Diazonium Salt

General formula : $ArN_2^+X^-$

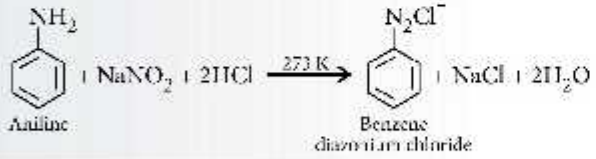
X^- may be Cl^-, Br^-, HSO_4^-, BF_4^- etc.

Azo dyes can be prepared using diazonium salts, these contain a highly delocalised system of electrons which delocalise in both benzene rings and the two nitrogen atoms bridging the rings. This extended delocalisation give colours to these azo compounds. Modifying the group present in molecule can give rise to different colours.

CONCEPT MAP CLASS XII

Preparation

The reaction of converting aromatic primary amine to diazonium salt is called diazotisation.

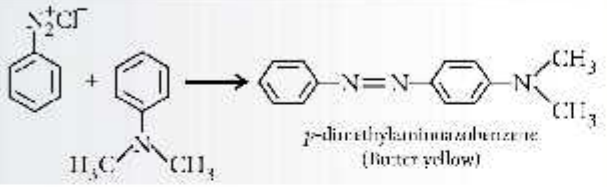


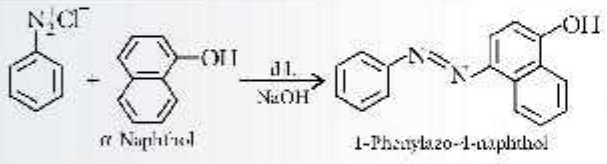
Physical Properties

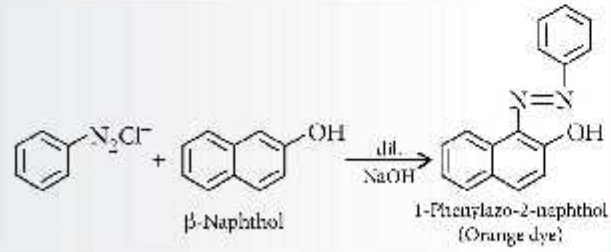
- Colourless crystalline solids.
- Readily soluble in water, less soluble in alcohol.
- These are unstable and explode in dry state.
- Their aqueous solutions are neutral to litmus.

Applications

- To produce water-fast dyed fabrics by immersing the fabric in an aqueous solution of the diazonium compound, followed by immersion in a solution of the coupler.
- Synthesis of organic compounds.
- Diazonium salts are light sensitive and break down near UV or violet light. This property has led to their use in document reproduction.

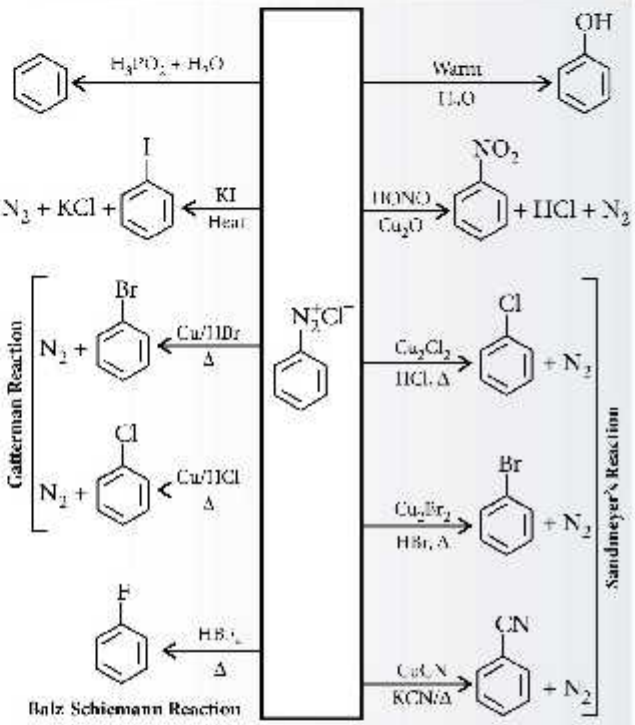






Chemical Properties

Reactions Involving Displacement of Diazo Group



Reactions Involving Retention of Diazo group

- The azo products obtained have an extended conjugate system having both aromatic rings joined through $-N=N-$ bond.
- These compounds are often coloured and are used as a dye.