



MINNESOTA DEPARTMENT OF  
**COMMERCE**  
WEIGHTS & MEASURES DIVISION



14305 SOUTHCROSS DRIVE #150  
BURNSVILLE, MN 55306-7008  
MN.GOV/COMMERCE/  
651.539.1555 FAX 651.539.1553  
AN EQUAL OPPORTUNITY EMPLOYER

Receipt Date: August 15, 2016  
Cal. Date: August 22, 2016  
Report Date: August 22, 2016

Report No.: 336386  
Set Serial No.: Fargo Weight Set #1  
Barcode: 201693

## Calibration Certificate

NORTH COUNTRY BUSINESS PRODUCTS  
4624 AMBER VALLEY PKWY S  
FARGO, ND 58104-8612  
Contact: Dave Naylor  
Phone: 701-277-3231  
PO Number: None  
SOP: 8  
Technician ID: 19

Item(s) Submitted: AVDP Weight Kit - F  
Manufacturer: Rice Lake  
Weight Type: I & II  
Equipment ID: None  
Condition: Good  
Temperature: 21.5 °C  
Pressure: 734.8 mmHg  
Relative Humidity: 44.9 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
5 lb		65	65	F	F	2.02	12
5 lb		62	62	F	F	2.02	12
5 lb		64	64	F	F	2.02	12
5 lb		67	67	F	F	2.02	12
5 lb		61	61	F	F	2.02	12
1 lb		15.9	15.9	F	F	2.02	2.8
1 lb		26.2	26.2	F	F	2.02	2.8
1 lb		8.5	8.5	F	F	2.02	2.8
1 lb		5.0	5.0	F	F	2.02	2.8
1 lb		6.6	6.6	F	F	2.02	2.8
0.5 lb		16.4	16.4	F	F	2.03	2.3
0.2 lb		4.77	4.77	F	F	2.03	0.37
0.2 lb		4.94	4.94	F	F	2.03	0.37
0.1 lb		3.06	3.06	F	F	2.04	0.30
0.05 lb		1.42	1.42	F	F	2.04	0.30
0.02 lb		0.38	0.38	F	F	2.03	0.16
0.02 lb		-0.67	-0.67	F	F	2.03	0.16
0.01 lb		0.15	0.15	F	F	2.04	0.12



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Continued,

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Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
0.005 lb		0.83	0.83	F	F	2.04	0.10
0.002 lb		0.180	0.180	F	F	2.03	0.066
0.002 lb		0.130	0.130	F	F	2.03	0.066
0.001 lb		0.277	0.277	F	F	2.03	0.057

The resulting tolerance class of the weight is determined by combining the correction of the weight and the uncertainty of the measurement. The corrections given above correlate to a conventional mass scale versus 8.0 g/cm<sup>3</sup> density and an air density of 1.2 mg/cm<sup>3</sup> at 20 °C. The items listed above have been calibrated using the Standards of the State of Minnesota which are currently in control. These standards are traceable to the SI through NIST. Calibration processes were monitored and found to be in control. All of the tolerances and specifications were evaluated according to NIST Handbook 105-1 (1990). Uncertainty calculations contain the components in NIST SOP 8 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 items identified in this report only.

Erik Alfvin  
  
Metrologist

Reviewed by:  
Mark Nicollet  
  
Quality Manager

# United States Department of Commerce

## Rational 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

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



2016 to 2017

A handwritten signature in black ink, appearing to read "Carol T. Hockert".

Carol T. Hockert, Chief  
NIST Office of Weights and Measures

Effective Dates: 2016-01-01 to 2017-12-31