



CALIBRATION LABORATORIES

NVLAP LAB CODE 200869-0


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	Expanded Uncertainty ^{Note 3}	Remarks	
DIMENSIONAL				
SURVEYING RODS and TAPES (20/D13)				
Surveying Tapes	0 ft to 16 ft	0.0069 in	Bench Method	
	0 ft to 30 ft	0.011 in		
	0 ft to 45 ft	0.016 in		
	0 ft to 60 ft	0.021 in		
	0 ft to 75 ft	0.025 in		
	0 ft to 84 ft	0.030 in		
	0 ft to 90 ft	0.030 in		
	0 ft to 100 ft	0.035 in		
	0 ft to 105 ft	0.035 in		
	0 ft to 120 ft	0.040 in		
	0 ft to 135 ft	0.045 in		
	0 ft to 150 ft	0.050 in		
	0 ft to 165 ft	0.055 in		
	0 ft to 180 ft	0.060 in		
	0 ft to 184 ft	0.065 in		
	0 ft to 195 ft	0.065 in		
0 ft to 200 ft	0.070 in			
TIME and FREQUENCY				
STOPWATCHES and TIMERS (20/F05)				
Stopwatches	DUT Resolution 0.01 s	0 h to 24 h	0.43 s	Direct Comparison
	DUT Resolution 1 s	0 h to 24 h	0.79 s	Direct Comparison

2018-02-09 through 2019-03-31
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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
MECHANICAL			
FORCE (20/M06)			
Force Gauge	50 lbf	0.060 lbf	
	45 lbf	0.060 lbf	
	40 lbf	0.060 lbf	
	35 lbf	0.060 lbf	
	30 lbf	0.060 lbf	
	25 lbf	0.060 lbf	
	20 lbf	0.060 lbf	
	15 lbf	0.060 lbf	
	10 lbf	0.060 lbf	
	0 lbf to 5 lbf	0.060 lbf	
MASS DETERMINATION (20/M08)			
Metric	30 kg	15 mg	Echelon II
	25 kg	15 mg	
	20 kg	9.9 mg	
	10 kg	3.4 mg	
	5 kg	1.8 mg	
	3 kg	1.3 mg	
	2 kg	1.3 mg	
	1 kg	0.21 mg	
	500 g	0.12 mg	
	300 g	88 µg	
	200 g	76 µg	
	100 g	43 µg	
	50 g	25 µg	
	30 g	19 µg	
	20 g	14 µg	
	10 g	12 µg	
	5 g	4.6 µg	
	3 g	3.6 µg	
	2 g	3.2 µg	
	1 g	3.2 µg	
500 mg	2.4 µg		
300 mg	1.4 µg		
200 mg	1.3 µg		

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Avoirdupois	100 mg	1.3 µg	Echelon II
	50 mg	1.3 µg	
	30 mg	1.3 µg	
	20 mg	1.2 µg	
	10 mg	1.3 µg	
	5 mg	1.3 µg	
	3 mg	1.3 µg	
	2 mg	1.3 µg	
	1 mg	1.4 µg	
	1000 lb	0.89 g	
	500 lb	0.62 g	
	200 lb	0.53 g	
	100 lb	67 mg	
	50 lb	18 mg	
	30 lb	13 mg	
	25 lb	9.5 mg	
	20 lb	4.5 mg	
	10 lb	2.1 mg	
	5 lb	1.4 mg	
	3 lb	1.3 mg	
	2 lb	0.18 mg	
	1 lb	0.12 mg	
	0.5 lb	80 µg	
	0.3 lb	69 µg	
	0.2 lb	33 µg	
	0.1 lb	27 µg	
	0.05 lb	18 µg	
	0.03 lb	13 µg	
	0.02 lb	12 µg	
	0.01 lb	7.4 µg	
	0.005 lb	4.4 µg	
	0.003 lb	2.7 µg	
	0.002 lb	2.7 µg	
0.001 lb	2.6 µg		

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Metric	8 oz	80 µg	Echelon III
	4 oz	100 µg	
	2 oz	63 µg	
	1 oz	23 µg	
	1/2 oz	19 µg	
	1/4 oz	16 µg	
	1/8 oz	10 µg	
	1/16 oz	4.5 µg	
	1/32 oz	5.4 µg	
	2500 kg	45 g	
	1000 kg	18 g	
	750 kg	17 g	
	500 kg	6.1 g	
	250 kg	3.1 g	
	200 kg	2.6 g	
	100 kg	3.0 g	
	50 kg	600 mg	
	30 kg	360 mg	
	25 kg	300 mg	
	20 kg	240 mg	
	10 kg	130 mg	
	5 kg	60 mg	
	3 kg	36 mg	
	2 kg	24 mg	
	1 kg	13 mg	
	500 g	9.8 mg	
	300 g	8.8 mg	
	200 g	7.0 mg	
	100 g	2.4 mg	
	50 g	1.2 mg	
	30 g	0.72 mg	
	20 g	0.49 mg	
	10 g	0.26 mg	
5 g	0.21 mg		
3 g	0.18 mg		

