



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Metrological COM IN TEC Services, S.C.

***La Fuente # 11, Colonia Fraccionamiento Granjas, Banthi
San Juan del Rio, Querétaro, México. C.P. 76805***

*and hereby declares that the Organization is accredited in accordance with
the recognized International Standard:*

ISO/IEC 17025:2017

Whereby, technical competence has been confirmed for the associated scope supplement, in the fields of:

***Optical, Chemical, Dimensional, Thermodynamic, Mass, Force and Weighing
Devices, Mechanical, Fluid Quantities and Electrical Calibration
(As detailed in the supplement)***

Accreditation claims for conformity assessment activities shall only be made from the addresses referenced within this certificate and shall apply solely to those activities identified in the related scope. This Accreditation is granted subject to the Accreditation Body rules governing the Accreditation referred to above, and the Organization hereby commits to observing and complying with those rules in their entirety.

For PJLA:

Initial Accreditation Date:

Issue Date:

Expiration Date:

September 14, 2019

October 15, 2025

December 31, 2027

Accreditation No.:

Certificate No.:

71793

L25-868 -2

Tracy Szerszen
President

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

*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.pjllabs.com*



Certificate of Accreditation: Supplement

Metrological COM IN TEC Services, S.C.

La Fuente # 11, Colonia Fraccionamiento Granjas, Banthi
 San Juan del Rio, Querétaro, México. C.P. 76805
 Contact Name: María del Refugio Castañeda Avelar Phone: 555-369-4971

Accreditation is granted to the facility to perform the following conformity assessment activities:

FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	EXPANDED MEASUREMENT UNCERTAINTY (\pm) ¹	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	FLEX CODE	LOCATION OF ACTIVITY
Optical	Reflectance Color Spectrometers, (Reflectance) Geometric d/0° (CIE L*.)	0 to 100 Units	0.5 Units	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O
Optical	Reflectance Color Spectrometers, Reflectance Geometric d/0° (CIE a*.)	-60 to 60 Units	0.4 Units	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O
Optical	Reflectance Color Spectrometers, Reflectance Geometric d/0° (CIE b*.)	-60 to 60 Units	0.25 Units	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O
Optical	Reflectance Color Spectrometers, Geometric 45/0° CIE Lab 0 % reflectance to 100 % reflectance	400 nm to 700 nm	1.2 % reflectance	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O
Optical	Reflectance Color Spectrometers, Geometric 45/0° (CIE L*.)	0 to 100 Units	0.11 Units	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O



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Optical	Reflectance Color Spectrometers, Geometric 45/0° (CIE a*.)	-80 to 80 Units	0.08 Units	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O
Optical	Reflectance Color Spectrometers, Geometric 45/0° (CIE b*.)	-80 to 80 Units	0.06 Units	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O
Optical	Reflectance Color Spectrometers, Geometric d/8 (CIE Lab) (0 % reflectance to 100 % reflectance)	400 nm to 700 nm	1.9 % reflectance	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O
Optical	Reflectance Color Spectrometers, Geometric d/8 (CIE L*.)	0 Units to 100 Units	0.22 Units	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O
Optical	Reflectance Color Spectrometers, Geometric d/8 (CIE a*.)	-80 Units to 80 Units	0.15 Units	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O
Optical	Reflectance Color Spectrometers, Geometric d/8 (CIE b*.)	-80 Units to 80 Units	0.04 Units	Ceramic Tiles Konica Minolta Model: BCRA	CENAM Technical Guide	F1, F2	F, O



