Vacuum Filtration

Gravity filtration is frequently a slow operation. Applying a vacuum can speed up the filtration process. Suction is applied by means of a water aspirator, which fits on a water faucet and uses a fast stream of water to suck air through the side arm of a side-arm (or filter) flask. Because the suction is quite strong, it is necessary to use a special funnel called Buchner Funnel to support the filter paper otherwise the paper might break through. Alternatively, a Gooch type filter crucible, which has a glass frit that takes the place of filter paper, can be used. A safety trap is connected between the flask and the aspirator. This prevents the possible back up of water from the aspirator to contaminate the filtrate. A clamp on the trap allows a quick release of the vacuum. The flask is taped to prevent glass from scattering in case the flask implodes.

1. Connect the filter flask to the aspirator.

2. Place the funnel (Buchner or Gooch) on the flask using a filter-vac to form a seal.

3. If using a Buchner funnel, place a piece of filter paper slightly smaller than the funnel diameter over the holes in the bottom of the filter. **Moisten the paper with solvent**.

4. Turn the water all the way on.

5. The mixture to be filtered is then decanted into the funnel. Holding the funnel firmly onto the flask may cause a stronger seal to form.

6. To release the vacuum, open the clamp on the trap.

7. Always release the vacuum before shutting off the water.

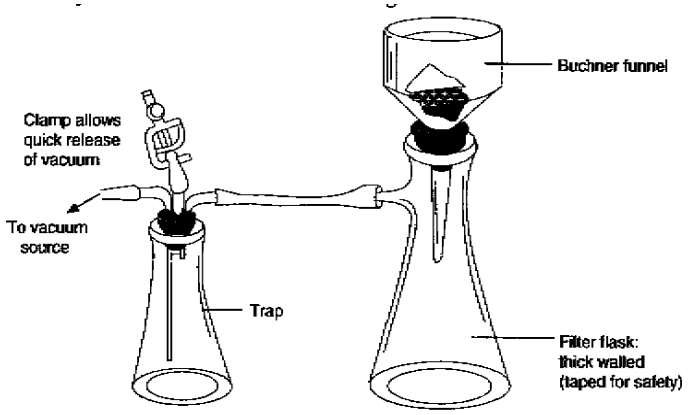

Figure 1 Schematic showing the vacuum filtration apparatus.