NEBRASKA
Good Life. Great Roots.
DEPARTMENT OF AGRICULTURE

Nebraska Standards Laboratory
3721 West Cuming St.
Lincoln, NE 68524
(402)-471-2087

Director of Agriculture
Greg Ibach
P.O. Box 94947
Lincoln, NE 68509-4947
(402) 471-2341
www.nda.nebraska.gov

Calibration Certificate of Mass

Calibration Date: July 26, 2017 | **Certificate Number:** 2017-010-1

Submitted By: FSCP Area 60
254 E 14 th St
Wahoo, NE 68066

Point of Contact: Todd Blaske
Ph. 402-430-5732
email: *www.nda.gov*
PO Number:

Test Item:	31 lb weight kit	**Artifact(s) Description:**	
Serial Number:	14A9	**Date Received:**	July 20, 2017
Manufacture:	Tromner	**ID / Asset Number:**	N/A
Condition:	Good (some wear)	**Class Specification:**	NIST Class F
		Material:	SS

Reference Standards Used:
NSL lb standards
Rice Lake NSL-WK

Procedure Used:
NIST HB 6969, SOP 8

Metrologist:
JPL

Equipment Used:
Sartorius CC 1201 Sartorius CCE6
Mettler AT 106

Environmental Cond. **Temp:** 22.8 °C **Pressure:** 763.27 mmHg **Relative Humidity:** 49 %

Pertinent Information

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- All corrections stated in this report correlate to a "Conventional Mass" (CM), also known as "apparent mass", scale verses 8.0 g/cm^3 reference mass density and an air density of 1.2 mg/cm3 at 20 °C.

Traceability Statement

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Uncertainty Statement

The combined standard uncertainty includes uncertainties reported for the standard, uncertainties associated with the measurement process, uncertainties for any observed deviations from reference values which are less than surveillance limits and the standard uncertainty for any uncorrected errors associated with air buoyance corrections. The combined standard uncertainty is multiplied by a coverage factor (k), to give the expanded uncertainty, which defines an interval with a 95.45 percent level of confidence. The expanded uncertainty presented in this report is consistent with the *Guide to the Expression of Uncertainty in Measurement (2008, revised 2012)*. Some components of the calibration can be evaluated through a Type A evaluation, or the method of evaluation of uncertainty by the statistical analysis (standard deviation) from the observations taken. Magnetic testing has not been performed, therefore, there are no components for the effects of it in the uncertainty budget.

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Calibration Date: July 26, 2017

Certificate Number: 2017-010-1

Calibration Results

Nominal Mass	Serial Number / ID	As Found Conventional Mass Correction (g)	Adjusted (Y/N)	As Left Conventional Mass Correction (g)	Uncertainty ± (g)	(*k*) factor	NIST Class F MPE ± (g)	Assumed Density (g/cm³)
2 lb	1	-0.058	n	-0.058	0.011	2	0.091	7.84
2 lb	2	-0.016	n	-0.016	0.011	2	0.091	7.84
2 lb	3	-0.060	n	-0.060	0.011	2	0.091	7.84
2 lb	4	-0.024	n	-0.024	0.011	2	0.091	7.84
2 lb	5	-0.041	n	-0.041	0.011	2	0.091	7.84
2 lb	6	-0.028	n	-0.028	0.011	2	0.091	7.84
2 lb	7	-0.014	n	-0.014	0.011	2	0.091	7.84
2 lb	8	-0.028	n	-0.028	0.011	2	0.091	7.84
2 lb	9	-0.057	n	-0.057	0.011	2	0.091	7.84
2 lb	10	0.002	n	0.002	0.011	2	0.091	7.84
2 lb	11	-0.018	n	-0.018	0.011	2	0.091	7.84
2 lb	12	-0.040	n	-0.040	0.011	2	0.091	7.84
2 lb	13	-0.057	n	-0.057	0.011	2	0.091	7.84
2 lb	14	-0.036	n	-0.036	0.011	2	0.091	7.84
1 lb	15	-0.0157	n	-0.0157	0.0083	2	0.07	7.84
1 lb	16	-0.0250	n	-0.0250	0.0083	2	0.07	7.84
8 oz		0.0139	n	0.0139	0.0054	2	0.045	7.94
4 oz		0.0092	n	0.0092	0.0028	2	0.023	7.84
2 oz		-0.0003	n	-0.0003	0.0013	2	0.011	7.84
1 oz		-0.00008	n	-0.00008	0.00064	2	0.0054	7.84
1/2 oz		-0.00018	n	-0.00018	0.00035	2.001	0.0028	7.84
1/4 oz		0.00082	n	0.00082	0.00021	2	0.0017	7.84
1/8 oz		-0.00056	n	-0.00056	0.00016	2	0.0013	7.84
1/16 oz		0.00051	n	0.00051	0.00013	2	0.0011	7.84
1/16 oz	*	0.00064	n	0.00064	0.00013	2	0.0011	7.84
0.3 lb		-0.0086	n	-0.0086	0.0032	2	0.027	7.84
0.2 lb		-0.0032	n	-0.0032	0.0022	2	0.018	7.84
0.1 lb		-0.0027	n	-0.0027	0.0011	2	0.0091	7.84
0.05 lb		0.00194	n	0.00194	0.00054	2	0.0045	7.84
0.03 lb		-0.00212	n	-0.00212	0.00032	2	0.0027	7.84
0.02 lb		0.00045	n	0.00045	0.00022	2	0.0018	7.84
0.01 lb		-0.00070	n	-0.00070	0.00018	2	0.0015	7.84
0.005 lb		0.00002	n	0.00002	0.00015	2	0.0012	2.7
0.003 lb		-0.00060	n	-0.00060	0.00012	2	0.00099	2.7
0.002 lb		-0.00048	n	-0.00048	0.00011	2	0.00087	2.7
0.001 lb		0.000181	n	0.000181	0.000083	2	0.0007	2.7
0.001 lb	*	-0.000189	n	-0.000189	0.000083	2	0.0007	2.7