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Avoirdupois	2 g	0.16 mg	Echelon III
	1 g	0.15 mg	
	500 mg	88 µg	
	300 mg	73 µg	
	200 mg	74 µg	
	100 mg	52 µg	
	50 mg	44 µg	
	30 mg	37 µg	
	20 mg	32 µg	
	10 mg	27 µg	
	5 mg	22 µg	
	3 mg	19 µg	
	2 mg	17 µg	
	1 mg	15 µg	
	5000 lb	43 g	
	3000 lb	29 g	
	2500 lb	27 g	
	2000 lb	18 g	
	1000 lb	5.5 g	
	500 lb	2.9 g	
	250 lb	1.5 g	
	200 lb	1.2 g	
	100 lb	0.55g	
	50 lb	0.28 g	
	30 lb	0.18 g	
	25 lb	0.15 g	
	20 lb	0.12 g	
	10 lb	53 mg	
	5 lb	28 mg	
	3 lb	17 mg	
	2 lb	12 mg	
	1 lb	9.8 mg	
	0.5 lb	7.4 mg	
0.3 lb	3.2 mg		

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Troy Ounce	0.2 lb	2.1 mg	
	0.1 lb	1.1 mg	
	0.05 lb	0.56 mg	
	0.03 lb	0.34 mg	
	0.02 lb	0.26 mg	
	0.01 lb	0.21 mg	
	0.005 lb	0.17 mg	
	0.003 lb	0.15 mg	
	0.002 lb	0.15 mg	
	0.001 lb	0.13 mg	
	8 oz	7.4 mg	
	4 oz	2.7 mg	
	2 oz	1.3 mg	
	1 oz	0.69 mg	
	1/2 oz	0.35 mg	
	1/4 oz	0.23 mg	
	1/8 oz	0.18 mg	
	1/16 oz	0.16 mg	
	1/32 oz	0.15 mg	
	0.5 oz	0.35 mg	
	0.2 oz	0.22 mg	
	0.1 oz	0.19 mg	
	0.05 oz	0.16 mg	
	0.02 oz	0.14 mg	
	0.01 oz	0.13 mg	
	200 oz t	73 mg	
	100 oz t	37 mg	
	50 oz t	20 mg	
	20 oz t	9.8 mg	
	10 oz t	9.8 mg	
	5 oz t	6.4 mg	
	2 oz t	1.4 mg	
	1 oz t	0.74 mg	

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
Grain	0.5 oz t	0.38 mg	
	0.25 oz t	0.23 mg	
	0.2 oz t	0.21 mg	
	0.1 oz t	0.18 mg	
	0.05 oz t	0.16 mg	
	0.025 oz t	0.14 mg	
	0.02 oz t	0.14 mg	
	0.01 oz t	0.12 mg	
	0.005 oz t	0.12 mg	
	1000 gr	1.6 mg	
	500 gr	0.79 mg	
	200 gr	0.33 mg	
	100 gr	0.23 mg	
	50 gr	0.19 mg	
	20 gr	0.15 mg	
Wheel Load Weighers	30 001 lb to 40 000 lb	80 lb	Echelon III
	20 001 lb to 30 000 lb	80 lb	
	10 001 lb to 20 000 lb	60 lb	
	0 lb to 10 000 lb	50 lb	
Weight Carts	6000 lb	150 g	Echelon III
	5500 lb	130 g	
	5000 lb	130 g	
	4500 lb	120 g	
	4000 lb	120 g	
	3500 lb	110 g	

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
	3000 lb	88 g	
	2500 lb	72 g	
	2000 lb	72 g	
VOLUME and DENSITY (20/M12)			
Volume	1500 gal	39 in ³	Transfer Method
	1000 gal	27 in ³	
	500 gal	15 in ³	
	200 gal	5.5 in ³	
	100 gal	2.8 in ³	
	60 gal	1.8 in ³	
	50 gal	1.7 in ³	
	25 gal	1.1 in ³	
	10 gal	0.43 in ³	
	5 gal	0.34 in ³	
	5 gal	0.22 in ³	
	5000 L	0.58 L	
	3000 L	0.36 L	
	2000 L	0.27 L	
	1000 L	0.16 L	
	500 L	56 mL	
	250 L	32 mL	
	200 L	28 mL	
	120 L	22 mL	
	100 L	17 mL	
	60 L	9.7 mL	
	50 L	9.2 mL	
	40 L	8.5 mL	
	20 L	5.5 mL	
	10 L	2.3 mL	
	5 L	2.1 mL	
Large Volume	100 gal	1.6 in ³	Gravimetric Method
	50 gal	1.2 in ³	
	25 gal	0.53 in ³	
	25 gal	0.27 in ³	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty ^{Note 3}	Remarks
	20 gal	0.24 in ³	
	15 gal	0.23 in ³	
	500 L	26 mL	
	200 L	19 mL	
	100 L	8.7 mL	
	60 L	3.8 mL	
	50 L	3.8 mL	
Slicker Standard	10 gal	0.15 in ³	
	5 gal	0.071 in ³	
	1 gal	0.022 in ³	
Test Measure	10 gal	0.23 in ³	
	5 gal	0.14 in ³	
	1 gal	0.029 in ³	
	5 gal (Imperial)	0.14 in ³	
Slicker Standard	20 L	1.3 mL	
	5 L	0.47 mL	
Test Measure	20 L	2.2 mL	
	10 L	0.63 mL	
	5 L	0.54 mL	
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 with a level of confidence of approximately 95 %, typically using a coverage factor of k = 2. However, laboratories may report a coverage factor different than k = 2 to achieve the 95 % level of confidence. 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.

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