Agricultural Laboratory
6531 SE Forbes Ave, Suite B
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(785) 296-7020

Kansas
Department of Agriculture
agriculture.ks.gov

Office of the Secretary
900 SW Jackson, Room 456
Topeka, Kansas 66612
(785) 296-3556

Jackie McClaskey, Secretary

Governor Sam Brownback

Expires on: 2/9/2017

Kansas Metrology Laboratory
Calibration Report

Report Number: K15235

Submitted by:

Nebraska Department Of Agriculture
Food Safety & Consumer Protection
301 Centennial Mall South
Lincoln, NE 68509

Submitted on: 2/8/2016

Vehicle Number: Area 15

Item(s)

Tested	Adjusted	Rejected
83	7	2

Quantity	Nominal Mass	Type
20	25 lb	Weight(s)
2	15 lb	Weight(s)
37	2 lb to 0.001 lb 8 oz to 1/16 oz	Weight Kit
24	2 lb to 0.001 lb 8 oz to 1/16 oz	Weight Kit

The calibration of items is performed according to NISTIR 6969, SOP 8. Tolerances are applied from NISTHB 105-1.

Nominal Mass	Serial Number	**Conventional Mass as Found**	Tolerance ±	Expanded Uncertainty (U), (k=2), ±	**Conventional Mass as Left**	Adjusted/ In Tolerance/ Rejected
25 lb	WM25-10	**11340.55 g**	1.1 g	0.17 g	**11340.55 g**	In Tolerance
25 lb	WM25-100	**11340.79 g**	1.1 g	0.17 g	**11339.90 g**	***Adjusted***
25 lb	WM25-101	**11340.34 g**	1.1 g	0.17 g	**11340.34 g**	In Tolerance
25 lb	WM25-102	**11340.53 g**	1.1 g	0.17 g	**11340.53 g**	In Tolerance
25 lb	WM25-28	**11339.46 g**	1.1 g	0.17 g	**11339.46 g**	In Tolerance
25 lb	WM25-38	**11338.58 g**	1.1 g	0.17 g	**11339.83 g**	***Adjusted***
25 lb	WM25-45	**11340.30 g**	1.1 g	0.17 g	**11340.30 g**	In Tolerance
25 lb	WM25-55	**11339.27 g**	1.1 g	0.17 g	**11339.27 g**	In Tolerance
25 lb	WM25-56	**11339.58 g**	1.1 g	0.17 g	**11339.58 g**	In Tolerance
25 lb	WM25-57	**11338.76 g**	1.1 g	0.17 g	**11339.92 g**	***Adjusted***
25 lb	WM25-58	**11338.85 g**	1.1 g	0.17 g	**11340.00 g**	***Adjusted***
25 lb	WM25-59	**11338.84 g**	1.1 g	0.17 g	**11339.99 g**	***Adjusted***
25 lb	WM25-75	**11339.12 g**	1.1 g	0.17 g	**11339.12 g**	In Tolerance

The data in the above table of this report only applies to those items specifically listed on this report.

453.59237 g = 1 lb
28.349523125 g = 1 oz

The calibration of items is performed according to NISTIR 6969, SOP 8. Tolerances are applied from NISTHB 105-1.

Nominal Mass	Serial Number	Conventional Mass as Found	Tolerance ±	Expanded Uncertainty (U), (k=2), ±	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
25 lb	WM25-76	**11338.80 g**	1.1 g	0.17 g	**11340.05 g**	***Adjusted***
25 lb	WM25-77	**11339.54 g**	1.1 g	0.17 g	**11339.54 g**	In Tolerance
25 lb	WM25-78	**11339.73 g**	1.1 g	0.17 g	**11339.73 g**	In Tolerance
25 lb	WM25-79	**11338.65 g**	1.1 g	0.17 g	**11339.71 g**	***Adjusted***
25 lb	WM25-96	**11340.48 g**	1.1 g	0.17 g	**11340.48 g**	In Tolerance
25 lb	WM25-97	**11340.42 g**	1.1 g	0.17 g	**11340.42 g**	In Tolerance
25 lb	WM25-98	**11340.54 g**	1.1 g	0.17 g	**11340.54 g**	In Tolerance

The data in the above table of this report only applies to those items specifically listed on this report.

453.59237 g = 1 lb
28.349523125 g = 1 oz

The calibration of items is performed according to NISTIR 6969, SOP 8. Tolerances are applied from NISTHB 105-1.

Nominal Mass	Serial Number	Conventional Mass as Found	Tolerance ±	Expanded Uncertainty (U), (k=2), ±	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
15 lb	WM15-3	**6803.922 g**	0.68 g	0.090 g	**6803.922 g**	In Tolerance
15 lb	WM15-4	**6803.432 g**	0.68 g	0.090 g	**6803.432 g**	In Tolerance

The data in the above table of this report only applies to those items specifically listed on this report.

453.59237 g = 1 lb
28.349523125 g = 1 oz

The calibration of items is performed according to NISTIR 6969, SOP 8. Tolerances are applied from NISTHB 105-1.

