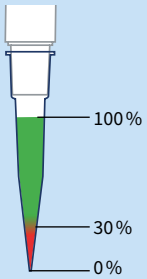
10 steps to becoming a pipetting pro

The right combination of pipette and tip

1 Use the optimum volume range

For maximum precision, use the upper volume range of a pipette.
We recommend switching to a smaller volume variant for volumes below 30% of the nominal volume.



50 %

2 Fit of the tips

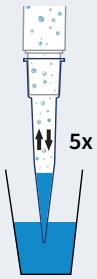
Make sure that the tip is firmly in place and leak tight. The best results are achieved with original tips from the pipette manufacturer.

Preparatory steps

3 Perform a temperature equalization

0.3 % /K

The pipette, tip, and liquid should be set to the same temperature (temperature equalization ~ 2h). If this is impossible, do not saturate the air cushion and change the tip after dispensing each volume.



4 Pre-wet the air cushion

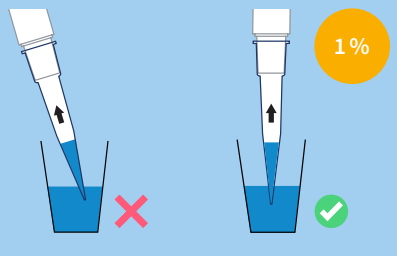
2 %

To saturate the air cushion, each new tip should be pre-wetted. This minimizes the evaporation of liquid into the air cushion.

Volume absorption

5 Immersion angle

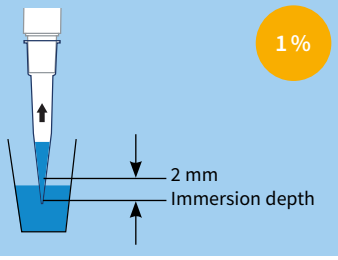
When aspirating liquid, the immersion angle should be max. 10°.



1 %

6 Immersion depth

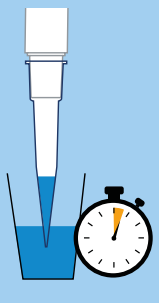
Up to 1000 µl, an immersion depth of 2 mm is optimal (>1000 µl: 3–6 mm).



1 %

7 Waiting period

A waiting time of 1 sec up to 1000 µl (>1000 µl: 3 sec) should be observed for complete volume aspiration.



Volume dispensing

8 Wipe during volume delivery

Wiping on the vessel wall (over 8–10 mm) ensures that the complete volume is dispensed.

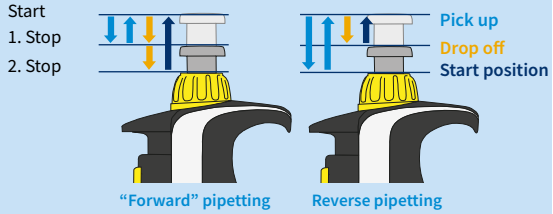
3 %

Pipetting technique

9 Uniform pipetting rhythm

Uniform pipetting ensures consistent results. Here, the targeted hitting of the 1st stroke with constant force, speed and rhythm are crucial.

Note:
The use of electronic pipettes reduces the individual influence of the user.



10 Choose the right pipetting technique

"Forward" pipetting is particularly suitable for aqueous solutions.

When pipetting problematic liquids (e.g. viscous, volatile, foaming), higher precision is achieved by reverse pipetting.

Percentages correspond to the highest standard values of ISO 8655 for possible measurement deviations due to the respective influencing factor.

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