

### Calibration Certificate of Mass

Calibration Date: July 26, 2018

Certificate Number: 2018-064-1

Submitted By: FSCP Area 60  
3721 West Cuming St.  
Lincoln, NE 68524

Point of Contact: Todd Blaske  
Ph. 402-471-3422  
email: Todd.blaske@nebraska.gov  
PO Number: N/A

Test Item(s): (1)-4kg, (2)-15,(20)-25 lb weights  
Serial Number(s): See Next Page  
Manufacture: Various  
Condition: Good (some wear)

Artifact(s) Description:  
Date Received: July 23, 2018  
ID / Asset Number: N/A  
Class Specification: NIST Class F  
Material: CI & SS

Reference Standards Used:

Procedure Used:

Equipment Used:

NSL lb standards  
OPI & /Den Metric

NIST HB 6969, SOP 8  
Metrologist:  
JPL

Mettler KA30-3  
Sartorius CC10000S

Environmental Cond. Temp: 25 °C Pressure: 766.572 mmHg Relative Humidity: 52.4 %

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/cm<sup>3</sup> reference mass density and an air density of 1.2 mg/cm<sup>3</sup> 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: July 26, 2018

Certificate Number: 2018-064-1

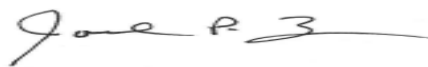
### Calibration Results

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/cm <sup>3</sup> )
15 lb	WM15-15	0.145	n	0.145	0.081	2	0.68	7.2
15 lb	WM16-15	0.263	n	0.263	0.081	2	0.68	7.2
25 lb	WM25-25	0.20	n	0.20	0.14	2	1.1	7.2
25 lb	WM25-32	0.74	n	0.74	0.14	2	1.1	7.2
25 lb	WM25-36	0.41	n	0.41	0.14	2	1.1	7.2
25 lb	WM25-40	0.76	n	0.76	0.14	2	1.1	7.2
25 lb	WM25-51	0.27	n	0.27	0.14	2	1.1	7.2
25 lb	WM25-52	0.24	n	0.24	0.14	2	1.1	7.2
25 lb	WM25-53	0.24	n	0.24	0.14	2	1.1	7.2
25 lb	WM25-103	0.03	n	0.03	0.14	2	1.1	7.2
25 lb	WM25-107	0.62	n	0.62	0.14	2	1.1	7.2
25 lb	WM25-108	0.61	n	0.61	0.14	2	1.1	7.2
25 lb	WM25-109	0.38	n	0.38	0.14	2	1.1	7.2
25 lb	WM25-111	-1.00	y	0.04	0.14	2	1.1	7.2
25 lb	WM25-112	-0.30	n	-0.30	0.14	2	1.1	7.2
25 lb	WM25-120	-0.64	n	-0.64	0.14	2	1.1	7.2
25 lb	WM25-123	0.18	n	0.18	0.14	2	1.1	7.2
25 lb	WM25-126	0.58	n	0.58	0.14	2	1.1	7.2
25 lb	WM25-128	0.17	n	0.17	0.14	2	1.1	7.2
25 lb	WM25-129	0.59	n	0.59	0.14	2	1.1	7.2
25 lb	WM25-130	0.08	n	0.08	0.14	2	1.1	7.2
25 lb	WM25-134	0.15	n	0.15	0.14	2	1.1	7.2
4 kg	WM-8	0.055	n	0.055	0.048	2	0.4	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

7/26/2018

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 Date: 7/23/2018

**Certificate of Calibration  
of Volume Transfer**

Certificate Number: 2018-064-2

**Items Submitted:**

Quantity	Nominal Volume	Manufacturer	Type
2	5 gal	Seraphin	Test Measure

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

**POC:** Todd Blaske  
402-471-3422  
todd.blaske@nebraska.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	5.00001 gal	5.00001 gal	0.00056 gal	2.03
5 gal	06-01165	SS	0.0000265	5.00047 gal	5.00047 gal	0.00056 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 in<sup>3</sup>  
1 gal = 3.785 412 E-03 m<sup>3</sup>

**Traceability Statement:**

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**Uncertainty Statement:**

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**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, SOP 19

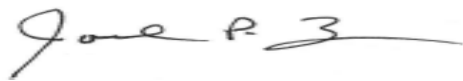
**Environmental conditions at time of calibration:**

Temp °C	24.9	Humidity %	49.0
Pressure mmHg	767.33		

**Water temperature at time of calibration:**

66.96 °F

**Date Submitted:** 7/23/2018



7/23/2018

Joel P. Lavicky, Metrologist

Date:

