CERTIFICADO #8811
CAL 21-3675

Laboratorio de Metrología
Termómetros de lectura directa

Certificado de calibración

Juan Daniel Padilla de la Sancha/JD Calibraciones. Agustín Millán #130, Granjas Valle de Guadalupe, Ecatepec Edo. de México, 55270, tel. 01 (55) 4999 4110.
Acreditación ISO/IEC 17025:2017 #93752 por **Perry Johnson Laboratory Accreditation Inc.**

JD Calibraciones

PJLA

1. Cliente

Spectralab Instrumentación

2. Dirección del cliente

Calle Chimalpopoca No.76 Col. Arenal 2a Sección CP15680, Venustiano Carranza, CDMX

3. Método y procedimiento utilizado

Calibración de termómetros de lectura directa

4. Datos del instrumento a calibrar (IBC)

Marca	*Taylor*	ID del cliente	*Taylor 9842 21-3675*
Modelo	*9842*	Resolución	*0.1 °C*
Serie	*ND*	Alcance	*-40 a 230 °C*
Fecha de recepción	*25/10/2021*	Fecha de calibración	*27/10/2021*

5. Condiciones ambientales

Temperatura	*20.2 °C*	Humedad relativa	*49%*

6. Datos del patrón utilizado

Patrón	*USB reference thermometer*	Resolución	*0.01 °C*
No serie	*35041521*	Identificación	*Inv#1*
Alcance	*-50 a 150 °C*	Exactitud & incertidumbre	*0.05 & 0.1 °C*

7. Resultado de la calibración

Indicación del patrón °C	Indicación del IBC °C	Error del IBC °C	Incertidumbre expandida ± °C
32.0	32.2	0.2	1.2
36.9	37.1	0.2	1.2
42.0	42.2	0.2	1.2

La incertidumbre combinada "U" se expresa con un factor de cobertura k=2 que corresponde aproximadamente a un nivel de confianza del 95%. Se calcula con base en la guía para la expresión de incertidumbre en los resultados de las mediciones (NMX-CH-140-IMNC-2002).
"Los resultados de calibración publicados en este certificado se obtuvieron utilizando equipo capaz de producir resultados trazables al CENAM y a través del CENAM al Sistema Internacional de Unidades (SI)".

8. Próxima calibración (indicada por el cliente)

Fecha de próxima calibración *NOVIEMBRE 2022*

Autorizado por: Gerente/Daniel Padilla

Fecha de emisión: 27/10/2021

Laboratorio acreditado ISO/IEC 17025:2017
JD Calibraciones PJLA Calibration
No. Acreditación 93752
Un nuevo nivel de servicio
Temperatura, humedad, electricidad, presión, acústica, pH y CE

PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Juan Daniel Padilla de la Sancha / JD Calibraciones

Agustín Millán #130, Col. Granjas Valle de Guadalupe
Ecatepec, Estado de México, México. C.P. 55270

(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):

Thermodynamic, Electrical, Mechanical, Acoustic and Chemical 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:*
April 14, 2017	April 29, 2021	July 31, 2023

Accreditation No.:	*Certificate No.:*
93752	L21-268

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

Juan Daniel Padilla de la Sancha/JD Calibraciones
Agustín Millán #130, Col. Granjas Valle de Guadalupe
Ecatepec, Estado de México, México. C.P. 55270
Contact Name: Juan Daniel Padilla de la Sancha Phone: 556-350-2487

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

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (1)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Liquid in Glass Thermometers[FO]	-30 °C to 400 °C	0.08 °C	Liquid Bath, Dry Block 3101 Fluke 9100s, Omega CL-355A Omega CL 1000 Fluke 9102S Fluke 1524 and Calibrator VA710 CENAM Technical Guide
Infrared Temperature Instruments[FO]	30 °C to 500 °C	1.3 °C	Blackbody Target, Fluke 1524 and Calibrator VA710 CENAM Technical Guide
Infrared Temperature Instruments[FO]	-20 °C to 30 °C	1.3 °C	Ice Bath, Liquid Bath and Black Body Thermoworks Fluke 1524 CENAM Technical Guide
Thermo-Hygrometer Fixed Points Humidity Only[FO]	30 % RH	2 % RH	Salt Chamber and Fisherbrand 1166121 Thermohygrometer CENAM Technical Guide
	45 % RH	2 % RH	
	70 % RH	2 % RH	
	80 % RH	2 % RH	
	90 % RH	2 % RH	
Equipment to Measure Temperature, Thermometer – Direct Reading[FO]	-30 °C to 400 °C	0.08 °C	Liquid Bath, Dry Block 3101 Fluke 9100s, Omega CL-355A, Omega CL 1000 Fluke 9102S, Boekel CCC 2.5d Chamber ZinekLab Cold Chamber Fluke 1524 and Calibrator VA710 CENAM Technical Guide
Temperature Measurement Thermocouple Type E[FO]	-30 °C to 400 °C	0.08 °C	
Temperature Measurement Thermocouple Type J[FO]	-30 °C to 400 °C	0.08 °C	
Temperature Measurement Thermocouple Type K[FO]	-30 °C to 400 °C	0.08 °C	
Temperature Measurement Thermocouple Type N[FO]	-30 °C to 400 °C	0.08 °C	
Temperature Measurement Thermocouple Type T[FO]	-30 °C to 400 °C	0.08 °C	

