| NEBRAS | KA | Nebi | raska Standards Labord | atorv | Director of Agriculture Sherry Vinton | | |
|--------------------------|----------------------|---------------------|---|---|---|--|--|
| Good Life. Great F | | | 3721 West Cuming St. Lincoln, NE 68524 | 2 | P.O. Box 94947 Lincoln, NE 68509-4947 | | |
| | | | (402)-471-2087 | | (402) 471-2341 | | |
| DEPARTMENT OF AGRIC | CULTURE | Calibrat | ion Cortificat | | www.nda.nebraska.gov | | |
| | | Calibrat | ion Certificat | - | | | |
| Calibration Date: | July 24, 2023 | | | Certificate Number: | 2023-104-1 | | |
| Submitted By: | FSCP Area 80 | | | Point of Contact: Seth Buck | | | |
| | 3721 West Cumi | ng St. | | Ph. 402-471-3 | 3422 | | |
| | Lincoln, NE 6852 | 24 | | email: seth.buck@ne | ebrska.gov | | |
| | | | | PO Number: N/A | | | |
| | : 22-Avoirdupois v | weights | | Date Receiv | red: July 24, 2023 | | |
| ID / Asset Number | | | Artifact(s) Description: | | (s): See Next Page | | |
| Manufacture | | | | | ion: NIST Class F | | |
| Material | : Cast Iron | | | Condit | ion: Good (some wear) | | |
| Reference Standards L | Jsed: | | Procedure Used: | <u>Equi</u> | pment Used: | | |
| NSL lb standards | | | NIST HB 6969, SOP 8 (2019) | Mettler XPR32 | .003 | | |
| | | | <u>Metrologist:</u> JPL | | | | |
| | | | JFL | | | | |
| Environmental Cond. | Temp: | 24.1 °C Pressure | ç | Relative Humidity: 54.8 % | | | |
| | | | Pertinent Information | | | | |
| | | | | m permissible error for the specifi urement uncertainty is equal to or | | | |
| | | - | - | the Laboratory to adjust the artif | | | |
| - | | | - | f the tolerances and design specifi | | | |
| hardness and ma | agnetism) were ev | aluated according | to ASTM E617 (2018) and/or N | NST HB 105-1 (2019) for the artifa | cts designated class. | | |
| | | | | | | | |
| • All corrections sta | ated in this report | | nventional Mass" (CM), also k and an air density of 1.2 mg | nown as "apparent mass", scale ve /cm³ at 20 °C. | erses 8.0 g/cm ³ reference | | |
| | | | | ements outlined in NIST Handbook ercial (Legal for Trade) scales. | x 44 (2022), | | |
| | | | Traceability Statement | | | | |
| The artifact(s) describe | d in this certificat | e have been compa | ared to the Standards of the | State of Nebraska. The Standards | of the State of Nebraska are | | |
| | | | | dards and Technology (NIST) and a | | | |
| | | - | | raceability within the level of unc nber to be used in referencing me | | | |
| taboratory. The calibra | action number for t | | tifact(s) described in this cer | - | astrement traceability for | | |
| | | | | | | | |
| | | | Uncertainty Statement | | | | |
| | | | • | , uncertainties associated with the | | | |
| | | | | n surveillance limits and the stand Incertainty is multiplied by a cover | | | |
| | | | | ence. The expanded uncertainty p | | | |
| consistent with the | Guide to the Exp | ression of Uncertai | nty in Measurement (2008, re | evised 2012). Some components of | of the calibration can be | | |
| _ | | | | by the statistical analysis (standa | | | |
| UDSELVALIUNS LAKEN. N | המצווכנול נפגנוווא ח | as not been perioff | nea, mereiore, mere dre no | components for the effects of it i | n the uncertainty budget. | | |
| | | | | | | | |
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Nebraska Standards Laboratory

3721 West Cuming St. Lincoln, NE 68524 (402)-471-2087 Director of Agriculture Sherry Vinton P.O. Box 94947 Lincoln, NE 68509-4947 (402) 471-2341 www.nda.nebraska.gov

Good Life. Great Roots.

