

9. HALOARENES

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Introduction, Nomenclature and Isomerism

Preparation

- Chlorobenzene is formed when benzene diazonium chloride is heated with cuprous chloride in a corresponding halogen acid. The reaction is
 - Sand-meyer reaction
 - Grignard's reaction
 - Gattermann reaction
 - Fittig reaction
- When benzene diazonium chloride is heated with Copper and HCl, Chlorobenzene is formed, and the reaction is
 - Sandmeyer reaction
 - Fittig reaction
 - Gattermann reaction
 - All of the above
- Chlorobenzene is prepared commercially by
 - Dow's process
 - Deacon's process
 - Racing process**
 - Etard's process

Physical Properties

- Which of the following has the highest boiling point?
 - C_6H_5F
 - C_6H_5Cl
 - C_6H_5Br
 - C_6H_5I

Chemical Properties

- Nucleophilic substitution reaction
- The C-Cl bond of Chlorobenzene, in comparison to the C-Cl bond in methyl chloride, is
 - Longer and weaker
 - Shorter and stronger
 - shorter and weaker
 - longer and stronger
- Reduction of Chlorobenzene (with Ni-Al alloy, NaOH, Δ or $LiAlH_4$) (preparation of benzene)
- Action with Na
- Bromobenzene and methyl bromide with sodium metal in the presence of dry ether give toluene. This reaction is called
 - Fittig reaction
 - Wurtz reaction
 - Wurtz-Fittig reaction
 - Ullman reaction
- The name of the reaction, when halobenzene reacts with sodium metal in the presence of dry ether, is
 - Wurtz reaction
 - Friedel-Crafts reaction
 - Fittig reaction
 - Cannizzaro's reaction
- Biphenyl is formed from Chlorobenzene by
 - Fittig reaction
 - Wurtz reaction
 - Wurtz-Fittig reaction
 - Grignard reagent
- Action with chloral
- When Chlorobenzene is heated with chloral in the presence of conc. H_2SO_4 , the compound formed is
 - BHC
 - DDT
 - Chloropicrin
 - Chloretone
- Chloral is needed for the preparation of
 - Mischler's Ketone
 - DDT
 - Aldrin
 - Gammexane
- DDT is used as
 - Analgesic
 - Antipyretic
 - Insecticide
 - Antiseptic

12. Which of the following compounds reacts with chlorobenzene to form DDT?
- a. Carbonyl chloride c. acetone b. Chloral d. chloroform

5. Electrophilic substitution reaction

13. Which of the following is an o,p-director but a deactivating group towards electrophilic substitution reaction?
- a. $-\text{CH}_3$ b. $-\text{Cl}$ c. $-\text{NO}_2$ d. $-\text{COOH}$

Uses of Chlorobenzene

14. $\text{C}_6\text{H}_5\text{N}_2\text{Cl} + \text{CuCl}$ gives:
- a. C_6H_6 b. $\text{C}_6\text{H}_5\text{NH}_2$ c. $\text{C}_6\text{H}_5\text{Cl}$ d. $\text{C}_6\text{H}_5-\text{C}_6\text{H}_5$
15. Haloarenes are less reactive than haloalkanes in nucleophilic substitution reactions. This is due to:
- a. Inductive effect b. Metamerism c. Resonance d. Tautomerism
16. Why are aryl halides generally less reactive towards nucleophilic substitution compared to alkyl halides?
- a) Larger carbon-halogen bond b) Formation of a less stable carbonium ion
c) Resonance stabilisation d) The inductive effect
17. Which of the following possesses the highest melting point?
- a. chlorobenzene b. o-dichlorobenzene c. m-dichlorobenzene d. p-dichlorobenzene
18. Chlorination of toluene in the presence of light and heat, followed by treatment with NaOH and acidification, gives
- a. o-cresol b. 2,4-dihydroxytoluene c. p-cresol d. benzoic acid
19. Which of the following is a haloarene?
- a. Phenyl b. Aniline c. Chlorobenzene d. Benzyl chloride
20. An organic compound $\text{C}_7\text{H}_7\text{Cl}$ is boiled with aq. KOH, then treated with excess dil. HNO_3 , which gives a white precipitate with AgNO_3 . The compound is:
- a) o-Chlorotoluene b) m-Chlorotoluene c) Benzyl chloride d) p-Chlorotoluene

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