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: November 27, 2017 | **Certificate Number:** 2017-043-1

Submitted By: FSCP Area 75
PO Box 234
Elm Creek, NE 68836

Point of Contact: Darrin Larrington
Ph. 402-309-0781
email: *darrin.larrington@nebraska.gov*
PO Number:

Test Item(s):	15,25,50 & 1000 lb weights	**Date Received:**	November 17, 2017
Serial Number(s):	See next page	**ID / Asset Number:**	
Manufacture:	Various	**Class Specification:**	NIST Class F
Condition:	Fair (significant wear)	**Material:**	CI

Artifact(s) Description:

Reference Standards Used:	Procedure Used:	Equipment Used:	
NSL lb standards	NIST HB 6969, SOP 8	Sartorius CC10000S	Mettler XP 604
	Metrologist: JPL	Mettler KA30-3	

Environmental Cond. **Temp:** 20.8 °C **Pressure:** 769.363 mmHg **Relative Humidity:** 50.5 %

Pertinent Information

- The artifact(s) listed in this document have been found and/or left within the maximum permissible error for the specification stated above, except as noted. An artifact is considered in-compliance when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error. RED print indicates an out-of-compliance reading.
- All corrections stated in this report correlate to a “Conventional Mass” (CM), also known as "apparent mass”, scale verses 8.0 g/cm³ reference mass density and an air density of 1.2 mg/cm³ at 20 °C.

Traceability Statement

The artifact(s) described in this certificate have been compared to the Standards of the State of Nebraska. The Standards of the State of Nebraska are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The calibration number for this certificate is the only unique calibration number to be used in referencing measurement traceability for the artifact(s) described in this certificate.

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.

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 Date: November 27, 2017 | **Certificate Number:** 2017-043-1

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)
15 lb	WM15-21	0.370	n	0.370	0.081	2	0.68	7.2
15 lb	WM15-22	0.091	n	0.091	0.081	2	0.68	7.2
25 lb	WM25-33	0.33	n	0.33	0.14	2	1.1	7.2
25 lb	WM25-39	1.51	y	0.78	0.14	2	1.1	7.2
25 lb	WM25-48	1.24	y	0.25	0.14	2	1.1	7.2
25 lb	WM25-49	1.26	y	0.59	0.14	2	1.1	7.2
25 lb	WM25-50	0.55	y	0.50	0.14	2	1.1	7.2
25 lb	WM25-80	0.69	y	0.37	0.14	2	1.1	7.2
25 lb	WM25-81	0.90	y	0.28	0.14	2	1.1	7.2
25 lb	WM25-82	1.53	y	0.50	0.14	2	1.1	7.2
25 lb	WM25-83	0.95	y	0.37	0.14	2	1.1	7.2
25 lb	WM25-84	0.93	y	0.28	0.14	2	1.1	7.2
25 lb	WM25-85	1.12	y	-0.52	0.14	2	1.1	7.2
25 lb	WM25-86	0.70	n	0.70	0.14	2	1.1	7.2
25 lb	WM25-87	1.01	y	-0.45	0.14	2	1.1	7.2
25 lb	WM25-104	0.83	n	0.83	0.14	2	1.1	7.2
25 lb	D32	3.20	y	0.47	0.14	2	1.1	7.2
25 lb	D33	1.79	y	0.38	0.14	2	1.1	7.2
25 lb	D35	1.21	y	0.15	0.14	2	1.1	7.2
25 lb	D36	1.64	y	-0.06	0.14	2	1.1	7.2
25 lb	D37	1.37	y	-0.02	0.14	2	1.1	7.2
25 lb	D39	1.44	y	-0.46	0.14	2	1.1	7.2
50 lb	WM-C-A13	-2.92	y	-0.65	0.28	2	2.3	7.2
50 lb	WM-C-A14	-1.67	n	-1.67	0.28	2	2.3	7.2
50 lb	WM-C-A15	-1.17	n	-1.17	0.28	2	2.3	7.2
50 lb	WM-C-A17	0.67	n	0.67	0.28	2	2.3	7.2
50 lb	WM-C-A18	-2.19	y	-0.31	0.28	2	2.3	7.2
50 lb	WM-C-A20	-0.93	n	-0.93	0.28	2	2.3	7.2
50 lb	WM50-70	-5.94	y	-0.18	0.28	2	2.3	7.2
50 lb	SF-C21	-1.09	n	-1.09	0.28	2	2.3	7.2
50 lb	WM-OPI-C23	-0.34	n	-0.34	0.28	2	2.3	7.2
50 lb	WM-OPI-C8	0.10	n	0.10	0.28	2	2.3	7.2
50 lb	WM50-40	6.11	y	0.61	0.28	2	2.3	7.2
50 lb	WM-OPI-C7	1.37	n	1.37	0.28	2	2.3	7.2
50 lb	WM-OPI-C39	0.92	n	0.92	0.28	2	2.3	7.2
50 lb	WM-OPI-C32	0.07	n	0.07	0.28	2	2.3	7.2
50 lb	WM-OPI-C24	-1.72	n	-1.72	0.28	2	2.3	7.2
50 lb	WM-OPI-C17	-3.88	y	-0.33	0.28	2	2.3	7.2
50 lb	WM-41	0.66	n	0.66	0.28	2	2.3	7.2
50 lb	WM-OPI-C36	-1.57	n	-1.57	0.28	2	2.3	7.2
50 lb	WM-OPI-C49	-0.06	n	-0.06	0.28	2	2.3	7.2
50 lb	WM-OPI-C9	0.64	n	0.64	0.28	2	2.3	7.2