DEPARTMENT OF AGRICULTURE

| Calibrati | ion Date: Ju | y 24, 2023 | | | Certificat | e Numbe | r: 2023-104- | 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/cm³) |
| 15 lb | WM15-11 | -0.420 | Ν | -0.420 | 0.085 | 2.01 | 0.68 | 7.2 |
| 15 lb | WM15-12 | -0.220 | N | -0.220 | 0.085 | 2.01 | 0.68 | 7.2 |
| 25 lb | NE-1 | -1.04 | Y | 0.06 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | NE-2 | -0.95 | Y | 0.32 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | NE-3 | -0.44 | N | -0.44 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | NE-4 | -1.03 | Y | 0.10 | 0.14 | 2.01 | 1.1 | 7.2 |
| <u>25 lb</u> | <u>NE-5</u> | -0.70 | N | -0.70 | 0.14 | 2.01 | 1.1 | 7.2 |
| <u>25 lb</u> | <u>NE-6</u> | -1.00 | Y | 0.05 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | NE-7 | -0.22 | N | -0.22 | 0.14 | 2.01 | 1.1 | 7.2 |
| <u>25 lb</u> | <u>NE-8</u> | -0.07 | N | -0.07 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | <u>NE-9</u> | -0.69 | N | -0.69 | 0.14 | 2.01 | 1.1 | 7.2 |
| <u>25 lb</u> | <u>NE-10</u> | -0.18 | N | -0.18 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | <u>NE-11</u> | -0.55 | <u>N</u> | -0.55 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | <u>NE-12</u> | -0.27 | <u>N</u> | -0.27 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | NE-13 | -0.27 | <u>N</u> | -0.27 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | <u>NE-14</u> | -0.18 | N | -0.18 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | NE-15 | -0.34 | N | -0.34 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | <u>NE-16</u> | -0.88 | N | -0.88 | 0.14 | 2.01 | 1.1 | <u>7.2</u> 7.2 |
| 25 lb | NE-17 | -0.65 | N | -0.65 | 0.14 | 2.01 | 1.1 | |
| 25 lb | NE-18 | -0.44 | <u>N</u> | -0.44 | 0.14 | 2.01 | 1.1 | 7.2 |
| 25 lb | NE-19 | -0.41 | <u>N</u> | -0.41 | 0.14 | 2.01 | <u> </u> | 7.2 |
| 25 lb | NE-20 | -0.11 | IN | -0.11 | 0.14 | 2.01 | 1.1 | 1.4 |

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

8/9/2023

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 <u>all</u> pages. This document may not be reproduced except in <u>full</u>, without the written consent of the Nebraska Standards Laboratory.

