	-45 °C to 500 °C	1.5 °C	Process Calibrator Fluke 725 with PT 100 Dry Block Fluke 9 100S Complete Calibrator DW 500 Fluidized Bath
Thermohygrometer Only Humidity[FO]	30 % RH to 90 % RH	0.5 % RH	Thermohygrometer CEM Humidity Chamber
Thermometer, Indicator Thermohygrometer Only Temperature Charpy Cool, Data Logger Graphicators[FO]	- 45 °C to 350 °C	0.6 °C	Process Calibrator Fluke 725 with Pt 100, Fluidized Bath, Humidity Chamber
Infrared Thermometer[FO]	50 °C to 500 °C	2.1 °C	Mitchell Model MITST6B Black Body Complete Calibrator Technical Guide CENAM

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.

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

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.