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 Date: November 27, 2017

Certificate Number: 2017-043-1

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)
1000 lb	A-2	-42.1	y	3.9	5.8	2.004	45	7.2
1000 lb	A-5	-45.8	y	3.7	5.8	2.004	45	7.2
1000 lb	2193	-9.6	n	-9.6	5.8	2.004	45	7.2
1000 lb	OA3	-98.7	y	-0.5	5.8	2.004	45	7.2
1000 lb	OA4	-73.6	y	1.6	5.8	2.004	45	7.2
1000 lb	OA5	-75.1	y	0.7	5.8	2.004	45	7.2
1000 lb	OA6	-96.0	y	2.8	5.8	2.004	45	7.2
1000 lb	OA10	-63.1	y	5.1	5.8	2.004	45	7.2
1000 lb	OA13	-56.7	y	5.9	5.8	2.004	45	7.2
1000 lb	OA14	-69.6	y	38.2	5.8	2.004	45	7.2
1000 lb	OA15	-19.0	n	-19.0	5.8	2.004	45	7.2
1000 lb	OA16	-65.8	y	2.8	5.8	2.004	45	7.2
1000 lb	OA17	-61.4	y	2.5	5.8	2.004	45	7.2
1000 lb	OA18	-141.9	y	-26.0	5.8	2.004	45	7.2
1000 lb	OA19	-8.3	n	-8.3	5.8	2.004	45	7.2
1000 lb	OPI-A1	-63.2	y	-0.1	5.8	2.004	45	7.2
1000 lb	OPI-A11	-69.1	y	-6.9	5.8	2.004	45	7.2
1000 lb	OPI-A12	-85.9	y	-4.1	5.8	2.004	45	7.2

Conversion Factors

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

Joel P. Lavicky Metrologist

11/29/2017
Date of Issue

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: November 21, 2017 | **Certificate Number:** 2017-043-2

Submitted By: FSCP Area 75
PO Box 234
Elm Creek, NE 68836

Point of Contact: Darrin Larrington
Ph. 402-309-0781
email: *darrin.larrington@nebraska.gov*
PO Number:

Test Item(s):	Metric Weight Kit	**Date Received:**	November 17, 2017
Serial Number(s):	WM-2-89-2	**ID / Asset Number:**	**1854**
Manufacture:	Tromner	**Class Specification:**	NIST Class F
Condition:	Good (some wear)	**Material:**	SS

Artifact(s) Description:

Reference Standards Used:
OPI & /Den Metric

Procedure Used:
NIST HB 6969, SOP 8

Metrologist:
JPL

Equipment Used:
Sartorius CC10000S
Sartorius CC 1201
Mettler AT 106
Sartorius CCE6

Environmental Cond. **Temp:** 20.2 °C **Pressure:** 768.6 mmHg **Relative Humidity:** 50 %

Pertinent Information

- The artifact(s) listed in this document have been found and/or left within the maximum permissible error for the specification stated above, except as noted. An artifact is considered in-compliance when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error. RED print indicates an out-of-compliance reading.
- All corrections stated in this report correlate to a “Conventional Mass” (CM), also known as "apparent mass”, scale verses 8.0 g/cm³ reference mass density and an air density of 1.2 mg/cm³ at 20 °C.