Nominal Mass	Serial Number	Conventional Mass as Found	Tolerance ±	Expanded Uncertainty (U), (k=2), ±	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
2 lb	3A11 1	**907.119 g**	0.091 g	0.011 g	**907.119 g**	In Tolerance
2 lb	3A11 2	**907.131 g**	0.091 g	0.011 g	**907.131 g**	In Tolerance
2 lb	3A11 3	**907.144 g**	0.091 g	0.011 g	**907.144 g**	In Tolerance
2 lb	3A11 4	**907.120 g**	0.091 g	0.011 g	**907.120 g**	In Tolerance
2 lb	3A11 5	**907.137 g**	0.091 g	0.011 g	**907.137 g**	In Tolerance
2 lb	3A11 6	**907.123 g**	0.091 g	0.011 g	**907.123 g**	In Tolerance
2 lb	3A11 7	**907.132 g**	0.091 g	0.011 g	**907.132 g**	In Tolerance
2 lb	3A11 8	**907.132 g**	0.091 g	0.011 g	**907.132 g**	In Tolerance
2 lb	3A11 9	**907.129 g**	0.091 g	0.011 g	**907.129 g**	In Tolerance
2 lb	3A11 10	**907.143 g**	0.091 g	0.011 g	**907.143 g**	In Tolerance
2 lb	3A11 11	**907.129 g**	0.091 g	0.011 g	**907.129 g**	In Tolerance
2 lb	3A11 12	**907.123 g**	0.091 g	0.011 g	**907.123 g**	In Tolerance
2 lb	3A11 13	**907.134 g**	0.091 g	0.011 g	**907.134 g**	In Tolerance
2 lb	3A11 14	**907.148 g**	0.091 g	0.011 g	**907.148 g**	In Tolerance
1 lb	3A11 15	**453.5749 g**	0.070 g	0.0084 g	**453.5749 g**	In Tolerance
1 lb	3A11 16	**453.5509 g**	0.070 g	0.0084 g	**453.5509 g**	In Tolerance
0.3 lb	3A11	**136.0890 g**	0.027 g	0.0032 g	**136.0890 g**	In Tolerance
0.2 lb	3A11	**90.7135 g**	0.018 g	0.0021 g	**90.7135 g**	In Tolerance
0.1 lb	3A11	**45.3527 g**	0.0091 g	0.0011 g	**45.3527 g**	In Tolerance
0.05 lb	3A11	**22.67959 g**	0.0045 g	0.00055 g	**22.67959 g**	In Tolerance
0.03 lb	3A11	**13.60663 g**	0.0027 g	0.00032 g	**13.60663 g**	In Tolerance
0.02 lb	3A11	**9.07276 g**	0.0018 g	0.00022 g	**9.07276 g**	In Tolerance
0.01 lb	3A11	**4.53723 g**	0.0015 g	0.00018 g	**4.53723 g**	In Tolerance
0.005 lb	3A11	**2.26826 g**	0.0012 g	0.00015 g	**2.26826 g**	In Tolerance
0.003 lb	3A11	**1.36033 g**	0.00099 g	0.00012 g	**1.36033 g**	In Tolerance
0.002 lb	3A11	**0.90772 g**	0.00087 g	0.00011 g	**0.90772 g**	In Tolerance
0.001 lb	3A11	**0.453022 g**	0.00070 g	0.000094 g	**0.453022 g**	In Tolerance
0.001 lb	3A11 •	**0.453882 g**	0.00070 g	0.000094 g	**0.453882 g**	In Tolerance
8 oz	3A11	**226.7845 g**	0.045 g	0.0053 g	**226.7845 g**	In Tolerance
4 oz	3A11	**113.3994 g**	0.023 g	0.0028 g	**113.3994 g**	In Tolerance
2 oz	3A11	**56.6953 g**	0.011 g	0.0013 g	**56.6953 g**	In Tolerance
1 oz	3A11	**28.34446 g**	0.0054 g	0.00065 g	**28.34446 g**	***Rejected***
1/2 oz	3A11	**14.17316 g**	0.0028 g	0.00033 g	**14.17316 g**	In Tolerance
1/4 oz	3A11	**7.08675 g**	0.0017 g	0.00020 g	**7.08675 g**	In Tolerance
1/8 oz	3A11	**3.54244 g**	0.0013 g	0.00016 g	**3.54244 g**	***Rejected***
1/16 oz	3A11	**1.77247 g**	0.0011 g	0.00014 g	**1.77247 g**	In Tolerance
1/16 oz	3A11 •	**1.77201 g**	0.0011 g	0.00014 g	**1.77201 g**	In Tolerance

The data in the above table of this report only applies to those items specifically listed on this report.

453.59237 g = 1 lb

28.349523125 g = 1 oz

The calibration of items is performed according to NISTIR 6969, SOP 8. Tolerances are applied from NISTHB 105-1.

