



Receipt Date: June 14, 2019  
Cal. Date: June 14, 2019  
Report Date: June 14, 2019

Report No.: 341212  
Serial No.: None  
Barcode: 013146

## Calibration Certificate

MIDWEST PUMP & TANK  
820 S HWY 281  
ABERDEEN, SD 57402-2105  
Contact: JERRY SJERVEN  
Phone: 605-380-5185  
PO Number: NONE  
Procedure: NIST SOP 19  
Technician ID: 20

Item(s) Submitted: 5 Gallon Measure  
Manufacturer: Seraphin  
Material: Mild Steel  
Type: Measure  
Condition: Good  
Temperature: 22.3 °C  
Pressure: 730.2 mmHg  
Relative Humidity: 47.4 %  
Standard H<sub>2</sub>O Temp.: 19.4 °C  
Artifact H<sub>2</sub>O Temp.: 19.4 °C

| Nominal      |          | Calibrated   |                          |          |                      |           |
|--------------|----------|--------------|--------------------------|----------|----------------------|-----------|
| Volume (gal) |          | Volume (gal) | Error (in <sup>3</sup> ) | <i>k</i> | U (in <sup>3</sup> ) | CCE (°F)  |
| 5            | As Found | 4.9998       | -0.04                    | 2.04     | 0.33                 | 0.0000186 |
|              | As Left  | 4.9998       | -0.04                    |          |                      |           |

Neck Calibration: No neck calibration was performed at this time.

This measure has been calibrated as a "to contain after wet down" vessel with a pour time of 30 seconds followed by a drain time of 10 seconds after cessation of full flow.

The vessel listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota using water as the calibration medium. The standards are traceable to the SI through NIST. Statistical process control charts indicate standards are currently in control. All gauges were sealed in place.

All tolerances and specifications were evaluated according to NIST Handbook 105-3 (2010). Uncertainty calculations contain the components in NIST SOP 19 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (*k*) calculated at the approximate 95.45 % confidence level. Results apply to item identified in this report only.

CCE is the cubical coefficient of thermal expansion, and the reference temperature is 60 °F.  
Conversion to SI unit: 1 gallon = 231 in<sup>3</sup> = 0.00378541 m<sup>3</sup>.

Anna Pierce

Metrologist

Reviewed by:

Erik Alfvín

Technical Manager



Receipt Date: June 14, 2019  
Cal. Date: June 14, 2019  
Report Date: June 14, 2019

Report No.: 341213  
Serial No.: 07-05607  
Barcode: 013144

## Calibration Certificate

MIDWEST PUMP & TANK  
820 S HWY 281  
ABERDEEN, SD 57402-2105  
Contact: JERRY SJERVEN  
Phone: 605-380-5185  
PO Number: NONE  
Procedure: NIST SOP 19  
Technician ID: 20

Item(s) Submitted: 5 Gallon Measure  
Manufacturer: Seraphin  
Material: Stainless Steel  
Type: Measure  
Condition: Good  
Temperature: 22.3 °C  
Pressure: 730.2 mmHg  
Relative Humidity: 47.4 %  
Standard H<sub>2</sub>O Temp.: 19.4 °C  
Artifact H<sub>2</sub>O Temp.: 19.4 °C

| Nominal      |          | Calibrated   |                          |          |                      |           |
|--------------|----------|--------------|--------------------------|----------|----------------------|-----------|
| Volume (gal) |          | Volume (gal) | Error (in <sup>3</sup> ) | <i>k</i> | U (in <sup>3</sup> ) | CCE (°F)  |
| 5            | As Found | 5.0002       | 0.04                     | 2.04     | 0.33                 | 0.0000265 |
|              | As Left  | 5.0002       | 0.04                     |          |                      |           |

Neck Calibration: No neck calibration was performed at this time.

This measure has been calibrated as a "to contain after wet down" vessel with a pour time of 30 seconds followed by a drain time of 10 seconds after cessation of full flow.

The vessel listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota using water as the calibration medium. The standards are traceable to the SI through NIST. Statistical process control charts indicate standards are currently in control. All gauges were sealed in place.

All tolerances and specifications were evaluated according to NIST Handbook 105-3 (2010). Uncertainty calculations contain the components in NIST SOP 19 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (*k*) calculated at the approximate 95.45 % confidence level. Results apply to item identified in this report only.

CCE is the cubical coefficient of thermal expansion, and the reference temperature is 60 °F.  
Conversion to SI unit: 1 gallon = 231 in<sup>3</sup> = 0.00378541 m<sup>3</sup>.