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Optical	Transmittance Spectrophotometers Spectral (Bandwidth 1 n•m)	10 % T to 50 % T	0.15 % T	Neutral Density Glass Filters, Interference Filters	CENAM Technical Guide	F1, F2	F, O
Optical	Transmittance Spectrophotometers (λ) (Bandwidth 1 n•m)	279 n•m to 638 n•m	0.11 n•m	Neutral Density Glass Filters, Interference Filters	CENAM Technical Guide	F1, F2	F, O
Optical	Transmittance Spectrophotometers (λ) (Bandwidth 1 n•m)	431 n•m to 880 n•m	0.13 n•m	Neutral Density Glass Filters, Interference Filters	CENAM Technical Guide	F1, F2	F, O
Optical	Gloss Meters (Fixed Points) (@ 20°)	94 Gloss Units	0.14 Gloss Units	High Gloss Glass	ASTM D-523	F1, F2	F, O
Optical	Gloss Meters (Fixed Points) (@ 60°)	96 Gloss Units	0.15 Gloss Units	High Gloss Glass	ASTM D-523	F1, F2	F, O
Optical	Gloss Meters (Fixed Points) (@ 85°)	100 Gloss Units	0.18 Gloss Units	High Gloss Glass	ASTM D-523	F1, F2	F, O
Optical	Light Booth, Light Box (Ev Illuminance)	10 Lux to 2 900 Lux	1.9 % of reading	Light Meter Reference	ASTM D1729	F1, F2	F, O
Optical	Light Booth, Light Box (Ev Light Color)	2 856 K	22 K	Light Meter Reference	ASTM D1729	F1, F2	F, O



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Optical	Refractometer	0 °Brix to 90 °Brix	0.031 °Brix	Refractometer Atago RX-5000 i-Plus / Standard Solutions	OIML R 124	F1, F2	F, O
Optical	Refractive Index	1.333 nD to 1.532 nD	0.000 07 nD	Refractometer Atago RX-5000 i-Plus / Standard Solutions	OIML R 124	F1, F2	F, O
Optical	Haze Meter	1 % Haze	0.3 % Haze	Haze-Filters	ASTM D1003	F1, F2	F, O
Optical	Haze Meter	5 % Haze	0.3 % Haze	Haze-Filters	ASTM D1003	F1, F2	F, O
Optical	Haze Meter	10 % Haze	0.3 % Haze	Haze-Filters	ASTM D1003	F1, F2	F, O
Optical	Haze Meter	20 % Haze	0.3 % Haze	Haze-Filters	ASTM D1003	F1, F2	F, O
Optical	Haze Meter	30 % Haze	0.3 % Haze	Haze-Filters	ASTM D1003	F1, F2	F, O
Chemical	Dynamic Viscometers Rotational	1 000 mPa·s	4 mPa·s	Viscosity Standards Cannon	CENAM Technical Guide	F1, F2	F, O
Chemical	Dynamic Viscometers Rotational	5 000 mPa·s	21 mPa·s	Viscosity Standards Cannon	CENAM Technical Guide	F1, F2	F, O
Chemical	Dynamic Viscometers Rotational	12 500 mPa·s	55 mPa·s	Viscosity Standards Cannon	CENAM Technical Guide	F1, F2	F, O
Chemical	pH Meters (Potential of Hydrogen)	4.008 pH	0.011 pH	pH Buffer Solutions	CENAM Technical Guide	F1, F2	F, O
Chemical	pH Meters (Potential of Hydrogen)	7 pH	0.011 pH	pH Buffer Solutions	CENAM Technical Guide	F1, F2	F, O
Chemical	pH Meters (Potential of Hydrogen)	10.014 pH	0.011 pH	pH Buffer Solutions	CENAM Technical Guide	F1, F2	F, O



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Chemical	Conductivity Meters (Fixed Points)	100.4 μ S/cm	0.4 μ S/cm	Conductivity Solutions	CENAM Technical Guide	F1, F2	F, O
Chemical	Conductivity Meters (Fixed Points)	1 417 μ S/cm	3 μ S/cm	Conductivity Solutions	CENAM Technical Guide	F1, F2	F, O
Chemical	Kinematic Viscosity	116.5 mm ² /s	0.34 mm ² /s	Viscosity Standards Cannon	CENAM Technical Guide	F1, F2	F
Chemical	Kinematic Viscosity	451.4 mm ² /s	1.1 mm ² /s	Viscosity Standards Cannon	CENAM Technical Guide	F1, F2	F
Chemical	CAP Type Viscometer / Rheometer	9.392 mPa•s to 24.35 mPa•s	0.3 % of reading	Paragon Viscosity Standards Standard Test Method for High-Shear Viscosity Using a Cone/Plate Viscometer	ASTM D4287	F1, F2	F, O
Chemical	CAP Type Viscometer / Rheometer	24.37 mPa•s to 156.1 mPa•s	0.31 % of reading	Paragon Viscosity Standards Standard Test Method for High-Shear Viscosity Using a Cone/Plate Viscometer	ASTM D4287	F1, F2	F, O
Chemical	CAP Type Viscometer / Rheometer	369.6 mPa•s to 540.1 mPa•s	0.32 % of reading	Paragon Viscosity Standards Standard Test Method for High-Shear Viscosity Using a Cone/Plate Viscometer	ASTM D4287	F1, F2	F, O



