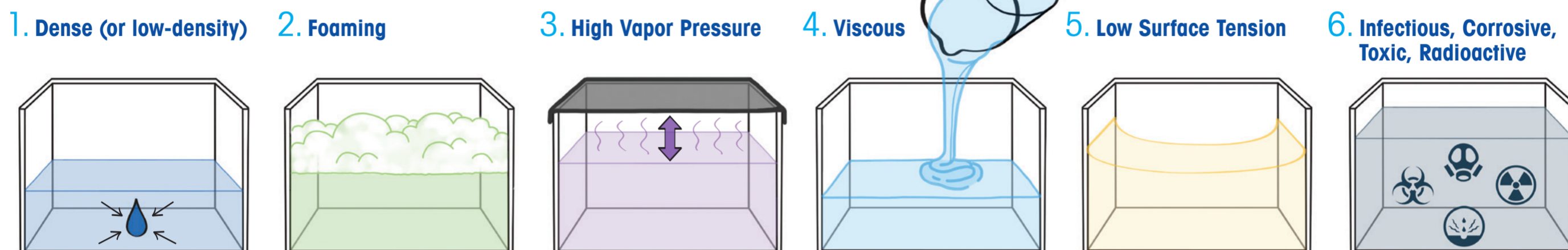




Pipette Challenging Liquids

Pipettes are designed to deliver accurate volumes of aqueous liquids. Here's how to pipette some common non-aqueous liquids.

6 Challenging Liquids

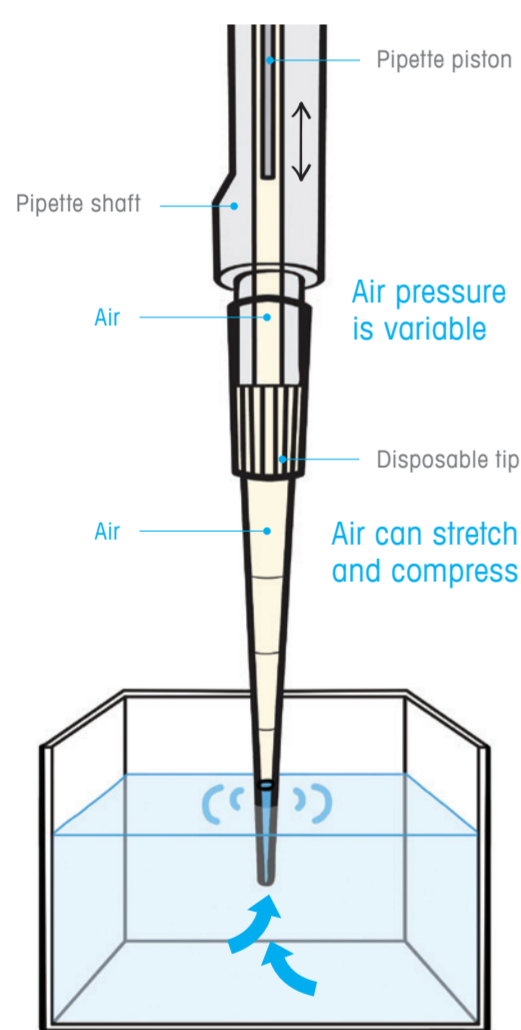


A **positive displacement pipette** is most accurate & precise for these liquids. If that's not an option, these techniques help:

- ▶ **Density:** If the solution density is known and an analytical balance is available, then a traditional pipette can be used to determine settings for accurate volume delivery. Learn to account for density at mt.com/dense
- ▶ **Foamy:** Pre-rinse the tip, then reverse-pipette slowly. Filter tips protect the pipette from contact with foam.
- ▶ **Vapor pressure:** Pre-rinse the tip 5x to equilibrate air and vapor in the pipette chamber. Then reverse-pipette at a constant moderate speed.
- ▶ **Viscous:** Reverse-pipette, or use slowed-down regular (forward) pipetting. Low-retention and wide orifice tips help prevent cell shearing and minimize adhesion within the tip.
- ▶ **Low tension/high adhesion:** Reverse-pipette. Low-retention tips minimize adhesion.
- ▶ **Hazardous:** Use regular (forward) pipetting with filter tips. For low volumes on non-LTS pipettes, 10 µL ShaftGard tips protect the nozzle from contact with microcentrifuge tubes.