Anna Pierce

Metrologist

Reviewed by:

Erik Alfvín

Technical Manager



Receipt Date: June 14, 2019  
Cal. Date: June 14, 2019  
Report Date: June 14, 2019

Report No.: 341214  
Serial No.: 1221  
Barcode: 201254

## Calibration Certificate

MIDWEST PUMP & TANK  
820 S HWY 281  
ABERDEEN, SD 57402-2105  
Contact: JERRY SJERVEN  
Phone: 605-380-5185  
PO Number: NONE  
Procedure: NIST SOP 19  
Technician ID: 20

Item(s) Submitted: 100 Gallon Prover  
Manufacturer: Gas Service & Supply  
Material: Stainless Steel  
Type: No Bottom Zero  
Condition: Good  
Temperature: 22.9 °C  
Pressure: 730.2 mmHg  
Relative Humidity: 48.5 %  
Standard H<sub>2</sub>O Temp.: 14.0 °C  
Artifact H<sub>2</sub>O Temp.: 14.1 °C

| Nominal      |          | Calibrated   |                          |          |                      |            |
|--------------|----------|--------------|--------------------------|----------|----------------------|------------|
| Volume (gal) |          | Volume (gal) | Error (in <sup>3</sup> ) | <i>k</i> | U (in <sup>3</sup> ) | CCE (1/°F) |
| 100          | As Found | 100.005      | 1.1                      | 2.01     | 2.4                  | 0.0000265  |
|              | As Left  | 100.005      | 1.1                      |          |                      |            |

Neck Calibration: No neck calibration was performed at this time.

This prover has been calibrated as a "to contain after wet down" vessel with a drain time of 30 seconds after cessation of full flow.

The vessel listed above has been compared by volumetric transfer methods to the standards of the State of Minnesota using water as the calibration medium. The standards are traceable to the SI through NIST. Statistical process control charts indicate standards are currently in control. All gauges were sealed in place.

All tolerances and specifications were evaluated according to NIST Handbook 105-3 (2010). Uncertainty calculations contain the components in NIST SOP 19 and conform to the ISO/IEC Guide to the Expression of Uncertainty in Measurement (2008), including coverage factors (*k*) calculated at the approximate 95.45 % confidence level. Results apply to item identified in this report only.

CCE is the cubical coefficient of thermal expansion, and the reference temperature is 60 °F.  
Conversion to SI unit: 1 gallon = 231 in<sup>3</sup> = 0.00378541 m<sup>3</sup>.

Anna Pierce

Metrologist

Reviewed by:

Pete Whebbe

Metrologist

# United States Department of Commerce

## National Institute of Standards and Technology

Certificate of Metrological Traceability For:

# Minnesota

This laboratory has demonstrated evidence of an unbroken chain of metrological traceability of its standards to the international system of units (SI), documented measurement uncertainties, uses documented measurement procedures, successfully completed training and proficiency tests, documented calibration intervals, submitted a quality management system, and demonstrated suitable measurement assurance for the Scope listed on this certificate.

The Office of Weights and Measures Program assesses laboratories to NIST Handbook 143 - Program Handbook for State Weights and Measures Laboratories and ISO/IEC 17025:2005.

### Scope

|                   |                          |                         |
|-------------------|--------------------------|-------------------------|
| Mass Echelon I    | Mass Echelon III         | Volume Gravimetric, I   |
| 20 kg to 1 mg     | 50 kg to 1 mg            | 20 L to 10 mL           |
| Mass Echelon II   | 5000 lb to 0.001 lb      | 100 gal to 0.25 gal     |
| 5 kg to 1 mg      | 4 oz to 0.03125 oz       | Volume Transfer, II     |
| 1000 lb to 250 lb | Weight Carts             | 1500 gal to 5 gal       |
| 50 lb to 0.001 lb | 5 000 lb to 2000 lb      | Volume Transfer, II LPG |
|                   | Wheel Load Weighers      | 200 gal to 25 gal       |
|                   | 12 000 lb to 2000 lb     |                         |
|                   | Railroad Test Cars/Carts |                         |
|                   | 110 000 lb to 80 000 lb  |                         |
|                   | 10 000 lb to 8 000 lb    |                         |



2019

*Douglas A. Olson*

Douglas A. Olson, Chief  
NIST Office of Weights and Measures

Effective Dates: 2019-01-01 to 2020-02-01