Nominal Mass	Serial Number	**Conventional Mass as Found**	Tolerance ±	Expanded Uncertainty (U), (k=2), ±	**Conventional Mass as Left**	Adjusted/ In Tolerance/ Rejected
2 lb	9-OPI-5 1	**907.181 g**	0.091 g	0.011 g	**907.181 g**	In Tolerance
2 lb	9-OPI-5 2	**907.176 g**	0.091 g	0.011 g	**907.176 g**	In Tolerance
2 lb	9-OPI-5 3	**907.172 g**	0.091 g	0.011 g	**907.172 g**	In Tolerance
1 lb	9-OPI-5	**453.5879 g**	0.070 g	0.0084 g	**453.5879 g**	In Tolerance
8 oz	9-OPI-5	**226.7925 g**	0.045 g	0.0053 g	**226.7925 g**	In Tolerance
4 oz	9-OPI-5	**113.3969 g**	0.023 g	0.0028 g	**113.3969 g**	In Tolerance
2 oz	9-OPI-5	**56.6981 g**	0.011 g	0.0013 g	**56.6981 g**	In Tolerance
1 oz	9-OPI-5	**28.34982 g**	0.0054 g	0.00065 g	**28.34982 g**	In Tolerance
1/2 oz	9-OPI-5	**14.17612 g**	0.0028 g	0.00033 g	**14.17612 g**	In Tolerance
1/4 oz	9-OPI-5	**7.08756 g**	0.0017 g	0.00020 g	**7.08756 g**	In Tolerance
1/8 oz	9-OPI-5	**3.54286 g**	0.0013 g	0.00016 g	**3.54286 g**	In Tolerance
1/16 oz	9-OPI-5	**1.77164 g**	0.0011 g	0.00014 g	**1.77164 g**	In Tolerance
1/16 oz	9-OPI-5 •	**1.77183 g**	0.0011 g	0.00014 g	**1.77183 g**	In Tolerance
0.2 lb	N-99-C	**90.7249 g**	0.018 g	0.0021 g	**90.7249 g**	In Tolerance
0.2 lb	N-99-C •	**90.7264 g**	0.018 g	0.0021 g	**90.7264 g**	In Tolerance
0.1 lb	N-99-C	**45.3629 g**	0.0091 g	0.0011 g	**45.3629 g**	In Tolerance
0.05 lb	N-99-C	**22.68075 g**	0.0045 g	0.00055 g	**22.68075 g**	In Tolerance
0.02 lb	N-99-C	**9.07114 g**	0.0018 g	0.00022 g	**9.07114 g**	In Tolerance
0.02 lb	N-99-C •	**9.07172 g**	0.0018 g	0.00022 g	**9.07172 g**	In Tolerance
0.01 lb	N-99-C	**4.53576 g**	0.0015 g	0.00018 g	**4.53576 g**	In Tolerance
0.005 lb	N-99-C	**2.26844 g**	0.0012 g	0.00015 g	**2.26844 g**	In Tolerance
0.002 lb	N-99-C	**0.90731 g**	0.00087 g	0.00011 g	**0.90731 g**	In Tolerance
0.002 lb	N-99-C •	**0.90730 g**	0.00087 g	0.00011 g	**0.90730 g**	In Tolerance
0.001 lb	N-99-C	**0.453662 g**	0.00070 g	0.000094 g	**0.453662 g**	In Tolerance

The data in the above table of this report only applies to those items specifically listed on this report.

453.59237 g = 1 lb

28.349523125 g = 1 oz

Uncertainty Statement:

The combined standard uncertainty includes the standard uncertainty reported for the standard, the standard uncertainty for the measurement process, the standard uncertainty for any uncorrected errors associated with buoyancy corrections(applies to mass values only), the standard uncertainty for any uncorrected errors associated with temperature correction(applies to length and volume values only), and a component of uncertainty to account for any observed deviations from NIST(The National Institute of Standards and Technology) values that are less than surveillance limits. The combined standard uncertainty is multiplied by a coverage factor of 2 to give an expanded uncertainty, which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the 1993 ISO Guide to the Expression of Uncertainty in Measurement and follows NISTIR 6969, SOP 29. The expanded uncertainty is not to be confused with a tolerance limit for the user during application.

Traceability Statement:

The Kansas Metrology Laboratory Standards are traceable to the SI through 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 laboratory test number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

Condition of Item(s) Submitted for Testing:

Minor wear.

Treatment of Item(s) before Testing:

Item(s) were tested as found.

Documentary Standards:

NIST Handbook 105 Series
NISTIR 6969: SOP 8, SOP 4, and/or SOP 7
OR
ASTM E 617-13 or OIML R 111-1 2004(E)

Environmental Conditions:

Temperature:	20.0 °C
Barometric Pressure:	730.08 mmHg
Relative Humidity:	44.4 %

Test Date: 2/10/2016
Due Date: 2/9/2017 -Per state statute K.S.A. 83-304(a).

