NEBRAS			N - 1				Director of Agriculture
			Nebra	ska Standards Labor 3721 West Cuming St.	atory		Steve Wellman P.O. Box 94947
Good Life. Great F	Roots.			Lincoln, NE 68524			Lincoln, NE 68509-4947
DEPARTMENT OF AGRIC	ULTURE			(402)-471-2087			(402) 471-2341 www.nda.nebraska.gov
		Cali	ibrati	on Certificat	e of Mass		5
Calibration Date:	December 4, 20				Certificate Nu	mber:	2020-128-1
<u>Submitted By</u> :	FSCP Area 25 3721 West Cum Lincoln, NE 685	-				n. 402-471-34 nmes.f.johnso	
Serial Number(s) Manufacture	-	-		<u>Artifact(s) Description:</u>	ID / 4	Asset Numbe Specificatio	ed: November 30, 2020 er: Area 25 on: NIST Class F al: Cast Iron
Reference Standards	Used:			Procedure Used:		Equip	ment Used:
NSL lb standards				NIST HB 6969, SOP 8 (2019 <u>Metrologist:</u> JPL	,	ttler XPR320 Mettler XP 6	03
Environmental Cond.	Temp:	20 °C	Pressure:	739.39 mmHg	Relative Humidity:	42.9 %	
the sum of the corre	ection and the un	ncertainty	/ exceed 95%	compliance reading. It is t 6 of the maximum permiss according to ASTM E617 (20 class.	ible error. All of the t	olerances an	nd design specifications
All corrections stat	ed in this report			entional Mass" (CM), also k and an air density of 1.2 m		ss", scale vei	rses 8.0 g/cm ³ reference
		-	sing the wei	s meet the accuracy requi ghts for calibration of con Traceability Statement	nmercial (Legal for Trac		44 (2020),
are traceable to th comprehensive meas	ne International S urement assurant laboratory. The o	System of ce progra calibratio	been comp Units (SI) th am for ensur on number fo	ared to the Standards of the nrough the National Institi ing continued accuracy an or this certificate is the on ity for the artifact(s) desc	ne State of Nebraska. T ute of Standards and Te d measurement traceal ly unique calibration n	echnology (N bility within umber to be	IST) and are part of a the level of uncertainty
uncertainties for ar uncorrected errors asso expanded uncertainty consistent with the o evaluated through	ny observed devia ociated with air b y, which defines Guide to the Expl a Type A evaluat	ations fro Duoyance an interv <i>ression oj</i> tion, or th	Incertainties om reference corrections al with a 95 f Uncertaint ne method c	Uncertainty Statement reported for the standard values which are less tha The combined standard u 45 percent level of confid y in Measurement (2008, r f evaluation of uncertaint ed, therefore, there are no	d, uncertainties associa n surveillance limits an uncertainty is multiplied lence. The expanded ur revised 2012). Some co y by the statistical anal	nd the standa d by a covera ncertainty pr omponents o lysis (standar	ard uncertainty for any age factor (k) , to give the resented in this report is of the calibration can be rd deviation) from the

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Lincoln, NE 68524 (402)-471-2087 Director of Agriculture Steve Wellman P.O. Box 94947 Lincoln, NE 68509-4947 (402) 471-2341 www.nda.nebraska.gov

DEPARTMENT OF AGRICULTURE

Calibration	Date: D	ecember 4, 2020			Certificate	Number:	2020-128-1	
			C	alibration Result	S			
Nominal Mass	Serial Number / ID	As Found Conventional Mass Correction (g)	Adjusted (Y/N)	As Left Conventional Mass Correction (g)	Uncertainty ± (g)	(k) factor	NIST Class F MPE ± (g)	Assumed Density (g/cm³)
15 lb	WM15-17	1.841	Y	0.156	0.086	2.01	0.68	7.2
15 lb	WM15-18	1.821	Y	0.131	0.086	2.01	0.68	7.2
25 lb	NE-41	0.14	N	0.14	0.14	2	1.1	7.2
25 lb	NE-42	0.45	N	0.45	0.14	2	1.1	7.2
25 lb	NE-43	0.12	N	0.12	0.14	2	1.1	7.2
25 lb	NE-44	0.32	Ν	0.32	0.14	2	1.1	7.2
25 lb	NE-45	0.01	N	0.01	0.14	2	1.1	7.2
25 lb	NE-46	-0.51	N	-0.51	0.14	2	1.1	7.2
25 lb	NE-47	0.47	N	0.47	0.14	2	1.1	7.2
25 lb	NE-48	0.10	N	0.10	0.14	2	1.1	7.2
25 lb	NE-49	-0.13	<u>N</u>	-0.13	0.14	2	1.1	7.2
25 lb	NE-50	-0.06	<u>N</u>	-0.06	0.14	2	1.1	7.2
25 lb	NE-51	0.10	N	0.10	0.14	2	1.1	7.2
25 lb 25 lb	NE-52 NE-53	0.37 -0.11	N N	0.37 -0.11	0.14	2	<u> </u>	7.2 7.2
25 lb	NE-54	0.00	N	0.00	0.14	2	1.1	7.2
25 lb	NE-55	-0.27	N	-0.27	0.14	2	1.1	7.2
25 lb	NE-56	-0.27	N	-0.20	0.14	2	1.1	7.2
25 lb	NE-57	0.28	N	0.20	0.14	2	1.1	7.2
25 lb	NE-58	-0.02	N	-0.02	0.14	2	1.1	7.2
25 lb	NE-59	0.27	N	0.27	0.14	2	1.1	7.2
25 lb	NE-60	0.04	N	0.04	0.14	2	1.1	7.2
50 lb	50-19	-0.35	N	-0.35	0.28	2	2.3	7.2
50 lb	50-38	-0.06	N	-0.06	0.28	2	2.3	7.2
50 lb	A5C2	1.06	N	1.06	0.28	2	2.3	7.2
50 lb	A5C8	-1.47	Ν	-1.47	0.28	2	2.3	7.2
50 lb	A5C9	0.83	Ν	0.83	0.28	2	2.3	7.2
50 lb	A5C16	-0.46	Ν	-0.46	0.28	2	2.3	7.2
50 lb	A5C17	1.57	Ν	1.57	0.28	2	2.3	7.2
50 lb	A5C19	-0.28	N	-0.28	0.28	2	2.3	7.2
50 lb	WM50-2	1.94	N	1.94	0.28	2	2.3	7.2
50 lb	WM50-4	0.45	N	0.45	0.28	2	2.3	7.2
50 lb	WM50-11	-1.31	N	-1.31	0.28	2	2.3	7.2
50 lb	WM50-14	-1.93	Y	0.05	0.28	2	2.3	7.2
50 lb	WM50-17	1.25	<u>N</u>	1.25	0.28	2	2.3	7.2
50 lb	WM50-18	-1.18	<u>N</u>	-1.18	0.28	2	2.3	7.2
50 lb	WM50-23	1.87	<u>N</u>	1.87	0.28	2	2.3	7.2
50 lb	WM50-24	-0.14	<u>N</u>	-0.14	0.28	2	2.3	7.2
50 lb	WM50-27	-0.35	N Y	-0.35 0.34	0.28	2	2.3	7.2 7.2
50 lb 50 lb	WM50-45 WM50-57	-2.60 -4.27	<u>ү</u> Ү	0.34	0.28	2	2.3 2.3	7.2
50 lb	WM-0PI-C28	-4.27	<u>ү</u> Ү	0.02	0.28	2		7.2
1000 lb	C-12	30.4	N N	30.4	<u> </u>	2.009	<u>2.3</u> 45	7.2
1000 lb	C-12 C-21	30.4	N N	30.4	5.7	2.009	45 45	7.2
1000 lb	C-21 C-26	-28.1	N	-28.1	5.7	2.009	45	7.2
1000 lb	 D-2	-13.5	N	-13.5	5.7	2.009	45	7.2
1000 lb	D-2 D-6	-29.6	N	-29.6	5.7	2.009	45	7.2
1000 lb	D-0	-20.5	N	-20.5	5.7	2.009	45	7.2
1000 lb	D-8	-54.1	Y	18.4	5.7	2.009	45	7.2
1000 lb	D-9	-18.2	N	-18.2	5.7	2.009	45	7.2
1000 10		1012		1012	517	2.005	10	/ 16

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Lincoln, NE 68524 (402)-471-2087 Director of Agriculture Steve Wellman P.O. Box 94947 Lincoln, NE 68509-4947 (402) 471-2341 www.nda.nebraska.gov

DEPARTMENT OF AGRICULTURE

Calibration	Date: D	ecember 4, 2020			Certificate I	Number:	2020-128-1	
			C	alibration Result	S			
Nominal Mass	Serial Number / ID	As Found Conventional Mass Correction (g)	Adjusted (Y/N)	As Left Conventional Mass Correction (g)	Uncertainty ± (g)	(k) factor	NIST Class F MPE ± (g)	Assumed Density (g/cm ³)
1000 lb	D-12	-11.9	Ν	-11.9	5.7	2.009	45	7.2
1000 lb	D-14	-18.5	Ν	-18.5	5.7	2.009	45	7.2
1000 lb	D-15	-29.2	Ν	-29.2	5.6	2.009	45	7.2
1000 lb	D-16	-4.2	Ν	-4.2	5.6	2.009	45	7.2
1000 lb	D-17	-16.9	Ν	-16.9	5.6	2.009	45	7.2
1000 lb	D-19	-36.7	Ν	-36.7	5.6	2.009	45	7.2
1000 lb	D-20	-21.1	Ν	-21.1	5.6	2.009	45	7.2
1000 lb	D-22	-24.1	Ν	-24.1	5.6	2.009	45	7.2
1000 lb	D-23	-40.3	Y	15.6	5.6	2.009	45	7.2
1000 lb	D-24	-17.0	Ν	-17.0	5.6	2.009	45	7.2
1000 lb	D-25	1.1	Ν	1.1	5.6	2.009	45	7.2
1000 lb	D-26	-28.1	Ν	-28.1	5.6	2.009	45	7.2
1000 lb	D-27	-15.9	Ν	-15.9	5.6	2.009	45	7.2

Conversion Factors

1 ounce (avoirdupois) (oz) = 28.349 52 g

1 pound (avoirdupois) (lb) = 453.592 37 g exactly

P

e-signature is copy only

Joel P. Lavicky Metrologist

3

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12/15/2020

Date of Issue

NEBRAS	$\overline{\Lambda}$	_				Dire	ector of Agriculture
NEDRAJ	N N		Standards L		ſУ		Steve Wellman
Good Life. Great F	Pooto		21 West Cuming S				P.O. Box 94947
GUUU LITE. Great P	ROOLS.	L	_incoln, NE 68524	•		Linc	coln, NE 68509-4947
DEPARTMENT OF AGRIC	ULTURE		(402)-471-2087				(402) 471-2341 u.nda.nebraska.gov
	Cali	bratio	n Cortifica	to of	Macc		ua.nebraska.gov
Calibratian Datas			n Certifica				2020 428 2
Calibration Date:	December 3, 20	020			icate Numl		2020-128-2
<u>Submitted By</u> : F		- L		Point of C		mes Johnso	
	721 West Cuming S incoln, NE 68524	ST.				. 402-471-3 nes.f.johnson@	
L	IIICOUI, NE 00524			<u>PO N</u>	<u>umber:</u>	N/A	gilebi usku.gov
Test Item(s): It	b weight kit				Date	Received:	November 30, 2020
Serial Number(s): V		<u>Ar</u>	rtifact(s) Descripti	on:		t Number:	Area 25
Manufacture: R					-	cification:	NIST Class F
Material: S	tainless Steel and Alu	uminum				Condition:	Good (some wear)
Reference Standards	s Used:		Procedure Used:			Equipme	ent Used:
NSL lb standards		NIS	ST HB 6969, SOP 8 (20	019)	Sartoriu	us CC10000S	Mettler AT 106
			<u>Metrologist:</u> JPL		Sarto	rius CC 1201	Sartorius CCE6
Environmental Cond.	Temp: 21.2 °C	Pressure:	737.6 mmHg	Relative H	umidity:	48.1 %	
	10mp1 2112 0	-	ertinent Informati				
• The artifact(s) listed	in this document hav				permissible	error for the	specification stated
 less than the maximum the artifact(s) when the and design specification All corrections state 	sum of the corrections (except density, had be a sum of the correction of the correc	on and the un ardness and m 1 (2019) fo elate to a "Co	certainty exceed 95% nagnetism) were eval or the artifacts design nventional Mass" (CM	6 of the maximuated accord nated class. N), also known	num permiss ing to ASTM 1 as "apparer	sible error. E617 (2018)	All of the tolerances and/or NIST HB 105-
			y and an air density o	-			
 It is the end user's Appendix A Fun 	• •	tions, when us	eights meet the accu sing the weights for c raceability Statem	alibration of			
The artifact(s) describe of Nebraska are tracea and are part of a compr the level of uncertainty be u	able to the Internation rehensive measurement reported by this lab	have been co onal System or ent assurance oratory. The	mpared to the Stand f Units (SI) through tl program for ensuring	ards of the St ne National Ir g continued ac or this certific	nstitute of S ccuracy and cate is the o	tandards and measuremen nly unique ca	Technology (NIST) t traceability within alibration number to
The combined standar	d uncertainty include		ncertainty Statem		ortainties as	sociated with	the measurement
process, uncertainti uncertainty for any unc	ies for any observed corrected errors asso), to give the expand y presented in this re e components of the tatistical analysis (sta	deviations fro ciated with a led uncertaint port is consist calibration ca andard deviat	om reference values w ir buoyance correction cy, which defines an in tent with the <i>Guide</i> in an be evaluated throu	which are less ons. The comb interval with a to the Express ugh a Type A e ations taken.	than survei vined standa a 95.45 perc <i>sion of Unce</i> evaluation, c Magnetic ter	llance limits rd uncertaint ent level of o rtainty in Me or the methoo sting has not	and the standard cy is multiplied by a confidence. The <i>asurement (2008,</i> d of evaluation of



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DEPARTMENT OF AGRICULTURE

Calibra	ation Date:	December 3, 2	.020		Certific	ate Numl	ber: 2020	-128-2
			Ca	alibration Resul	ts			
Nominal Mass	Serial Number / ID	As Found Conventional Mass Correction (g)	Adjusted (Y/N)	As Left Conventional Mass Correction (g)	Uncertainty ± (g)	(k) factor	NIST Class F MPE ± (g)	Assumed Density (g/cm ³)
5 lb	1	0.063	n	0.063	0.028	2	0.23	7.84
5 lb	2	0.079	n	0.079	0.028	2	0.23	7.84
5 lb	3	0.095	n	0.095	0.028	2	0.23	7.84
5 lb	4	0.083	n	0.083	0.028	2	0.23	7.84
5 lb	5	0.086	n	0.086	0.028	2	0.23	7.84
1 lb	6	0.0331	n	0.0331	0.0083	2	0.07	7.84
1 lb	7	0.0226	n	0.0226	0.0083	2	0.07	7.84
1 lb	8	0.0217	n	0.0217	0.0083	2	0.07	7.84
1 lb	9	0.0227	n	0.0227	0.0083	2	0.07	7.84
1 lb	10	0.0239	n	0.0239	0.0083	2	0.07	7.84
0.5 lb		0.0212	n	0.0212	0.0054	2	0.045	7.84
0.2 lb		0.0066	n	0.0066	0.0022	2	0.018	7.84
0.2 lb	*	0.0066	n	0.0066	0.0022	2	0.018	7.84
0.1 lb		0.0025	n	0.0025	0.0011	2	0.0091	7.84
0.05 lb		0.00152	n	0.00152	0.00054	2	0.0045	7.84
0.02 lb		-0.00003	n	-0.00003	0.00022	2	0.0018	7.84
0.02 lb	*	0.00048	n	0.00048	0.00022	2	0.0018	7.84
0.01 lb		0.00015	n	0.00015	0.00018	2	0.0015	7.84
0.005 lb		0.00041	n	0.00041	0.00014	2	0.0012	2.7
0.002 lb		0.00037	n	0.00037	0.00011	2	0.00087	2.7
0.002 lb	*	0.00032	n	0.00032	0.00011	2	0.00087	2.7
0.001 lb		0.000113	n	0.000113	0.000083	2	0.0007	2.7

Conversion Factors

1 ounce (avoirdupois) (oz) = 28.349 52 g

1 pound (avoirdupois) (lb) = 453.592 37 g exactly

e-signature is copy only

Joel P. Lavicky Metrologist

fore P. 3

12/15/2020 Date of Issue

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NEDDAC	$\angle \Lambda$					Dire	ector of Agriculture
NEBRAS	NO NO	ebraska	Standards Lo	aboratoi	гy		Steve Wellman
Canal Life County	Deete		21 West Cuming S	t.			P.O. Box 94947
Good Life. Great I	ROOLS.	L	incoln, NE 68524			Linc	oln, NE 68509-4947
DEPARTMENT OF AGRI			(402)-471-2087				(402) 471-2341
DEPARTMENT OF AGRI						WWW	.nda.nebraska.gov
	Calif	pration	n Certifica	te of I	Mass		
Calibration Date:	December 3, 20	20		Certif	icate Numbe	er:	2020-128-3
Submitted By:	FSCP Area 25			Point of C	ontact: Jam	nes Johnsoi	า
	3721 West Cuming St	t.			Ph.	402-471-34	422
I	Lincoln, NE 68524				email: jame	es.f.johnson@	nebraska.gov
				<u>PO N</u>	umber:	N/A	
Test Item(s):	b weight kit				Date F	Received:	November 30, 2020
Serial Number(s):	7A1	<u>Ar</u>	tifact(s) Description	<u>on:</u>	ID / Asset	Number:	Area 25
Manufacture:	Froemner				Class Spec	ification:	NIST Class F
Material: S	Stainless Steel and Alu	minum			C	ondition:	Good (some wear)
Reference Standard	ls Used:		Procedure Used:			Equipme	ent Used:
NSL lb standards		NIS	T HB 6969, SOP 8 (20)19)	Sartorius	CC10000S	Mettler AT 106
			Metrologist:	,		us CC 1201	Sartorius CCE6
			JPL				
Environmental Cond.	Temp: 21.2 °C	Pressure:	727.6 mmHg	Polativo U	umiditur	48.1 %	
	Temp. 21.2 C	-	737.6 mmHg ertinent Informatio	Relative H	unnuity.	40.1 //	
• The artifact(s) listed	in this document have				permissible er	ror for the	specification stated
	ed. An artifact is consi						-
less than the maximum				-			
the artifact(s) when the			-				
and design specificatio	ns (except density, ha				ing to ASTM E	617 (2018) a	and/or NIST HB 105-
		1 (2019) to	r the artifacts design	ated class.			
• All corrections state	ed in this report correl	late to a "Cor	nventional Mass" (CM), also knowr	as "apparent	mass", sca	le verses 8.0 g/cm ³
			y and an air density o			,	5
• It is the end user's	responsibility to verif	y that the we	eights meet the accu	racy requiren	nents outlined	d in NIST Ha	ndbook 44 (2020),
	ndamental Considerati	-	-				
		<u>Tr</u>	aceability Stateme	<u>ent</u>			
The artifact(s) describ							
	able to the Internation						
and are part of a comp					-		
the level of uncertainty	used in referencing m	-					
be			indecability for the a			certificate.	
		<u>Ur</u>	ncertainty Stateme	<u>ent</u>			
	rd uncertainty include						
	ties for any observed d						
uncertainty for any un							
), to give the expande						
-	y presented in this rep e components of the c			-	-	-	
	statistical analysis (sta						
-			nents for the effects		-	-	



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DEPARTMENT OF AGRICULTURE

Calibrat	tion Date:	December 3, 2020			Certifica	te Numbe	r: 2020-128	-3
			C	alibration Result	s			
Nominal Mass	Serial Number / ID	As Found Conventional Mass Correction (g)	Adjusted (Y/N)	As Left Conventional Mass Correction (g)	Uncertainty ± (g)	(k) factor	NIST Class F MPE ± (g)	Assumed Density (g/cm³)
2 lb	1	-0.023	n	-0.023	0.011	2	0.091	7.84
2 lb	2	-0.042	n	-0.042	0.011	2	0.091	7.84
2 lb	3	-0.034	n	-0.034	0.011	2	0.091	7.84
2 lb	4	-0.005	n	-0.005	0.011	2	0.091	7.84
2 lb	5	-0.041	n	-0.041	0.011	2	0.091	7.84
2 lb	6	-0.052	n	-0.052	0.011	2	0.091	7.84
2 lb	7	-0.051	n	-0.051	0.011	2	0.091	7.84
2 lb	8	-0.062	n	-0.062	0.011	2	0.091	7.84
2 lb	9	-0.016	n	-0.016	0.011	2	0.091	7.84
2 lb	10	-0.010	n	-0.010	0.011	2	0.091	7.84
2 lb	11	-0.047	n	-0.047	0.011	2	0.091	7.84
2 lb	12	-0.015	n	-0.015	0.011	2	0.091	7.84
2 lb	13	-0.057	n	-0.057	0.011	2	0.091	7.84
2 lb	14	-0.063	n	-0.063	0.011	2	0.091	7.84
1 lb	1	-0.0121	n	-0.0121	0.0083	2	0.07	7.84
1 lb	2	-0.0144	n	-0.0144	0.0083	2	0.07	7.84
0.3 lb		-0.0011	n	-0.0011	0.0033	2	0.027	7.84
0.2 lb		0.0006	n	0.0006	0.0022	2	0.018	7.84
0.1 lb		0.0025	n	0.0025	0.0011	2	0.0091	7.84
0.05 lb		-0.00091	n	-0.00091	0.00054	2	0.0045	7.84
0.03 lb		-0.00198	n	-0.00198	0.00032	2	0.0027	7.84
0.02 lb		-0.00104	n	-0.00104	0.00022	2	0.0018	7.84
0.01 lb		0.00094	n	0.00094	0.00018	2	0.0015	7.84
0.005 lb		0.00003	n	0.00003	0.00014	2	0.0012	2.7
0.003 lb		-0.00047	n	-0.00047	0.00012	2	0.00099	2.7
0.002 lb		0.00045	n	0.00045	0.00011	2	0.00087	2.7
0.001 lb		0.000259	n	0.000259	0.000083	2	0.0007	2.7
0.001 lb	*	0.000416	n	0.000416	0.000083	2	0.0007	2.7
8 oz		0.0046	n	0.0046	0.0054	2	0.045	7.84
4 oz		-0.0038	n	-0.0038	0.0028	2	0.023	7.84
2 oz		0.0064	n	0.0064	0.0013	2	0.011	7.84
1 oz		0.00189	n	0.00189	0.00064	2	0.0054	7.84
1/2 oz		0.00101	n	0.00101	0.00034	2	0.0028	7.84
1/4 oz		0.00000	n	0.00000	0.00021	2	0.0017	7.84
1/8 oz		-0.00069	n	-0.00069	0.00016	2	0.0013	7.84
1/16 oz		0.00033	n	0.00033	0.00013	2	0.0011	7.84
1/16 oz	*	-0.00022	n	-0.00022	0.00013	2	0.0011	7.84

Conversion Factors

1 ounce (avoirdupois) (oz) = 28.349 52 g

1 pound (avoirdupois) (lb) = 453.592 37 g exactly

e P. 3

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Joel P. Lavicky Metrologist

12/15/2020 Date of Issue

The results in this certificate only applies to those item specifically listed in this certificate. This certificate cannot be considered complete unless it contains <u>all</u> pages. This document may not be reproduced except in <u>full</u>, without the written consent of the Nebraska Standards Laboratory.

NEBRASKA

Good Life. Great Roots.

Nebraska Standards Laboratory 3721 West Cuming St. Lincoln, NE 68524 (402)-471-2087

DEPARTMENT OF AGRICULTURE

	Calib	pration Certificate	e of Mass	
Calibration Date:	December 3, 2020		Certificate Number:	2020-128-4
Submitted By:	FSCP Area 25		Point of Contact: James Johnson	
	3721 West Cuming St.		Ph. 402-471-342	22
	Lincoln, NE 68524		email: james.f.johnson@	nebraska.gov
			PO Number: N/A	
Test Item(s)	: Metric weight kit	Artifact(s) Description:	Date Received:	11/30/2020
Serial Number(s)	: WM-2-89-1		ID / Asset Number:	Area 25
Manufacture	: Troemner		Class Specification:	NIST Class F
Condition	: Good (some wear)		Material:	Stainless Steel
Reference Standards	s Used:	Procedure Used:	Equipme	ent Used:
OPI & /Den Metric		NIST HB 6969, SOP 8 (2018	B) Sartorius CC 1201	Mettler AT 106
Voland-1707		Metrologist:	Mettler AT 106	
		JPL		
Environmental Cond.	Temp: 21.5 °C	Pressure: 737.3 mmHg	Relative Humidity: 49.6 %	
		Pertinent Information		
 The artifact(s) li 	sted in this document have	e been found and/or left within the r	naximum permissible error for the sp	ecification stated
		red in-compliance when the correcti	-	-
		nt indicates an out-of-compliance re	-	
		d the uncertainty exceed 95% of the	-	
design specifications	(except density, nardness	and magnetism) were evaluated acc for the artifacts designated cla		NIST HB 102-1 (2019)
All corrections s	•	ate to a "Conventional Mass" (CM), a mass density and an air density of 1.	• •	verses 8.0 g/cm ³
			-	
		t the weights meet the accuracy req when using the weights for calibratic		
Arun	damental considerations,	Traceability Statement		ates.
The artifact(s) dose	ribod in this cortificato ha	we been compared to the Standards	of the State of Nebraska. The Stand	ords of the State of
		stem of Units (SI) through the Nation		
	-	ce program for ensuring continued ac		•••
		calibration number for this certifica		
	referencing measur	ement traceability for the artifact(s)	described in this certificate.	
		Uncertainty Statement		
The combined standar	rd uncertainty includes un	certainties reported for the standard	uncertainties associated with the m	neasurement process
	-	set cantiles reported for the standard		-

uncertainties for any observed deviations from reference values which are less than surveillance limits and the standard uncertainty for any uncorrected errors associated with air buoyance corrections. The combined standard uncertainty is multiplied by a coverage factor (k), to give the expanded uncertainty, which defines an interval with a 95.45 percent level of confidence. The expanded uncertainty presented in this report is consistent with the Guide to the Expression of Uncertainty in Measurement (2008, revised 2012). Some components of the calibration can be evaluated through a Type A evaluation, or the method of evaluation of uncertainty by the statistical analysis (standard deviation) from the observations taken. Magnetic testing has not been performed, therefore, there are no components for the effects of it in the uncertainty budget.



Nebraska Standards Laboratory

3721 West Cuming St. Lincoln, NE 68524 (402)-471-2087 Director of Agriculture Steve Wellman P.O. Box 94947 Lincoln, NE 68509-4947 (402) 471-2341 www.nda.nebraska.gov

Good Life. Great Roots.

	T OF AGRICULT	UKE						
Calibrati	on Date: I	December 3, 2020			Certifica	ite Numbei	r: 2020-12	8-4
			Cali	bration Results				
Nominal Mass	Serial Number / ID	As Found Conventional Mass Correction (g)	Adjusted (Y/N)	As Left Conventional Mass Correction (g)	Uncertainty ± (g)	(k) factor	NIST Class F MPE ± (g)	Assumed Density (g/cm ³)
1 kg		0.042	n	0.042	0.012	2	0.1	7.84
500 g		0.0383	n	0.0383	0.0083	2	0.07	7.84
200 g		-0.0005	n	-0.0005	0.0048	2	0.04	7.84
200 g	*	-0.0054	n	-0.0054	0.0048	2	0.04	7.84
100 g		0.0108	n	0.0108	0.0024	2	0.02	7.84
50 g		-0.0031	n	-0.0031	0.0012	2	0.01	7.84
20 g		0.00254	n	0.00254	0.00048	2	0.004	7.84
20 g	*	0.00236	n	0.00236	0.00048	2	0.004	7.84
10 g		0.00106	n	0.00106	0.00024	2	0.002	7.84
5 g		0.00018	n	0.00018	0.00018	2	0.0015	7.84

Conversion Factors

1 ounce (avoirdupois) (oz) = 28.349 52 g

1 pound (avoirdupois) (lb) = 453.592 37 g exactly

e-signature is copy only

gove P 3 Joel P. Lavicky Metrologist

12/14/2020 Date of Issue

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DEBRASK	ts.	N	3721 Lind (4	tandards Lak West Cuming St. coln, NE 68524 02) 471-2087	•			Director of Agriculture Steve Wellman P.O. Box 94947 Lincoln, NE 68509-4947 (402) 471-2341 www.nda.nebraska.gov
Calibration Date:	12/3/2020			ate of Calibra		Certificate	Number:	2020-128-5
]	Of VOI	ume Transfe	r			
		Items Su	ubmitted:		Submitted By:	FSCP Area 25		
Quant	ty Nominal Volume	Mar	nufacturer	Туре		3721 West Cumir Lincoln, NE 68524	•	
3	5 gal	Se	eraphin	"Special" J Prover	POC:	James Johnson		
			Te	est Results		402-471-3422 james.f.johnson@	enebraska.gov	
Nomin Volum	Serial Number	Material	Cubical Coefficient of Expansion (/°F)	As Found Volume Delivered @ 60 °F	As left Volume Delivered @ 60 °F	Uncertainty (U)	(<i>k</i>)	
5 ga	99-10030.01	SS	0.0000265	4.99880 gal	4.99880 gal	0.00095 gal	2.02	
5 ga	99-10030-02	SS	0.0000265	4.99921 gal	4.99921 gal	0.00095 gal	2.02	
5 ga	99-10030-03	SS	0.0000265	4.99921 gal	4.99921 gal	0.00095 gal	2.02	
	The	data in this	s report only app	olies to those items	specifically listed or	n this report.		

Volume delivered at 60°F after a 30 second pour and 10 second drain for test measures. For provers a 30 second drain time would apply.

Conversion Factors:

 $1 \text{ gal} = 231 \text{ in}^3$ $1 \text{ gal} = 3.785 \text{ 412 E-03 m}^3$

Traceability Statement:

The artifact(s) described in this report have been compared to the Standards of the State of Nebraska. The Standards of the State of Nebraska are traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The calibration number for this report is the only unique calibration number to be used in referencing measurement traceability for the artifact(s) described in this report.

Uncertainty Statement:

The combined standard uncertainty includes uncertainties reported for the standard, uncertainties associated with the measurement process, uncertainties for any observed deviations from reference values which are less than surveillance limits and the standard uncertainty for any uncorrected errors. The combined standard uncertainty is multiplied by a coverage factor (k), to give the expanded uncertainty, which defines an interval with a 95.45 percent level of confidence. The expanded uncertainty presented in this report is consistent with the Guide to the Expression of Uncertainty in Measurement (2008, revised 2012). Some components of the calibration can be evaluated through a Type A evaluation, or the method of evaluation of uncertainty by the statistical analysis (standard deviation) from the observations taken.

Pertinent Information:

The artifact(s) listed above have been found and/or left within the maximum permissible error for the specification stated above, except as noted. An artifact is considered in-compliance when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error. It is the decision of the Laboratory to adjust the artifact(s) when the sum of the correction and uncertainty exceed 95% of the maximum permissible error. All of the tolerances and specifications were evaluated according to NIST HB 105-3 (2010).

Condition of Item(s) Submitted for Calibration:

Laboratory Reference Standard Used;

Good		5 gal SP NE 1586
Treatment of Item(s) before Calibration: Tested as Found		<u>Procedure Used:</u> NISTIR 7383, SOP 19 (2019)
Environmental conditions at time of calibration Temp °C 20.3 Humidity %	<u>tion:</u> 46.6	<u>Water temperature at time of calibration:</u> 68.13 °F
Pressure mmHg 759.46	40.0	00.13
Date Submitted: 11/30/2020		
	E-signature is copy only 12/15/2020	

NEBRASKA Good Life. Great Roots. DEPARTMENT OF AGRICULTURE		Nebraska Standards Laboratory 3721 West Cuming St. Lincoln, NE 68524 (402) 471-2087								
Calibration Date:		12/3/2020			icate of Calibra olume Transfe	Certificate I	Number:	www.nda.nebraska.gov 2020-128-6		
			Items Su	bmitted:		Submitted By: FSCP Area 25				
	Quantity	Quantity Nominal Volume		ufacturer	Туре		3721 West Cuming St. Lincoln, NE 68524			
2		5 gal	Se	raphin	Test Measure 4" Neck	POC: James Johnson				
						402-471-3422 james.f.johnson@nebraska.gov				
					Test Results					
	Nominal Volume	Serial Number	Material	Cubical Coefficient of Expansion (/°F)	As Found Volume Delivered @ 60 °F	As left Volume Delivered @ 60 °F	Uncertainty (U)	(<i>k</i>)		
	5 gal	39423 I	SS	0.0000265	4.9999 gal	4.9999 gal	0.0012 gal	2.04]	
	5 gal	39423 J	SS	0.0000265	5.0028 gal	4.9996 gal	0.0012 gal	2.04	7	

The data in this report only applies to those items specifically listed on this report.

Volume delivered at 60°F after a 30 second pour and 10 second drain for test measures. For provers a 30 second drain time would apply.

Conversion Factors:

 $1 \text{ gal} = 231 \text{ in}^3$ 1 gal = 3.785 412 E-03 m³

Traceability Statement:

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Uncertainty Statement:

The combined standard uncertainty includes uncertainties reported for the standard, uncertainties associated with the measurement process, uncertainties for any observed deviations from reference values which are less than surveillance limits and the standard uncertainty for any uncorrected errors. The combined standard uncertainty is multiplied by a coverage factor (k), to give the expanded uncertainty, which defines an interval with a 95.45 percent level of confidence. The expanded uncertainty presented in this report is consistent with the Guide to the Expression of Uncertainty in Measurement (2008, revised 2012). Some components of the calibration can be evaluated through a Type A evaluation, or the method of evaluation of uncertainty by the statistical analysis (standard deviation) from the observations taken.

Pertinent Information:

The artifact(s) listed above have been found and/or left within the maximum permissible error for the specification stated above, except as noted. An artifact is considered incompliance when the correction plus the measurement uncertainty is equal to or less than the maximum permissible error. It is the decision of the Laboratory to adjust the artifact(s) when the sum of the correction and uncertainty exceed 95% of the maximum permissible error. All of the tolerances and specifications were evaluated according to NIST HB 105-3 (2010).

Condition of Item(s) Submitted for Calibration:

Good

Laboratory Reference Standard Used; 5 gal SP NE 1586

- 1---

Tested as For		<u>:</u>			Procedure Used: NISTIR 7383, SOP 19 (2019)			
Environmental condition	is at time of cal				Water temperature at time of calibration:			
Temp °C	20.3	Humidity %	46.6		67.37 °F			
Pressure mmHg	759.46							
Date Submitted:	11/30/2020							
	P. 3		E-signature is o	12/15/2020	-			
Joel P. Lavicky, Metrologis	St			Issue Date:				
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