| | /Λ | | | Director of Agriculture |
|--|---|--|---|---|
| NEBRASI | | Nebraska Standards Laboratory | , | Steve Wellman |
| Good Life, Great F | Poots | 3721 West Cuming St. Lincoln, NE 68524 | | P.O. Box 94947 Lincoln, NE 68509-4947 |
| OUUU LITE, OFEUUT | | (402)-471-2087 | | (402) 471-2341 |
| DEPARTMENT OF AGRIC | ULTURE | | | www.nda.nebraska.gov |
| | Calil | bration Certificate of | f Mass | |
| Calibration Date: | August 31, 2020 | | Certificate Number: | 2020-090-1 |
| Submitted By: | FSCP Area 50 | Point | of Contact: Tom Demuth | |
| <u> </u> | 3721 West Cuming St. | | Ph. 402-471-34 | 22 |
| | Lincoln, NE 68524 | | email: tom.demuth@r | nebraska.gov |
| | | | PO Number: N/A | 5 |
| Test Item(s): | (20)-25 & (2)-15 lb weight | -S | Date Receive | d: August 27, 2020 |
| Serial Number(s): | See Next Page | Artifact(s) Description: | ID / Asset Numbe | r: FSCP Area 50 |
| Manufacture: | Troemner | | Class Specificatio | n: NIST Class F |
| Condition: | Excelent (little wear) | | Materia | al: Cast Ion |
| Reference Standards U | sed: | Procedure Used: | Equipr | nent Used: |
| NSL lb standards | | NIST HB 6969, SOP 8 (2018) <u>Metrologist:</u> JPL | Mettler XPR320 | 03 |
| Environmental Cond. | Temp: 22.8 °C | Pressure: 727.2 mmHg Relativ | e Humidity: 48.7 % | |
| | Temp: 22.0 C | Pertinent Information | e numercy. +0.7 // | |
| except as noted. Ar maximum permissible e | n artifact is considered in-c rror. RED print indicates a ed in this report correlate 1 | een found and/or left within the maximum p compliance when the correction plus the me n out-of-compliance reading. All of the toler ASTM E617 (2018) and/or NIST HB 105-1 (20 to a "Conventional Mass" (CM), also known a s density and an air density of 1.2 mg/cm ³ a | asurement uncertainty is equ rances and specifications we 19). s "apparent mass", scale ver | ual to or less than the re evaluated according to |
| | | Traceability Statement | | |
| are traceable to th comprehensive measu | e International System of l urement assurance progran ory. The calibration numbe | peen compared to the Standards of the State Jnits (SI) through the National Institute of S n for ensuring continued accuracy and measure for this certificate is the only unique calib ability for the artifact(s) described in this ce | tandards and Technology (N urement traceability within ration number to be used in | IST) and are part of a the level of uncertainty |
| uncertainties for an uncorrected errors asso expanded uncertainty consistent with the C | y observed deviations from ociated with air buoyance c y, which defines an interval Guide to the Expression of | <u>Uncertainty Statement</u> acertainties reported for the standard, uncer a reference values which are less than surve corrections. The combined standard uncertain with a 95.45 percent level of confidence. T <i>Uncertainty in Measurement (2008, revised</i> e method of evaluation of uncertainty by the | illance limits and the standa inty is multiplied by a covera The expanded uncertainty pr 2012). Some components or | rd uncertainty for any $k = k + k$, to give the esented in this report is f the calibration can be |
| observations taken. Ma | agnetic testing has not bee | n performed, therefore, there are no compo | ments for the effects of it in | the uncertainty budget. |

