

Calibration Certificate of Mass

Calibration Date: July 3, 2017

Certificate Number: 2017-007-1

Submitted By: FSCP area 65
6030 Dobson's Court
Lincoln, NE 68516

Point of Contact: Gary Kliment
Ph. 402-525-0138
email: www.agr.ne.gov
PO Number: N/A

Test Item: 8 lb weight Kit
Serial Number: 10-OPI-10
Manufacture: Tromner / Rice lake
Condition: Good (some wear)

Artifact(s) Description:

Date Received: July 3, 2017
ID / Asset Number: N/A
Class Specification: NIST Class F
Material: Stainless stees

Reference Standards Used:

Rice Lake NSL-WK
NSL lb standards

Procedure Used:

NIST HB 6969, SOP 8
Metrologist:
JPL

Equipment Used:

Sartorius CC 1201 Sartorius CCE6
Mettler AT 106

Environmental Cond. Temp: 21.7 °C Pressure: 765.936 mmHg Relative Humidity: 46.75 %

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/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: July 3, 2017

Certificate Number: 2017-007-1

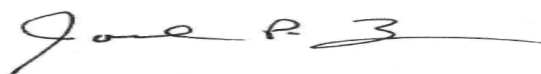
Calibration Results

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 ³)
2 lb	1	0.013	n	0.013	0.013	2.006	0.091	7.9
2 lb	2	-0.021	n	-0.021	0.013	2.006	0.091	7.9
2 lb	3	-0.021	n	-0.021	0.013	2.006	0.091	7.9
1 lb	1	-0.0390	n	-0.0390	0.0088	2.001	0.07	7.8
8 oz	1	0.0062	n	0.0062	0.0054	2	0.045	7.9
4 oz	1	0.0059	n	0.0059	0.0028	2	0.023	7.9
2 oz	1	0.0017	n	0.0017	0.0013	2	0.011	7.9
1 oz	1	0.00137	n	0.00137	0.00064	2	0.0054	7.9
1/2 oz	1	0.00182	n	0.00182	0.00034	2	0.0028	7.9
1/4 oz	1	0.00126	n	0.00126	0.00021	2	0.0017	7.9
1/8 oz	1	0.00002	n	0.00002	0.00016	2	0.0013	7.9
1/16 oz	1	0.00057	n	0.00057	0.00013	2	0.0011	7.9
1/16 oz	*	0.00041	n	0.00041	0.00013	2	0.0011	7.9
0.3 lb	1	0.0066	n	0.0066	0.0032	2	0.027	7.9
0.2 lb	1	-0.0048	n	-0.0048	0.0022	2	0.018	7.9
0.1 lb	1	-0.0012	n	-0.0012	0.0011	2	0.0091	7.9
0.05 lb	1	0.00244	n	0.00244	0.00054	2	0.0045	7.9
0.03 lb	1	-0.00149	n	-0.00149	0.00032	2	0.0027	7.9
0.02 lb	1	-0.00110	n	-0.00110	0.00022	2	0.0018	7.9
0.01 lb	1	0.00092	n	0.00092	0.00018	2	0.0015	2.7
0.005 lb	1	0.00104	n	0.00104	0.00015	2	0.0012	2.7
0.003 lb	1	0.00019	n	0.00019	0.00012	2	0.00099	2.7
0.002 lb	1	-0.00050	n	-0.00050	0.00011	2	0.00087	2.7
0.001 lb	1	0.000109	n	0.000109	0.000083	2	0.0007	2.7
0.001 lb	*	0.000136		0.000136	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

7/6/2017

Date of Issue

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Calibration Certificate of Mass

Calibration Date: July 3, 2017

Certificate Number: 2017-007-2

Submitted By: FSCP area 65
6030 Dobson's Court
Lincoln, NE 68516

Point of Contact: Gary Kliment
Ph. 402-525-0138
email: www.agr.ne.gov
PO Number: N/A

Test Item: 31 lb weight Kit
Serial Number: NSL-1A96
Manufacture: Tromner / Rice lake
Condition: Good (some wear)

Artifact(s) Description:

Date Received: July 3, 2017
ID / Asset Number: N/A
Class Specification: NIST Class F
Material: Stainless stees

Reference Standards Used:

Procedure Used:

Equipment Used:

Rice Lake NSL-WK
NSL lb standards

NIST HB 6969, SOP 8
Metrologist:
JPL

Sartorius CC 1201 Sartorius CCE6
Mettler AT 106

Environmental Cond. Temp: 22.3 °C Pressure: 764.031 mmHg Relative Humidity: 49.5 %

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/cm³ 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.

