UNIT II

Phenols

Aromatic amines

Aromatic acids

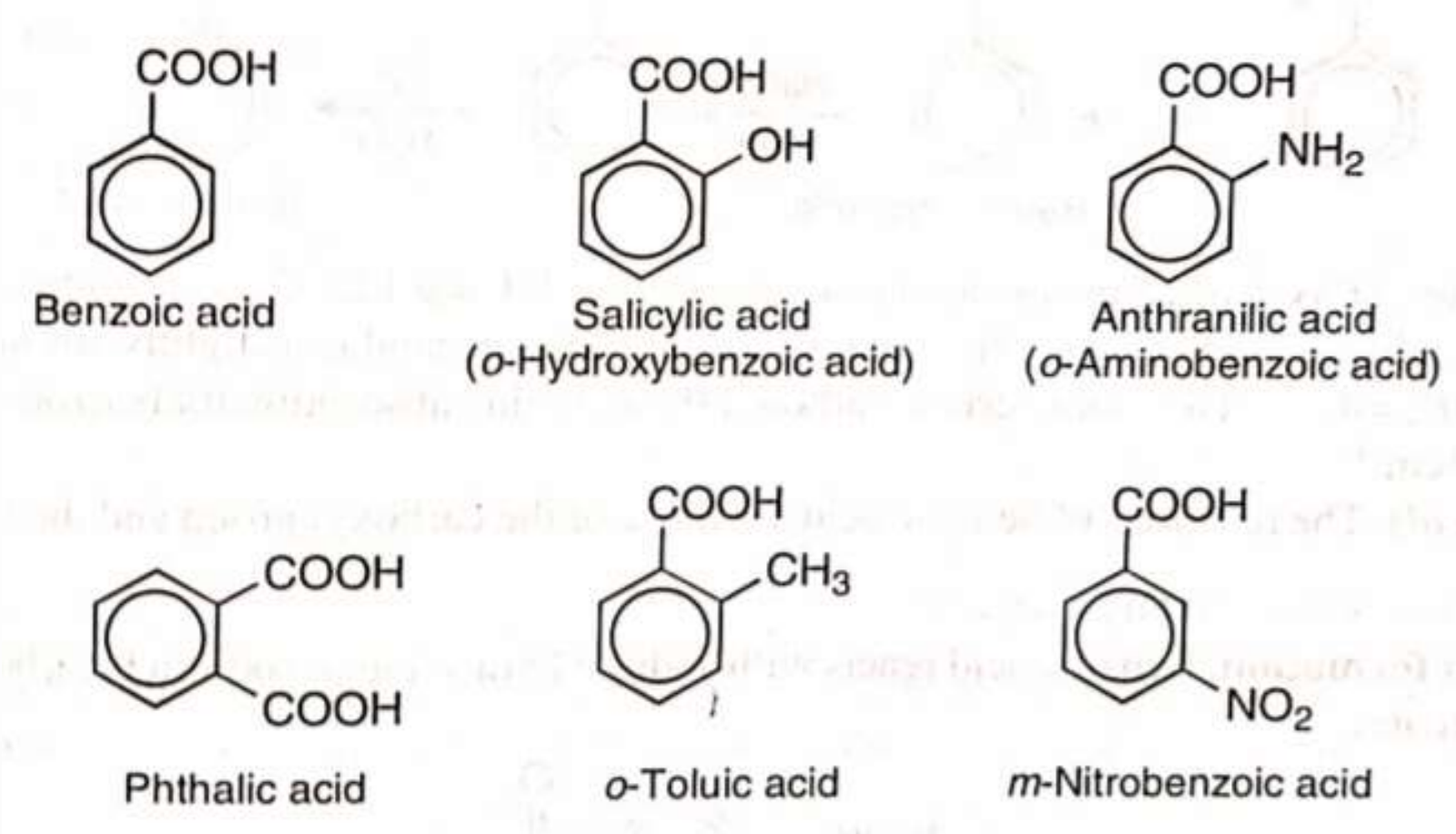
PREPARATION OF AROMATIC ACIDS, ACIDITY OF AROMATIC ACIDS

Disclaimer

All the content material provided here is only for teaching purpose.

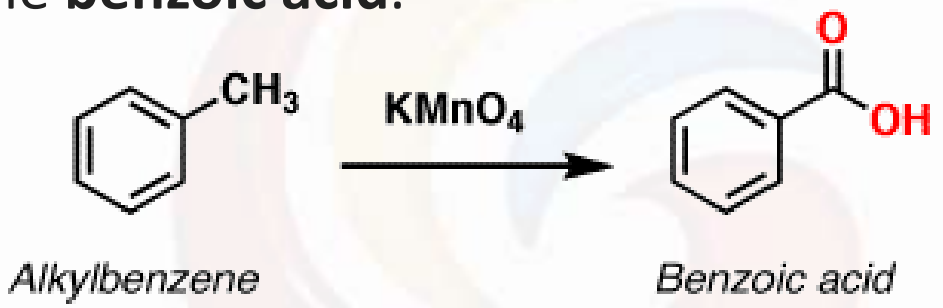
Aromatic carboxylic acids

- Aromatic acids are compounds in which one or more carboxyl groups are attached directly to the aromatic ring.

