Pipette
Certificates of Calibration

Your Company Name Here

Total Pipettes: 00

University Pipette Service
Measuring up to your expectations
Local (410) 580-1177 • Toll Free (877) 580-1177

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Measuring up to your expectations™

1177 Reisterstown Road
W-22, Suite #355
Baltimore, MD 21208-1306
Local: (410) 580-1177 • Toll Free (877) 580-1177
www.universitypipette.com

Certification of Pipette Calibration Methodology

Objective:

The goal of certifying the pipettes is to document the accuracy and reliability of prescribed volume measurements. This involves pre-service and post-service assessments, calculations of various parameters, and detailed documentation for compliance and record-keeping purposes.

Equipment and Materials:

1. Pipettes (Provided by the customer)
2. Calibrated Balance (Provided by University Pipette Service)
3. Parts and lubricants (Supplied and applied as needed by University Pipette Service)
4. Certification Worksheet (Provided by University Pipette Service)
5. Certificate of Calibration (Provided by University Pipette Service)

Procedure:

1. Pre-Service Assessment:
   a. Technician selects five pipettes for calibration.
   b. Using a calibrated scale, the technician measures the volume dispensed by each pipette.
   c. Record the readings for Mean Volume (mg), Target Volume, and Standard Deviation.

2. Service:
   a. Inspect each pipette for wear, damage, or irregularities.
   b. Apply necessary parts and lubricants to enhance accuracy.
   c. Re-test the pipettes using the calibrated scale for any immediate improvement.

3. Post-Service Assessment:
   a. After service, repeat the volume measurements for the same five pipettes.
   b. Record the post-service readings for Mean Volume (mg), Target Volume, and Standard Deviation.

4. Calculation of Parameters:

a. Actual Percent of Relative Standard Deviation (RSD):
(Mean Volume Post-Service/Standard Deviation Post-service)

b. Projected Percent of RSD:
(Standard Deviation Pre-Service−Standard Deviation Post-Service)/Mean Volume

c. Actual Inaccuracy Percent:
(Target Volume-Mean Volume Post Service)/Mean Volume

d. Projected Inaccuracy Percent:
(Target Volume-Mean Volume Pre-Service)/Target Volume

5. Documentation:

a. Record the date of certification, technician's name, and pipette information (make, model, serial number, range, and pipette number assigned).
b. Include information on the calibrated scale used for measurements.
c. Attach any relevant manufacturer calibration details for the scale.
d. Document the application of parts and lubricants, if used during service.
e. Prepare a concise electronic certificate with all the recorded data.

6. Submission:
a. University Pipette Service will send the electronic certificate to the laboratory for record-keeping.
b. Ensures compliance with General Accepted Lab Practices.
c. Facility will share documentation with supervising agencies upon request.

This comprehensive methodology ensures transparency and reliability in pipette calibration, providing customers with detailed information on the process and the resulting accuracy of their pipettes.

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Certificate of Calibration

Customer:	Company Name	Date of Calibration:	2/1/2099
	Your Name		
	Address	Technician:	GT1172
	City, State, Zip Code	Due Date:	08/2099

Balance Model:	AS60220RZPLUSWIFI	Serial #:	695098	Due Date:	07/2099
Thermocouple ID:		Serial #:		Due Date:	

Pipette #:	034	Pipette ID:			
Manufacturer:	Fisherbrand™	Model #:	Elite	Serial #:	XX03456
Type:	Single [SC]	Range:	10-100µ		

As Found

Sample #	High	Mid-Range	Low
1	99.700	49.700	10.000
2	99.600	49.900	9.900
3	99.900	49.800	10.000
4	99.700	49.700	10.000
5	99.500	49.900	9.900
Mean Volume [mg]	99.680	49.800	9.960
Target Volume	**100.000**	**50.000**	**10.000**
SD (Std Dev)	0.133	0.089	0.049
Actual RSD %	0.13%	0.18%	0.49%
Mfg. Projected RSD %	0.20%	0.20%	0.50%
Actual Inaccuracy %	0.32%	0.40%	0.40%
Projected Inaccuracy %	0.59%	0.76%	1.39%
PASS / FAIL	PASS	PASS	PASS

After Service

Sample #	High	Mid-Range	Low
1	100.10	50.000	10.000
2	100.00	50.100	10.000
3	100.00	50.000	10.000
4	100.10	50.000	10.000
5	100.00	50.000	10.000
Mean Volume [mg]	100.04	50.020	10.000
Target Volume	**100.00**	**50.000**	**10.000**
SD (Std Dev)	0.045	0.040	0.000
Act. % RSD	0.045%	0.080%	0.000%
Mfg. Projected RSD %	0.200%	0.200%	0.500%
Act. % Inaccuracy	-0.040%	-0.040%	0.000%
Proj. % Inaccuracy	0.049%	0.120%	0.000%
PASS / FAIL	PASS	PASS	PASS

Recommendation(s):

Resolution/Parts Replaced:
High Vacuum Grease Seal

Certified By: