

CHAPTER 13

HYDROCARBONS

Properties of alkenes:

Physical properties:

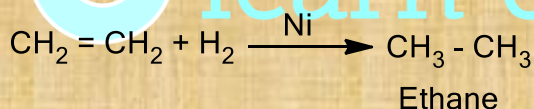
- First three members (C_2 to C_4) are gases. C_5 to C_{17} are liquids and higher ones are solids.
- Alkenes are colourless and colourless insoluble in water but fairly soluble in non-polar solvents.
- Boiling point increases with increases in size. Also branching decreases boiling point.

Chemical properties:

Alkenes due to presence of double bond majorly shows addition reactions.

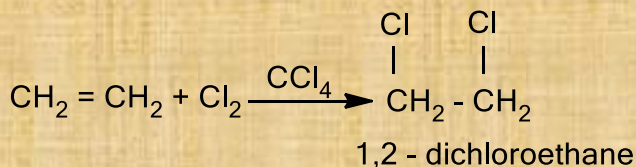
Addition of dihydrogen:

Alkenes gets added to hydrogen molecule in presence of catalyst like Ni, Pd, Pt etc.



Addition of halogens:

Halogens get added to alkenes to form vicinal dihalides.



Addition of hydrogen halide:

This is an example of electrophilic addition reaction.

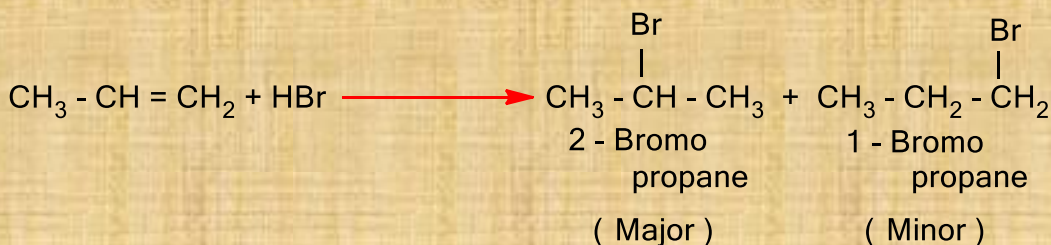


Addition of hydrogen halide to unsymmetrical alkenes follows Markovnikov's rule.

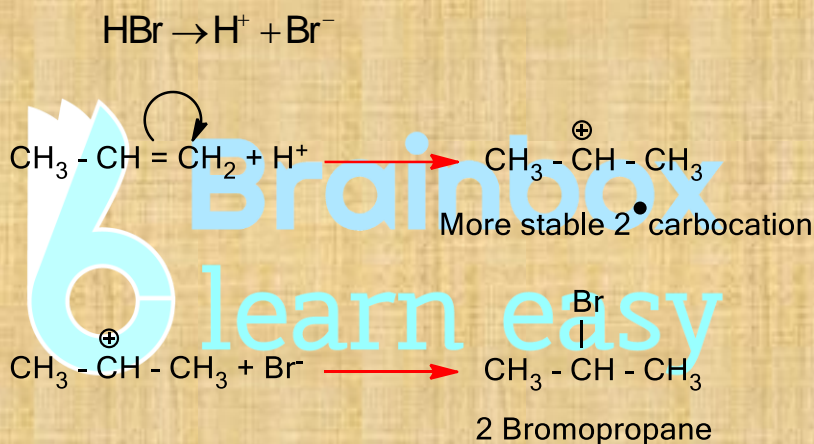
Markovnikov's rule:

Negative part of the addendum gets attached to the carbon atom containing less no. of hydrogen atoms.

Ex.

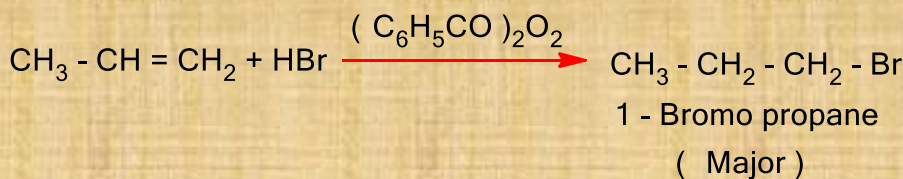


Mechanism:



- Addition of HBr in presence peroxide shows anti Markovnikov addition. It is known as peroxide effect.

Ex.



This is because, reaction follows free radical mechanism in presence of peroxide.