Keith Arkenberg , Metrologist 2/15/2016

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Jackie McClaskey, Secretary

Governor Sam Brownback

Expires on: 2/9/2017

Kansas Metrology Laboratory
Calibration Report

Report Number: K15235-TM

Submitted by:

Nebraska Department Of Agriculture
Food Safety & Consumer Protection
P.O. Box 94757
Lincoln, NE 68509

Submitted on: 2/8/2016

Reference Number: AREA 15

Item(s)

Tested	Adjusted	Rejected
5	2	0

Quantity	Nominal Volume	Type
3	5 gal	Bottom Drop Test Measure "To Deliver"
2	5 gal	Handheld Test Measure "To Deliver"

The calibration of items is performed according to NISTIR 7383, SOP 19 Volume Transfer. Tolerances are applied from NISTHB 105-3. The volume applies when a 10 second drain is observed for 5 gallon hand held test measures. For 5 gallon bottom drop test measures and provers a 30 second drain applies. The drain time starts when the cessation of the main flow is observed.

Nominal Volume	Serial Number	Material	Cubical Coefficient of Expansion (/°F)	**Volume as Found @ 60 °F**	Tolerance ±	Expanded Uncertainty (U), (k=2.02), ±	**Volume as Left @ 60 °F**	Adjusted/ In Tolerance/ Rejected
5 gal	05-40547-01	Stainless Steel	0.0000265	**5.00006 gal**	0.00250 gal	0.00084 gal	**5.00006 gal**	In Tolerance
5 gal	05-40547-02	Stainless Steel	0.0000265	**4.99971 gal**	0.00250 gal	0.00084 gal	**4.99971 gal**	In Tolerance
5 gal	05-40547-03	Stainless Steel	0.0000265	**4.99971 gal**	0.00250 gal	0.00084 gal	**4.99971 gal**	In Tolerance
5 gal	39423 A	Stainless Steel	0.0000265	**5.00274 gal**	0.00250 gal	0.00085 gal	**4.99993 gal**	Adjusted
5 gal	39423 D	Stainless Steel	0.0000265	**5.00490 gal**	0.00250 gal	0.00085 gal	**5.00058 gal**	Adjusted

The data in the above table of this report only applies to those items specifically listed on this report.

1 m^3=1 000 L=264.1720 gal

Temperature Corrections

Item	Temperature °F	in^3
Temperature Correction for 5 gal Stainless Steel Test Measure (CCE= 0.0000265/°F)	-20	-2.45
	-15	-2.30
	-10	-2.14
	-5	-1.99
	0	-1.84
	5	-1.68
	10	-1.53
	15	-1.38
	20	-1.22
	25	-1.07
	30	-0.92
	35	-0.77
	40	-0.61
	45	-0.46
	50	-0.31
	55	-0.15
	60	0.00
	65	0.15
	70	0.31
	75	0.46
	80	0.61
	85	0.77
	90	0.92
	95	1.07
	100	1.22
	105	1.38
	110	1.53
	115	1.68
	120	1.84

Item	Temperature °F	in^3
Temperature Correction for 5 gal Low Carbon Steel Test Measure (CCE= 0.0000186/°F)	-20	-1.72
	-15	-1.61
	-10	-1.50
	-5	-1.40
	0	-1.29
	5	-1.18
	10	-1.07
	15	-0.97
	20	-0.86
	25	-0.75
	30	-0.64
	35	-0.54
	40	-0.43
	45	-0.32
	50	-0.21
	55	-0.11
	60	0.00
	65	0.11
	70	0.21
	75	0.32
	80	0.43
	85	0.54
	90	0.64
	95	0.75
	100	0.86
	105	0.97
	110	1.07
	115	1.18
	120	1.29

CCE = Coefficient of Cubical Expansion

Uncertainty Statement:

The combined standard uncertainty includes the standard uncertainty reported for the standards, the standard uncertainty for the measurement process, the standard uncertainty for the water density equation (Metrologia Tanaka, et al), the standard uncertainty for any uncorrected errors associated with temperature correction (applies to length and volume values only), the standard uncertainty for reading the meniscus (when applicable), the standard uncertainty for viscosity, and a component of uncertainty to account for any observed deviations from NIST(The National Institute of Standards and Technology) values that are less than surveillance limits. The combined standard uncertainty is multiplied by the coverage factor (k-value) reported to give an expanded uncertainty, which defines an interval having a level of confidence of 95.45 percent. The k-value reported is based on the effective degrees of freedom as outlined in JCGM 100:2008 section G.4. The expanded uncertainty presented in this report is consistent with the 1993 ISO Guide to the Expression of Uncertainty in Measurement and follows NISTIR 6969, SOP 29. The expanded uncertainty is not to be confused with a tolerance limit for the user during application.

Traceability Statement:

The Kansas Metrology Laboratory Standards are traceable to the SI through 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 laboratory test number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

Condition of Item(s) Submitted for Testing:

Minor wear.

Treatment of Item(s) before Testing:

Item(s) were tested as found.

Water Temperature at Time of Test:

70.50 °F

Documentary Standards:

-NIST Handbook 105-3 (2010)

-NISTIR 7383 (2013), SOP 19

Environmental Conditions:

Temperature:	21.56 °C
Barometric Pressure:	730.41 mmHg
Relative Humidity:	23.1 %

Test Date: 2/10/2016

Due Date: 2/9/2017 -Per state statute K.S.A. 83-304(a).

