
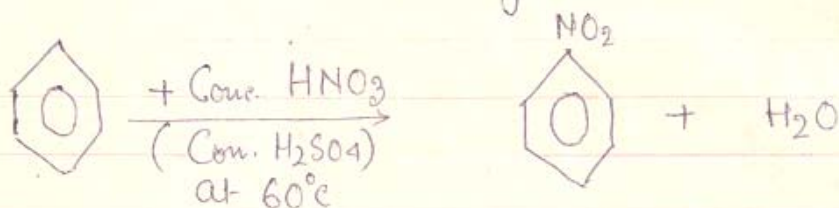




Preparation.  (OIL OF MIRABANE).

Theory → When Benzene is nitrated in the presence of Conc. H_2SO_4 at $60^\circ C$ we get nitro Benzene.



Procedure- In a R.B flask about 60 cc of Conc. HNO_3 is taken added with 120 cc Conc. H_2SO_4 then added 60 cc of C_6H_6 drop by drop into it with shaking due to the heat of reaction the flask gets heated so if required it should be immersed in cold water so that the temp^r may not rise more than $60^\circ C$, otherwise a little meta derivative may form.

When all the Benzene has been added, the content- is refluxed as shown in the figure nearly for 30 minutes to complete the above reaction. It is now allowed to cool and transferred into a separating funnel. The lower layer of acid mixture is drawn out. The oily layer left is industrial nitro Benzene.

Precaution- In no case the temperature is allowed to go above $60^\circ C$.



Purification: This sample is washed with dilute Na_2CO_3 solⁿ in a separating funnel to remove all the acidic impurities. Then washed with distilled water in the separating funnel. This is then added with a piece of fused CaCl_2 to remove the little quantity of water.

To get extra pure (100% pure) it may be redistilled and the fraction in between 208°C and 212°C is collected. (B.P. 210°C)

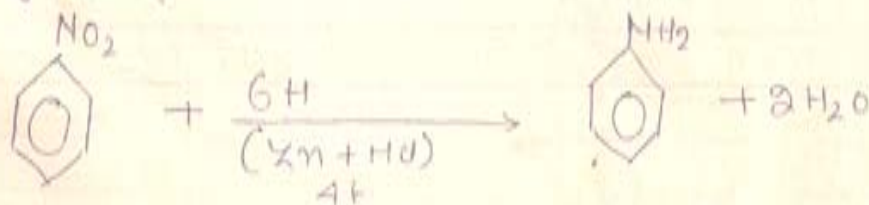
PRO

It is a light yellow liquid having the odour of ~~benzene~~ bitter almond. The colour becomes dark if kept in the lab for a long period. It is insoluble in water but soluble in ether and alcohol. It is slightly poisonous.