Certificate of Accreditation: Supplement

Juan Daniel Padilla de la Sancha/JD Calibraciones
Agustín Millán #130, Col. Granjas Valle de Guadalupe
Ecatepec, Estado de México, México. C.P. 55270
Contact Name: Juan Daniel Padilla de la Sancha Phone: 556-350-2487

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

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (1)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Temperature Calibration Indication, and Control Equipment used with Thermocouple Type E[FO]	-200 °C to 950 °C	1 °C	Electrical Simulation of Thermocouple, Thermoworks Calibrator VA710 CENAM Technical Guide Euramet-cg-15
Temperature Calibration Indication, and Control Equipment used with Thermocouple Type J[FO]	-200 °C to 1 200 °C	1 °C	
Temperature Calibration Indication, and Control Equipment used with Thermocouple Type K[FO]	-200 °C to 1 370 °C	1 °C	
Temperature Calibration Indication, and Control Equipment used with Thermocouple Type T[FO]	-200 °C to 400 °C	1 °C	
Equipment to Measure DC Voltage[F]	Up to 4 000 mV	0.082 % of reading + 0.14 mV	Brand: GPUVE Model: GP6018A CENAM Technical Guide Euramet-cg-15
	4 V to 1 000 V	0.082 % of reading + 0.000 58 V	
Equipment to Measure DC Current[F]	0.2 A to 20 A	0.17 % of reading + 0.000 04 A	
	2 mA to 20 mA	0.17 % of reading + 0.027 mA	
	20 µA to 400 µA	0.17 % of reading + 25 µA	
Equipment to Measure AC Voltage[F] @60 Hz	Up to 4 000 mV	0.59 % of reading + 0.19 mV	
	4 V to 1 000 V	0.082 % of reading + 0.000 18 V	
Equipment to Measure AC Current[F] @ 60 Hz	0.2 A to 20 A	0.083 % of reading + 0.000 18 A	
	2 mA to 20 mA	0.56 % of reading + 0.17 mA	
Equipment to Measure Resistance[F]	Up to 2 kΩ	0.96 % of reading + 0.000 58 kΩ	
	Up to 200 Ω	1.3 % of reading + 0.000 58 Ω	
	2 kΩ to 4 kΩ	0.96 % of reading + 0.000 58 kΩ	
	200 Ω to 400 Ω	1.3 % of reading + 0.000 058 Ω	
	2 MΩ to 4 MΩ	1.3 % of reading + 0.000 061 MΩ	
	Up to 2 MΩ	1.3 % of reading + 0.000 061 MΩ	
Equipment to Measure Current by Clamp Meter[F]	Up to 200 A	0.96 % of reading + 0.000 058 A	Brand: GPUVE Model: GP6018A CENAM Technical Guide Euramet-cg-15
	200 A to 600 A	1.3 % of reading + 0.000 058 A	
	600 A to 1 000 A	2.6 % of reading + 0.000 058 A	

Certificate of Accreditation: Supplement

Juan Daniel Padilla de la Sancha/JD Calibraciones
Agustín Millán #130, Col. Granjas Valle de Guadalupe
Ecatepec, Estado de México, México. C.P. 55270
Contact Name: Juan Daniel Padilla de la Sancha Phone: 556-350-2487

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 (1)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Vacuum Gauges[FO]	-15 inHg to 0 inHg	0.3 inHg @ 20 °C	Digital Gauge Additel 681 DCT Instruments JAW15VZ CENAM Technical Guide
Pressure[FO]	15 psi to 3 000 psi	1.1 psi	

Acoustical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (1)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Sound Level Meter Fixed Points[F]	94 dB to 114 dB	0.9 dB	Acoustical Calibrator REED R8090 PRO T13-01

Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (1)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Conductivity Meter Fixed Points[F]	84 µS/cm to 1 413 µS/cm	1.5 µS/cm	Hanna Conductivity Solutions CENAM Technical Guide
pH Meter Fixed Points[F]	4 pH	0.02 pH	Milwaukee pH Solutions CENAM Technical Guide
	7 pH	0.02 pH	
	10 pH	0.02 pH	

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 as 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.

