



DEPARTMENT OF COMMERCE
WEIGHTS & MEASURES DIVISION



14305 Southcross Drive #150
Burnsville, MN 55306-7008
mn.gov/commerce/
651.539.1555 FAX 952.435.4040
An equal opportunity employer

Receipt Date: January 14, 2019
Cal. Date: January 17, 2019
Report Date: January 17, 2019

Report No.: 340458
Set Serial No.: NONE
Barcode: 201574

Calibration Certificate

NORTH COUNTRY BUSINESS PRODUCTS
4624 AMBER VALLEY PKWY S
FARGO, ND 58104-8612
Contact: TERI KAVA
Phone: 701-277-3231
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 19

Item(s) Submitted: AVDP Weight Kit
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Good
Temperature: 19.3 °C
Pressure: 740.0 mmHg
Relative Humidity: 47.7 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
5 lb	A	23.3	23.3	F	F	2.03	5.7
5 lb	B	43.3	43.3	F	F	2.03	5.7
5 lb	C	46.3	46.3	F	F	2.03	5.7
5 lb	D	50.3	50.3	F	F	2.03	5.7
5 lb	E	35.3	35.3	F	F	2.03	5.7
1 lb	A	24.4	24.4	F	F	2.03	1.2
1 lb	B	14.5	14.5	F	F	2.03	1.2
1 lb	C	16.5	16.5	F	F	2.03	1.2
1 lb	D	12.3	12.3	F	F	2.03	1.2
1 lb	E	13.4	13.4	F	F	2.03	1.2
0.2 lb		6.79	6.79	F	F	2.03	0.22
0.2 lb		7.13	7.13	F	F	2.03	0.22
0.1 lb		1.84	1.84	F	F	2.03	0.14
0.05 lb		0.36	0.36	F	F	2.03	0.10
0.02 lb		0.272	0.272	F	F	2.03	0.056
0.02 lb		0.296	0.296	F	F	2.03	0.056
0.01 lb		0.628	0.628	F	F	2.03	0.043
0.005 lb		0.657	0.657	F	F	2.03	0.041
0.002 lb		0.251	0.251	F	F	2.03	0.030
0.002 lb		0.578	0.578	F	F	2.03	0.030
0.001 lb		0.267	0.267	F	F	2.03	0.025

HJ Drawing



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Continued,

Calibration Certificate

NORTH COUNTRY BUSINESS PRODUCTS
4624 AMBER VALLEY PKWY S
FARGO, ND 58104-8612
Contact: TERI KAVA
Phone: 701-277-3231
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 19

Item(s) Submitted: AVDP Weight Kit
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Good
Temperature: 19.3 °C
Pressure: 740.0 mmHg
Relative Humidity: 47.7 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
8 oz		6.50	6.50	F	F	2.03	0.69
4 oz		3.81	3.81	F	F	2.00	0.33
2 oz		2.82	2.82	F	F	2.00	0.16
1 oz		2.19	2.19	F	F	2.00	0.11
1/2 oz		0.886	0.886	F	F	2.00	0.082
1/4 oz		0.466	0.466	F	F	2.00	0.051
1/8 oz		0.352	0.352	F	F	2.00	0.038
1/16 oz		0.430	0.430	F	F	2.00	0.032
1/32 oz		0.300	0.300	F	F	2.00	0.021
1/32 . oz		0.287	0.287	F	F	2.00	0.021

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990). Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results apply to items identified in this report only.

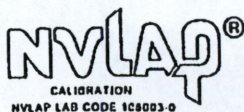
Erik Alfvin

Metrologist

Reviewed by:

Pete Whebhe

Metrologist



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Mark Begeman



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Receipt Date: January 16, 2019
Cal. Date: January 23, 2019
Report Date: January 23, 2019

Report No.: 340459
Set Serial No.: 219S
Barcode: 202094

Calibration Certificate

NORTH COUNTRY BUSINESS PRODUCTS
2127 S MINNESOTA AVE #205
SIOUX FALLS, SD 57105
Contact: TERI KAVA
Phone: 701-277-3231
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 19