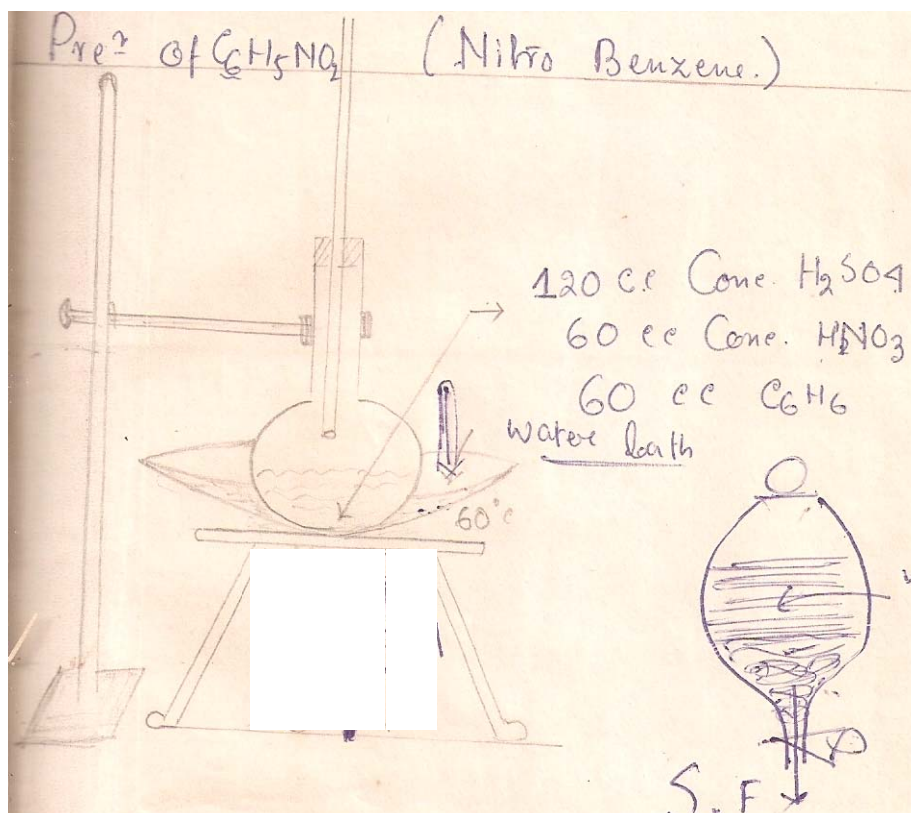
CHEM PROP

(1) Reduction of nitro benzene in different media

(a) In acid medium \rightarrow When Nitro Benzene is boiled with $\text{Zn} + \text{HCl}$, due to nascent hydrogen we get Aniline.

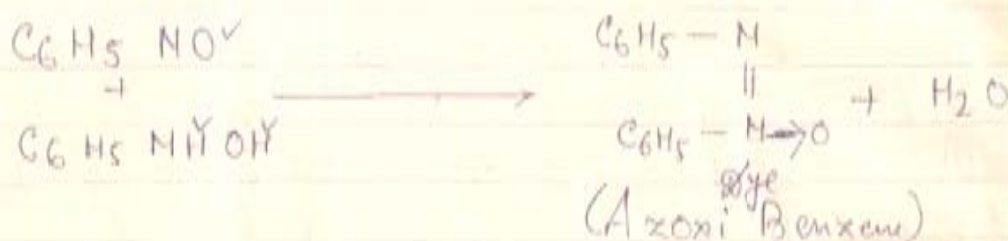
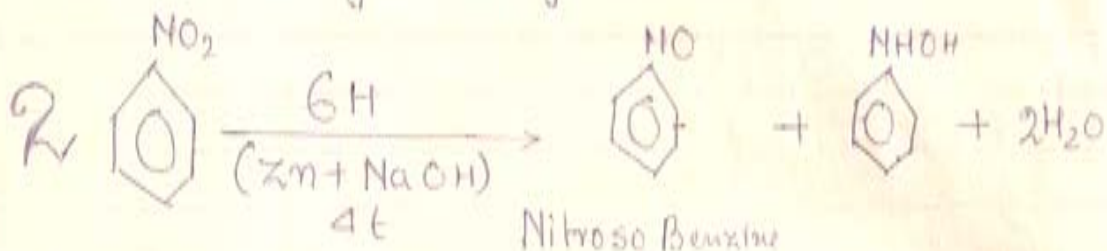


(2) Reduction in basic/Alkaline medium \rightarrow When nitro benzene is boiled with $\text{Zn} + \text{NaOH}$, due to nascent hydrogen we get a mixture of nitroso amine

