SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

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CALIBRATION

Valid To: December 31, 2023 Certificate Number: 1750.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1, 4]:

I. Chemical

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Conductivity Cell/Probe – Fixed Points	(1 to 50) µS/cm (> 50 to 100) µS/cm (1000 to 1413) µS/cm (5000 to 10 000) µS/cm (50 000 to 100 000) µS/cm (150 000 to 200 000) µS/cm	0.25 µS/cm 0.30 µS/cm 2.2 µS/cm 21 µS/cm 190 µS/cm 290 µS/cm	Conductivity reference solutions
Conductivity Solutions – Fixed Points	(1 to 10) µS/cm (50 to 100) µS/cm (1000 to 1413) µS/cm (5000 to 10 000) µS/cm (50 000 to 100 000) µS/cm (150 000 to 200 000) µS/cm	0.30 µS/cm 0.84 µS/cm 2.9 µS/cm 31 µS/cm 280 µS/cm 580 µS/cm	Conductivity meter plus 4-wire reference cell
Salinity for Meter[3]	(2 to 10) ppt (>10 to 42) ppt	0.013 ppt 0.22 ppt	Conductivity solutions
pH Buffer Solutions – Measure	(0 to 14) pH	0.0092 pH	Buffer solutions
pH Meter – Fixed Points	4 pH 7 pH 10 pH	0.0054 pH 0.0067 pH 0.0060 pH	Buffer solutions

II. Dimensional

Parameter/Equipment	Range	CMC[2] (±)	Comments
Digital Calipers – Fixed Points			
Outside & Depth	0.1 in 2 in 4 in 6 in 8 in	290 µin 320 µin 390 µin 490 µin 610 µin	Gage set
Inside	1 in	300 µin	

III. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC[2] (±)	Comments
Electrical Simulation of Thermocouple, Type K	(-195 to -115) °C (> -115 to -55) ºC (> -55 to 1000) ºC (> 1000 to 1300) ºC	0.16 ºC 0.13 ºC 0.11 ºC 0.14 ºC	Fluke 7526A precision process calibrator

IV. Mechanical

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Barometric Pressure – Measure	(500 to 1100) hPa or mbar	0.23 hPa or mbar	Digital barometer Class A
Gauge and Differential Pressure	(0 to 15) psi (> 15 to 100) psi (> 100 to 300) psi	0.0086 psi 0.020 psi 0.76 psi	Druck pressure transducer Cole Parmer pressure transducer
Scales and Balances, Fixed Points	100 g 200 g 300 g	0.30 mg 0.41 mg 0.89 mg	Troemner Ultra Class weights

V. Optical Quantities

Parameter/Equipment	Range	CMC[2] (±)	Comments
Calibration of Light Meters	(0 to 40) lux (> 40 to 400) lux (> 400 to 1000) lux (> 1000 to 4000) lux (> 4000 to 10 000) lux (> 10 000 to 20 000) lux	4.3 lux 8.4 lux 19 lux 99 lux 240 lux 830 lux	Standard light meter

VI. Thermodynamics

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Digital Thermometers and Temperature Probes	-196 °C (-80 to < 0) °C (0 to 100) °C (> 100 to 200) °C (> 200 to 300) °C	0.021 °C 0.023 °C 0.0087 °C 0.040 °C 0.051 °C	PRT thermometer plus calibration bath Thermistor probe plus water bath PRT thermometer plus oil bath
IR Temperature – Measuring Equipment	0 °C 35 °C (> 35 to 100) °C (> 100 to 200) °C (> 200 to 350) °C (> 350 to 500) °C	0.83 °C 0.49 °C 0.76 °C 1.1 °C 1.7 °C 2.3 °C	Liquid bath Infrared calibrator BB
Relative Humidity – Measuring Equipment	(10 to 80) % RH at (18 to 28) °C	0.46 % RH	Chilled mirror hygrometer

VII. Time and Frequency

Parameter/Equipment	Range	CMC[2] (±)	Comments
Digital Stopwatch Timer and Time Base Error	(0 to 10) s/24 hr	0.041 s/24 hr	Non-contact frequency counter
Revolutions per Minute – Digital Tachometer	(0 to 10) rpm (> 10 to 100) rpm (> 100 to 1000) rpm (> 1000 to 10 000) rpm (> 10 000 to 100 000) rpm	0.000 73 rpm 0.0016 rpm 0.026 rpm 0.24 rpm 3.8 rpm	Pulse generator and frequency counter

[1] This laboratory offers commercial calibration service.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] Salinity is a measure of the mass of dissolved salts (ionic constituents) in a given mass of solution and expressed as parts per thousand (ppt).

[4] This scope meets *A2LA's P112 Flexible Scope Policy*.

[5] The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.