PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Metrosmart, S.A. de C.V. / Metrokal

Alcatraz 23, Paseos del Pedregal Salitre
El Salitre, Querétaro, México. C.P. 76223

(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):

Time and Frequency, Dimensional, Mechanical, Thermodynamic, Chemical, Optical and Electrical 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:*
December 3, 2022	November 13, 2024	December 31, 2026

Accreditation No.:	*Certificate No.:*
74050	L24-868

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

Metrosmart, S.A. de C.V. / Metrokal
Alcatraz 23, Paseos del Pedregal Salitre
El Salitre, Querétaro, México. C.P. 76223
Contact Name: Efrain Calva Gomez Phone: 442-220-7054

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

Time and Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Melt Flow Index Time[FO]	1 min to 10 min	0.84 s	Stopwatch	ASTM D1238
Speed - Force Test Machines[FO]	1 mm/min to 600 mm/min	0.84 s		ASTM E2658
Tachometer Rate of Rotation, Rotational Frequency Measuring Machines[FO]	30 rpm to 99 999 rpm	0.6 rpm	AS432-B Tachometer Mitutoyo Stroboscopic Lamp OMEGA Optical Tachometer Adapter TRANSMILLE	CENAM Technical Guide
	0.01 rad/s to 10 472 rad/s	0.006 rad/s		
Stopwatch Fixed Point[FO]	15 s	0.072 s	Chronometer, Control Company Model: 1021	NIST Recommended Practice Guide, Special Publication 960-12
	86 400 s	3 s		

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Force Test Machines Displacement[O]	Up to 600 mm	0.011 mm	Digital Caliper 600 mm	ASTM E 2309/ E 2309M
Melt Flow Index[FO] (Plastometer)	Up to 25 mm	2 µm	Micrometer (Piston Foot Diameter, Piston Foot Length) Gage Go -No Go (Capilary Diameter)	ASTM D 1238
Laser Micrometer[FO]	Up to 25.4 mm	$(0.19 + 3 \times 10^{-3}L)$ µm	Cylindric Patterns, Mahr;	NMX-CH-99-SCFI
Handheld Laser Distance Meters[FO]	Up to 100 m	$(0.61 + 0.012L)$ mm	Measuring Tape, Lufkin Mod: N250M	BS ISO 16331-1
Numerically Controlled Machine Tool (CNC)- X, Y, Z (Linear Displacement Accuracy) [FO]	Up to 15 000 mm	$(0.25 + 8.4 \times 10^{-4}L)$ µm	Laser Measurement System, Renishaw Mod: XL-80	ISO 230-2

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Dimensional

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Digital Scale Ruler[FO]	Up to 1 000 mm (Res.= 0.01 mm)	(6.8 + 4.4 x 10^{-3}L) µm	Gage Blocks Master Grade 0 and Grade 1	JIS B 7507 Direct Comparison
Welding Gauge[FO] Angle, Distance, Radio and Depth	Up to 360° Up to 300 mm	0.6° 60 µm	Gage Block Set Angle Gage Block set Vision System	NMX-CH-002-IMNC NMX-CH-151-IMNC ASME Y 14.5
PCMM Volumetric Performance[O]	Up to 4 000 mm	(5 + 1L) µm	2 000 mm Ball Bar	ISO ANSI/ ASME B89.422-R
PCMM Effective Diameter Fixed Point Calibration[O]	Sphere Diameter 25.4 mm	0. 02 µm	Calibrated Sphere	ISO 3290-1
Pi Tapes[F]	50.8 mm to 3 048 mm (Res.= 0.01 mm)	(0.105 + 0.020 6L) mm	Linear Scale (Horizontal Measurement System) SINO SDS6-2V MTK-LAB-TEC-69 Pi tapes	SOP 23 NIST CENAM Technical Guide

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Direct Calibration of Testing Machines, Force Instruments and Force Transducer (Tension)[FO]	0.1 N to 588.39 kN	0.12 % of reading	Reference Force Transducer	NMX-CH-7500-1-INMC NMX-CH-376-INMC
Direct Calibration of Testing Machines, Force Instruments and Force Transducer (Compression)[FO]	0.1 N to 588.39 kN	0.12 % of reading		
Indirect Verification of Rockwell Hardness Tester HREW[FO]	70 HREW to 83 HREW	0.55 HREW	Hardness Reference Test Block	ASTM E-18
	84HREW to 92 HREW	0.44 HREW		
	93 HREW to 105 HREW	0.7 HREW		