Nebraska Standards Laboratory

| <text><text><text><text><text></text></text></text></text></text> | Nebraska Standards Laboratory Director of Agriculture | | | | | | | | | |
|---|--|---|---|--|---|--|---|---|---|--|
| Beta Production Disc. 7.04020 Cathrien on Line | | | | | Li | ncoln, NE 68524 | | | | Sherry Vinton P.O. Box 9494 incoln, NE 68509-494 |
| Outward reference Outward refere | DEPARTMENT O | FAGRICULTURE | | | _ | | - | | w | . , |
| | Calibratio | on Date: | 7/24/2023 | | | | on | Certifi | cate Number: | 2023-104-2 |
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| <text><text><text><text></text></text></text></text> | | | | Items Subm | itted: | | Submitted By: | | ving St | |
| <form> </form> | | Quantity | Nominal Volume | Manu | facturer | Туре | | | • | |
| <text></text> | | 2 | 5 gal | Ser | aphin | Test Measure 4" Neck | POC: | Sam White | | |
| The result Invariant on the standard in the standard interest of the standard of the standard interest | | | | | | • | | | obrocko dov | |
| with the series of the seri | | | | | Te | st Results | T | Samuel.winteen | icorasita.gov | |
| | | | Serial Number | Material | Coefficient of | Volume Delivered @ | Volume Delivered @ | Uncertainty (U) | (<i>k</i>) | |
| The data in this report only applies to three items specifically listed on this report. True 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: | | 5 gal | 4393-5-B | SS | 0.0000265 | 4.9993 gal | 4.9993 gal | 0.0012 gal | 2.02 | |
| 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. Second 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. Pig = 21° f | | 5 gal | 39423-C | SS | 0.0000265 | 5.0010 gal | 5.0010 gal | 0.0012 gal | 2.02 | |
| Image: Sector | | | | The data in th | nis report only ap | oplies to those items s | pecifically listed on this | s report. | | |
| 1 gal = 231 m² 1 gal = 3.785 412 E-03 m² Fraceability 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 on Junis (S) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assume program for ensuring continued accuracy and neasurement traceability of the He eV of uncertainty reported by this laboratory. The calibration number for this report is the only unique calibration number to be used in referencing neasurement traceability to the artifact(s) described in this report. International 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 uncerrected errors. The combined standard uncertainty is multiplied by a coverage fact (A) to go the expanded uncertainty, includes uncertainty with a Galaxa the Standard Uncertainty in Measurement (2006, revised 2012). Some components of the calibration can be evaluated through a Type A evaluation, or the method of evaluation of meetainty by the statistical analysis (standard deviation) from the doservations take. Partient Information: Evaluation for the tostration 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. It is the decision of the Laboratory to adjust the artifact(s) when the sum of he correction and uncertainty for Calibration: The cartificion listed above have been found and/or left wi | | Volume d | lelivered at 60°F after a 30 | second pour a | and 10 second d | rain for test measures | . For provers a 30 sec | ond drain time wo | ould apply. | |
| harding of the result of the second of the second of the standards of the State of Nebraska. The Standards of the State of Nebraska are traceable to the International System Initia (S) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and neasurement traceability for the artifact(s) described in this report. http://www.international.international institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and neasurement traceability for the artifact(s) described in this report. http://www.international.international institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and neasurement traceability for the artifact(s) described in this report. http://www.international.international institute of Standards and Technology (NIST) and are part of a comprehensive measurement process, uncertainties for any observed deviations from the combined standard uncertainty is multiplied by a coverage fact, by the statistical analysis (standard deviation) from the observations taken. Partient Information Partient Information Technology the statistical analysis (standard deviation) from the observations taken. Partient Information Technology the statistical analysis (standard deviation) from the observations taken. Partient Information Technology the statistical analysis (standard deviation) from the observations taken. Partient Information Technology the statistical analysis (standard deviation) from the observations taken. Partient Information Technology the statistical analysis (standard deviation) form the correction and uncertainty exceed 95% of the maximum permissible error for the specification stated above, except as noted. An artifact is considered in-compliance the correction plus the measurement uncertainty includes astander taken. | | 1 gal = 3.785 4 | 12 E-03 m³ | | | | | | | |
