S O U T H W E S T R E S E A R C H I N S T I T U T E

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION

Issued to: DIV20 B57 RANDALL MANTEUFEL Device No: 1444

Manufacturer: SARTORIUS Model: 3808

Nomenclature: ELECTRONIC BALANCE

Serial Number: 3903006 SwRI No:

Remarks

Accuracy: MFGR SPECS Procedure: SWRI

ENVIRONMENT

Temperature: 0 Humidity: 0 Location: SWRI BLDG. 57

CONCLUSION

Tolerance/Remarks: Received in tolerance, no adjustments made

Calibration was in accord with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

Signed _____

Calibration Date: 03/03/93

Record Number: 00010818 Next Calibration Due: 09/03/93

S O U T H W E S T R E S E A R C H I N S T I T U T E

Department of Quality Assurance
Calibration Laboratory

Device Serial No: 3903006 Calibration Date: 03/03/93

STANDARDS

Standard No: 1716 Manufacturer: RICE LAKE Model: 1 KG
Nomenclature: WEIGHT STANDARD
Serial No: C871 Cal.Due: 07/08/93 Cal.Rec.No: 00000000

Standard No: 2060 Manufacturer: RICE LAKE Model: 5 KG
Nomenclature: STANDARD WEIGHT
Serial No: E302 Cal.Due: 01/08/94 Cal.Rec.No: 00010678

Standard No: 2061 Manufacturer: RICE LAKE Model: 5 KG
Nomenclature: STANDARD WEIGHT
Serial No: E204 Cal.Due: 01/08/94 Cal.Rec.No: 00010679

Standard No: 2062 Manufacturer: RICE LAKE Model: 10 KG
Nomenclature: STANDARD WEIGHT
Serial No: E203 Cal.Due: 01/08/94 Cal.Rec.No: 00010680

BALANCE CALIBRATION VERIFICATION FORM

DATE: 4MAR93 MFGR.: SARTORIUS MODEL: 3808

SER. NO. 3903006 RANGE: 30K

CALIBRATION DATES

TEMPERATURE: ✓ HUMIDITY: ✓ LAST: 22oct9 NEXT: 4Sep93

CALIBRATED BY: Jerry A. White
PRINT NAME

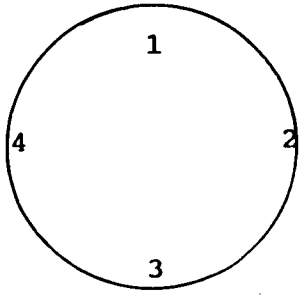
BALANCE TOLERANCES

BALANCE CAL #: 10818 LIN. TOL.: .2g REP. TOL.: .1g

RANGE VERIFICATION

	RANGE #1			RANGE #2			RANGE #3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
	1	2	3	4	2	3	1	2	3
DATA PTS.	1K	10K	20K	25K					
RUN #1	1000.0	10.0000	19.9998	24.9999					
RUN #2	1000.0	10.0000	19.9998	24.9999					
RUN #3	1000.0	10.0000	19.9999	24.9999					
MEAN	1000.0	10.0000	19.9999	24.9999					
STD. DEV.	00	00	00	00					

POSITION GUIDE



SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL: ✓ EXTERNAL: ____

WEIGHT VALUE	PAN POSITION			
	1	2	3	4
5K	4999.8	5000.2	5000.2	5000.2

COMMENTS: ____

SIGNATURE: Jerry A White

S O U T H W E S T R E S E A R C H I N S T I T U T E

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION

Issued to: DIV20 B57 RANDALL MANTEUFEL Device No: 1444

Manufacturer: SARTORIUS Model: 3808

Nomenclature: ELECTRONIC BALANCE

Serial Number: 3903006 SwRI No: Cal interval 6 Mo.

Remarks

Accuracy: MFGR SPECS Procedure: SWRI

ENVIRONMENT

Temperature: 0 Humidity: 0 Location: SWRI BLDG. 57

CONCLUSION

Tolerance/Remarks: Received in tolerance, no adjustments made

Temperature and Humidity at Room temperature.

Calibration was in accord with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

Signed _____

Calibration Date: 09/03/93

Cal interval: 6 Months

Record Number: 00012124 Next Calibration Due: 03/03/94

S O U T H W E S T R E S E A R C H I N S T I T U T E

Department of Quality Assurance
Calibration Laboratory

Device Serial No: 3903006 Calibration Date: 09/03/93

STANDARDS

Standard No: 1716 Manufacturer: RICE LAKE Model: 1 KG
Nomenclature: WEIGHT STANDARD
Serial No: C871 Cal.Due: 06/30/94 Cal.Rec.No: 00011768

Standard No: 1719 Manufacturer: RICE LAKE Model: 5 KG
Nomenclature: WEIGHT STANDARD
Serial No: C874 Cal.Due: 06/30/94 Cal.Rec.No: 00011771

Standard No: 2060 Manufacturer: RICE LAKE Model: 5 KG
Nomenclature: STANDARD WEIGHT
Serial No: E302 Cal.Due: 06/30/94 Cal.Rec.No: 00011775

Standard No: 2061 Manufacturer: RICE LAKE Model: 5 KG
Nomenclature: STANDARD WEIGHT
Serial No: E204 Cal.Due: 06/30/94 Cal.Rec.No: 00011774

Standard No: 2062 Manufacturer: RICE LAKE Model: 10 KG
Nomenclature: STANDARD WEIGHT
Serial No: E203 Cal.Due: 06/30/94 Cal.Rec.No: 00011776

BALANCE CALIBRATION VERIFICATION FORM

DATE: 3 Sep 93 MFGR: SARTORIUS MODEL: 3808

SER. NO. 3503006 RANGE: 30K CALIBRATION DATES

TEMPERATURE: Room HUMIDITY: Room LAST: 4 MAR 93 NEXT: 3 MAR 94

CALIBRATED BY: Jimmy D. White

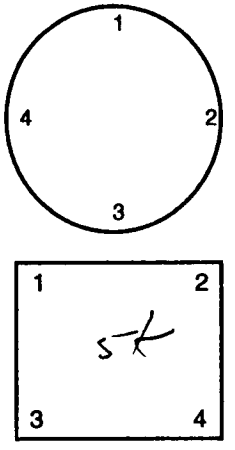
BALANCE TOLERANCES

BALANCE CAL #: 12124 LINE. TOL.: .2 REP. TOL.: .1

RANGE VERIFICATION

	RANGE #1			RANGE #2			RANGE #3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
	1	2	3	1	2	3	1	2	3
DATA PTS.	25K	20K	10K	1K					
RUN #1	24999.9	19999.9	10 000.0	1000.0					
RUN #2	24999.9	19999.9	10.0000	1000.0					
RUN #3	24999.9	19999.9	10.0000	1000.0					
MEAN	24999.9	19999.9	10.000	1000.0					
STD. DEV.	0								

POSITION GUIDE



SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL: ✓ EXTERNAL ____

WEIGHT VALUE	PAN POSITION			
	1	2	3	4
	4999.8	5000.2	5000.2	5000.2

COMMENTS: ____

SIGNATURE: Jimmy D. White

SwRI FORM QA-153-0

S O U T H W E S T R E S E A R C H I N S T I T U T E

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION

Issued to: DIV20 B57 RON GREEN Device No: 1444

Manufacturer: SARTORIUS Model: 3808

Nomenclature: ELECTRONIC BALANCE

Serial Number: 3903006 SwRI No: Cal interval 6 Mo.

Remarks

Accuracy: MFGR SPECS Procedure: SWRI

ENVIRONMENT

Temperature: Humidity: Location: SWRI DIV20 BLDG. 51

CONCLUSION

Tolerance/Remarks: Received in tolerance, no adjustments made

Room Temperature.

