



SOUTHWEST RESEARCH INSTITUTE™

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-3692

Certificate of Calibration

Submitted By: DIV20

Address: B57

Contact: BRADLEY WERLING

Manufacturer Model: METTLER PR5002

Description: BALANCE

Serial No: 1122142733

Asset No: 010225

Procedure: CLCP-WT-001, 12/99

Work Order: 444053946

Date Issued: Jun 9, 2003

Calibration Date: Jun 4, 2003

****Calibration Due:** Dec 4, 2003

Calibration Location: B57

Environment: Temp. 74.0°F Hum. 50 %RH

***As Found:** IN TOLERANCE

***As Left:** IN TOLERANCE

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, 1999 and ANSI/NC SL Z540-1-1994 which are equivalent to relevant requirements of the ISO 9000-1994 series of standards. This certificate may not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. The results of this calibration relate only to the individual instrument described above. This certificate shall not be used to claim product endorsement by the American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government.

Uncertainty evaluation includes the item under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor of $k=2$ to approximate a 95% confidence level. The calibration process provides a Test Uncertainty Ratio (TUR) of less than or equal to 25% (4:1) of the test limit unless otherwise stated in remarks or an attachment.

*The client has sole responsibility for determination of in/out of tolerance or compliance/noncompliance. An in/out of tolerance opinion is provided for your convenience based only on the Test Instrument (TI) reading(s) and limits as reported. The reported uncertainty relates only to the results at the time of calibration and does not imply any short or long term stability of the TI.

**Calibration interval is determined by the client and does not assure the instrument will remain within tolerance until this date. Any number of factors may cause the instrument to be out of tolerance before the next calibration date.

Remarks: None

Standards Used

Asset	Manufacturer	Model	Description	Cal Due
001711	RICE LAKE	50G	WEIGHT, CLASS S	Jun 14, 03
001713	RICE LAKE	200G	WEIGHT, CLASS S	Jun 14, 03
001716	RICE LAKE	1KG	WEIGHT, CLASS 1	Jun 14, 03
001715	RICE LAKE	500G	WEIGHT, CLASS S	Jun 14, 03
001719	RICE LAKE	5KG	WEIGHT, CLASS 1	Jun 14, 03
001717	RICE LAKE	2KG	WEIGHT, CLASS 1	Jun 14, 03

Approved by: Walt Hill

Metrology Group Leader

m:\Nona21a1.rpt Rev date 15, August 02

Measurements by: Vince Morales

Metrology Technician

Southwest Research Institute
 Calibration Laboratory
 Calibration Data Sheet

Work Order 444053946	Mfr. Mettler	Technician Vmorales
Asset No. 010225	Model PR5002	Procedure CLCP-WT-001, 12/99
Serial No. 1122142733	Type Balance	Cal Date 04-Jun-03

Location: Bldg. 57

Ambient Conditions: 74 F 56 %RH 14.17 PSIA

Operational Check: Limits +/- : 0.07 g **Uncertainty:** 0.02 g

STD Mass Load	As Found Indication	Instrument Error
5000.0 g	4999.96 g	-0.04 g

Post Calibration Check:

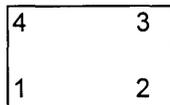
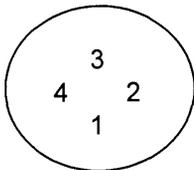
STD Mass Load	Post calibration Indication	Instrument Error	Results
5000.0 g	4999.99 g	-0.01 g	Pass

Repeatability Check: Mass Load: 2000.0 g

1	5000.01 g	6	5000.01 g
2	5000.01 g	7	5000.01 g
3	5000.01 g	8	5000.01 g
4	5000.01 g	9	5000.01 g
5	5000.01 g	10	5000.01 g

Std Deviation	Tolerance
0.00 g	0.01 g

Off-Centerline Check: Mass Load: 2000.0 g **Uncertainty:** 0.02 g



	Indication	Instrument Error	+/- Limits	Results
1	0.02 g	0.02 g	0.04	Pass
2	0.00 g	0.00 g	0.04	Pass
3	0.00 g	0.00 g	0.04	Pass
4	0.02 g	0.02 g	0.04	Pass