| Julis (S) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and neasurement taxeability for the artifact(s) described in this report. Interstitut Statement: The combined standard uncertainty includes uncertainties reported for the standard, uncertainty for any uncorrected errors. The combined standard uncertainty is multiplied by a coverage fact (s) to gue the expanded uncertainty, which defines an interval with a '8 5.4 percent level of confidence. The expanded uncertainty is multiplied by a coverage fact (s) to gue the expanded uncertainty, which defines an interval with a '8 5.4 percent level of confidence. The expanded uncertainty is multiplied by a coverage fact (s) to gue the expanded uncertainty, which defines an interval with a '8 5.4 percent level of confidence. The expanded uncertainty 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 is equal to or less than the maximum permissible error. It is the decision of the Laboratory to adjust the artifact(s) when the sum of the correction plus the measurement uncertainty is equal to or less than the maximum permissible error. It is the decision of the Laboratory to adjust the artifact(s) when the sum of the correction plus the measurement and the 's is found and'or left within the maximum permissible error. It is the decision of the Laboratory to adjust the artifact(s) when the sum of the correction plus the measurement process. Condition of term(s) Submitted for Calibration: Laboratory Reference Standard Used; Cleaned and ready for calibration: 5 ga ISP NE 1586 | raceability Stat | ement: | | | | | | | | |
| 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 the torrection plus the measurement uncertainty is equal to or less than the maximum permissible error. It is the decision of the Laboratory to adjust the artifact(s) when the sum of the correction and uncertainty exceed 95% of the maximum permissible error. All of the tolerances and specifications were evaluated according to NIST HB 105-3 (2010). | neasurement trac <u>Uncertainty Stat</u> The combined stat (rom reference val (k), to give the exp he Expression of | eability for the a ement: Indard uncertain lues which are le banded uncertain Uncertainty in M | rtifact(s) described in this ty includes uncertainties r ass than surveillance limits nty, which defines an inter leasurement (2008, revise | report. eported for the s and the stand rval with a 95.4 ed 2012). Som | standard, uncer lard uncertainty 5 percent level o le components o | rtainties associated wit for any uncorrected er of confidence. The exp | th the measurement pr rors. The combined st panded uncertainty pres | ocess, uncertain andard uncertaint sented in this rep | ties for any obs ty is multiplied to ort is consisten | served deviations by a coverage factor t with the Guide to |
| when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error. It is the decision of the Laboratory to adjust the artifact(s) when the sum of the correction and uncertainty exceed 95% of 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: Cleaned and ready for calibration Laboratory Reference Standard Used: 5 gal SP NE 1586 Treatment of Item(s) before Calibration: Tested as Found Procedure Used: NISTIR 7383, SOP 19 (2019) Converted in the of calibration: Temp 'C 24.2 Temp 'C 24.2 Humidity % 55.5 Pressure mmHg 729.10 Condition for the Laboratory or NIST. This document may not be reproduced, except in full This document does not represent or imply endorsement by the State of Nebraska, the Nebraska Standards Laboratory or NIST. This document may not be reproduced, except in full | | | | · · | | | | | | |
| Cleaned and ready for calibration 5 gal SP NE 1586 Treatment of Item(s) before Calibration: Procedure Used: Tested as Found NISTIR 7383, SOP 19 (2019) Environmental conditions at time of calibration: Water temperature at time of calibration: Temp °C 24.2 Humidity % 55.5 Pressure mmHg 729.10 Date Submitted: 7/24/2023 Joel P. Lavicky, Metrologist State of Nebraska, the Nebraska Standards Laboratory or NIST. This document may not be reproduced, except in full | when the correction | on plus the meas | surement uncertainty is eq | ual to or less th | han the maximur | m permissible error. It | is the decision of the L | aboratory to adju | st the artifact(s |) when the sum of |
| Tested as Found NISTIR 7383, SOP 19 (2019) Environmental conditions at time of calibration: Water temperature at time of calibration: Temp °C 24.2 Humidity % 55.5 Pressure mmHg 729.10 Date Submitted: 7/24/2023 Jone R J 8/9/2023 Joel P. Lavicky, Metrologist Issue Date: This document does not represent or imply endorsement by the State of Nebraska, the Nebraska Standards Laboratory or NIST. This document may not be reproduced, except in full | | | | | | | | ce Standard Use | ed; | |
| Temp °C 24.2 Humidity % 55.5 67.15 °F Pressure mmHg 729.10 | Treatment of Iter | | | | | | | 9 (2019) | | |
| Pressure mmHg 729.10 Date Submitted: 7/24/2023 Description 8/9/2023 Jone P. Javicky, Metrologist Issue Date: This document does not represent or imply endorsement by the State of Nebraska, the Nebraska Standards Laboratory or NIST. This document may not be reproduced, except in full | Environmental c | onditions at tin | ne of calibration: | | | | Water temperature a | at time of calibra | ation: | |
| Date Submitted: 7/24/2023 Jone R J 8/9/2023 Joel P. Lavicky, Metrologist Issue Date: This document does not represent or imply endorsement by the State of Nebraska, the Nebraska Standards Laboratory or NIST. This document may not be reproduced, except in full | Temp °C | 24.2 | | 55.5 |] | | | | | |
| Jone P. Javicky, Metrologist 8/9/2023 Joel P. Lavicky, Metrologist Issue Date: This document does not represent or imply endorsement by the State of Nebraska, the Nebraska Standards Laboratory or NIST. This document may not be reproduced, except in <u>full</u> | | | L | | | | | | | |
| Joel P. Lavicky, Metrologist Issue Date: This document does not represent or imply endorsement by the State of Nebraska, the Nebraska Standards Laboratory or NIST. This document may not be reproduced, except in <u>ful</u> | Date Submitted: | 7/24/2023 | | | | | | | | |
| Joel P. Lavicky, Metrologist Issue Date: This document does not represent or imply endorsement by the State of Nebraska, the Nebraska Standards Laboratory or NIST. This document may not be reproduced, except in <u>ful</u> | 9000 | R3 | | | 8 | /9/2023 | | | | |
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NEBRASKA

