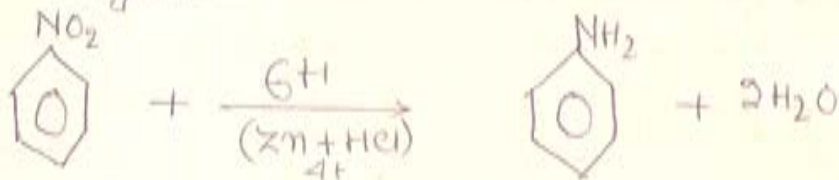




Theory → When Nitro Benzene is reduced by nascent hydrogen in acid medium ( $Zn + HCl$ ) we get aniline.



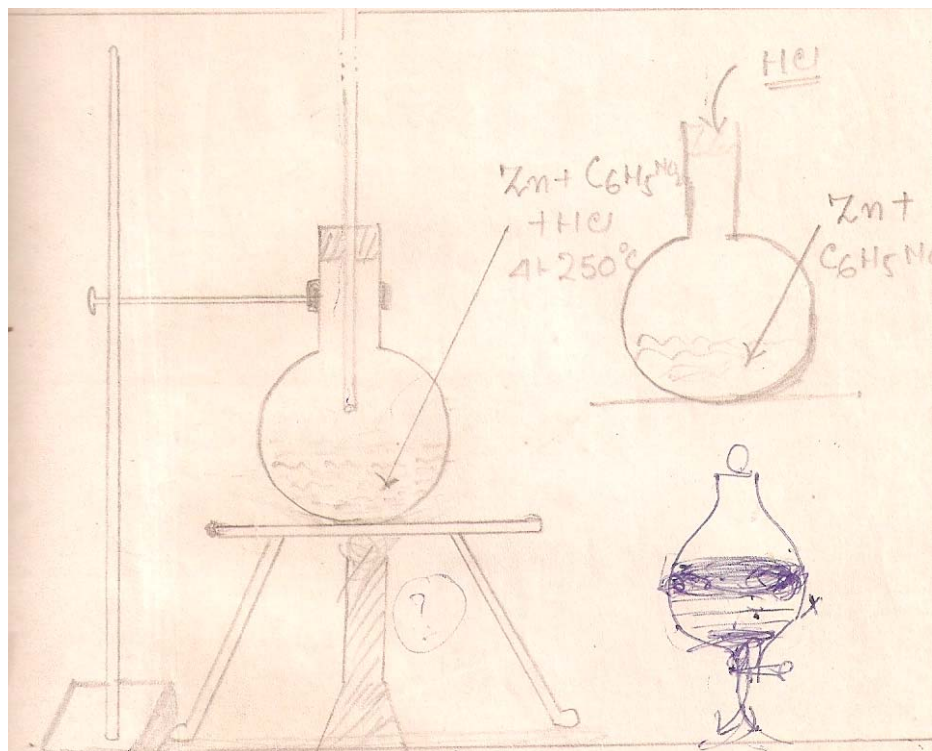
Procedure - In a round bottom flask about 25 gms of metallic Zinc is mixed with nearly 30 cc of Nitro Benzene. Now about 100 cc of Conc. HCl is added into it in 10 instalments. If required the flask should be immersed in cold water if when the flask get much heated.

When all the acid has been added the content is refluxed for nearly half an hour to complete the reaction. Aniline thus formed reacts at once with HCl giving  $\text{C}_6\text{H}_5\text{NH}_2 \cdot \text{HCl}$  (Aniline hydrochloride) So it is treated with excess of strong NaOH where by aniline floats in the form of oily liquid. This is separated either by a separating funnel or by steam distillation.

Precaution → In no case HCl should be taken at the beginning with Zn otherwise  $\text{H}_2$  gas will escape. So Zinc and nitro Benzene are taken and then HCl is added.

Purification → Aniline is generally purified by steam distillation and dried by putting

# Anylene





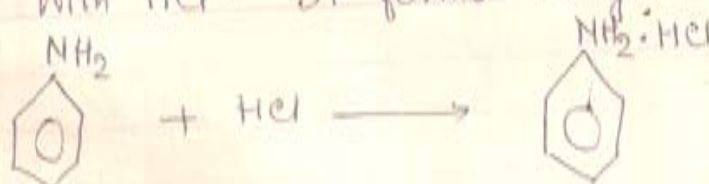
a piece of solid KOH.

### Physical properties.

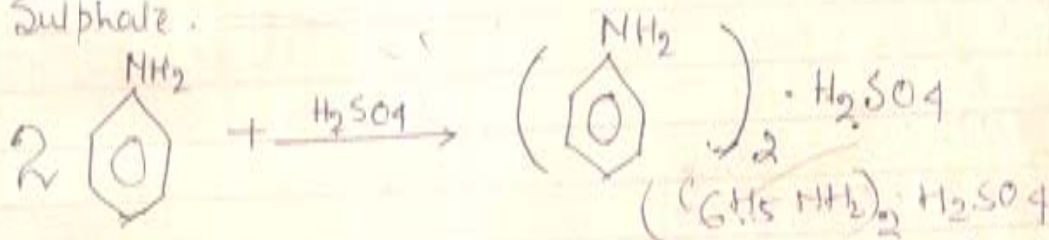
In pure form it is a colourless liquid. Insoluble in water but soluble in ether and alcohol. It becomes brown due to atmospheric oxidation, it is steam volatile and slightly poisonous.