Traceability Statement

The artifact(s) described in this certificate have been compared to the Standards of the State of Nebraska. The Standards of the State of Nebraska are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The calibration number for this certificate is the only unique calibration number to be used in referencing measurement traceability for the artifact(s) described in this certificate.

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.

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 Date: November 21, 2017

Certificate Number: 2017-043-2

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	4	0.045	n	0.045	0.048	2	0.4	7.84
2 kg	K3	-0.049	n	-0.049	0.024	2	0.2	7.84
1 kg		0.052	n	0.052	0.012	2	0.1	7.84
500 g		0.0497	n	0.0497	0.0083	2	0.07	7.84
200 g		0.0155	n	0.0155	0.0048	2	0.04	7.84
200 g	*	0.0123	n	0.0123	0.0048	2	0.04	7.84
100 g		-0.0017	n	-0.0017	0.0024	2	0.02	7.84
50 g		0.0065	n	0.0065	0.0012	2	0.01	7.84
20 g		0.00119	n	0.00119	0.00048	2	0.004	7.84
20 g	*	0.00115	n	0.00115	0.00048	2	0.004	7.84
10 g		0.00079	n	0.00079	0.00024	2	0.002	7.84
5 g		-0.00010	n	-0.00010	0.00018	2	0.0015	7.84
500 mg		0.000249	n	0.000249	0.000085	2	0.00072	7.84
200 mg		0.000347	n	0.000347	0.000064	2	0.00054	7.84
200 mg	*	0.000322	n	0.000322	0.000064	2	0.00054	7.84
100 mg		0.000224	n	0.000224	0.000051	2	0.00043	7.84

Conversion Factors

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

Joel P. Lavicky *Metrologist*

11/21/2017
Date of Issue

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: November 21, 2017 | **Certificate Number:** 2017-043-3

Submitted By: FSCP Area 75
PO Box 234
Elm Creek, NE 68836

Point of Contact: Darrin Larrington
Ph. 402-309-0781
email: *darrin.larrington@nebraska.gov*
PO Number:

Test Item(s):	10 lb weight Kit	**Date Received:**	November 17, 2017
Serial Number(s):	WM-6C98	**ID / Asset Number:**	**5373**
Manufacture:	Tromner	**Class Specification:**	NIST Class F
Condition:	Good (some wear)	**Material:**	SS and AL

Artifact(s) Description:

Reference Standards Used:
NSL lb standards

Procedure Used:
NIST HB 6969, SOP 8

Metrologist:
JPL

Equipment Used:
Sartorius CC10000S
Sartorius CC 1201
Mettler AT 106
Sartorius CCE6

Environmental Cond. **Temp:** 20.75 °C **Pressure:** 768.6 mmHg **Relative Humidity:** 50 %

Pertinent Information

- The artifact(s) listed in this document have been found and/or left within the maximum permissible error for the specification stated above, except as noted. An artifact is considered in-compliance when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error. RED print indicates an out-of-compliance reading.
- All corrections stated in this report correlate to a “Conventional Mass” (CM), also known as "apparent mass”, scale verses 8.0 g/cm³ reference mass density and an air density of 1.2 mg/cm³ at 20 °C.

Traceability Statement

The artifact(s) described in this certificate have been compared to the Standards of the State of Nebraska. The Standards of the State of Nebraska are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The calibration number for this certificate is the only unique calibration number to be used in referencing measurement traceability for the artifact(s) described in this certificate.

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.

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 Date: November 21, 2017

Certificate Number: 2017-043-3

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)
10 lb		0.144	n	0.144	0.054	2	0.45	7.84
5 lb		0.069	n	0.069	0.028	2	0.23	7.84
2 lb		0.042	n	0.042	0.011	2	0.091	7.84
2 lb	*	0.051	n	0.051	0.011	2	0.091	7.84
1 lb		0.0354	n	0.0354	0.0083	2	0.07	7.84
0.5 lb		0.0308	n	0.0308	0.0054	2	0.045	7.84
0.2 lb		0.0083	n	0.0083	0.0022	2	0.018	7.84
0.2 lb	*	0.0090	n	0.0090	0.0022	2	0.018	7.84
0.1 lb		0.0042	n	0.0042	0.0011	2	0.0091	7.84
0.05 lb		0.00219	n	0.00219	0.00054	2	0.0045	7.84
0.02 lb		0.00072	n	0.00072	0.00022	2	0.0018	7.84
0.02 lb	*	0.00070	n	0.00070	0.00022	2	0.0018	7.84
0.01 lb		0.00063	n	0.00063	0.00018	2	0.0015	7.84
0.005 lb		0.00067	n	0.00067	0.00015	2	0.0012	16.6
0.002 lb		0.00002	n	0.00002	0.00011	2	0.00087	16.6
0.002 lb	*	0.00047	n	0.00047	0.00011	2	0.00087	16.6
0.001 lb		0.000187	n	0.000187	0.000083	2	0.0007	16.6

