National Voluntary Laboratory Accreditation Program

CALIBRATION LABORATORIES

NVLAP LAB CODE 200495-0
Scope Revised: 2014-06-10

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

North Carolina Standards Laboratory	**Parameter(s) of Accreditation**
4040 District Drive / 1051 Mail Service Center Raleigh, NC 27699-1051 Ms. Sharon Woodard Phone: 919-733-4411 x213 Fax: 919-733-8804 E-mail: sharon.woodard@ncagr.gov URL: http://www.ncagr.gov/standard	Dimensional Mechanical This laboratory is compliant to ANSI/NCSL Z540-1-1994; Part 1. (20/A01)

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) [Notes 1,2]

Measured Parameter or Device Calibrated	**Range**	**Uncertainty (*k*=2)** [Note 3]	**Remarks**
DIMENSIONAL			
LENGTH and DIAMETER, STEP GAGES (20/D05)			
Lottery Ball Pass Through Gauge	Lottery Ball	7.5 µin	
MECHANICAL			
MASS DETERMINATION (20/M08)			
Metric	1 kg	65 µg	Echelon I
	500 g	33 µg	
	300 g	21 µg	
	200 g	14 µg	
	100 g	12 µg	
	50 g	6.4 µg	
	30 g	4.5 µg	
	20 g	3.7 µg	
	10 g	3.5 µg	
	5 g	1.9 µg	
	3 g	1.4 µg	
	2 g	1.1 µg	
	1 g	1.0 µg	
	500 mg	0.92 µg	
	300 mg	0.78 µg	
	200 mg	0.76 µg	
	100 mg	0.80 µg	
	50 mg	0.52 µg	
	30 mg	0.38 µg	

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Measured Parameter or Device Calibrated	Range	Uncertainty (k=2) [Note 3]	Remarks
	20 mg	0.32 µg	
	10 mg	0.30 µg	
	5 mg	0.20 µg	
	3 mg	0.14 µg	
	2 mg	0.12 µg	
	1 mg	0.12 µg	
Metric	1 kg	65 µg	Echelon II
	500 g	33 µg	
	300 g	21 µg	
	200 g	14 µg	
	100 g	12 µg	
	50 g	6.4 µg	
	30 g	4.5 µg	
	20 g	3.7 µg	
	10 g	3.5 µg	
	5 g	1.9 µg	
	3 g	1.4 µg	
	2 g	1.1 µg	
	1 g	1.0 µg	
	500 mg	0.92 µg	
	300 mg	0.78 µg	
	200 mg	0.76 µg	
	100 mg	0.80 µg	
	50 mg	0.52 µg	
	30 mg	0.38 µg	
	20 mg	0.32 µg	
	10 mg	0.30 µg	
	5 mg	0.20 µg	
	3 mg	0.14 µg	
	2 mg	0.12 µg	
	1 mg	0.12 µg	
Metric	1000 kg	17 g	Echelon III
	500 kg	3.5 g	
	250 kg	1.9 g	

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Measured Parameter or Device Calibrated	Range	Uncertainty (*k*=2) [Note 3]	Remarks
	200 kg	1.9 g	
	100 kg	1.6 g	
	50 kg	0.30 g	
	30 kg	0.13 g	
	25 kg	0.13 g	
	20 kg	0.13 g	
	10 kg	76 mg	
	5 kg	30 mg	
	3 kg	12 mg	
	2 kg	12 mg	
	1 kg	6.7 mg	
	500 g	4.3 mg	
	300 g	3.3 mg	
	200 g	1.2 mg	
	100 g	0.60 mg	
	50 g	0.37 mg	
	30 g	0.31 mg	
	20 g	0.31 mg	
	10 g	0.26 mg	
	5 g	0.18 mg	
	3 g	0.11 mg	
	2 g	89 µg	
	1 g	60 µg	
	500 mg	45 µg	
	300 mg	36 µg	
	200 mg	31 µg	
	100 mg	24 µg	
	50 mg	19 µg	
	30 mg	17 µg	
	20 mg	15 µg	
	10 mg	12 µg	
	5 mg	10 µg	
	3 mg	9.0 µg	
	2 mg	7.9 µg	
	1 mg	6.9 µg	

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Measured Parameter or Device Calibrated	Range	Uncertainty (*k*=2) [Note 3]	Remarks
Lottery Balls	Lottery Ball	43 mg	Echelon III
Avoirdupois	2500 lb	21 g	Echelon III
	2000 lb	16 g	
	1000 lb	2.8 g	
	500 lb	1.9 g	
	100 lb	0.60 g	
	50 lb	0.13 g	
	30 lb	76 mg	
	25 lb	56 mg	
	20 lb	55 mg	
	10 lb	18 mg	
	5 lb	12 mg	
	4 lb	6.8 mg	
	3 lb	6.8 mg	
	2 lb	4.7 mg	
	1 lb	3.9 mg	
	0.5 lb	3.6 mg	
	0.3 lb	1.1 mg	
	0.2 lb	0.67 mg	
	0.1 lb	0.49 mg	
	0.05 lb	0.37 mg	
	0.03 lb	0.26 mg	
	0.02 lb	0.18 mg	
	0.01 lb	0.15 mg	
	0.005 lb	0.13 mg	
	0.003 lb	61 µg	
	0.002 lb	46 µg	
	0.001 lb	36 µg	
	4 oz	1.1 mg	
	2 oz	0.67 mg	
	1 oz	0.37 mg	
	1/2 oz	0.26 mg	
	1/4 oz	0.18 mg	
	1/8 oz	0.15 mg	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) [Notes 1,2]

