

Calibration Date: 10/2/2017

**Certificate of Calibration
of Volume Transfer**

Certificate Number: 2017-029-1

Items Submitted:

Quantity	Nominal Volume	Manufacturer	Type
2	5 gal	Seraphin	Test Measure

Submitted By: FSCP Area 80
11748 Mayberry Plaza
Omaha NE, 68154

POC: Mike Johnson
402-416-5256

Test Results

Nominal Volume	Serial Number	Material	Cubical Coefficient of Expansion (1/°F)	As Found Volume Delivered @ 60 °F	As left Volume Delivered @ 60 °F	Uncertainty (U)	(k)
5 gal	4393-5-B	SS	0.0000265	4.99815 gal	4.99815 gal	0.00061 gal	2.03
5 gal	39423 G	SS	0.0000265	5.0001 gal	5.0001 gal	0.00061 gal	2.03

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:

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Condition of Item(s) Submitted for Calibration:

Minor wear

Laboratory Reference Standard Used:

5 gal SP NE 1586

Treatment of Item(s) before Calibration:

Item(s) were tested as found

Procedure Used:

NISTIR 7383 (2017), SOP 19

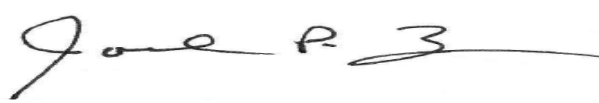
Environmental conditions at time of calibration:

Temp °C	21.9	Humidity %	49.4
Pressure mmHg	763.00		

Water temperature at time of calibration:

67.73 °F

Date Submitted: 9/28/2017


Joel P. Lavicky, Metrologist

10/6/2017

Date:

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Calibration Date: 10/2/2017

**Certificate of Calibration
of Volume Transfer**

Certificate Number: 2017-029-2

Items Submitted:

Quantity	Nominal Volume	Manufacturer	Type
3	5 gal	Seraphin	"Special" J Prover

Submitted By: FSCP Area 80
11748 Mayberry Plaza
Omaha NE, 68154

POC: Mike Johnson
402-416-5256

Test Results

Nominal Volume	Serial Number	Material	Cubical Coefficient of Expansion (1/°F)	As Found Volume Delivered @ 60 °F	As left Volume Delivered @ 60 °F	Uncertainty (U)	(k)
5 gal	04-20943-01	SS	0.0000265	4.99969 gal	4.99969 gal	0.00061 gal	2.03
5 gal	04-20943-02	SS	0.0000265	4.99948 gal	4.99948 gal	0.00061 gal	2.03
5 gal	04-20943-03	SS	0.0000265	4.99948 gal	4.99948 gal	0.00061 gal	2.03

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

Laboratory Reference Standard Used:

5 gal SP NE 1586

Treatment of Item(s) before Calibration:

Item(s) were tested as found

Procedure Used:

NISTIR 7383 (2017), SOP 19

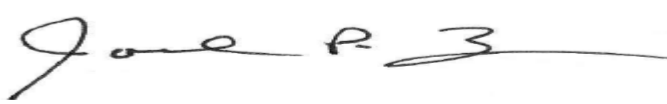
Environmental conditions at time of calibration:

Temp °C	21.9	Humidity %	49.4
Pressure mmHg	763.00		

Water temperature at time of calibration:

67.58 °F

Date Submitted: 9/28/2017


Joel P. Lavicky, Metrologist

10/6/2017

Date:

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Calibration Certificate of Mass

Calibration Date: October 4, 2017

Certificate Number: 2017-029-3

Submitted By: FSCP Area 80
11748 Mayberry Plaza
Omaha, NE 68514

Point of Contact: Mike Johnson
Ph. 402-416-5256
email: mike.d.johnson@nebraska.gov
PO Number:

Test Item(s): 31 lb weight kit
Serial Number(s): 9-OPI-11
Manufacture: Tromner
Condition: Good (some wear)

Artifact(s) Description:

Date Received: September 26, 2017

ID / Asset Number: N/A
Class Specification: NIST Class F
Material: Stainless Steel

Reference Standards Used:

NSL lb standards

Procedure Used:

NIST HB 6969, SOP 8

Metrologist:

JPL

Equipment Used:

Sartorius CCE6 Sartorius CC 1201
Mettler AT 106

Environmental Cond. Temp: 22.7 °C Pressure: 773.173 mmHg Relative Humidity: 47.5 %

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.

