

National Institute
of Standards and Technology



National Voluntary
Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



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CALIBRATION LABORATORIES

NVLAP LAB CODE 200408-0

MICHIGAN DEPT. OF AGRICULTURE, E.C. HEFFRON METROLOGY LABORATORY

940 Venture Lane
Williamston, MI 48895
Mr. Craig A. VanBuren
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DIMENSIONAL

NVLAP Code: 20/D13
Surveying Rods and Tapes

Range in feet	Best Uncertainty (\pm) in inches ^{note 1}	Remarks
0 to 6	0.011	Tape to Tape Method
0 to 30	0.015	Tape to Tape Method
0 to 50	0.018	Tape to Tape Method
0 to 100	0.036	Tape to Tape Method

MECHANICAL

NVLAP Code: 20/M06
Force

Range	Best Uncertainty (\pm) in lbs ^{note 1}	Remarks
< = 20,000 lb	40.0	Wheel Load Weighers

September 30, 2005

A handwritten signature in black ink, appearing to read "W. R. Mihl".

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MICHIGAN DEPT. OF AGRICULTURE, E.C. HEFFRON METROLOGY LABORATORY

NVLAP Code: 20/M08

Mass

Range	Best Uncertainty (\pm) in mg ^{note 1}	Remarks
20 kg	16	Echelon I
10 kg	3.2	Echelon I
5 kg	3.7	Echelon I
3 kg	2.3	Echelon I
2 kg	1.6	Echelon I
1 kg	0.059	Echelon I
500 g	0.033	Echelon I
300 g	0.026	Echelon I
200 g	0.020	Echelon I
100 g	0.023	Echelon I
50 g	0.013	Echelon I
30 g	0.0096	Echelon I
20 g	0.008	Echelon I
10 g	0.0084	Echelon I
5 g	0.0042	Echelon I

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3 g	0.0026	Echelon I
2 g	0.0018	Echelon I
1 g	0.0012	Echelon I
500 mg	0.0008	Echelon I
300 mg	0.0007	Echelon I
200 mg	0.0007	Echelon I
100 mg	0.0008	Echelon I
50 mg	0.0004	Echelon I
30 mg	0.0003	Echelon I
20 mg	0.0003	Echelon I
10 mg	0.0003	Echelon I
5 mg	0.00025	Echelon I
3 mg	0.00022	Echelon I
2 mg	0.0002	Echelon I
1 mg	0.0002	Echelon I
20 kg	16	Echelon II
10 kg	2.4	Echelon II

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5 kg	2.0	Echelon II
3 kg	1.8	Echelon II
2 kg	1.6	Echelon II
1 kg	0.074	Echelon II
500 g	0.082	Echelon II
300 g	0.072	Echelon II
200 g	0.071	Echelon II
100 g	0.033	Echelon II
50 g	0.024	Echelon II
30 g	0.018	Echelon II
20 g	0.019	Echelon II
10 g	0.013	Echelon II
5 g	0.0095	Echelon II
3 g	0.0061	Echelon II
2 g	0.0044	Echelon II
1 g	0.0034	Echelon II
500 mg	0.0028	Echelon II

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300 mg	0.0026	Echelon II
200 mg	0.0022	Echelon II
100 mg	0.0023	Echelon II
50 mg	0.0015	Echelon II
30 mg	0.0015	Echelon II
20 mg	0.0009	Echelon II
10 mg	0.0012	Echelon II
5 mg	0.0009	Echelon II
3 mg	0.0009	Echelon II
2 mg	0.0009	Echelon II
1 mg	0.0008	Echelon II
500 kg	3100.0	Echelon III
250 kg	1800.0	Echelon III
50 kg	220.0	Echelon III
25 kg	58.0	Echelon III
20 kg	70.0	Echelon III

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MICHIGAN DEPT. OF AGRICULTURE, E.C. HEFFRON METROLOGY LABORATORY

10 kg	26.0	Echelon III
5 kg	5.3	Echelon III
3 kg	5.3	Echelon III
2 kg	3.1	Echelon III
1 kg	2.8	Echelon III
500 g	1.9	Echelon III
300 g	1.9	Echelon III
200 g	0.14	Echelon III
100 g	0.057	Echelon III
50 g	0.041	Echelon III
30 g	0.041	Echelon III
20 g	0.038	Echelon III
10 g	0.033	Echelon III
5 g	0.022	Echelon III
3 g	0.057	Echelon III
2 g	0.057	Echelon III
1 g	0.055	Echelon III

