

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200421-0

Indiana Division of Weights and Measures
Indianapolis, IN

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

CALIBRATION LABORATORIES

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2015-01-01 through 2015-12-31

Effective dates



A handwritten signature in black ink, appearing to read "William R. M. L. D.", positioned above a horizontal line.

For the National Institute of Standards and Technology



**National Voluntary
Laboratory Accreditation Program**



CALIBRATION LABORATORIES

NVLAP LAB CODE 200421-0

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

<p>Indiana Division of Weights and Measures 2525 North Shadeland Avenue, Suite D3 Indianapolis, IN 46219-1791 Mr. Jerry L. Clingaman, Jr. Phone: 317-356-7078 Fax: 317-351-2877 E-mail: jclingam@isdh.in.gov URL: http://www.in.gov/isdh/23288.htm</p>	<p>Parameter(s) of Accreditation Dimensional Time and Frequency Mechanical Thermodynamic</p> <p>This laboratory is compliant to ANSI/NCSL Z540-1-1994; Part 1. (NVLAP Code: 20/A01)</p>
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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) ^{Notes 1,2}

Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks
DIMENSIONAL			
SURVEYING RODS AND TAPES (20/D13)			
Tape to Tape	100 ft	0.070 ft	
	90 ft	0.053 ft	
	80 ft	0.051 ft	
	70 ft	0.044 ft	
	60 ft	0.042 ft	
	50 ft	0.048 ft	
	40 ft	0.052 ft	
	30 ft	0.043 ft	
	20 ft	0.064 ft	
	10 ft	0.049 ft	
	9 ft	0.036 ft	
	8 ft	0.079 ft	
	7 ft	0.044 ft	
	6 ft	0.048 ft	
	5 ft	0.030 ft	
	4 ft	0.029 ft	
3 ft	0.038 ft		
2 ft	0.052 ft		
1 ft	0.029 ft		
TIME and FREQUENCY			
STOP WATCHES and TIMERS (20/F05)			
Stop Watches	3 h	0.23 s	

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Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks
MECHANICAL			
MASS (20/M08)			
Metric	50 kg	91 mg	Echelon II
	30 kg	27 mg	
	25 kg	25 mg	
	20 kg	25 mg	
	10 kg	8.9 mg	
	5 kg	7.3 mg	
	3 kg	3.5 mg	
	2 kg	4.6 mg	
	1 kg	0.34 mg	
	500 g	0.56 mg	
	300 g	0.50 mg	
	200 g	0.22 mg	
	100 g	76 µg	
	92.82 g	55 µg	
	50 g	56 µg	
	30 g	37 µg	
	20 g	32 µg	
	10 g	32 µg	
	5 g	17 µg	
	3 g	13 µg	
	2 g	10 µg	
	1 g	14 µg	
	500 mg	4.9 µg	
	300 mg	3.6 µg	
	200 mg	8.2 µg	
	100 mg	7.2 µg	
	50 mg	5.4 µg	
	30 mg	4.4 µg	
	20 mg	3.6 µg	
	10 mg	3.9 µg	
	5 mg	2.5 µg	
	3 mg	4.8 µg	
	2 mg	11 µg	
	1 mg	1.2 µg	

Walter R. Miller

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NVLAP LAB CODE 200421-0

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) <small>Note 3</small>	Remarks
Avoirdupois	50 lb	16 mg	Echelon II
	30 lb	21 mg	
	25 lb	10 mg	
	20 lb	8.3 mg	
	10 lb	5.2 mg	
	5 lb	3.0 mg	
	3 lb	2.6 mg	
	2 lb	1.8 mg	
	1 lb	1.3 mg	
	0.5 lb	1.1 mg	
	0.3 lb	0.27 mg	
	0.2 lb	0.17 mg	
	0.1 lb	51 µg	
	0.05 lb	15 µg	
	0.03 lb	13 µg	
	0.02 lb	6.9 µg	
	0.01 lb	9.2 µg	
	0.005 lb	7.2 µg	
	0.003 lb	8.8 µg	
	0.002 lb	5.1 µg	
0.001 lb	2.6 µg		
500 µlb	7.4 µg		
	500 kg	2.6	Echelon III-Double Substitution
Metric	1000 kg	21 g	Echelon III
	500 kg	15 g	
	250 kg	4.5 g	
	50 kg	0.35 g	
	25 kg	0.32 g	
	20 kg	0.28 g	
	10 kg	0.13 g	
	5 kg	67 mg	
	4 kg	67 mg	
	3 kg	45 mg	
	2 kg	25 mg	