Calibration was in accord with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

Signed _____

Calibration Date: 03/04/94

Cal interval: 6 Months

Record Number: 00013579 Next Calibration Due: 09/04/94

S O U T H W E S T R E S E A R C H I N S T I T U T E

Department of Quality Assurance
Calibration Laboratory

Device Serial No: 3903006 Calibration Date: 03/04/94

STANDARDS

Standard No: 1716 Manufacturer: RICE LAKE Model: 1 KG
Nomenclature: WEIGHT STANDARD
Serial No: C871 Cal.Due: 06/30/94 Cal.Rec.No: 00011768

Standard No: 1719 Manufacturer: RICE LAKE Model: 5 KG
Nomenclature: WEIGHT STANDARD
Serial No: C874 Cal.Due: 06/30/94 Cal.Rec.No: 00011771

Standard No: 2060 Manufacturer: RICE LAKE Model: 5 KG
Nomenclature: STANDARD WEIGHT
Serial No: E302 Cal.Due: 06/30/94 Cal.Rec.No: 00011775

Standard No: 2061 Manufacturer: RICE LAKE Model: 5 KG
Nomenclature: STANDARD WEIGHT
Serial No: E204 Cal.Due: 06/30/94 Cal.Rec.No: 00011774

Standard No: 2062 Manufacturer: RICE LAKE Model: 10 KG
Nomenclature: STANDARD WEIGHT
Serial No: E203 Cal.Due: 06/30/94 Cal.Rec.No: 00011776

BALANCE CALIBRATION VERIFICATION FORM

DATE: 4 MAR 94 MFGR: SARTORIUS MODEL: 3808

SER. NO. 3903006 RANGE: CALIBRATION DATES

TEMPERATURE: Rm HUMIDITY: Rm LAST: 3 SEP 93 NEXT: 4 SEP 94

CALIBRATED BY: T. WHITE

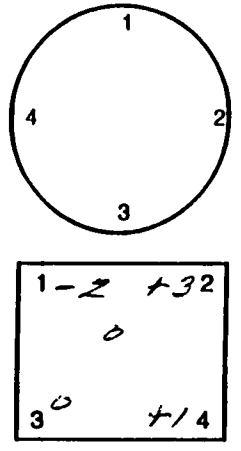
BALANCE TOLERANCES

BALANCE CAL #: 13579 LINE. TOL.: .2 REP. TOL.: .1

RANGE VERIFICATION

	RANGE #1			RANGE #2			RANGE #3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
	1	2	3	1	2	3	1	2	3
DATA PTS.	25Kg 24999.9	10Kg 10,000.1	1Kg 1000.1						
RUN #1	24999.9	10,000.1	1000.1						
RUN #2	24999.9	10,000.1	1000.0						
RUN #3	25,000.0	10,000.0	1000.0						
MEAN	24,999.94	10,000.07	1000.03						
STD. DEV.									

POSITION GUIDE



SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL: Y EXTERNAL N/A

WEIGHT VALUE	PAN POSITION			
	1	2	3	4
500g	499.8	500.3	500	500.1

COMMENTS:

SIGNATURE: J. White

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
09/15/94

Issued to: RANDALL MANTEUFEL DIV20 ,B57
Asset Number: 001444
Manufacturer: SARTO
Model Number: 3808
Nomenclature: ELECTRONIC BALANCE
Serial Number: 3903006
SwRI Capital Number: UNKWN

ENVIRONMENTAL CONDITIONS

Temperature: 0.0 F
Relative Humidity: 0 %

CALIBRATION INFORMATION

Location: B51
Technician: 7213
Procedure Number: SWRI
Accuracy: MFGR SPECS
Remarks: CALIBRATED AT ROOM TEMP AND HUMID
Received IN Tolerance

Calibration was in accordance with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

STANDARDS USED FOR CERTIFICATION

Asset #	Serial #	Mfg	Model #	Nomenclature	Cal Date	Int.	Cal Due
002062	E203	RICE	10 KG	STANDARD WEIGHT	07/19/94	12	07/19/95
002061	E204	RICE	5 KG	STANDARD WEIGHT	07/19/94	12	07/19/95
002060	E302	RICE	5 KG	STANDARD WEIGHT	07/19/94	12	07/19/95
001719	C874	RICE	5 KG	WEIGHT STANDARD	07/20/94	12	07/20/95
001716	C871	RICE	1 KG	WEIGHT STANDARD	07/20/94	12	07/20/95

Certified by : _____

Calibration Date: 09/14/94
Interval: 6 months
Next Calibration Due: 03/14/95

Work Order: 15131

BALANCE CALIBRATION VERIFICATION FORM

DATE: 14 Sept 94 MFGR: SARTORIUS MODEL: 3808

SER. NO. 3203006 RANGE: 30K CALIBRATION DATES

TEMPERATURE: Room HUMIDITY: Room LAST: 4MAR94 NEXT: 14 MAR95

CALIBRATED BY: Jerry A. White

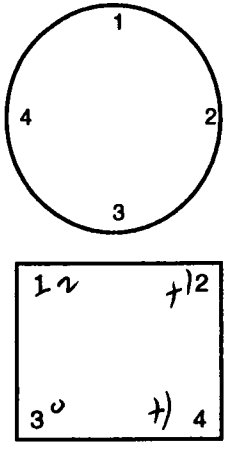
BALANCE TOLERANCES

BALANCE CAL #: 15131 LINE. TOL.: .2 REP. TOL.: .1

RANGE VERIFICATION

	RANGE #1			RANGE #2			RANGE #3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
	1	2	3	1	2	3	1	2	3
DATA PTS.	25K,	10K,	1K,						
RUN #1	24999.9	10000.0	1000.0						
RUN #2	24999.9	10000.0	1000.0						
RUN #3	24999.9	10000.0	1000.0						
MEAN		OK							
STD. DEV.									

POSITION GUIDE



SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL: ✓ EXTERNAL _____

WEIGHT VALUE	PAN POSITION			
	1	2	3	4
5K	4999.8	5000.1	5000.1	5000.0

COMMENTS: _____

SIGNATURE: J. A. White

SwRI FORM QA-153-0

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
03/16/95

Issued to: RON GREEN DIV20 ,B57
Manufacturer: SARTO
Nomenclature: ELECTRONIC BALANCE
Serial Number: 3903006

Asset Number: 001444
Model Number: 3808
SwRI/Div. I.D. #: UNKWN

ENVIRONMENTAL CONDITIONS

Temperature: 78.0F

Relative Humidity: 40%

CALIBRATION INFORMATION

Procedure Number: SWRI
Remarks:

Accuracy: MFGR SPECS
Received IN Tolerance

Calibration was in accordance with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

STANDARDS USED FOR CERTIFICATION

Asset #	Serial #	Mfg	Model #	Nomenclature	Cal Date	Int.	Cal Due
002062	E203	RICE	10 KG	STANDARD WEIGHT	07/19/94	12	07/19/95
002061	E204	RICE	5 KG	STANDARD WEIGHT	07/19/94	12	07/19/95
002060	E302	RICE	5 KG	STANDARD WEIGHT	07/19/94	12	07/19/95
001719	C874	RICE	5 KG	WEIGHT STANDARD	07/20/94	12	07/20/95
001716	C871	RICE	1 KG	WEIGHT STANDARD	07/20/94	12	07/20/95

Certified by : _____

Calibration Date: 03/14/95
Interval: 6 months
Next Calibration Due: 09/14/95

Certificate#: 16723

BALANCE CALIBRATION VERIFICATION FORM

DATE: 14 MAR95 MFGR: SARTORIUS MODEL: 3808

SER. NO. 3903006 RANGE: 30K

TEMPERATURE: 22C HUMIDITY: 40

CALIBRATION DATES

LAST: 14 Sept 94 NEXT: 14 Sept 95

CALIBRATED BY: Jenny P. White

BALANCE CAL #: 16723

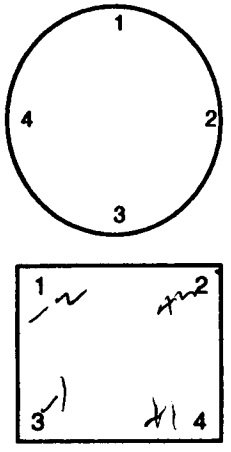
BALANCE TOLERANCES

LINE. TOL.: .2 REP. TOL.: .1

RANGE VERIFICATION

	RANGE #1			RANGE #2			RANGE #3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
	1	2	3	1	2	3	1	2	3
DATA PTS.	25K	10K	1K						
RUN #1	25000.1	10000.1	1000.0						
RUN #2	25000.1	10000.1	1000.0						
RUN #3	25000.1	10000.1	1000.0						
MEAN	OK								
STD. DEV.									

POSITION GUIDE



SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL: _____ EXTERNAL _____

WEIGHT VALUE	PAN POSITION			
	1	2	3	4
5K	4999.8	5000.2	4999.9	5000.1

COMMENTS: _____

SIGNATURE: J. P. White

SOUTHWEST RESEARCH INSTITUTE

Department of Quality Assurance
Calibration Laboratory

CERTIFICATE OF CALIBRATION
02/14/96

Issued to: RON GREEN DIV20 ,B57
Manufacturer/Model: SARTO/3808
Nomenclature: ELECTRONIC BALANCE
Serial Number: 3903006
Asset Number: 001444
Notes:

ENVIRONMENTAL CONDITIONS

Temperature: 72.0F

Relative Humidity: 23%

CALIBRATION INFORMATION

Procedure Number: MFGR
Remarks:

Accuracy: MFGR SPECS
Received IN Tolerance

Calibration was in accordance with requirements of MIL-STD-45662A. Measurements are traceable to the National Institute of Standards and Technology. Inspection and test data are on file and available for inspection.

