Key Points for Manual Gel Testing

Dispense Red Cells First

- Red cells are dispensed at a volume of 50 µL and plasma at 25 µL. It is good laboratory practice when mixing, to add the smaller volume into the larger volume to allow for adequate mixing.

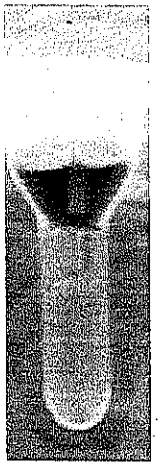
⚠ **CAUTION:** Care should be taken not to disrupt the air gap by tapping the card.

- Ensure that there is a "buffer" between the unbound plasma proteins in the sample and the anti-IgG in the column. If you dispensed plasma first, and you were to break that air gap, the plasma and anti-IgG would combine. This would reduce test sensitivity because some of the anti-IgG would combine with unbound plasma proteins.

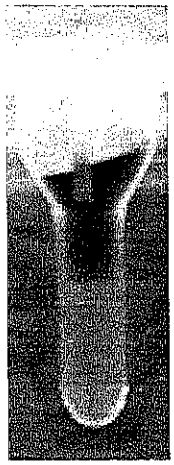
The Air Gap

The Air Gap separates the active anti-IgG from the plasma proteins in the sample. By leaving an air gap and leaving the red cells up in the incubation chamber, you are ensuring uniform exposure of the red cells to an antibody that may be present in the plasma. If red cells are under the liquid layer of the anti-IgG, they may not get as much exposure to the antibody, due to the dilution effect of the antibody mixing with the anti-IgG.

The key here is to develop a technique that leaves the reagent red cells in the incubation chamber available to participate in an antibody-antigen reaction if there is antibody present in the sample. The technique is achieved by angling the pipette so that the reagent or sample dispensed hits the inside wall of the incubation chamber.



Microtube With Air Gap



Microtube Without Air Gap

4.2 Pipetting Technique

Use of correct pipetting technique will ensure accurate results.

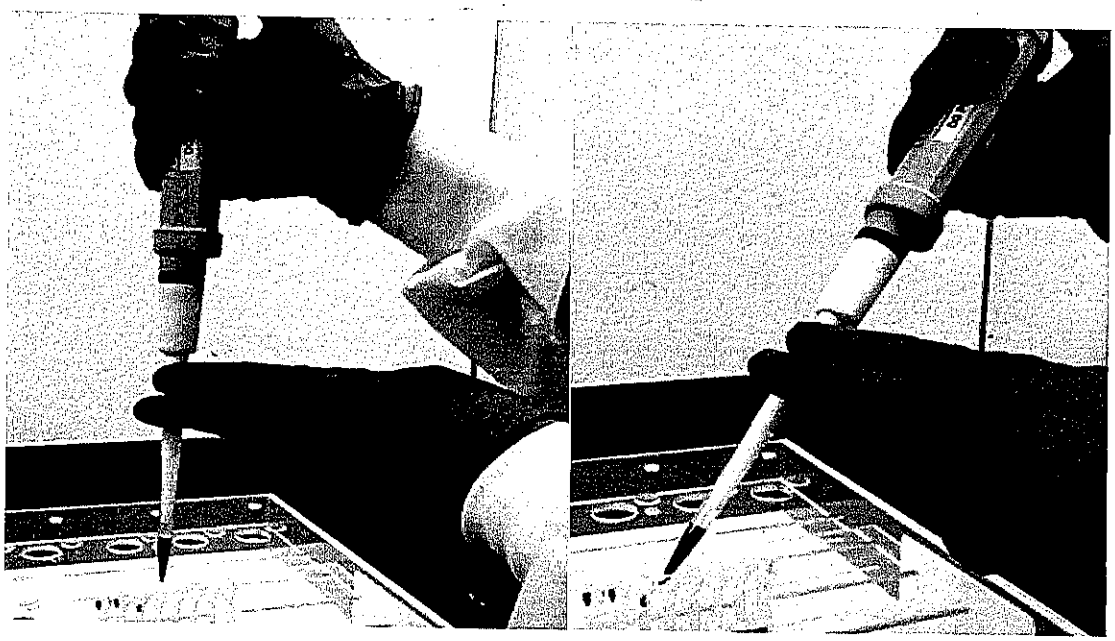
1) Hold the pipette at an angle so that when dispensed, the reagent or sample makes contact with the inside wall of the well (to prevent carryover, the pipette tip must not touch the well). This technique will allow the liquid to remain in the incubation chamber, retaining the air gap (a bubble of air between the sample and the reagent in the column).

2) It is important to ensure, especially for the 10 µL volume, that the filling lever of the DG Pipette is positioned in your hand so that it can move freely. If the lever is against your palm, it cannot move and the fluid will not be dispensed but will pool at the end of the pipette tip.

3) To dispense the fluid, press rapidly on the Thumb Knob/Volume Selector. Pressing slowly will cause the fluid to pool at the end of the pipette tip.

⚠ **CAUTION:** The DG Pipette should never be inverted with fluid in the tip. This may cause internal contamination of the nozzle, which should be avoided.

Correct Pipetting Technique



Incorrect Pipetting Technique