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Governor Sam Brownback

Expires on: 3/10/2017

Kansas Metrology Laboratory Calibration Report

Report Number: K15261

Submitted by:

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

Submitted on: 3/7/2016

Item(s)

Tested	Adjusted	Rejected
83	12	0

Quantity	Nominal Mass	Type
21	1 000 lb	Weight(s)
14	50 lb	Weight(s)
12	25 lb	Weight(s)
1	2 kg	Weight(s)
18	5 lb, 1 lb 8 oz to 1/6 oz	Weight Kit
17	1 kg to 100 g	Weight Kit

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Food Safety & Consumer Protection

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 \pm (NIST Class F)	Expanded Uncertainty (U), (k=2), \pm	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
1000 lb	WME1	453514.0 g	45 g	6.1 g	453593.3 g	Adjusted
1000 lb	WME10	453568.6 g	45 g	6.1 g	453568.6 g	In Tolerance
1000 lb	WME11	453576.3 g	45 g	6.1 g	453576.3 g	In Tolerance
1000 lb	WME12	453638.5 g	45 g	6.1 g	453593.6 g	Adjusted
1000 lb	WME13	453525.6 g	45 g	6.1 g	453592.4 g	Adjusted
1000 lb	WME14	453561.9 g	45 g	6.1 g	453561.9 g	In Tolerance
1000 lb	WME15	453566.1 g	45 g	6.1 g	453566.1 g	In Tolerance
1000 lb	WME17	453576.3 g	45 g	6.1 g	453576.3 g	In Tolerance
1000 lb	WME19	453562.6 g	45 g	6.1 g	453562.6 g	In Tolerance
1000 lb	WME2	453523.9 g	45 g	6.1 g	453593.0 g	Adjusted
1000 lb	WME20	453573.6 g	45 g	6.1 g	453573.6 g	In Tolerance
1000 lb	WME21	453651.1 g	45 g	6.1 g	453593.7 g	Adjusted

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

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Nominal Mass	Serial Number	Conventional Mass as Found	Tolerance \pm (NIST Class F)	Expanded Uncertainty (U), (k=2), \pm	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
1000 lb	WME22	453561.0 g	45 g	6.1 g	453561.0 g	In Tolerance
1000 lb	WME23	453516.2 g	45 g	6.1 g	453592.7 g	Adjusted
1000 lb	WME24	453556.7 g	45 g	6.1 g	453556.7 g	In Tolerance
1000 lb	WME3	453554.5 g	45 g	6.1 g	453554.5 g	In Tolerance
1000 lb	WME4	453577.2 g	45 g	6.1 g	453577.2 g	In Tolerance
1000 lb	WME5	453577.9 g	45 g	6.1 g	453577.9 g	In Tolerance
1000 lb	WME6	453522.6 g	45 g	6.1 g	453594.2 g	Adjusted
1000 lb	WME7	453539.0 g	45 g	6.1 g	453593.3 g	Adjusted
1000 lb	WME9	453562.7 g	45 g	6.1 g	453562.7 g	In Tolerance

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Nominal Mass	Serial Number	Conventional Mass as Found	Tolerance \pm (NIST Class F)	Expanded Uncertainty (U), (k=2), \pm	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
50 lb	A5C5	22679.43 g	2.3 g	0.32 g	22679.43 g	In Tolerance
50 lb	C-C1	22681.19 g	2.3 g	0.32 g	22681.19 g	In Tolerance
50 lb	C-C10	22680.77 g	2.3 g	0.32 g	22680.77 g	In Tolerance
50 lb	C-C13	22678.73 g	2.3 g	0.32 g	22678.73 g	In Tolerance
50 lb	C-C14	22679.61 g	2.3 g	0.32 g	22679.61 g	In Tolerance
50 lb	C-C15	22680.41 g	2.3 g	0.32 g	22680.41 g	In Tolerance
50 lb	C-C16	22680.39 g	2.3 g	0.32 g	22680.39 g	In Tolerance
50 lb	C-C18	22679.37 g	2.3 g	0.32 g	22679.37 g	In Tolerance
50 lb	C-C19	22679.78 g	2.3 g	0.32 g	22679.78 g	In Tolerance
50 lb	C-C2	22680.88 g	2.3 g	0.32 g	22680.88 g	In Tolerance
50 lb	C-C3	22678.93 g	2.3 g	0.32 g	22678.93 g	In Tolerance
50 lb	C-C4	22679.62 g	2.3 g	0.32 g	22679.62 g	In Tolerance
50 lb	C-C6	22681.78 g	2.3 g	0.32 g	22679.70 g	Adjusted
50 lb	C-C8	22677.56 g	2.3 g	0.32 g	22679.66 g	Adjusted

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Nominal Mass	Serial Number	Conventional Mass as Found	Tolerance \pm (NIST Class F)	Expanded Uncertainty (U), (k=2), \pm	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
25 lb	WM25-24	11338.85 g	1.1 g	0.17 g	11339.83 g	Adjusted
25 lb	WM-D51	11339.48 g	1.1 g	0.17 g	11339.48 g	In Tolerance
25 lb	WM-D52	11339.54 g	1.1 g	0.17 g	11339.54 g	In Tolerance
25 lb	WM-D53	11339.01 g	1.1 g	0.17 g	11339.01 g	In Tolerance
25 lb	WM-D54	11339.29 g	1.1 g	0.17 g	11339.29 g	In Tolerance
25 lb	WM-D55	11340.99 g	1.1 g	0.17 g	11339.78 g	Adjusted
25 lb	WM-D56	11339.07 g	1.1 g	0.17 g	11339.07 g	In Tolerance
25 lb	WM-D57	11339.96 g	1.1 g	0.17 g	11339.96 g	In Tolerance
25 lb	WM-D58	11339.16 g	1.1 g	0.17 g	11339.16 g	In Tolerance
25 lb	WM-D59	11340.04 g	1.1 g	0.17 g	11340.04 g	In Tolerance
25 lb	WM-D60	11340.68 g	1.1 g	0.17 g	11340.68 g	In Tolerance
25 lb	WM-D61	11340.15 g	1.1 g	0.17 g	11340.15 g	In Tolerance

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Nominal Mass	Serial Number	Conventional Mass as Found	Tolerance \pm (NIST Class F)	Expanded Uncertainty (U), (k=2), \pm	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
5 lb	WM-2C86 1	2267.843 g	0.23 g	0.027 g	2267.843 g	In Tolerance
5 lb	WM-2C86 2	2267.871 g	0.23 g	0.027 g	2267.871 g	In Tolerance
5 lb	WM-2C86 3	2267.848 g	0.23 g	0.027 g	2267.848 g	In Tolerance
5 lb	WM-2C86 4	2267.834 g	0.23 g	0.027 g	2267.834 g	In Tolerance
5 lb	WM-2C86 5	2267.830 g	0.23 g	0.027 g	2267.830 g	In Tolerance
1 lb	WM-2C86 6	453.5739 g	0.070 g	0.0084 g	453.5739 g	In Tolerance
1 lb	WM-2C86 7	453.5979 g	0.070 g	0.0084 g	453.5979 g	In Tolerance
1 lb	WM-2C86 8	453.5909 g	0.070 g	0.0084 g	453.5909 g	In Tolerance
1 lb	WM-2C86 9	453.6089 g	0.070 g	0.0084 g	453.6089 g	In Tolerance
1 lb	WM-2C86 10	453.6029 g	0.070 g	0.0084 g	453.6029 g	In Tolerance
8 oz	WM-2C86 11	226.8025 g	0.045 g	0.0053 g	226.8025 g	In Tolerance
4 oz	WM-2C86 12	113.4034 g	0.023 g	0.0028 g	113.4034 g	In Tolerance
2 oz	WM-2C86	56.7031 g	0.011 g	0.0013 g	56.7031 g	In Tolerance
1 oz	WM-2C86	28.34992 g	0.0054 g	0.00065 g	28.34992 g	In Tolerance
1/2 oz	WM-2C86	14.17527 g	0.0028 g	0.00033 g	14.17527 g	In Tolerance
1/4 oz	WM-2C86	7.08721 g	0.0017 g	0.00020 g	7.08721 g	In Tolerance
1/8 oz	WM-2C86	3.54329 g	0.0013 g	0.00016 g	3.54329 g	In Tolerance
1/16 oz	WM-2C86	1.77225 g	0.0011 g	0.00014 g	1.77225 g	In Tolerance

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Nominal Mass	Serial Number	Conventional Mass as Found	Tolerance \pm (NIST Class F)	Expanded Uncertainty (U), (k=2), \pm	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
2 kg	K1	1999.973 g	0.20 g	0.024 g	1999.973 g	In Tolerance

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Nominal Mass	Serial Number	Conventional Mass as Found	Tolerance \pm (NIST Class F)	Expanded Uncertainty (U), (k=2), \pm	Conventional Mass as Left	Adjusted/ In Tolerance/ Rejected
1 kg	WM2-89-5 1	1000.069 g	0.10 g	0.012 g	1000.069 g	In Tolerance
500 g	WM2-89-5 2	500.0381 g	0.070 g	0.0084 g	500.0381 g	In Tolerance
200 g	WM2-89-5 3	200.0153 g	0.040 g	0.0048 g	200.0153 g	In Tolerance
200 g	WM2-89-5 4	200.0082 g	0.040 g	0.0048 g	200.0082 g	In Tolerance
100 g	WM2-89-5 5	99.9935 g	0.020 g	0.0024 g	99.9935 g	In Tolerance
50 g	WM2-89-5 6	49.9974 g	0.010 g	0.0012 g	49.9974 g	In Tolerance
20 g	WM2-89-5	19.99951 g	0.0040 g	0.00047 g	19.99951 g	In Tolerance
20 g	WM2-89-5 •	19.99949 g	0.0040 g	0.00047 g	19.99949 g	In Tolerance
10 g	WM2-89-5	10.00034 g	0.0020 g	0.00024 g	10.00034 g	In Tolerance
5 g	WM2-89-5	4.99963 g	0.0015 g	0.00018 g	4.99963 g	In Tolerance
2 g	WM2-89-5	1.99971 g	0.0011 g	0.00014 g	1.99971 g	In Tolerance
2 g	WM2-89-5 •	2.00062 g	0.0011 g	0.00014 g	2.00062 g	In Tolerance
1 g	WM2-89-5	1.00012 g	0.00090 g	0.00011 g	1.00012 g	In Tolerance
500 mg	WM2-89-5	0.500402 g	0.00072 g	0.000096 g	0.500402 g	In Tolerance
200 mg	WM2-89-5	0.199908 g	0.00054 g	0.000078 g	0.199908 g	In Tolerance
200 mg	WM2-89-5 •	0.200278 g	0.00054 g	0.000078 g	0.200278 g	In Tolerance
100 mg	WM2-89-5	0.099896 g	0.00043 g	0.000067 g	0.099896 g	In Tolerance

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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: 21.0 °C
Barometric Pressure: 736.38 mmHg
Relative Humidity: 45.2 %

Test Date: 3/10/2016

Due Date: 3/10/2017 -Per state statute K.S.A. 83-304(a).

Keith Arkenberg , Metrologist

3/11/2016



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