NEBRASKA

Nebraska Standards Laboratory

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|---------------------|-----------------------|---|-------------------|--|-------------------|------------|---------------------------|---|
| | | ugust 31, 2020 | Certificat | te Numbe | | | | |
| 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) |
| <u>15 lb</u> | WM15-13 | -0.441 | N | -0.441 | 0.083 | 2 | 0.68 | 7.2 |
| 15 lb | WM15-14 | -0.031 | N | -0.031 | 0.083 | 2 | 0.68 | 7.2 |
| 25 lb | WM25-27 | 1.34 | Y | 0.09 | 0.14 | 2 | 1.1 | 7.2 |
| <u>25 lb</u> | WM25-29 | 0.32 | N | 0.32 | 0.14 | 2 | 1.1 | 7.2 |
| <u>25 lb</u> | WM25-42 | 0.86 | N | 0.86 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-44 | -0.24 | N | -0.24 | 0.14 | 2 | 1.1 | 7.2 |
| <u>25 lb</u> | WM25-65 | 0.61 | <u>N</u> | 0.61 | 0.14 | 2 | 1.1 | 7.2 |
| <u>25 lb</u> | WM25-66 | 0.94 | ř | -0.07 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-67 | 1.47 | Y | -0.15 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-68 | 0.60 | N | 0.60 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-69 | 1.62 | Y | 0.06 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-70 | 0.86 | N | 0.86 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-71 | 0.39 | N | 0.39 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-72 | 0.60 | N | 0.60 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-73 | 1.43 | Y | -0.44 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-74 | 0.71 | N | 0.71 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-106 | 0.97 | Y | 0.01 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-113 | 0.61 | N | 0.61 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-114 | 1.37 | Y | 0.06 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-116 | 0.29 | N | 0.29 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-117 | 0.02 | N | 0.02 | 0.14 | 2 | 1.1 | 7.2 |
| 25 lb | WM25-119 | 1.01 | Y | 0.15 | 0.14 | 2 | 1.1 | 7.2 |
| Conversion Fact | tors | | | | | | | |

Conversion Factors

1 ounce (avoirdupois) (oz) = 28.349 52 g

1 pound (avoirdupois) (lb) = 453.592 37 g exactly

lone P. 3

9/14/2020

Joel P. Lavicky Metrologist

Date of Issue

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| NEBRASKA | | | | irector of Agriculture |
|--|---|---|--|---|
| NLDHASKA | | ka Standards Lab | oratory | Steve Wellman |
| Cood Life Creat Deate | | 3721 West Cuming St. | | P.O. Box 94947 |
| Good Life. Great Roots | | Lincoln, NE 68524 | L | incoln, NE 68509-4947 |
| | · | (402)-471-2087 | | (402) 471-2341 |
| DEPARTMENT OF AGRICULTURE | | | | vw.nda.nebraska.gov |
| | Calibrati | on Certificate | e of Mass | |
| Calibration Date: Sep | tember 1, 2020 | | Certificate Number: | 2020-090-2 |
| | rea 50 /est Cuming St. 1, NE 68524 | <u><u> </u></u> | Point of Contact: Tom Demuth Ph. 402-471- <u>email:</u> tom.demuth@n <u>PO Number:</u> N/A | 3422 |
| Test Item(s): lb weigh Serial Number(s): 12A9 | nt kit | Artifact(s) Description: | Date Received ID / Asset Number | : August 27, 2020 : FSCP Area 50 |
| Manufacture: Troemn | er | | Class Specification | : NIST Class F |
| Condition: Good (se | ome wear) | | Material | : SS & AL |
| Reference Standards Used | : | Procedure Used: | Equipr | nent Used: |
| NSL lb standards | | NIST HB 6969, SOP 8 (2018) | | |
| | | <u>Metrologist:</u> JPL | Mettler AT 10 | 6 |
| Environmental Cond. Te | mp: 21.9 °C Pressure | e: 726.1 mmHg F | Relative Humidity: 44.9 % | |
| | | Pertinent Information | | |
| above, except as noted. An ar than the maximum permissi | tifact is considered in-cor ble error. RED print indic evaluaed according | mpliance when the correction ates an out-of-compliance r to ASTM E617 (2018) and NI | naximum permissible error for the on plus the measurement uncerta eading. All of the tolerances and ST HB 105-1 (2019). Iso known as "apparent mass", sc | inty is equal to or less specifications were |
| | - | nsity and an air density of 1. | | |
| | | Traceability Statement | | |
| | | • | of the State of Nebraska. The Stan al Institute of Standards and Tec | |

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.



