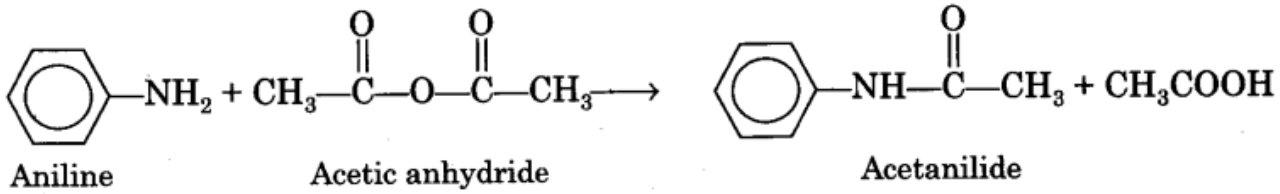
To Prepare a Sample Of Acetanilide From Aniline

Theory

Acetanilide is prepared by acetylating aniline with acetic anhydride in the presence of glacial acetic acid. The chemical equation can be written as :



Apparatus

Round bottom flask (100 ml), water condenser, wire-gauze, tripod stand, burner, iron-stand, clamp, measuring cylinder, etc.

Chemicals Required

Aniline = 5 ml
Acetic anhydride = 5 ml
Glacial acetic acid = 5 ml.

Procedure

1. Take 5 ml of acetic anhydride in a clean dry 100 ml conical flask and add 5 ml of glacial acetic acid and shake the contents thoroughly.
2. To this mixture taken in the flask, add 5 ml of aniline and fit a water condenser.
3. Place the flask on a wire-gauze placed on a tripod stand as shown in Fig.
4. Boil the mixture for 10-15 minutes.
5. Allow the mixture to cool. Detach the condenser and pour the liquid into about 150 ml ice-cold water contained in a beaker. During addition, stir vigorously the contents of the beaker with the help of glass-rod.
6. Filter the white precipitates which separate out and wash with cold water.

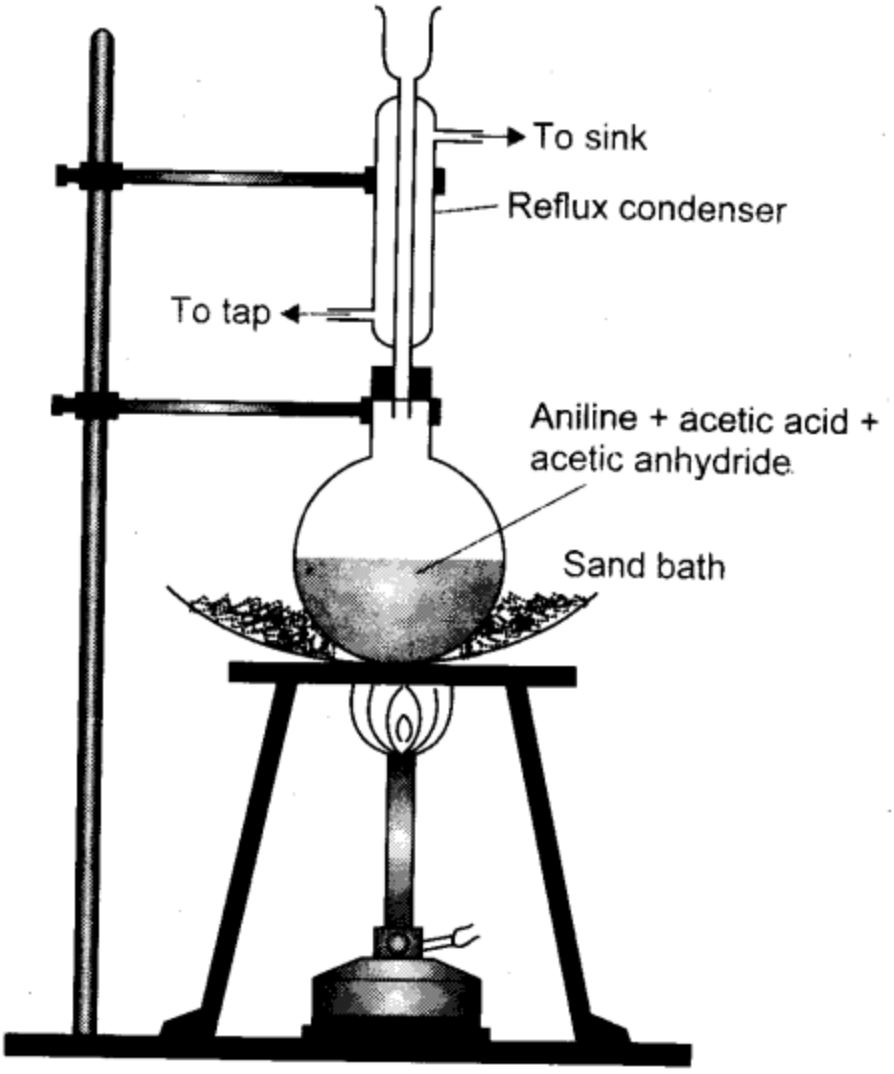


Fig. Preparation of acetanilide.

7. Recrystallise from hot water containing a few drops of ethyl alcohol. Weigh the crystals and record the yield.
8. Determine the melting point of the compound.

Result

Weight of acetanilide obtained =……g
Melting point of acetanilide = ……..°C
Note: Acetanilide has white flaky crystals. Its melting point in 113°C.

Precautions

1. Freshly distilled aniline should be used in order to get good results or small amount of zinc can be added in the reaction mixture. Zinc reduces the coloured impurities in the aniline and also prevents its oxidation during the reaction.
2. Prolonged heating and use of excess of acetic anhydride should be avoided.
3. Reaction mixture should first be cooled and then poured in ice-cold water otherwise hydrolysis of acetanilide may take place.