Item(s) Submitted: AVDP Weight Kit
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Good
Temperature: 20.1 °C
Pressure: 734.0 mmHg
Relative Humidity: 49.3 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
10 lb	A	143	143	F	F	2.03	11
10 lb	B	173	173	F	F	2.03	11
5 lb		71.3	71.3	F	F	2.03	5.7
1 lb		20.8	20.8	F	F	2.03	1.2
1 lb		22.5	22.5	F	F	2.03	1.2
1 lb	B	20.0	20.0	F	F	2.03	1.2
1 lb	D	24.6	24.6	F	F	2.03	1.2
1 lb	E	26.3	26.3	F	F	2.03	1.2
4 oz	A	7.63	7.63	F	F	2.00	0.33
4 oz	B	5.84	5.84	F	F	2.00	0.33
4 oz	C	8.64	8.64	F	F	2.00	0.33
1 oz	A	0.02	0.02	F	F	2.00	0.11
1 oz	B	1.26	1.26	F	F	2.00	0.11
1 oz	C	1.19	1.19	F	F	2.00	0.11
1/2 oz		1.002	1.002	F	F	2.00	0.082
1/2 oz		1.225	1.225	F	F	2.00	0.082
1/4 oz		0.772	0.772	F	F	2.00	0.051
1/4 oz		1.047	1.047	F	F	2.00	0.051

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990). Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results apply to items identified in this report only.

Erik Alfvin

Metrologist

Reviewed by:

Pete Whebbe

Metrologist

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Receipt Date: May 13, 2019
Cal. Date: June 4, 2019
Certificate Date: June 5, 2019

Certificate No.: 341129
Set Serial No.: Fargo Weight Set #2
Barcode: 201683

Calibration Certificate

NORTH COUNTRY BUSINESS PRODUCTS
4626 AMBER VALLEY PKWY
FARGO, ND 58104
Contact: TERI KAVA
Phone: 701-277-3231
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 09

Item(s) Submitted: 30 lb kit w/ decimals
Manufacturer: Troemner
Weight Type: I & II
Equipment ID: None
Condition: Acceptable
Temperature: 21.8 °C
Pressure: 731.7 mmHg
Relative Humidity: 52.8 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
5 lb		14.5	14.5	F	F	2.03	5.5
5 lb		26.1	26.1	F	F	2.03	5.5
5 lb		8.1	8.1	F	F	2.03	5.5
5 lb		14.9	14.9	F	F	2.03	5.5
5 lb		13.5	13.5	F	F	2.03	5.5
1 lb		2.5	2.5	F	F	2.03	1.1
1 lb		2.9	2.9	F	F	2.03	1.1
1 lb		2.8	2.8	F	F	2.03	1.1
1 lb		0.2	0.2	F	F	2.03	1.1
1 lb		0.4	0.4	F	F	2.03	1.1
0.5 lb		2.90	2.90	F	F	2.03	0.61
0.2 lb		11.09	11.09	F	F	2.03	0.22
0.2 lb		8.47	8.47	F	F	2.03	0.22
0.1 lb		-1.90	-1.90	F	F	2.03	0.14
0.05 lb		2.906	2.906	F	F	2.03	0.098

Chris Thompson



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Receipt Date: May 13, 2019
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Certificate Date: June 5, 2019

Continued,
Certificate No.: 341129
Set Serial No.: Fargo Weight Set #2
Barcode: 201683

Calibration Certificate

NORTH COUNTRY BUSINESS PRODUCTS
4626 AMBER VALLEY PKWY
FARGO, ND 58104
Contact: TERI KAVA
Phone: 701-277-3231
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 09

Item(s) Submitted: 30 lb kit w/ decimals
Manufacturer: Troemner
Weight Type: I & II
Equipment ID: None
Condition: Acceptable
Temperature: 21.8 °C
Pressure: 731.7 mmHg
Relative Humidity: 52.8 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
0.02 lb		0.270	0.270	F	F	2.03	0.055
0.02 lb		0.479	0.479	F	F	2.03	0.055
0.01 lb		0.704	0.704	F	F	2.03	0.041
0.005 lb		0.379	0.379	F	F	2.03	0.044
0.002 lb		0.430	0.430	F	F	2.03	0.026
0.002 lb		0.336	0.336	F	F	2.03	0.026
0.001 lb		0.387	0.387	F	F	2.03	0.021

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Heidi Jones
Heidi Jones
Laboratory Administrator

Reviewed by:
Pete Whebbe
Pete Whebbe
Metrologist



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Receipt Date: June 21, 2019
Cal. Date: July 18, 2019
Certificate Date: July 18, 2019

Certificate No.: 341255
Set Serial No.: None
Barcode: 201687

Calibration Certificate

NORTH COUNTRY BUSINESS PRODUCTS
541 S AIRPORT ROAD
BISMARCK, ND 58504
Contact: TERI KAVA
Phone: 701-277-3231
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 20

