

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

Capital Scale Company

SA# **61**

Certificate number:

MP4343

Physical Address:

Billing Address:

3021 Valley Forge Dr

3021 Valley Forge Dr

Bismarck, ND 58503

Bismarck, ND 58503

Contact:

Travis Will

Received Date:

01/19/2023

Phone:

701-255-1556

Certificate Issued:

01/23/2023

· Hone.	701 255 1550			,	ertificate issued.	01/23/2023
	Artifacts Submit	ted and Sun	nmary of Re	sults:		
Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	As Left In Tolerance
2	2000 lb weight carts	2	2	0	0	2
20	1000 lb weights	20	20	1	0	20
64	50 lb weights	64	58	18	0	64
2	avoirdupois kits	33	33	0	0	33
1	metric kit	14	14	0	0	14

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 (2018), 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.

This document does not represent or imply endorsement by NIST Office of Weights and Measures or any agency of the State and/or national governments. This report may not be reproduced, except in full without the written approval of this laboratory. The client must not use this document to claim product endorsement by this laboratory.

HOUZ PL

01/23/2023

Garflett Johnson

01/23/2023

Ron E Peterson, Metrologist

Dwight R Johnson, Reviewer



Lab: 1100 Otter Rd, Bldg D Sturgis, SD 57785 Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company

Certificate Number: MP4343

Calibration Date:

01/23/2023

Environmental conditions at time of test:

Temperature: 44.6 °C

Humidity: 20.4 %

Pressure: 670.9 mmhg

Test method used: SOP 33 Calibrations of Weight Carts, May 2019

Test equipment used: Recently calibrated weights and a Mettler SLS510 Load Cell with IND570 Indicator.

Vaisala PT301

Condition of Carts: Used but in good condition

Manufacturer: Unk

SN:

541094

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	k	Tolerance (lb)	Condition as Left
2000	-0.09	-41.65	-0.09	-41.65	0.11	2.01	0.70	In-Tolerance

Notes:

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.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as practical to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent use.

Conformity Assessment:

The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

Ron E Peterson, Metrologist

01/23/2023



Ron Peterson, Metrologist

Ver 20220919

South Dakota Department of Public Safety Office of Weights and Measures Metrology Lab

Lab: 1500 N Garfield – E. Truck Bypass Phone: 605-773-3170
Office: 118 West Capitol Avenue Phone: 605-773-3697
Pierre SD 57501



Inspection Checklist for Weight Cart

Calibrated for	r:	Capital Scale Company			Certificate nu	ımber:	MP4343
Calibration Da	ate:	01/24/2023					
Manufacture	r:	Unk		Date of Manu	ıfacture	unk	
Model Numb	er:	unk		ID/SN Numbe	er		541094
				4			
√	Nominal Mas	s of Weight Cart	2000 lbs		Suitably mark	ced: Yes/No	Yes
√	Powered by:	Electric/generato	r 🗸	Diesel		Gasoline	
✓	Fluid Levels:	Engine Oil				4	
	-	Hydraulic Fluid	d		S	ealed: Yes/No	
		Batter	y		S	ealed: Yes/No	Yes
		Liquid Fuel		Refe	erence Line Pro	esent: Yes/No	
√	Fluid drain tu	bes extend beyond the body	of the cart: Yes	s/No	Yes	1	
√	Number of a	xles:		2		•	
√	Number /Size	e of Tires	18x7x12	2/16x5x11	1		
√	Sealed wheel	l bearings: Yes/No	Y	'es	1		
✓	Drain holes p	present in locations where wa	ter may accum	ulate: Yes/No	•	Yes	1
✓	Weight restra	aint railing permanently fixed	and solid: Yes	/No		Yes	1
✓	Adjusting cav	vity accessible: Yes/No	Yes]	Approximate	capacity:(lbs)	20
✓	Adjusting cav	vity sealed: Yes/No	Yes				
✓	Service brake	es functioning properly: Yes/N	lo	Yes]		
✓	Parking brake	es functioning properly: Yes/N	No	Yes]		
	Remote cont	trol functioning properly: Yes/	'No]		
	-				-		
		dition at time of calibration (n		ulated dirt/del	oris, damage, l	oose parts, or	evidence of
✓	tampering or	r unauthorized entry of seals)	•				
	i						
	12-4						
		ort any repair and maintenand em, wheels changed, welding					
✓		anny misses anangos, maisemb	porrormou, co	or morade arry c	on ments of c	manges since t	ine last calibration.
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Lab: 1100 Otter Rd, Bldg D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company

Certificate Number: MP4343

Calibration Date:

01/23/2023

Environmental conditions at time of test:

Temperature: 44.6 °C

Humidity: 20.4 %

Pressure: 670.9 mmhg

Test method used: SOP 33 Calibrations of Weight Carts, May 2019

01/23/2023

Test equipment used: Recently calibrated weights and a Mettler SLS510 Load Cell with IND570 Indicator.

Vaisala PT301

Condition of Carts: Used but in good condition

Manufacturer: Unk

SN: unk

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	k	Tolerance (lb)	Condition as Left
2000	0.11	49.18	0.11	49.18	0.11	2.01	0.70	In-Tolerance

Notes:

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.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as practical to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent use.

Conformity Assessment:

The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

Ron E Peterson, Metrologist



Lab: 1500 N Garfield – E. Truck Bypass Phone: 605-773-3170
Office: 118 West Capitol Avenue Phone: 605-773-3697
Pierre SD 57501



Inspection Checklist for Weight Cart

Calibrated fo	r:	Capital Scale Company			Certificate no	umber:	MP4343
Calibration D	ate:	01/24/2023					
Manufacture	r:	Unk		Date of Manu	ufacture	unk	
Model Numb	er:	unk		ID/SN Numbe	er	unk	
				-			
✓	Nominal Mas	s of Weight Cart	2000 lbs	_	Suitably mark	ked: Yes/No	Yes
✓	Powered by:	Electric/generator	✓	Diesel		Gasoline	
✓	Fluid Levels:	Engine Oil					
		Hydraulic Fluid			9	Sealed: Yes/No	
		Battery	√		3	Sealed: Yes/No	Yes
	_	Liquid Fuel		Refe	erence Line Pr	esent: Yes/No	
✓	Fluid drain tu	bes extend beyond the body o	of the cart: Yes	/No	Yes]	
✓	Number of ax	xles:		2		-	
✓	Number /Size	e of Tires	18x7x12	/16x5x11	1		
✓	Sealed wheel	l bearings: Yes/No	Υ	es	1		
✓	Drain holes p	resent in locations where wat	er may accum	ulate: Yes/No	•	Yes	
✓	Weight restra	aint railing permanently fixed	and solid: Yes,	/No		Yes	1
✓	Adjusting cav	vity accessible: Yes/No	Yes	i i	Approximat	e capacity:(lbs)	20
✓	Adjusting cav	vity sealed: Yes/No	Yes	1			
✓	Service brake	es functioning properly: Yes/N	0	Yes	1		
✓	Parking brake	es functioning properly: Yes/N	o	Yes	1		
	Remote cont	rol functioning properly: Yes/	No		1		
					•		
		dition at time of calibration (no		ulated dirt/del	oris, damage,	loose parts, or	evidence of
✓	tampering or	r unauthorized entry of seals).					
		ort any repair and maintenance					
\ \ \	exnaust syste	em, wheels changed, welding	performed, etc	c. Include any o	comments or	changes since t	he last calibration.
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1	11-	01/23/2023					
Ron Peterson,	Metrologist						



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company

Certificate number:

MP4343

Calibration Date:

01/23/2023

Purchase Order Number:

0

Environmental conditions at time of test:

Temperature: 21.2 °C

Humidity: 44.8 %

Pressure: 671.1 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, an XPE604KMC balance, and a Vaisala PTU301 Condition of Weights: Cleaned and painted

Artifact(s):

20 - 1000 lb weights

				1000 lb weights					
Nominal		Correction a	as Found	Correction	n as Left	NIST Class F	Uncertainty		Condition
	SN/ID	lb	g	lb	g	Tolerance (g)	g	k	As Left
1000 lb	13.12	-0.03	-11.5	-0.03	-11.5	45	4.8	2.0	In-Tolerance
1000 lb	13.10	0.03	13.7	0.03	13.7	45	4.8	2.0	In-Tolerance
1000 lb	13.11	-0.01	-6.1	-0.01	-6.1	45	4.8	2.0	In-Tolerance
1000 lb	13.13	0.01	6.7	0.01	6.7	45	4.8	2.0	In-Tolerance
1000 lb	13.14	-0.04	-19.8	-0.04	-19.8	45	4.8	2.0	In-Tolerance
1000 lb	13.15	-0.01	-5.5	-0.01	-5.5	45	4.8	2.0	In-Tolerance
1000 lb	13.16	-0.06	-25.7	0.00	0.1	45	4.8	2.0	Adjusted
1000 lb	13.17	0.02	8.2	0.02	8.2	45	4.8	2.0	In-Tolerance
1000 lb	13.18	-0.03	-12.7	-0.03	-12.7	45	4.8	2.0	In-Tolerance
1000 lb	13.19	-0.01	-4.6	-0.01	-4.6	45	4.8	2.0	In-Tolerance
1000 lb	13.20	-0.02	-10.7	-0.02	-10.7	45	4.8	2.0	In-Tolerance
1000 lb	13.21	-0.02	-8.0	-0.02	-8.0	45	4.8	2.0	In-Tolerance
1000 lb	13.22	-0.04	-16.3	-0.04	-16.3	45	4.8	2.0	In-Tolerance
1000 lb	13.23	-0.04	-18.2	-0.04	-18.2	45	4.8	2.0	In-Tolerance
1000 lb	13.24	-0.01	-6.4	-0.01	-6.4	45	4.8	2.0	In-Tolerance
1000 lb	13.25	-0.01	-2.9	-0.01	-2.9	45	4.8	2.0	In-Tolerance
1000 lb	13.26	-0.04	-16.9	-0.04	-16.9	45	4.8	2.0	In-Tolerance
1000 lb	13.27	-0.03	-15.1	-0.03	-15.1	45	4.8	2.0	In-Tolerance
1000 lb	13.28	-0.01	-5.2	-0.01	-5.2	45	4.8	2.0	In-Tolerance
1000 lb	13.29	-0.03	-13.1	-0.03	-13.1	45	4.8	2.0	In-Tolerance
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^{*} 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 or checked for density, and effects of magnetism or density are not included in the uncertainties.