STANDARDS USED FOR CERTIFICATION

Asset #	Serial #	Mfg	Model #	Nomenclature	Cal Date	Int.	Cal Due
002062	E203	RICE	10 KG	STANDARD WEIGHT	06/23/95	12	06/23/96
002061	E204	RICE	5 KG	STANDARD WEIGHT	06/23/95	12	06/23/96
002060	E302	RICE	5 KG	STANDARD WEIGHT	06/23/95	12	06/23/96
001719	C874	RICE	5 KG	WEIGHT STANDARD	06/23/95	12	06/23/96
001716	C871	RICE	1 KG	WEIGHT STANDARD	06/23/95	12	06/23/96

Certified by : _____

Calibration Date: 02/13/96
Interval: 6 months
Next Calibration Due: 08/13/96

Certificate#: 202005

BALANCE CALIBRATION VERIFICATION FORM

DATE: 13 FEB 96 MFGR: SARTORIUS MODEL: 3808

SER. NO. 3903006 RANGE: 30K

CALIBRATION DATES

TEMPERATURE: 72 HUMIDITY: 23 LAST: 6 SEP 95 NEXT: 13 AUG 96

CALIBRATED BY: Terry R. Whitten

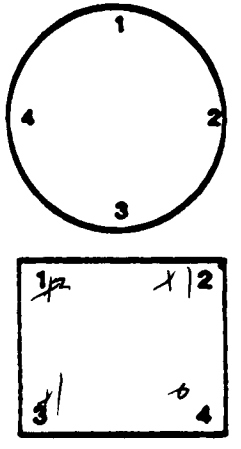
BALANCE TOLERANCES

BALANCE CAL #: 20205 LINE. TOL: .2 REP. TOL: .1

RANGE VERIFICATION

	RANGE #1			RANGE #2			RANGE #3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
	1	2	3	1	2	3	1	2	3
DATA PTS.	25K	10K	1K						
RUN #1	24999.9	10000.0	1000.0						
RUN #2	24999.9	10000.0	1000.0						
RUN #3	24999.9	10000.0	1000.0						
MEAN									
STD. DEV.									

POSITION GUIDE



SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL: _____ EXTERNAL _____

WEIGHT VALUE	PAN POSITION			
	1	2	3	4
5K	5000.2	5000.1	5000.1	5000.0

COMMENTS: _____

SIGNATURE: _____

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 34877 ASSET # 001444 DATE 27 MAR 97

ITEM DATA:

Manufacturer Sartorius Model 3806

Description electronic balance Serial # 3903006

Accessories

ACTION REQUESTED 001

CUSTODIAN DNR, Don Fiser

Turned in by: Phone

CHARGE # Date Required

INSTRUMENT USED ON: ☐ NUCLEAR ☐ DOD ☐ NASA ☐ GLP ☐ SPPE
☐ OTHER

COPY OF CALIBRATION CERTIFICATE ☐ Yes ☐ No

CONDITION RECEIVED:

_____ Out of tolerance, repaired to specifications
_____ In tolerance, minor adjustments/repairs made
_____ In tolerance, no adjustments/repairs
_____ Out of tolerance, adjusted to specifications
_____ Received into system, introduced or reactivated
_____ Calibration interval
_____ Reliability code

ACTION TAKEN: (Calibration/Repair/Parts) cal

CAL ENVIRONMENT:

Temperature 74 °F Humidity 38 %RH

CALIBRATED/REPAIRED:

By [signature]

Date 28 MAR 97

Cal Interval 6

Next Cal due 28 SEP 97

Cal Procedure CLEF-WB-001

Accuracy NA

Time to complete:

Cal _____ Repair _____

Standards used (Asset#) 2062 2062 2060 1719 1718 1717 1716

DATE COMPLETED 28 MAR 97

DATE PICKED UP [illegible] PICKED UP BY [signature]

SwRI Form QA-169-2

1877

B51 1444 (2020*)

BALANCE CALIBRATION VERIFICATION FORM

DATE: 28 MAR 97 MFGR: Sartorius MODEL: 3808

SER. NO. 3202006 RANGE: 30K

CALIBRATION DATES

TEMPERATURE: 24 HUMIDITY: 38 LAST: 13 FEB 96 NEXT: 28 Sept 97

CALIBRATED BY: Jenny D. White

BALANCE TOLERANCES

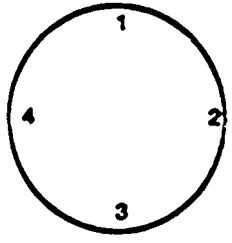
BALANCE CAL #: 2487 LINE. TOL.: .2 REP. TOL.: .1

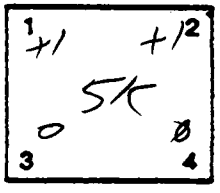
RANGE VERIFICATION

20C2
61
60
19
18 / 17 / 16

	RANGE #1			RANGE #2			RANGE #3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
	1	2	3	1	2	3	1	2	3
DATA PTS.	30K	20K	5K	1K					
RUN #1	29999.8	19989.9	5000.0	1000.0					
RUN #2	/	/	/	/					
RUN #3	/	/	/	/					
MEAN									
STD. DEV.									

POSITION GUIDE





SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL: ____ EXTERNAL ____

WEIGHT VALUE	PAN POSITION			
	1	2	3	4

COMMENTS: ____

SIGNATURE: ____

SwRI FORM QA-153-0

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

28 March 1997

Issued to: RON GREEN DIV20 B57
Manufacturer/Model: SARTO 3808
Description: ELECTRONIC BALANCE
Serial Number: 3903006
Asset Number: 001444

Environmental Conditions

Temperature: 74.0 Deg. F **Humidity:** 38%

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Measurements are traceable to the National Institute of Standards and Technology (NIST). This report may not be reproduced except in full without written approval of the originator. Inspection and test data are on file and available for inspection.

Calibration Date: 28 Mar 97 **Calibration Procedure:** CLCP-WB-001

Interval: 6 months **Accuracy:** MFGR SPECS

Next Calibration Due: 28 Sep 97 **Received:** In Tolerance

Remarks:

Standards Used

Asset	MFR	Model	Description	Serial No.	Due Cal
001716	RICE	1 KG	WEIGHT STANDARD	C871	19 Jul 97
001717	RICE	2 KG	WEIGHT STANDARD	C872	19 Jul 97
001718	RICE	2 KG	WEIGHT STANDARD	C873	19 Jul 97
001719	RICE	5 KG	WEIGHT STANDARD	C874	19 Jul 97
002060	RICE	5 KG	STANDARD WEIGHT	E302	19 Jul 97
002061	RICE	5 KG	STANDARD WEIGHT	E204	19 Jul 97
002062	RICE	10 KG	STANDARD WEIGHT	E203	19 Jul 97

Certificate # 24877

Signed:

LAST PAGE OF REPORT
Total Pages Printed: 1

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 30920 ASSET # 001444 DATE 20 Aug 98

ITEM DATA:

Manufacturer SARTORIOUS Model 3808

Description Balance Serial # 3903006

Accessories

ACTION REQUESTED Cal onSite

CUSTODIAN DIV.20 B51 Ron Green

Turned in by: Melissa Hill Phone 2012

CHARGE # 20-OH Date Required

INSTRUMENT USED ON: ☐ (DOD/NASA) ☑ (NUCLEAR) ☐ (GLP) ☐ (SPPE) ☐ (ISO)
☐ OTHER

COPY OF CALIBRATION CERTIFICATE ☑ (Yes) ☐ (No)

NEW WORK ☐ Yes ☑ No If yes, an evaluation shall be made to verify capabilities.

By MAH Date 08.20.98

Work involves proprietary/confidential information or equipment ☐ (Yes) ☑ (No)

CONDITION RECEIVED:
___ (F) Out of tolerance, repaired to specifications
___ (G) In tolerance, minor adjustments/repairs made
✓ (J) In tolerance, no adjustments/repairs
___ (K) Out of tolerance, adjusted to specifications
___ (S) Received into system, introduced or reactivated

ACTION TAKEN: (Calibration/Repair/Parts) cal

CAL ENVIRONMENT:
Temperature 79 °F Humidity 47 %RH

CALIBRATED/REPAIRED:
By
Date 20AUG98 Cal Procedure QACPWI-001
Accuracy
Cal Interval 6M Reliability Code:
Next Cal due 20FEB99 Cal Time 1.5 Repair Time
Standards used (Asset#) 2060 2061 2062 1716 1717

DATE COMPLETED
DATE PICKED UP Cal ON PICKED UP BY

SwRI Form QA-174-0

30920

BALANCE CALIBRATION VERIFICATION FORM

DATE: 20 AUG 98
BALANCE CAL NO.: 30920

TEMPERATURE: 79
HUMIDITY: 47
BARO. PRESSURE: 14.30

CALIBRATION DATES
LAST CAL: 95 SEP 97
NEXT CAL: 20 FEB 99

MFGR: SARTORIUS
MODEL: 3808
SERIAL NO: 38300L
ASSET NO: 1444
RANGE:
MASS UNCERTAINTY (U_M):

TUR = Comb. MFR Specs (U_{mfr}) / $U_{m\text{-}std}$ = ___ : 1

MFGR BALANCE TOLERANCES

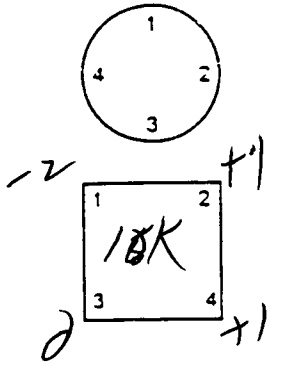
LINEARITY:
ECCENTRICITY:
REPRODUCIBILITY:
TEMP. DRIFT/ °C:
COMBINED MFR SPECS (U_{mfr}):

If TUR < 4:1, U_b =

1716
2060
2061
2062
1719

RANGE VERIFICATION	RANGE 1			RANGE 2			RANGE 3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
DATA POINTS	25K	15K	1K	20K					
RUN # 1	24999.8	15000.0	1.0000	20000.0					
RUN # 2									
RUN # 2									
MEAN									
STD. DEV.									