Item(s) Submitted: AVDP Weight Kit
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Acceptable
Temperature: 21.0 °C
Pressure: 730.3 mmHg
Relative Humidity: 46.5 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
5 lb		1.4	1.4	F	F	2.03	5.5
5 lb		18.5	18.5	F	F	2.03	5.5
5 lb		-10.5	-10.5	F	F	2.03	5.5
5 lb		-3.0	-3.0	F	F	2.03	5.5
5 lb		12.5	12.5	F	F	2.03	5.5
1 lb		7.5	7.5	F	F	2.03	1.1
1 lb		22.6	22.6	F	F	2.03	1.1
1 lb		4.9	4.9	F	F	2.03	1.1
1 lb		1.3	1.3	F	F	2.03	1.1
1 lb		18.2	18.2	F	F	2.03	1.1
0.5 lb		13.83	13.83	F	F	2.03	0.61
0.2 lb		6.65	6.65	F	F	2.03	0.22
0.2 lb		8.27	8.27	F	F	2.03	0.22
0.1 lb		3.34	3.34	F	F	2.03	0.14
0.05 lb		1.509	1.509	F	F	2.03	0.098
0.02 lb		0.375	0.375	F	F	2.03	0.055
0.02 lb		0.390	0.390	F	F	2.03	0.055
0.01 lb		0.521	0.521	F	F	2.03	0.041

Roger Ullman / John Sweep



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Certificate No.: 341255
Set Serial No.: None
Barcode: 201687

Continued,

Calibration Certificate

NORTH COUNTRY BUSINESS PRODUCTS
541 S AIRPORT ROAD
BISMARCK, ND 58504
Contact: TERI KAVA
Phone: 701-277-3231
PO Number: NONE
Procedure: NIST SOP 8 (2018)
Technician ID: 20

Item(s) Submitted: AVDP Weight Kit
Manufacturer: Rice Lake
Weight Type: I & II
Equipment ID: None
Condition: Acceptable
Temperature: 21.0 °C
Pressure: 730.3 mmHg
Relative Humidity: 46.5 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
0.005 lb		0.786	0.786	F	F	2.03	0.044
0.002 lb		0.390	0.390	F	F	2.03	0.026
0.002 lb		0.398	0.398	F	F	2.03	0.026
0.001 lb		0.393	0.393	F	F	2.03	0.021

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm³ density and an air density of 1.2 mg/cm³ at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990) and MN SAP 20. Uncertainty calculations contain the components in NIST SOP 8 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (k) calculated at the approximate 95.45 % confidence level. Results only apply to items identified in this certificate.

Anna Pierce

Metrologist

Reviewed by:
Erik Alfvin

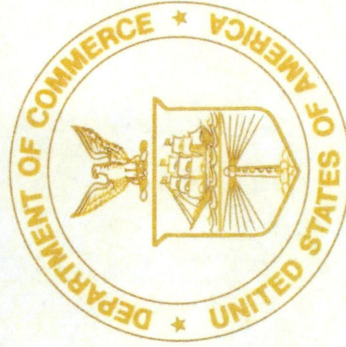
Technical Manager

United States Department of Commerce

National Institute of Standards and Technology

Certificate of Metrological Traceability For:

Minnesota



2019

This laboratory has demonstrated evidence of an unbroken chain of metrological traceability of its standards to the international system of units (SI), documented measurement uncertainties, uses documented measurement procedures, successfully completed training and proficiency tests, documented calibration intervals, submitted a quality management system, and demonstrated suitable measurement assurance for the Scope listed on this certificate.

The Office of Weights and Measures Program assesses laboratories to NIST Handbook 143 - Program Handbook for State Weights and Measures Laboratories and ISO/IEC 17025:2005.

Scope

Mass Echelon I
20 kg to 1 mg

Mass Echelon II
5 kg to 1 mg
1000 lb to 250 lb
50 lb to 0.001 lb

Mass Echelon III
50 kg to 1 mg
5000 lb to 0.001 lb
4 oz to 0.03125 oz

Weight Carts
5 000 lb to 2000 lb

Wheel Load Weighers
12 000 lb to 2000 lb

Railroad Test Cars/Carts
110 000 lb to 80 000 lb
10 000 lb to 8 000 lb

Volume Gravimetric, I
20 L to 10 mL
100 gal to 0.25 gal

Volume Transfer, II
1500 gal to 5 gal

Volume Transfer, II LPG
200 gal to 25 gal

Douglas A. Olson

Douglas A. Olson, Chief
NIST Office of Weights and Measures

Effective Dates: 2019-01-01 to 2020-02-01