Calibration Date: October 4, 2017

Certificate Number: 2017-029-3

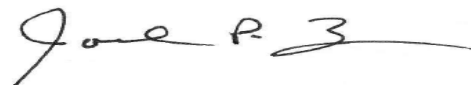
Calibration Results

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/cm ³)
2 lb	1	-0.055	n	-0.055	0.011	2	0.091	7.84
2 lb	2	-0.055	n	-0.055	0.011	2	0.091	7.84
2 lb	3	-0.050	n	-0.050	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	-0.042	n	-0.042	0.011	2	0.091	7.84
2 lb	6	-0.030	n	-0.030	0.011	2	0.091	7.84
2 lb	7	-0.039	n	-0.039	0.011	2	0.091	7.84
2 lb	8	-0.058	n	-0.058	0.011	2	0.091	7.84
2 lb	9	-0.032	n	-0.032	0.011	2	0.091	7.84
2 lb	10	-0.052	n	-0.052	0.011	2	0.091	7.84
2 lb	11	-0.035	n	-0.035	0.011	2	0.091	7.84
2 lb	12	-0.053	n	-0.053	0.011	2	0.091	7.84
2 lb	13	-0.020	n	-0.020	0.011	2	0.091	7.84
2 lb	14	-0.058	n	-0.058	0.011	2	0.091	7.84
1 lb	15	-0.0279	n	-0.0279	0.0083	2	0.07	7.84
8 oz		0.0013	n	0.0013	0.0054	2	0.045	7.84
4 oz		-0.0033	n	-0.0033	0.0028	2	0.023	7.84
2 oz		0.0001	n	0.0001	0.0013	2	0.011	7.84
1 oz		0.00175	n	0.00175	0.00064	2	0.0054	7.84
1/2 oz		0.00160	n	0.00160	0.00034	2	0.0028	7.84
1/4 oz		0.00031	n	0.00031	0.00021	2	0.0017	7.84
1/8 oz		-0.00036	n	-0.00036	0.00016	2	0.0013	7.84
1/16 oz		-0.00018	n	-0.00018	0.00013	2	0.0011	7.84
1/16 oz	*	0.00061	n	0.00061	0.00013	2	0.0011	7.84
0.3 lb		-0.0097	n	-0.0097	0.0032	2	0.027	7.84
0.2 lb		-0.0037	n	-0.0037	0.0022	2	0.018	7.84
0.1 lb		-0.0009	n	-0.0009	0.0011	2	0.0091	7.84
0.05 lb		-0.00044	n	-0.00044	0.00054	2	0.0045	7.84
0.03 lb		-0.00111	n	-0.00111	0.00032	2	0.0027	7.84
0.02 lb		-0.00152	n	-0.00152	0.00022	2	0.0018	7.84
0.01 lb		0.00050	n	0.00050	0.00018	2	0.0015	7.84
0.005 lb		-0.00010	n	-0.00010	0.00015	2	0.0012	2.7
0.003 lb		-0.00045	n	-0.00045	0.00012	2	0.00099	2.7
0.002 lb		-0.00040	n	-0.00040	0.00011	2	0.00087	2.7
0.001 lb		-0.000221	n	-0.000221	0.000083	2	0.0007	2.7
0.001 lb	*	-0.000100	n	-0.000100	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

10/9/2017

Date of Issue

The results in this certificate only applies to those item specifically listed in this certificate. This certificate cannot be considered complete unless it contains all pages. This document may not be reproduced except in full, without the written consent of the Nebraska Standards Laboratory.

Calibration Certificate of Mass

Calibration Date: October 4, 2017

Certificate Number: 2017-029-4

Submitted By: FSCP Area 80
11748 Mayberry Plaza
Omaha, NE 68514

Point of Contact: Mike Johnson
Ph. 402-416-5256
email: mike.d.johnson@nebraska.gov
PO Number:

Test Item(s): 8 lb weight kit	Artifact(s) Description:	Date Received: September 26, 2017
Serial Number(s): 9-OPI-3		ID / Asset Number: N/A
Manufacture: Tromner		Class Specification: NIST Class F
Condition: Good (some wear)		Material: Stainless Steel

Reference Standards Used:

NSL lb standards

Procedure Used:

NIST HB 6969, SOP 8

Metrologist:

JPL

Equipment Used:

Sartorius CCE6 Sartorius CC 1201
Mettler AT 106

Environmental Cond. **Temp:** 22.7 °C **Pressure:** 773.173 mmHg **Relative Humidity:** 47.5 %

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

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Calibration Date: October 4, 2017