POSITION GUIDE



SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL:_____ EXTERNAL:_____

	PAN POSITION			
ACTUAL WEIGHT IN CENTER	1	2	3	4
DIFF.				

COMMENTS:

SIGNATURE:

MEASURED UNCERTAINTY:

Linearity ± _____ g
Eccentricity ± _____ g
Comb. Uncertainty = _____ g

Rep (σ) ± _____ g
Mass tol. (2σ) ± _____ g
Comb. Uncertainty ± _____ g

Std. Uncertainty = _____ g
Std. Uncertainty = _____ g

(σ) = _____ g
(linearity, eccentricity, reproducibility, mass)

SwRI CALIBRATION LAB
(210) 522-5215
CAL 95 SEP 97 BY
DUE 2 MAR 99 ID 1444
S/N 38300L

Expanded Unc (k = 2) = _____ g

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
Department of Quality Assurance
Calibration Laboratory

ACCREDITED
Certificate # 0972-01

Certificate of Calibration

21 August 1998

Issued to: RON GREEN DIV20 B57
Manufacturer/Model: SARTORIOUS 3808
Description: ELECTRONIC BALANCE
Serial Number: 3903006
Asset Number: 001444

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Measurements are traceable to the National Institute of Standards and Technology (NIST). This report may not be reproduced except in full without written approval of the originator. Inspection and test data are on file and available for inspection.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this calibration certificate have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in the report. The uncertainty of the calibration was sufficient to determine that the instrument met the manufacturer's specifications.

Temperature: 79.0 Deg. F
Humidity: 47 % RH
Calibration Date: 20 Aug 98
Calibration Procedure: CLCP-WT-001
Interval: 6 months
Received: In Tolerance
Next Calibration Due: 20 Feb 99
Remarks:

Standards Used

Asset	MFR	Model	Description	Serial No.	Due Cal
002061	RICE LAKE	5KG	WEIGHT STANDARD	E204	26 Jun 99
001716	RICE LAKE	1KG	WEIGHT STANDARD	C871	26 Jun 99
001719	RICE LAKE	5KG	WEIGHT STANDARD	C874	26 Jun 99
002060	RICE LAKE	5KG	WEIGHT STANDARD	E302	26 Jun 99
002062	RICE LAKE	10KG	WEIGHT STANDARD	E203	26 Jun 99

Signed:
Title:

LAST PAGE OF REPORT
Total Pages Printed: 1

Certificate # 30920

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

9 September 1997

Issued to: RON GREEN DIV20 B57
Manufacturer/Model: SARTO 3808
Description: ELECTRONIC BALANCE
Serial Number: 3903006
Asset Number: 001444

Environmental Conditions

Temperature: 74.0 Deg. F **Humidity:** 65%

Calibration Information

Calibration was in accordance with requirements of MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Measurements are traceable to the National Institute of Standards and Technology (NIST). This report may not be reproduced except in full without written approval of the originator. Inspection and test data are on file and available for inspection.

Calibration Date: 9 Sep 97 **Calibration Procedure:** CLCP-WT-001

Interval: 6 months **Accuracy:** MFGR SPECS

Next Calibration Due: 9 Mar 98 **Received:** In Tolerance

Remarks:

Standards Used

Asset	MFR	Model	Description	Serial No.	Due Cal
001716	RICE LAKE	1KG	WEIGHT STANDARD	C871	21 Jul 98
001719	RICE LAKE	5KG	WEIGHT STANDARD	C874	21 Jul 98
002060	RICE LAKE	5KG	WEIGHT STANDARD	E302	21 Jul 98
002061	RICE LAKE	5KG	WEIGHT STANDARD	E204	21 Jul 98
002062	RICE LAKE	10KG	WEIGHT STANDARD	E203	21 Jul 98

Certificate # 26717

Signed:

LAST PAGE OF REPORT
Total Pages Printed: 1

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

CERTIFICATE # 33419 ASSET # 1444 DATE 19FEB99

ITEM DATA:

Manufacturer SARTORIUS Model 3808

Description ELECTRONIC BALANCE Serial # 3503005

Accessories _____

ACTION REQUESTED CAL

CUSTODIAN DIV 20 Rio GRUEN

Turned in by: _____ Phone _____

CHARGE # _____ Date Required _____

INSTRUMENT USED ON: ☐ (DOD/NASA) ☑ (NUCLEAR) ☑ (GLP) ☐ (SPPE) ☐ (ISO)
☐ OTHER _____

COPY OF CALIBRATION CERTIFICATE ☐ (Yes) ☐ (No)

NEW WORK ☐ Yes ☐ No If yes, an evaluation shall be made to verify capabilities.

By _____ Date _____

Work involves proprietary/confidential information or equipment ☐ (Yes) ☐ (No)

CONDITION RECEIVED:
____ (F) Out of tolerance, repaired to specifications
____ (G) In tolerance, minor adjustments/repairs made
✓ (J) In tolerance, no adjustments/repairs
____ (K) Out of tolerance, adjusted to specifications
____ (S) Received into system, introduced or reactivated

33419

ACTION TAKEN: (Calibration/Repair/Parts) CAL

CAL ENVIRONMENT:
Temperature 69 °F Humidity 33 %RH

CALIBRATED/REPAIRED:
By _____ Cal Procedure QCP-WT-011
Date 19FEB99 Accuracy n/a
Cal Interval 6 Reliability Code: _____
Next Cal due 19AUG99 Cal Time 1.5 Repair Time _____
Standards used (Asset#) 2062 2061 2060 1719 1718 1717 1716

DATE COMPLETED 19 FEB QAL BY SITE
DATE PICKED UP _____ PICKED UP BY _____

SwRI Form QA-174-0

BALANCE CALIBRATION VERIFICATION FORM

DATE 19 Feb 99
BALANCE CAL NO.: 33419

TEMPERATURE: 69
HUMIDITY: 33
BARO. PRESSURE: 14.34

CALIBRATION DATES
LAST CAL: 20 AUG 98
NEXT CAL: 19 AUG 99

MFGR: SARTORIUS
MODEL: 3108
SERIAL NO: 35030021
ASSET NO: 1444
RANGE:
MASS UNCERTAINTY (U_M):

TUR = Comb. MFR Specs (U_{mfr}) / $U_{m\text{-}std}$ = ___ : 1

MFGR BALANCE TOLERANCES

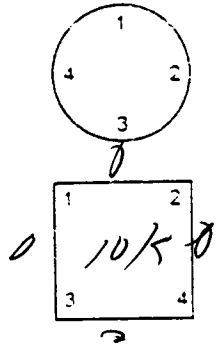
LINEARITY:
ECCENTRICITY:
REPRODUCIBILITY:
TEMP. DRIFT/ °C:
COMBINED MFR SPECS (U_{mfr}):

If TUR < 4:1, U_s = _____

BL 51. Row Green

	RANGE VERIFICATION								
	RANGE 1			RANGE 2			RANGE 3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
DATA POINTS	30K	25	15	5					
RUN # 1	30000.1	25000.0	15000.0	5000.0					
RUN # 2									
RUN # 2									
MEAN									
STD. DEV.									

POSITION GUIDE



SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL: V EXTERNAL: _____

	PAN POSITION			
ACTUAL WEIGHT IN CENTER	1	2	3	4
DIFF				

COMMENTS: _____

SIGNATURE: _____

MEASURED UNCERTAINTY:

Linearity ± _____ g
Eccentricity ± _____ g
Comb. Uncertainty ± _____ g

Std. Uncertainty ± _____ g
Std. Uncertainty ± _____ g

Rep. (σ) ± _____ g
Mass tol. (2σ) ± _____ g
Comb. Uncertainty ± _____ g

(σ) ± _____ g
(linearity, eccentricity, reproducibility, mass)

Expanded Unc (k = 2) ± _____ g

Southwest Research Institue
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Accredited

Certificate # 0972-01

Certificate of Calibration

22 February 1999

Issued to:	RON GREEN DIV20 B57
Manufacturer/Model:	SARTORIOUS 3808
Description:	ELECTRONIC BALANCE
Serial Number:	3903006
Asset Number:	001444

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results of this calibration certificate were determined in accordance with the terms of accreditation unless stated otherwise below.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 69.0 Degrees Fahrenheit Humidity: 33 % RH

Calibration Date: 19 Feb 99 **Calibration Procedure:** CLCP-WT-001

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Jerry White / Technician

Certificate # 33419

B51-
19Aug99

SOUTHWEST RESEARCH INSTITUTE
Department of Quality Assurance
Calibration Laboratory • 522-5215

WORK ORDER

WORK ORDER # 35654 ASSET # 1444 DATE 16 Aug 99

ITEM DATA:

Manufacturer SARTORIOUS Model 3805

Description BALANCE Serial # 3903006

Accessories _____

ACTION REQUESTED Cal

CUSTODIAN RON GREEN

Turned in by: _____ Phone _____

CHARGE # 20-0751-006 Date Required _____

INSTRUMENT USED ON: ☐ (DOD/NASA) ☐ (NUCLEAR) ☐ (GLP) ☐ (SPPE) ☐ (ISO)
☐ OTHER _____

COPY OF CALIBRATION CERTIFICATE ☑ (Yes) ☐ (No)

NEW WORK ☐ Yes ☑ No If yes, an evaluation shall be made to verify capabilities.

By _____ Date _____

Work involves proprietary/confidential information or equipment ☐ (Yes) ☐ (No)

CONDITION RECEIVED:
___/___ Out of tolerance
___/___ In tolerance
_____ Damaged (Contact customer)
_____ Contact _____ Date _____
_____ Received into system, introduced or reactivated

ACTION TAKEN: (Calibration/Repair/Parts) Cal

CAL ENVIRONMENT:

Temperature 71 °F Humidity 47 %RH

CALIBRATED/REPAIRED

By _____ Cal Procedure CLCP-WT-001 AUG 97

Date 18 AUG 99 Accuracy _____

Cal Interval 6 Reliability Code _____

Next Cal Due 18 Feb 00 Cal Time _____ Repair Time _____

Standards used (Asset #) 1164 6160 1715 17 17 16

DATE COMPLETED 19 Aug 99 Cal on 2

DATE PICKED UP _____ PICKED UP BY _____

SwRi Form QA-174-0

35654

BALANCE CALIBRATION VERIFICATION FORM

DATE 15 JUL 99
BALANCE CAL NO: 35684

TEMPERATURE: 77
HUMIDITY: 47
BARO PRESSURE: 14.25

CALIBRATION DATES
LAST CAL: 15 FEB 99
NEXT CAL: 15 FEB 00

MFGR: SARTORIUS
MODEL: 3809
SERIAL NO: 3903001
ASSET NO: 1444
RANGE: 30K
MASS UNCERTAINTY (U_M):

TUR = Comb MFR Specs (U_{mfr}) / $U_{m\text{-}std}$ = ___ : 1

MFGR BALANCE TOLERANCES

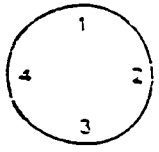
LINEARITY:
ECCENTRICITY:
REPRODUCIBILITY:
TEMP. DRIFT/ °C:
COMBINED MFR SPECS (U_{mfr}):

If TUR < 4:1, U_b =

20K 15K 10K 5K 1K

	RANGE VERIFICATION								
	RANGE 1			RANGE 2			RANGE 3		
	CALIBRATION POINTS			CALIBRATION POINTS			CALIBRATION POINTS		
DATA POINTS	30K	15K	10K	5K	1K				
RUN # 1	29999.7	~~15000.9~~	10000.0	5000.0	1000.0				
RUN # 2	✓	✓	✓	✓	✓				
RUN # 2									
MEAN									
STD. DEV									

POSITION GUIDE



SHIFT VERIFICATION

SELF CALIBRATION Y/N INTERNAL: ✓ EXTERNAL: ___

	PAN POSITION			
ACTUAL WEIGHT IN CENTER	1	2	3	4
DIFF				

COMMENTS:

SIGNATURE:

SwRI CALIBRATION LAB
(210) 522-5215
CAL 9/30/99 BY JW
DUE 3/30/00 ID 1444
S/N 3903001

MEASURED UNCERTAINTY:

Linearity = ___ g
Eccentricity = ___ g
Comb Uncertainty = ___ g

Std Uncertainty = ___ g
Std Uncertainty = ___ g

Rep (σ) = ___ g
Mass tol (2σ) = ___ g
Comb Uncertainty = ___ g

(σ) = ___ g
(linearity, eccentricity reproducibility, mass

Expanded Uncertainty = 2σ = ___ g

Southwest Research Institue
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Accredited

Certificate #
0972-01

Certificate of Calibration

24 August 1999

Issued to:	RON GREEN DIV20 B57
Manufacturer/Model:	SARTORIUS 3808
Description:	ELECTRONIC BALANCE
Serial Number:	3903006
Asset Number:	001444

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results of this calibration certificate were determined in accordance with the terms of accreditation unless stated otherwise below.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 77.0 Degrees Fahrenheit Humidity: 47 % RH

Calibration Date: 19 Aug 99 **Calibration Procedure:** CLCP-WT-001 AUG 97

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Jim Patterson, Supervisor or Walt Hill, Metrologist

Certificate # 35654

Measurements performed by:

Jerry White, Technician

m:\a2la.rpt Rev date 10 Mar 99

WORK ORDER 37737

Date Received 2/9/00

Asset No. 001444 **Manufacturer** SARTORIUS **Model** 3808
Description ELECTRONIC BALANCE **Serial Number** 3903006
Accessory Received/Required NONE
Div/CC ID NONE **Accessory to Asset No.** N/A **Accuracy** MFG SPECS
Div/CC DIV20 **Location** B57 **Custodian** RON GREEN **Tel.** 5305
Charge/Project No. 20.00751.006 **Proprietary/Confidental** N **Date Required** ROUTINE
Work Requested CALIBRATION ONSITE
Receiving Inspection
Delivered By N/A **Tel.** 5305

WORK HISTORY

Date	Start Time	Stop Time	Notes

PARTS

Part Name	Part Number	Cost	Failure Description

37737

WORK SUMMARY

Failure Description _____

Repair Action _____

Cal Procedure _____ **Temp** 71 **F** **Hum** 45 **%**

Tech JW **Cal Hrs.** 1.5 **Repair Hrs.** _____ **Part Cost** _____

Action Taken Onsite

Standards Used 2062 2060 2061 1719 1718 1717 1716 1715

Date Cal 9 Feb 00 **Int.** 6 **Mo. Date Due** _____ **Reliability Code** _____

Date Picked Up _____ **Picked Up By** _____

workreq.rpt Rev 30 Jan 00

ELECTRONIC BALANCE CALIBRATION DATA SHEET

WORK ORDER Sartorius DATE 9 Feb 00 TECHNICIAN [illegible]

MODEL 3807 SERIAL NO. 71 ASSET NO. _____

LOCATION B51

AMBIENT: TEMP 71 HUMIDITY 48 BARO PRESS 14.41

---

1) CALIBRATION CHECK

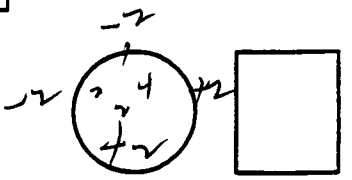
AS FOUND FULL-CAPACITY INDICATION 29999.8 adjusted

POST-CALIBRATION INDICATION 30000.1 TOLERANCE _____ P/F ___

2) REPEATABILITY

1	10000.1	6	10000.1
2	10000.1	7	10000.1
3	10000.1	8	10000.1
4	10000.1	9	10000.1
5	10000.1	10	10000.1

S.D. _____ TOLERANCE _____ P/F ___



3) OFF-CENTER ERROR

1	9999.7	3	9999.9
2	10000.3	4	10000.3

TOLERANCE _____ P/F ___

4) NON-LINEARITY

TEST POINT	INDICATION	NON-LIN ERROR	TEST WEIGHT S/N
0		—	—
25%	7500.1		
50%	7500.1		
75%	7500.1		
100%	7500.1		

TOLERANCE _____ P/F ___

5) COMMENTS:

SwRI CALIBRATION LAB
(210) 522-5215
CAL 9AUG99 BY
DUE 9Feb00 ID 2444
S/N 370302

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

9 February 2000

Issued to:	RON GREEN DIV20 B57
Manufacturer/Model:	SARTORIUS 3808
Description:	ELECTRONIC BALANCE
Serial Number:	3903006
Asset Number:	001444

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 71.0 Degrees Fahrenheit Humidity: 45 % RH

Calibration Date: 9 Feb 00 **Calibration Procedure:** CLCP-WT-001 DEC 99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE, ADJUSTED

Remarks:

Approved by:

Jim Patterson, Supervisor or Walt Hill, Metrologist

Measurements performed by:

Jerry White, Technician

Certificate # 37737

m:\nona2la.rpt Rev date 13 Apr 99

SOUTHWEST RESEARCH INSTITUTE

CALIBRATION LABORATORY
6220 CULEBRA ROAD POST OFFICE DRAWER 28510 SAN ANTONIO, TEXAS 78228-0510 TEL (210) 522-5215 FAX (210) 522-3692

Receipt for Work Order 37737 **Date Received** 2/9/00

Asset No. 001444 **Manufacturer** SARTORIUS **Model** 3808

Description ELECTRONIC BALANCE **Serial Number** 3903006

Accessory Received/Required NONE

Div/CC ID NONE **Accessory to Asset No.** N/A **Accuracy** MFG SPECS

Div/CC DIV20 **Location** B57 **Custodian** RON GREEN **Tel.** 5305

Charge/Project No. 20.00751.006 **Proprietary/Confidental** N **Date Required** ROUTINE

Work Requested CALIBRATION ONSITE

Receiving Inspection

Delivered By N/A **Tel.** 5305

CUSTOMER COMMENTS REQUESTED

The Calibration Laboratory staff is committed to good laboratory practice and providing our customers quality calibration services. Please rate how well we are meeting our goal and provide us with your recommendations for improvement.

