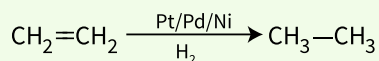
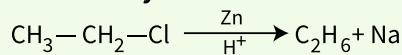


PREPARATION

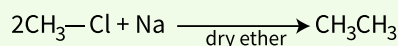
From unsaturated hydrocarbons



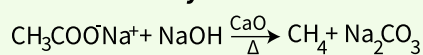
From alkyl halides



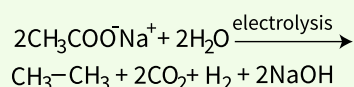
Wurtz RX



From carboxylic acids



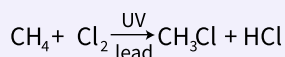
Kolbe's Electrolytic Method



PHYSICAL PROPERTIES

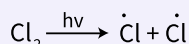
- Generally, Non-polar in Nature.
- Boiling point $\propto \frac{1}{\text{branching}}$
- Boiling point \propto Molecular mass

CHEMICAL PROPERTIES

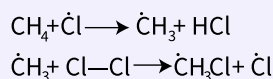


Substitution Reaction \longrightarrow Halogenation

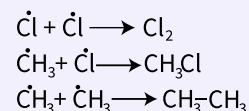
1. Initiation



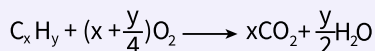
2. Propagation



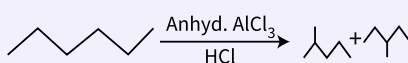
3. Termination



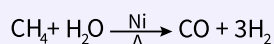
Combustion



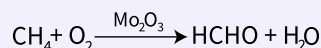
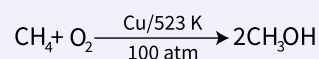
Isomerization



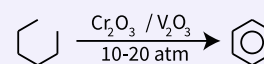
Reaction with Steam



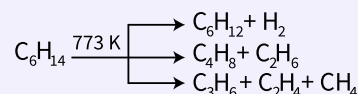
Controlled Oxidation



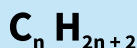
Aromatic Reforming



Pyrolysis

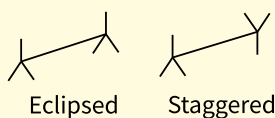


ALKANES

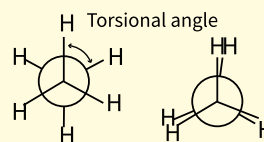


CONFORMERS

Sawhorse Projection



Newman Projection



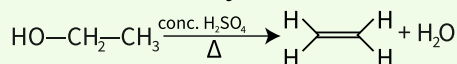
10. HYDROCARBONS

ALKENES

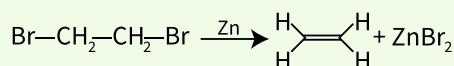


PREPARATION

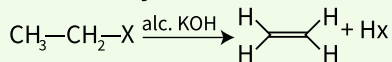
From acidic dehydration of alcohols



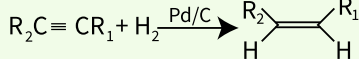
From vicinal dihalides



From alkyl halides



From alkynes

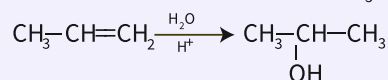
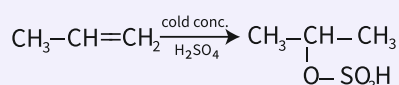


PHYSICAL PROPERTIES

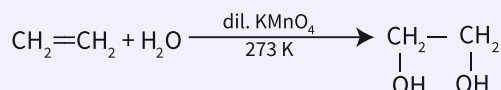
- Alkenes are insoluble in water but soluble in non-polar solvents.
- First few members are gases and rest are liquids & solids.

CHEMICAL PROPERTIES IN ALKENES

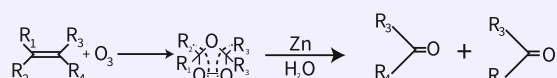
✦ ELECTROPHILIC REACTIONS



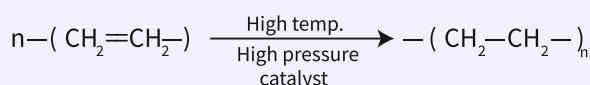
✦ OXIDATION



✦ OZONOLYSIS

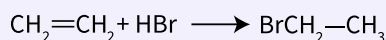


✦ POLYMERIZATION

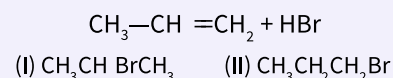


✦ ADDITION OF HYDROGEN HALIDES

Symmetrical Alkene



Asymmetrical alkene



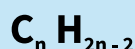
Anti-Markovnikov Effect / Kharash Effect/ Anti-Peroxide Effect

This mechanism proceeds via free radical mechanism and the minor product via Markovnikov effect becomes major product. (II) is major product.

Markovnikov's rule

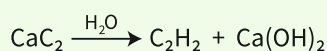
"Negative part of the addendum gets attached to the carbon containing lesser number of hydrogens". (I) is major product.

ALKYNES

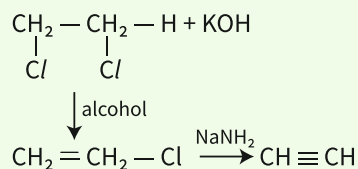


PREPARATION

✦ From Calcium Carbide



✦ From Vicinal dihalides

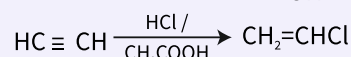
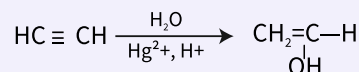
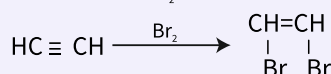
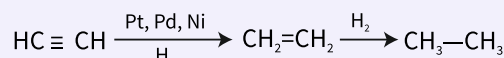


PHYSICAL PROPERTIES

- ✦ First few members of alkynes are gases.
- ✦ Boiling point $\propto \frac{1}{\text{branching}}$
- ✦ Boiling point \propto Molecular mass
- ✦ Soluble in non-polar solvents and insoluble in water.

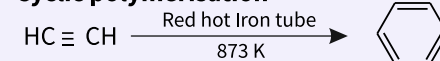
CHEMICAL PROPERTIES

ELECTROPHILIC ADDITION

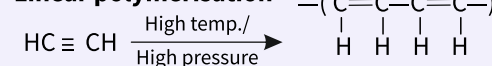


POLYMERISATION

Cyclic polymerisation



Linear polymerisation

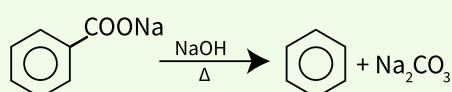


PHYSICAL PROPERTIES

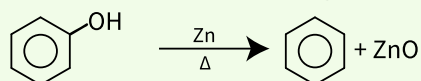
- ✦ Immiscible in water but completely soluble in polar solvents.
- ✦ Characteristic smell.
- ✦ Burn with a sooty flame.
- ✦ Highly volatile in nature.

PREPARATION

✦ Decarboxylation of carboxylic acids



✦ Reduction of Phenol Using Zn Dust



AROMATICITY

1. Planarity
2. Delocalisation of π -electrons.
3. Presence of $(4n+2)$ - π electrons.

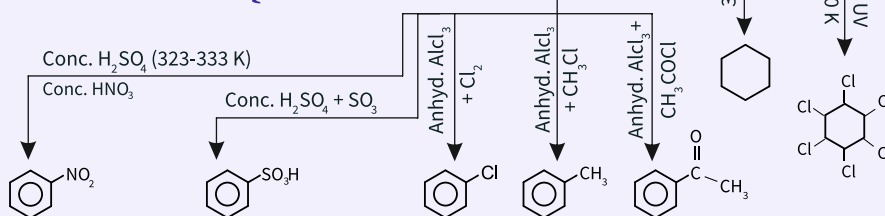
ARENES

CHEMICAL PROPERTIES

Electrophilic Substitution Reaction



Addition Reaction



CARCINOGENICITY AND TOXICITY Aromatic compounds are toxic in nature and most of them are classified as carcinogens.