Non-Linearity Check: Range: 5000.0 g **Uncertainty:** 0.02 g

STD Mass Load	Indication	Instrument Error	+/- Limits	Results
0.0 g	0.00 g	0.00 g	0.04	Pass
1250.0 g	1250.00 g	0.00 g	0.04	Pass
2500.0 g	1250.00 g	0.00 g	0.04	Pass
3750.0 g	1250.00 g	0.00 g	0.04	Pass
5000.0 g	1250.00 g	0.00 g	0.04	Pass

Remarks: Readability is 0.01g (1kg) and 0.1g (5.1kg). Standards used 1711, 1713, 1715, 1716, 1717, and 1719.

END OF REPORT



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Certificate of Calibration

0972-01

Submitted By: DIV20
Address: B57
Contact: BRADLEY WERLING
Manufacturer Model: METTLER PR5002
Description: BALANCE
Serial No: 1122142733
Asset No: 010225
Procedure: CLCP-WT-001, DEC/99

Work Order: 444056495
Date Issued: Dec 3, 2003
Calibration Date: Dec 3, 2003
****Calibration Due:** Jun 3, 2004
Calibration Location: B57
Environment: Temp. 71.0°F Hum. 55 %RH
***As Found:** IN TOLERANCE
***As Left:** IN TOLERANCE

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Remarks: None

Standards Used

Asset	Manufacturer	Model	Description	Cal Due
001711	RICE LAKE	50G	WEIGHT, CLASS S	Jun 23, 04
001713	RICE LAKE	200G	WEIGHT, CLASS S	Jun 20, 04
001715	RICE LAKE	500G	WEIGHT, CLASS S	Jun 20, 04
001716	RICE LAKE	1KG	WEIGHT, CLASS 1	Jun 20, 04
001717	RICE LAKE	2KG	WEIGHT, CLASS 1	Jun 23, 04
001719	RICE LAKE	5KG	WEIGHT, CLASS 1	Jun 23, 04

Approved by: Walt Hill
Metrology Group Leader
m:\a2la1.rpt Rev date 15, August 02

Measurements by: Tom Hannon
Metrology Technician

Southwest Research Institute
 Calibration Laboratory
 Calibration Data Sheet

Work Order 444056495	Mfr. Mettler	Technician TJH
Asset No. 010225	Model PR5002	Procedure CLCP-WT-001, 12/99
Serial No. 1122142733	Type Balance	Cal Date 03-Dec-03

Location: Bldg. 57 / Lab L106

Ambient Conditions: 71 F 55 %RH 14.33 PSIA

Operational Check: Limits +/- : 0.2 g **Uncertainty:** 0.1 g

STD Mass Load	As Found Indication	Instrument Error
5000.0 g	5000.02 g	0.0 g

Post Calibration Check:

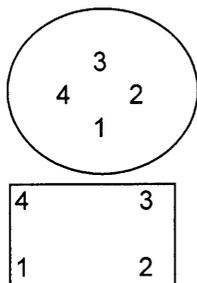
STD Mass Load	Post calibration Indication	Instrument Error	Results
5000.0 g	5000.02 g	0.0 g	Pass

Repeatability Check: Mass Load: 2000.0 g

1	2000.02 g	6	2000.01 g
2	2000.02 g	7	2000.01 g
3	2000.02 g	8	2000.01 g
4	2000.02 g	9	2000.01 g
5	2000.01 g	10	2000.01 g

Std Deviation	Tolerance
0.01 g	0.06 g

Off-Centerline Check: Mass Load: 2000.0 g **Uncertainty:** 0.1 g



	Indication	Instrument Error	+/- Limits	Results
1	-0.02 g	-0.02 g	0.04	Pass
2	0.00 g	0.00 g	0.04	Pass
3	0.00 g	0.00 g	0.04	Pass
4	0.02 g	0.02 g	0.04	Pass

Non-Linearity Check: Range: 5000.0 g **Uncertainty:** 0.1 g

STD Mass Load	Indication	Instrument Error	+/- Limits	Results
0.0 g	0.00 g	0.00 g	0.2	Pass
1250.0 g	1250.01 g	0.01 g	0.2	Pass
2500.0 g	1249.99 g	-0.01 g	0.2	Pass
3750.0 g	1250.00 g	0.00 g	0.2	Pass
5000.0 g	1250.00 g	0.00 g	0.2	Pass

Remarks: Readability is 0.01g (1kg) and 0.1g (5.1kg).