Conversion Factors

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

Joel P. Lavicky *Metrologist*

11/21/2017
Date of Issue

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: November 22, 2017 | **Certificate Number:** 2017-043-4

Submitted By: FSCP Area 75
PO Box 234
Elm Creek, NE 68836

Point of Contact: Darrin Larrington
Ph. 402-309-0781
email: *darrin.larrington@nebraska.gov*
PO Number:

Test Item(s):	31 lb weight Kit	**Date Received:**	November 17, 2017
Serial Number(s):	5A10	**ID / Asset Number:**	
Manufacture:	Tromner	**Class Specification:**	NIST Class F
Condition:	Good (some wear)	**Material:**	SS and AL

Artifact(s) Description:

Reference Standards Used:	Procedure Used:	Equipment Used:	
NSL lb standards	NIST HB 6969, SOP 8		Mettler AT 106
	Metrologist: JPL	Sartorius CC 1201	Sartorius CCE6

Environmental Cond. **Temp:** 20.8 °C **Pressure:** 771.265 mmHg **Relative Humidity:** 49.5 %

Pertinent Information

- The artifact(s) listed in this document have been found and/or left within the maximum permissible error for the specification stated above, except as noted. An artifact is considered in-compliance when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error. RED print indicates an out-of-compliance reading.
- All corrections stated in this report correlate to a “Conventional Mass” (CM), also known as "apparent mass”, scale verses 8.0 g/cm³ reference mass density and an air density of 1.2 mg/cm³ at 20 °C.

Traceability Statement

The artifact(s) described in this certificate have been compared to the Standards of the State of Nebraska. The Standards of the State of Nebraska are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The calibration number for this certificate is the only unique calibration number to be used in referencing measurement traceability for the artifact(s) described in this certificate.

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.

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 Date: November 22, 2017 | **Certificate Number:** 2017-043-4

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	-0.009	n	-0.009	0.011	2	0.091	7.84
2 lb	2	-0.029	n	-0.029	0.011	2	0.091	7.84
2 lb	3	-0.028	n	-0.028	0.011	2	0.091	7.84
2 lb	4	-0.033	n	-0.033	0.011	2	0.091	7.84
2 lb	5	-0.031	n	-0.031	0.011	2	0.091	7.84
2 lb	6	0.000	n	0.000	0.011	2	0.091	7.84
2 lb	7	-0.007	n	-0.007	0.011	2	0.091	7.84
2 lb	8	-0.020	n	-0.020	0.011	2	0.091	7.84
2 lb	9	-0.010	n	-0.010	0.011	2	0.091	7.84
2 lb	10	-0.017	n	-0.017	0.011	2	0.091	7.84
2 lb	11	-0.079	n	-0.079	0.011	2	0.091	7.84
2 lb	12	-0.010	n	-0.010	0.011	2	0.091	7.84
2 lb	13	-0.006	n	-0.006	0.011	2	0.091	7.84
2 lb	14	-0.069	n	-0.069	0.011	2	0.091	7.84
1 lb	15	-0.0327	n	-0.0327	0.0083	2	0.07	7.84
1 lb	16	-0.0360	n	-0.0360	0.0083	2	0.07	7.84
0.3 lb		-0.0034	n	-0.0034	0.0032	2	0.027	7.84
0.2 lb		0.0013	n	0.0013	0.0022	2	0.018	7.84
0.1 lb		-0.0034	n	-0.0034	0.0011	2	0.0091	7.84
0.05 lb		-0.00039	n	-0.00039	0.00054	2	0.0045	7.84
0.03 lb		-0.00184	n	-0.00184	0.00032	2	0.0027	7.84
0.02 lb		0.00066	n	0.00066	0.00022	2	0.0018	7.84
0.01 lb		0.00064	n	0.00064	0.00018	2	0.0015	7.84
0.005 lb	*	0.00032	n	0.00032	0.00015	2	0.0012	16.6
0.003 lb		-0.00019	n	-0.00019	0.00012	2	0.00099	16.6
0.002 lb		-0.00017	n	-0.00017	0.00011	2	0.00087	16.6
0.001 lb		0.000073	n	0.000073	0.000083	2	0.0007	16.6
0.001 lb	*	0.000289	n	0.000289	0.000083	2	0.0007	16.6
8 oz	17	-0.0115	n	-0.0115	0.0054	2	0.045	7.84
4 oz	18	0.0001	n	0.0001	0.0028	2	0.023	7.84
2 oz		0.0044	n	0.0044	0.0013	2	0.011	7.84
1 oz		-0.00397	n	-0.00397	0.00064	2	0.0054	7.84
1/2 oz		0.00043	n	0.00043	0.00034	2	0.0028	7.84
1/4 oz		0.00057	n	0.00057	0.00021	2	0.0017	7.84
1/8 oz		-0.00030	n	-0.00030	0.00016	2	0.0013	7.84
1/16 oz	*	0.00024	n	0.00024	0.00013	2	0.0011	7.84