Quality of service provided	_____
Turn-around time	_____
Certificates	_____
Calibration labels	_____
Recall notification	_____
Condition of returned equipment	_____
Overall service	_____

Rating Scale
4 = Excellent
3 = Good
2 = Acceptable
1 = Needs improvement

Please check all that apply: Equipment user _____ Delivery person _____ Custodian _____

IF WE PLEASE YOU, TELL OTHERS; IF NOT, TELL US.

COMMENTS: _____

_____

_____

_____

_____

_____

Name _____ **Tel.** _____

WORK ORDER 40067

Date Received 8/7/00

Asset No. 001444 **Manufacturer** SARTORIUS **Model** 3808
Description ELECTRONIC BALANCE **Serial Number** 3903006
Accessory Received/Required NONE
Div/CC ID NONE **Accessory to Asset No.** N/A
Div/CC DIV20 **Location** B57 **Custodian** RON GREEN **Tel.** 5305
Charge/Project No. 20.00751.006 **Proprietary/Confidental** N **Date Required** ROUTINE
Work Requested CALIBRATION ONSITE
Receiving Inspection N/A
Delivered By N/A **Tel.** 5305

WORK HISTORY

Date	Start Time	Stop Time	Notes
10AUG2000	24		CAL FAIL on site / REMOVED to SHOP. JW
11AUG200	24		TROUBLE SHOOT / ORDER MICRO SW's JW

PARTS

Part Name	Part Number	Cost	Failure Description

40067

WORK SUMMARY

Failure Description _____

Repair Action _____

Cal Procedure CLCP-WT-001, 12/99 **Temp** 69 **F** **Hum** 60 **%**

Tech JW **Cal Hrs.** 1.0 **Repair Hrs.** 24 **Part Cost** _____

Action Taken CAL

Standards Used 2062 61 60 1919 18 17 14 16

Date Cal _____ **Int.** 6 **Mo. Date Due** _____ **Reliability Code** _____

Date Picked Up _____ **Picked Up By** _____

workreq.rpt Rev 30 Jan 00

ELECTRONIC BALANCE CALIBRATION DATA SHEET

WORK ORDER 10017 DATE 7/8/2008 TECHNICIAN JMO

MODEL 3903 SERIAL NO. 3903006 ASSET NO. _____

LOCATION D82

AMBIENT: TEMP 74 HUMIDITY 41 BARO PRESS 17.11

1) CALIBRATION CHECK

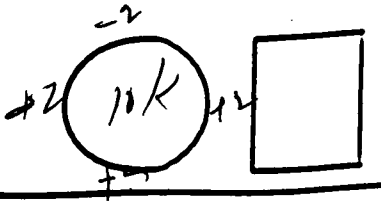
AS FOUND FULL-CAPACITY INDICATION 30000.9

POST-CALIBRATION INDICATION 30000.0 TOLERANCE _____ P/F ____

2) REPEATABILITY

1	10000.2	6	.2
2	.2	7	.2
3	.2	8	.3
4	.2	9	.2
5	.3	10	.2

S.D. _____ TOLERANCE _____ P/F ____



3) OFF-CENTER ERROR

1		3	
2		4	

TOLERANCE _____ P/F ____

4) NON-LINEARITY

TEST POINT	INDICATION	NON-LIN ERROR	TEST WEIGHT S/N
0		—	—
25%			
50%			
75%			
100%			

TOLERANCE _____ P/F ____

5) COMMENTS: Scale will not zero check on pants

SOUTHWEST RESEARCH INSTITUTE

CALIBRATION LABORATORY
6220 CULEBRA ROAD POST OFFICE DRAWER 28510 SAN ANTONIO, TEXAS 78228-0510 TEL (210) 522-5215 FAX (210) 522-3692

Receipt for Work Order 40067 **Date Received** 8/7/00

Asset No. 001444 **Manufacturer** SARTORIUS **Model** 3808

Description ELECTRONIC BALANCE **Serial Number** 3903006

Accessory Received/Required NONE

Div/CC ID NONE **Accessory to Asset No.** N/A **Accuracy** MFG SPECS

Div/CC DIV20 **Location** B57 **Custodian** RON GREEN **Tel.** 5305

Charge/Project No. 20.00751.006 **Proprietary/Confidental** N **Date Required** ROUTINE

Work Requested CALIBRATION ONSITE

Receiving Inspection N/A

Delivered By N/A **Tel.** 5305

CUSTOMER COMMENTS REQUESTED

The Calibration Laboratory staff is committed to good laboratory practice and providing our customers quality calibration services. Please rate how well we are meeting our goal and provide us with your recommendations for improvement.

Quality of service provided	_____
Turn-around time	_____
Certificates	_____
Calibration labels	_____
Recall notification	_____
Condition of returned equipment	_____
Overall service	_____

Rating Scale
4 = Excellent
3 = Good
2 = Acceptable
1 = Needs improvement

Please check all that apply: Equipment user _____ Delivery person _____ Custodian _____

IF WE PLEASE YOU, TELL OTHERS; IF NOT, TELL US.

COMMENTS: _____

_____

_____

_____

_____

_____

Name _____ **Tel.** _____

ELECTRONIC BALANCE CALIBRATION DATA SHEET

WORK ORDER 40067 DATE 28 AUG 2000 TECHNICIAN JWD

MODEL 3803 SERIAL NO. 3903006 ASSET NO. ____

LOCATION B64

AMBIENT: TEMP 69 HUMIDITY 60 BARO PRESS 14.27

---

1) CALIBRATION CHECK

AS FOUND FULL-CAPACITY INDICATION 30 000.9

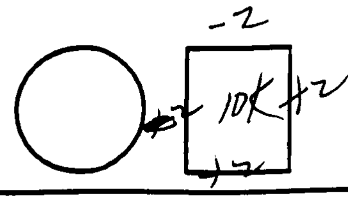
POST-CALIBRATION INDICATION 30 000.1 TOLERANCE ____ P/F ____

2062
2061
2060
1719
1718
1717
1716
1715 500

2) REPEATABILITY

1	10 000.0	6	10000.0
2	10 000.0	7	10000.1
3	10 200.0	8	10000.0
4	10 000.0	9	10 000.0
5	10,000.0	10	10 000.0

S.D. ____ TOLERANCE ____ P/F ____



3) OFF-CENTER ERROR

1		3	
2		4	

TOLERANCE ____ P/F ____

4) NON-LINEARITY

TEST POINT	INDICATION	NON-LIN ERROR	TEST WEIGHT S/N
0	0.0	—	—
25%	7500.1		
50%	7500.0		
75%	7500.1		
100%	7500.0		

TOLERANCE ____ P/F ____

5) COMMENTS: Did not replace. Time will correct on. nod sub.

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Certificate #
0972-01

Certificate of Calibration

30 August 2000

Issued to:	RON GREEN DIV20 B57
Manufacturer/Model:	SARTORIUS 3808
Description:	ELECTRONIC BALANCE
Serial Number:	3903006
Asset Number:	001444

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. The results of this calibration relate only to the individual item as described above. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results of this calibration certificate were determined in accordance with the terms of accreditation unless stated otherwise below.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 69.0 Degrees Fahrenheit Humidity: 60 % RH

Calibration Date: 28 Aug 00 **Calibration Procedure:** CLCP-WT-001, 12/99

Condition as Received: INOPERATIVE SEE REMARKS

Condition as Released: IN TOLERANCE

Remarks: THE BALANCE TARE SWITCH WAS INOPERATIVE. A TEMPORARY SWITCH WAS INSTALLED PENDING REPLACEMENT SWITCH FROM SARTORIUS.

