



**National Voluntary
Laboratory Accreditation Program**



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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CALIBRATION LABORATORIES

NVLAP LAB CODE 200495-0
Scope Revised: 2009-06-30

NVLAP Code: 20/A01 ANSI/NCSL Z540-1-1994; Part 1 Compliant

DIMENSIONAL

NVLAP Code: 20/D05
Length and Rigid Rules

<i>Range in inches</i>	<i>Best Uncertainty (±) in inches^{note 1}</i>	<i>Remarks</i>
0 to 1	0.0010	Rigid Rules
0 to 2	0.0010	Rigid Rules
0 to 3	0.0010	Rigid Rules
0 to 4	0.0010	Rigid Rules
0 to 5	0.0010	Rigid Rules
0 to 6	0.0010	Rigid Rules
0 to 7	0.0010	Rigid Rules
0 to 8	0.0010	Rigid Rules
0 to 9	0.0010	Rigid Rules
0 to 10	0.0010	Rigid Rules
0 to 11	0.0010	Rigid Rules
0 to 12	0.0010	Rigid Rules
0 to 24	0.0012	Rigid Rules
0 to 36	0.0020	Rigid Rules
0 to 48	0.0035	Rigid Rules
0 to 60	0.0035	Rigid Rules

2009-04-01 through 2010-03-31

Effective dates

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<i>Range in mm</i>	<i>Best Uncertainty (±) in mm^{note 1}</i>	<i>Remarks</i>
0 to 72	0.0042	Rigid Rules
0 to 10	0.059	Rigid Rules
0 to 20	0.059	Rigid Rules
0 to 30	0.059	Rigid Rules
0 to 40	0.059	Rigid Rules
0 to 50	0.059	Rigid Rules
0 to 60	0.059	Rigid Rules
0 to 70	0.059	Rigid Rules
0 to 80	0.059	Rigid Rules
0 to 90	0.059	Rigid Rules
0 to 100	0.059	Rigid Rules
0 to 200	0.058	Rigid Rules
0 to 300	0.058	Rigid Rules
0 to 400	0.058	Rigid Rules
0 to 500	0.058	Rigid Rules
0 to 600	0.058	Rigid Rules
0 to 700	0.058	Rigid Rules
0 to 800	0.058	Rigid Rules
0 to 900	0.058	Rigid Rules
0 to 1000	0.058	Rigid Rules
Lottery Ball Pass Through Gauge	0.0030	

NVLAP Code: 20/D13
Surveying Tapes

<i>Range in ft</i>	<i>Best Uncertainty (±) in ft^{note 1}</i>	<i>Remarks</i>
0 to 1	0.00025	Bench Method
0 to 2	0.00025	Bench Method
0 to 3	0.00025	Bench Method
0 to 4	0.00025	Bench Method
0 to 5	0.00025	Bench Method

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0 to 6	0.00025	Bench Method
0 to 7	0.00025	Bench Method
0 to 8	0.00025	Bench Method
0 to 9	0.00025	Bench Method
0 to 10	0.00025	Bench Method
0 to 11	0.00025	Bench Method
0 to 12	0.00025	Bench Method
0 to 13	0.00025	Bench Method
0 to 14	0.00025	Bench Method
0 to 15	0.00025	Bench Method
0 to 16	0.00025	Bench Method
17 to 32	0.00034	Bench Method
33 to 48	0.00039	Bench Method
49 to 64	0.00045	Bench Method
65 to 80	0.00051	Bench Method
81 to 96	0.00055	Bench Method
97 to 112	0.00059	Bench Method

<i>Range in m</i>	<i>Best Uncertainty (±) in mm ^{note 1}</i>	<i>Remarks</i>
0 to 0.1	0.065	Bench Method
0 to 0.2	0.065	Bench Method
0 to 0.3	0.065	Bench Method
0 to 0.4	0.065	Bench Method
0 to 0.5	0.065	Bench Method
0 to 0.6	0.065	Bench Method
0 to 0.7	0.065	Bench Method
0 to 0.8	0.065	Bench Method
0 to 0.9	0.065	Bench Method
0 to 1	0.065	Bench Method
0 to 2	0.065	Bench Method
0 to 3	0.065	Bench Method
0 to 4	0.065	Bench Method
0 to 5	0.065	Bench Method
6 to 10	0.10	Bench Method

