

CHEMISTRY STUDY MATERIALS FOR CLASS 12 (NCERT BASED REVISION NOTES OF CHAPTER -10)

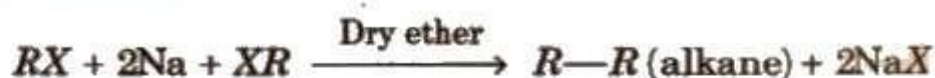
GANESH KUMAR

DATE:- 13/03/2021

Haloalkanes and Haloarenes

1. Reaction with Metals

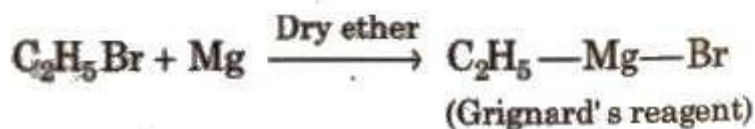
(i) Wurtz reaction



(ii) Wurtz-Fittig reaction

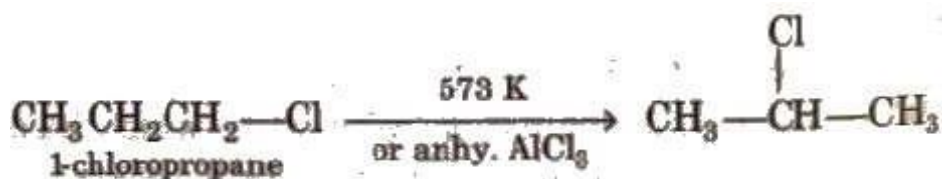


(iii) Reaction with Mg



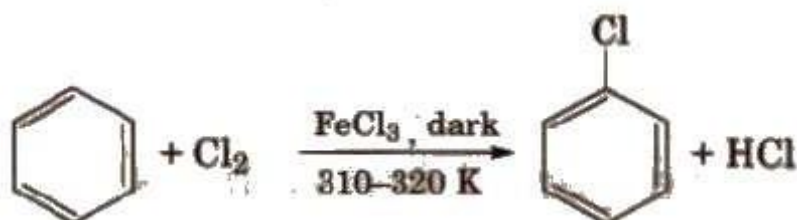
Grignard reagent is never isolated in the solid state as it explodes in dry state. So it is used as ethereal solution.

2. Isomerisation



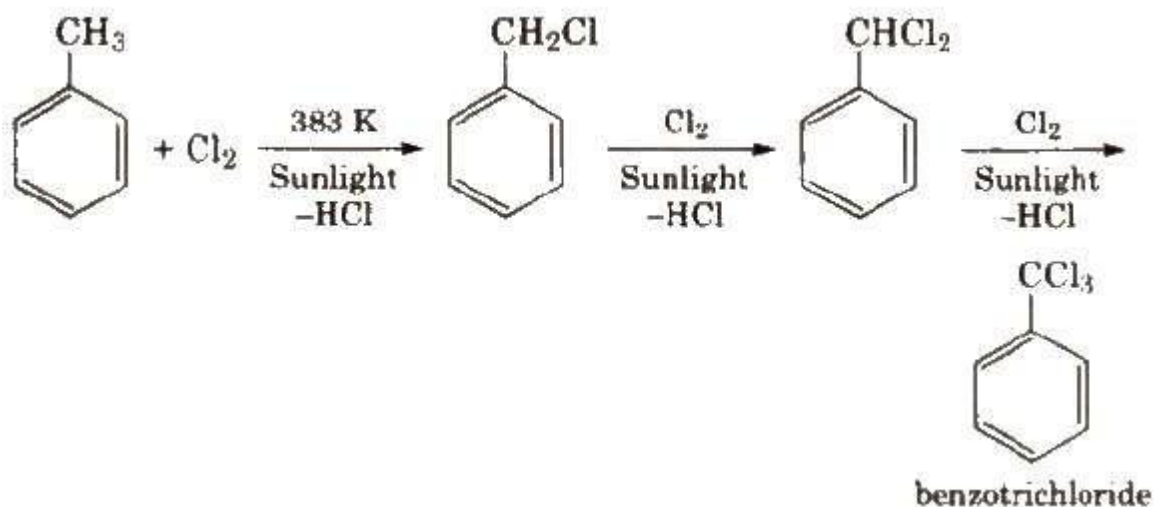
General Methods of Preparation of Aryl Halides

