National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

CALIBRATION LABORATORIES **NVLAP LAB CODE 200494-0**

MARYLAND DEPARTMENT OF AGRICULTURE, WEIGHTS AND MEASURES SEC.
50 Harry S. Truman Parkway
Annapolis, MD 21401
Mr. Stephen Alfred Barry
Phone: 410-841-5790 fax: 410-841-2765
E-Mail: barrysa@mda.state.md.us

DIMENSIONAL

NVLAP Code: 20/D13
Surveying Rods and Tapes

Range in inches	*Best Uncertainty (±) in inches*[note 1]	*Remarks*
1	0.0023	Rigid Rules
2	0.0023	Rigid Rules
3	0.0023	Rigid Rules
4	0.0024	Rigid Rules
5	0.0024	Rigid Rules
6	0.0024	Rigid Rules
7	0.0024	Rigid Rules
8	0.0024	Rigid Rules
9	0.0024	Rigid Rules
10	0.0024	Rigid Rules

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11	0.0024	Rigid Rules
12	0.0024	Rigid Rules
24	0.0036	Rigid Rules
36	0.0046	Rigid Rules
48	0.0055	Rigid Rules

Range in feet	*Best Uncertainty (±) in inches*[note 1]	*Remarks*
1	0.0031	Metal Tapes (Bench Method)
2	0.0031	Metal Tapes (Bench Method)
3	0.0031	Metal Tapes (Bench Method)
4	0.0031	Metal Tapes (Bench Method)
5	0.0031	Metal Tapes (Bench Method)
6	0.0032	Metal Tapes (Bench Method)
7	0.0032	Metal Tapes (Bench Method)
8	0.0032	Metal Tapes (Bench Method)
9	0.0033	Metal Tapes (Bench Method)
10	0.0033	Metal Tapes (Bench Method)
20	0.0051	Metal Tapes (Bench Method)

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30	0.0067	Metal Tapes (Bench Method)
40	0.0082	Metal Tapes (Bench Method)
50	0.0097	Metal Tapes (Bench Method)
60	0.011	Metal Tapes (Bench Method)
70	0.013	Metal Tapes (Bench Method)
80	0.014	Metal Tapes (Bench Method)
90	0.015	Metal Tapes (Bench Method)
100	0.017	Metal Tapes (Bench Method)

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MECHANICAL

NVLAP Code: 20/M08
Mass/Metric

Range	*Best Uncertainty (±) in mg*[note 1]	*Remarks*
1000 g	0.072	Echelon I
500 g	0.040	Echelon I
300 g	0.029	Echelon I
200 g	0.023	Echelon I
100 g	0.024	Echelon I
50 g	0.013	Echelon I
30 g	0.0080	Echelon I
20 g	0.0057	Echelon I
10 g	0.0045	Echelon I
5 g	0.0026	Echelon I
3 g	0.0018	Echelon I
2 g	0.0015	Echelon I
1 g	0.0016	Echelon I

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500 mg	0.00083	Echelon I
300 mg	0.00054	Echelon I
200 mg	0.00040	Echelon I
100 mg	0.00034	Echelon I
50 mg	0.00024	Echelon I
30 mg	0.00020	Echelon I
20 mg	0.00018	Echelon I
10 mg	0.00021	Echelon I
5 mg	0.00021	Echelon I
3 mg	0.00020	Echelon I
2 mg	0.00019	Echelon I
1 mg	0.00023	Echelon I
30 kg	27.0	Echelon II
20 kg	20.0	Echelon II
10 kg	8.9	Echelon II
5 kg	6.2	Echelon II

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3 kg	4.6	Echelon II
2 kg	3.0	Echelon II
1 kg	0.14	Echelon II
500 g	0.086	Echelon II
300 g	0.065	Echelon II
200 g	0.071	Echelon II
100 g	0.031	Echelon II
50 g	0.017	Echelon II
30 g	0.014	Echelon II
20 g	0.0092	Echelon II
10 g	0.0070	Echelon II
5 g	0.0033	Echelon II
3 g	0.0028	Echelon II
2 g	0.0034	Echelon II
1 g	0.0030	Echelon II
500 mg	0.0012	Echelon II
300 mg	0.0012	Echelon II

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200 mg	0.0009	Echelon II
100 mg	0.0010	Echelon II
50 mg	0.0009	Echelon II
30 mg	0.0010	Echelon II
20 mg	0.0009	Echelon II
10 mg	0.0007	Echelon II
5 mg	0.0010	Echelon II
3 mg	0.0006	Echelon II
2 mg	0.0008	Echelon II
1 mg	0.0006	Echelon II

Range	*Best Uncertainty (±)[note 1,2]*	*Remarks*
1 kg	0.67	Echelon III
500 g	0.46	Echelon III
300 g	0.30	Echelon III
200 g	0.28	Echelon III
100 g	0.11	Echelon III

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50 g	0.069	Echelon III
30 g	0.059	Echelon III
20 g	0.037	Echelon III
10 g	0.034	Echelon III
5 g	0.0090	Echelon III
3 g	0.0070	Echelon III
2 g	0.0080	Echelon III
1 g	0.0071	Echelon III
500 mg	0.0062	Echelon III
300 mg	0.0077	Echelon III
200 mg	0.0049	Echelon III
100 mg	0.0049	Echelon III
50 mg	0.0051	Echelon III
30 mg	0.0050	Echelon III
20 mg	0.0049	Echelon III
10 mg	0.0048	Echelon III
5 mg	0.0050	Echelon III

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3 mg	0.0054	Echelon III
2 mg	0.0048	Echelon III
1 mg	0.0048	Echelon III

Range	*Best Uncertainty (±) in mg*[note 1,3]	*Remarks*
30 kg	160.0	Echelon III
20 kg	120.0	Echelon III
10 kg	71.0	Echelon III
5 kg	18.0	Echelon III
3 kg	14.0	Echelon III
2 kg	9.8	Echelon III
1 kg	8.4	Echelon III
500 g	6.5	Echelon III
300 g	6.5	Echelon III
200 g	0.29	Echelon III
100 g	0.21	Echelon III
50 g	0.20	Echelon III

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30 g	0.19	Echelon III
20 g	0.19	Echelon III
10 g	0.19	Echelon III
5 g	0.11	Echelon III
3 g	0.11	Echelon III
2 g	0.11	Echelon III
1 g	0.067	Echelon III
500 mg	0.015	Echelon III
300 mg	0.016	Echelon III
200 mg	0.015	Echelon III
100 mg	0.015	Echelon III
50 mg	0.015	Echelon III
30 mg	0.015	Echelon III
20 mg	0.015	Echelon III
10 mg	0.014	Echelon III
5 mg	0.015	Echelon III
3 mg	0.011	Echelon III

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2 mg	0.011	Echelon III
1 mg	0.0087	Echelon III

NVLAP Code: 20/M08
Mass/Avoirdupois

Range	*Best Uncertainty (±)*[note 1]	*Remarks*
1000 lb	0.0036 lb	Echelon II
500 lb	0.0027 lb	Echelon II
10,000 lb	0.164 lb	Echelon III
5000 lb	0.163 lb	Echelon III
2500 lb	0.0132 lb	Echelon III
2000 lb	0.0112 lb	Echelon III
10000 lb	0.0067 lb	Echelon III
500 lb	0.0054 lb	Echelon III
50 lb	108.0 μlb	Echelon III
30 lb	103.0 μlb	Echelon III
20 lb	96 μlb	Echelon III