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Indirect Verification of Rockwell Hardness Tester HRBW[FO]	20 HRBW to 59 HRBW	0.61 HRBW	Hardness Reference Test Block	ASTM E-18
	60 HRBW to 84 HRBW	0.56 HRBW		
	85 HRBW to 100 HRBW	0.59 HRBW		
Indirect Verification of Rockwell Hardness Tester HRC[FO]	20 HRC to 34 HRC	0.32 HRC		
	35 HRC to 59 HRC	0.31 HRC		
	60 HRC to 70 HRC	0.28 HRC		
Indirect Verification of Rockwell Hardness Tester HRA[FO]	20 HRA to 65 HRA	0.36 HRA		
	70 HRA to 78 HRA	0.35 HRA		
	80 HRA to 84 HRA	0.23 HRA		
Indirect Verification of Rockwell Hardness Tester HRF[FO]	57 HRF to 75 HRF	0.53 HRF		
	80 HRF to 90 HRF	0.65 HRF		
	94 HRF to 100 HRF	0.64 HRF		
Indirect Verification of Rockwell Hardness Tester HR30N[FO]	42 HR30N to 50 HR30N	0.26 HR30N		
	55 HR30N to 73 HR30N	0.37 HR30N		
	77 HR30N to 82 HR30N	0.29 HR30N		
Indirect Verification of Rockwell Hardness Tester HR30T[FO]	43 HR30T to 56 HR30T	0.54 HR30T		
	57 HR30T to 69 HR30T	0.55 HR30T		
	70 HR30T to 83 HR30T	0.5 HR30T		
Indirect Verification of Brinell Hardness tester HBW 10/3 000[FO]	95.5 HBW to 250 HBW	2.9 HBW		ASTM E-10
	250 HBW to 450 HBW	6.8 HBW		
	450 HBW to 600 HBW	8.9 HBW		
Indirect Verification of Brinell Hardness tester HBW 2.5/187.5[FO]	95.5 HBW to 250 HBW	2.4 HBW		
	250 HBW to 450 HBW	5.1 HBW		
	450 HBW to 600 HBW	9.2 HBW		
Verification of Vickers Micro Hardness Tester HV 0.5[FO]	100 HV to 240 HV	4.4 HV		ASTM E-384
Indirect verification of Rockwell hardness tester HR15N[FO]	70 HR15N to 77 HR15N	0.44 HR15N	Indirect Verification per using Hardness Test Blocks	ASTM E18
	78 HRN15N to 88 HR15N	0.46 HR15N		
	90 HRN15N to 92 HR15N	0.53 HR15N		

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Indirect verification of Rockwell hardness tester HR15TW[FO]	74 HR15TW to 80 HR15TW	0.57 HR15TW	Indirect Verification per using Hardness Test Blocks	ASTM E18
	81 HR15TW to 86 HR15TW	0.55 HR15TW		
	87 HR15TW to 93 HR15TW	0.64 HR15TW		
Direct Verification of Durometer Hardness Tester Types: A, B, C, D, E, O, OO & DO	2.46 mm to 2.54 mm	6 µm	Mahr, MarVision MM320 Vision Equipment	ASTM D2240
Extension at zero reading				
Indentor Shape (Not all parameters apply to all of Durometer Types)				
Identor Diameter		6 µm	Mahr, MarVision MM320 Vision Equipment	
Identor Tip Diameter		6 µm		
Identor Tip Radius		6 µm		
Identor Tip Angle		0.1°A		
Durometers Identor Spring				
Types A, B, E & O	0.55 N to 8.05 N	0.045 N	Load Cell Interfase (Res.= 0.001 N)	
Types C, D, & DO[FO]	4.445 N to 44.45 N	1.4 N		
Torque Tools, Electrical and Pneumatic Screwdriver[FO]	0.5 N·m to 10 N·m	0.12 % of reading	Set Torque Transducer NORBAR 50673 Log Joint Simulator and Dynamic Transducer Desoutter RT5SQ75	ISO 5393 ISO-6789-2 / NMX-CH-6789-IMNC
	2.5 N·m to 25 N·m	0.12 % of reading		
	20 N·m to 400 N·m	0.16 % of reading	Set Torque Transducer NORBAR 50675 Log Joint Simulator and Dynamic Transducer Desoutter, RT5SQ75	

