SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

CHEMITOX, INC., YAMANASHI TESTING CENTER KAI
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CALIBRATION

Valid To: July 31, 2026 Certificate Number: 1136.10

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with R205 – A2LA's Calibration Program Requirements), accreditation is granted to this laboratory to perform the following calibrations[1,6]:

I. Chemical

Parameter/Equipment	Range	CMC[2] (±)	Comments
Liquid Conductivity Meter	(1 to 100) µS/cm (100 to 1000) µS/cm (1000 to 10 000) µS/cm	0.12 µS/cm 2.1 µS/cm 51 µS/cm	Standard solution, CA-48

II. Dimensional

Parameter/Equipment	Range	CMC[2] (±)	Comments
Linear Scale	(50 to 300) mm	0.08 mm	Calipers, CA-141
Microscope –			
Length/Radius/Diameter	Up to 1 mm (1 to 6) mm	0.0010 mm 0.0094 mm	Sheet Gage, CA-53
Angle	(0 to 180)°	0.46°	

III. Dimensional Testing/Calibration[1]

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
One Dimensional – Measure[4] Length/Radius/Diameter	Up to 25 mm	0.0022 mm	Micrometer, CA-5
	Up to 300 mm	0.076 mm	Caliper, CA-22,CA-26,CA-30, CA-31,CA-35,CA-50, CA-54, CA-58,CA-74, CA-133,CA-161
	Up to 10 mm	0.027 mm	Microscope, CA-22,CA-26,CA-33,CA-35, CA-71,CA-133
Angle – Measure[4]	(-180 to 180)°	0.26°	Angle gauge, CA-28, CA-29, CA-34, CA-58
	(0 to 180)°	0.43°	Microscope, CA-26, CA-35

IV. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC[2, 7] (±)	Comments
Power Supply for Tester	(100 to 240) V (50 to 60) Hz	0.27 V 0.3 Hz	Oscilloscope, CA-91
AC Voltage Stability – Measure	(1 to 10) kV	0.38 % of Applied Voltage	Voltmeter, CA-104
Temperature – Electrical Simulation of Measuring Equipment Indicators	(-40 to 400) °C	0.5 °C	Reference data logger, CA-67

V. Mechanical

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Scales & Balances –			
Precision Scale	(1 to 100) g	0.000 17 g	Reference scale with transfer weights, CA-49
General Scale	(1 to 100) g (100 to 500) g (500 to 3000) g	0.082 g 0.18 g 0.37 g	
Mass – Simple Weighing	(1 to 100) g (100 to 500) g (500 to 3000) g	1.4 g 1.2 g 1.2 g	Scale, force gauge, CA-39, CA-50
Force – Measure	(0.01 to 2.5) N	0.001 N	Force gauge, CA-146, CA-150, CA-161

VI. Plastic Industry: Specific Measurements

Parameter/Equipment	Range	CMC[2] (±)	Comments
GWIT/GWFI/GWEPT Tester –			UL746A, IEC 60695-2-10, IEC 60695-2-11, IEC 60695-2-12, IEC 60695-2-13, CA-146:
Penetration Length	(5 to 10) mm	0.08 mm	Caliper
Thermocouple Type K	(550 to 1000) °C	2.1 °C	Thermocouple
Penetration Force	(0.9 to 1.1) N	0.008 N	Force gauge
Weight	(80 to 120) g	0.2 g	Scale
Time	(50 to 70) s	0.08 s	Stopwatch

Parameter/Equipment	Range	CMC[2] (±)	Comments
Izod, Charpy or Tensile Impact Tester[3] –			UL746A, ASTM D256, D6110, D1822, ISO 179, 180, 13802 CA-106, CA-109, CA-130
Angle	Up to 150°	0.7°	Angle gauge
Mass	(100 to 3000) g	1.5 g	Scale
Length	(10 to 120) mm	0.052 mm	Caliper
	Up to 6 mm	0.004 mm	Microscope
	Up to 700 mm	0.8 mm	Calculated from oscillation period (using stopwatch)
Dielectric Strength Tester –			UL746A, ASTM D149, IEC 60243-1, JIS C2110, CA-3, CA-22
Output Voltage	Up to 100 kV	1.3 kV	Oscilloscope & voltage probe
Ramp Rate	(20 to 70) s	0.48 s	Stopwatch
Ripple for DC Voltage	Up to 10 kV	0.1 kV	Oscilloscope & voltage probe
Electrode Size	(5 to 80) mm	0.070 mm	Caliper
Electrode Radius	(0.8 to 3.2) mm	0.027 mm	Microscope
Comparative Tracking Index (CTI) Tester –			UL746A, ASTM D3638, IEC 60112, CA-5
Dripping Interval	(20 to 40) s	0.87s	Stopwatch
Amount of Dripping	(0.3 to 2) g	0.0012 g	Scale
Volume of Dripping	(10 to 30) mm^3	0.055 mm^3	
Output Current	Up to 1 A	0.0090 A	Ammeter
Short-Circuit Time	(1 to 3) s	0.052 s	
Electrode Force	(80 to 120) gf	0.30 gf	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Electrode Size	(1 to 7) mm	0.0022 mm	Micrometer
Block Gauge	(3 to 5) mm	0.0086 mm	
HDT/Vicat/Ball Pressure Tester			UL746A, ASTM D648, D1525, ISO 75-1,75-2,306, JIS K7191-1, K71-1-2, K7206, electrical appliance & materials safety law (in Japan 3-31-86), CA-133:
Temperature	Room Temperature Up to 300) °C	0.40 °C	Thermocouple
Ramp Rate	2 °C/min	0.05 °C/min	Stopwatch
Digital Indicator	Up to 1 mm	0.0071 mm	Micrometer
Span Length	(50 to 120) mm	0.077 mm	Caliper
Edge Size	Up to 6 mm	0.011 mm	Microscope

VII. Thermodynamics

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Thermocouple – Type K	Room Temperature: Up to 300 °C	0.18 °C	JIS C1602, JIS C5012, CA-68, resistance thermometer
Thermocouple for Thermal Lag Time of Oven	Room Temperature: Up to 200 °C	1.1 °C	ASTM D5374, ASTM E220, JIS C1605, IEC 60216-4-1, CA-19, oven

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Oven – System Accuracy Test[3]	Room Temperature: Up to 300 °C	0.31 °C	ASTM D5374, ASTM D5423, JIS C1605, IEC 60216-4-1, CA-121, thermocouple
Thermal Uniformity Survey[3]	Room Temperature: Up to 300 °C	0.18 °C	ASTM D5374, ASTM D5423, JIS C1605, IEC 60216-4-1, CA-121, thermocouple
Thermal Lag Time[3] (Time Constants)	Up to 1200 s	9.4 s	ASTM D5374, ASTM D5423, JIS C1605, IEC 60216-4-1, CA-121, thermocouple
Rate of Ventilation[3]	(5 to 200) air changes/hr	0.77 air changes/hr	ASTM D5374, ASTM D5423, JIS C1605, IEC 60216-4-1, CA-121, power meter
Reflow – Temperature, Measure	Room Temperature: Up to 300 °C	2.2 °C	IPC TM-650 2.6.27, CA-99, thermocouple
Temperature/Humidity Controlled Chamber[3]	(-40 to 100) °C (10 to 98) % RH	0.3 °C 1.4 % RH	Thermocouple, thermo-hygrometer, CA-17
Temperature Controlled Chamber[3]	(-40 to 100) °C	0.5 °C	Thermocouple, thermo-hygrometer, CA-17
Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Temperature/Humidity – Measuring Equipment[3]	(0 to 60) °C (10 to 98) % RH	0.24 °C 1.4 % RH	ASTM D618, ISO 291, CA-21, thermocouple, thermo-hygrometer

