

ISO/IEC 17025 Calibration Certificate



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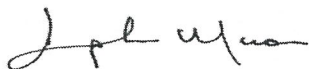
R E P O R T
O F
M A S S V A L U E S

Troemner LLC
201 Wolf Dr
Thorofare, NJ 08086

Test Number: 123456-1
EquipmentID: 999999

August 01, 2017

Approved Signatory



Joseph Moran, Metrology Manager

This certificate of calibration shall not be reproduced except in full, without written approval of Troemner LLC. This certificate of calibration must not be used by the customer to claim product endorsement by NIST or any other agency of the U.S. government.

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Series 1

Test Number: 123456

BALANCE 126 AT1006
OPERATOR AL
CALIBRATION DESIGN 4-1
ACCEPTED WITHIN STANDARD DEVIATION OF THE PROCESS 0.01000 mg
ACCEPTED BETWEEN STANDARD DEVIATION OF THE PROCESS 0.15000 mg

CALIBRATION DESIGN A12
RESTRAINT VECTOR 1 0 0 0
MASS CORRECTION OF RESTRAINT 3.57850 mg
VOLUME OF WEIGHTS BEING USED IN RESTRAINT AT 21.500 115.72060 cm³
TYPE B UNCERTAINTY IN THE RESTRAINT 0.15000 mg
TYPE A UNCERTAINTY IN THE RESTRAINT 0.01000 mg

CHECK STANDARD USED
CHECK STANDARD VECTOR 0 1 0 0
MASS CORRECTION OF CHECK STANDARD -1.05100 MG
REPORT VECTOR 1 1 1 0

TEST CONDITIONS	BEFORE	AFTER	AVERAGE
CORRECTED TEMPERATURE IN DEGREES C	21.3300	21.4400	21.3800
CORRECTED PRESSURE IN PASCALS	101317	101386	101352
CORRECTED HUMIDITY IN PERCENT	52.3000	53.4000	52.8000
COMPUTED AIR DENSITY IN kg/m ³	1.1929	1.1933	1.1931
TEMPERATURE CORRECTION	0.0000	0.0000	
PRESSURE CORRECTION IN PASCALS	0.0000	0.0000	
HUMIDITY CORRECTION	0.0000	0.0000	
OBSERVED TEMPERATURE IN DEGREES C	21.3300	21.4400	21.3800
OBSERVED PRESSURE IN PASCALS	101317	101386	101352
OBSERVED HUMIDITY IN PERCENT	52.3000	53.4000	52.8000

*** 101325 PASCALS = 760 TORR

WEIGHTS BEING TESTED	NOMINAL VALUE	DENSITY g/cm ³ AT 20C	COEFFICIENT OF EXPANSION	ACCEPTED CORRECTION mg
1kg S	1000.00	7.8400	0.000045	3.57850
1kg B	1000.00	8.0000	0.000045	
1kg C	1000.00	7.0000	0.000045	
1kg D	1000.00	7.0000	0.000045	



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	gram	1000	1000	1000	1000
A 0	+	-			
A 1	+		-		
A 2	+			-	
A 3		+	-		
A 4		+		-	
A 5			+	-	
R	+				

OBSERVATIONS IN DIVISIONS DIRECT READING

A 1	4.6533	14.6534
A 2	1.5249	
A 3	1.4567	
A 4	-3.1226	
A 5	-3.1831	
A 6	-0.0538	9.9461

SENSITIVITY WEIGHT

MASS	10.000000	MG
VOLUME	0.000000	CM3 AT 20 C
COEFFICIENT OF EXPANSION	0.000000	
ACCEPTED SENSITIVITY	1.000000	MG/DIV
OBSERVED SENSITIVITY	1.000000	MG/DIV
T-TEST	0.000000	

	A(I) (MG)	DELTA(I) (MG)	OBSERVED SENSITIVITY (MG/DIV)
A 1	4.65339	0.00477	0.99999
A 2	1.52499	0.00217	
A 3	1.45679	-0.00695	
A 4	-3.12269	0.00309	
A 5	-3.18319	0.00167	
A 6	-0.05380	0.00527	1.00000



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ITEM	CORRECTION (mg)	VOLUME (AT T) (cm3)	TYPE B UNCERT (mg)	TYPE A UNCERT (mg)	EXPANDED UNCERT (mg)
1kg S	3.57849	124.9060	0.070000	0.01000	0.015000
1kg B	-1.07015	125.0000	0.025000	0.01000	0.050000
1kg C	2.05567	125.0000	0.025000	0.01000	0.050000
1kg D	2.11474	125.0000	0.025000	0.01000	0.050000

RESTRAINT FOR FOLLOWING SERIES

RESTRAINT VECTOR 0 0 0 1
MASS CORRECTION 2.11474 mg
VOLUME AT 20 C 114.83814 cm3
TYPE B UNCERTAINTY 0.25000 mg
TYPE A UNCERTAINTY 0.21224 mg

MAXIMUM LOAD 1000 g
STARTING RESTRAINT NUMBER

PRECISION CONTROL

OBSERVED STANDARD DEVIATION OF THE PROCESS 0.00622 mg
ACCEPTED STANDARD DEVIATION OF THE PROCESS 0.01000 mg
DEGREES OF FREEDOM 3
F RATIO 0.38690
F RATIO IS LESS THAN 3.78969 (CRITICAL VALUE FOR PROBABILITY = 0.01)
THEREFORE THE STANDARD DEVIATION IS IN CONTROL.

CHECK STANDARD VECTOR 0 1 0 0
CHECK STANDARD USED
ACCEPTED MASS CORRECTION OF CHECK STANDARD -1.05100 mg
OBSERVED CORRECTION OF CHECK STANDARD -1.07015 mg
STANDARD DEVIATION OF THE OBSERVED CORRECTION 0.21224 mg
T VALUE -0.090
ABSOLUTE VALUE OF T IS LESS THAN 3
THEREFORE CHECK STANDARD IS IN CONTROL



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TABLE I.				
ITEM	MASS	EXPANDED	VOL AT 20	COEFF.
	(g)	UNCERTAINTY		OF EXP
		(G)	(CM3)	
1kg B	999.998930	0.00005	124.9998	0.000045
1kg C	1000.002050	0.00005	125.00025	0.000045
1kg D	1000.002115	0.00005	125.00026	0.000045

ITEM	TABLE II.	
	COR. A (mg)	COR. B (mg)
1kg B	-3.408	-1.070
1kg C	0.056	2.056
1kg D	0.115	2.115

Software Version 8/15/94

NOTES:

The weights listed in this calibration report have been compared to reference standards that are traceable to the SI unit.

The uncertainties are calculated according to NIST technical note 1297.

The expanded uncertainty is a non-negative parameter characterizing the dispersion of the quantity value being attributed to a measurand based on the information used. The uncertainty is calculated in accordance with NIST TechNote 1297 using a coverage factor of $k = 2$ ($k = 2$ defines an interval having a confidence of approximately 95 percent)

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