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DEPARTMENT OF AGRICULTURE

| Calibra | ation Date: | September 1, | 2020 | | Certificate Number: 2020-090-2 | | | -090-2 |
|---------------------|-----------------------|---|-------------------|--|--------------------------------|------------|---------------------------|---|
| 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 | 0.014 | n | 0.014 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 2 | 0.038 | n | 0.038 | 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 | -0.0046 | n | -0.0046 | 0.0083 | 2 | 0.07 | 7.84 |
| 0.3 lb | | -0.0001 | n | -0.0001 | 0.0032 | 2 | 0.027 | 7.84 |
| 0.2 lb | | -0.0074 | n | -0.0074 | 0.0022 | 2 | 0.018 | 7.84 |
| 0.1 lb | | -0.0069 | n | -0.0069 | 0.0011 | 2 | 0.0091 | 7.84 |
| 0.05 lb | | 0.00261 | n | 0.00261 | 0.00054 | 2 | 0.0045 | 7.84 |
| 0.03 lb | | 0.00202 | n | 0.00202 | 0.00032 | 2 | 0.0027 | 7.84 |
| 0.02 lb | | 0.00036 | n | 0.00036 | 0.00022 | 2 | 0.0018 | 7.84 |
| 0.01 lb | | 0.00000 | n | 0.00000 | 0.00018 | 2 | 0.0015 | 7.84 |
| 0.005 lb | | -0.00038 | n | -0.00038 | 0.00014 | 2 | 0.0012 | 2.7 |
| 0.003 lb | | 0.00036 | n | 0.00036 | 0.00012 | 2 | 0.00099 | 2.7 |
| 0.002 lb | | 0.00070 | n | 0.00070 | 0.00011 | 2 | 0.00087 | 2.7 |
| 0.001 lb | | 0.000268 | n | 0.000268 | 0.000083 | 2 | 0.0007 | 2.7 |
| 0.001 lb | * | 0.000105 | n | 0.000105 | 0.000083 | 2 | 0.0007 | 2.7 |
| 8 oz | 5 | -0.0070 | n | -0.0070 | 0.0054 | 2 | 0.045 | 7.84 |
| 4 oz | 6 | -0.0088 | n | -0.0088 | 0.0028 | 2 | 0.023 | 7.84 |
| 2 oz | | 0.0057 | n | 0.0057 | 0.0013 | 2 | 0.011 | 7.84 |
| 1 oz | | -0.00006 | n | -0.00006 | 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 | | 0.00040 | n | 0.00040 | 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 | | 0.00030 | n | 0.00030 | 0.00013 | 2 | 0.0011 | 7.84 |
| 1/16 oz | * | 0.00034 | n | 0.00034 | 0.00013 | 2 | 0.0011 | 7.84 |

Conversion Factors

1 ounce (avoirdupois) (oz) = 28.349 52 g 1 pound (avoirdupois) (lb) = 453.592 37 g exactly