Conversion Factors

1 ounce (avoirdupois) (oz) = 28.349 52 g
1 pound (avoirdupois) (lb) = 453.592 37 g exactly

Joel P. Lavicky *Metrologist*

7/31/2017
Date of Issue

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Director of Agriculture
Greg Ibach
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Lincoln, NE 68509-4947
(402) 471-2341
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Calibration Certificate of Mass

Calibration Date: July 24, 2017 | **Certificate Number:** 2017-010-3

Submitted By: FSCP Area 60
254 E 14 th St
Wahoo, NE 68066

Point of Contact: Todd Blaske
Ph. 402-430-5732
email: *www.nda.gov*
PO Number:

Test Item: 1-4 kg, 2-15 lb, 20-25 lb weights **Artifact(s) Description:**
Serial Number: see below
Manufacture: Tromner
Condition: Good (some wear)

Date Received: July 20, 2017
ID / Asset Number: N/A
Class Specification: NIST Class F
Material: SS & CI

Reference Standards Used:
NSL lb standards
Rice Lake NSL-WK

Procedure Used:
NIST HB 6969, SOP 8

Metrologist:
JPL

Equipment Used:
Sartorius CC10000S
Mettler KA30-3

Environmental Cond. **Temp:** 22.8 °C **Pressure:** 763.651 mmHg **Relative Humidity:** 50.5 %

Pertinent Information

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- All corrections stated in this report correlate to a "Conventional Mass" (CM), also known as "apparent mass", scale verses 8.0 g/cm^3 reference mass density and an air density of 1.2 mg/cm3 at 20 °C.

Traceability Statement

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Uncertainty Statement

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Calibration Date: July 24, 2017 | **Certificate Number:** 2017-010-3

Calibration Results

Nominal Mass	Serial Number / ID	As Found Conventional Mass Correction (g)	Adjusted (Y/N)	As Left Conventional Mass Correction (g)	Uncertainty ± (g)	(*k*) factor	NIST Class F MPE ± (g)	Assumed Density (g/cm³)
4 kg	WM-8	0.058	n	0.058	0.048	2	0.4	7.84
15 lb	WM15-15	0.741	y	0.390	0.081	2	0.68	7.2
15 lb	WM15-16	0.794	y	0.421	0.081	2	0.68	7.2
25 lb	WM25-25	1.94	y	0.36	0.14	2	1.1	7.2
25 lb	WM25-32	1.62	y	0.84	0.14	2	1.1	7.2
25 lb	WM25-36	1.74	y	0.36	0.14	2	1.1	7.2
25 lb	WM25-51	0.47	n	0.47	0.14	2	1.1	7.2
25 lb	WM25-52	1.65	y	0.31	0.14	2	1.1	7.2
25 lb	WM25-53	2.08	y	0.07	0.14	2	1.1	7.2
25 lb	WM25-40	0.94	n	0.94	0.14	2	1.1	7.2
25 lb	WM25-105	2.10	y	0.13	0.14	2	1.1	7.2
25 lb	WM25-107	1.88	y	0.94	0.14	2	1.1	7.2
25 lb	WM25-108	2.07	y	0.66	0.14	2	1.1	7.2
25 lb	WM25-109	1.55	y	0.53	0.14	2	1.1	7.2
25 lb	WM25-111	1.21	y	-0.62	0.14	2	1.1	7.2
25 lb	WM25-112	1.46	y	-0.09	0.14	2	1.1	7.2
25 lb	WM25-120	1.17	y	-0.60	0.14	2	1.1	7.2
25 lb	WM25-123	1.74	y	0.27	0.14	2	1.1	7.2
25 lb	WM25-126	0.79	n	0.79	0.14	2	1.1	7.2
25 lb	WM25-128	2.42	y	0.39	0.14	2	1.1	7.2
25 lb	WM25-129	1.55	y	0.85	0.14	2	1.1	7.2
25 lb	WM25-130	1.08	y	0.06	0.14	2	1.1	7.2
25 lb	WM25-134	1.40	y	0.36	0.14	2	1.1	7.2