Measured Parameter or Device Calibrated	Range	Uncertainty (k=2) [Note 3]	Remarks
	1/16 oz	60 µg	
	1/32 oz	46 µg	
Weight Carts	6000 lb	120 g	Echelon III
	5500 lb	100 g	
	5000 lb	100 g	
	4500 lb	83 g	
	4000 lb	83 g	
	3000 lb	71 g	
VOLUME and DENSITY (20/M12)			
Volume	2000 gal	81 in^3	Transfer Method
	1500 gal	62 in^3	
	1200 gal	48 in^3	
	1000 gal	42 in^3	
	500 gal	21 in^3	
	200 gal	2.8 in^3	
	100 gal	1.9 in^3	
	60 gal	1.4 in3	
	50 gal	1.1 in^3	
	25 gal	0.73 in^3	
	15 gal	0.52 in^3	
	10 gal	0.34 in^3	
	5 gal	0.21 in^3	4 in neck
	5 gal	0.19 in^3	3 in neck
	1 gal	0.12 in^3	
	650 L	2.5 in^3	
	500 L	2.3 in^3	
	40 L	0.35 in^3	
	20 L	0.22 in^3	
	500 gal	30 in^3	LPG Transfer Method
	100 gal	3.8 in^3	
	50 gal	4.1 in^3	
	25 gal	3.2 in^3	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) [Notes 1,2]

Measured Parameter or Device Calibrated	Range	Uncertainty (k=2) [Note 3]	Remarks
	100 gal	0.70 in^3	Gravimetric Method
	75 gal	2.8 in^3	
	50 gal	0.67 in^3	
	25 gal	0.53 in^3	
	15 gal	0.33 in^3	
Test Measure	5 gal	0.30 in^3	4 in neck
	5 gal	0.25 in^3	3 in neck
	5 gal	0.11 in^3	2 in neck
	1 gal	0.24 in^3	
	10 ft^3	1.5 in^3	
	0.5 ft^3	0.062 in^3	
	20 L	3.9 mL	
Prover	400 L	31 mL	
	250 L	100 mL	
Graduated Cylinder	2 L	2.7 mL	
Flask	100 mL	0.049 mL	
	1 qt	0.39 mL	
	1 gill	0.065 mL	
Slicker Standard	100 gal	0.75 in^3	
	50 gal	0.50 in^3	
	25 gal	0.17 in^3	
	15 gal	0.17 in^3	
	5 gal	0.040 in^3	
	1 gal	0.021 in^3	
	1.0 ft^3	0.17 in^3	
	20 L	1.1 mL	
	10 L	1.6 mL	
	5 L	0.83 mL	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) [Notes 1,2]

Measured Parameter or Device Calibrated	Range	Uncertainty (k=2) [Note 3]	Remarks
Small Volume Prover	30 gal 20 gal 15 gal	1.2 in^3 0.66 in^3 0.78 in^3	Gravimetric Method
END			

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Notes
Note 1: A Calibration and Measurement Capability (CMC) is a description of the best result of a calibration or measurement (result with the smallest uncertainty of measurement) that is available to the laboratory's customers under normal conditions, when performing more or less routine calibrations of nearly ideal measurement standards or instruments. The CMC is described in the laboratory's scope of accreditation by: the measurement parameter/device being calibrated, the measurement range, the uncertainty associated with that range (see note 3), and remarks on additional parameters, if applicable. **Note 2:** Calibration and Measurement Capabilities are traceable to the national measurement standards of the U.S. or to the national measurement standards of other countries and are thus traceable to the internationally accepted representation of the appropriate SI (Système International) unit. **Note 3:** The uncertainty associated with a measurement in a CMC is an expanded uncertainty using a coverage factor, $k = 2$, with a level of confidence of approximately 95 %. Units for the measurand and its uncertainty are to match. Exceptions to this occur when marketplace practice employs mixed units, such as when the artifact to be measured is labeled in non-SI units and the uncertainty is given in SI units (Example: 5 lb weight with uncertainty given in mg). **Note 3a:** The uncertainty of a specific calibration by the laboratory may be greater than the uncertainty in the CMC due to the condition and behavior of the customer's device and specific circumstances of the calibration. The uncertainties quoted do not include possible effects on the calibrated device of transportation, long term stability, or intended use. **Note 3b:** As the CMC represents the best measurement results achievable under normal conditions, the accredited calibration laboratory shall not report smaller uncertainty of measurement than that given in a CMC for calibrations or measurements covered by that CMC. **Note 3c:** As described in Note 1, CMCs cover calibrations and measurements that are available to the laboratory's customers under *normal conditions.* However, the laboratory may have the capability to offer special tests, employing special conditions, which yield calibration or measurement results with lower uncertainties. Such special tests are not covered by the CMCs and are outside the laboratory's scope of accreditation. In this case, NVLAP requirements for the labeling, on calibration reports, of results outside the laboratory's scope of accreditation apply. These requirements are set out in Annex A.1.h. of NIST Handbook 150, Procedures and General Requirements. **Note 4:** Uncertainties associated with field service calibration may be greater as they incorporate on-site environmental contributions, transportation effects, or other factors that affect the measurements. (This note applies only if marked in the body of the scope.) **Note 5:** Values listed with percent (%) are percent of reading or generated value unless otherwise noted. **Note 6:** NVLAP accreditation is the formal recognition of specific calibration capabilities. Neither NVLAP nor NIST guarantee the accuracy of individual calibrations made by accredited laboratories. **Note 7:** See NIST Handbook 150 for further explanation of these notes.

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