SEPARATION TECHNIQUES

Introduction:

Apure substance contains only one kind of molecule; an impure substance is a mixture of molecules. When the different molecules of a mixture each behave in a different way under the conditions of some procedures, the procedure can result in a separation of the different molecules. The theory of each of the separation procedures described in this section is presented from the point of view of the different behavior that can be expected from different molecules under the experimental conditions.
In this part we will discuss the different types of techniques which used for separation of organic compounds.

Technique 1

Filtration:

Filtration is a technique used for two main purposes. The first is to remove solid impurities from a liquid or a solution. The second is to collect a solid product from the solution from which it was precipitated or crystallized. Two different kinds of filtration are in general use: gravity filtration and vacuum (or suction) filtration.

Gravity filtration:

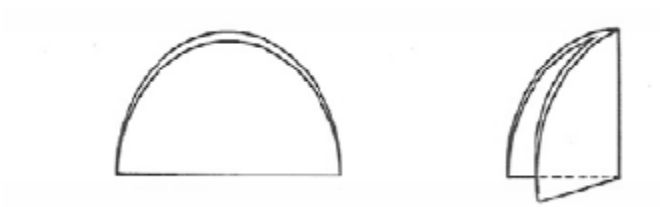
Apiece of filter paper and conical glass funnel to support it are all that are required for gravity filtration see **fig. (1)**. In order to maximize the rate at which the liquid flows through the filter paper, the paper should be folded as indicated in the folded paper is then dropped into the funnel.

Fig. (1): Gravity filtration

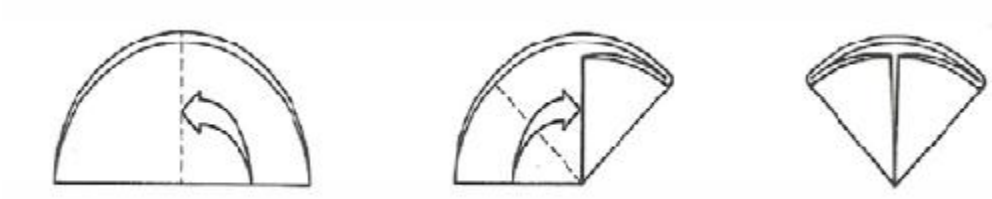
Steps of folded filter paper:

Step 1: Fold the paper in half ,then in quarters ,creasing the folds as you proceed. However, do not crease the very center of paper (the point),which might become weakened.

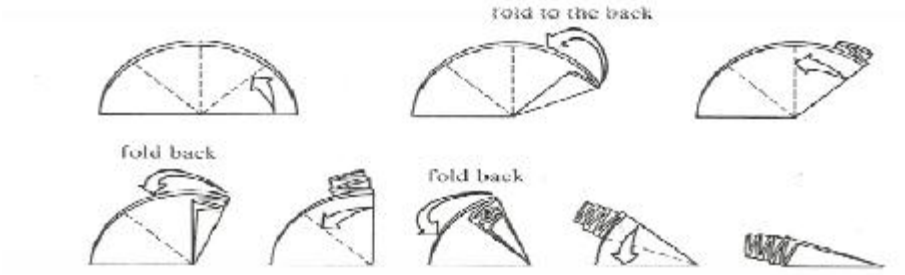
Step



Step 2: Open the quarters to a half- sized piece, and then fold the edges in to the Centerfold



Step 3: Open the paper again to a half-sized piece, then accordion-pleat, using the existing fold lines as guides. (again, do not crease the center of the paper.)



Step 4: crease the folds (except at the point), then open the filter paper and place it in an appropriately sized funnel.

Vacuum or suction filtration:

Vacuum, or suction, filtration is more rapid than gravity filtration. In vacuum or suction filtration, a partial vacuum is created below the filter, causing the air pressure on the surface of the liquid to increase the rate of flow through the filter paper. A typical apparatus is Illustrated in **fig. (2)** .A circle of filter paper just large enough to cover the holes in the bottom of the Hirsch or Buchner funnel should be used.

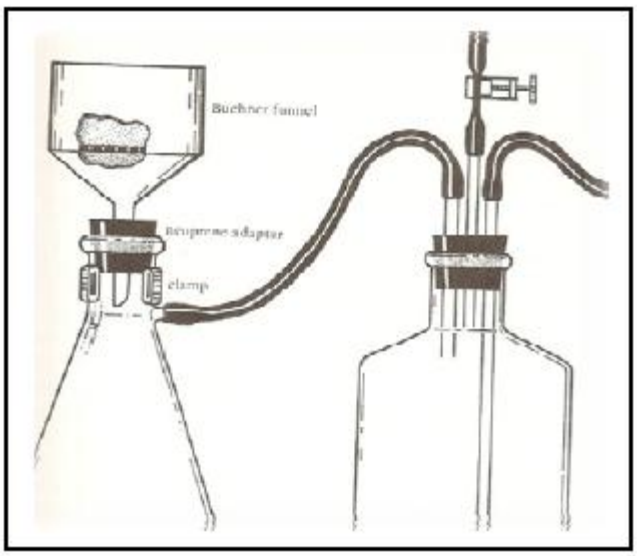


Fig. (2): Suction filtration