

prevention - protection - enforcement

Office of Weights and Measures

Metrology Laboratory

Office: 118 West Capitol Avenue, Pierre, SD 57501 Lab: 1100 Otter Rd, Bldg D, Sturgis, SD 57785

Lab: 605-347-7541, Office: 605-773-3697, Cell: 605-280-4572

Email: ron.peterson@state.sd.us https://dps.sd.gov/inspections/weights-measures

CALIBRATION CERTIFICATE

K-Scale SA# 90 Certificate number: M25039 Rev A
Physical Address: Billing Address: Note: Rev A corrects error in address.

1701 W Madison 1701 W Madison

Sioux Falls, SD 57104 Sioux Falls, SD 57104

Contact: Kevin Baumgartner Received Date: 01/08/2025

Phone: 605-334-8003

Certificate Issued: 01/13/2025

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Artifacts Submitted and Summary of Results:						
Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	In Tolerance
1	Metric Class 3 kit	1	1	0	0	1
2	Metric Class 2 kits	10	10	0	0	10

Uncertainty Statement: The combined standard uncertainty includes the standard uncertainty reported for the standard and the standard uncertainty for the measurement process. The combined standard uncertainty is multiplied by a coverage factor k to provide an expanded uncertainty which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the 2008 ISO/IEC Guide to the Expression of Uncertainty in Measurement. The expanded uncertainty is not to be confused with a tolerance limit for the user during application. For weight carts, factors included on the inspection checklist have not been included in the calibration uncertainty. However, factors on the checklist may contribute measurement errors that are significant if not properly maintained during use.

Conformity Statement:

The artifacts submitted for this calibration are calibrated to NIST Handbook 105-1 (1990 or 2019), NIST Handbook 105-8 (2019), NIST Handbook 105-3 (2010), or ASTM E617 (2023), Standard Specification for Laboratory Weights and Precision Mass Standards specifications. The reported test values relate only to the observations made at the time and conditions of the test. Artifacts fully comply with all requirements (both specifications and tolerances) of the applicable documentary standard unless otherwise stated. Stated expanded uncertainties are less than one-third of the specified tolerances (maximum permissible errors, m.p.e.) for mass calibrations and less than the specified tolerances for volume calibrations. The correction value plus or minus the expanded uncertainty is within the stated tolerances. It is the decision rule of the SD State Metrology Laboratory that any cast weights determined to have a correction within 66 % of the upper tolerance or 50 % of the lower tolerance will be adjusted closer to zero mass correction, even if the mass correction originally met the applicable tolerance.

Traceability Statement:

The Standards of the SD Metrology Laboratory used for comparison are traceable to the International System of Units (SI) through the National Institute of Standards and Technology. The laboratory certificate number identified above is the unique report number to be used in referencing measurement traceability for artifacts identified in this report only.

Ron E Peterson, Metrologist

01/13/2025



None Il

Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of acceditation under lab code 600384-0. This certificate may not be used to claim product endorsement by NVLAP, NIST Office of Weights and Measures or any other government agency, and may not be reproduced, except in full without written approval from this laboratory.

Ver 20250114 1 of 4

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South Dakota Department of Public Safety Office of Weights and Measures

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CALIBRATION CERTIFICATE

Calibrated for: K-Scale Certificate number: M25039

Calibration Date: 01/10/2025
Environmental conditions at time of test:

Temperature: 20.495 C Humidity: 49.035 % Pressure: 663.23 mmhg

Test method used: SOP 4, Weighing by Double Substitution , May 2019

Test equipment used: Lab standards traceable to SI through NIST and Mettler XPR5004SC, XPE505C, XPR36C, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): 1 piece Metric Kit SN 06-J17124-22

Nominal		True Mass Correction	Conventional Mass Correction	ASTM E 617 Class 3	Uncertainty		Assumed
	SN/ID	mg	mg	Tolerance (mg)	mg	k	Density (g/cm³)
100 g		-0.333	-0.620	1	0.042	2.01	7.85

^{*} Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

The values reported relate only to those observations made at the time and conditions of the test. This calibration certificate, so numbered, may not be reproduced, except in full, without approval of the laboratory. These weights were not screened for magnetism, surface finish, density, or other specification requirements and their affects are not included in the uncertainty.

Treatment of artifacts prior to testing: Thermal equilibrium was obtained by placing the artifacts in the lab overnight

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Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): 1 piece Metric Kit SN 07-4633520

Nominal		True Mass Correction	Conventional Mass Correction	ASTM E 617 Class 2	Uncertainty		Assumed
	SN/ID	mg	mg	Tolerance (mg)	mg	k	Density (g/cm³)
200 g		0.080	-0.109	1	0.061	2.01	7.95

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Condition of Weights: Suitable for use. No significant wear or damage

Artifact(s): 9 piece Metric Kit SN OVC3

Nominal		True Mass Correction	Conventional Mass Correction	ASTM E 617 Class 2	Uncertainty		Assumed
	SN/ID	mg	mg	Tolerance (mg)	mg	k	Density (g/cm³)
100 g		-0.046	-0.140	0.5	0.042	2.01	7.95
50 g		-0.054	-0.101	0.25	0.040	2.02	7.95
30 g		0.089	0.060	0.15	0.038	2.13	7.95
20 g		0.020	0.001	0.1	0.015	2.02	7.95
10 g		0.052	0.042	0.074	0.011	2.02	7.95
5 g		0.0162	0.0115	0.054	0.0088	2.02	7.95
3 g		0.035	0.032	0.054	0.014	2.28	7.95
2 g		0.0469	0.0450	0.054	0.0061	2.01	7.95
1 g		0.0336	0.0326	0.054	0.0051	2.02	7.95

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