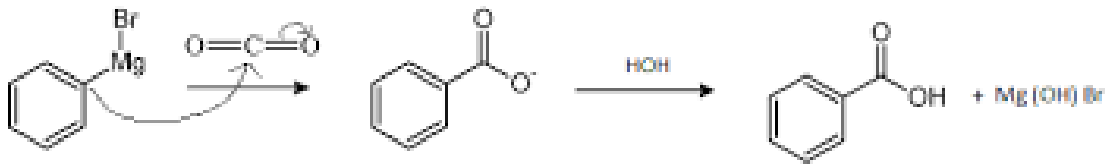


Prepararion

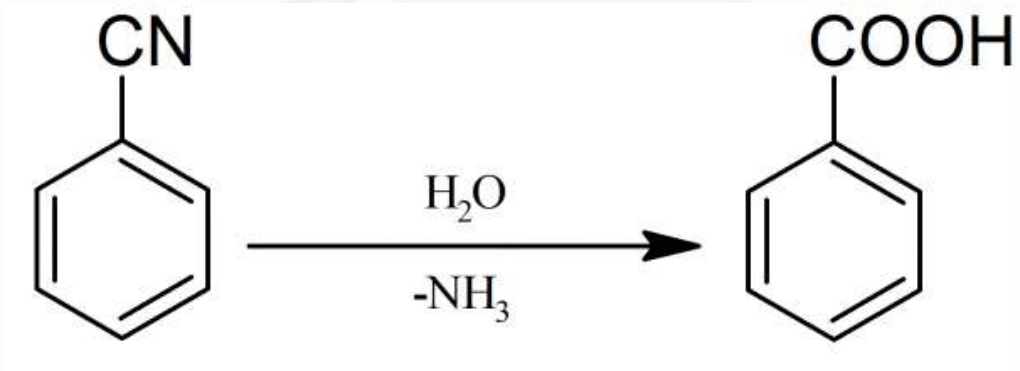
1. Oxidation: Treatment of an **alkylbenzene** with **potassium permanganate** results in **oxidation** to give the **benzoic acid**.



2. Reaction of phenyl magnesium bromide with carbon dioxide followed by acid hydrolysis.



3. Acid hydrolysis of phenyl cyanide (Benzonitrile).

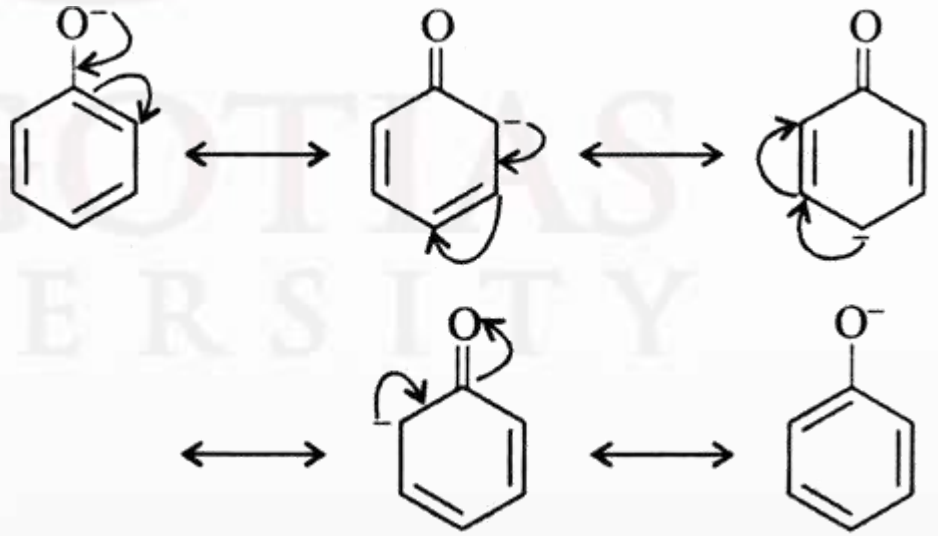


Acidity of benzoic acid

- Aromatic acids are weaker than mineral acids
- Acidity of carboxylic acid is higher than alcohols and phenols
- Benzoate ion formed is stabilized by two equivalent resonance structures in which the negative charge is effectively delocalized between two more electronegative oxygen atoms

Acidity of benzoic acid

- Oxygens of carboxylate ion are not directly adjacent of the aromatic ring
- Hence resonance stabilization by aromatic π molecular orbital will not take place.
- In phenols, the negative charge is less effectively delocalized over one oxygen atom and less electronegative carbon atoms in phenoxide ion
- Therefore the carboxylate ion exhibits higher stability in comparison to phenoxide ion.
- Hence carboxylic acids are more acidic than phenols



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