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11 to 15	0.12	Bench Method
16 to 20	0.14	Bench Method
21 to 25	0.16	Bench Method
26 to 30	0.17	Bench Method

MECHANICAL

NVLAP Code: 20/M08

Mass - Metric

Range	Best Uncertainty (\pm) ^{note 1}	Remarks
30 kg	8.6 mg	Echelon I
25 kg	8.0 mg	Echelon I
20 kg	5.6 mg	Echelon I
10 kg	1.3 mg	Echelon I
5 kg	0.61 mg	Echelon I
3 kg	0.38 mg	Echelon I
2 kg	0.28 mg	Echelon I
1 kg	39 μ g	Echelon I
500 g	28 μ g	Echelon I
300 g	3.9 μ g	Echelon I
200 g	18 μ g	Echelon I
100 g	17 μ g	Echelon I
50 g	10 μ g	Echelon I
30 g	6.8 μ g	Echelon I
20 g	5.2 μ g	Echelon I
10 g	4.6 μ g	Echelon I
5 g	2.4 μ g	Echelon I
3 g	1.7 μ g	Echelon I
2 g	1.3 μ g	Echelon I
1 g	1.3 μ g	Echelon I
500 mg	0.82 μ g	Echelon I
300 mg	0.60 μ g	Echelon I
200 mg	0.54 μ g	Echelon I

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100 mg	0.58 µg	Echelon I
50 mg	0.44 µg	Echelon I
30 mg	0.36 µg	Echelon I
20 mg	0.34 µg	Echelon I
10 mg	0.38 µg	Echelon I
5 mg	0.24 µg	Echelon I
3 mg	0.20 µg	Echelon I
2 mg	0.18 µg	Echelon I
1 mg	0.20 µg	Echelon I

Mass – Avoirdupois

50 lb	12 mg	Echelon I
30 lb	8.7 mg	Echelon I
25 lb	8.7 mg	Echelon I
20 lb	8.7 mg	Echelon I
10 lb	0.62 mg	Echelon I
5 lb	0.29 mg	Echelon I
4 lb	0.29 mg	Echelon I
3 lb	39 µg	Echelon I
2 lb	39 µg	Echelon I
1 lb	27 µg	Echelon I
0.5 lb	18 µg	Echelon I
0.3 lb	18 µg	Echelon I
0.2 lb	18 µg	Echelon I
0.1 lb	10 µg	Echelon I
0.05 lb	5.2 µg	Echelon I
0.03 lb	4.6 µg	Echelon I
0.02 lb	4.6 µg	Echelon I
0.01 lb	2.5 µg	Echelon I
0.005 lb	1.3 µg	Echelon I
0.003 lb	1.3 µg	Echelon I
0.002 lb	1.3 µg	Echelon I
0.001 lb	0.82 µg	Echelon I

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Mass – Metric

250 kg	0.57 g	Echelon II
200 kg	0.50 g	Echelon II
100 kg	0.39 g	Echelon II
50 kg	31 mg	Echelon II
30 kg	22 mg	Echelon II
25 kg	18 mg	Echelon II
20 kg	16 mg	Echelon II
10 kg	9.8 mg	Echelon II
5 kg	2.3 mg	Echelon II
3 kg	1.4 mg	Echelon II
2 kg	0.92 mg	Echelon II
1 kg	67 µg	Echelon II
500 g	86 µg	Echelon II
300 g	74 µg	Echelon II
200 g	68 µg	Echelon II
100 g	30 µg	Echelon II
50 g	20 µg	Echelon II
30 g	17 µg	Echelon II
20 g	16 µg	Echelon II
10 g	6.2 µg	Echelon II
5 g	3.0 µg	Echelon II
3 g	2.2 µg	Echelon II
2 g	1.9 µg	Echelon II
1 g	1.8 µg	Echelon II
500 mg	1.5 µg	Echelon II
300 mg	0.84 µg	Echelon II
200 mg	0.80 µg	Echelon II
100 mg	0.84 µg	Echelon II
50 mg	0.71 µg	Echelon II
30 mg	0.67 µg	Echelon II
20 mg	0.66 µg	Echelon II
10 mg	0.69 µg	Echelon II
5 mg	0.61 µg	Echelon II

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3 mg	0.58 µg	Echelon II
2 mg	0.58 µg	Echelon II
1 mg	0.58 µg	Echelon II
Mass – Avoirdupois		
2500 lb	24 g	Echelon II
2000 lb	16 g	Echelon II
1000 lb	1.2 g	Echelon II
500 lb	0.52 g	Echelon II
100 lb	47 mg	Echelon II
50 lb	31 mg	Echelon II
30 lb	19 mg	Echelon II
25 lb	14 mg	Echelon II
20 lb	13 mg	Echelon II
10 lb	8.4 mg	Echelon II
5 lb	1.1 mg	Echelon II
4 lb	0.50 mg	Echelon II
3 lb	0.67 mg	Echelon II
2 lb	0.40 mg	Echelon II
1 lb	0.22 mg	Echelon II
0.5 lb	0.12 mg	Echelon II
0.3 lb	89 µg	Echelon II
0.2 lb	47 µg	Echelon II
0.1 lb	31 µg	Echelon II
0.05 lb	20 µg	Echelon II
0.03 lb	17 µg	Echelon II
0.02 lb	7.4 µg	Echelon II
0.01 lb	5.0 µg	Echelon II
0.005 lb	3.3 µg	Echelon II
0.003 lb	2.6 µg	Echelon II
0.002 lb	2.4 µg	Echelon II
0.001 lb	2.6 µg	Echelon II
4 oz	0.27 mg	Echelon II

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2 oz	0.12 mg	Echelon II
1 oz	65 µg	Echelon II
1/2 oz	39 µg	Echelon II
1/4 oz	17 µg	Echelon II
1/8 oz	8.3 µg	Echelon II
1/16 oz	4.9 µg	Echelon II
1/32 oz	3.0 µg	Echelon II
Mass – Metric		
500 kg	1.1 g	Echelon III
250 kg	.94 g	Echelon III
200 kg	.89 g	Echelon III
100 kg	.84 g	Echelon III
50 kg	33 mg	Echelon III
30 kg	31 mg	Echelon III
25 kg	34 mg	Echelon III
20 kg	28 mg	Echelon III
10 kg	26 mg	Echelon III
5 kg	1.4 mg	Echelon III
3 kg	1.3 mg	Echelon III
2 kg	1.3 mg	Echelon III
1 kg	1.3 mg	Echelon III
500 g	1.3 mg	Echelon III
300 g	1.3 mg	Echelon III
200 g	90 µg	Echelon III
100 g	90 µg	Echelon III
50 g	80 µg	Echelon III
30 g	80 µg	Echelon III
20 g	80 µg	Echelon III
10 g	80 µg	Echelon III
5 g	3.6 µg	Echelon III
3 g	2.4 µg	Echelon III
2 g	2.4 µg	Echelon III
1 g	2.2 µg	Echelon III

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500 mg	1.8 µg	Echelon III
300 mg	1.7 µg	Echelon III
200 mg	1.6 µg	Echelon III
100 mg	1.6 µg	Echelon III
50 mg	1.6 µg	Echelon III
30 mg	1.6 µg	Echelon III
20 mg	1.6 µg	Echelon III
10 mg	1.6 µg	Echelon III
5 mg	1.5 µg	Echelon III
3 mg	1.5 µg	Echelon III
2 mg	1.5 µg	Echelon III
1 mg	1.5 µg	Echelon III
Lottery Balls	25 mg	Echelon III
Mass – Avoirdupois		
6000 lb	32 g	Echelon III
5500 lb	32 g	Echelon III
5000 lb	32 g	Echelon III
4000 lb	26 g	Echelon III
3000 lb	26 g	Echelon III
2500 lb	26 g	Echelon III
2000 lb	19 g	Echelon III
1000 lb	1.3 g	Echelon III
500 lb	0.94 g	Echelon III
100 lb	48 mg	Echelon III
50 lb	43 mg	Echelon III
30 lb	33 mg	Echelon III
25 lb	33 mg	Echelon III
20 lb	29 mg	Echelon III
10 lb	9.9 mg	Echelon III
5 lb	1.4 mg	Echelon III
4 lb	1.3 mg	Echelon III
3 lb	1.3 mg	Echelon III