Conversion Factors

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1 pound (avoirdupois) (lb) = 453.592 37 g exactly

Joel P. Lavicky *Metrologist*

8/1/2017
Date of Issue

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www.nda.nebraska.gov

Calibration Date: 7/21/2017

Certificate of Calibration of Volume Transfer

Certificate Number: 2017-010-4

Items Submitted:

Quantity	Nominal Volume	Manufacturer	Type
2	5 gal	Seraphin	3" Neck Test Measure

Submitted By: FSCP Area 60
254 E 14 th st.
Wahoo, NE 68066

POC: Todd Blaske
402-430-5732
www.nda.gov

Test Results

Nominal Volume	Serial Number	Material	Cubical Coefficient of Expansion (/°F)	**As Found Volume Delivered @ 60 °F**	**As left Volume Delivered @ 60 °F**	Uncertainty (U)	(*k*)
5 gal	06-01161	SS	0.0000265	**5.00172 gal**	**5.00172 gal**	0.00065 gal	2.05
5 gal	06-01165	SS	0.0000265	**5.00114 gal**	**5.00114 gal**	0.00065 gal	2.05

The data in this report only applies to those items specifically listed on this report.

Volume delivered at 60˚F after a 30 second pour and 10 second drain for test measures. For provers and a 30 second drain time would apply.

Conversion Factors:

1 gal = 231 in³
1 gal = 3.785 412 E-03 m³

Traceability Statement:

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Condition of Item(s) Submitted for Calibration:
Minor wear

Treatment of Item(s) before Calibration:
Item(s) were tested as found

Environmental conditions at time of calibration:

Temp ˚C	25.9	Humidity %	43.5
Pressure mmHg	759.71		

Laboratory Reference Standard Used;
5 gallon Slicker Plate Standard S/N NE1586

Procedure Used:
NISTIR 7383 (2017), SOP 19

Water temperature at time of calibration:
67.11 °F

Date Submitted: 7/20/2017

Joel P. Lavicky, Metrologist

7/21/2017
Date:

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Calibration Date: 7/21/2017

Certificate of Calibration of Volume Transfer

Certificate Number: 2017-010-5

Items Submitted:

Quantity	Nominal Volume	Manufacturer	Type
3	5 gal	Seraphin	Special J bottom drain prover

Submitted By: FSCP Area 60
254 E 14 th st.
Wahoo, NE 68066

POC: Todd Blaske
402-430-5732
www.nda.gov

Test Results

Nominal Volume	Serial Number	Material	Cubical Coefficient of Expansion (/°F)	As Found Volume Delivered @ 60 °F	As left Volume Delivered @ 60 °F	Uncertainty (U)	(*k*)
5 gal	05-41610-3	SS	0.0000265	**5.00085 gal**	**5.00085 gal**	0.00065 gal	2.05
5 gal	05-41610-08	SS	0.0000265	**4.99949 gal**	**4.99949 gal**	0.00065 gal	2.05
5 gal	05-41610-15	SS	0.0000265	**4.99974 gal**	**4.99974 gal**	0.00065 gal	2.05

The data in this report only applies to those items specifically listed on this report.

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Conversion Factors:

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Temp ˚C	25.9	Humidity %	43.5
Pressure mmHg	759.71		

Laboratory Reference Standard Used;
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Procedure Used:
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Water temperature at time of calibration:
67.27 °F

Date Submitted: 7/20/2017

Joel P. Lavicky, Metrologist

7/21/2017
Date: