



Receipt Date: April 5, 2017
Cal. Date: April 5, 2017
Report Date: April 5, 2017

Report No.: 337534
Serial No.: 01-50437
Barcode: 202751

Calibration Certificate

NORTHERN PETROLEUM & REPAIR
1406 19TH ST S
MOORHEAD, MN 56560
Contact: TREV PETERSON
Phone: 218-443-8573
PO Number: NONE
Procedure: NIST SOP 19
Technician ID: 11

Item(s) Submitted: 5 Gallon Measure
Manufacturer: Seraphin
Material: Mild Steel
Type: Measure
Condition: Good
Temperature: 20.1 °C
Pressure: 736.9 mmHg
Relative Humidity: 41.3 %
Standard H₂O Temp.: 15.1 °C
Artifact H₂O Temp.: 15.3 °C

Nominal		Calibrated				
Volume (gal)		Volume (gal)	Error (in ³)	<i>k</i>	U (in ³)	CCE (°F)
5	As Found	4.9971	-0.67	2.06	0.25	0.0000186
	As Left	5.0005	0.11			

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 in³ = 0.00378541 m³.

Pete Whebbe

Metrologist

Reviewed by:

Erik Alfvin

Metrologist



Receipt Date: April 5, 2017
Cal. Date: April 5, 2017
Report Date: April 5, 2017

Report No.: 337535
Serial No.: 02-52546
Barcode: 202994

Calibration Certificate

NORTHERN PETROLEUM & REPAIR
1406 19TH ST S
MOORHEAD, MN 56560
Contact: TREV PETERSON
Phone: 218-443-8573
PO Number: NONE
Procedure: NIST SOP 19
Technician ID: 11

Item(s) Submitted: 5 Gallon Measure
Manufacturer: Seraphin
Material: Mild Steel
Type: Measure
Condition: Good
Temperature: 20.1 °C
Pressure: 736.9 mmHg
Relative Humidity: 41.3 %
Standard H₂O Temp.: 14.7 °C
Artifact H₂O Temp.: 14.8 °C

Nominal		Calibrated				
Volume (gal)		Volume (gal)	Error (in ³)	<i>k</i>	U (in ³)	CCE (°F)
5	As Found	4.9999	-0.03	2.06	0.25	0.0000186
	As Left	4.9999	-0.03			

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

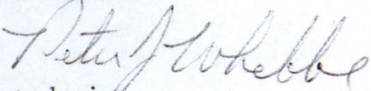
This measure has been calibrated as a "to contain after wet down" vessel with a pour time of 30 seconds followed by a drain time of 10 seconds after cessation of full flow.

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.

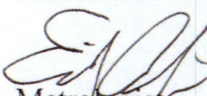
CCE is the cubical coefficient of thermal expansion, and the reference temperature is 60 °F
Conversion to SI unit: 1 gallon = 231 in³ = 0.00378541 m³.

Pete Whebbe


Metrologist

Reviewed by:

Erik Alfvin


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.

2017

Scope

Mass Echelon I
10 kg to 1 mg

Mass Echelon II
50 kg to 1 mg
1000 lb to 0.001 lb
4 oz to 0.03125 oz

Mass Echelon III
50 kg to 1 mg
5000 lb to 0.001 lb
4 oz to 0.03125 oz

Weight Carts
10 000 lb to 2000 lb

Wheel Load Weighers
20 000 lb to 2000 lb

Railroad Test Cars
110 000 lb to 80 000 lb

Volume Gravimetric, I
20 L to 10 mL
100 gal to 0.25 qt

Volume Transfer, II
1500 gal to 5 gal
100 gal to 25 gal LPG



Georgia L. Harris
Georgia L. Harris, Acting Chief
NIST Office of Weights and Measures

Effective Dates: 2017-01-01 to 2017-12-31

Amended: 2016-12-31
Scope modified for 2017.