Calibration Date: July 3, 2017

Certificate Number: 2017-007-2

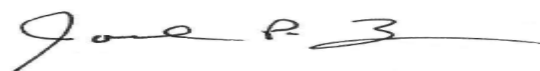
Calibration Results

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/cm ³)
2 lb	1	-0.019	n	-0.019	0.011	2	0.091	7.9
2 lb	2	-0.017	n	-0.017	0.011	2	0.091	7.9
2 lb	3	-0.009	n	-0.009	0.011	2	0.091	7.9
2 lb	4	-0.022	n	-0.022	0.011	2	0.091	7.9
2 lb	5	-0.019	n	-0.019	0.011	2	0.091	7.9
2 lb	6	-0.005	n	-0.005	0.011	2	0.091	7.9
2 lb	7	0.011	n	0.011	0.011	2	0.091	7.9
2 lb	8	0.016	n	0.016	0.011	2	0.091	7.9
2 lb	9	-0.021	n	-0.021	0.011	2	0.091	7.9
2 lb	10	-0.001	n	-0.001	0.011	2	0.091	7.9
2 lb	11	-0.004	n	-0.004	0.011	2	0.091	7.8
2 lb	12	-0.020	n	-0.020	0.011	2	0.091	7.8
2 lb	13	0.019	n	0.019	0.011	2	0.091	7.8
2 lb	14	0.006	n	0.006	0.011	2	0.091	7.8
1 lb	1	0.0072	n	0.0072	0.0083	2	0.07	7.9
1 lb	2	-0.0075	n	-0.0075	0.0083	2	0.07	7.9
8 oz	1	0.0037	n	0.0037	0.0054	2	0.045	7.9
4 oz	1	0.0017	n	0.0017	0.0028	2	0.023	7.9
2 oz	1	0.0011	n	0.0011	0.0013	2	0.011	7.9
1 oz	1	0.00084	n	0.00084	0.00064	2	0.0054	7.9
1/2 oz	1	0.00116	n	0.00116	0.00034	2	0.0028	7.9
1/4 oz	1	0.00099	n	0.00099	0.00021	2	0.0017	7.9
1/8 oz	1	0.00056	n	0.00056	0.00016	2	0.0013	7.9
1/16 oz	1	0.00085	n	0.00085	0.00013	2	0.0011	7.9
1/16 oz	*	0.00061	n	0.00061	0.00013	2	0.0011	7.9
0.2 lb	1	0.0084	n	0.0084	0.0022	2	0.018	7.9
0.2 lb	*	0.0094	n	0.0094	0.0022	2	0.018	7.9
0.1 lb	1	0.0043	n	0.0043	0.0011	2	0.0091	7.9
0.05 lb	1	0.00053	n	0.00053	0.00054	2	0.0045	7.9
0.02 lb	1	0.00081	n	0.00081	0.00022	2	0.0018	7.9
0.02 lb	*	0.00072	n	0.00072	0.00022	2	0.0018	7.9
0.01 lb	1	0.00081	n	0.00081	0.00018	2	0.0015	7.9
0.005 lb	1	0.00066	n	0.00066	0.00015	2	0.0012	2.7
0.002 lb	1	0.00008	n	0.00008	0.00011	2	0.00087	2.7
0.002 lb	*	0.00015	n	0.00015	0.00011	2	0.00087	2.7
0.001 lb	1	0.000134	n	0.000134	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

7/6/2017

Date of Issue

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Calibration Certificate of Mass

Calibration Date: July 5, 2017

Certificate Number: 2017-007-3

Submitted By: FSCP area 65
6030 Dobson's Court
Lincoln, NE 68516

Point of Contact: Gary Kliment
Ph. 402-525-0138

email: www.agr.ne.gov

PO Number: N/A

Artifact(s) Description:

Test Item: 1-4 kg weight, 2-15 lb weights, 20-25 lb weights

Date Received: July 3, 2017

Serial Number: See below

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:

Procedure Used:

Equipment Used:

Rice Lake NSL-WK
NSL lb standards

NIST HB 6969, SOP 8

Sartorius CC10000S

Metrologist:

Mettler KA30-3

JPL

Environmental Cond. **Temp:** 22.3 °C **Pressure:** 764.03 mmHg **Relative Humidity:** 51.5 %

Pertinent Information

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Calibration Date: July 5, 2017