### CHEMICAL PROPERTIES

1) With HCl - It forms aniline hydrochloride.



(2) With Conc.  $\text{H}_2\text{SO}_4 \rightarrow$  It forms aniline hydrogen sulphate.



In this two reactions it proved that Aniline is a mono acidic base.

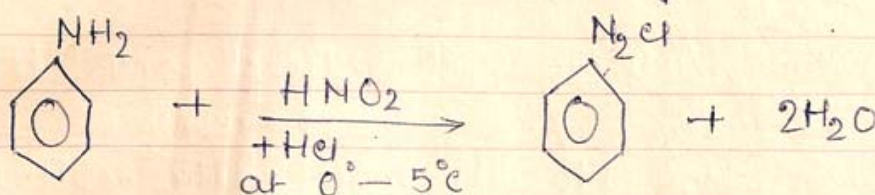
N.B Definition of Mono acidic base  $\rightarrow$  It is such a base that one molecule of it combines with one molecule of monobasic acid (HCl) or (HNO<sub>3</sub>), two molecules of which combines with one molecule of dibasic acid, three molecules of which combine with one molecule of tribasic acid. (H<sub>3</sub>PO<sub>4</sub>)



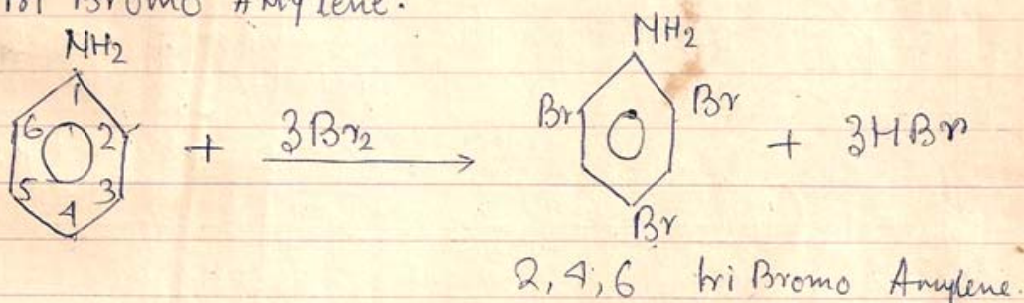


Note

- (5) DIAZOTIZATION → When anilene is treated with Nitrous acid with a little HCl at 0 to 5°C due to diazotization we get Benzene diazonium Chloride. The process is known as diazotization (Di = two, azot = Nitrogen and Onium stands for ammonium chloride as it tallies it tallies)



- (6) With Bromine Water → When Bromine water is added to Anilene at room temp<sup>r</sup> it at once gives fine white PPT of 2, 4, 6 tri Bromo Anilene.



### Uses of Anilene

- (1) It is highly used to prepare various dyes.
- (2) It is a good solvent for rubber hence used in rubber industry.
- (3) To prepare various medicine.

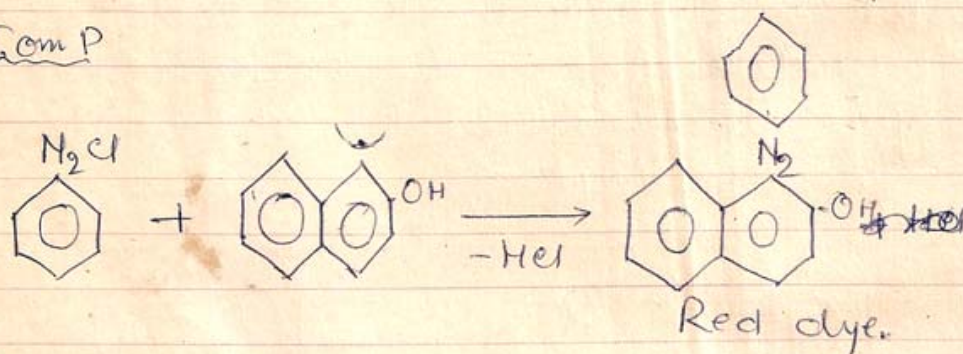


Test of Anylene / test of  $-NH_2$  in Benzene ring.

(1) When Bromine water is added to anylene we at once get pinched white ppt of 2,4,6 tri Bromo anylene.

(2) When Anylene is diazotised with  $HNO_2 + HCl$  at  $0^\circ C$  to  $5^\circ C$  we get Benzene (Diazonium) Chloride. Now to that Beta naphthol (reagent) is added we get brilliant red dye.  $\rightarrow$

Comp



Steam Distillation :-

Organic compound, steam volatile in nature is purified by steam distillation. I.e Anylene is purified as shown in the figure.