Conversion Factors

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

Joel P. Lavicky *Metrologist*

11/22/2017
Date of Issue

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 Date: 11/27/2017

Certificate of Calibration of Volume Transfer

Certificate Number: 2017-043-5

Items Submitted:

Quantity	Nominal Volume	Manufacturer	Type
3	5 gal	Sensitive Measurement	Bottom Drain Prover

Submitted By: FSCP Area 75
PO Box 234
Elm Creek, NE 68836

POC: Darrin Larrington
402-309-0781

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	233	SS	0.0000265	**5.0008 gal**	**5.0008 gal**	0.00069 gal	2.04
5 gal	234	SS	0.0000265	**4.99908 gal**	**4.99908 gal**	0.00069 gal	2.04
5 gal	235	SS	0.0000265	**4.99984 gal**	**4.99984 gal**	0.00069 gal	2.04

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:

The artifact(s) described in this report have been compared to the Standards of the State of Nebraska. The Standards of the State of Nebraska are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The calibration number for this report is the only unique calibration number to be used in referencing measurement traceability for the artifact(s) described in this report.

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. 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.

Pertinent Information:

The artifact(s) listed above have been found and/or left within the maximum permissible error for the specification stated above, except as noted. An artifact is considered in-compliance when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error.

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	20.9	Humidity %	46.2
Pressure mmHg	771.65		

Laboratory Reference Standard Used;
5 gal SP NE 1586

Procedure Used:
NISTIR 7383 (2017), SOP 19

Water temperature at time of calibration:
59.88 °F

Date Submitted: 11/17/2017

Joel P. Lavicky, Metrologist

11/29/2017
Date:

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 Date: 11/27/2017

Certificate of Calibration of Volume Transfer

Certificate Number: 2017-043-6

Items Submitted:

Quantity	Nominal Volume	Manufacturer	Type
2	5 gal	Seraphin	Test Measure

Submitted By: FSCP Area 75
PO Box 234
Elm Creek, NE 68836

POC: Darrin Larrington
402-309-0781

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	4893-5H	SS	0.0000265	**4.99774 gal**	**5.00012 gal**	0.00069 gal	2.04
5 gal	43872	SS	0.0000265	**4.99818 gal**	**5.00014 gal**	0.00069 gal	2.04

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:

The artifact(s) described in this report have been compared to the Standards of the State of Nebraska. The Standards of the State of Nebraska are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The calibration number for this report is the only unique calibration number to be used in referencing measurement traceability for the artifact(s) described in this report.

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. 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.

Pertinent Information:

The artifact(s) listed above have been found and/or left within the maximum permissible error for the specification stated above, except as noted. An artifact is considered in-compliance when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error.

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	20.9	Humidity %	48.0
Pressure mmHg	771.65		

Laboratory Reference Standard Used:
5 gal SP NE 1586

Procedure Used:
NISTIR 7383 (2017), SOP 19

Water temperature at time of calibration:
57.90 °F

Date Submitted: 11/17/2017

Joel P. Lavicky, Metrologist

11/29/2017
Date: