



Steve Troxler
Commissioner

**North Carolina Department of Agriculture
and Consumer Services**
Standards Division
Standards Laboratory

Stephen Benjamin
Director

NC Standards Laboratory Calibration Certificate

Submitted by: Porter Scales 1721 Lake Wheeler Rd. Raleigh, NC 27603	Date of Test: 4/21/2017 Test Number: NC1704-147-W P.O. Number: 17148 Page Number: 1 of 3
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General Description: Twenty-four (24) individual weights
Set Serial Number: None
Manufacturer: Unknown
Material: Cast Iron

Item(s) Tested and Approved:						
# of Items	Nominal	Description	Tolerance	Measurement Uncertainty	<i>k</i> Coverage Factor	Serial Number(s) (Listed alphabetically)
24	1000 lb	Weights	NIST Class F	7200 mg	2.04	WB101, WB102, WB103, WB104, WB105, WB106, WB107, WB108, WB109, WB110, WB111, WB112, WB113, WB114, WB115, WB116, WB117, WB118, WB119, WB120, WB121, WB122, WB123, WB124

Tolerance: At the time of test, the above weights fall within the tolerance listed. Compliance to design specifications only applies to the tolerance class listed above.


NVLAP Lab Code 200495-0

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Form No.: NCM03 Revision Date: 1/5/17
Filename: F:\Groups\Standlab\FILESYS\WB_PORTE\2017\NC1704-147-W.docx

Printed: 04/24/17 8:18 AM



NC Standards Laboratory Calibration Certificate

Submitted by: Porter Scales 1721 Lake Wheeler Rd. Raleigh, NC 27603	Date of Test: 4/21/2017 Test Number: NC1704-147-W P.O. Number: 17148 Page Number: 2 of 3
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Traceability: This certificate has been issued under the authority of the North Carolina Department of Agriculture & Consumer Services, Standards Division, pursuant to Chapters 81A and 119 of the General Statutes of the State of North Carolina. The items described above have been compared with the standards of the State of North Carolina, and are traceable to the National Institute of Standards and Technology, NIST via the test number above, and to the SI via NIST. All tests were performed at the North Carolina Standards Laboratory, 4040 District Drive, Raleigh, North Carolina 27607. Environmental conditions are maintained at a temperature of 18 °C to 27 °C and a relative humidity of 50 % ± 10 %.

Test Data: Actual test results for this calibration are reported on the attached NCDA&CS Standards Laboratory Test Data Sheet Supplement for NC Test Number NC1704-147-W. The complete report must include both this certificate and the data sheet supplement. The reported test results apply only to the items listed above.

Uncertainty Statement: The measurement uncertainty is calculated according to JCGM 100:2008, GUM 1995 with minor corrections, First edition, September 2008, "Evaluation of measurement data – Guide to the expression of uncertainty in measurement." The uncertainty reported is k (refer to the table above for k value) times the root sum square of the type A and B uncertainties, which represents a confidence level of 95.45 %. Uncertainty components evaluated include balance standard deviations, mass standard uncertainties, drift uncertainties, sensitivity uncertainties, bias, and absence of air buoyancy corrections.

Magnetism: These weights have not been tested for magnetic properties. Since the effects are difficult to quantify, no magnetism components are included in the uncertainty budget. Weights are screened for magnetism only if erratic balance behavior is observed during calibration. If a significant magnetic field is found, the weight is rejected.

Condition of Item(s) Upon Receipt:

Good	Artifacts display some wear or other degradation.
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Test Method Used:

NC SOP 8, *Medium Accuracy Calibration of Mass Standards by Modified Substitution (August 2016 Ed)*, based on NISTIR 6969, "*Selected Laboratory and Measurement Practices and Procedures to Support Basic Mass Calibrations (2014 Ed)*"- SOP No. 8, *Medium Accuracy Calibration of Mass Standards by Modified Substitution (June 2015 Ed)*.

*Any deviations from or additions to the SOP have been reviewed and approved for use by laboratory management. These deviations are documented and filed in the laboratory files.



