



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: September 12, 2017
Cal. Date: September 12, 2017
Report Date: September 12, 2017

Report No.: 338207
Set Serial No.: Baldor and B & D
Barcode: 201440

Calibration Certificate

MINDAK SCALE SALES & SERVICE
9628 PORTAL DRIVE
EDEN PRAIRIE, MN 55347
Contact: BRAD ZARTH
Phone: 952-944-8916
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 11

Item(s) Submitted: 2 - 2000 lb Weight Carts
Manufacturer: Howe
Weight Type: NA
Equipment ID: None
Condition: Good
Temperature: 19.9 °C
Pressure: 737.1 mmHg
Relative Humidity: 52.8 %

Nominal Value	Serial No.	CM Correction (g)		NIST HB105-8 Tolerance		k	U (g)
		As Found	As Left	As Found	As Left		
2000 lb	Baldor	63	63	Meets	Meets	2.05	60.
2000 lb	B & D	293	3	*	Meets	2.05	60.

* Weight(s) as found exceed NIST HB105-8 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/cm³ density and an air density of 1.2 mg/cm³ 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 105-8 (2003). 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.

Pete Whebbe
Pete J. Whebbe
Metrologist

Reviewed by:
Erik Alfvin
Erik Alfvin
Metrologist



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Receipt Date: September 12, 2017
 Cal. Date: September 12, 2017
 Report Date: September 12, 2017

Report No.: 338206
 Set Serial No.: 1 thru 16
 Barcode: 201441

Calibration Certificate

MINDAK SCALE SALES & SERVICE
 9628 PORTAL DRIVE
 EDEN PRAIRIE, MN 55347
 Contact: BRAD ZARTH
 Phone: 952-944-8916
 PO Number: NONE
 Procedure: NIST SOP 8
 Technician ID: 11

Item(s) Submitted: Cast Cube Weights
 Manufacturer: Assorted
 Weight Type: II
 Equipment ID: None
 Condition: Good
 Temperature: 19.6 °C
 Pressure: 735.4 mmHg
 Relative Humidity: 51.6 %

Nominal Value	Serial No.	CM Correction (g)		NIST HB105-1 Class		k	U (g)
		As Found	As Left	As Found	As Left		
1000 lb	1	-33.5	-33.5	F	F	2.01	1.5
1000 lb	2	-38.5	-38.5	F	F	2.01	1.5
1000 lb	3	-15.5	-15.5	F	F	2.01	1.5
1000 lb	4	-20.5	-20.5	F	F	2.01	1.5
1000 lb	5	-4.5	-4.5	F	F	2.01	1.5
1000 lb	6	-56.5	3.5	*	F	2.01	1.5
1000 lb	7	-17.5	-17.5	F	F	2.01	1.5
1000 lb	8	-50.5	4.5	*	F	2.01	1.5
1000 lb	9	-4.5	-4.5	F	F	2.01	1.5
1000 lb	10	0.5	0.5	F	F	2.01	1.5
1000 lb	11	-27.5	-27.5	F	F	2.01	1.5
1000 lb	12	-2.5	-2.5	F	F	2.01	1.5
1000 lb	13	-50.5	4.5	*	F	2.01	1.5
1000 lb	14	-25.5	-25.5	F	F	2.01	1.5
1000 lb	15	-65.5	-0.5	*	F	2.01	1.5
1000 lb	16	-20.5	-20.5	F	F	2.01	1.5

* Weight(s) as found 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/cm³ density and an air density of 1.2 mg/cm³ 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.

Pete Whebbe

Pete Whebbe
 Metrologist

Reviewed by:

Erik Alfvin

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 Metrologist





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Receipt Date: September 12, 2017 Report No.: 338209
 Cal. Date: September 12, 2017 Set Serial No.: None
 Report Date: September 12, 2017 Barcode: 201412

Calibration Certificate

MINDAK SCALE SALES & SERVICE
 9628 PORTAL DRIVE
 EDEN PRAIRIE, MN 55347
 Contact: BRAD ZARTH
 Phone: 952-944-8916
 PO Number: NONE
 Procedure: NIST SOP 8
 Technician ID: 11

Item(s) Submitted: Cast Cube Weights
 Manufacturer: Rice Lake
 Weight Type: II
 Equipment ID: None
 Condition: Good
 Temperature: 19.8 °C
 Pressure: 734.4 mmHg
 Relative Humidity: 52.7 %

Nominal Value	Serial No.	CM Correction (g)		NIST HB105-1 Class		k	U (g)
		As Found	As Left	As Found	As Left		
500 lb		-46.78	-0.78	*	F	2.01	0.90
500 lb		-28.58	1.92	*	F	2.01	0.90
500 lb		-28.28	3.82	*	F	2.01	0.90
500 lb		-37.48	1.32	*	F	2.01	0.90

* Weight(s) as found 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/cm³ density and an air density of 1.2 mg/cm³ 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.

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Receipt Date: September 12, 2017
Cal. Date: September 13, 2017
Report Date: September 13, 2017

Report No.: 338211
Set Serial No.: None
Barcode: 201410

Calibration Certificate

MINDAK SCALE SALES & SERVICE
9628 PORTAL DRIVE
EDEN PRAIRIE, MN 552347
Contact: BRAD ZARTH
Phone: 952-944-8916
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 11

Item(s) Submitted: Cast Hand Weights
Manufacturer: Assorted
Weight Type: II
Equipment ID: None
Condition: Good
Temperature: 19.9 °C
Pressure: 729.6 mmHg
Relative Humidity: 49.3 %

Nominal Value		Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
			As Found	As Left	As Found	As Left		
50 lb		518-59	1224	1224	F	F	2.01	56
50 lb			1124	1124	F	F	2.01	56
50 lb			2554	74	*	F	2.01	56
50 lb			604	604	F	F	2.01	56
50 lb		HR-C115	1274	1274	F	F	2.01	56
50 lb			864	864	F	F	2.01	56
50 lb			104	104	F	F	2.01	56
50 lb		518-24	3344	134	*	F	2.01	56
50 lb			2304	124	*	F	2.01	56
50 lb			2054	2054	F	F	2.01	56
50 lb			1824	1824	F	F	2.01	56
50 lb			2164	184	F	F	2.01	56
50 lb		518-56	164	164	F	F	2.01	56
50 lb		518-44	2544	4	*	F	2.01	56
50 lb			2284	154	*	F	2.01	56
50 lb			2664	-16	*	F	2.01	56
50 lb			-116	-116	F	F	2.01	56
50 lb			2484	284	*	F	2.01	56
50 lb			3574	814	*	F	2.01	56
50 lb		HR-C112	2464	94	*	F	2.01	56
50 lb			2994	-6	*	F	2.01	56
50 lb		518-26	3064	-56	*	F	2.01	56
50 lb			1964	1964	F	F	2.01	56
50 lb		HR-C117	3824	274	*	F	2.01	56
50 lb			1954	1954	F	F	2.01	56
50 lb			3054	14	*	F	2.01	56

* Weight(s) as found exceed NIST HB105-1 Class F tolerance.



Receipt Date: September 12, 2017
Cal. Date: September 13, 2017
Report Date: September 13, 2017

Report No.:
Set Serial No.:
Barcode:

Continued,
338211
None
201410

Calibration Certificate

MINDAK SCALE SALES & SERVICE
9628 PORTAL DRIVE
EDEN PRAIRIE, MN 552347
Contact: BRAD ZARTH
Phone: 952-944-8916
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 11


Item(s) Submitted: Cast Hand Weights
Manufacturer: Assorted
Weight Type: II
Equipment ID: None
Condition: Good
Temperature: 19.9 °C
Pressure: 729.6 mmHg
Relative Humidity: 49.3 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
50 lb	518-53	1864	1864	F	F	2.01	56
50 lb		2554	1994	*	F	2.01	56
50 lb		-16	-16	F	F	2.01	56
50 lb		-356	-356	F	F	2.01	56

* Weight(s) as found 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/cm³ density and an air density of 1.2 mg/cm³ 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.