Keith Arkenberg , Metrologist 2/15/2016

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Jackie McClaskey, Secretary

Governor Sam Brownback

Test Date: 2/11/2016

Kansas Metrology Laboratory
Certificate of Calibration

Test No.: K15235-1.0

Nebraska Department Of Agriculture
Food Safety & Consumer Protection
301 Centennial Mall South
Lincoln NE 68509

Manufacturer: Rice Lake
S/N: K5 and K6
Number of Pieces: 2

Nominal Mass	Weight's Markings	Assumed Density (g/cm^3)	Conventional Mass As Found (g)	Conventional Mass As Left (g)	Expanded Uncertainty ± (mg)	In Tolerance Adjusted Rejected
2 kg	2 kg K5	7.95	2000.0004	2000.0004	3.7	In Tolerance
2 kg	2 kg K6	7.95	2000.0061	2000.0061	3.7	In Tolerance
4 kg	4 kg Combination*	7.95	4000.0051	4000.0051	3.7	In Tolerance

This document certifies the above mentioned artifacts were compared to the Standards of the State of Kansas which are traceable to the National Institute of Standards and Technology. The conventional mass is the weight in normal air (1.2 mg/cm^3) at 20 °C versus the reference density of 8.0 g/cm^3 Calibration of listed items was performed according to NISTIR 6969, SOP 4 (Double Substitution) and/or NISTIR 5672, SOP 5 (3-1).

Tolerances were evaluated to ASTM Class 4. Surface finish and magnetism were not evaluted as it is assumed to be done by the manufacturer.

* The 4 kg combination is a grouping of the two 2 kg standards listed above, K5 and K6

Uncertainty Statement:

The combined standard uncertainty includes the standard uncertainty reported for the; standards, tare weights, the standard uncertainty for the measurement process, the standard uncertainty for air buoyancy corrections as stated in OIML R111-1 [2004E] eq. C.6.3-1 , and a component of uncertainty to account for any observed deviations (Bias) from NIST (National Institute of Standards and Technology) values that are less than surveillance limits. Factors not considered in the evaluation: magnetism, weights are considered to meet magnetism specifications unless measurement aberrations are noted, balance eccentricity and linearity, these factors are considered as a part of the measurement assurance process when using a check standard with adequate degrees of freedom. The combined uncertainty is multiplied by the coverage factor (k-value) reported to give an expanded uncertainty, which defines an interval having a level of confidence of 95.45 percent. The coverage factor reported is based on the effective degrees of freedom as outlined in JCGM 100:2008 section G.4. The expanded uncertainty presented in this report is also consistent with and follows NISTIR 6969, SOP 29. The expanded uncertainty is not to be confused with a tolerance limit for the user during application.

Uncertainty Analysis:

Nominal	S_p	$u_{S\ (k=1)}$	$u_{tare\ (k=1)}$	$u_{Air\ Buoyancy\ Eq.}$	ρ_{air}	Procedure
2 kg	1.68	0.252	No Tare	-0.0297	1.16795	SOP 4
2 kg	1.68	0.252	No Tare	-0.0298	1.16805	SOP 4
4 kg	1.68	0.310	0.0535	-0.0741	1.16741	SOP 4

All values listed as a component of the overall uncertainty are in units of milligrams (mg) or (mg/cm^3).

Traceability Statement:

The Kansas Metrology Laboratory Standards are traceable to the SI through 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 laboratory test number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

Condition of Item(s) Submitted for Testing: Minor wear.
Treatment of Item(s) before Testing: Item(s) were tested as found.
Documentary Standards: NIST Handbook 105 Series, NISTIR 6969, SOP 4, NISTIR 5672, SOP 5, & ASTM E 617-13 or OIML R111-1

Item(s) Received on: 2/8/2016
Item(s) Acclimated: 2/8/2016 4:25:00 PM

Environmental Conditions:

Temperature	Barometric Pressure	Relative Humidity
20.3 °C	740.96 mmHg	45.4 %

Values are averages recorded over the duration of testing

2/15/2016
Keith Arkenberg , Metrologist **Date**

KML Software Version: 8.3

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Jackie McClaskey, Secretary

Governor Sam Brownback

Test Date: 2/12/2016

Kansas Metrology Laboratory
Certificate of Calibration

Test No.: K15235-1.1

Nebraska Department Of Agriculture
Food Safety & Consumer Protection
301 Centennial Mall South
Lincoln, NE 68509