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2 lb	1.3 mg	Echelon III
1 lb	1.3 mg	Echelon III
0.5 lb	1.3 mg	Echelon III
0.3 lb	90 µg	Echelon III
0.2 lb	91 µg	Echelon III
0.1 lb	90 µg	Echelon III
0.05 lb	89 µg	Echelon III
0.03 lb	88 µg	Echelon III
0.02 lb	88 µg	Echelon III
0.01 lb	88 µg	Echelon III
0.005 lb	88 µg	Echelon III
0.003 lb	2.7 µg	Echelon III
0.002 lb	2.6 µg	Echelon III
0.001 lb	2.7 µg	Echelon III
4 oz	0.10 mg	Echelon III
2 oz	90 µg	Echelon III
1 oz	90 µg	Echelon III
1/2 oz	90 µg	Echelon III
1/4 oz	80 µg	Echelon III
1/8 oz	3.0 µg	Echelon III
1/16 oz	3.0 µg	Echelon III
1/32 oz	2.5 µg	Echelon III

NVLAP Code: 20/M12
Volume

Nominal Volume	Best Uncertainty (±) ^{note 1}	Remarks
7500 gal	110 in ³	Transfer Method
1500 gal	31 in ³	Transfer Method
1000 gal	16 in ³	Transfer Method
500 gal	7.5 in ³	Transfer Method
100 gal	2.4 in ³	Transfer Method
50 gal	2.1 in ³	Transfer Method

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25 gal	1.2 in ³	Transfer Method
5 gal	0.40 in ³	Transfer Method
1 gal	0.39 in ³	Transfer Method
20 L	0.40 in ³	Transfer Method

Field Measurements

5 gal	0.56 in ³	Transfer Method
1 gal	0.55 in ³	Transfer Method

<i>Nominal Volume</i>	<i>Best Uncertainty (±) ^{note 1}</i>	<i>Remarks</i>
100 gal	0.92 in ³	Gravimetric Method
50 gal	0.74 in ³	Gravimetric Method
25 gal	0.44 in ³	Gravimetric Method
15 gal	0.30 in ³	Gravimetric Method
5 gal test measure	0.10 in ³	Gravimetric Method
1 gal test measure	0.053 in ³	Gravimetric Method
20 L test measure	2.1 mL	Gravimetric Method
100 mL flask	0.033 mL	Gravimetric Method
1 qt flask	0.27 mL	Gravimetric Method
1 gill flask	0.059 mL	Gravimetric Method
100 gal slicker	0.32 in ³	Gravimetric Method
50 gal slicker	0.20 in ³	Gravimetric Method
25 gal slicker	0.14 in ³	Gravimetric Method
15 gal slicker	0.066 in ³	Gravimetric Method
5 gal slicker	0.039 in ³	Gravimetric Method
1 gal slicker	0.018 in ³	Gravimetric Method
20 L slicker	0.65 mL	Gravimetric Method

30 gal	1.2 in ³	Small Volume Prover Gravimetric Method
20 gal	0.89 in ³	Small Volume Prover Gravimetric Method

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15 gal

0.45 in³

Small Volume Prover Gravimetric Method

THERMODYNAMIC

NVLAP Code: 20/T03

Laboratory Thermometers

<i>Range in °C</i>	<i>Best Uncertainty (±) in °C^{note 1}</i>	<i>Remarks</i>
-30 to 95	0.0061	Liquid in Glass and Digital Comparison to PRT
95 to 230	0.11	Liquid in Glass and Digital Comparison to PRT

<i>Range in °F</i>	<i>Best Uncertainty (±) in °F^{note 1}</i>	<i>Remarks</i>
-22 to 203	0.011	Liquid in Glass and Digital Comparison to PRT
203 to 446	0.019	Liquid in Glass and Digital Comparison to PRT

NVLAP Code: 20/T07

Resistance Thermometry

<i>Range in °C</i>	<i>Best Uncertainty (±) in °C^{note 1}</i>	<i>Remarks</i>
-30 to 95	0.10	Comparison
95 to 230	0.10	Comparison

<i>Range in °F</i>	<i>Best Uncertainty (±) in °F^{note 1}</i>	<i>Remarks</i>
-22 to 203	0.18	Comparison
203 to 446	0.18	Comparison

1. Represents an expanded uncertainty using a coverage factor, k = 2, at an approximate level of confidence of 95 %.

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