



Dave Heineman
Governor

State of Nebraska

DEPARTMENT OF AGRICULTURE
GREGORY A. IBACH
Director

Nebraska Standards Laboratory
3721 West Cuming Street
Lincoln, NE 68524

CERTIFICATION FOR STANDARDS OF MEASUREMENT

Agency: Dept of Ag. - Weights & Measures
17100 SW 14th Street
Martell, NE 68404-6002

Date: 9/8/2009
Agency ID: 70
NE Cert No: 20090127
P.O. No:

Submitted By: Scott Arner

| Denomination | Serial Number | Weight Number | Tolerance Class |
|--------------|---------------|---------------|-----------------|
| 100 gal | 18969 | 1 | VL |
| 20 gal | 88220 | 1 | VP |
| 100 gal | 8851397 | 1 | VL |
| 103 gal | A-4-L6998 | 1 | VP |

These field standards have been compared with our reference standards and found to be within the tolerances for their class, or condemned, as prescribed by the National Institute of Standards and Technology. These field standards also meet the required specifications.

The reference standards used are traceable to the National Institute of Standards and Technology (NIST). Our traceability is maintained through control charts, regional inter-comparisons and periodic recertifications. This certificate is issued by the Nebraska Department of Agriculture / Division of Weights and Measures.

See 'Test Results' attached

See report/letter attached

Craig E. Olsen

Nebraska State Metrologist

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Nebraska Standards Laboratory
3721 West Cuming Street
Lincoln, NE 68524
(402) 471-2087

SOP 21 - Pressure Volume (LPG) Test Results

Agency ID: 70
Agency: Dept of Ag. - Weights & Measures
 17100 SW 14th Street
 Martell, NE 68404-6002

NE Cert No: 20090127
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Form No.: NE04LF14-R00

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Page 1 of 4

| | |
|-----------------------------|---|
| Serial No: 88220 | Eq Vol/gal: 20 gal |
| Retest No: 0 | Tolerance Class: VP |
| Denomination: 20 gal | Material: MS |
| Observer: CEO | Coef of Expansion: 0.0000186 /°F |

TEST DATA

| Del# | Std ID | Delivery | Mat | Coef of Exp | Water Temp | Water Density | Delta |
|------|--------|----------|-----|---------------|------------|---------------|--------|
| 1 | 5gal | 4.9991 | MS | 0.0000265 /°F | 65.7 °F | 0.998457 | 0 gal. |
| 2 | 5gal | 4.9991 | MS | 0.0000265 /°F | 65.7 °F | 0.998457 | 0 gal. |
| 3 | 5gal | 4.9991 | MS | 0.0000265 /°F | 65.5 °F | 0.998479 | 0 gal. |
| 4 | 5gal | 4.9991 | MS | 0.0000265 /°F | 65.4 °F | 0.998489 | 0 gal. |

Test Measure Information

Water Temp: 67 °F
Water Density: 0.998315 g/cm³

| | |
|--------------------------|------------|
| Reading @ 0 psi | 0.03 gal. |
| Reading @ 50 psi | 0.01 gal. |
| Reading @ 100 psi | 0 gal. |
| Reading @ 150 psi | -0.01 gal. |
| Reading @ 200 psi | -0.02 gal. |

Final Test Results

Z60 Delivery: 20.000 gal.
Prover error @ 100 psi: -0.007 gal.
Uncertainty of measurement: 0.002 gal.
Tolerance: 0.010 gal.
Accept/Reject: A

Prover Reading Corrections*

| | |
|------------------------------|-------------|
| Press Corr @ 0 psi: | -0.024 gal. |
| Press Corr @ 50 psi: | -0.007 gal. |
| Press Corr @ 100 psi: | 0.000 gal. |
| Press Corr @ 150 psi: | 0.007 gal. |
| Press Corr @ 200 psi: | 0.014 gal. |

* This table is to be used in making pressure corrections to prover readings.

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Page 2 of 4

Serial No: A-4-L6998
Retest No: 0
Denomination: 103 gal
Observer: CEO

Eq Vol/gal: 103 gal
Tolerance Class: VP
Material: MS
Coef of Expansion: 0.0000186 /°F

TEST DATA

| Del# | Std ID | Delivery | Mat | Coef of Exp | Water Temp | Water Density | Delta |
|------|--------|----------|-----|---------------|------------|---------------|--------|
| 1 | 100gal | 99.9872 | MS | 0.0000265 /°F | 68 °F | 0.998202 | 0 gal. |
| 2 | 1gal | 1 | MS | 0.00001 /°F | 68 °F | 0.998202 | 0 gal. |
| 3 | 1gal | 1 | MS | 0.00001 /°F | 68 °F | 0.998202 | 0 gal. |
| 4 | 1gal | 1 | MS | 0.00001 /°F | 68 °F | 0.998202 | 0 gal. |

Test Measure Information

Water Temp: 68.5 °F
Water Density: 0.998145 g/cm³

Reading @ 0 psi 0.3 gal.
Reading @ 50 psi 0.2 gal.
Reading @ 100 psi 0.11 gal.
Reading @ 150 psi 0.03 gal.
Reading @ 200 psi -0.04 gal.