Manufacturer: Troemner
S/N: FSCP-3A14
Number of Pieces: 13 of 25 Total

Nominal Mass	Weight's Markings	Assumed Density (g/cm^3)	Conventional Mass As Found (g)	Conventional Mass As Left (g)	Expanded Uncertainty ± (mg)	In Tolerance Adjusted Rejected
1 kg	1	8.03	1000.00185	1000.00185	0.16	In Tolerance
500 g	500	8.03	500.00088	500.00088	0.13	In Tolerance
200 g	200	8.03	200.000327	200.000327	0.093	In Tolerance
200 g	200 •	8.03	200.000326	200.000326	0.093	In Tolerance
100 g	100	8.03	100.000141	100.000141	0.018	In Tolerance
50 g	50	8.03	49.999978	49.999978	0.010	In Tolerance
20 g	20	8.03	20.0001002	20.0001002	0.0055	In Tolerance
20 g	20 •	8.03	20.0000213	20.0000213	0.0055	In Tolerance
10 g	10	8.03	10.0000453	10.0000453	0.0050	In Tolerance
5 g	5	8.03	5.0000288	5.0000288	0.0024	In Tolerance
2 g	2	8.03	2.0000256	2.0000256	0.0024	In Tolerance
2 g	2 •	8.03	2.0000129	2.0000129	0.0024	In Tolerance
1 g	1	8.03	1.0000310	1.0000310	0.0013	In Tolerance

This document certifies the above mentioned artifacts were compared to the Standards of the State of Kansas which are traceable to the National Institute of Standards and Technology. The conventional mass is the weight in normal air (1.2 mg/cm^3) at 20 °C versus the reference density of 8.0 g/cm^3 Calibration of listed items was performed according to NISTIR 6969, SOP 4 (Double Substitution) and/or NISTIR 5672, SOP 5 (3-1).

Tolerances were evaluated to OIML Class F_1. Surface finish and magnetism were not evaluted as it is assumed to be done by the manufacturer.

Uncertainty Statement:

The combined standard uncertainty includes the standard uncertainty reported for the; standards, tare weights, the standard uncertainty for the measurement process, the standard uncertainty for air buoyancy corrections as stated in OIML R111-1 [2004E] eq. C.6.3-1 , and a component of uncertainty to account for any observed deviations (Bias) from NIST (National Institute of Standards and Technology) values that are less than surveillance limits. Factors not considered in the evaluation: magnetism, weights are considered to meet magnetism specifications unless measurement aberrations are noted, balance eccentricity and linearity, these factors are considered as a part of the measurement assurance process when using a check standard with adequate degrees of freedom. The combined uncertainty is multiplied by the coverage factor (*k* -value) reported to give an expanded uncertainty, which defines an interval having a level of confidence of 95.45 percent. The coverage factor reported is based on the effective degrees of freedom as outlined in JCGM 100:2008 section G.4. The expanded uncertainty presented in this report is also consistent with and follows NISTIR 6969, SOP 29. The expanded uncertainty is not to be confused with a tolerance limit for the user during application.

Uncertainty Analysis:

Nominal	S_p	$u_{S\ (k=1)}$	$u_{tare\ (k=1)}$	$u_{Air\ Buoyancy\ Eq.}$	ρ_{air}	Procedure
1 kg	0.0553	0.0535	No Tare	-0.00997	1.17501	SOP 5
500 g	0.0538	0.0273	No Tare	-0.00776	1.17577	SOP 5
200 g	0.0408	0.0121	No Tare	-0.00312	1.17503	SOP 5
200 g	0.0408	0.0121	No Tare	-0.00311	1.17564	SOP 5
100 g	0.00151	0.00907	No Tare	-0.00156	1.17530	SOP 5
50 g	0.00238	0.00470	No Tare	-0.000750	1.17593	SOP 5
20 g	0.00158	0.00222	No Tare	-0.000298	1.17689	SOP 5
20 g	0.00158	0.00222	No Tare	-0.000299	1.17649	SOP 5
10 g	0.00160	0.00183	No Tare	-0.000151	1.17505	SOP 5
5 g	0.000695	0.000970	No Tare	-0.0000742	1.17449	SOP 5
2 g	0.00102	0.000495	No Tare	-0.0000294	1.17661	SOP 5
2 g	0.00102	0.000495	No Tare	-0.0000293	1.17722	SOP 5
1 g	0.000459	0.000455	No Tare	-0.0000148	1.17597	SOP 5

All values listed as a component of the overall uncertainty are in units of milligrams (mg) or (mg/cm^3).

Traceability Statement:

The Kansas Metrology Laboratory Standards are traceable to the SI through 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 laboratory test number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

Condition of Item(s) Submitted for Testing: Minor wear.
Treatment of Item(s) before Testing: **Weights had visible finger prints that were wiped clean using a dry cloth**
Documentary Standards: NIST Handbook 105 Series, NISTIR 6969, SOP 4, NISTIR 5672, SOP 5, & ASTM E 617-13 or OIML R111-1

Item(s) Received on: 2/8/2016
Item(s) Acclimated: 2/8/2016 4:25:00 PM

Environmental Conditions:

Temperature	Barometric Pressure	Relative Humidity
20.1 °C	744.61 mmHg	46.9 %

Values are averages recorded over the duration of testing

2/15/2016

Keith Arkenberg , Metrologist **Date**

KML Software Version: 9.2

Agricultural Laboratory
6531 SE Forbes Ave, Suite B
Topeka, Kansas 66619
(785) 296-7020

