



**DEPARTMENT OF COMMERCE**  
WEIGHTS & MEASURES DIVISION

14305 Southcross Drive #150  
Burnsville, MN 55306-7008  
mn.gov/commerce/  
651.539.1555 FAX 952.435.4040  
An equal opportunity employer



Receipt Date: March 27, 2019  
Cal. Date: March 27, 2019  
Certificate Date: March 27, 2019

Certificate No.: 340849  
Set Serial No.: None  
Barcode: 202268

**Calibration Certificate**

BISON FOOD EQUIPMENT SERVICE INC.  
17409 BESEAU LAKE ROAD  
LAKE PARK, MN 56554

Contact: Dale Bohner  
Phone: 701-261-2102  
PO Number: NONE  
Procedure: NIST SOP 8 (2018)  
Technician ID: 11

Item(s) Submitted: Cast Hand Weights  
Manufacturer: Troemner  
Weight Type: II  
Equipment ID: None  
Condition: Acceptable  
Temperature: 21.7 °C  
Pressure: 734.1 mmHg  
Relative Humidity: 48.5 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
25 lb		186	186	F	F	2.03	70
25 lb		656	656	F	F	2.03	70
25 lb		896	896	F	F	2.03	70
25 lb		836	836	F	F	2.03	70
50 lb		2120	340	F	F	2.03	130
50 lb		1780	1780	F	F	2.03	130
50 lb		2240	470	*	F	2.03	130
50 lb		690	690	F	F	2.03	130
50 lb		610	610	F	F	2.03	130
50 lb		1480	1480	F	F	2.03	130

**Weights must be cleaned and repainted prior to next calibration.**

Weight(s) as received (\*) exceed NIST HB105-1 class F tolerance.

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) and MN SAP 20. 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 only apply to items identified in this certificate.

Pete Whebbe

Metrologist

Reviewed by:  
Erik Alfvén

Metrologist



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Receipt Date: March 27, 2019  
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Certificate Date: March 27, 2019

Certificate No.: 340847  
Set Serial No.: X7670  
Barcode: 019695

**Calibration Certificate**

BISON FOOD EQUIPMENT SERVICE INC.  
17409 BESEAU LAKE ROAD  
LAKE PARK, MN 56554  
Contact: Dale Bohner  
Phone: 701-261-2102  
PO Number: NONE  
Procedure: NIST SOP 8 (2018)  
Technician ID: 20

Item(s) Submitted: AVDP Weight Set  
Manufacturer: Troemner  
Weight Type: I & II  
Equipment ID: None  
Condition: Acceptable  
Temperature: 22.1 °C  
Pressure: 733.2 mmHg  
Relative Humidity: 48.1 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
10 lb	1	122	122	F	F	2.03	11
10 lb	2	162	162	F	F	2.03	11
10 lb	3	150	150	F	F	2.03	11
5 lb	1	-25.3	-25.3	F	F	2.03	5.5
5 lb	2	-33.5	-33.5	F	F	2.03	5.5
5 lb	3	-23.8	-23.8	F	F	2.03	5.5
1 lb	1	0.7	0.7	F	F	2.03	1.1
1 lb	2	-0.1	-0.1	F	F	2.03	1.1
1 lb	3	-1.3	-1.3	F	F	2.03	1.1
1 lb	4	-0.2	-0.2	F	F	2.03	1.1
1 lb	5	0.1	0.1	F	F	2.03	1.1
0.5 lb		0.70	0.70	F	F	2.03	0.61
0.2 lb		2.62	2.62	F	F	2.03	0.22
0.2 lb		1.00	1.00	F	F	2.03	0.22
0.1 lb		1.09	1.09	F	F	2.03	0.14
0.05 lb		0.256	0.256	F	F	2.03	0.098
0.02 lb		0.709	0.709	F	F	2.03	0.055
0.02 lb		0.965	0.965	F	F	2.03	0.055
0.01 lb		0.084	0.084	F	F	2.03	0.041





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## Calibration Certificate

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 17409 BESEAU LAKE ROAD  
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 Procedure: NIST SOP 8 (2018)  
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Item(s) Submitted: AVDP Weight Set  
 Manufacturer: Troemner  
 Weight Type: I & II  
 Equipment ID: None  
 Condition: Acceptable  
 Temperature: 22.1 °C  
 Pressure: 733.2 mmHg  
 Relative Humidity: 48.1 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
0.005 lb		0.393	0.393	F	F	2.03	0.044
0.002 lb		0.740	0.740	F	F	2.03	0.026
0.002 lb		0.644	0.644	F	F	2.03	0.026
0.001 lb		0.377	0.377	F	F	2.03	0.021

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) and MN SAP 20. 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 only apply to items identified in this certificate.

Anna Pierce

  
 Metrologist

Reviewed by:

Erik Alfvin

  
 Metrologist




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Receipt Date: March 27, 2019  
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Certificate No.: 340848  
Set Serial No.: NONE  
Barcode: 201022

## Calibration Certificate

BISON FOOD EQUIPMENT SERVICE INC.  
17409 BESEAU LAKE ROAD  
LAKE PARK, MN 56554

Contact: Dale Bohner  
Phone: 701-261-2102  
PO Number: NONE  
Procedure: NIST SOP 8 (2018)  
Technician ID: 19

Item(s) Submitted: AVDP Weight Kit  
Manufacturer: Rice Lake  
Weight Type: I & II  
Equipment ID: None  
Condition: Acceptable  
Temperature: 22.2 °C  
Pressure: 733.2 mmHg  
Relative Humidity: 48.3 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
5 lb		48.0	48.0	F	F	2.03	5.5
5 lb		62.8	62.8	F	F	2.03	5.5
5 lb		69.9	69.9	F	F	2.03	5.5
5 lb		50.4	50.4	F	F	2.03	5.5
5 lb		114.1	114.1	F	F	2.03	5.5
1 lb		27.3	27.3	F	F	2.03	1.1
1 lb		19.6	19.6	F	F	2.03	1.1
1 lb		27.3	27.3	F	F	2.03	1.1
1 lb		20.5	20.5	F	F	2.03	1.1
1 lb		19.2	19.2	F	F	2.03	1.1
8 oz		19.90	19.90	F	F	2.03	0.61
0.2 lb		5.04	5.04	F	F	2.03	0.22
0.2 lb		6.57	6.57	F	F	2.03	0.22
0.1 lb		2.09	2.09	F	F	2.03	0.14
0.05 lb		0.426	0.426	F	F	2.03	0.098
0.02 lb		0.751	0.751	F	F	2.03	0.055
0.02 lb		0.627	0.627	F	F	2.03	0.055
0.01 lb		0.159	0.159	F	F	2.03	0.041



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Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Received	As Left	As Received	As Left		
0.005 lb		0.384	0.384	F	F	2.03	0.044
0.002 lb		0.088	0.088	F	F	2.03	0.026
0.002 lb		0.263	0.263	F	F	2.03	0.026
0.001 lb		-0.094	-0.094	F	F	2.03	0.021

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) and MN SAP 20. 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 only apply to items identified in this certificate.

Erik Alfvín

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

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