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Torque Tools, Electrical and Pneumatic Screwdriver[FO]	250 N·m to 2 500 N·m	0.19 % of reading	Set Torque Transducer NORBAR 50703 Log Joint Simulator and Dynamic Transducer Desoutter, RT5SQ75	ISO 5393 ISO-6789-2 / NMX-CH-6789-IMNC
Torque Transducer, Spring Tester Machines, Bottle Cap Torque tester, Analyzer of Torque[FO]	0.1 N·m to 100 N·m	0.1 % of reading	Lever Arm and Suspended Set Mass, Class F1 Weights.	Euramet_cg-14 CENAM Technical Guide
Liquid Flow Meters[F]	450 L/h to 180 000 L/h	0.087 % of reading	Flow Meter Brand: Micro Motion Model: CMF050M322N2BASZZZ Type: Coriolis, Flow Meter Brand: Micro Motion Model: CMF200M419NQBUEZZZ Type: Coriolis Flow Meter Brand: Micro Motion Model: CMF300M426NABUSZZZ Type: Coriolis	CENAM Technical Guide
Liquid Flow Meters[F]	6 L/h to 3 000 L/h	0.054 % of reading	Graduated Neck Volumetric Measurement 5 L, 10 L, 20 L, 50 L Graduated Cylinder 100 ml	
Special Containers, Volumetric Containers, Volumetric Measurement of Graduated Neck[F]	10 mL to 20 000 mL	0.025 % of reading	OHAUS, EX6202 Electronic Balance WA30IX, Master Volumetric Container OHAUS, EX6202	ISO 4787 NMX-CH-049-IMNC OIML R120 CENAM Technical Guide
Volume Measurement Containers[F]	200 L to 30 000 L (Res.= 0.01 L)	0.11 % of reading	Flow Meter, Brand: Micro Motion Model: CMF200M419NQBUEZZZ Type Coriolis,	OIML R120

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Thermodynamic

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Furnaces–Mufflers[O]	0 °C to 420 °C	0.077 °C	RTD Brand: Wika, Model: CTP 5000-450-B Calibrator with Indicator ASL/WIKA CTR2000-024 Brand: Isotech Model: 1600 Thermocouple Type S & Dry Block Additel	MTK-LAB-T-01 Internal Procedure CENAM Technical Guide
	420 °C to 900 °C	2.4 °C		
Radiation Thermometer[FO]	35 °C to 400 °C	0.7 °C	Black body Fluke	
	400 °C to 500 °C	2.5 °C		
Humidity Meter[FO]	10 % RH to 95 % RH	1.2 % RH	Digital Hygrometer, Vaisala MI70 Chamber of Humidity and Salts	CENAM Technical Guide MTK-LAB-H-01 Procedure
	97 % RH	1.2 % RH	Digital Hygrometer Vaisala MI70 Salt Certified by Vaisala	
Liquids in Glass Thermometer[F]	-25 °C to 420 °C	0.062 °C	RTD Brand: Wika, Model: CTP 5000-450-B Calibrator with Indicator ASL/WIKA CTR2000-024 Liquid bath Calibrator Sika Model TPM165S Liquid bath Calibrator Isotech Model Drago Dryblock Calibrator Additel Model ADT875PC-660	Direct Comparation Method MTK-LAB-T-01 Procedure
Thermometer Direct Reading[FO]	-50 °C to 350 °C	0.11 °C	RTD Brand: Bourns, Model: WPP0G1-12-5A/LT40 Calibrator with Indicator WIKA, CTH7000 Dry Block Sika TP37200E.2 Fluke 9140 Calibrator, Dry Block ADDITEL ADT875PC-660 Direct Comparation Method	