Kansas
Department of Agriculture
agriculture.ks.gov

Office of the Secretary
900 SW Jackson, Room 456
Topeka, Kansas 66612
(785) 296-3556

Jackie McClaskey, Secretary

Governor Sam Brownback

Test Date: 2/15/2016

Kansas Metrology Laboratory
Certificate of Calibration

Test No.: K15235-1.2

Nebraska Department Of Agriculture
Food Safety & Consumer Protection
301 Centennial Mall South
Lincoln NE 68509

Manufacturer: Troemner
S/N: FSCP-3A14
Number of Pieces: 12 of 25 total

Nominal Mass	Weight's Markings	Assumed Density (g/cm^3)	Conventional Mass As Found (g)	Conventional Mass As Left (g)	Expanded Uncertainty ± (mg)	In Tolerance Adjusted Rejected
500 mg	No Markings	7.95	0.5000137	0.5000137	0.0012	In Tolerance
200 mg	No Markings	7.95	0.20001474	0.20001474	0.00066	In Tolerance
200 mg	•	7.95	0.20001305	0.20001305	0.00066	In Tolerance
100 mg	No Markings	7.95	0.10001190	0.10001190	0.00073	In Tolerance
50 mg	No Markings	7.95	0.04999870	0.04999870	0.00042	In Tolerance
20 mg	No Markings	7.95	0.02001698	0.02001698	0.00028	In Tolerance
20 mg	•	7.95	0.02000207	0.02000207	0.00028	In Tolerance
10 mg	No Markings	7.95	0.01000801	0.01000801	0.00039	In Tolerance
5 mg	No Markings	2.7	0.00499804	0.00499804	0.00034	In Tolerance
2 mg	No Markings	2.7	0.00201004	0.00201004	0.00031	In Tolerance
2 mg	•	2.7	0.00200547	0.00200547	0.00031	In Tolerance
1 mg	No Markings	2.7	0.00101183	0.00101183	0.00039	In Tolerance

This document certifies the above mentioned artifacts were compared to the Standards of the State of Kansas which are traceable to the National Institute of Standards and Technology. The conventional mass is the weight in normal air (1.2 mg/cm^3) at 20 °C versus the reference density of 8.0 g/cm^3 Calibration of listed items was performed according to NISTIR 6969, SOP 4 (Double Substitution) and/or NISTIR 5672, SOP 5 (3-1).

Tolerances were evaluated to OIML Class F_1. Surface finish and magnetism were not evaluted as it is assumed to be done by the manufacturer.

Uncertainty Statement:

The combined standard uncertainty includes the standard uncertainty reported for the; standards, tare weights, the standard uncertainty for the measurement process, the standard uncertainty for air buoyancy corrections as stated in OIML R111-1 [2004E] eq. C.6.3-1 , and a component of uncertainty to account for any observed deviations (Bias) from NIST (National Institute of Standards and Technology) values that are less than surveillance limits. Factors not considered in the evaluation: magnetism, weights are considered to meet magnetism specifications unless measurement aberrations are noted, balance eccentricity and linearity, these factors are considered as a part of the measurement assurance process when using a check standard with adequate degrees of freedom. The combined uncertainty is multiplied by the coverage factor (k-value) reported to give an expanded uncertainty, which defines an interval having a level of confidence of 95.45 percent. The coverage factor reported is based on the effective degrees of freedom as outlined in JCGM 100:2008 section G.4. The expanded uncertainty presented in this report is also consistent with and follows NISTIR 6969, SOP 29. The expanded uncertainty is not to be confused with a tolerance limit for the user during application.

Uncertainty Analysis:

Nominal	S_p	$u_{S\ (k=1)}$	$u_{tare\ (k=1)}$	$u_{Air\ Buoyancy\ Eq.}$	ρ_{air}	Procedure
500 mg	0.000503	0.000255	No Tare	0.0000172	1.15071	SOP 5
200 mg	0.000284	0.000150	No Tare	0.00000685	1.15210	SOP 5
200 mg	0.000284	0.000150	No Tare	0.00000683	1.15250	SOP 5
100 mg	0.000324	0.000150	No Tare	0.00000343	1.15206	SOP 5
50 mg	0.000180	0.0000950	No Tare	0.00000172	1.15098	SOP 5
20 mg	0.000117	0.0000650	No Tare	0.000000686	1.15196	SOP 5
20 mg	0.000117	0.0000650	No Tare	0.000000684	1.15237	SOP 5
10 mg	0.000179	0.0000700	No Tare	0.000000346	1.15136	SOP 5
5 mg	0.000149	0.0000550	No Tare	0.00000546	1.15037	SOP 5
2 mg	0.000140	0.0000550	No Tare	0.00000219	1.15108	SOP 5
2 mg	0.000140	0.0000550	No Tare	0.00000219	1.15141	SOP 5
1 mg	0.000177	0.0000650	No Tare	0.00000109	1.15165	SOP 5

All values listed as a component of the overall uncertainty are in units of milligrams (mg) or (mg/cm^3).