Approved by:

Jim Patterson, Supervisor, or Walt Hill, Metrologist

Certificate # 40067

Measurements performed by:

Jerry White, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Processed by JIBARRA at 2:55:52PM on 2/8/01

Work Order 444042341 Arrived 2/8/01

Asset No. 001444 Manufacturer SARTORIUS Model 3808

Instrument Type/Class BALANCE Serial No. 3903006

Accessory No. Calibration Procedure CLCP-WT-001, 12/99 Location B57

Div/Client DIV20 Custodian RON GREEN Mail Stop B57 Tel. 5305

Charge/Project No. ~~19~~20.00851.006 Delivered By / Telephone

IN4CAL Special Instructions _____

WORK NOTES

Date	Hours	Remarks/Notes

REPAIR PARTS

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description _____

Repair Action _____

Calibration Procedure CLCP-WT-001, 12/99 Temp 78 F Hum. 41 %

Tech VMorales Totals Cal Hours 1.0 Repair Hours _____ Parts Cost _____

Standards Used 1716, 1717, 1718, 1719, 2060, 2061, 2062, 1715

Date Picked Up _____ Picked Up By _____

ELECTRONIC BALANCE CALIBRATION DATA SHEET

WORK ORDER 44404234/ DATE 27Feb01 TECHNICIAN VMorris

MODEL 3808 SERIAL NO. 3903006 ASSET NO. 1447

LOCATION DW PO Bldg 51

AMBIENT: TEMP 78 HUMIDITY 66 BARO PRESS 14.25

1) CALIBRATION CHECK

AS FOUND FULL-CAPACITY INDICATION 30000.5g

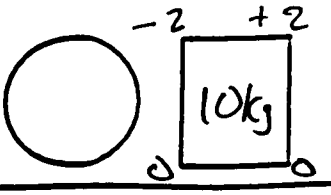
POST-CALIBRATION INDICATION 30000.0g TOLERANCE _____ P/F___

2) REPEATABILITY

1	10000.1g	6	10000.1g
2	10000.1g	7	10000.1g
3	10000.1g	8	10000.0g
4	10000.0g	9	10000.1g
5	10000.0g	10	10000.1g

1716, 1717, 1718
1719 2060, 2061, 2062
1715

S.D. _____ TOLERANCE _____ P/F_____



3) OFF-CENTER ERROR

1		3	
2		4	

TOLERANCE _____ P/F____

4) NON-LINEARITY

TEST POINT	INDICATION	NON-LIN ERROR	TEST WEIGHT S/N
0	0	—	—
25%	7500.1g		
50%	7500.0g		
75%	7500.0g		
100%	7500.0g		

TOLERANCE _____ P/F ____

5) COMMENTS:

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Certificate #
0972-01

Certificate of Calibration

28 February 2001

Issued to:	RON GREEN DIV20 B57
Manufacturer/Model:	SARTORIUS 3808
Description:	BALANCE
Serial Number:	3903006
Asset Number:	001444
Work Order Number:	444042341

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. The results of this calibration relate only to the individual item as described above. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results of this calibration certificate were determined in accordance with the terms of accreditation unless stated otherwise below.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 78.0 Degrees Fahrenheit Humidity: 66 % RH

Calibration Date: 27 Feb 01 **Calibration Procedure:** CLCP-WT-001, 12/99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Vince Morales, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Processed by RCRUZ at 3:48:40PM on 7/30/01

Work Order 444044579 Arrived 7/30/01

Asset No. 001444 Manufacturer SARTORIUS Model 3808

Instrument Type/Class BALANCE Serial No. 3903006

Accessory No. Calibration Procedure CLCP-WT-001, 12/99 Location B57

Div/Client DIV20 Custodian RON GREEN Mail Stop B57 Tel. 5305

Charge/Project No. 00751.006 1.20 Delivered By / Telephone

IN4CAL Special Instructions _____

WORK NOTES

Date	Hours	Remarks/Notes

REPAIR PARTS

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description _____

Repair Action _____

Calibration Procedure _____ Temp 74 F Hum. 60 %

Tech _____ Totals Cal Hours 1.5 Repair Hours _____ Parts Cost _____

Standards Used _____

_____

Date Picked Up _____ Picked Up By _____

ELECTRONIC BALANCE CALIBRATION DATA SHEET

WORK ORDER 44579 DATE 2/31/2001 TECHNICIAN JW

MODEL 3808 SERIAL NO. 3303006 ASSET NO. 1444

LOCATION B5

AMBIENT: TEMP 74 HUMIDITY 60 BARO PRESS 1432

1) CALIBRATION CHECK

AS FOUND FULL-CAPACITY INDICATION 30 000.9

POST-CALIBRATION INDICATION 29999.9 TOLERANCE _____ P/F ___

2) REPEATABILITY

1	10 000.0	6	9999.9
2	10000.0	7	9989.9
3	10002.0	8	10000.0
4	10 000.0	9	10000.0
5	9999.9	10	10000.0

2062
2061
2060
1719
1718
1717
1711
1710

-1

S.D. _____ TOLERANCE _____ P/F ___

10K ±4 +/-

3) OFF-CENTER ERROR

1		3	
2		4	

TOLERANCE _____ P/F ___

4) NON-LINEARITY

TEST POINT	INDICATION	NON-LIN ERROR	TEST WEIGHT S/N
0		—	—
25%	7500.1		
50%	15000.0		
75%	22499.9		
100%	29998.9		

TOLERANCE _____ P/F ___

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Certificate #
0972-01

Certificate of Calibration

1 August 2001

Issued to: RON GREEN DIV20 B57
Manufacturer/Model: SARTORIUS 3808
Description: BALANCE
Serial Number: 3903006
Asset Number: 001444
Work Order Number: 444044579

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. The results of this calibration relate only to the individual item as described above. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results of this calibration certificate were determined in accordance with the terms of accreditation unless stated otherwise below.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 74.0 Degrees Fahrenheit Humidity: 60 % RH

Calibration Date: 31 Jul 01 **Calibration Procedure:** CLCP-WT-001, 12/99

Condition as Received: IN TOLERANCE

Condition as Released: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Jerry White, Technician

SOUTHWEST RESEARCH INSTITUTE

Calibration Laboratory

WORK ORDER

Received by MROMERO,1/22/02 1:15:40PM

Arrived 1/22/02 Work Order **444046884**

Asset No. 001444 Manufacturer SARTORIUS Model 3808

Equipment Type BALANCE Serial No. 3903006 Accessory No.

Interval 6 M Calibration Procedure CLCP-WT-001, 12/99 Location B57

Div/Client DIV20 Custodian RON GREEN Mail Stop B57 Tel 5305

IN4CAL Special Instructions

Notify before adjustments or repairs. ( ) Provide data with certificate ( ) Certificate Typ

Charge/Project No. 00751.006 1.20 Requester / Telephone

This information is correct for the work requested.

SwRI CALIBRATION LAB
(210) 522-5215
CAL 31 JUL 2001 BY
DUE 31 JAN 2002 ID 1494
S/N 3903006

WORK NOTES

Date	Hours	Remarks/Notes

Date	Hours	Part Name	Part Number	Failure Description	Cost

WORK SUMMARY

Failure Description

Repair Action

Tech MH Cal Hrs. 2.0 Repair Hrs Parts Cost Temp 71 F Hum. 43 %

Standards Used MS, 1717, 1119, 6098, 2060, 2061, 2062

Date Picked Up 22 JAN.02 Picked Up By GM ONCITE

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

22 January 2002

Issued to:	RON GREEN DIV20 B57
Manufacturer/Model:	SARTORIUS 3808
Description:	BALANCE
Serial Number:	3903006
Asset Number:	001444
Work Order Number:	444046884

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 71.0 Degrees Fahrenheit Humidity: 43 % RH

Calibration Date: 22 Jan 02 **Calibration Procedure:** CLCP-WT-001, 12/99

Condition as Received: IN TOLERANCE

Condition as Returned: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Supervisor
Institute Calibration Laboratory

Measurements performed by:

Mark Romero, Technician

Southwest Research Institute
Calibration Laboratory
Calibration Data Sheet

Work Order	444046884	**Mfr.**	Sartorius	**Technician**	Mark A. Romero
Asset No.	1444	**Model**	3808MP8-1V20	**Procedure**	CLCP-WT-001, 12/99
Serial No.	3903006	**Type**	Balance	**Cal Date**	22-Jan-02

Location: Bldg. 51

Ambient Conditions: 71 F 43 %RH 14.3 PSIA

Operational Check: **Limits +/- :** 0.5 g

STD Mass Load	As Found Indication	Instrument Error
30000.0 g	29998.1 g	-1.9 g

Post Calibration Check:

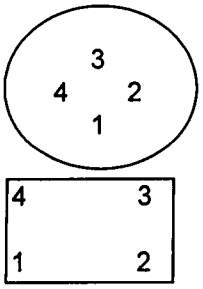
STD Mass Load	Post calibration Indication	Instrument Error	Results
30000.0 g	29999.6 g	-0.4 g	Pass

Repeatability Check: **Mass Load:** 15000.0 g

1	14999.9 g	6	14999.8 g
2	14999.9 g	7	14999.8 g
3	14999.9 g	8	14999.9 g
4	14999.8 g	9	14999.9 g
5	14999.9 g	10	14999.9 g

Std Deviation	Tolerance
0.05	0.1 g

Off-Centerline Check: **Mass Load:** 10000.0 g



	Indication	Instrument Error	+/- Limits	Results
1	0.0 g	0.0 g	0.4	Pass
2	0.0 g	0.0 g	0.4	Pass
3	0.4 g	0.4 g	0.4	Pass
4	-0.4 g	-0.4 g	0.4	Pass

Non-Linearity Check: **Range:** 30000.0 g

STD Mass Load	Indication	Instrument Error	+/- Limits	Results
0.0 g	0.0 g	0.0 g	0.15	Pass
7500.0 g	7500.0 g	0.0 g	0.15	Pass
15000.0 g	7499.9 g	-0.1 g	0.15	Pass
22500.0 g	7500.0 g	0.0 g	0.15	Pass
30000.0 g	7499.9 g	-0.1 g	0.15	Pass

Remarks: Readability is 0.1g. Standards used 2060, 2061, 2062, 6098, 1719, 1717, and 1715.