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Chemical	CAP Type Viscometer / Rheometer	761.7 mPa*s to 1 110 mPa*s	0.33 % of reading	Paragon Viscosity Standards Standard Test Method for High-Shear Viscosity Using a Cone/Plate Viscometer	ASTM D4287	F1, F2	F, O
Dimensional	Thickness Gages	50 μ m	0.21 μ m	Thickness Gages	CENAM Technical Guide	F1, F2	F, O
Dimensional	Thickness Gages	300 μ m	0.64 μ m	Thickness Gages	CENAM Technical Guide	F1, F2	F, O
Dimensional	Thickness Gages	1 000 μ m	0.64 μ m	Thickness Gages	CENAM Technical Guide	F1, F2	F, O
Dimensional	Micrometers	0.5 mm to 252 mm	0.001 3 mm	Master Gage Blocks	CENAM Technical Guide	F1, F2	F
Dimensional	Calipers	0.5 mm to 252 mm	0.01 mm	Master Gage Blocks	CENAM Technical Guide	F1, F2	F
Thermodynamic	Liquid in Glass Thermometer	25 °C to 150 °C	0.7 °C	RTD Digital and Temperature Bath	CENAM Technical Guide	F1, F2	F
Thermodynamic	Bimetal Thermometer	25 °C to 400 °C	0. 65 °C	RTD Digital and Dry Well	CENAM Technical Guide	F1, F2	F
Thermodynamic	Indicators Temperature with Thermocouple Type E	25 °C to 400 °C	0.52 °C	RTD Digital and Dry Well	CENAM Technical Guide	F1, F2	F, O
Thermodynamic	Indicators Temperature with Thermocouple Type J	25 °C to 400 °C	0.5 °C	RTD Digital and Dry Well	CENAM Technical Guide	F1, F2	F, O



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Thermodynamic	Indicators Temperature with Thermocouple Type K	25 °C to 400 °C	0.52 °C	RTD Digital and Dry Well	CENAM Technical Guide	F1, F2	F, O
Thermodynamic	Indicators Temperature with Thermocouple Type T	25 °C to 400 °C	0.52 °C	RTD Digital and Dry Well	CENAM Technical Guide	F1, F2	F, O
Thermodynamic	Digital Thermometer	-30 °C to 25 °C	0.069 °C	RTD Digital and Dry Well Temperature Bath	CENAM Technical Guide	F1, F2	F, O
Thermodynamic	Digital Thermometer	25 °C to 400 °C	0.3 °C	RTD Digital and Dry Well Temperature Bath	CENAM Technical Guide	F1, F2	F, O
Thermodynamic	Thermo-Hygrometer (Temperature)	25 °C to 60 °C	0.26 °C	RTD Digital and Chamber Climatic	CENAM Technical Guide	F1, F2	F
Thermodynamic	Thermo-Hygrometer (Humidity)	10 % RH to 80 % RH	0.78 % RH	Hygrometer Digital	CENAM Technical Guide	F1, F2	F
Mass, Force and Weighing Devices	Analytical Balances	Up to 220 g (Res.= 0.01 mg)	0.23 mg	Class OIML E2 Weights	CENAM Technical Guide	F1, F2	O
Mass, Force and Weighing Devices	Balances	Up to 510 g (Res.= 0.1 mg)	0.52 mg	Class OIML E2 Weights	CENAM Technical Guide	F1, F2	O
Mass, Force and Weighing Devices	Balances	Up to 2 000 g (Res.= 1 mg)	2 mg	Class OIML E2 Weights	CENAM Technical Guide	F1, F2	O



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Mass, Force and Weighing Devices	Balances	Up to 10 kg (Res.= 10 mg)	12 mg	Class OIML M1 Weights	CENAM Technical Guide	F1, F2	O
Mass, Force and Weighing Devices	Scales	Up to 20 kg (Res.= 100 mg)	0.2 g	Class OIML M1 Weights	CENAM Technical Guide	F1, F2	O
Mass, Force and Weighing Devices	Scales	Up to 50 kg (Res.= 1 g)	1.7 g	Class OIML M1 Weights	CENAM Technical Guide	F1, F2	O
Mass, Force and Weighing Devices	Scales	Up to 100 kg (Res.= 2 g)	3.4 g	Class OIML M1 Weights	CENAM Technical Guide	F1, F2	O
Mass, Force and Weighing Devices	Scales	Up to 200 kg (Res.= 5 g)	7.1 g	Class OIML M1 Weights	CENAM Technical Guide	F1, F2	O
Mass, Force and Weighing Devices	Scales	Up to 300 kg (Res.= 10 g)	12 g	Class OIML M1 Weights	CENAM Technical Guide	F1, F2	O
Mass, Force and Weighing Devices	Mass Weight Class F1, F2	1 g	0.007 mg	Double Substitution Class E2 Weights Set	CENAM Technical Guide	F1, F2	F
Mass, Force and Weighing Devices	Mass Weight Class F1, F2	2 g	0.015 mg	Double Substitution Class E2 Weights Set	CENAM Technical Guide	F1, F2	F
Mass, Force and Weighing Devices	Mass Weight Class F1, F2	5 g	0.018 mg	Double Substitution Class E2 Weights Set	CENAM Technical Guide	F1, F2	F



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Mass, Force and Weighing Devices	Mass Weight Class F1, F2	10 g	0.021 mg	Double Substitution Class E2 Weights Set	CENAM Technical Guide	F1, F2	F
Mass, Force and Weighing Devices	Mass Weight Class F1, F2	20 g	0.028 mg	Double Substitution Class E2 Weights Set	CENAM Technical Guide	F1, F2	F
Mass, Force and Weighing Devices	Mass Weight Class F1, F2	50 g	0.034 mg	Double Substitution Class E2 Weights Set	CENAM Technical Guide	F1, F2	F
Mass, Force and Weighing Devices	Mass Weight Class F1, F2	100 g	0.078 mg	Double Substitution Class E2 Weights Set	CENAM Technical Guide	F1, F2	F
Mass, Force and Weighing Devices	Mass Weight Class F1, F2	200 g	0.12 mg	Double Substitution Class E2 Weights Set	CENAM Technical Guide	F1, F2	F
Mass, Force and Weighing Devices	Dynamometer, Universal Machine and Load Cells (Tension)	20 N to 1 000 N	$(3.93 \times 10^{-3} + 7.75 \times 10^{-3}F)$ N	OIML Class M1	ASTM E4	F1, F2	F, O
Mass, Force and Weighing Devices	Dynamometer, Universal Machine and Load Cells (Compression)	20 N to 1 000 N	$(3.93 \times 10^{-3} + 7.75 \times 10^{-3}F)$ N	OIML Class M1	ASTM E4	F1, F2	F, O



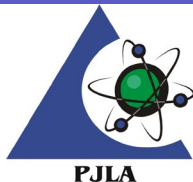
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Mass, Force and Weighing Devices	Force Measurement Instruments Universal Testing Machines (Tension)	500 N to 5 kN	4.9 N	Cell Load Tecsis F28013450167-5 000 kg	CENAM Technical Guide	F1, F2	F, O
Mass, Force and Weighing Devices	Force Measurement Instruments Universal Testing Machines (Tension)	5 kN to 17.5 kN	15 N	Cell Load Tecsis F28013350167-500 kg	CENAM Technical Guide	F1, F2	F, O
Mass, Force and Weighing Devices	Force Measurement Instruments Universal Testing Machines (Compression)	500 N to 5 kN	4.1 N	Cell Load Tecsis F28013350167-500 kg	CENAM Technical Guide	F1, F2	F, O
Mass, Force and Weighing Devices	Force Measurement Instruments Universal Testing Machines (Compression)	5 kN to 17.5 kN	20 N	Cell Load Tecsis F28013450167-5 000 kg	CENAM Technical Guide	F1, F2	F, O
Mechanical	Vacuum Gauges	-12 psi to 0 psi	0.019 psi	Digital Pressure Gauge	CENAM Technical Guide	F1, F2	F, O
Mechanical	Pressure Gauges and Transducer	0 psi to 300 psi	0.08 psi	Digital Pressure Gauge	CENAM Technical Guide	F1, F2	F, O
Fluid Quantities	Piston Pipette (Micropipette)	10 μ L	1 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F