Certificate of Accreditation: Supplement

Juan Daniel Padilla de la Sancha/JD Calibraciones
Agustín Millán #130, Col. Granjas Valle de Guadalupe
Ecatepec, Estado de México, México. C.P. 55270
Contact Name: Juan Daniel Padilla de la Sancha Phone: 556-350-2487

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 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.

5. 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.

JD Calibraciones

Laboratorio de Metrología

Acreditación ISO/IEC 17025

PJLA
Calibration
No. acreditación 93752

El certificado de calibración que tienes en tus manos, emitido por JD Calibraciones, es válido en el territorio Nacional. Está respaldado por una acreditación otorgada por PERRY JONHSON LABORATORY ACREDITATION INC. (PJLA), uno de los cuerpos de acreditación mas prestigiados a nivel nacional e internacional, así como por el acuerdo internacional ILAC-MRA. Este acuerdo da a nuestras calibraciones la misma validez que los laboratorios acreditados por otros cuerpos por ejemplo ema(México), UKAS (Inglaterra), a2La (EU),etc. A continuación se muestra la documentación que respalda lo indicado:

ilac

ILAC MUTUAL RECOGNITION ARRANGEMENT

SIGNATORIES

We, the undersigned, endorse the terms of the ILAC Arrangement and undertake, to the best of our ability, fulfillment of its objectives.

Accreditation Body: entidad mexicana de acreditación a.c. (ema)

Economy: Mexico

Scope and date: Testing ISO/IEC 17025 and ISO 15189 – 17 November 2005
Calibration ISO/IEC 17025 – 17 November 2005
Inspection ISO/IEC 17020 – 24 October 2012

Authorised Representative:

Signature: _____ **Date:** 25 October 2012

Chairman, ILAC Arrangement Council:

Signature: _____ **Date:** 25 October 2012

ilac

ILAC MUTUAL RECOGNITION ARRANGEMENT

SIGNATORIES

We, the undersigned, endorse the terms of the ILAC Arrangement and undertake, to the best of our ability, fulfillment of its objectives.

Accreditation Body: Perry Johnson Laboratory Accreditation Inc (PJLA)

Economy: United States of America

Scope: Calibration (extension of existing scope)

Authorised Representative:

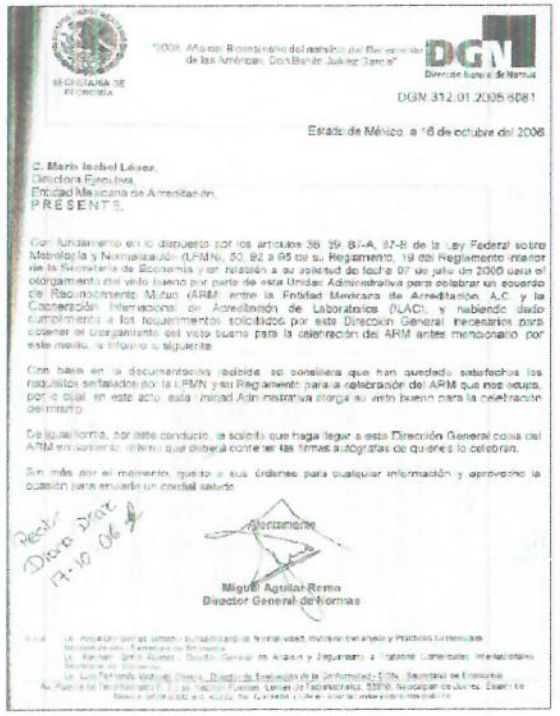
Signature: _____ **Date:** 21 May 2009

Tracy Szerszen

Chairman, ILAC Arrangement Council:

Signature: _____ **Date:** 21 May 2009

Daniel Peris



SECRETARÍA DE ECONOMÍA

"2008, Año del Bicentenario del natalicio de Benemérito de las Américas, Don Benito Juárez García"