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Thermodynamic

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Thermometer Direct Reading[FO]	350 °C to 420 °C	0.21 °C	RTD Brand: Bourns, Model: WPP0G1-12-5A/LT40 Calibrator with Indicator WIKA, CTH7000 Thermocouple Type S Brand: Isotech Model: 1600 Indicator Fluke 754 Dry Block Fluke 9140, Dry Block , Additel ADT875PC-660, Additel ADT875PC-1210	Direct Comparation Method MTK-LAB-T-01 Internal Procedure
	420 °C to 1 197 °C	2.3 °C		
Oven Calibratión / System Accuracy Test (SAT) [O]	-50 °C to 420 °C	0.11 °C	Data Logger Brand: Panran Model: PR2038	AMS2750 CQI-9
Oven Calibratión / System Accuracy Test (SAT) [O]	420 °C to 1 197 °C	2.3 °C	Data Logger Brand: Panran Model: PR2038	AMS2750 CQI-9
Climatic Chambers, Refrigerating (Freezer) Chambers, Sterilizer & Incubators[O]	-50 °C to 420 °C	0.11 °C	RTD Brand: Bourns, Model: WPP0G1-12-5A/LT40 Calibrator with Indicator WIKA, CTH7000 Thermocouple Type S Brand: Isotech Model: 1600 Indicator Fluke 754 Dry Block Fluke 9140, Dry Block , Additel ADT875PC-660, Additel ADT875PC-1210	Direct Comparation Method CENAM Technical Guide MTK-LAB-T-01 Internal Procedure
	420 °C to 900 °C	2.4 °C		
Bi-Metal Thermometer[FO]	-25 °C to 420 °C	0.29 °C	RTD Brand: Wika, Model: CTP 5000-450-B Calibrator with Indicator ASL/WIKA CTR2000-024 Liquid bath Calibrator Sika Model TPM165S Liquid bath Calibrator Isotech, Model Drago Dryblock Calibrator Additel Model ADT875PC-660	
Melt Flow Index Chamber Temperature Only[FO]	20 °C to 400 ºC	0.1 ºC	Thermometer with RTD PT 100 Industrial (Res.= 0.01 ºC)	Direct Comparison Method ASTM D1238

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Chemical

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Refractometer[FO]	0 °Brix to 75 °Brix	0.022 °Brix	Reference Solution INIMET	CENAM Technical Guide
pH Meters[FO]	4 pH	0.014 pH	Reference Solution Fermont	
	7 pH	0.011 pH		
	10 pH	0.02 pH	Sodium Carbonate and Sodium Carbonate Salts Certified in pH	
Conductivity Meter[FO]	5 µS	1 µS	Conductivity Solutions & Aliquot Cenam, Aqueous Solution of 0.0003 mol/kg CENAM Aqueous Solution of 0.001 mol/kg Analytical Scale Mettler Toledo AT201, Mettler Toledo XP1203S	
	10 µS	1 µS		
	84 µS	1 µS		
	1 413 µS	5 µS		
	12 880 µS	50 µS		
Gas Detector Gas Analyzer Oxigen (O_2)[F]	0.21 cmol/mol to 21 cmol/mol	1 % of reading	Reference Material 21 cmol/mol of O_2 Gas Divider (1 to 100) %	MTK-LAB-DG-01 Internal Procedure
Gas Detector Gas Analyzer Oxigen (O_2)[F]	0.1 cmol/mol to 10 cmol/mol	1 % of reading	Reference Material 10 cmol/mol of O_2 Gas Divider (1 to 100) %	
Gas Detector Gas Analyzer Carbon Monoxide (CO)[F]	10 µmol/mol to 1 000 µmol/mol	1 % of reading	Reference Material 1 000 µmol/mol of CO Gas Divider (1 to 100) %	
Gas Detector Gas Analyzer Methane (CH_4)[F]	0.03 cmol/mol to 3 cmol/mol	1 % of reading	Reference Material 3 cmol/mol of CH4 Gas divider (1 to 100) %	
Gas Detector Gas Analyzer Hidrogen Sulfide H_2S)[F]	0.3 µmol/mol to 30 µmol/mol	2.8 % of reading	Reference Material 30 µmol/mol of H2S Gas Divider (1 to 100) %	