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Fluid Quantities	Piston Pipette (Micropipette)	10 μ L	1 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Pipette (Micropipette)	20 μ L	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Pipette (Micropipette)	50 μ L	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Pipette (Micropipette)	100 μ L	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Pipette (Micropipette)	200 μ L	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Pipette (Micropipette)	500 μ L	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Pipette (Micropipette)	1 mL	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Pipette (Micropipette)	2 mL	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Pipette (Micropipette)	5 mL	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Pipette (Micropipette)	10 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pipettes	1 mL	0.25 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pipettes	2 mL	0.18 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pipettes	5 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F



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Fluid Quantities	Pipettes	10 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pipettes	20 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pipettes	25 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pipettes	50 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pipettes	100 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette with Motor	1 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette with Motor	2 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette with Motor	5 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette with Motor	10 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette with Motor	20 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette with Motor	25 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette with Motor	50 mL	0.31 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette with Motor	100 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F



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Metrological COM IN TEC Services, S.C.

La Fuente # 11, Colonia Fraccionamiento Granjas, Banthi
 San Juan del Rio, Querétaro, México. C.P. 76805
 Contact Name: María del Refugio Castañeda Avelar Phone: 555-369-4971

Accreditation is granted to the facility to perform the following conformity assessment activities:

FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	EXPANDED MEASUREMENT UNCERTAINTY (\pm) ¹	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	FLEX CODE	LOCATION OF ACTIVITY
Fluid Quantities	Piston Burette Manuals	1 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette Manuals	2 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette Manuals	5 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette Manuals	10 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette Manuals	20 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette Manuals	25 mL	0.32 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette Manuals	50 mL	0.31 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Piston Burette Manuals	100 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pycnometers	25 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pycnometers	50 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pycnometers	100 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pycnometer Gay-Lussac	25 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Pycnometer Gay-Lussac	50 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F



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Fluid Quantities	Pycnometer Gay-Lussac	100 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	0.01 mL	0.88 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	0.02 mL	0.7 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	0.05 mL	0.5 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	0.1 mL	0.5 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	0.2 mL	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	0.5 mL	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	1 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	2 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	5 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	10 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	25 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	50 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F



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Fluid Quantities	Dispensers	100 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dispensers	200 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	0.05 mL	0.6 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	0.1 mL	0.5 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	0.2 mL	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	0.5 mL	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	1 mL	0.3 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	2 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	5 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	10 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	25 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	50 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Dilutors	100 mL	0.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F



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Fluid Quantities	Volumetric Flask	1 mL	1.2 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Volumetric Flask	5 mL	0.27 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Volumetric Flask	10 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Volumetric Flask	25 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Volumetric Flask	50 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Volumetric Flask	100 mL	0.15 % of reading	Balance Discovery DV 215 D	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Volumetric Flask	200 mL	0.15 % of reading	Balance Ohaus EX1103	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Volumetric Flask	250 mL	0.15 % of reading	Balance Ohaus EX1103	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Volumetric Flask	500 mL	0.15 % of reading	Balance Ohaus EX1103	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Volumetric Flask	1 000 mL	0.15 % of reading	Balance Ohaus EX1103	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Probe	200 mL	0.85 % of reading	Balance Ohaus EX1103	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Probe	250 mL	0.85 % of reading	Balance Ohaus EX1103	CENAM Technical Guide	F1, F2	F
Fluid Quantities	Probe	500 mL	0.43 % of reading	Balance Ohaus EX1103	CENAM Technical Guide	F1, F2	F



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Fluid Quantities	Probe	1 000 mL	0.43 % of reading	Balance Ohaus EX1103	CENAM Technical Guide	F1, F2	F
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type B	720 °C to 1 690 °C	0.67 °C	Temperature Calibrator Nagman with Model 14+ Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type E	-25 °C to 0 °C	0.32 °C	Temperature Calibrator Nagman with Model 14+ Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type E	0 °C to 765 °C	0.33 °C	Temperature Calibrator Nagman with Model 14+ Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J	-30 °C to 0 °C	0.32 °C	Temperature Calibrator Nagman with Model 14+ Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type J	0 °C to 1 000 °C	0.33 °C	Temperature Calibrator Nagman with Model 14+ Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O



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Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type K	-50 °C to 0 °C	0.32 °C	Temperature Calibrator Nagman with Model 14+ Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type K	0 °C to 1 230 °C	0.33 °C	Temperature Calibrator Nagman with Model 14+ Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type N	-100 °C to 0 °C	0.32 °C	Temperature Calibrator Nagman with Model 14+ Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type N	0 °C to 1 170 °C	0.33 °C	Temperature Calibrator Nagman with Model 14+ Electrical Simulation of Thermocouple Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type R	170 °C to 1 590 °C	0.67 °C	Nagman with model 14+ Electrical Simulation of Thermocouple Output Temperature Calibrator	Euramet cg-11	F1, F2	F, O



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Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type S	170 °C to 1 590 °C	0.57 °C	Nagman with model 14+ Electrical Simulation of Thermocouple Output Temperature Calibrator	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type R	170 °C to 1 590 °C	0.67 °C	Nagman with model 14+ Electrical Simulation of Thermocouple Output Temperature Calibrator	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type S	170 °C to 1 590 °C	0.57 °C	Nagman with model 14+ Electrical Simulation of Thermocouple Output Temperature Calibrator	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T	-50 °C to 0 °C	0.41 °C	Nagman with model 14+ Electrical Simulation of Thermocouple Output Temperature Calibrator	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration, Indication and Control Equipment used with Thermocouple Type T	0 °C to 360 °C	0.42 °C	Nagman with model 14+ Electrical Simulation of Thermocouple Output Temperature Calibrator	Euramet cg-11	F1, F2	F, O



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Electrical	Temperature Calibration. Indication and Control Equipment used with RTD Pt 100 (27.08 Ω to 360.55 Ω)	-100 °C to 0 °C	1.3 °C	Temperature Calibrator Nagman with model 14+ Electrical Simulation of RTD Output	Euramet cg-11	F1, F2	F, O
Electrical	Temperature Calibration. Indication and Control Equipment used with RTD Pt 100 (27.08 Ω to 360.55 Ω)	0 °C to 630 °C	0.81 °C	Temperature Calibrator Nagman with model 14+ Electrical Simulation of RTD Output	Euramet cg-11	F1, F2	F, O
Electrical	Equipment to Measure Voltage	10 mV to 90 mV (Res.= 0.005 mV)	0.03 mV	Temperature Calibrator Nagman with model 14+	Euramet cg-11	F1, F2	F, O
Electrical	Equipment to Measure Voltage	100 mV to 900 mV (Res.= 0.05 mV)	0.14 mV	Temperature Calibrator Nagman with model 14+	Euramet cg-11	F1, F2	F, O

1. The CMC (Calibration and Measurement Capability) is expressed in terms of measurement instrument/aspect being calibrated, range, expanded measurement uncertainty, equipment, and method/procedure. The expanded measurement uncertainty 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 measurement uncertainty included on this scope 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 laboratory's range of calibration capability for all disciplines for which it is 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 conformity assessment activities:

3. Location of activity:

Location

Location

Code

F

Conformity assessment activity is performed at the CAB's fixed facility

O

Conformity assessment activity is performed onsite at the CAB's customer location

4. Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratory's 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 laboratory's fixed location.

5. 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 as appropriate to the uncertainty statement.

6. If this certificate is dependent or connected to a headquarters site, include the following: This location is linked to Calle Zacamixtle # 108, Col. Petrolera, Delegación Azcapotzalco, Ciudad de México, México. C.P. 02480 due to a shared quality management system.

7. Flex Codes

F0: When no flexibility is identified. There are no changes to items calibrated, characteristics identified or versions of methods except for updating to the most recent version of a standard method after verification.

F1: The laboratory has the capability to introduce a new instrument, quantity, or gauge for an accredited calibration method.

F2: The laboratory has the capability to introduce the newest revision of an accredited authoritative standard method (with no modifications) identified on the scope

F3: The laboratory has the capability to introduce a new revision of an accredited non-standard method using the same technology or technique identified on the scope

F4: The laboratory has the capability to introduce a validated method that is equivalent to an accredited method (using the same Calibration Equipment or Reference Standards identified on the scope for the same parameter, component, or analyte identified on the line item of the scope.