Final Test Results

Z60 Delivery: 102.998 gal.
Prover error @ 100 psi: -0.145 gal.
Uncertainty of measurement: 0.022 gal.
Tolerance: 0.050 gal.
Accept/Reject: R

Prover Reading Corrections*

| | |
|------------------------------|-------------|
| Press Corr @ 0 psi: | -0.157 gal. |
| Press Corr @ 50 psi: | -0.073 gal. |
| Press Corr @ 100 psi: | 0.000 gal. |
| Press Corr @ 150 psi: | 0.063 gal. |
| Press Corr @ 200 psi: | 0.117 gal. |

* This table is to be used in making pressure corrections to prover readings.

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Page 3 of 4

Serial No: A-4-L6998
Retest No: 1
Denomination: 103 gal
Observer: CEO

Eq Vol/gal: 103 gal
Tolerance Class: VP
Material: MS
Coef of Expansion: 0.0000186 /°F

TEST DATA

| Del# | Std ID | Delivery | Mat | Coef of Exp | Water Temp | Water Density | Delta |
|-------------|---------------|-----------------|------------|--------------------|-------------------|----------------------|--------------|
| 1 | 100gal | 99.9872 | MS | 0.0000265 /°F | 68.5 °F | 0.998145 | 0 gal. |
| 2 | 1gal | 1 | MS | 0.00001 /°F | 68.5 °F | 0.998145 | 0 gal. |
| 3 | 1gal | 1 | MS | 0.00001 /°F | 68.5 °F | 0.998145 | 0 gal. |
| 4 | 1gal | 1 | MS | 0.00001 /°F | 68.5 °F | 0.998145 | 0 gal. |

Test Measure Information

Water Temp: 68.8 °F
Water Density: 0.998110 g/cm³

Reading @ 0 psi 0.3 gal.
Reading @ 50 psi 0.19 gal.
Reading @ 100 psi 0.09 gal.
Reading @ 150 psi 0.02 gal.
Reading @ 200 psi -0.07 gal.

Final Test Results

Z60 Delivery: 102.997 gal.
Prover error @ 100 psi: -0.126 gal.
Uncertainty of measurement: 0.022 gal.
Tolerance: 0.050 gal.
Accept/Reject: R

Prover Reading Corrections*

| | |
|------------------------------|-------------|
| Press Corr @ 0 psi: | -0.177 gal. |
| Press Corr @ 50 psi: | -0.083 gal. |
| Press Corr @ 100 psi: | 0.000 gal. |
| Press Corr @ 150 psi: | 0.053 gal. |
| Press Corr @ 200 psi: | 0.127 gal. |

* This table is to be used in making pressure corrections to prover readings.

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Page 4 of 4

Serial No: A-4-L6998
Retest No: 2
Denomination: 103 gal
Observer: CEO

Eq Vol/gal: 103 gal
Tolerance Class: VP
Material: MS
Coef of Expansion: 0.0000186 /°F

TEST DATA

| Del# | Std ID | Delivery | Mat | Coef of Exp | Water Temp | Water Density | Delta |
|------|--------|----------|-----|---------------|------------|---------------|--------|
| 1 | 100gal | 99.9872 | MS | 0.0000265 /°F | 68.5 °F | 0.998145 | 0 gal. |
| 2 | 1gal | 1 | MS | 0.00001 /°F | 68.5 °F | 0.998145 | 0 gal. |
| 3 | 1gal | 1 | MS | 0.00001 /°F | 68.5 °F | 0.998145 | 0 gal. |
| 4 | 1gal | 1 | MS | 0.00001 /°F | 68.5 °F | 0.998145 | 0 gal. |

Test Measure Information

Water Temp: 68.8 °F
Water Density: 0.998110 g/cm³

Reading @ 0 psi 0.18 gal.
Reading @ 50 psi 0.07 gal.
Reading @ 100 psi -0.02 gal.
Reading @ 150 psi -0.12 gal.
Reading @ 200 psi -0.2 gal.