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Gas Detector Gas Analyzer Carbon Dioxide (CO_2)[F]	20 µmol/mol to 2 000 µmol/mol	1 % of reading	Reference Material 2 000 µmol/mol of CO_2 Gas divider (1 to 100) %	MTK-LAB-DG-01 Internal Procedure
	0.2 cmol/mol to 20 cmol/mol	1 % of reading	Reference Material 20 cmol/mol of CO_2 Gas Divider (1 to 100) %	
Gas Detector Gas Analyzer Nitric Oxide (NO)[F]	50 µmol/mol to 5 000 µmol/mol	1 % of reading	Reference Material 5 000 µmol/mol of NO Gas Divider (1 to 100) %	
Gas Detector Gas Analyzer Sulfur Dioxide (SO_2)[F]	30 µmol/mol to 3 000 µmol/mol	1 % of reading	Reference Material 3 000 µmol/mol of SO2 Gas Divider (1 to 100) %	
Dynamic Viscosity[F]	0.1 Pa·s to 100 Pa·s	2 % of reading	Canon Certified Reference Standards Oil 25 ºC	ASTM D445

Optical

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Luxmeter[F]	20.6 lux to 4 400 lux	2 % of reading	Luxmeter Lutron Comparison CNM-MFO-PT-004 MTK-LAB-MO-01	CENAM Technical Guide

Electrical

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Temperature Calibration Indication and Control Equipment Used with Thermocouple Type J[FO]	-100 °C to 0 °C	0.19 °C	Electrical Simulation of Thermocouple Process Calibrator Fluke 754 Instrument	MTK-LAB-T-01 Internal Procedure Direct Comparison Method
	0 °C to 1 100 °C	0.29 °C		

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Temperature Calibration Indication and Control Equipment Used with Thermocouple Type K[FO]	-100 °C to 0 °C	0.23 °C	Electrical Simulation of Thermocouple Process Calibrator Fluke 754 Instrument	MTK-LAB-T-01 Internal Procedure Direct Comparison Method
	0 °C to 1 200 °C	0.34 °C		
Temperature Calibration Indication and Control Equipment Used with Thermocouple Type S[FO]	0 °C to 1 200 °C	0.72 °C		
Temperature Calibration Indication and Control Equipment Used with Thermocouple Type T[FO]	-100 °C to 0 °C	0.30 °C		
	0 °C to 400 °C	0.20 °C		
Temperature Calibration Indication and Control Equipment Used with RTD, Type Pt 100385[FO]	-200 °C to 0 °C	0.096 °C		
	0 °C to 420 °C	0.14 °C		
Equipment to Measure DC Voltage[FO]	1 mV to 100 mV	6.5 µV/V	Multifunctional Calibrator 1 000A Transmille	Euramet-cg-15 EA 10/15
	0.1 V to 1 V	3.9 µV/V		
	1 V to 10 V	4 µV/V		
	10 V to 100 V	5.8 µV/V		
	100 V to 1 000 V	9.1 µV/V		
Equipment to Measure AC Voltage[FO] At the listed frequency @ 10 Hz to 2 kHz[FO]	30 mV to 100 mV	0.02 % of reading	Multifunctional Calibrator 1 000A Transmille Turn Clamp Coil 2, 10, 50	
	100 mV to 1 V	0.013 % of reading		
	1 V to 10 V	0.011 % of reading		
	10 V to 100 V	0.012 % of reading		
	100 V to 1 000 V	0.011 % of reading		
Equipment to Measure DC Current[FO]	10 µA to 1 mA	25 µA/A		
	1 mA to 10 mA	26 µA/A		
Equipment to Measure DC Current[FO]	10 mA to 100 mA	30 µA/A	Multifunctional Calibrator 1 000A Transmille Turn Clamp Coil 2, 10, 50	Euramet cg-15, EA 10/15
	100 mA to 1 A	33 µA/A		
	1 A to 10 A	85 µA/A		
	0.01 A to 60 A	0.2 % of reading		
	1 A to 500 A	1.2 % of reading		
	1 A to 1 500 A	1.5 % of reading		