Jone P. 3

Joel P. Lavicky Metrologist

9/14/2020 Date of Issue

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| NEBRASKA | | | | Director of Agriculture | | | | | | | |
|--|--|---------------------------|--|--------------------------------------|--|--|--|--|--|--|--|
| NLDRAJA | | a Standards La | - | Steve Wellman | | | | | | | |
| Canal Life Creat Deate | 3 | 721 West Cuming St | • | P.O. Box 94947 | | | | | | | |
| Good Life. Great Roots | | Lincoln, NE 68524 | | Lincoln, NE 68509-4947 | | | | | | | |
| | 6. | (402)-471-2087 | | (402) 471-2341 | | | | | | | |
| DEPARTMENT OF AGRICULTURE | | | _ | www.nda.nebraska.gov | | | | | | | |
| | Calibration Certificate of Mass | | | | | | | | | | |
| Calibration Date: Sep | otember 1, 2020 | | Certificate Number: | 2020-090-3 | | | | | | | |
| | rea 50 /est Cuming St. n, NE 68524 | | Point of Contact: Tom Dem Ph. 402-4 email: tom.demut PO Number: N/A | 171-3422 h@nebraska.gov | | | | | | | |
| Test Item(s): Ib weigh | nt kit | | Date Recei | ved: August 27, 2020 | | | | | | | |
| Serial Number(s): 9-OPI-3 | - | Artifact(s) Description | <u> </u> | ber: FSCP Area 50 | | | | | | | |
| Manufacture: Troemn | er | | Class Specificat | cion: NIST Class F | | | | | | | |
| Condition: Good (s | ome wear) | | Mate | rial: SS & AL | | | | | | | |
| Reference Standards Used | : | Procedure Used: | Equ | uipment Used: | | | | | | | |
| NSL lb standards | | IIST HB 6969, SOP 8 (201 | 8) Sartorius CC | 1201 Sartorius CCE6 | | | | | | | |
| | | Metrologist: | Mettler A | Г 106 | | | | | | | |
| | | JPL | | | | | | | | | |
| Environmental Cond. Te | mp: 22 °C Pressure | : 726.8 mmHg | Relative Humidity: 45.3 % | 6 | | | | | | | |
| | | Pertinent Information | | | | | | | | | |
| above, except as noted. An ar | tifact is considered in-com ible error. RED print indica | pliance when the correc | e maximum permissible error for tion plus the measurement unce e reading. All of the tolerances a NIST HB 105-1 (2019). | ertainty is equal to or less | | | | | | | |
| All corrections stated in the state of | reference mass dens | ity and an air density of | - | , scale verses 8.0 g/cm ³ | | | | | | | |
| 1 | | Fraceability Statemer | ແ | | | | | | | | |

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.



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Nebraska Standards Laboratory

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| DEPARTMENT | OF AGRICULTURE | |
|------------|----------------|--|
| | | |