VIII. Time & Frequency

Parameter/Equipment	Range	CMC[2] (±)	Comments
Metronome	Up to 1200 s	0.063 s	Stopwatch, CA-79
Logger Time	Up to 21 600 s	0.15 s	Stopwatch, CA-164

SATELLITE LOCATION

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Mr. Takuya Hayashida Phone: 81-233-25-2011

I. Dimensional

Parameter/Equipment	Range	CMC[2] (±)	Comments
Linear Scale	(50 to 300) mm	0.081 mm	Calipers, CA-141

II. Dimensional Testing/Calibration[1]

Parameter/Equipment	Range	CMC[2] (±)	Comments
One Dimensional – Measure[4] Length/Diameter	Up to 300 mm	0.070 mm	Caliper, CA-26,CA-30, CA-31,CA-35
Angle – Measure[4]	(0 to 180)°	0.40°	Angle gauge, CA-28, CA-29, CA-34

III. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC[2] (±)	Comments
Temperature – Measuring Equipment Indicators {Electrical Simulation}	(-40 to 400) °C	0.5 °C	Reference data logger, CA-67

IV. Mechanical

Parameter/Equipment	Range	CMC[2] (±)	Comments
Scales & Balances	(1 to 100) g (100 to 500) g (500 to 3000) g	1.4 g 1.4 g 1.8 g	Reference scale with transfer weights, CA-49
Mass – Simple Weighing	(1 to 100) g (100 to 500) g (500 to 3000) g	1.4 g 1.2 g 1.2 g	Scale, CA-39

V. Plastic Industry: Specific Measurements

Parameter/Equipment	Range	CMC[2] (±)	Comments
Izod, Charpy or Tensile Impact Tester –			UL746A, ASTM D256, D6110, D1822, ISO 179, 180, 13802 CA-106, CA-109, CA-130:
Angle	Up to 150°	0.40°	Angle gauge
Mass	(100 to 3000) g	0.48 g	Scale
Length	(10 to 120) mm	0.076 mm	Caliper
	Up to 700 mm	0.67 mm	Calculated from oscillation period (using stopwatch)

VI. Thermodynamics

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Oven – System Accuracy Test	Room Temperature: Up to 300 °C	0.31 °C	ASTM D5374, ASTM D5423, JIS C1605, IEC 60216-4-1, CA-121, thermocouple
Thermal Uniformity Survey	Room Temperature: Up to 300 °C	0.18 °C	ASTM D5374, ASTM D5423, JIS C1605, IEC 60216-4-1, CA-121, thermocouple
Thermal Lag Time (Time Constants)	Up to 1200 s	9.4 s	ASTM D5374, ASTM D5423, JIS C1605, IEC 60216-4-1, CA-121, Thermocouple, Stopwatch
Rate of Ventilation	(5 to 200) air changes/hr	0.77 air changes/hr	ASTM D5374, ASTM D5423, JIS C1605, IEC 60216-4-1, CA-121, power meter
Temperature/Humidity – Measuring Equipment	(0 to 60) °C (15 to 95) % RH	0.32 °C 1.7 % RH	ASTM D618, ISO 291, CA-21, thermo-hygrometer

VII. Time & Frequency

Parameter/Equipment	Range	CMC[2] (±)	Comments
Metronome	Up to 1200 s	0.05 s	Stopwatch, CA-79
Logger Time	Up to 21 600 s	0.12 s	Stopwatch, CA-164

[1] This laboratory offers commercial dimensional testing/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. CMC's 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] Field calibration service is available for this calibration. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC

[4] This laboratory meets R205 – Specific Requirements: Calibration Laboratory Accreditation Program for the types of dimensional tests listed above and is considered equivalent to that of a calibration.

[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.

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

Accredited Laboratory

A2LA has accredited

CHEMITOX, INC.,YAMANASHI TESTING CENTER KAI

Yamanashi-ken, JAPAN

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 26th day of August 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1136.10
Valid to July 31, 2026
Revised February 10, 2026

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.