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: February 2, 2022
Calibration Date: February 9th & 22nd, 2022
Certificate Date: February 22, 2022

Certificate No.: 401282-1
Set Serial No.: #HSS 2G/5500
Barcode: 202652

Calibration Certificate

HAWKEYE STATE SCALE
1357 HWY 965 NW
SWISHER, IA 52338
Contact: ANGIE WELCHER
Phone: 319-364-4173
PO Number: 10316
Procedure: NIST SOP 4A (2019)
Technician ID: 09

Item(s) Submitted: Metric weight set
Manufacturer: RICE LAKE
Weight Type: I & II
Equipment ID: None
Condition: Acceptable
Temperature: 19.4 °C
Pressure: 735.2 mmHg
Relative Humidity: 48.9 %

Nominal Value	Serial No.	CM Correction (mg)		Density	ASTM E617 (2018) Class			
		As Received	As Left	(g/cm^3)	As Received	As Left	k	U (mg)
2 kg		2.60	2.60	7.84	2	2	2.01	0.37
1 kg		0.94	0.94	7.84	2	2	2.01	0.22
1 . kg		0.89	0.89	7.84	2	2	2.01	0.22
500 g		0.65	0.65	7.84	2	2	2.01	0.12
100 g		0.291	0.291	7.84	2	2	2.01	0.038
100 . g		0.196	0.196	7.84	2	2	2.01	0.038
100 .. g		0.201	0.201	7.84	2	2	2.01	0.038
100 :. g		0.246	0.246	7.84	2	2	2.01	0.038
50 g		0.044	0.044	7.84	2	2	2.01	0.025
50 . g		0.099	0.099	7.84	2	2	2.01	0.025
20 g		0.0648	0.0648	7.95	2	2	2.01	0.0095
10 g		0.0269	0.0269	7.95	2	2	2.01	0.0050
5 g		0.0281	0.0281	7.95	2	2	2.01	0.0037
2 g		0.0185	0.0185	7.95	2	2	2.02	0.0021
2 . g		0.0120	0.0120	7.95	2	2	2.02	0.0021
1 g		0.0230	0.0230	7.95	2	2	2.02	0.0022

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CALIBRATION
NVLAP LAB CODE 105003-0

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Nominal Value	Serial No.	CM Correction (mg) As Received	CM Correction (mg) As Left	Density (g/cm^3)	ASTM E617 (2018) Class As Received	ASTM E617 (2018) Class As Left	k	U (mg)
500 mg		0.0043	0.0043	7.95	2	2	2.02	0.0040
200 mg		0.0065	0.0065	7.95	2	2	2.03	0.0029
200 . mg		0.0075	0.0075	7.95	2	2	2.03	0.0029
100 mg		0.0058	0.0058	7.95	2	2	2.02	0.0023
50 mg		-0.0007	-0.0007	7.95	2	2	2.05	0.0019
20 mg		0.0034	0.0034	7.95	2	2	2.03	0.0021
20 . mg		0.0059	0.0059	7.95	2	2	2.03	0.0021
10 mg		0.0010	0.0010	7.95	2	2	2.03	0.0021
5 mg		0.0056	0.0056	7.95	2	2	2.03	0.0018
2 mg		0.0061	0.0061	7.95	2	2	2.03	0.0019
2 . mg		0.0046	0.0046	7.95	2	2	2.03	0.0019
1 mg		0.0050	0.0050	7.95	2	2	2.03	0.0019

Artifact conformance to ASTM E617 (2018) specifications of shape, material, and type were evaluated. Tolerances were evaluated using ASTM E617 (2018) and MN SAP 20 (2020), which combines the conventional mass (CM) correction of the weight and the uncertainty of the measurement to evaluate the class. No other specifications were evaluated. The above CM corrections correspond to the mass scale versus 8.0 g/cm^3 density and an air density of 1.2 mg/cm^3 at 20 °C. Uncertainty calculations contain the components in NIST SOP 4 (2019) 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. Calibration of items listed above used State of Minnesota Standards, which are currently in control. These standards are traceable to the SI through NIST. Calibration processes are monitored and in control at the time of calibration. Densities reported above are assumed unless noted. This calibration certificate shall not be reproduced, except in full, without written approval from the state of MN metrology laboratory, and the results only apply to items identified on this certificate.

Heidi Jones
Heidi Jones
Laboratory Administrator

Reviewed by:
Anna Pierce
Metrologist, Signatory

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CALIBRATION
NVLAP LAB CODE 105003-0