Southwest Research Institute
Calibration Laboratory
Uncertainty Budget

Sartorius 3808MP8 (TI)	Units	Range	Acc. +/- (1)	Resolution
	g	32 500	0.5	0.1
Source of Uncertainty	Value	Distribution	Divisor	Std. Uncert.
Standard weight (2)	0.0702	Rectangular	Sqrt 3	0.0405
Resolution	0.1	Rectangular	Sqrt 3	0.0577
Air buoyancy (3)	0.0325	Rectangular	Sqrt 3	0.0188
Combined Uncertainty			RSS	0.0730
Expanded Uncertainty			*k*=2	0.15
Test Accuracy Ratio (TAR)	TI Acc./STD Acc.			
	7.1	to 1		
Test Uncertainty Ratio (TUR)	TI Acc./Muk=2			
	3.4	to 1		

(1) Combined Uncertainty (2 sigma) of mfg std dev. (0.1g), linearity (0.15g), corner load (0.4g), & Class S1 30kg internal check weight (75mg) tolerances.

(2) RSS of combined tolerances for check weights [Class S1 25kg (62mg), 10kg (25mg), (3) 5kg (12mg), 2kg (5mg), and 500g (1.2mg)].

(3) No correction is made for air buoyancy. As the span of the weighing machine was adjusted before calibration, the uncertainty limits were estimated to be 1 ppm of the nominal value ie= 32.5 mg.

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78238
(210) 522-5215
Department of Quality Assurance
Calibration Laboratory

Certificate of Calibration

18 July 2002

Issued to:	RON GREEN DIV20 T1
Manufacturer/Model:	SARTORIUS 3808-MP8
Description:	BALANCE
Serial Number:	39030006
Asset Number:	001444
Work Order Number:	444049442

Due JAN 17, 03

This certifies the above item was calibrated in compliance with MIL-STD-45662A and ANSI/NCSL Z540-1-1994. Standards used in this calibration, described in the referenced calibration procedure with associated uncertainties or tolerances, are traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request. This certificate is not to be reproduced, except in full, without the written approval of the Southwest Research Institute Department of Quality Assurance Calibration Laboratory.

The uncertainty of the calibration was sufficient to determine that the item met the manufacturer's published specifications unless stated otherwise below.

Ambient Conditions: Temperature: 72.0 Degrees Fahrenheit Humidity: 62 % RH

Calibration Date: 17 Jul 02 **Calibration Procedure:** CLCP-WT-001, 12/99

Condition as Received: IN TOLERANCE

Condition as Returned: IN TOLERANCE

Remarks:

Approved by:

Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Measurements performed by:

Mark Romero, Technician

Southwest Research Institute
Calibration Laboratory
Calibration Data Sheet

Work Order	444049442	**Mfr.** Sartorius		**Technician**	Mark A. Romero
Asset No.	001444	**Model** 3808-MP8		**Procedure**	CLCP-WT-001, 12/99
Serial No.	39030006	**Type** Balance		**Cal Date**	17-Jul-02

Location: Bldg. 51

Ambient Conditions: 72 F 62 %RH 14.32 PSIA

Operational Check: **Limits +/- :** 0.6 g

STD Mass Load	As Found Indication	Instrument Error
30000.0 g	29998.6 g	-1.4 g

Post Calibration Check:

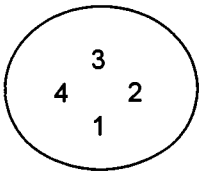
STD Mass Load	Post calibration Indication	Instrument Error	Results
30000.0 g	29999.8 g	-0.2 g	Pass

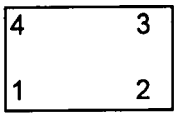
Repeatability Check: **Mass Load:** 10000.0 g

1	10000.1 g	6	10000.2 g
2	10000.1 g	7	10000.2 g
3	10000.0 g	8	10000.1 g
4	10000.0 g	9	10000.1 g
5	10000.0 g	10	10000.2 g

Std Deviation	Tolerance
0.1 g	0.1 g

Off-Centerline Check: **Mass Load:** 10000.0 g





	Indication	Instrument Error	+/- Limits	Results
1	0.0 g	0.0 g	0.4	Pass
2	0.2 g	0.2 g	0.4	Pass
3	0.1 g	0.1 g	0.4	Pass
4	-0.3 g	-0.3 g	0.4	Pass

Non-Linearity Check: **Range:** 32000.0 g

STD Mass Load	Indication	Instrument Error	+/- Limits	Results
0.0 g	0.0 g	0.0 g	0.2	Pass
8000.0 g	8000.1 g	0.1 g	0.2	Pass
16000.0 g	8000.2 g	0.2 g	0.2	Pass
24000.0 g	7999.8 g	-0.2 g	0.2	Pass
32000.0 g	7999.8 g	-0.2 g	0.2	Pass

Remarks: *Readability is 0.1g. Standards used 2060, 2061, 2062, 6098, 1719, 1718, 1716, and 1717.*
Balance located on table that does not give the unit proper support. As weight increases on balance, the table becomes less stable and causes unit to drift.

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	**Work Order:**	444051979
Address:	T1	**Date Issued:**	Jan 22, 2003
Contact:	RON GREEN	**Calibration Date:**	Jan 21, 2003
Manufacturer Model:	SARTORIUS 3808-MP8	****Calibration Due:**	Jul 21, 2003
Description:	BALANCE	**Calibration Location:**	B51
Serial No:	39030006	**Environment:**	Temp. 77.0°F Hum. 45 %RH
Asset No:	001444	***As Found:**	IN TOLERANCE
Procedure:	CLCP-WT-001, 12/99	***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/NCSL 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
002060	RICE LAKE	5KG	WEIGHT, CLASS 1	Jun 14, 03
002061	RICE LAKE	5KG	WEIGHT, CLASS 1	Jun 14, 03
002062	RICE LAKE	10KG	WEIGHT, CLASS 1	Jun 14, 03
006098	RICE LAKE	25KG	WEIGHT, CLASS 1	Jun 14, 03
001718	RICE LAKE	2KG	WEIGHT, CLASS 1	Jun 14, 03
001715	RICE LAKE	500G	WEIGHT, CLASS S	Jun 14, 03

Approved by: Walt Hill
Metrology Group Leader

Measurements by: Mark Romero
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Calibration Data Sheet

Work Order	444051979	**Mfr.** Sartorius		**Technician**	Mark A. Romero
Asset No.	001444	**Model** 3808		**Procedure**	CLCP-WT-001, 12/99
Serial No.	39030006	**Type** Balance		**Cal Date**	21-Jan-03

Location: Bldg. 51

Ambient Conditions: 77 **F** 45 **%RH** 14.22 **PSIA**

Operational Check: **Limits +/- :** 1.1 g **Uncertainty:** 0.1 g

STD Mass Load	*As Found Indication*	*Instrument Error*
30000.0 g	30000.8 g	**0.8** g

Post Calibration Check:

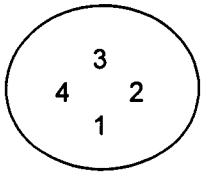
STD Mass Load	*Post Calibration Indication*	*Instrument Error*	*Results*
30000.0 g	30000.0 g	**0.0** g	**Pass**

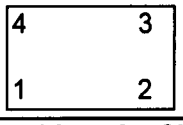
Repeatability Check: **Mass Load:** 10000.0 g

1	10000.1 g	**6**	10000.0 g
2	10000.1 g	**7**	10000.0 g
3	10000.1 g	**8**	10000.0 g
4	10000.0 g	**9**	10000.0 g
5	10000.0 g	**10**	10000.0 g

Std Deviation	*Tolerance*
0.0 g	**0.2** g

Off-Centerline Check: **Mass Load:** 10000.0 g **Uncertainty:** 0.1 g





	Indication	*Instrument Error*	*+/- Limits*	*Results*
1	0.1 g	**0.1** g	**0.8**	**Pass**
2	0.2 g	**0.2** g	**0.8**	**Pass**
3	0.1 g	**0.1** g	**0.8**	**Pass**
4	0.8 g	**0.8** g	**0.8**	**Pass**

Non-Linearity Check: **Range:** 30000.0 g **Uncertainty:** 0.1 g

STD Mass Load	*Indication*	*Instrument Error*	*+/- Limits*	*Results*
0.0 g	0.0 g	**0.0** g	**0.4**	**Pass**
7500.0 g	7500.0 g	**0.0** g	**0.4**	**Pass**
15000.0 g	7499.8 g	**-0.2** g	**0.4**	**Pass**
22500.0 g	7500.0 g	**0.0** g	**0.4**	**Pass**
30000.0 g	7499.8 g	**-0.2** g	**0.4**	**Pass**

Remarks: *Readability is 0.1g. Standards used 2060, 2061, 2062, 6098, 1718, and 1715.*