1. By Halogenation of Aromatic Hydrocarbons



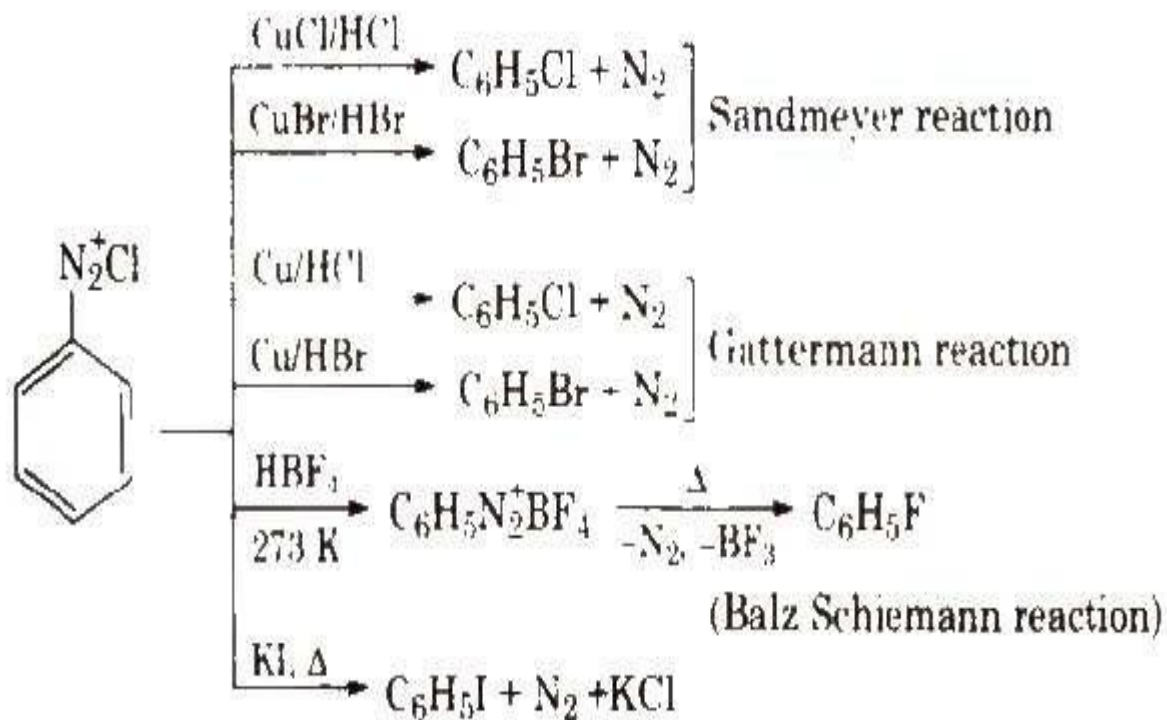
It is an electrophilic substitution reaction.

2. By Side Chain Halogenation

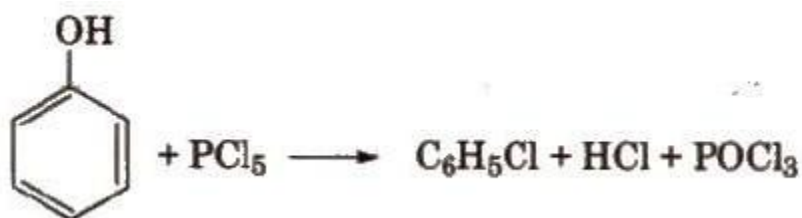


(It involves free radical mechanism.)

3. From Benzene Diazonium Salt

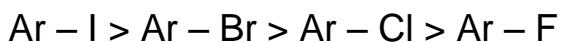


4. From Phenol



Physical Properties of Aryl Halides

1. Aryl halides are colourless liquids or colourless solids with characteristic odour.
2. Boiling point generally increases with increase in the size of aryl group or halogen atom. Boiling point order



3. The melting point of p -isomer is more than o- and m-isomer.

This is because of more symmetrical nature of p-isomer.

4. Due to resonance in chlorobenzene, C-Cl bond is shorter and hence, its dipole moment is less than that of cyclohexylchloride.

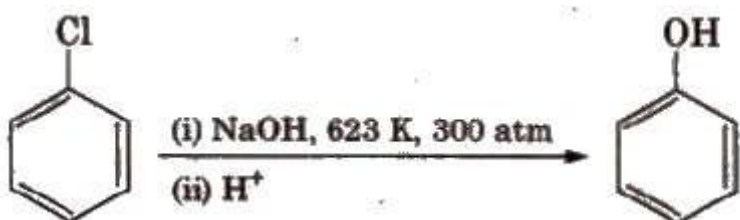
Chemical Properties of Aryl Halides

1. Nucleophilic Substitution Reaction

Aryl halides are less reactive towards nucleophilic substitution reaction. Their low reactivity is attributed due to the following reasons:

1. Due to resonance, C-X bond has partial double bond character.
2. Stabilisation of the molecule by delocalisation of electrons.
3. (Instability of phenyl carbocation.

However, aryl halides having electron withdrawing groups (like $-\text{NO}_2$, $-\text{SO}_3\text{H}$, etc.) at ortho and para positions undergo nucleophilic substitution reaction easily.



Presence of electron withdrawing group (-NO₂) increases the reactivity.