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MICHIGAN DEPT. OF AGRICULTURE, E.C. HEFFRON METROLOGY LABORATORY

500 mg	0.010	Echelon III
300 mg	0.010	Echelon III
200 mg	0.006	Echelon III
100 mg	0.007	Echelon III
50 mg	0.007	Echelon III
30 mg	0.007	Echelon III
20 mg	0.007	Echelon III
10 mg	0.005	Echelon III
5 mg	0.005	Echelon III
3 mg	0.006	Echelon III
2 mg	0.006	Echelon III
1 mg	0.006	Echelon III
50 lb	47	Echelon II
25 lb	26	Echelon II
20 lb	26	Echelon II
10 lb	5.3	Echelon II

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5 lb	5.3	Echelon II
3 lb	3.1	Echelon II
2 lb	2.8	Echelon II
1 lb	1.9	Echelon II
0.5 lb	1.9	Echelon II
0.3 lb	0.14	Echelon II
0.2 lb	0.057	Echelon II
0.1 lb	0.041	Echelon II
0.05 lb	0.041	Echelon II
0.03 lb	0.038	Echelon II
0.02 lb	0.033	Echelon II
0.01 lb	0.022	Echelon II
0.05 lb	0.057	Echelon II
0.003 lb	0.057	Echelon II
0.002 lb	0.055	Echelon II
0.001 lb	0.010	Echelon II
8 oz	1.9	Echelon II

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MICHIGAN DEPT. OF AGRICULTURE, E.C. HEFFRON METROLOGY LABORATORY

4 oz	0.14	Echelon II
2 oz	0.057	Echelon II
1 oz	0.041	Echelon II
1/2 oz	0.041	Echelon II
1/4 oz	0.033	Echelon II
1/8 oz	0.022	Echelon II
1/16 oz	0.057	Echelon II
1/32 oz	0.055	Echelon II
5000 lb	64000.0	Echelon III
1000 lb	2000.00	Echelon III
500 lb	1500.0	Echelon III
100 lb	220.0	Echelon III
50 lb	140.0	Echelon III
25 lb	32.0	Echelon III
20 lb	32.0	Echelon III
10 lb	11.0	Echelon III

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5 lb	5.3	Echelon III
3 lb	5.3	Echelon III
2 lb	3.0	Echelon III
1 lb	2.7	Echelon III
0.5 lb	1.4	Echelon III
0.3 lb	0.1	Echelon III
0.2 lb	0.088	Echelon III
0.1 lb	0.051	Echelon III
0.05 lb	0.033	Echelon III
0.03 lb	0.021	Echelon III
0.02 lb	0.038	Echelon III
0.01 lb	0.032	Echelon III
0.005 lb	0.067	Echelon III
0.003 lb	0.067	Echelon III
0.002 lb	0.045	Echelon III
0.001 lb	0.044	Echelon III

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8 oz	1.4	Echelon III
4 oz	0.11	Echelon III
2 oz	0.04	Echelon III
1 oz	0.033	Echelon III
1/2 oz	0.038	Echelon III
1/4 oz	0.034	Echelon III
1/8 oz	0.045	Echelon III
1/16 oz	0.059	Echelon III
1/32 oz	0.056	Echelon III

NVLAP Code: 20/M12

Volume and Density

Range	Best Uncertainty (\pm) in in ³ ^{note 1}	Remarks
2000 gallon	120.0	Volume Transfer
1500 gallon	90.0	Volume Transfer
1000 gallon	71.0	Volume Transfer
750 gallon	50.0	Volume Transfer
500 gallon	27.0	Volume Transfer
100 gallon	4.6	Volume Transfer

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50 gallon	3.2	Volume Transfer
25 gallon	2.8	Volume Transfer
5 gallon	0.50	Volume Transfer
25 gallon	0.78	Volume Gravimetric
5 gallon	0.20	Volume Gravimetric
1 gallon	0.052	Volume Gravimetric
1/2 gallon	0.043	Volume Gravimetric
1 quart	0.046	Volume Gravimetric
1 pint	0.022	Volume Gravimetric
1/2 pint	0.011	Volume Gravimetric
1 quart (dry)	0.22	Volume Gravimetric
1 pint (dry)	0.11	Volume Gravimetric
1/2 pint (dry)	0.11	Volume Gravimetric
2 liter	0.17	Volume Gravimetric
1 liter	0.19	Volume Gravimetric
100 ml	0.14	Volume Gravimetric

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THERMODYNAMICS

NVLAP Code: 20/T03
Laboratory Thermometers

<i>Range in °C</i>	<i>Best Uncertainty (\pm) in °C^{note 1}</i>	<i>Remarks</i>
0 to 30	0.22	Liquid in glass

NVLAP Code: 20/T07
Resistance Thermometry

<i>Range in °C</i>	<i>Best Uncertainty (\pm) in °C^{note 1}</i>	<i>Remarks</i>
0 to 30	0.011	PRT, RTD

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

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