END OF REPORT



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Certificate of Calibration

Submitted By: DIV20
Address: B57
Contact: BRADLEY WERLING
Manufacturer Model: METTLER PR5002
Description: BALANCE
Serial No: 1122142733
Asset No: 010225
Procedure: CLCP-WT-001, DEC/99

Work Order: 444061782
Date Issued: Nov 23, 2004
Calibration Date: Nov 23, 2004
****Calibration Due:** May 23, 2005
Calibration Location: B57
Environment: Temp. 69.0°F Hum. 73 %RH
***As Found:** IN TOLERANCE
***As Left:** IN TOLERANCE

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Uncertainty evaluation includes the item under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor of k=2 to approximate a 95% confidence level. See Remarks or attached Calibration Report with the same Work Order number for calibration data.

*The client has sole responsibility for determination of in/out of tolerance or compliance/noncompliance. An in/out of tolerance opinion is provided for your convenience based only on the Test Instrument (TI) reading(s) and limits as reported. The reported uncertainty relates only to the results at the time of calibration and does not imply any short or long term stability of the TI.

**Calibration interval is determined by the client and does not assure the instrument will remain within tolerance until this date. Any number of factors may cause the instrument to be out of tolerance before the next calibration date.

Remarks: None

Standards Used

Asset	Manufacturer	Model	Description	Cal Due
007290	VAISALA	HM34F	HUMIDITY/ TEMPERATURE METER	Apr 07, 05
001719	RICE LAKE	5KG	WEIGHT, CLASS 1	Jun 23, 05
001717	RICE LAKE	2KG	WEIGHT, CLASS 1	Jun 24, 05
001716	RICE LAKE	1KG	WEIGHT, CLASS 1	Jun 23, 05
001715	RICE LAKE	500G	WEIGHT, CLASS S	Jun 23, 05
001714	RICE LAKE	200G	WEIGHT, CLASS S	Jun 23, 05
001711	RICE LAKE	50G	WEIGHT, CLASS S	Jun 23, 05
005566	MERIAN	A0030P	PRESSURE GAUGE, ABSOLUTE	Apr 14, 05

Approved by: Walt Hill
Metrology Group Leader
m:\a2la1.rpt Rev date 11, May 04

Measurements by: Jerry White
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	444061782	Mfr.	Mettler	Technician	jaw
Asset No.	010225	Model	PR5002	Cal Date.	23-Nov-04
Serial No.	1122142733	Type.	Balance		
Remarks:					
Ambient Conditions	69 deg F		73 % RH		14.18 PSIA

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found/Left
Repeatability Check	grams	grams	grams	grams	grams	Result
1	2000.00	2000.01				
2	2000.00	2000.01				
3	2000.00	2000.01				
4	2000.00	2000.02				
5	2000.00	2000.01				
6	2000.00	2000.01				
7	2000.00	2000.01				
8	2000.00	2000.01				
9	2000.00	2000.01				
10	2000.00	2000.01				
		Std Deviation	0.003	0.01		Pass
Offcenter Check						
Front	2000.00	2000.00	0.00	0.02	0.013	Pass
Right	2000.00	2000.00	0.00	0.02	0.013	Pass
Rear	2000.00	1999.99	-0.01	0.02	0.013	Pass
Left	2000.00	2000.01	0.01	0.02	0.013	Pass
Nonlinearity Check						
	0.00	0.00	0.00	0.02	0.013	Pass
	1250.00	1250.00	0.00	0.02	0.013	Pass
	2500.00	2500.00	0.00	0.02	0.013	Pass
	3750.00	3750.00	0.00	0.02	0.013	Pass
	5000.00	5000.00	0.00	0.02	0.013	Pass

End of Report