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

Ron E Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for: Capital Scale Company Certificate number: MP4343

Calibration Date: 01/23/2023 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 20.4 °C Humidity: 45.2 % Pressure: 670.9 mmhg
Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler XPR5003SC, Mettler XPR226CDR, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage Artifact(s): 25 50 lb weights

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
50 lb	3	-1128	-1128	2300	210	2.10	In-Tolerance
50 lb	6	-1858	2	2300	210	2.10	Adjusted
50 lb	8	-618	-618	2300	210	2.10	In-Tolerance
50 lb	9	-1928	-18	2300	210	2.10	Adjusted
50 lb	10	-2098	-8	2300	210	2.10	Adjusted
50 lb	16	-1208	-18	2300	210	2.10	Adjusted
50 lb	18	-928	-928	2300	210	2.10	In-Tolerance
50 lb	19	292	292	2300	210	2.10	In-Tolerance
50 lb	20	-1038	-1038	2300	210	2.10	In-Tolerance
50 lb	22	82	82	2300	210	2.10	In-Tolerance
50 lb	24	-678	-678	2300	210	2.10	In-Tolerance
50 lb	25	82	82	2300	210	2.10	In-Tolerance
50 lb	27	-1658	-18	2300	210	2.10	Adjusted
50 lb	29	-888	-888	2300	210	2.10	In-Tolerance
50 lb	30	-948	-948	2300	210	2.10	In-Tolerance
50 lb	31	-498	-498	2300	210	2.10	In-Tolerance
50 lb	32	-2268	2	2300	210	2.10	Adjusted
50 lb	35	402	402	2300	210	2.10	In-Tolerance
50 lb	39	-2268	2	2300	210	2.10	Adjusted
50 lb	41	-78	-78	2300	210	2.10	In-Tolerance
50 lb	42	172	172	2300	210	2.10	In-Tolerance
50 lb	43	-1078	-1078	2300	210	2.10	In-Tolerance
50 lb	44	-488	-488	2300	210	2.10	In-Tolerance
50 lb	45	-1098	-1098	2300	210	2.10	In-Tolerance
50 lb	46	-348	-348	2300	210	2.10	In-Tolerance

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

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

1/23/2023

Ron E Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for: Capital Scale Company Certificate number: MP4343

Calibration Date: 01/23/2023 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 20.4 °C Humidity: 45.2 % Pressure: 670.9 mmhg
Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler XPR5003SC, Mettler XPR226CDR, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage
Artifact(s):
25 50 lb weights

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
50 lb	47	-258	-258	2300	210	2.10	In-Tolerance
50 lb	48	-738	-738	2300	210	2.10	In-Tolerance
50 lb	49	102	102	2300	210	2.10	In-Tolerance
50 lb	50	1492	1492	2300	210	2.10	In-Tolerance
50 lb	51	-2068	2	2300	210	2.10	Adjusted
50 lb	54	182	182	2300	210	2.10	In-Tolerance
50 lb	55	-1668	-28	2300	210	2.10	Adjusted
50 lb	60	-528	-528	2300	210	2.10	In-Tolerance
50 lb	61	-418	-418	2300	210	2.10	In-Tolerance
50 lb	62	-888	-888	2300	210	2.10	In-Tolerance
50 lb	64	-968	-968	2300	210	2.10	In-Tolerance
50 lb	70	-1128	-1128	2300	210	2.10	In-Tolerance
50 lb	71	-1118	-1118	2300	210	2.10	In-Tolerance
50 lb	72	-798	-798	2300	210	2.10	In-Tolerance
50 lb	80	-2808	12	2300	210	2.10	Adjusted
50 lb	11A	-2408	-18	2300	210	2.10	Adjusted
50 lb	11B	-898	-898	2300	210	2.10	In-Tolerance
50 lb	11C	292	292	2300	210	2.10	In-Tolerance
50 lb	11D	-698	-698	2300	210	2.10	In-Tolerance
50 lb	11F	-1458	22	2300	210	2.10	Adjusted
50 lb	11G	-798	-798	2300	210	2.10	In-Tolerance
50 lb	А	-868	-868	2300	210	2.10	In-Tolerance
50 lb	AAA	-1148	-1148	2300	210	2.10	In-Tolerance
50 lb	В	-1488	2	2300	210	2.10	Adjusted
50 lb	С	-158	-158	2300	210	2.10	In-Tolerance
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^{*} Adjusted artifacts are in tolerance. Rejected and Condemned artifacts were tagged and must be placed out of service.

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

1/23/2023

Ron E Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for: Capital Scale Company Certificate number: MP4343

Calibration Date: 01/23/2023 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 20.4 °C Humidity: 45.2 % Pressure: 670.9 mmhg
Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler XPR5003SC, Mettler XPR226CDR, Mettler AX206, Vaisala PTU301

Condition of Weights: Suitable for use. No significant wear or damage
Artifact(s):

14 50 lb weights

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
50 lb	D	-1578	32	2300	210	2.10	Adjusted
50 lb	Е	-988	-988	2300	210	2.10	In-Tolerance
50 lb	F	-158	-158	2300	210	2.10	In-Tolerance
50 lb	GG	-1138	-1138	2300	210	2.10	In-Tolerance
50 lb	Н	-8	-8	2300	210	2.10	In-Tolerance
50 lb	K	-2218	12	2300	210	2.10	Adjusted
50 lb	К	-958	-958	2300	210	2.10	In-Tolerance
50 lb	L	-1998	-8	2300	210	2.10	Adjusted
50 lb	М	-1518	-8	2300	210	2.10	Adjusted
50 lb	N4	-258	-258	2300	210	2.10	In-Tolerance
50 lb	R	-1078	-1078	2300	210	2.10	In-Tolerance
50 lb	Т	-778	-778	2300	210	2.10	In-Tolerance
50 lb	W	42	42	2300	210	2.10	In-Tolerance
50 lb	Υ	-1798	12	2300	210	2.10	Adjusted
				4			

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

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

1/23/2023

Ron E Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company

Certificate number:

MP4343

Calibration Date:

01/23/2023

Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 21 °C

Humidity: 44.9 %

Pressure: 670.9 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler XPR5003SC, Mettler XPR226CDR, Mettler AX206, Vaisala PTU301

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

Artifact(s):

14 piece Metric Kit

SN 11905E

Artifact(s): 14 piece Metric Kit SN 11905						11902F	
Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
2 kg		49	49	200	17	2.07	In-Tolerance
1 kg		33.0	33.0	100	8.8	2.07	In-Tolerance
500 g		27.5	27.5	70	6.1	2.07	In-Tolerance
200 g		12.8	12.8	40	3.5	2.07	In-Tolerance
200 g		18.0	18.0	40	3.5	2.07	In-Tolerance
100 g		9.9	9.9	20	1.8	2.07	In-Tolerance
50 g		5.12	5.12	10	0.87	2.07	In-Tolerance
20 g		2.69	2.69	4	0.35	2.07	In-Tolerance
20 g		0.86	0.86	4	0.35	2.07	In-Tolerance
10 g		0.34	0.34	2	0.18	2.06	In-Tolerance
5 g		0.60	0.60	1.5	0.13	2.07	In-Tolerance
2 g		0.686	0.686	1.1	0.096	2.07	In-Tolerance
2 g		0.141	0.141	1.1	0.096	2.07	In-Tolerance
1 g		0.347	0.347	0.9	0.079	2.07	In-Tolerance

^{*} 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 or checked for density, and effects of magnetism or density are not included in the uncertainties.

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

1/23/2023

Ron E Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for: Capital Scale Company Certificate number: MP4343

Calibration Date: 01/24/2023 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 20.7 °C Humidity: 45.7 % Pressure: 668 mmhg
Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler XPR5003SC, Mettler XPR226CDR, Mettler AX206, Vaisala PTU301

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

Artifact(s): 20 piece Avoirdupois Kit SN 010813A

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
5 lb	1	67	67	230	20	2.07	In-Tolerance
5 lb	2	66	66	230	20	2.07	In-Tolerance
5 lb	3	64	64	230	20	2.07	In-Tolerance
5 lb	4	62	62	230	20	2.07	In-Tolerance
5 lb	5	62	62	230	20	2.07	In-Tolerance
1 lb	1	23.5	23.5	70	6.2	2.07	In-Tolerance
1 lb	2	23.5	23.5	70	6.2	2.07	In-Tolerance
1 lb	3	25.5	25.5	70	6.2	2.07	In-Tolerance
1 lb	4	18.5	18.5	70	6.2	2.07	In-Tolerance
1 lb	5	27.5	27.5	70	6.2	2.07	In-Tolerance
8 oz		21.2	21.2	45	4.1	2.06	In-Tolerance
4 oz		9.2	9.2	23	2.0	2.05	In-Tolerance
2 oz		3.80	3.80	11	0.96	2.07	In-Tolerance
1 oz		1.66	1.66	5.4	0.48	2.04	In-Tolerance
1/2 oz		0.95	0.95	2.8	0.25	2.06	In-Tolerance
1/4 oz		0.41	0.41	1.7	0.15	2.04	In-Tolerance
1/8 oz		0.61	0.61	1.3	0.12	2.04	In-Tolerance
1/16 oz		0.15	0.15	1.1	0.11	2.05	In-Tolerance
1/32 oz		0.218	0.218	0.87	0.077	2.04	In-Tolerance
1/32 oz		0.298	0.298	0.87	0.077	2.04	In-Tolerance
							8
			-				

^{*} 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 or checked for density, and effects of magnetism or density are not included in the uncertainties.

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

May E / 1/23/2023

Ron E Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for: Capital Scale Company Certificate number: MP4343

Calibration Date: 01/24/2023 Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 20.7 °C Humidity: 45.7 % Pressure: 668 mmhg
Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler XPR5003SC, Mettler XPR226CDR, Mettler AX206, Vaisala PTU301

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

Artifact(s): 13 piece Avoirdupois Kit SN 11905A

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
10 lb		63	63	450	39	2.07	In-Tolerance
10 lb		100	100	450	39	2.07	In-Tolerance
5 lb		-91	-91	230	20	2.07	In-Tolerance
2 lb		33.4	33.4	91	8.0	2.07	In-Tolerance
2 lb		18.4	18.4	91	8.0	2.07	In-Tolerance
1 lb		-4.6	-4.6	70	6.2	2.07	In-Tolerance
8 oz		14.2	14.2	45	4.1	2.06	In-Tolerance
4 oz		-4.2	-4.2	23	2.0	2.05	In-Tolerance
1 oz		2.92	2.92	5.4	0.48	2.04	In-Tolerance
1 oz		2.95	2.95	5.4	0.48	2.04	In-Tolerance
1 oz		1.69	1.69	5.4	0.48	2.04	In-Tolerance
1/2 oz		1.44	1.44	2.8	0.25	2.06	In-Tolerance
1/4 oz		-1.21	-1.21	1.7	0.15	2.04	In-Tolerance

^{*} 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 or checked for density, and effects of magnetism or density are not included in the uncertainties.

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

None 1 1/23/2023

Ron E Peterson, Metrologist



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

Capital Scale Company (520 DSH)

SA# **61**

Certificate number:

MP4309

Physical Address:

Billing Address:

3021 Valley Forge Dr

3021 Valley Forge Dr Bismarck, ND 58503

Bismarck, ND 58503

Contact:

Travis Will

Received Date:

08/22/2022

Phone:

701-255-1556

Certificate Issued:

08/23/2022

Artifacts Submitted and Summary of Results:

Quantity	Artifact	Total Pieces	Recvd in Tol	Adjusted	Rejected	As Left In Tolerance
2	2000 lb Weight Carts	2	2	2	0	2
16	1000 lb Cast Weights	16	16	4	0	16
20	50 lb Cast Weights	20	1	19	0	20
1 '	lb Weight Kit	20	20	0	0	20
1	Metric Weight Kit	14	14	0	0	14
,						

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 (2018), 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.) and 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.

This document does not represent or imply endorsement by NIST Office of Weights and Measures or any agency of the State and/or national governments. This report may not be reproduced, except in full without the written approval of this laboratory. The client must not use this document to claim product endorsement by this laboratory.

08/23/2022

Ron E Peterson, Metrologist

Defel Johnson

08/23/2022

Dwight R Johnson, Reviewer



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company (520 DSH)

Certificate number:

MP4309

Calibration Date:

08/23/2022

Purchase Order Number:

0

Environmental conditions at time of test:

Temperature: 22.8 °C

Humidity: 47.4%

Pressure: 669.2 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019 Test equipment used: Lab standards traceable to the SI, an XPE604KMC balance, and a Vaisala PTU301

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

Artifact(s):

16 - 1000 lb weights

Nominal		Correction a	s Found	Correction	n as Left	NIST Class F	Uncertainty		Condition
	SN/ID	lb	g	lb	g	Tolerance (g)	g	k	As Left
1000 lb	13.1	-0.05	-21.2	-0.05	-21.2	45	4.5	2.1	In-Tolerance
1000 lb	13.2	-0.04	-18.5	-0.04	-18.5	45	4.5	2.1	In-Tolerance
1000 lb	13.3	-0.06	-27.0	0.00	0.0	45	4.5	2.1	Adjusted
1000 lb	13.4	-0.04	-19.9	-0.04	-19.9	45	4.5	2.1	In-Tolerance
1000 lb	13.5	0.00	-0.7	0.00	-0.7	45	4.5	2.1	In-Tolerance
1000 lb	13.6	-0.07	-32.1	0.00	-0.1	45	4.5	2.1	Adjusted
1000 lb	13.7	-0.04	-19.5	-0.04	-19.5	45	4.5	2.1	In-Tolerance
1000 lb	13.8	-0.06	-25.5	0.00	0.0	45	4.5	2.1	Adjusted
1000 lb	13.9	-0.02	-11.2	-0.02	-11.2	45	4.5	2.1	In-Tolerance
1000 lb	16.1	0.08	35.1	0.08	35.1	45	4.5	2.1	In-Tolerance
1000 lb	16.2	-0.01	-4.1	-0.01	-4.1	45	4.5	2.1	In-Tolerance
1000 lb	16.3	-0.04	-19.3	-0.04	-19.3	45	4.5	2.1	In-Tolerance
1000 lb	16.4	-0.07	-31.3	0.00	0.2	45	4.5	2.1	Adjusted
1000 lb	16.5	-0.02	-9.3	-0.02	-9.3	45	4.5	2.1	In-Tolerance
1000 lb	16.6	0.00	-1.1	0.00	-1.1	45	4.5	2.1	In-Tolerance
1000 lb	16.7	-0.05	-21.7	-0.05	-21.7	45	4.5	2.1	In-Tolerance
									T

^{*} 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 or checked for density, and effects of magnetism or density are not included in the uncertainties.

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

08/23/2022

Ron Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company (520 DSH)

Certificate Number: MP4309

Calibration Date:

08/23/2022

Environmental conditions at time of test:

Temperature: 21.3 °C

Humidity: 50.9 %

Pressure: 669.5 mmhg

Test method used: SOP 33, Calibrations of Weight Carts, May 2019.

Test equipment used: Recently calibrated weights and a Mettler-Toledo load cell and Indicator.

Condition of Carts: Used but in good condition

Manufacturer: Unk

SN: 2016-1

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	k	Tolerance (lb)	Condition as Left
2000	0.30	136.19	0.02	7.42	0.12	2.04	0.70	In Tolerance

Notes:

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.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as possible to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent

Conformity Assessment:

The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

08/23/2022

Ron Peterson, Metrologist



Lab: 1500 N Garfield – E. Truck Bypass Phone: 605-773-3170
Office: 118 West Capitol Avenue Phone: 605-773-3697
Pierre SD 57501



Inspection Checklist for Weight Cart

Calibrated for:	Capital Scale Company (520 D	OSH)	Certificate n	umber:	MP4309
Calibration Date:	08/23/2022				
Manufacturer:	Unk	D	ate of Manufacture	Unk	
Model Number:	unk	11	D/SN Number	2016-1	
	,				
✓ Nominal Mas	ss of Weight Cart	2000 lbs	Suitably mar	ked: Yes/No	Yes
✓ Powered by:	Electric/generator	✓	Diesel	Gasoline	
√ Fluid Levels:	Engine Oil		ii	_	. ,
	Hydraulic Fluid		:	Sealed: Yes/No	
	Battery	✓	:	Sealed: Yes/No	
	Liquid Fuel		Reference Line Pr	esent: Yes/No	
√ Fluid drain to	ubes extend beyond the body o	of the cart: Yes/N	No Yes		
✓ Number of a	xles:	2	,	-	
✓ Number /Siz	e of Tires	18x7x12 1/8			
✓ Sealed whee	el bearings: Yes/No	Yes			
✓ Drain holes p	present in locations where wat	er may accumula	ate: Yes/No	Yes	1
✓ Weight restr	aint railing permanently fixed a	and solid: Yes/N	lo	Yes	
✓ Adjusting car	vity accessible: Yes/No	Yes	Approximat	e capacity:(lbs)	25 lb
✓ Adjusting car	vity sealed: Yes/No	Yes			
✓ Service brake	es functioning properly: Yes/No	0	Yes		
✓ Parking brak	es functioning properly: Yes/N	。	Yes		
Remote con	trol functioning properly: Yes/I	No			
	dition at time of calibration (no	ote any accumula	ated dirt/debris, damage,	loose parts, or	evidence of
√ tampering o	r unauthorized entry of seals).				
	ort any repair and maintenance em, wheels changed, welding p				
✓ CANAGSE SYST	em, wheels changed, welding p	periorineu, etc.	include any comments of	changes since t	ne iast calibration.
None Pl	08/23/2022				

Ver 20210927

Ron Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg D Sturgis, SD 57785 Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company (520 DSH)

Certificate Number: MP4309

Calibration Date:

08/23/2022

Environmental conditions at time of test:

Temperature: 21.7 °C

Humidity: 49.5 %

Pressure: 669.4 mmhg

Test method used: SOP 33, Calibrations of Weight Carts, May 2019.

Test equipment used: Recently calibrated weights and a Mettler-Toledo load cell and Indicator.

Condition of Carts: Used but in good condition

Manufacturer: Unk

SN: 2016-2

Nominal (lb)	AS Found (lb)	As Found (g)	As Left (lb)	As Left (g)	Uncertainty (lb)	k	Tolerance (lb)	Condition as Left
2000	-0.12	-53.11	-0.01	-3.78	0.12	2.04	0.70	In Tolerance

Notes:

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.

The above weight cart was allowed to come to environmental equilibrium in the laboratory prior to calibration. The weight cart was adjusted if needed and as noted above to as close as possible to zero error. All fluid levels must be maintained as close to reference levels as possible during use. Any maintenance, repairs or damage to weight cart or its components will likely result in an out-of-tolerance condition; therefore, maintenance or replacement of components such as batteries, tires, filters, etc. will require re-calibration of the weight cart prior to subsequent

Conformity Assessment:

The weight cart identified on this calibration certificate complies with NIST Handbook 105-8, 2019 specifications and tolerances. Additional details regarding the assessment are included in the associated checklist that is an integral part of this calibration certificate. The weight cart was found (or adjusted) to within the specified tolerances.

The above weight cart was compared with standards of the State of South Dakota, which are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and have current calibration values. The assigned certificate number provides documented evidence for measurement traceability.

Mon, E 1 08/23/2022

Ron Peterson, Metrologist



South Dakota Department of Public Safety Office of Weights and Measures Metrology Lab Lab: 1500 N Garfield – E. Truck Bypass Phone: 605-773-3170 Office: 118 West Capitol Avenue Phone: 605-773-3697



Pierre SD 57501

C-17			Checklist for	Weight Cart			
Calibrated for		Capital Scale Company (5	20 DSH)		Certificate n	umber:	MP4309
Calibration Da	ite:	08/23/2022					
Manufacturer	:	Unk		Date of Manu	facture	Unk	
Model Numbe	er:	unk		ID/SN Numbe	r	2016-2	
				4		2000	
	Nominal Mas	s of Weight Cart	2000 lbs	_	Suitably mar	ked: Yes/No	Yes
✓	Powered by:	Electric/genera	itor 🗸	Diesel		Gasoline	
✓	Fluid Levels:	Engine Oil					•
		Hydraulic F	uid			Sealed: Yes/No	
		Batt	ery			Sealed: Yes/No	
		Liquid Fue	el	Refe	rence Line P	resent: Yes/No	
✓	Fluid drain tu	bes extend beyond the bo	dy of the cart: Ye	s/No	Yes	7	
	Number of ax	des:		2			
✓	Number /Size	e of Tires	18x7x12 1/8				
	Sealed wheel	bearings: Yes/No	Yes				
✓	Drain holes p	resent in locations where	water may accum	nulate: Yes/No		Yes	
✓	Weight restra	aint railing permanently fix	ed and solid: Yes	s/No		Yes	1
✓	Adjusting cav	rity accessible: Yes/No	Yes	1	Approximat	te capacity:(lbs) 25 lb
✓	Adjusting cav	rity sealed: Yes/No	Yes	1			
✓	Service brake	es functioning properly: Ye	s/No	Yes			
✓	Parking brake	es functioning properly: Ye	s/No	Yes			
	Remote cont	rol functioning properly: Y	es/No				
					•		
		lition at time of calibration		nulated dirt/deb	ris, damage,	loose parts, or	evidence of
✓	tampering or	unauthorized entry of sea	ls).				
		rt any repair and maintena					
✓ -	exilaust syste	em, wheels changed, weldi	ng performed, et	.c. include any c	omments or	cnanges since	the last calibration.
Monor 1	1	08/23/2022					
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							

Ron Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541
Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company (520 DSH)

Certificate number:

MP4309

Calibration Date:

08/23/2022

Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 23.8 °C

Humidity: 46.3 %

Pressure: 669 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

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

Artifact(s):

20 50 lb weights

Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
50 lb	1	-1723	2	2300	200	2.0	Adjusted
50 lb	12	-1308	42	2300	200	2.0	Adjusted
50 lb	14	-2988	-3	2300	200	2.0	Adjusted
50 lb	17	-467978	12	2300	200	2.0	Adjusted
50 lb	28	-3078	-18	2300	200	2.0	Adjusted
50 lb	38	-2653	-3	2300	200	2.0	Adjusted
50 lb	43	1632	-18	2300	200	2.0	Adjusted
50 lb	56	91	91	2300	200	2.0	In-Tolerance
50 lb	59	-3183	17	2300	200	2.0	Adjusted
50 lb	65	-4948	-18	2300	200	2.0	Adjusted
50 lb	67	-4308	-18	2300	200	2.0	Adjusted
50 lb	68	-4933	-8	2300	200	2.0	Adjusted
50 lb	78	-1008	2	2300	200	2.0	Adjusted
50 lb	79	-2968	-28	2300	200	2.0	Adjusted
50 lb	F	-2898	12	2300	200	2.0	Adjusted
50 lb	Р	-4068	2	2300	200	2.0	Adjusted
50 lb	W	-2588	-8	2300	200	2.0	Adjusted
50 lb	Х	-21103	-13	2300	200	2.0	Adjusted
50 lb	Y	-2143	-8	2300	200	2.0	Adjusted
50 lb	Z	-18478	2	2300	200	2.0	Adjusted

^{*} 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 or checked for density, and effects of magnetism or density are not included in the uncertainties.

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

08/23/2022

Ron Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company (520 DSH)

Certificate number:

MP4309

Calibration Date:

08/22/2022

Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 21.2 °C

Humidity: 45 %

Pressure: 670 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

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

Artifact(s):

14 piece Metric Class F Kit

SN F308

	Artifact(s):	14	piece Metric Class F Kit		SN		
Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
2 kg		33	33	200	18	2.1	In-Tolerance
1 kg		29.0	29.0	100	8.8	2.1	In-Tolerance
500 g		7.5	7.5	70	6.2	2.1	In-Tolerance
200 g		10.5	10.5	40	3.5	2.1	In-Tolerance
200 g		13.2	13.2	40	3.5	2.1	In-Tolerance
100 g		6.8	6.8	20	1.8	2.1	In-Tolerance
50 g		2.04	2.04	10	0.90	2.1	In-Tolerance
20 g		1.49	1.49	4	0.36	2.1	In-Tolerance
20 g		0.52	0.52	4	0.36	2.1	In-Tolerance
10 g		0.82	0.82	2	0.21	2.1	In-Tolerance
5 g		0.16	0.16	1.5	0.13	2.1	In-Tolerance
2 g		0.90	0.90	1.1	0.10	2.1	In-Tolerance
2 g		0.69	0.69	1.1	0.10	2.1	In-Tolerance
1 g		0.282	0.282	0.9	0.082	2.1	In-Tolerance

^{*} 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 or checked for density, and effects of magnetism or density are not included in the uncertainties.

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

08/23/2022

Ron Peterson, Metrologist



Lab: 1100 Otter Rd, Bldg. D Sturgis, SD 57785 Phone: 605-347-7541 Office: 118 West Capitol Avenue Pierre, SD 57501 Phone: 605-773-3697



CALIBRATION CERTIFICATE

Calibrated for:

Capital Scale Company (520 DSH)

Certificate number:

MP4309

Calibration Date:

08/22/2022

Purchase Order Number: 0

Environmental conditions at time of test:

Temperature: 21.2 °C

Humidity: 45 %

Pressure: 670 mmhg

Test method used: SOP 8 Medium Accuracy Calibrations of Mass Standards by Modified Subtitution, May 2019

Test equipment used: Lab standards traceable to the SI, Mettler AX205, Mettler XPR5003SC, Mettler AX206, Vaisala PTU301

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

Artifact(s):

20 piece Avoirdupois Class F Kit

SN 1190SD

	Artifact(s):	20	piece Avoirdupois Class F	KIT	SN		
Nominal		Correction as Found	Correction as Left	NIST Class F	Uncertainty		Condition
	SN/ID	mg	mg	Tolerance (mg)	mg	k	As Left
5 lb	1	36	36	230	20	2.1	In-Tolerance
5 lb	2	101.4	101.4	230	20	2.1	In-Tolerance
5 lb	3	127.4	127.4	230	20	2.1	In-Tolerance
5 lb	4	15.4	15.4	230	20	2.1	In-Tolerance
5 lb	5	45.4	45.4	230	20	2.1	In-Tolerance
1 lb	1	29.5	29.5	70	6.2	2.1	In-Tolerance
1 lb	2	11.45	11.45	70	6.2	2.1	In-Tolerance
1 lb	3	15.45	15.45	70	6.2	2.1	In-Tolerance
1 lb	4	29.45	29.45	70	6.2	2.1	In-Tolerance
1 lb	5	34.45	34.45	70	6.2	2.1	In-Tolerance
8 oz		7.19	7.19	45	4.0	2.1	In-Tolerance
4 oz		3.79	3.79	23	2.0	2.1	In-Tolerance
2 oz		2.14	2.14	11	1.1	2.1	In-Tolerance
1 oz		1.883	1.883	5.4	0.47	2.1	In-Tolerance
1/2 oz		1.47	1.47	2.8	0.30	2.1	In-Tolerance
1/4 oz		1.18	1.18	1.7	0.15	2.1	In-Tolerance
1/8 oz		0.3	0.3	1.3	0.12	2.1	In-Tolerance
1/16 oz		0.6	0.6	1.1	0.10	2.1	In-Tolerance
1/32 oz		0.3	0.3	0.87	0.079	2.1	In-Tolerance
1/32 oz		0.30	0.30	0.87	0.079	2.1	In-Tolerance
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08/23/2022

Ron Peterson, Metrologist