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Calibration Date: 7/23/2018

**Certificate of Calibration  
of Volume Transfer**

Certificate Number: 2018-064-3

**Items Submitted:**

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

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

**POC:** Todd Blaske  
402-471-3422  
todd.blaske@nebraska.gov

**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	05-41610-03	SS	0.0000265	5.0001 gal	5.0001 gal	0.00056 gal	2.03
5 gal	05-41610-08	SS	0.0000265	5.0004 gal	5.0004 gal	0.00056 gal	2.03
5 gal	05-44609-15	SS	0.0000265	5.00005 gal	5.00005 gal	0.00056 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 in<sup>3</sup>  
1 gal = 3.785 412 E-03 m<sup>3</sup>

**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, SOP 19

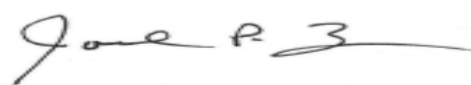
**Environmental conditions at time of calibration:**

Temp °C	24.9	Humidity %	49.0
Pressure mmHg	767.33		

**Water temperature at time of calibration:**

66.99 °F

**Date Submitted:** 7/23/2018



Joel P. Lavicky, Metrologist

7/25/2018

Date:

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## Calibration Certificate of Mass

**Calibration Date:** July 25, 2018

**Certificate Number:** 2018-064-4

**Submitted By:** FSCP Area 60  
3721 West Cuming St.  
Lincoln, NE 68524

**Point of Contact:** Todd Blaske  
Ph. 402-471-3422  
**email:** [Todd.blaske@nebraska.gov](mailto:Todd.blaske@nebraska.gov)  
**PO Number:** N/A

**Test Item(s):** (1)-31 lb weight kit  
**Serial Number(s):** WM-289-4  
**Manufacture:** Tromner  
**Condition:** Good (some wear)

**Artifact(s) Description:**

**Date Received:** July 23, 2018

**ID / Asset Number:** N/A  
**Class Specification:** NIST Class F  
**Material:** SS & AL

**Reference Standards Used:**

NSL lb standards

**Procedure Used:**

NIST HB 6969, SOP 8

**Metrologist:**  
JPL

**Equipment Used:**

Mettler AT 106  
Sartorius CC 1201 Sartorius CCE6

**Environmental Cond.** Temp: 22.6 °C Pressure: 768.096 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/cm<sup>3</sup> reference mass density and an air density of 1.2 mg/cm<sup>3</sup> at 20 °C.

**Traceability Statement**

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Calibration Date: July 25, 2018

Certificate Number: 2018-064-4

**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 <sup>3</sup> )
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	-0.056	n	-0.056	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	-0.056	n	-0.056	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	-0.0243	n	-0.0243	0.0083	2	0.07	7.84
0.3 lb		-0.0081	n	-0.0081	0.0032	2	0.027	7.84
0.2 lb		-0.0031	n	-0.0031	0.0022	2	0.018	7.84
0.1 lb		-0.0028	n	-0.0028	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		-0.00211	n	-0.00211	0.00032	2	0.0027	7.84
0.02 lb		0.00046	n	0.00046	0.00022	2	0.0018	7.84
0.01 lb		-0.00072	n	-0.00072	0.00018	2	0.0015	7.84
0.005 lb		0.00009	n	0.00009	0.00015	2	0.0012	2.7
0.003 lb		-0.00057	n	-0.00057	0.00012	2	0.00099	2.7
0.002 lb		-0.00045	n	-0.00045	0.00011	2	0.00087	2.7
0.001 lb		0.000198	n	0.000198	0.000083	2	0.0007	2.7
0.001 lb	*	-0.000155	n	-0.000155	0.000083	2	0.0007	2.7
8 oz		0.0138	n	0.0138	0.0054	2	0.045	7.84
4 oz		0.0091	n	0.0091	0.0028	2	0.023	7.84
2 oz		-0.0004	n	-0.0004	0.0013	2	0.011	7.84
1 oz		-0.00004	n	-0.00004	0.00064	2	0.0054	7.84
1/2 oz		-0.00018	n	-0.00018	0.00034	2	0.0028	7.84
1/4 oz		0.00082	n	0.00082	0.00021	2	0.0017	7.84
1/8 oz		-0.00059	n	-0.00059	0.00016	2	0.0013	7.84
1/16 oz		0.00053	n	0.00053	0.00014	2	0.0011	7.84
1/16 oz	*	0.00066	n	0.00066	0.00014	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

7/26/2018

Date of Issue

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