Certificate Number: 2017-007-3

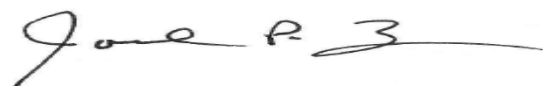
Calibration Results

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)
4 kg	1	0.041	n	0.041	0.048	2	0.4	7.9
15 lb	WM15-5	2.349	y	-0.524	0.081	2	0.68	7.2
15 lb	WM15-6	2.614	y	-0.170	0.081	2	0.68	7.2
25 lb	NE-61	-0.28	n	-0.28	0.14	2.002	1.1	7.2
25 lb	NE-62	-0.40	n	-0.40	0.14	2.002	1.1	7.2
25 lb	NE-63	0.06	n	0.06	0.14	2.002	1.1	7.2
25 lb	NE-64	0.11	n	0.11	0.14	2.002	1.1	7.2
25 lb	NE-65	0.04	n	0.04	0.14	2.002	1.1	7.2
25 lb	NE-66	-0.74	n	-0.74	0.14	2.002	1.1	7.2
25 lb	NE-67	-0.11	n	-0.11	0.14	2.002	1.1	7.2
25 lb	NE-68	-1.02	y	0.27	0.14	2.002	1.1	7.2
25 lb	NE-69	-0.26	n	-0.26	0.14	2.002	1.1	7.2
25 lb	NE-70	-0.55	n	-0.55	0.14	2.002	1.1	7.2
25 lb	NE-71	-0.51	n	-0.51	0.14	2.002	1.1	7.2
25 lb	NE-72	0.40	n	0.40	0.14	2.002	1.1	7.2
25 lb	NE-73	-1.03	y	0.04	0.14	2.002	1.1	7.2
25 lb	NE-74	0.56	n	0.56	0.14	2.002	1.1	7.2
25 lb	NE-75	-0.18	n	-0.18	0.14	2.002	1.1	7.2
25 lb	NE-76	-0.44	n	-0.44	0.14	2.002	1.1	7.2
25 lb	NE-77	-0.43	n	-0.43	0.14	2.002	1.1	7.2
25 lb	NE-78	0.09	n	0.09	0.14	2.002	1.1	7.2
25 lb	NE-79	0.08	n	0.08	0.14	2.002	1.1	7.2
25 lb	NE-80	0.43	n	0.43	0.14	2.002	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

7/6/2017

Date of Issue

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Calibration Date: 7/6/2017

**Certificate of Calibration
of Volume Transfer**

Certificate Number: 2017-007-4

Items Submitted:

Quantity	Nominal Volume	Manufacturer	Type
1	5 gal	Sensitive Measurement	4 inch neck Test measure

Submitted By: FSCP area 65
6030 Dobson's Court
Lincoln, NE 68516

POC: Gary Kliment (402)-471-3422
www.nda.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	39423-G	SS	0.0000265	4.99784 gal	4.99784 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
1gal = 3.785 412 E-3 m³

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 gallon Slicker Plate Standard S/N NE1586

Treatment of Item(s) before Calibration:

Item(s) were tested as found

Procedure Used:

NISTIR 7383 (2017), SOP 19

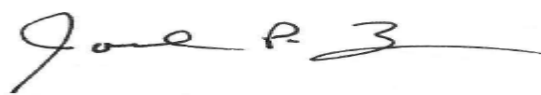
Environmental conditions at time of calibration:

Temp °C	24.5	Humidity %	53.5
Pressure mmHg	762.5		

Water temperature at time of calibration:

64.62 °F

Date Submitted: 7/3/2017



Joel P. Lavicky, Metrologist

7/6/2017

Date:

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Calibration Date: 7/6/2017

**Certificate of Calibration
of Volume Transfer**

Certificate Number: 2017-007-5

Items Submitted:

Quantity	Nominal Volume	Manufacturer	Type
1	5 gal	Sensitive Measurement	4 inch neck Test measure

Submitted By: FSCP area 65
6030 Dobson's Court
Lincoln, NE 68516

POC: Gary Kliment (402)-471-3422
www.nda.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	39423-H	SS	0.0000265	4.99844 gal	4.99844 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-3 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.

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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

Laboratory Reference Standard Used:

5 gallon Slicker Plate Standard S/N NE1586

Treatment of Item(s) before Calibration:

Item(s) were tested as found

Procedure Used:

NISTIR 7383 (2017), SOP 19

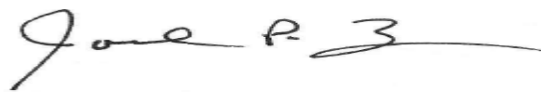
Environmental conditions at time of calibration:

Temp °C	24.5	Humidity %	53.5
Pressure mmHg	762.5		

Water temperature at time of calibration:

70.27 °F

Date Submitted: 7/3/2017



Joel P. Lavicky, Metrologist

7/6/2017

Date:

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Calibration Date: 7/6/2017

**Certificate of Calibration
of Volume Transfer**

Certificate Number: 2017-007-6

Items Submitted:

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

Submitted By: FSCP Area 65
6030 Dobson's Court
Lincoln, NE 68516

POC: Gary Kliment (402)-471-3422
www.nda.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	9038 034	SS	0.0000265	5.00025 gal	5.00025 gal	0.00069 gal	2.04
5 gal	9038 036	SS	0.0000265	4.99805 gal	4.99805 gal	0.00069 gal	2.04
5 gal	9038 035	SS	0.0000265	4.99853 gal	4.99853 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

Laboratory Reference Standard Used:

5 gallon Slicker Plate Standard S/N NE1586

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	25.0	Humidity %	49.7
Pressure mmHg	762.51		

Water temperature at time of calibration:

66.05 °F

Date Submitted: 7/3/2017



Joel P. Lavicky, Metrologist

7/6/2017

Date:

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