Traceability Statement:

The Kansas Metrology Laboratory Standards are traceable to the SI through 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 laboratory test number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

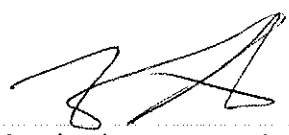
Condition of Item(s) Submitted for Testing: Minor wear.
Treatment of Item(s) before Testing: Item(s) were tested as found.
Documentary Standards: NIST Handbook 105 Series, NISTIR 6969, SOP 4, NISTIR 5672, SOP 5, & ASTM E 617-13 or OIML R111-1

Item(s) Received on: 2/8/2016
Item(s) Acclimated: 2/8/2016 4:25:00 PM

Environmental Conditions:

Temperature	Barometric Pressure	Relative Humidity
20.0 °C	729.82 mmHg	42.5 %

Values are averages recorded over the duration of testing



2/15/2016

Keith Arkenberg , Metrologist **Date**

KML Software Version: 8.3

RICE LAKE Traceable Calibration CERTIFICATE

ANSI/NCSL Z540-1-1994; Part 1 & ISO/IEC 17025 Accredited

Traceable Report Number: 2403877

Contractor: **STATE OF NEBRASKA**
PO BOX 94757
LINCOLN, NE 68509-0757

Purchase Order Number: 4024165256

Client: **STATE OF NEBRASKA**
PO BOX 94757
LINCOLN, NE 68509-0757

Date Received: 22 Feb 2016

Date Calibrated: 26 Feb 2016

Contractor Requested Recall Date: 1 year

Temperature Range: 19.98 °C

Pressure Range: 735.06 mmHg

Relative Humidity Range: 57.20 %

Air Density Range: 1.1591 mg/cm3

NIST Certificate Number: 684/286541-15,684/284451-14
Although there are two NIST numbers, one or both may apply.

Tested By: 22

Procedure: Modified Substitution (WI05-0023)

Description of Weights: 1/8 oz Satin Finish Weight, NIST Class F, S/N 6GTR.

			Conventional Mass Corr.										
Nominal Value		ID	As Found (mg)	As Found In Tol	As Left (mg)	As Left In Tol	Unc. (mg)	*k*	Tol.* (mg)	Balance Used	Standard Set Used	Assumed Density (g/cm3)
0.125	oz	6GTR.	0.26	Y	**0.26**	Y	0.16	2	1.3	638Q	D564Q	7.84

☐ This report contains data not covered by the NVLAP Accreditation if the box is checked.

Check with your local state agency for certification of compliance on Legal for Trade items.
The weight tolerance class is referenced in the Description of Weights. Unless otherwise noted, weights tested meet the requirements of the class.
*The specifications for the weight classes can be found in NIST Handbook 105-1, ASTM E-617 or OIML R111.

Prepared By:
Rice Lake Weighing Systems
230 West Coleman Street, Rice Lake, WI 54868 • USA
TEL: 715-234-9171 • FAX: 715-234-6967 • **www.ricelake.com**
An ISO 9001 registered company

Dated **26 Feb 2016**

Dan Demers, Metrologist

NVLAP Lab Code 105001-0

PN 64784 11/15

RICE LAKE Traceable Calibration CERTIFICATE

ANSI/NCSL Z540-1-1994; Part 1 & ISO/IEC 17025 Accredited

Traceable Report Number: 2403877A

Contractor: **STATE OF NEBRASKA**
PO BOX 94757
LINCOLN, NE 68509-0757

Purchase Order Number: 4024165256

Client: **STATE OF NEBRASKA**
PO BOX 94757
LINCOLN, NE 68509-0757

Date Received: 22 Feb 2016

Date Calibrated: 25 Feb 2016

Contractor Requested Recall Date: 1 year

Temperature Range: 20.12 °C

Pressure Range: 735.17 mmHg

Relative Humidity Range: 57.84 %

Air Density Range: 1.1586 mg/cm3

NIST Certificate Number: 684/286541-15,684/284451-14
Although there are two NIST numbers, one or both may apply.

Tested By: 22

Procedure: Modified Substitution (WI05-0023)

Description of Weights: 1 oz Satin Finish Weight, NIST Class F, S/N 6GTP.

Nominal Value	ID	Conventional Mass Corr. As Found (mg)	As Found In Tol	As Left (mg)	As Left In Tol	Unc. (mg)	*k*	Tol.* (mg)	Balance Used	Standard Set Used	Assumed Density (g/cm3)
1 oz	6GTP.	1.43	Y	**1.43**	Y	0.67	2	5.4	1221Q	D564Q	7.84

☐ This report contains data not covered by the NVLAP Accreditation if the box is checked.

Check with your local state agency for certification of compliance on Legal for Trade items.
The weight tolerance class is referenced in the Description of Weights. Unless otherwise noted, weights tested meet the requirements of the class.
*The specifications for the weight classes can be found in NIST Handbook 105-1, ASTM E-617 or OIML R111.

Prepared By:
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Dated 26 Feb 2016

Dan Demers, Metrologist

NVLAP Lab Code 105001-0

PN 64784 11/15