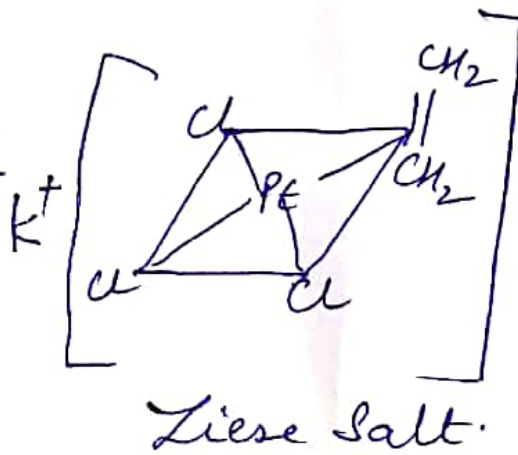
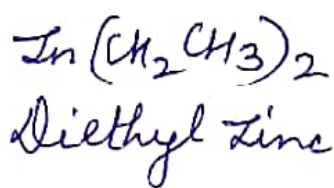
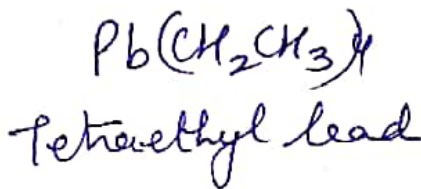
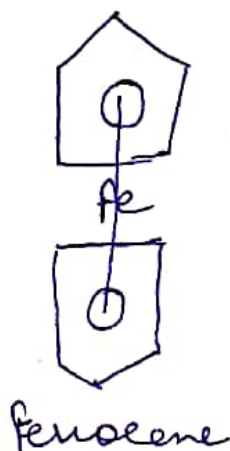


Organometallic Chemistry

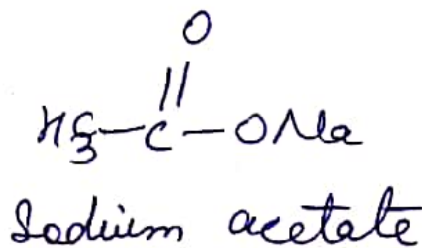
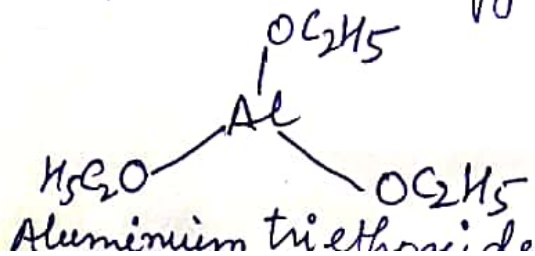
- This branch is bridge between organic chemistry and inorganic chemistry.
- They are used as catalyst.
- Grignard reagent is organometallic compound of magnesium and alkyl lithium.
- These compounds contain direct linkage between a metal atom and one or more carbon atom.

Definition of organometallic compounds:

Organometallic compounds are those compounds which contain one or more metal-carbon linkage eg tetraethyl lead, Ziese salt, ferrocene



But some compounds like aluminium triethyl sodium acetate are not organometallic compound because the metal is not directly linked to carbon, but to oxygen

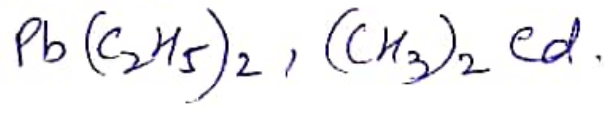


- Metal cyanides, metal carbides CaC_2 and Al_4C_3 are not organometallic compounds.

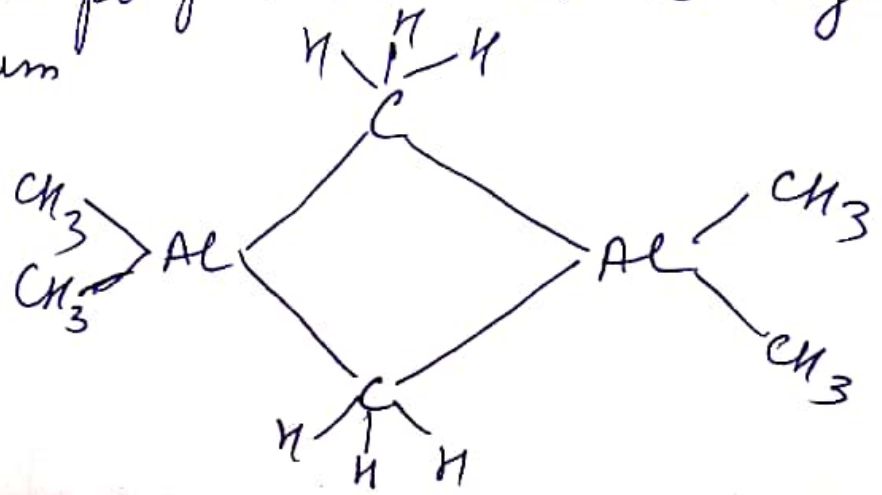
Types of Organometallic compounds:

1) Ionic compound: In these compounds, the negative charge on the hydrocarbon anion is delocalised over carbon atoms in the aromatic unsaturated ring $K^+ C_5H_5^-$ is a ~~common~~ $Na^+ C_6H_5^-$
- Soluble in non polar solvents

2) Covalent compounds: In these compounds metal is bonded to organic part by normal two electron sigma covalent bonds. They are soluble in organic solvent.
Electronegativity difference between the metal atom and carbon determines the polarity of Carbon-metal atom.



3) Electron deficient compounds: The compounds ~~are~~ high charge to mass ratio, having strong polarizing atom. They are polar covalent bonded atoms. They give polymeric structures eg trialkyl aluminium



dimer Al_2Me_6

4) Transition metal organometallic compounds:
 Transition metal is bonded to unsaturated organic compounds and transition metal form bond with more than one carbon atoms of same organic compounds.

- The interaction is between the p-orbitals of the organic ligand with the suitable d or p orbitals of the metal atom.
- They are known as sandwich compounds.