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10 lb	27.0 μlb	Echelon III
5 lb	21.0 μlb	Echelon III
3 lb	19.0 μlb	Echelon III
2 lb	18.0 μlb	Echelon III
1 lb	14.0 μlb	Echelon III
0.5 lb	14.0 μlb	Echelon III
0.3 lb	0.53 μlb	Echelon III
0.2 lb	0.44 μlb	Echelon III
0.1 lb	0.43 μlb	Echelon III
0.05 lb	0.42 μlb	Echelon III
0.03 lb	0.42 μlb	Echelon III
0.02 lb	0.42 μlb	Echelon III
0.01 lb	0.24 μlb	Echelon III
0.005 lb	0.24 μlb	Echelon III
0.003 lb	0.24 μlb	Echelon III
0.002 lb	0.15 μlb	Echelon III
0.001 lb	015 μlb	Echelon III

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4 oz	0.000013 oz	Echelon III
2 oz	0.000012 oz	Echelon III
1 oz	0.000011 oz	Echelon III
0.5 oz	0.000010 oz	Echelon III
0.25 oz	0.000010 oz	Echelon III
0.125 oz	0.0000059 oz	Echelon III
0.0625 oz	0.0000058 oz	Echelon III
0.03125 oz	0.0000038 oz	Echelon III

NVLAP Code: 20/M12
Volume

Range	***Best Uncertainty (±)***[note 1]	***Remarks***
5 gal (U.S.)	0.124 in^3	Gravimetric
1 gal (U.S.)	5.2 minims (Apothecaries)	Gravimetric
1/2 gal (U.S.)	3.2 minims	Gravimetric
1 quart (U.S. liquid)	2.5 minims	Gravimetric
1 pint (U.S. liquid)	1.6 minims	Gravimetric
1/2 pint (U.S. liquid)	0.72 minim	Gravimetric

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1 gill (U.S.)	0.71 minim	Gravimetric
2 ounces (U.S. fluid)	1.9 minims	Gravimetric
1800 gal (U.S.)	57 in^3	Volume Transfer
150 gal (U.S.)	48 in^3	Volume Transfer
1480 gal (U.S.)	49 in^3	Volume Transfer
1000 gal (U.S.)	33 in^3	Volume Transfer
800 gal (U.S.)	27 in^3	Volume Transfer
740 gal (U.S.)	26 in^3	Volume Transfer
500 gal (U.S.)	18.0 in^3	Volume Transfer
300 gal (U.S.)	13.0 in^3	Volume Transfer
200 gal (U.S.)	7.4 in^3	Volume Transfer
185 gal (U.S.)	8.3 in^3	Volume Transfer
105 gal (U.S.)	4.1 in^3	Volume Transfer
103 gal (U.S.)	3.9 in^3	Volume Transfer
100 gal (U.S.)	3.9 in^3	Volume Transfer
53 gal (U.S.)	3.9 in^3	Volume Transfer

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50 gal (U.S.)	3.9 in^3	Volume Transfer
25 gal (U.S.)	1.7 in^3	Volume Transfer
20 gal (U.S.)	1.4 in^3	Volume Transfer
5 gal (U.S.)	0.51 in^3	Volume Transfer
105 gal (U.S.)	10. in^3	Liquefied Petroleum Gas Prover (LPG)
103 gal (U.S.)	10. in^3	Liquefied Petroleum Gas Prover (LPG)
100 gal (U.S.)	10. in^3	Liquefied Petroleum Gas Prover (LPG)
53 gal (U.S.)	9.7 in^3	Liquefied Petroleum Gas Prover (LPG)
50 gal (U.S.)	9.7 in^3	Liquefied Petroleum Gas Prover (LPG)
25 gal (U.S.)	5.3 in^3	Liquefied Petroleum Gas Prover (LPG)
20 gal (U.S.)	5.2 in^3	Liquefied Petroleum Gas Prover (LPG)

1. Represents an expanded uncertainty using a coverage factor, k=2.
2. High precision balances providing 0.7 ppm to 7 ppm accuracy within range from 1000 g to 1 g.
3. Precision balances providing 8 ppm to 70 ppm accuracy range from 1000 g to 1 g.

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