SOUTHWEST RESEARCH INSTITUTE®
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Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-4834

Certificate of Calibration

A2LA ACCREDITED
Calibration Laboratory
Certificate #0972-01

Cost Center: DIV20
Mail Stop: B51
Customer: DON BANNON
Manufacturer/Model: TROEMNER / 400G
Description: WEIGHT, CLASS 1
Serial Number: 66389
Asset Number: 009342
Procedure: WEIGHTS - 10 DEC 07

Work Order: 303089334
Date Issued: 3-Aug-2009
Date Calibrated: 3-Aug-2009
*** Date Due :** 3-Aug-2010
**** Results:** FOUND-LEFT
Temperature: 68°F
Humidity: 41 %

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Data type found in this certificate or attached measurement report must be interpreted as: Found-left - adjustment and/or repair was not performed, As-found - data is before unit is adjusted and/or repaired, As-left - data is after adjusted and/or repaired was performed. The customer has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance.

Measurement uncertainty calculated in accordance with the method described in the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM), for a confidence level of approximately 95 percent using a coverage factor of $k=2$.

Remarks: THE CONVENTIONAL MASS VALUE OF THE 400 g WGT IS: 400.000 47 g UNC +/-0.49 mg. CLASS 1 TOL +/- 1 mg.

Standards Used

Asset #	Manufacturer	Model	Description	Cal Date	Due Date
005117	RICE LAKE	200G	WEIGHT, CLASS E2	16-Apr-2009	16-Apr-2010
007103	TROEMNER	200G	WEIGHT, CLASS E1	29-Aug-2008	29-Aug-2009
012069	SARTORIUS	CC1201	MASS COMPARATOR	29-Jan-2009	29-Jan-2010

Walt Hill
Laboratory Manager

Carlos Mendoza
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Double Substitution Worksheet
per SOP 4, December 2003

Asset Number: 009342
Date of Calibration: 8/3/2009
Accuracy Class: 1

Nominal	Reading	Unit
400		g
1. S	0.0000	g
2. X	0.0008	g
3. X	0.0008	g
4. S	0.0001	g
▲	**0.000750**	g

▲ = d_x

d_x = 0.000750 g

C_s = 399.9997230 g

$C_x = C_s + d_x$

C_x = 400.000473 g