

15.2 NITROBENZENE

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Preparation of Nitrobenzene

1. Give a chemical reaction for the preparation of Nitrobenzene from benzene. 1
 1. In the nitration of benzene, conc. HNO_3 acts as
 - a. Base
 - b. acid
 - c. Reducing agent
 - d. oxidising agent

Physical Properties

1. A compound that has the smell of bitter almonds is
 - a. Aniline
 - b. Phenol
 - c. Nitrobenzene
 - d. Benzene

Chemical Properties

Reduction in different media

2. What happens when Nitrobenzene is reduced in acidic, neutral, alkaline, and electrolytic conditions? 5
 - What happens when Nitrobenzene is subjected to reduction in an acidic medium? 1
 - What happens when Nitrobenzene is subjected to reduction in a neutral medium? 1
 - What products would you expect when Nitrobenzene is treated with Zn/NaOH ? 1
 - Starting from nitrobenzene, how would you prepare aniline? 1
 - Write the reaction for the preparation of aniline from nitrobenzene. 1
 - Starting with Nitrobenzene, how would you prepare hydrazobenzene? 1
 - Starting with Nitrobenzene, how would you prepare oxyazobenzene? 1
 - What products would you expect when Nitrobenzene is subjected to electrolytic reduction? 1
 - Starting from Nitrobenzene, how would you prepare Azobenzene? 1
 - Convert Nitrobenzene into P-aminophenol. 1
1. Nitrobenzene on reduction with Sn/HCl gives
 - a. o-dinitrobenzene
 - b. 1,3-dinitrobenzene
 - c. Aniline
 - d. Nitrobenzene
2. Nitrobenzene, on heating with zinc dust and aqueous NH_4Cl , gives
 - a. Aniline
 - b. Phenylhydroxylamine
 - c. Nitrosobenzene
 - d. Hydrazobenzene
3. Reduction of nitrobenzene in zinc dust and aqueous NaOH gives
 - a. Hydroxyl amine
 - b. Azobenzene
 - c. Hydrazobenzene
 - d. Azoxybenzene
4. Reduction of nitrobenzene in alkaline medium gives
 - a. Aniline
 - b. P-aminoazobenzene

- c. Hydrazobenzene
 - d. Nitrosobenzene
5. Reduction of nitrobenzene with lithium aluminum hydride gives
- a. Aniline
 - b. Benzene diazonium chloride
 - c. Phenol
 - d. Azobenzene
6. Electrolytic reduction of nitrobenzene in a weakly acidic medium gives
- a. N-phenylhydroxylamine
 - b. Aniline
 - c. Nitrosobenzene
 - d. p-hydroxyaniline
7. Electrolytic reduction of nitrobenzene in a strongly acidic medium (e.g. H_2SO_4) gives
- a. Aniline
 - b. Azobenzene
 - c. P-aminophenol
 - d. Azoxybenzene
8. Which of the following products is obtained when nitrobenzene is electrolytically reduced?
- a. P-aminophenol
 - b. Azobenzene
 - c. Azoxybenzene
 - d. Hydrazobenzene

Ring substitution

3. Nitrobenzene prefers electrophilic substitution reaction at the meta position. Explain. [2]
How would you predict nitro group in nitrobenzene is electron-withdrawing? [2]
9. Which of the following compounds is meta-directing towards the electrophilic aromatic substitution reaction?
- a. $\text{C}_6\text{H}_5\text{NO}_2$
 - b. $\text{C}_6\text{H}_5\text{OH}$
 - c. $\text{C}_6\text{H}_5\text{NH}_2$
 - d. $\text{C}_6\text{H}_5\text{CH}_3$
10. Which of the following is least reactive in electrophilic aromatic substitution reaction?
- a. Chlorobenzene
 - b. Phenol
 - c. Nitrobenzene
 - d. Aniline
11. The nitro group in nitrobenzene is
- a. Ring activator
 - b. Ring deactivator
 - c. Ortho/para director
 - d. None of these
12. Nitration of nitrobenzene yields
- a. Picric acid
 - b. Trinitrotoluene
 - c. 1,4-dinitrobenzene
 - d. 1,3-dinitrobenzene

Uses of nitro compounds.

4. Mention any one important use of Nitroalkane. 1
5. Nitrobenzene is an industrial chemical ...

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