



**National Voluntary  
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 200495-0

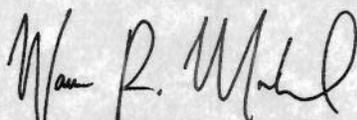
**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005**

<p><b>North Carolina Standards Laboratory</b> 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: <a href="mailto:sharon.woodard@ncagr.gov">sharon.woodard@ncagr.gov</a> URL: <a href="http://www.ncagr.gov/standard">http://www.ncagr.gov/standard</a></p>	<p><b>Parameter(s) of Accreditation</b> Dimensional Mechanical</p> <p>This laboratory is compliant to ANSI/NC SL Z540-1-1994; Part 1. (NVLAP Code: 20/A01)</p>
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**CALIBRATION AND MEASUREMENT CAPABILITIES (CMC)** <sup>Notes 1,2</sup>

Measured Parameter or Device Calibrated	Range	Uncertainty ( $k=2$ ) <sup>Note 3</sup>	Remarks
<b>DIMENSIONAL</b>			
<p>NVLAP Code: 20/D05 <b>LENGTH and DIAMETER, STEP GAGES</b> Lottery Ball Pass Through Gauge</p>	<p>Lottery Ball</p>	<p>0.0069 in</p>	
<b>MECHANICAL</b>			
<p>NVLAP Code: 20/M08 <b>MASS</b> Metric</p>	<p>1000 kg 500 kg 250 kg 200 kg 100 kg 50 kg 30 kg 25 kg 20 kg 10 kg 5 kg 3 kg 2 kg 1 kg 500 g 300 g 200 g</p>	<p>25 g 6.1 g 3.1 g 2.5 g 1.5 g 0.59 g 0.36 g 0.30 g 0.24 g 0.12 g 59 mg 35 mg 24 mg 12 mg 8.3 mg 7.2 mg 4.7 µg</p>	<p>Echelon III</p>

2013-04-01 through 2014-03-31  
Effective dates

  
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Measured Parameter or Device Calibrated	Range	Uncertainty ( $k=2$ ) <sup>Note 3</sup>	Remarks
	100 g	2.4 $\mu$ g	
	50 g	1.2 mg	
	30 g	0.71 mg	
	20 g	0.48 mg	
	10 g	0.25 mg	
	5 g	0.18 mg	
	3 g	0.15 mg	
	2 g	89 $\mu$ g	
	1 g	60 $\mu$ g	
	500 mg	46 $\mu$ g	
	300 mg	37 $\mu$ g	
	200 mg	32 $\mu$ g	
	100 mg	25 $\mu$ g	
	50 mg	21 $\mu$ g	
	30 mg	19 $\mu$ g	
	20 mg	17 $\mu$ g	
	10 mg	15 $\mu$ g	
	5 mg	13 $\mu$ g	
	3 mg	13 $\mu$ g	
	2 mg	12 $\mu$ g	
	1 mg	11 $\mu$ g	
Lottery Balls	Lottery Ball	41 mg	Echelon III
Avoirdupois	2500 lb	31 g	Echelon III
	2000 lb	24 g	
	1000 lb	5.6 g	
	500 lb	2.9 g	
	100 lb	0.53 g	
	50 lb	0.28 g	
	30 lb	0.17 g	
	25 lb	0.14 g	
	20 lb	0.11 g	
	10 lb	54 mg	
	5 lb	27 mg	
	4 lb	21 mg	

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Measured Parameter or Device Calibrated	Range	Uncertainty ( $k=2$ ) <sup>Note 3</sup>	Remarks
Weight Carts	3 lb	17 mg	Echelon III
	2 lb	11 mg	
	1 lb	8.3 mg	
	0.5 lb	5.5 mg	
	0.3 lb	3.2 mg	
	0.2 lb	2.1 mg	
	0.1 lb	1.1 mg	
	0.05 lb	0.54 mg	
	0.03 lb	0.33 mg	
	0.02 lb	0.23 mg	
	0.01 lb	0.20 mg	
	0.005 lb	0.17 mg	
	0.003 lb	61 $\mu$ g	
	0.002 lb	47 $\mu$ g	
	0.001 lb	37 $\mu$ g	
	4 oz	2.7 mg	
	2 oz	1.3 mg	
	1 oz	0.68 mg	
	1/2 oz	0.34 mg	
	1/4 oz	0.22 mg	
	1/8 oz	0.15 mg	
	1/16 oz	60 $\mu$ g	
	1/32 oz	46 $\mu$ g	
6000 lb	110 g	Echelon III	
5500 lb	87 g		
5000 lb	87 g		
4000 lb	73 g		
3000 lb	60 g		
<b>NVLAP Code: 20/M12 VOLUME and DENSITY</b>			
Volume	1500 gal	53 in <sup>3</sup>	Transfer Method
	1000 gal	36 in <sup>3</sup>	
	500 gal	19 in <sup>3</sup>	
	100 gal	2.7 in <sup>3</sup>	

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**CALIBRATION AND MEASUREMENT CAPABILITIES (CMC)** Notes 1,2

Measured Parameter or Device Calibrated	Range	Uncertainty ( $k=2$ ) <small>Note 3</small>	Remarks
	50 gal	1.8 in <sup>3</sup>	
	25 gal	1.0 in <sup>3</sup>	
	5 gal	0.41 in <sup>3</sup>	
	1 gal	0.41 in <sup>3</sup>	
	20 L	0.42 in <sup>3</sup>	
	5 gal	0.84 in <sup>3</sup>	Transfer Method (Field)
	1 gal	0.84 in <sup>3</sup>	
	500 gal	20 in <sup>3</sup>	LPG Transfer Method
	100 gal	4.3 in <sup>3</sup>	
	50 gal	3.0 in <sup>3</sup>	
	25 gal	2.5 in <sup>3</sup>	
	100 gal	0.90 in <sup>3</sup>	Gravimetric Method
	50 gal	0.71 in <sup>3</sup>	
	25 gal	0.54 in <sup>3</sup>	
	15 gal	0.30 in <sup>3</sup>	
Test Measure	5 gal	0.15 in <sup>3</sup>	
	1 gal	0.12 in <sup>3</sup>	
	20 L	2.7 mL	
Flask	100 mL	0.034 mL	
	1 qt	0.27 mL	
	1 gill	0.059 mL	
Slicker Standard	100 gal	0.30 in <sup>3</sup>	
	50 gal	0.21 in <sup>3</sup>	
	25 gal	0.15 in <sup>3</sup>	
	15 gal	0.077 in <sup>3</sup>	
	5 gal	0.040 in <sup>3</sup>	
	1 gal	0.019 in <sup>3</sup>	
	20 L	0.66 mL	

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<b>Measured Parameter or Device Calibrated</b>	<b>Range</b>	<b>Uncertainty (<math>k=2</math>)</b> <sup>Note 3</sup>	<b>Remarks</b>
Small Volume Prover	30 gal	1.2 in <sup>3</sup>	Gravimetric Method
	20 gal	0.77 in <sup>3</sup>	
	15 gal	0.45 in <sup>3</sup>	
<b>END</b>			

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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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