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Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Equipment to Measure AC Current At the listed frequency @ 10 Hz to 2 kHz[FO]	0.1 mA to 1 mA	0.33 % of reading	Multifunctional Calibrator 1 000A Transmille Turn Clamp Coil 2, 10, 50	Euramet cg-15, EA 10/15
	1 mA to 10 mA	0.18 % of reading		
	10 mA to 100 mA	0.18 % of reading		
	100 mA to 1 000 mA	0.25 % of reading		
	1 A to 10 A	0.22 % of reading		
	0.001 A to 60 A	0.2 % of reading		
	0.01 A to 500 A	1.2 % of reading		
Equipment to Measure Capacitance[FO]	11 µF	0.83 % of reading	Multifunctional Calibrator 1 000 A Transmille	
	101 µF	0.83 % of reading		
	1.1 µF	0.2 % of reading		
Equipment to Measure Resistance[FO]	0.01 Ω to 10 Ω	0.033 % of reading	Multifunctional Calibrator 1 000 A Transmille Resistance Decade Tinsley	
	10 Ω to 100 Ω	0.013 % of reading		
	101 Ω to 1 kΩ	0.002 1 % of reading		
	1.01 kΩ to 10 kΩ	0.002 % of reading		
	10.1 kΩ to 100 kΩ	0.001 9 % of reading		
	101 kΩ to 1MΩ	0.002 2 % of reading		
	1.01 MΩ to 10 MΩ	0.003 6 % of reading		
	10.1 MΩ to 100 MΩ	0.002 1 % of reading		
Output DC Voltage (Hipot) [FO]	0.5 kV to 40 kV	1.2 % of reading Multimeter	Fluke 754 High voltage Probe	CENAM Technical Guide
Output AC Voltage (Hipot) [FO]	0.5 kV to 28 kV	1.2 % of reading Multimeter		
Wrist Strapv	1 kΩ to 100 GΩ	0.68 Ω	Decade Box	ANSI ESD SP9.2
Foot Wear[FO]	100 GΩ to 1 TΩ	1.5 Ω		
Equipment to Output Resistance[FO]	0.01 Ω to 10 Ω	0.033 % of reading	Resistance Decade Tinsley Cropico	RH9A-5
	10 Ω to 100 Ω	0.013 % of reading		
	1 kΩ to 100 GΩ	0.68 % of reading		
	100 GΩ to 1 TΩ	1.5 % of reading		
Equipment to Output DC Voltage[FO]	20 mV to 200 mV	0.001 6 % of reading	Keysight 34461A Fluke 754, Fluke 725	CENAM Technical Guide
	200 mV to 1 V	0.002 % of reading		
	1 V to 10 V	0.001 8 % of reading		
	10 V to 200 V	0.0016 % of reading		
	100 V to 1 000 V	0.002 2 % of reading		

Certificate of Accreditation: Supplement

Metrosmart, S.A. de C.V. / Metrokal
Alcatraz 23, Paseos del Pedregal Salitre
El Salitre, Querétaro, México. C.P. 76223
Contact Name: Efrain Calva Gomez Phone: 442-220-7054

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

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Equipment to Output AC Voltage At the listed Frequencies @ 50 Hz to 1 kHz[FO]	100 mV to 200 mV	0.002 6 % of reading	Keysight 34461A Fluke 754, Fluke 725	CENAM Technical Guide
	200 mV to 2 V	0.003 % of reading		
	2 V to 20 V	0.003 3 % of reading		
	20 V to 200 V	0.003 6 % of reading		
	200 V to 700 V	0.004 2 % of reading		
Equipment to Output DC Current[FO]	2 mA to 20 mA	0.004 8 % of reading	Fluke 754, Fluke 725 Shunt 10 A @ 100 mV Shunt 100 A @ 100 mV Keysight 34461A	
	20 mA to 200 mA	0.007 2 % of reading		
	100 mA to 2 A	0.038 % of reading		
	1 A to 10 A	0.051 % of reading		
	10 A to 100 A	0.065 % of reading		
Equipment to Output AC Current At the listed Frequencies @ 50 Hz to 1 kHz[FO]	2 mA to 20 mA	0.039 % of reading		
	20 mA to 200 mA	0.04 % of reading		
	200 mA to 2 A	0.045 % of reading		
	2 A to 10 A	0.058 % of reading		
	10 A to 100 A	0.075 % of reading		

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.
4. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter 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.
6. The term L represents length in inches or millimeters as appropriate to the uncertainty statement.