Final Test Results

Z60 Delivery: 102.997 gal.
Prover error @ 100 psi: -0.016 gal.
Uncertainty of measurement: 0.022 gal.
Tolerance: 0.050 gal.
Accept/Reject: A

Prover Reading Corrections*

| | |
|------------------------------|-------------|
| Press Corr @ 0 psi: | -0.167 gal. |
| Press Corr @ 50 psi: | -0.073 gal. |
| Press Corr @ 100 psi: | 0.000 gal. |
| Press Corr @ 150 psi: | 0.083 gal. |
| Press Corr @ 200 psi: | 0.147 gal. |

* This table is to be used in making pressure corrections to prover readings.

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SOP 19 - Volume Transfer Test Results

Agency ID: 70

Form No.: NE03LF12-R00

Agency: Dept of Ag. - Weights & Measures
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NE Cert No: 20090127

Date: 9/8/2009

P.O. No:

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Page 1 of 4

Serial #: 18969
Retest #: 0
Denomination: 100 gal
Observer: CEO

Eq Vol/cu.in.: 23100 cu.in.
Tolerance Class: VL
Material: SS
Coef of Expansion: 0.0000265 °F

Test Data

| Del# | Std ID | Delivery | Material | Coef of Exp | Water Temp | Water Density | Delta |
|------|--------|----------|----------|---------------|------------|---------------|-------|
| 1 | 100gal | 99.9872 | SS | 0.0000265 /°F | 67.5 °F | 0.998259 | 0 in3 |

Test Measure Information

Water Temperature: 67.3 °F
Water Density: 0.998259 g/cm³
Scale Reading: -1 cu.in.

Test Results

Test Measure Volume @ 60° F at zero scale reading: 99.9898 gal.
Tolerance: 0.0216 gal.
Uncertainty: 0.0223 gal.
Accepted/Rejected: A

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Page 2 of 4

Serial #: 18969
Retest #: 1
Denomination: 100 gal
Observer: CEO

Eq Vol/cu.in.: 23100 cu.in.
Tolerance Class: VL
Material: SS
Coef of Expansion: 0.0000265 °F

Test Data

| Del# | Std ID | Delivery | Material | Coef of Exp | Water Temp | Water Density | Delta |
|------|--------|----------|----------|---------------|------------|---------------|-------|
| 1 | 100gal | 99.9872 | SS | 0.0000265 /°F | 68.6 °F | 0.998133 | 0 in3 |

Test Measure Information

Water Temperature: 67.4 °F
Water Density: 0.998133 g/cm³
Scale Reading: -3 cu.in.

Test Results

Test Measure Volume @ 60° F at zero scale reading: 99.9896 gal.
Tolerance: 0.0216 gal.
Uncertainty: 0.0223 gal.
Accepted/Rejected: A

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Page 3 of 4

Serial #: 8851397
Retest #: 0
Denomination: 100 gal
Observer: CEO

Eq Vol/cu.in.: 23100 cu.in.
Tolerance Class: VL
Material: SS
Coef of Expansion: 0.0000265 °F

Test Data

| Del# | Std ID | Delivery | Material | Coef of Exp | Water Temp | Water Density | Delta |
|------|--------|----------|----------|---------------|------------|---------------|-------|
| 1 | 100gal | 99.9872 | SS | 0.0000265 /°F | 68.4 °F | 0.998156 | 0 in3 |

Test Measure Information

Water Temperature: 67.3 °F
Water Density: 0.998156 g/cm³
Scale Reading: -4 cu.in.

Test Results

Test Measure Volume @ 60° F at zero scale reading: 99.9949 gal.
Tolerance: 0.0216 gal.
Uncertainty: 0.0223 gal.
Accepted/Rejected: A

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Page 4 of 4

Serial #: 8851397
Retest #: 1
Denomination: 100 gal
Observer: CEO

Eq Vol/cu.in.: 23100 cu.in.
Tolerance Class: VL
Material: SS
Coef of Expansion: 0.0000265 °F

Test Data

| Del# | Std ID | Delivery | Material | Coef of Exp | Water Temp | Water Density | Delta |
|------|--------|----------|----------|---------------|------------|---------------|-------|
| 1 | 100gal | 99.9872 | SS | 0.0000265 /°F | 68 °F | 0.998202 | 0 in3 |

Test Measure Information

Water Temperature: 67 °F
Water Density: 0.998202 g/cm³
Scale Reading: -4 cu.in.

Test Results

Test Measure Volume @ 60° F at zero scale reading: 99.9958 gal.
Tolerance: 0.0216 gal.
Uncertainty: 0.0223 gal.
Accepted/Rejected: A