Nebraska Standards Laboratory

3721 West Cuming St. Lincoln, NE 68524 (402) 471-2087 Director of Agriculture Sherry Vinton P.O. Box 94947

P.O. Box 94947 Lincoln, NE 68509-4947 (402) 471-2341

402-471-3422

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Good Life. Great Roots.

| DEPARTMENT OF | AGRICULTURE | | | | | wv | ww.nda.nebraska.gov |
|---------------|-----------------------------|----------------|--|--------------------|---------------|---|---------------------|
| Calibratio | Calibration Date: 7/24/2023 | | Certificate of Calibration of Volume Transfer | | | Certificate Number: | 2023-104-3 |
| | | | 01 10 | | | | |
| | | | Items Submitted: | | Submitted By: | FSCP Area 90 | |
| | Quantity | Nominal Volume | Manufacturer | Туре | | 3721 West Cuming St. Lincoln, NE 68524 | |
| | 3 | 5 gal | Seraphin | "Special" J Prover | POC: | Sam White | |

| | 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 | 20-64572-10 | 304 SS | 0.0000288 | 5.00066 gal | 5.00066 gal | 0.00082 gal | 2.01 |
| 5 gal | 20-64572-11 | 304 SS | 0.0000288 | 5.00056 gal | 5.00056 gal | 0.00082 gal | 2.01 |
| 5 gal | 20-64572-12 | 304 SS | 0.0000288 | 5.00065 gal | 5.00065 gal | 0.00082 gal | 2.01 |

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 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. It is the decision of the Laboratory to adjust the artifact(s) when the sum of the correction and uncertainty exceed 95% of 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 Cleaned and ready for | | Laboratory Reference Standard Used; 5 gal SP NE 1586 | | | | |
|---|-------------------|---|---|--|--|--|
| <u>Treatment of Item(s) before Calib</u> Tested as Fou | | | Procedure Used: NISTIR 7383, SOP 19 (2019) | | | |
| Environmental conditions at time | e of calibration: | | Water temperature at time of calibration: | | | |
| Temp °C 24.0 | Humidity % 53.3 | | 68.18 °F | | | |
| Pressure mmHg 727.70 | | | | | | |
| Date Submitted: 7/24/2023 | | | | | | |
| Joe P3 | | 8/9/2023 | | | | |
| Joel P. Lavicky, Metrologist | | Issue Date: | | | | |
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