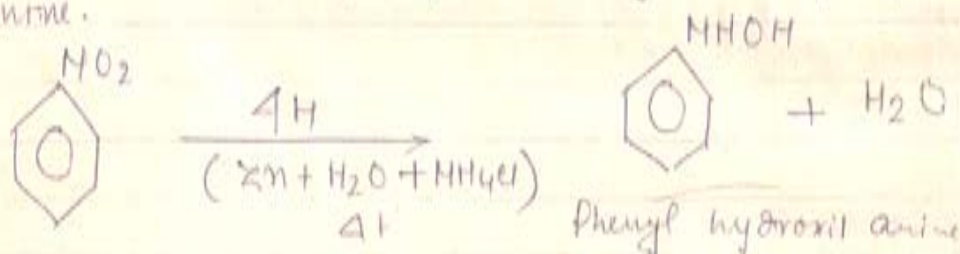




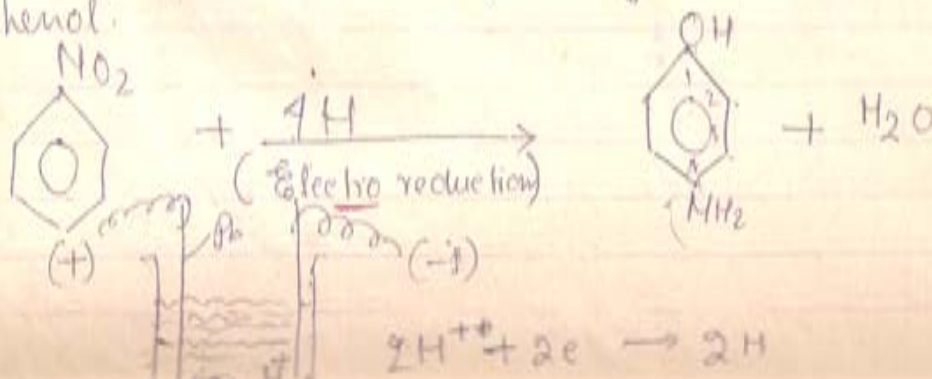
and Phenyl hydroxyl amine, which combine at once to give a dye (colour).



(3) Neutral medium \rightarrow When nitro Benzene is boiled with Zn + H₂O with a little NH₄Cl catalyst, due to nascent hydrogen we get Phenyl hydroxyl amine.

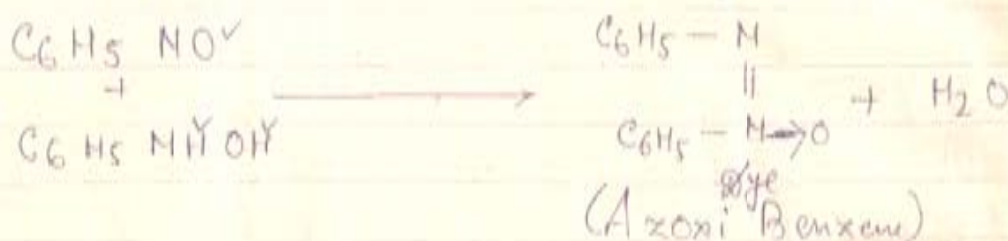
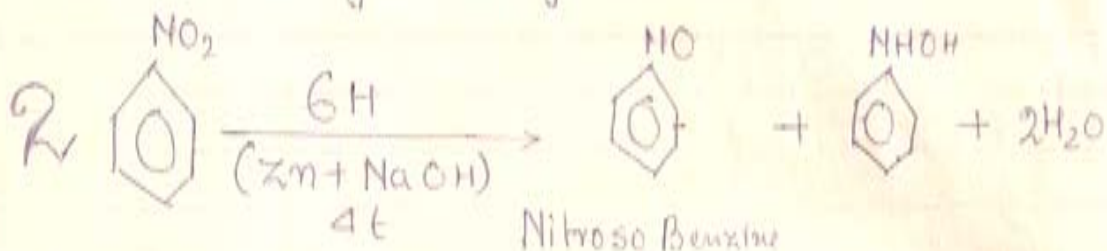


(4) Electrolytic reduction \rightarrow When nitro Benzene is reduced by nascent hydrogen obtained from conc H₂SO₄ and electricity we get para amino phenol.