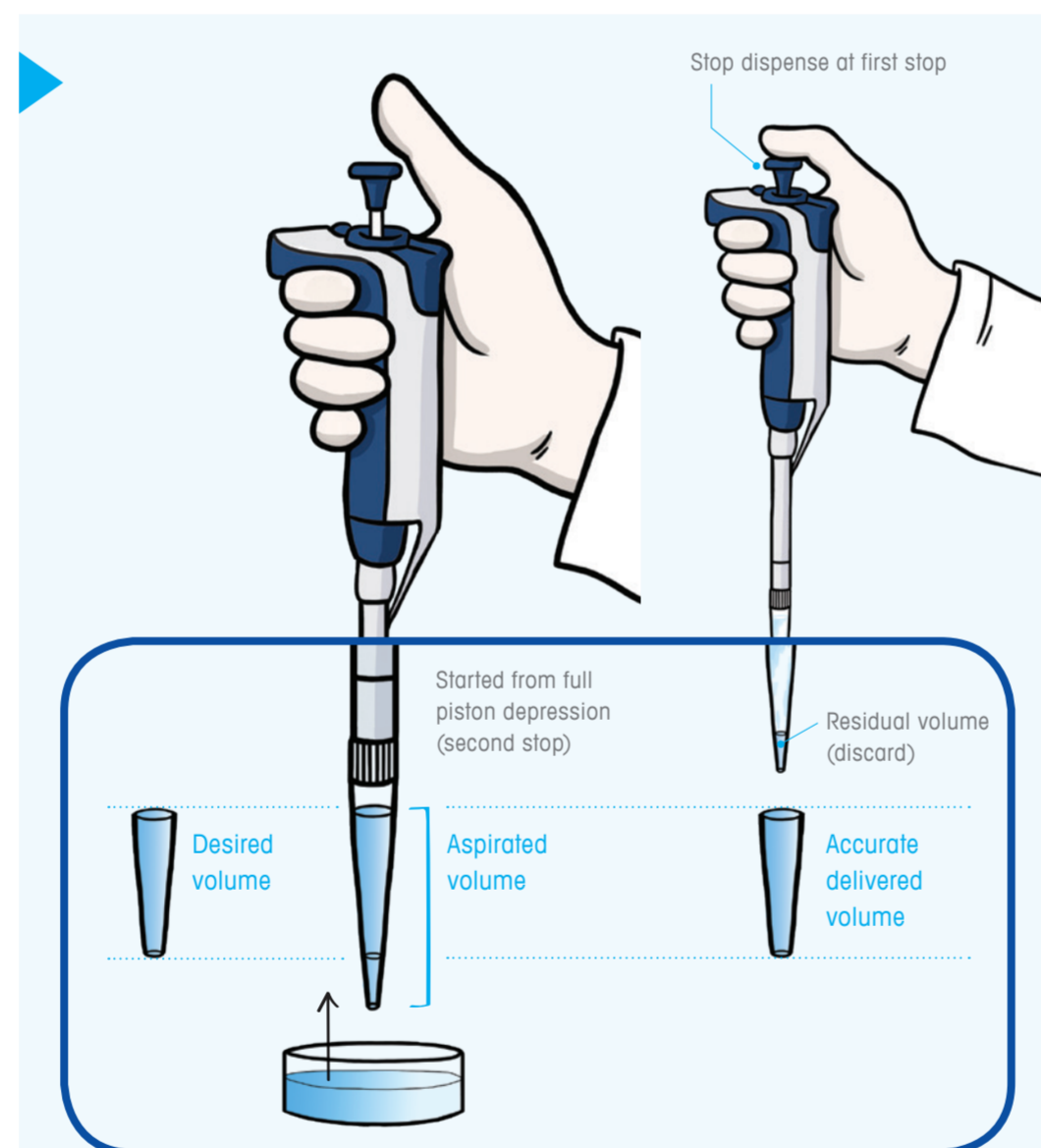
The Problem Air and Adhesion

Air pressure is variable and liquids can stick to tips.



The Workaround Reverse Pipetting

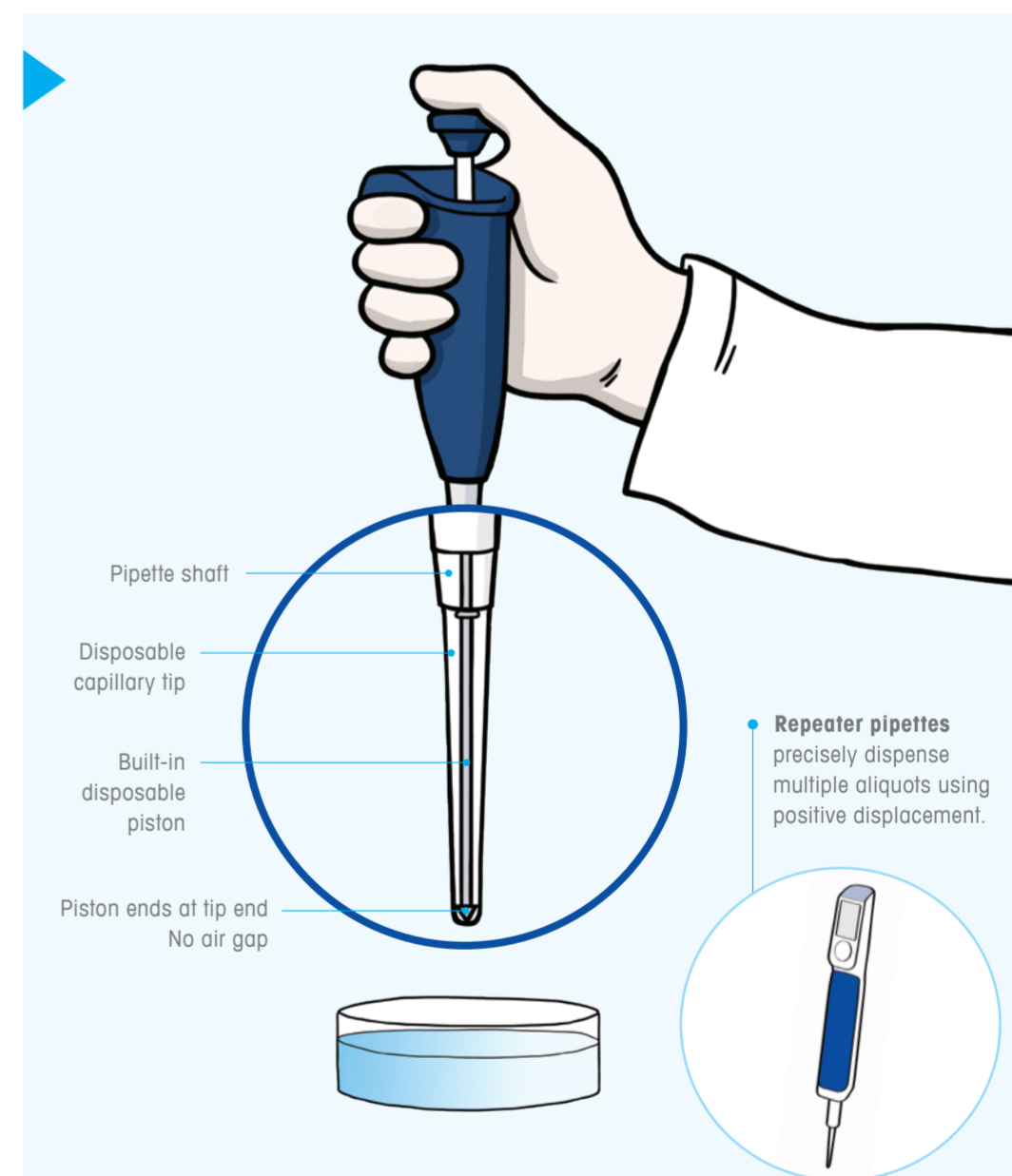
Aspirate a little extra to dispense the right amount.



Note: Reverse pipetting can reduce accuracy, and precision is user-dependent.

The Solution Positive Displacement Pipettes

No air means no pressure variability and no adhesion.



Special Tips

- Extended Length**
For deep receptacles
- Wide Orifice**
For viscous liquids
- Filter**
For foaming, fountaining, corrosive or toxic liquids
- Low Retention**
For viscous and low surface tension liquids
- 10 µL ShaftGard™**
For shaft and tip ejector protection on universal-fit pipettes
- Capillary Tip**
Disposable tip for positive displacement pipette includes inner piston

For more about Positive Displacement pipettes, visit mt.com/pos-d