| Calibrat | ion Date: | September 1, 2020 | | | Certificate Number: 2020-090-3 | | | |
|--------------|-----------------------|--|-------------------|---|--------------------------------|------------|---------------------------|---|
| | | | C | alibration Result | S | | | |
| 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 | 0.039 | n | 0.039 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 2 | -0.047 | n | -0.047 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 3 | -0.035 | n | -0.035 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 4 | -0.047 | n | -0.047 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 5 | -0.018 | n | -0.018 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 6 | -0.009 | n | -0.009 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 7 | 0.004 | n | 0.004 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 8 | -0.044 | n | -0.044 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 9 | -0.017 | n | -0.017 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 10 | 0.005 | n | 0.005 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 11 | -0.031 | n | -0.031 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 12 | -0.027 | n | -0.027 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 13 | -0.016 | n | -0.016 | 0.011 | 2 | 0.091 | 7.84 |
| 2 lb | 14 | 0.015 | n | 0.015 | 0.011 | 2 | 0.091 | 7.84 |
| 1 lb | 2 | -0.0335 | n | -0.0335 | 0.0083 | 2 | 0.07 | 7.84 |
| 1 lb | 15 | -0.0433 | n | -0.0433 | 0.0083 | 2 | 0.07 | 7.84 |
| 0.3 lb | | -0.0193 | n | -0.0193 | 0.0032 | 2 | 0.027 | 7.84 |
| 0.2 lb | | -0.0144 | n | -0.0144 | 0.0022 | 2 | 0.018 | 7.84 |
| 0.1 lb | | -0.0020 | n | -0.0020 | 0.0011 | 2 | 0.0091 | 7.84 |
| 0.05 lb | | 0.00156 | n | 0.00156 | 0.00054 | 2 | 0.0045 | 7.84 |
| 0.03 lb | | -0.00207 | n | -0.00207 | 0.00032 | 2 | 0.0027 | 7.84 |
| 0.02 lb | | 0.00010 | n | 0.00010 | 0.00022 | 2 | 0.0018 | 7.84 |
| 0.01 lb | | -0.00063 | n | -0.00063 | 0.00018 | 2 | 0.0015 | 7.84 |
| 0.005 lb | | 0.00027 | n | 0.00027 | 0.00014 | 2 | 0.0012 | 2.7 |
| 0.003 lb | | 0.00071 | n | 0.00071 | 0.00012 | 2 | 0.00099 | 2.7 |
| 0.002 lb | | -0.00048 | n | -0.00048 | 0.00011 | 2 | 0.00087 | 2.7 |
| 0.001 lb | | 0.000539 | n | 0.000539 | 0.000083 | 2 | 0.0007 | 2.7 |
| 0.001 lb | * | -0.000172 | n | -0.000172 | 0.000083 | 2 | 0.0007 | 2.7 |
| 8 oz | | -0.0026 | n | -0.0026 | 0.0054 | 2 | 0.045 | 7.84 |
| 4 oz | | -0.0093 | n | -0.0093 | 0.0028 | 2 | 0.023 | 7.84 |
| 2 oz | | -0.0018 | n | -0.0018 | 0.0013 | 2 | 0.011 | 7.84 |
| 1 oz | | 0.00057 | n | 0.00057 | 0.00064 | 2 | 0.0054 | 7.84 |
| 1/2 oz | | 0.00068 | n | 0.00068 | 0.00034 | 2 | 0.0028 | 7.84 |
| 1/4 oz | | -0.00032 | n | -0.00032 | 0.00021 | 2 | 0.0017 | 7.84 |
| 1/8 oz | | 0.00027 | n | 0.00027 | 0.00016 | 2 | 0.0013 | 7.84 |
| 1/16 oz | | 0.00065 | n | 0.00065 | 0.00013 | 2 | 0.0011 | 7.84 |
| 1/16 oz | * | -0.00012 | n | -0.00012 | 0.00013 | 2 | 0.0011 | 7.84 |
| 1,10 02 | | 0.00012 | | 0100012 | 0100010 | - | 010011 | , 10 1 |

Conversion Factors

1 ounce (avoirdupois) (oz) = 28.349 52 g

1 pound (avoirdupois) (lb) = 453.592 37 g exactly

e P.3

Joel P. Lavicky Metrologist

9/14/2020 Date of Issue

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|---|-------------------|---|----------|--|---|---|-----------------|--------------|--|
| Calibration Da | ite: | 9/3/2020 Certificate of Calibration of Volume Transfer Certificate Number: | | | | | Number: | 2020-090-4 | |
| | | | Items Su | bmitted: | | Submitted By: | FSCP Area 50 | | |
| | Quantity | Nominal Volume | Manu | ufacturer | Туре | 3721 West Cuming St. Lincoln, NE 68524 | | | |
| | 2 | 5 gal | Se | raphin | Test Measure 4" Neck | | | | |
| | | | | - | | | ska.gov | | |
| | Nominal Volume | Serial Number | Material | Cubical Coefficient of Expansion (/°F) | Fest Results As Found Volume Delivered @ 60 °F | As left Volume Delivered @ 60 °F | Uncertainty (U) | (<i>k</i>) | 1 |
| | 5 gal | 39423-E | SS | 0.0000265 | 4.9986 gal | 4.9986 gal | 0.0013 gal | 2.08 | |
| | 5 gal | 39423-F | SS | 0.0000265 | 5.0007 gal | 5.0007 gal | 0.0013 gal | 2.08 | 1 |

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 a 30 second drain time would apply.

Conversion Factors:

 $1 \text{ gal} = 231 \text{ in}^3$ 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. All of the tolerances and specifications were evaluated according to NIST HB 105-3 (2010).

