

8 easy steps for performing

Pipette Preventive Maintenance



Pipettes are precision devices that require care for consistent results. Performing preventive maintenance routinely will help to minimize malfunctions and keep your instruments in good operating condition. Depending on the criticality of the pipette, the types of solutions being transferred with the pipette, and the age of the pipette, maintenance schedules can vary. By following these **8 easy steps**, pipette maintenance will be less intimidating to the inexperienced user, and will become part of your lab's routine.

See back for suggested tools and supplies.

1 Decontaminate the outside of the pipette

- Place the pipette in a stainless steel or inert plastic tray
- Spray both sides of the pipette with decontaminant solution
- Allow the solution to remain on the pipette for at least 10 minutes
- Dry the pipette with lint-free wipes

2 Inspect the general appearance of the pipette

- Plunger should be straight and free of corrosion or cracks
- Micrometer window should be clear and properly aligned
- Nose cone and body should be free of physical or chemical damage
- Tip ejector should be present and free of cracks or breaks

3 Disassemble and clean the pipette

- Remove the tip ejector
- Separate the lower half of the pipette from the top half
- Decontaminate each component as it is removed from the pipette
- Remove the seal and o-ring assemblies
- Inspect visually for worn and cracked parts
- Clean air passages (inspect the nose cone) with a long, fiber-free cotton swab dipped in cleaning solution
- Inspect the piston assembly for bends, corrosion or cracks
- Rinse with distilled water and allow to air dry

(more steps on back)

Tools and Supplies

- Pipette-specific tools, plus any additional supplies needed (needlenose pliers, etc.)
- Decontamination supplies (based on manufacturer's recommendations and/or specific use of pipette) Examples: 60% isopropyl alcohol, ammonia-free cleaning solutions, decontamination foam
- Distilled water
- Personal protection equipment
- Disposal container
- Replacement parts (seals, o-rings) and lubricant (if applicable)
- User's manuals (can often be found online) including schematics for the pipette
- Long, fiber-free cotton swabs

4 Replace the o-ring(s) and seal(s)

5 Lubricate (if applicable)

- Refer to the pipette manufacturer's user manual

6 Re-assemble the pipette and check functionality

- Fully depress and release the pipette plunger 5 times
- Check the micrometer and tip ejector for proper movement

7 Equilibrate the pipette upright, with the micrometer set at the nominal volume, in a stand overnight

8 Calibrate/verify the performance of the pipette

- Check the pipette for leaks
- Store the pipette with the micrometer set at the nominal (maximum) volume

Note: Adjustment of the pipette should be performed only when maintenance does not resolve the issue.

Troubleshooting Tips

Symptom	Possible cause
Leaking pipette	Loose or wrong size tip, contaminated/corroded piston, worn seal or o-ring
Pipette blocked	Obstruction in the nose cone, e.g., dried material
Trending results	Hand warming
High imprecision	Operator technique, piston damage, shaft damage, worn seal
Low, mid & high volumes all failing	Misadjustment of the pipette, micrometer over-wound by same amount
Failing at nominal volume only	Worn seal



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