



CALIBRATION LABORATORIES

NVLAP LAB CODE 200420-0

Scope Revised: 2012-11-30

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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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	
DIMENSIONAL				
<p>NVLAP Code: 20/D13 SURVEYING RODS and TAPES Rigid Rules, 72 inch</p>	6 in to 12 in	0.0068 in		
	6 in to 18 in	0.011 in		
	6 in to 24 in	0.011 in		
	6 in to 36 in	0.015 in		
	6 in to 48 in	0.018 in		
	6 in to 60 in	0.022 in		
	6 in to 72 in	0.028 in		
	<p>Rigid Rules, 18 inch</p>	1 in to 2 in	0.0038 in	
		1 in to 3 in	0.0038 in	
		1 in to 4 in	0.0038 in	
		1 in to 5 in	0.0038 in	
		1 in to 6 in	0.0038 in	
		1 in to 7 in	0.0068 in	
		1 in to 8 in	0.0068 in	
1 in to 9 in		0.0068 in		
1 in to 10 in	0.0068 in			
1 in to 11 in	0.0068 in			
1 in to 12 in	0.0068 in			
1 in to 13 in	0.011 in			
1 in to 14 in	0.011 in			
1 in to 15 in	0.011 in			

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks
Tape to Bench	1 in to 16 in	0.011 in	
	1 in to 17 in	0.011 in	
	1 in to 18 in	0.011 in	
	0 ft to 6 ft	0.010 in	
	0 ft to 30 ft	0.033 in	
	0 ft to 50 ft	0.041 in	
	0 ft to 100 ft	0.065 in	
MECHANICAL			
NVLAP Code: 20/M08 MASS Metric	100 kg	0.60 g	Echelon II
	50 kg	32 mg	
	30 kg	26 mg	
	25 kg	10 mg	
	20 kg	19 mg	
	10 kg	9.4 mg	
	5 kg	1.9 mg	
	3 kg	1.0 mg	
	2 kg	0.24 mg	
	1 kg	0.18 mg	
	500 g	0.040 mg	
	300 g	0.066 mg	
	200 g	0.054 mg	
	100 g	0.026 mg	
	50 g	0.017 mg	
	30 g	0.016 mg	
	20 g	0.016 mg	
	10 g	0.010 mg	
	5 g	0.0069 mg	
	3 g	0.0039 mg	
	2 g	0.0032 mg	
	1 g	0.0032 mg	
	500 mg	0.0016 mg	
300 mg	0.0019 mg		
200 mg	0.0013 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
Avoirdupois	100 mg	0.0011 mg	Echelon II
	50 mg	0.0017 mg	
	30 mg	0.0009 mg	
	20 mg	0.0010 mg	
	10 mg	0.0011 mg	
	5 mg	0.0012 mg	
	3 mg	0.00064 mg	
	2 mg	0.00086 mg	
	1 mg	0.00060 mg	
	2000 lb	3.3 g	
	1000 lb	0.92 g	
	500 lb	0.79 g	
	50 lb	19 mg	
	25 lb	4.6 mg	
	20 lb	3.0 mg	
	10 lb	2.0 mg	
	5 lb	1.6 mg	
	2 lb	0.20 mg	
	1 lb	0.10 mg	
	0.5 lb	0.063 mg	
0.3 lb	0.051 mg		
0.2 lb	0.034 mg		
0.1 lb	0.017 mg		
0.05 lb	0.015 mg		
0.03 lb	0.018 mg		
0.02 lb	0.013 mg		
0.01 lb	0.012 mg		
0.005 lb	0.0076 mg		
0.003 lb	0.0047 mg		
0.002 lb	0.0037 mg		
0.001 lb	0.0026 mg		
Metric	1000 kg	14 g	Echelon III
	500 kg	6.1 g	
	300 kg	4.8 g	

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks
	200 kg	3.0 g	
	100 kg	1.7 g	
	50 kg	0.70 g	
	25 kg	0.38 g	
	20 kg	0.32 g	
	10 kg	0.16 g	
	5 kg	68 mg	
	2 kg	28 mg	
	1 kg	13 mg	
	500 g	9.4 mg	
	300 g	8.1 mg	
	200 g	5.4 mg	
	100 g	2.7 mg	
	50 g	1.3 mg	
	30 g	0.81 mg	
	20 g	0.54 mg	
	10 g	0.27 mg	
	5 g	0.20 mg	
	3 g	0.17 mg	
	2 g	0.15 mg	
	1g	0.12 mg	
	500 mg	0.10 mg	
	300 mg	0.082 mg	
	200 mg	0.073 mg	
	100 mg	0.058 mg	
	50 mg	0.047 mg	
	30 mg	0.039 mg	
	20 mg	0.035 mg	
	10 mg	0.029 mg	
	5 mg	0.023 mg	
	3 mg	0.019 mg	
	2 mg	0.016 mg	
	1 mg	0.014 mg	
Avoirdupois	2500 lb	35 g	Echelon III
	2000 lb	14 g	

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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
	1000 lb	6.6 g	
	500 lb	4.0 g	
	50 lb	0.33 g	
	25 lb	0.17 g	
	20 lb	0.15 g	
	10 lb	63 mg	
	5 lb	35 mg	
	2 lb	13 mg	
	1 lb	9.5 mg	
	0.5 lb	6.1 mg	
	0.3 lb	3.7 mg	
	0.2 lb	2.4 mg	
	0.1 lb	0.94 mg	
	0.05 lb	0.61 mg	
	0.03 lb	0.37 mg	
	0.02 lb	0.24 mg	
	0.01 lb	0.20 mg	
	0.005 lb	0.19 mg	
	0.003 lb	0.15 mg	
	0.002 lb	0.12 mg	
	0.001 lb	0.11 mg	
NVLAP Code: 20/M12 VOLUME			
Volume Transfer	100 gal	3.2 in ³	
	50 gal	2.5 in ³	
	25 gal	1.1 in ³	
	5 gal	0.35 in ³	
Gravimetric	50 gal	2.8 in ³	
	25 gal	1.0 in ³	
	5 gal	0.39 in ³	
	1 gal	0.53 in ³	
	1/2 gal	0.026 in ³	
	1 qt	0.021 in ³	
	1 pt	0.018 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
	1 L 100 mL	0.021 in ³ 0.0092 in ³	
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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