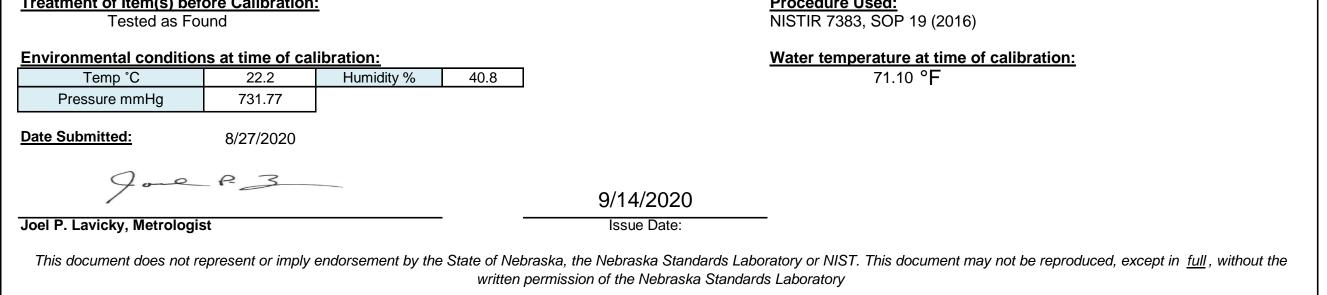
Condition of Item(s) Submitted for Calibration:

Good

Laboratory Reference Standard Used; 5 gal SP NE 1586

Treatment of Item(s) before Calibration:

Procedure Used:



| NEBRASKA Nebraska Standards Laboratory Good Life. Great Roots. 3721 West Cuming St. Lincoln, NE 68524 (402) 471-2087 Calibration Date: 9/8/2020 Certificate of Calibration of Volume Transfer Certificate Nu | | | | | | | Lincol WWW.r Certificate Number: 20 | |
|--|-------------------|----------|---|--|---|--------------------------------|-------------------------------------|---|
| Quanti | Nominal | | ubmitted: | Туре | Submitted By: | 3721 West Cumir | 0 | |
| 3 | y Volume 5 gal | | SMI | "Special" J Prover | POC: | Lincoln, NE 68524 | 4 | |
| | | | Te | est Results | | 402-471-3422 tom.demuth@net | oraska.gov | |
| Nomin Volum | Serial Number | Material | Cubical Coefficient of Expansion (/°F) | As Found Volume Delivered @ 60 °F | As left Volume Delivered @ 60 °F | Uncertainty (U) | (<i>k</i>) | |
| 5 gal | 0236 | SS | 0.0000265 | 5.0010 gal | 5.0010 gal | 0.0012 gal | 2.03 | |
| 5 gal | 0237 | SS | 0.0000265 | 5.0006 gal | 5.0006 gal | 0.0012 gal | 2.03 |] |
| 5 gal | 0238 | SS | 0.0000265 | 5.0000 gal | 5.0000 gal | 0.0012 gal | 2.03 | 1 |
| - 9 | | | | lies to those items | | - | | 1 |

Volume delivered at 60°F after a 30 second pour and 10 second drain for test measures. For provers 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 incompliance when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error. All of the tolerances and specifications were evaluated according to NIST HB 105-3 (2010).

Condition of Item(s) Submitted for Calibration:

Laboratory Reference Standard Used;

Good

Treatment of Item(s) before Calibration:

Tested as Found

Environmental conditions at time of calibration:

| Temp °C | 23.2 | Humidity % | 40.6 |
|---------------|--------|------------|------|
| Pressure mmHg | 731.77 | | |

Date Submitted: 8/27/2020

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Joel P. Lavicky, Metrologist

9/14/2020

Issue Date:

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5 gal SP NE 1586

Procedure Used: NISTIR 7383, SOP 19 (2016)

Water temperature at time of calibration: 72.43 °F