Certificate Number: 2017-029-4

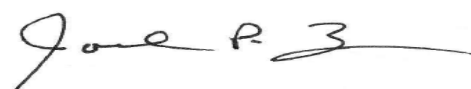
Calibration Results

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/cm ³)
2 lb	1	0.014	n	0.014	0.011	2	0.091	7.84
2 lb	2	0.037	n	0.037	0.011	2	0.091	7.84
2 lb	3	0.028	n	0.028	0.011	2	0.091	7.84
1 lb	4	-0.0031	n	-0.0031	0.0083	2	0.07	7.84
8 oz		-0.0061	n	-0.0061	0.0054	2	0.045	7.84
4 oz		-0.0085	n	-0.0085	0.0028	2	0.023	7.84
2 oz		0.0058	n	0.0058	0.0013	2	0.011	7.84
1 oz		-0.00004	n	-0.00004	0.00064	2	0.0054	7.84
1/2 oz		-0.00026	n	-0.00026	0.00034	2	0.0028	7.84
1/4 oz		0.00038	n	0.00038	0.00021	2	0.0017	7.84
1/8 oz		-0.00073	n	-0.00073	0.00016	2	0.0013	7.84
1/16 oz		0.00027	n	0.00027	0.00013	2	0.0011	7.84
1/16 oz	*	0.00029	n	0.00029	0.00013	2	0.0011	7.84
0.3 lb		0.0005	n	0.0005	0.0032	2	0.027	7.84
0.2 lb		-0.0064	n	-0.0064	0.0022	2	0.018	7.84
0.1 lb		-0.0062	n	-0.0062	0.0011	2	0.0091	7.84
0.05 lb		0.00265	n	0.00265	0.00054	2	0.0045	7.84
0.03 lb		0.00206	n	0.00206	0.00032	2	0.0027	7.84
0.02 lb		0.00019	n	0.00019	0.00022	2	0.0018	7.84
0.01 lb		0.00001	n	0.00001	0.00018	2	0.0015	7.84
0.005 lb		-0.00054	n	-0.00054	0.00015	2	0.0012	2.7
0.003 lb		0.00029	n	0.00029	0.00012	2	0.00099	2.7
0.002 lb		0.00058	n	0.00058	0.00011	2	0.00087	2.7
0.001 lb		0.000229	n	0.000229	0.000083	2	0.0007	2.7
0.001 lb	*	0.000067	n	0.000067	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

10/9/2017

Date of Issue

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Calibration Certificate of Mass

Calibration Date: October 3, 2017

Certificate Number: 2017-029-5

Submitted By: FSCP Area 80
11748 Mayberry Plaza
Omaha, NE 68514

Point of Contact: Mike Johnson
Ph. 402-416-5256
email: mike.d.johnson@nebraska.gov
PO Number:

Test Item(s): 1-4 kg, 2-15 lb & 20-25 lb weights	Artifact(s) Description:	Date Received: September 26, 2017
Serial Number(s): See Next Page		ID / Asset Number: N/A
Manufacture: Tromner / Rice Lake		Class Specification: NIST Class F
Condition: Good (some wear)		Material: SS and CI

Reference Standards Used:

2kgd&2kg
NEBR-STD-10&5
NSL-25-1-25lb

Procedure Used:

NIST HB 6969, SOP 8

Metrologist:
JPL

Equipment Used:

Sartorius CC10000S
Mettler KA30-3

Environmental Cond. **Temp:** 22.7 °C **Pressure:** 767.08 mmHg **Relative Humidity:** 52 %

Pertinent Information

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Calibration Date: October 3, 2017

Certificate Number: 2017-029-5

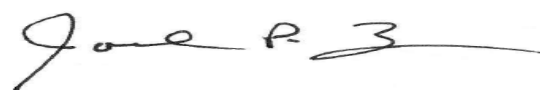
Calibration Results

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/cm ³)
4 kg	WM-6	0.006	n	0.006	0.048	2	0.4	7.94
15 lb	WM15-11	0.260	n	0.260	0.081	2	0.68	7.2
15 lb	WM15-12	0.133	n	0.133	0.081	2	0.68	7.2
25 lb	NE-1	0.75	n	0.75	0.14	2	1.1	7.2
25 lb	NE-2	0.92	y	0.10	0.14	2	1.1	7.2
25 lb	NE-3	0.36	n	0.36	0.14	2	1.1	7.2
25 lb	NE-4	0.62	n	0.62	0.14	2	1.1	7.2
25 lb	NE-5	0.63	n	0.63	0.14	2	1.1	7.2
25 lb	NE-6	0.28	n	0.28	0.14	2	1.1	7.2
25 lb	NE-7	0.68	n	0.68	0.14	2	1.1	7.2
25 lb	NE-8	0.41	n	0.41	0.14	2	1.1	7.2
25 lb	NE-9	0.44	n	0.44	0.14	2	1.1	7.2
25 lb	NE-10	0.30	n	0.30	0.14	2	1.1	7.2
25 lb	NE-11	1.07	y	0.30	0.14	2	1.1	7.2
25 lb	NE-12	0.24	n	0.24	0.14	2	1.1	7.2
25 lb	NE-13	0.23	n	0.23	0.14	2	1.1	7.2
25 lb	NE-14	0.26	n	0.26	0.14	2	1.1	7.2
25 lb	NE-15	0.30	n	0.30	0.14	2	1.1	7.2
25 lb	NE-16	0.29	n	0.29	0.14	2	1.1	7.2
25 lb	NE-17	0.36	n	0.36	0.14	2	1.1	7.2
25 lb	NE-18	0.61	n	0.61	0.14	2	1.1	7.2
25 lb	NE-19	0.77	n	0.77	0.14	2	1.1	7.2
25 lb	NE-20	0.31	n	0.31	0.14	2	1.1	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

10/6/2017

Date of Issue

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