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CALIBRATION LABORATORIES

NVLAP LAB CODE 200421-0

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

Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks
	1 kg	17 mg	
	500 g	10 mg	
	464.08 g	11 mg	
	300 g	11 mg	
	200 g	4.8 mg	
	185.63 g	3.1 mg	
	100 g	2.4 mg	
	92.82 g	1.3 mg	
	50 g	1.2 mg	
	30 g	0.75 mg	
	20 g	0.50 mg	
	10 g	0.26 mg	
	5 g	0.18 mg	
	3 g	0.17 mg	
	2 g	0.14 mg	
	1 g	0.11 mg	
	500 mg	90 µg	
	300 mg	80 µg	
	200 mg	70 µg	
	100 mg	50 µg	
	50 mg	40 µg	
	30 mg	40 µg	
	20 mg	40 µg	
	10 mg	30 µg	
	5 mg	20 µg	
	3 mg	20 µg	
	2 mg	20 µg	
	1 mg	10 µg	
Avoirdupois	6000 lb	0.62 lb	Echelon III- Weight Carts
	5000 lb	0.36 lb	
	3000 lb	0.34 lb	
	1000 lb	11 g	Echelon III-Double Substitution
	500 lb	2.0 g	
	250 lb	0.46 g	

2015-01-01 through 2015-12-31

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NVLAP LAB CODE 200421-0

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

Measured Parameter or Device Calibrated	Range	Uncertainty ($k=2$) ^{Note 3}	Remarks
	2000 lb	29 g	Echelon III
	1000 lb	13 g	
	500 lb	4.9 g	
	250 lb	6.7 g	
	50 lb	0.28 g	
	30 lb	0.22 g	
	25 lb	0.17 g	
	20 lb	0.12 g	
	10 lb	55 mg	
	5 lb	29 mg	
	4 lb	19 mg	
	3 lb	19 mg	
	2 lb	13 mg	
	1 lb	12 mg	
	0.5 lb	10 mg	
	0.3 lb	3.7 mg	
	0.2 lb	2.1 mg	
	0.1 lb	1.1 mg	
	0.05 lb	0.53 mg	
	0.03 lb	0.39 mg	
	0.02 lb	0.25 mg	
	0.01 lb	0.18 mg	
	0.005 lb	0.15 mg	
	0.003 lb	0.15 mg	
	0.002 lb	0.11 mg	
	0.001 lb	90 µg	
	4 oz	2.7 mg	
	2 oz	1.3 mg	
	1 oz	0.66 mg	
	1/2 oz	0.47 mg	
	1/4 oz	0.27 mg	
	1/8 oz	0.19 mg	
	1/16 oz	0.17 mg	
	1/32 oz	0.11 mg	
	5 oz t	4.8 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
	2 oz t 1 oz t 10 dwt 5 dwt 2 dwt 1 dwt 0.5 dwt 0.2 dwt 0.1 dwt	1.9 mg 1.1 mg 0.40 mg 0.24 mg 0.17 mg 0.15 mg 0.12 mg 0.10 mg 86 µg	
VOLUME and DENSITY (20/M12)			
Volume	1000 gal 100 gal 100 gal 50 gal 15 gal 5 gal 50 gal 100 gal 5 gal 1 gal	0.45 gal 5.5 in ³ 9.1 in ³ 3.0 in ³ 1.2 in ³ 0.29 in ³ 2.3 in ³ 0.014 gal 0.00074 gal 0.0024 gal	Volume Transfer Volume Transfer LP Volume Transfer (50 x 5 gal) Gravimetric 4 in neck
THERMODYNAMIC			
LABORATORY THERMOMETERS, DIGITAL and ANALOG (20/T03)			
Laboratory Thermometers	100 °C 90 °C 80 °C 30 °C 20 °C 0 °C	0.26 °C 0.17 °C 0.11 °C 0.15 °C 0.11 °C 0.064 °C	Liquid in Glass
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.

Note 7: See NIST Handbook 150 for further explanation of these notes.

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