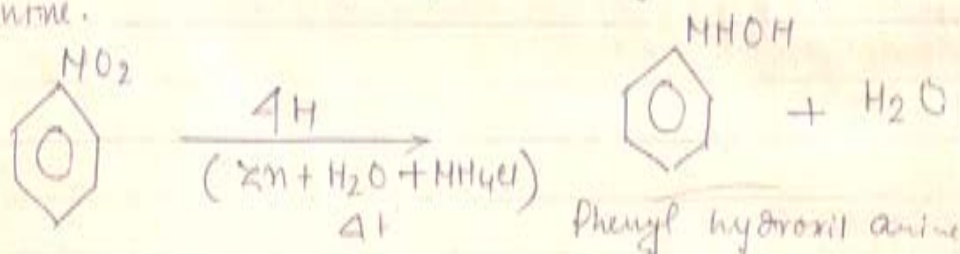




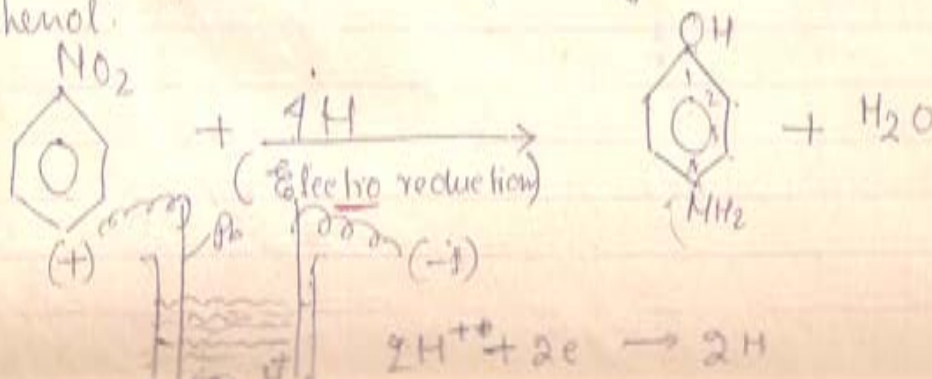
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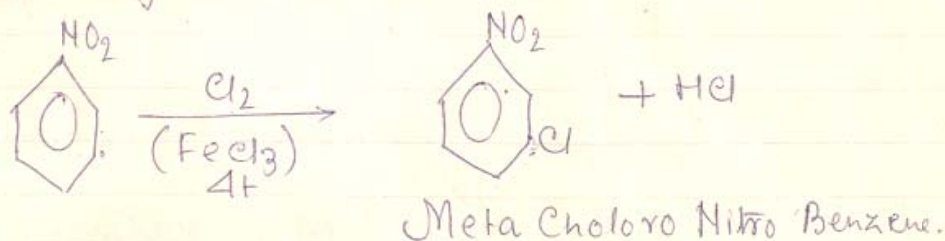


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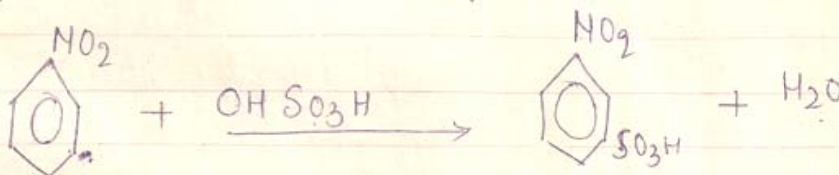




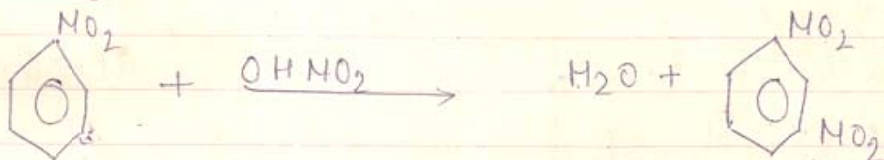
⑤ Chlorination \rightarrow It reacts with Cl_2 in the presence of FeCl_3 to get Meta Chloro Nitro Benzene.



⑥ With Cone. $\text{H}_2\text{SO}_4 \rightarrow$ It gives meta nitro Benzene Sulphonic acid or Meta Sulpho Nitro Benzene.



⑦ Nitration with fuming $\text{HNO}_3 \rightarrow$ We get meta di nitro Benzene.



Uses

- (1) In dye industry.
- (2) As a mild oxidizing agent.
- (3) To prepare boot polish. because it is a solvent for dyes which can penetrate leather well.