



Biopharmaceutical Development Program

## Standard Operating Procedure

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### Title: Operation and Cleaning of the Gilson Pipetman, P-10, P-20, P-100, P-200, P-1000 Pipettes

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#### 1.0 Purpose

This procedure describes the operation and cleaning of Gilson Pipetman Pipettes.

#### 2.0 Scope

This Standard Operating Procedure (SOP) applies to Production personnel at the ATRF / BOP facilities who will be using these pipettes.

#### 3.0 Authority and Responsibility

- 3.1 The Director, Technical Operations, Biopharmaceutical Development Program (BOP) , has the authority to define this procedure.
- 3.2 Production Supervisors are responsible for training personnel on this procedure and for documenting this training to Biopharmaceutical Quality Assurance (BOA).
- 3.3 Production personnel are responsible for the implementation of this procedure.
- 3.4 BQA is responsible for quality oversight of this operation.

## 4.0 Operation

### 4.1 Volume Setting

- 4.1.1 To adjust the volume, hold the Pipetman in one hand. With the other hand, turn the volume adjustment knob counterclockwise so the volume indicator is 1/3 revolution above the desired setting, then slowly turn clockwise until the indicator shows the desired volume.

**NOTE:** Always dial down to the desired volume.

- 4.1.2 For models P-10, P-20, P-100, and P-200, the black digits indicate microliters and the red digits tenths and hundredths of microliters. For P-1000, the red digits indicate milliliters and the black digits microliters.

**NOTE:** For recommended volumes per individual pipettes see chart below.

Pipetman Model	Adjustable Range (µL)	Recommended Range (µL)	Smallest increment (µL)
P-10	0 to 10	0.5 to 10	0.02
P-20	0 to 20	2 to 20	0.02
P-100	0 to 100	10 to 100	0.2
P-200	0 to 200	50 to 200	0.2
P-1000	0 to 1000	100 to 1000	2.0

### 4.2 Pipetting

**NOTE:** The control button on top of the pipette has two stops. The first stop is the measuring stroke. The second stop is the blowout. Any liquid remaining in the pipette tip after delivery from the first stop is fully dispensed at the blowout stage.

**IMPORTANT:** Never pipette liquid without attaching a tip to the pipette. Never lay pipettes down with liquid in the tips. This will cause the barrel to become contaminated.

- 4.2.1 Attach a new disposable tip to the pipette shaft. Press just hard enough to make a positive air tight seal.
- 4.2.2 Depress the plunger to the first stop.
- 4.2.3 Holding the Pipetman vertically (within 20° of vertical), immerse the tip into the sample to the proper depth (see table below).

Pipetman Model	Immersion Depth (mm)
P-10	1-2
P-20	2-3
P-100	2-3
P-200	2-4
P-1000	2-4

**NOTE:** Exceeding the suggested immersion depth may cause inaccurate volumes while not immersing enough may cause air bubbles to be drawn into the tip.

- 4.2.4 Allow the push button to slowly return to the up position. Never let it snap up.
- 4.2.5 Pause briefly to ensure the full volume of the sample is drawn into the tip.
- 4.2.6 Make sure no air bubbles are drawn up with the liquid to be dispensed.
- 4.2.7 Withdraw the tip from the sample liquid. If any liquid remains on the outside of the tip, wipe it carefully with a lint-free tissue, avoiding the tip orifice.
- 4.2.8 To dispense the sample, touch the tip end against the sidewall of the receiving vessel and depress the plunger slowly to the first stop. Wait 1-2 seconds (longer for viscous solutions), then press the plunger to the second stop expelling any residual liquid in the tip.  
**NOTE:** Some solutions can leave a film on the inside tip wall, resulting in an error larger than the tolerance specified. Since the film remains relatively constant in successive pipettings with the same tip, refilling the tip and using the refilled volume as the sample can obtain excellent precision. Successive samples from this same tip will exhibit good reproducibility.
- 4.2.9 With the plunger fully pressed, withdraw the Pipetman from the vessel carefully, tip against the vessel wall.
- 4.2.10 Allow the plunger to return to the up position.
- 4.2.11 Discard the tip by depressing the tip ejector button. A fresh tip must be used for each sample when sterility or sample carry over is a concern.

## 5.0 Cleaning

- 5.1 Wipe the exterior with 70% IPA.
- 5.2 Sample Splash, if liquid gets into the Pipetman mechanism.
  - 5.2.1 Remove the tip ejector, if fitted.
  - 5.2.2 Unscrew the shaft-coupling nut holding the shaft to the pipette body.
  - 5.2.3 Holding the Pipetman upside down, remove the shaft and inspect the seal assembly and piston for contamination. Clean with distilled water or 70% IPA if contaminant is still wet and corrosion is evident. Dry with a lint-free tissue and reassemble after inspecting the interior of the shaft for contaminant.
  - 5.2.4 If staining and/or corrosion of the piston is evident (due to previously dried sample material), do not use the pipette. Return to the Rainin Corporation for service/calibration.

**NOTE:** Never grease any Pipetman components.

## 6.0 Sterilization

- 6.1 Autoclaving in conjunction with cleaning Step 5.0 may be performed if contamination with a biological agent is suspected.
- 6.2 Only the Shaft and Tip ejector are autoclavable. Place the autoclavable components into an autoclave bag or pouch and autoclave using the Dry Goods cycle on AUTO-011-A or AUTO-005-A.
- 6.3 Tip Ejector Arm Removal
  - 6.3.1 Tip Ejector Arm Removal

6.3.2 Pull the arm from the handle using the ejector arm release collar.

#### **6.4 Shaft Removal**

6.4.1 After the tip ejector arm has been removed, unscrew the shaft.

### **7.0 References and Related Documents**

7.1 Six month calibration is recorded in the Master Equipment File and indicated by a calibration sticker on the pipetman.

7.2 ***SOP 19500 – Operation and Maintenance of the BMT Steam Sterilizers***