Pete Whebbe


Metrologist

Reviewed by:

Erik Alfvín

Metrologist



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Receipt Date: September 12, 2017
 Cal. Date: September 13 & 14, 2017
 Report Date: September 14, 2017

Report No.: 338212
 Set Serial No.: None
 Barcode: 201411

Calibration Certificate

MINDAK SCALE SALES & SERVICE
 9628 PORTAL DRIVE
 EDEN PRAIRIE, MN 55347
 Contact: BRAD ZARTH
 Phone: 952-944-8916
 PO Number: NONE
 Procedure: NIST SOP 8
 Technician ID: 11

Item(s) Submitted: Cast Hand Weights
 Manufacturer: Assorted
 Weight Type: II
 Equipment ID: None
 Condition: Good
 Temperature: 19.8 °C
 Pressure: 729.9 mmHg
 Relative Humidity: 50.4 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
50 lb	518-38	1424	1424	F	F	2.01	56
50 lb	518-07	3494	354	*	F	2.01	56
50 lb		3034	24	*	F	2.01	56
50 lb		1194	1194	F	F	2.01	56
50 lb		4674	944	*	F	2.01	56
50 lb	518-40	4854	764	*	F	2.01	56
50 lb		1734	1734	F	F	2.01	56
50 lb		1824	1824	F	F	2.01	56
50 lb		1254	1254	F	F	2.01	56
50 lb		-1636	-1636	F	F	2.01	56
50 lb		644	644	F	F	2.01	56
50 lb	518-46	974	974	F	F	2.01	56
50 lb		394	394	F	F	2.01	56
50 lb		-1506	-1506	F	F	2.01	56
50 lb		1814	1814	F	F	2.01	56
50 lb	518-25	2114	2114	F	F	2.01	56
50 lb		1464	1464	F	F	2.01	56
50 lb		1274	1274	F	F	2.01	56
50 lb		1184	1184	F	F	2.01	56
50 lb		1484	1484	F	F	2.01	56

* Weight(s) as found exceed NIST HB105-1 Class F tolerance.



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Receipt Date: September 12, 2017
 Cal. Date: September 13 & 14, 2017
 Report Date: September 14, 2017

Report No.: 338212
 Set Serial No.: None
 Barcode: 201411

Continued,

Calibration Certificate

MINDAK SCALE SALES & SERVICE
 9628 PORTAL DRIVE
 EDEN PRAIRIE, MN 55347
 Contact: BRAD ZARTH
 Phone: 952-944-8916
 PO Number: NONE
 Procedure: NIST SOP 8
 Technician ID: 11

Item(s) Submitted: Cast Hand Weights
 Manufacturer: Assorted
 Weight Type: II
 Equipment ID: None
 Condition: Good
 Temperature: 19.8 °C
 Pressure: 729.9 mmHg
 Relative Humidity: 50.4 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
30 lb		467	467	F	F	2.02	56
30 lb		-713	-713	F	F	2.02	56
30 lb		2007	-13	*	F	2.02	56
20 lb	518-64	747	747	F	F	2.02	52
20 lb		437	437	F	F	2.02	52

* Weight(s) as found 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/cm³ density and an air density of 1.2 mg/cm³ 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.

Pete Whebbe

Pete J. Whebbe
 Metrologist

Reviewed by:

Erik Alfvin

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 Metrologist



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Receipt Date: September 12, 2017
Cal. Date: September 18, 2017
Report Date: September 18, 2017

Report No.: 338217
Set Serial No.: None
Barcode: 201409

Calibration Certificate

MINDAK SCALE SALES & SERVICE
9628 PORTAL DRIVE
EDEN PRAIRIE, MN 55347
Contact: BRAD ZARTH
Phone: 952-944-8916
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 11

Item(s) Submitted: Cast Hand & Plated Cylinder Weights
Manufacturer: Assorted
Weight Type: II
Equipment ID: None
Condition: Fair
Temperature: 19.2 °C
Pressure: 738.8 mmHg
Relative Humidity: 47.1 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
10 lb	Cast	130	130	6	6	2.01	12
5 . lb		88.2	88.2	5	5	2.01	6.0
5 .. lb		-43.8	-43.8	5	5	2.01	6.0
2 . lb		31.5	31.5	5	5	2.01	3.1
2 .. lb		-75.1	-75.1	6	6	2.01	3.1
2 ... lb		18.5	18.5	5	5	2.01	3.1
1 lb		4.4	4.4	4	4	2.01	1.6
500 g		-17.2	-17.2	5	5	2.02	2.0
500 . g		-2.0	-2.0	4	4	2.02	2.0

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/cm³ density and an air density of 1.2 mg/cm³ 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 ASTM E617 (2013). 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.

Pete Whebbe

Pete J. Whebbe
Metrologist

Reviewed by:

Erik Alfvin

Erik Alfvin
Metrologist



CALIBRATION
NVLAP LAB CODE 105003-0

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Receipt Date: September 12, 2017
 Cal. Date: September 19th & 25th, 2017
 Report Date: September 25, 2017

Report No.: 338213
 Set Serial No.: NONE
 Barcode: 018633


Calibration Certificate


MINDAK SCALE SALES & SERVICE
 9628 PORTAL DRIVE
 EDEN PRAIRIE, MN 55347
 Contact: BRAD ZARTH
 Phone: 952-944-8916
 PO Number: NONE
 Procedure: NIST SOP 8
 Technician ID: 09

Item(s) Submitted: Ratio Weight Set
 Manufacturer: WEISS
 Weight Type: II
 Equipment ID: None
 Condition: Fair
 Temperature: 19.2 °C
 Pressure: 734.4 mmHg
 Relative Humidity: 45.2 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
3 lb		-23.1	-23.1	5	5	2.01	3.9
2 lb		-38.0	-38.0	5	5	2.01	3.1
1 lb		-22.8	-22.8	5	5	2.01	1.6
1/2 lb		5.7	5.7	5	5	2.01	1.3
1/4 lb		-0.60	-0.60	4	4	2.00	0.22
1 lb	hook	26.1	26.1	6	6	2.01	1.6
2/5 lb		-13.70	-13.70	6	6	2.00	0.55
1/3 lb	dull	-10.33	-10.33	7	7	2.00	0.55
1/3 lb	shiny	-9.90	-9.90	7	7	2.00	0.55
1/5 lb		8.00	8.00	5	5	2.02	0.22
1/5 lb		-0.92	-0.92	4	4	2.02	0.22
1/6 lb		-1.73	-1.73	5	5	2.00	0.25
1/10 lb		4.14	4.14	5	5	2.02	0.14

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/cm³ density and an air density of 1.2 mg/cm³ 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 ASTM E617 (2013). 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.

Heidi Jones

 Laboratory Administrator

Reviewed by:
 Erik Alfvén

 Metrologist



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Receipt Date: September 12, 2017
Cal. Date: September 18, 2017
Report Date: September 18, 2017

Report No.: 338214
Set Serial No.: None
Barcode: 018653

Calibration Certificate


MINDAK SCALE SALES & SERVICE
9628 PORTAL DRIVE
EDEN PRAIRIE, MN 55347
Contact: BRAD ZARTH
Phone: 952-944-8916
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 11

Item(s) Submitted: Slot Weight Kit
Manufacturer: Unknown
Weight Type: I & II
Equipment ID: None
Condition: Fair
Temperature: 19.5 °C
Pressure: 738.9 mmHg
Relative Humidity: 47.6 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
8 lb		98	98	5	5	2.01	12
8 lb		206	206	6	6	2.01	12
8 lb		161	161	5	5	2.01	12
8 lb		163	163	5	5	2.01	12
4 lb		-56.7	-56.7	5	5	2.01	6.0
2 lb		-29.4	-29.4	5	5	2.01	3.1

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/cm³ density and an air density of 1.2 mg/cm³ 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 ASTM E617 (2013). 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.

Pete Whebbe


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Erik Alfvin


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Receipt Date: September 12, 2017 Report No.: 338215
 Cal. Date: September 19th & 20th, 2017 Set Serial No.: None
 Report Date: September 20, 2017 Barcode: 202154

Calibration Certificate

MINDAK SCALE SALES & SERVICE
 9628 PORTAL DRIVE
 EDEN PRAIRIE, MN 55347
 Contact: BRAD ZARTH
 Phone: 952-944-8916
 PO Number: NONE
 Procedure: NIST SOP 8
 Technician ID: 09

Item(s) Submitted: 30 lb kit w/ decimals & fractions
 Manufacturer: Rice Lake
 Weight Type: I & II
 Equipment ID: None
 Condition: Excellent
 Temperature: 19.4 °C
 Pressure: 729.7 mmHg
 Relative Humidity: 47.8 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
10 lb		58	58	F	F	2.01	12
10 lb		63	63	F	F	2.01	12
5 lb		94.2	94.2	F	F	2.01	6.0
2 lb		38.8	38.8	F	F	2.01	3.1
2 lb		38.0	38.0	F	F	2.01	3.1
1 lb		16.2	16.2	F	F	2.01	1.6
0.2 lb		9.52	9.52	F	F	2.02	0.22
0.2 lb		4.43	4.43	F	F	2.02	0.22
0.1 lb		3.87	3.87	F	F	2.02	0.14
0.05 lb		1.30	1.30	F	F	2.02	0.11
0.02 lb		0.292	0.292	F	F	2.02	0.066
0.02 lb		0.621	0.621	F	F	2.02	0.066
0.01 lb		0.695	0.695	F	F	2.02	0.052
0.005 lb		0.346	0.346	F	F	2.02	0.073
0.002 lb		0.098	0.098	F	F	2.02	0.047
0.002 lb		0.094	0.094	F	F	2.02	0.047
0.001 lb		0.204	0.204	F	F	2.02	0.041



DEPARTMENT OF COMMERCE
WEIGHTS & MEASURES DIVISION

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Receipt Date: September 12, 2017
 Cal. Date: September 19th & 20th, 2017
 Report Date: September 20, 2017

Report No.: 338215
 Set Serial No.: None
 Barcode: 202154

Continued,


Calibration Certificate

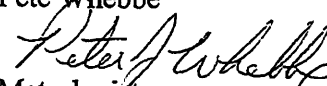
MINDAK SCALE SALES & SERVICE
 9628 PORTAL DRIVE
 EDEN PRAIRIE, MN 55347
 Contact: BRAD ZARTH
 Phone: 952-944-8916
 PO Number: NONE
 Procedure: NIST SOP 8
 Technician ID: 09

Item(s) Submitted: 30 lb kit w/ decimals & fractions
 Manufacturer: Rice Lake
 Weight Type: I & II
 Equipment ID: None
 Condition: Excellent
 Temperature: 19.4 °C
 Pressure: 729.7 mmHg
 Relative Humidity: 47.8 %

Nominal Value	Serial No.	CM Correction (mg)		NIST HB105-1 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
8 oz		13.2	13.2	F	F	2.01	1.3
4 oz		7.77	7.77	F	F	2.00	0.22
2 oz		3.07	3.07	F	F	2.00	0.14
1 oz		1.97	1.97	F	F	2.00	0.11
1/2 oz		0.164	0.164	F	F	2.00	0.092
1/4 oz		0.276	0.276	F	F	2.00	0.056
1/8 oz		0.292	0.292	F	F	2.00	0.046
1/16 oz		0.090	0.090	F	F	2.00	0.070
1/32 oz		0.533	0.533	F	F	2.00	0.044
1/32 oz		0.364	0.364	F	F	2.00	0.044

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/cm³ density and an air density of 1.2 mg/cm³ 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.

Heidi Jones

 Laboratory Administrator

Reviewed by:
 Pete Whebbe

 Metrologist



DEPARTMENT OF COMMERCE
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Receipt Date: September 12, 2017
Cal. Date: September 19, 2017
Report Date: September 20, 2017

Report No.: 338216
Set Serial No.: None
Barcode: 201398

Calibration Certificate

MINDAK SCALE SALES & SERVICE
9628 PORTAL DRIVE
EDEN PRAIRIE, MN 55347
Contact: BRAD ZARTH
Phone: 952-944-8916
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 09

Item(s) Submitted: Metric Weight Set
Manufacturer: Rice Lake
Weight Type: II
Equipment ID: None
Condition: Good
Temperature: 19.0 °C
Pressure: 733.8 mmHg
Relative Humidity: 45.9 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
5000 g		9	9	4	4	2.04	13
2000 g		4.1	4.1	4	4	2.02	5.7
2000 g		5.1	5.1	4	4	2.02	5.7
1000 g		2.1	2.1	4	4	2.02	2.5
500 g		0.9	0.9	4	4	2.02	2.0

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/cm³ density and an air density of 1.2 mg/cm³ 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 ASTM E617 (2013). 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.

Heidi Jones
Heidi Jones
Laboratory Administrator

Reviewed by:
Pete Whebbe
Pete Whebbe
Metrologist





DEPARTMENT OF COMMERCE
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Receipt Date: September 12, 2017
 Cal. Date: September 13, 2017
 Report Date: September 13, 2017

Report No.: 338208
 Set Serial No.: SET D
 Barcode: 018652

Calibration Certificate

MINDAK SCALE SALES & SERVICE
 9628 PORTAL DRIVE
 EDEN PRAIRIE, MN 55347
 Contact: BRAD ZARTH
 Phone: 952-944-8916
 PO Number: None
 Procedure: NIST SOP 8
 Technician ID: 19

Item(s) Submitted: AVDP & Grain Weight Kit
 Manufacturer: Weiss
 Weight Type: I & II
 Equipment ID: None
 Condition: Good
 Temperature: 19.4 °C
 Pressure: 730.9 mmHg
 Relative Humidity: 47.7 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
3 lb		-6.1	-6.1	4	4	2.01	6.0
1 lb		-33.5	-33.5	6	6	2.01	1.6
1 lb		-53.5	-53.5	7	7	2.01	1.6
1/2 lb		-8.6	-8.6	5	5	2.01	1.3
1/4 lb		7.34	7.34	5	5	2.00	0.22
2/5 lb		-19.0	-19.0	7	7	2.01	1.3
1/3 lb		-14.50	-14.50	7	7	2.02	0.55
1/3 lb		-9.34	-9.34	5	5	2.02	0.55
1/5 lb		-3.80	-3.80	5	5	2.02	0.22
1/5 lb		-4.57	-4.57	5	5	2.02	0.22
1/6 lb		-2.35	-2.35	5	5	2.02	0.22
1/10 lb		-5.58	-5.58	5	5	2.02	0.25
1/12 lb		0.48	0.48	6	6	2.02	0.14
				4	4	2.03	0.16
700 gr		3.67	3.67	6	6	2.02	0.14
700 gr		5.25	5.25	6	6	2.02	0.14
350 gr		2.24	2.24	6	6	2.02	0.14
233 1/3 gr		0.01	0.01	6	6	2.02	0.11
175 gr		-0.11	-0.11	6	6	2.02	0.11
140 gr		1.582	1.582	6	6	2.02	0.11
140 gr		-1.333	-1.333	6	6	2.02	0.066
116 2/3 gr		-0.123	-0.123	6	6	2.02	0.066
70 gr		-0.009	-0.009	6	6	2.02	0.072
46 2/3 gr		0.114	0.114	6	6	2.02	0.052
46 2/3 gr		0.412	0.412	6	6	2.02	0.054
35 gr		0.519	0.519	6	6	2.02	0.054
35 gr		0.173	0.173	6	6	2.02	0.073
23 1/3 gr		-0.036	-0.036	6	6	2.02	0.073
17 1/2 gr		0.132	0.132	6	6	2.02	0.048
				6	6	2.02	0.048



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Receipt Date: September 12, 2017
Cal. Date: September 13, 2017
Report Date: September 13, 2017

Report No.: 338208
Set Serial No.: SET D
Barcode: 018652

Continued,
338208
SET D
018652

Calibration Certificate

MINDAK SCALE SALES & SERVICE
9628 PORTAL DRIVE
EDEN PRAIRIE, MN 55347
Contact: BRAD ZARTH
Phone: 952-944-8916
PO Number: None
Procedure: NIST SOP 8
Technician ID: 19

Item(s) Submitted: AVDP & Grain Weight Kit
Manufacturer: Weiss
Weight Type: I & II
Equipment ID: None
Condition: Good
Temperature: 19.4 °C
Pressure: 730.9 mmHg
Relative Humidity: 47.7 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
Sub Kit							
300 gr		-5.81	-5.81	7	7	2.02	0.11
200 gr		-3.98	-3.98	7	7	2.02	0.11
100 gr		-1.638	-1.638	7	7	2.02	0.072
50 gr		-1.270	-1.270	7	7	2.02	0.054
20 gr		0.021	0.021	6	6	2.02	0.048
20 gr		-0.484	-0.484	6	6	2.02	0.048
10 gr		-0.507	-0.507	6	6	2.03	0.039
5 gr		0.539	0.539	6	6	2.03	0.039
2 gr		0.338	0.338	6	6	2.05	0.016
2 gr		-0.377	-0.377	6	6	2.05	0.016

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/cm³ density and an air density of 1.2 mg/cm³ 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 ASTM E617 (2013). 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

Erik Alfvin

Metrologist

Reviewed by:
Pete Whebbe

Metrologist



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Receipt Date: September 14, 2017
 Cal. Date: September 19, 2017
 Report Date: September 20, 2017

Report No.: 338252
 Set Serial No.: 18272
 Barcode: 201442

Calibration Certificate

MINDAK SCALE SALES & SERVICE
 9628 PORTAL DRIVE
 EDEN PRAIRIE, MN 55347
 Contact: BRAD ZARTH
 Phone: 952-944-8916
 PO Number: NONE
 Procedure: NIST SOP 8
 Technician ID: 09

Item(s) Submitted: Metric Weight Set
 Manufacturer: Troemner
 Weight Type: I & II
 Equipment ID: None
 Condition: Good
 Temperature: 19.3 °C
 Pressure: 732.9 mmHg
 Relative Humidity: 46.6 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
2000 g		40.1	40.1	5	5	2.02	5.7
1000 g		73.6	73.6	6	6	2.02	2.5
500 g		16.7	16.7	5	5	2.02	2.0
200 g		17.89	17.89	6	6	2.02	0.55
200 g		13.94	13.94	5	5	2.02	0.55
100 g		-5.84	-5.84	5	5	2.02	0.25
50 g		0.85	0.85	4	4	2.02	0.16
20 g		0.00	0.00	4	4	2.02	0.11
20 g		0.94	0.94	5	5	2.02	0.11
10 g		-0.099	-0.099	4	4	2.02	0.072
5 g		0.059	0.059	4	4	2.02	0.054
2 g		-0.018	-0.018	4	4	2.02	0.048
2 g		-0.144	-0.144	4	4	2.02	0.048
1 g		0.111	0.111	4	4	2.03	0.039
8 oz		7.1	7.1	5	5	2.01	1.3





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Receipt Date: September 14, 2017
Cal. Date: September 19, 2017
Report Date: September 20, 2017

Report No.: 338252
Set Serial No.: 18272
Barcode: 201442

Continued,

Calibration Certificate

MINDAK SCALE SALES & SERVICE
9628 PORTAL DRIVE
EDEN PRAIRIE, MN 55347
Contact: BRAD ZARTH
Phone: 952-944-8916
PO Number: NONE
Procedure: NIST SOP 8
Technician ID: 09

Item(s) Submitted: Metric Weight Set
Manufacturer: Troemner
Weight Type: I & II
Equipment ID: None
Condition: Good
Temperature: 19.3 °C
Pressure: 732.9 mmHg
Relative Humidity: 46.6 %

Nominal Value	Serial No.	CM Correction (mg)		ASTM E617 Class		k	U (mg)
		As Found	As Left	As Found	As Left		
0.5 g		0.262	0.262	5	5	2.05	0.021
0.2 g		0.221	0.221	5	5	2.05	0.016
0.2 g		0.111	0.111	5	5	2.05	0.016
0.1 g		0.220	0.220	6	6	2.05	0.015
0.05 g		0.196	0.196	6	6	2.06	0.011
0.02 g		0.1175	0.1175	6	6	2.05	0.0092
0.02 g		-0.0165	-0.0165	4	4	2.05	0.0092
0.01 g		0.0384	0.0384	4	4	2.05	0.0086
0.005 g		0.0431	0.0431	4	4	2.08	0.0074
0.002 g		0.0096	0.0096	4	4	2.09	0.0068

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/cm³ density and an air density of 1.2 mg/cm³ 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 ASTM E617 (2013). 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

Heidi Jones
Heidi Jones
Laboratory Administrator

Reviewed by:
Pete Whebbe
Peter J. Whebbe
Metrologist



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