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NC Standards Laboratory Calibration Certificate

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Standards Used:

Standards are continuously monitored by a measurement control program. Artifacts are recalibrated if drift, damage, wear or other detrimental condition is noted. Balances are used for comparisons only. No calibration is required.

Working Standard	Working Standard Set Serial Number	Working Standard Test Number	Working Standard Calibration Date	Balance Used
NCSN 1000A	SN 1000-A	NC1612-066-PC	12-21-2016	KC500 - 1000 lb

Next Appointment Scheduled for:

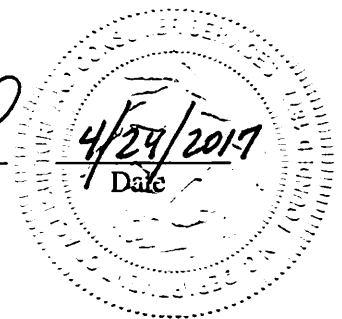
4/25/2018

We would appreciate feedback on your recent experience with our laboratory. Please complete our short online survey at www.ncagr.com/standard/survey.

Sherry Teachey
 Metrologist

4/24/17
 Date

[Signature]
 Approved By



Laboratory Manager: Sharon Woodard Quality Manager: Robert Rogers
 Metrologists: Van Hyder, Ashley Lessard, Sherry Teachey, Nicholas Cercone

Original Certificate has the NCDA Seal Embossed Above

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NCDA&CS Standards Laboratory Test Data Sheet Supplement for the Test Number Listed Below



NVLAP Lab Code 200495-0

Company Name: Porter Scales
 Address: 1721 Lake Wheeler Rd.
 City, State, Zip: Raleigh, NC 27603
 General Description: Twenty-four (24) individual weights
 Representative: Tommy Albright
 Set Serial Number: None
 Material: Cast Iron
 Condition of Weights: Good

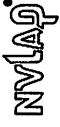
NC Test No: NC1704-147-W
 Purchase Order No: 17148
 Date Scheduled: April 21, 2017
 Date Received: April 21, 2017
 Date Tested: April 21, 2017
 Date Returned: April 24, 2017
 Next Appointment: April 25, 2018

Manufacturer: Unknown
 Phone: (919) 828-1750
 Return Via: p/u
 Ship Charges: \$0.00

Environmental Conditions at Time of Test		
	Beginning	Ending
Temperature (°C)	19.9	20.2
Relative Humidity (%)	50	49
Barometric Pressure (mmHg)	748.1	746.2

Line No	Weight Information		Tolerance Information		Balance Readings				Approximate Error				Uncertainty	Working Standard	Wk Std Cal Date	Balance Used	Standard Correction
	Serial Number	Nominal Mass	Tolerance Class	Full Tolerance	Before Adjustment	After Adjustment	As Found	In Tol?	As Left	In Tolerance?							
1	WB101	1000 lb	NIST Class F	45 g	46.3 g	0.8 g	49300 mg	ADJ	3800 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
2	WB102	1000 lb	NIST Class F	45 g	-16.5 g	---	-13500 mg	Appd	-13500 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
3	WB103	1000 lb	NIST Class F	45 g	10.0 g	---	13000 mg	Appd	13000 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
4	WB104	1000 lb	NIST Class F	45 g	6.6 g	---	9600 mg	Appd	9600 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
5	WB105	1000 lb	NIST Class F	45 g	27.6 g	---	30600 mg	Appd	30600 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
6	WB106	1000 lb	NIST Class F	45 g	44.4 g	0.0 g	47400 mg	ADJ	3000 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
7	WB107	1000 lb	NIST Class F	45 g	25.8 g	---	28800 mg	Appd	28800 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
8	WB108	1000 lb	NIST Class F	45 g	15.0 g	---	18000 mg	Appd	18000 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
9	WB109	1000 lb	NIST Class F	45 g	16.6 g	---	19600 mg	Appd	19600 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
10	WB110	1000 lb	NIST Class F	45 g	-4.6 g	---	-1600 mg	Appd	-1600 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
11	WB111	1000 lb	NIST Class F	45 g	-12.5 g	---	-9500 mg	Appd	-9500 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
12	WB112	1000 lb	NIST Class F	45 g	-0.8 g	---	2200 mg	Appd	2200 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
13	WB113	1000 lb	NIST Class F	45 g	15.4 g	---	18400 mg	Appd	18400 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
14	WB114	1000 lb	NIST Class F	45 g	9.4 g	---	12400 mg	Appd	12400 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
15	WB115	1000 lb	NIST Class F	45 g	34.8 g	---	37800 mg	Appd	37800 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
16	WB116	1000 lb	NIST Class F	45 g	10.4 g	---	13400 mg	Appd	13400 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
17	WB117	1000 lb	NIST Class F	45 g	4.5 g	---	7500 mg	Appd	7500 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
18	WB118	1000 lb	NIST Class F	45 g	34.6 g	---	37600 mg	Appd	37600 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
19	WB119	1000 lb	NIST Class F	45 g	-20.5 g	---	-17500 mg	Appd	-17500 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
20	WB120	1000 lb	NIST Class F	45 g	52.3 g	1.2 g	55300 mg	ADJ	4200 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
21	WB121	1000 lb	NIST Class F	45 g	4.8 g	---	7800 mg	Appd	7800 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
22	WB122	1000 lb	NIST Class F	45 g	12.1 g	---	15100 mg	Appd	15100 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
23	WB123	1000 lb	NIST Class F	45 g	11.6 g	---	14600 mg	Appd	14600 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		
24	WB124	1000 lb	NIST Class F	45 g	-17.2 g	---	-14200 mg	Appd	-14200 mg	Approved	7200 mg	NCSN 1000A	12-21-2016	KC500 - 1000 lb	2993.33 mg		

NCDA&CS Standards Laboratory Test Data Sheet Supplement for the Test Number Listed Below



NVLAP Lab Code 200495-0

Company Name: Porter Scales
 Address: 1721 Lake Wheeler Rd.
 City, State, Zip: Raleigh, NC 27603
 General Description: Twenty-four (24) individual weights
 Representative: Tommy Albright
 Set Serial Number: None
 Material: Cast Iron
 Condition of Weights: Good

NC Test No: NC1704-147-W
 Purchase Order No: 17148
 Date Scheduled: April 21, 2017
 Date Received: April 21, 2017
 Date Tested: April 21, 2017
 Date Returned: April 24, 2017
 Next Appointment: April 25, 2018

Manufacturer: Unknown
 Phone: (919) 838-1750
 Return Via: p/u
 Ship Charges: \$0.00

Environmental Conditions at Time of Test	
Beginning	Ending
19.9	20.2
50	49
748.1	748.2

Line No	Weight Information		Tolerance Information		Balance Readings		Approximate Error		Working Standard	Wk Std Cal Date	Balance Used	Standard Correction
	Serial Number	Nominal Mass	Tolerance Class	Full Tolerance	Before Adjustment	After Adjustment	As Found	In Tol?				
25					?		mg	?	mg	?		mg
26					?		mg	?	mg	?		mg

The "As Found" value for the weight reflects the condition of the weights as they were delivered for test. This condition does not necessarily represent the "As Used" condition of the weights if they have been cleaned, painted, or damaged in shipment.

These weights have not been tested for magnetic properties. Since the effects are difficult to quantify, no magnetism components are included in the uncertainty budget. Weights are screened for magnetism only if erratic balance behavior is observed during calibration. If a significant magnetic field is found, the weight is rejected.

This data sheet has been issued under the authority of the North Carolina Department of Agriculture & Consumer Services, Standards Division, pursuant to Chapters 81A and 119 of the General Statutes of the State of North Carolina.

Date	Metrologist	Work Completed	Date	Metrologist	Work Completed
4/21/2017	slt	Received & tested weights			
4/24/2017	slt	Returned weights			

Weights Approved	24
Weights Adjusted	3
Weights Rejected	0

METROLOGIST: *Anthony Dean* RECEIVED BY: *Erwin P. Kopp* Date: 4/24/17 Date: 4/25/17 RETURNED BY: _____