DGM

Dirección General de Normas

DGM 312.01.2008/6081

Estado de México, a 16 de octubre del 2008

C. María Isabel López.
Directora Ejecutiva.
Entidad Mexicana de Acreditación.
PRESENTE.

Con fundamento en lo dispuesto por los artículos 38, 39 BIS-A, 87-B de la Ley Federal sobre Metrología y Normalización (LFMN), 50, 82 a 85 de su Reglamento, 19 del Reglamento Interior de la Secretaría de Economía y en relación a su solicitud de fecha 07 de julio de 2008 para el otorgamiento del visto bueno por parte de esta Unidad Administrativa para celebrar un acuerdo de Reconocimiento Mutuo (ARM) entre la Entidad Mexicana de Acreditación, A.C. y la Cooperación Internacional de Acreditación de Laboratorios (ILAC), y habiendo dado cumplimiento a los requerimientos solicitados por esta Dirección General necesarios para obtener el otorgamiento del visto bueno para la celebración del ARM antes mencionado, por este medio, le informo lo siguiente:

Con base en la documentación recibida, se considera que han quedado satisfechos los requisitos señalados por la LFMN y su Reglamento para la celebración del ARM que nos ocupa, por lo cual, en este acto, esta Unidad Administrativa otorga su visto bueno para la celebración del mismo.

De igual forma, por este conducto, le solicito que haga llegar a esta Dirección General copia del ARM en cuestión, mismo que deberá contener las firmas autógrafas de quienes lo celebran.

Sin más por el momento, quedo a sus órdenes para cualquier información y aprovecho la ocasión para enviarle un cordial saludo.

Atentamente

Miguel Aguilar Romo
Director General de Normas

Estos documentos fundamentan la validez de nuestras calibraciones y certificados por lo cual no dude en presentarlos ante cualquier, inspección, auditoría, autoridad, etc.


Trazabilidad del laboratorio
Termoworks USB Reference Themometer serie 35041521
1 •Centro Nacional de Metrología México- puntos fijos
2 •METAS, Termómetro de platino U= ± 0,011 °C; k=2
3 •EVAMEA termómetro de resistencia de platino U= ± 0,013 °C; k=2
4 • Juan Daniel Padilla de la Sancha, Termoworks Precision Plus Thermometer D18120651 U= ± 0,05 °C; k=2
5 • Juan Daniel Padilla de la Sancha, Termoworks NIST Reference Thermometer 35041521 U= ± 0,3 °C; k=2
6 •Termómetros de los clientes
Fecha de actualización 15/01/2021
1/1

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Trazabilidad del laboratorio
Termoworks Reference Thermapen serie B19380730
1 •Centro Nacional de Metrología México- puntos fijos
2 •METAS, Termómetro de platino U= ± 0,011 °C; k=2
3 •EVAMEA termómetro de resistencia de platino U= ± 0,013 °C; k=2
4 • Juan Daniel Padilla de la Sancha, Termoworks Precision Plus Thermometer D18120651 U= ± 0,05 °C; k=2
5 • Juan Daniel Padilla de la Sancha, Termoworks Reference Thermapen B19380730 U= ± 0,3 °C; k=2
6 •Termómetros de los clientes
Fecha de actualización 15/01/2021
1/1

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JD CALIBRACIONES Laboratorio de metrología
Trazabilidad del laboratorio
Humedad relativa
Fisherbrand 11661121 serie 192556871
1 •Centro Nacional de Metrología México- Generador de humedad
2 •METAS, higrómetra digital U= ± 0.5 a ± 1.5 % HR; k=2
3 •EVAMEA, medidor de humedad relativa con sonda U= ± 1.1 a 1.7 % HR; k=2
4 • JD Calibraciones, termohigrometro digital U= ± 1.8 % HR; k=2
5 •Termohigrometros de los clientes
Fecha de actualización 04/08/2020
1/1

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JD CALIBRACIONES Laboratorio de metrología
Trazabilidad del laboratorio
Humedad relativa
Thermoworks 6500 serie D18010726
1 •Centro Nacional de Metrología México - Generador de humedad
2 •METAS, higrómetra digital U= ± 0.5 a ± 1.5 % HR; k=2
3 •EVAMEA, medidor de humedad relativa con sonda U= ± 1.1 a 1.7 % HR; k=2
4 • JD Calibraciones, termohigrómetro digital U= ± 1.8 % HR; k=2
5 •Termohigrómetros de los clientes
Fecha de actualización 04/08/2020
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