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19/MHS01/051

MBBB

- i)  $CCH_3OCH_3 \rightarrow$  methoxymethane  
ii)  $CH_3CH_2OCH_2CH_3 \rightarrow$  ethoxy ethane  
iii)  $(CH_3CH_2CH_2CH_2)_2O \rightarrow$  Butoxybutane  
iv)  $CH_3CH_2OCH_3 \rightarrow$  methoxy ethane  
v)  $CH_3CH_2CH_2OCH_2CH_3 \rightarrow$  ethoxy propane

a) - At room temperature, ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers are highly flammable gases or volatile liquids.

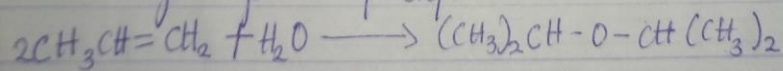
- ethers are less soluble in water than are the corresponding alcohols. Lower molecular weight ethers such as methoxymethane and methoxyethane are fairly soluble in water since the molecules are able to form hydrogen bonds with the water molecules but as the hydrogen content of the molecules increases, there is a rapid decline in solubility. They are miscible with most organic solvent.

- Most of the simple ethers are less dense than water, although the density increases with increasing relative molecular mass and some of the aromatic ethers are in fact denser than water.

- Lower molecular mass ethers have a lower boiling point than the corresponding alcohols but those ethers containing alkyl radicals larger than four carbon atoms, the reverse is true.

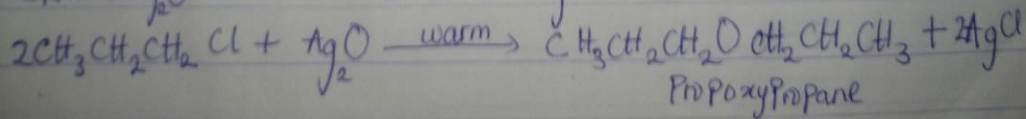
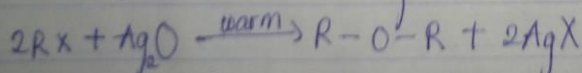
- Ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media.

3) \* Controlled catalytic hydration of olefins



2-Isopropoxypropane

\* From haloalkanes and dry silver (I) oxide



4) - Ethylene oxide is used as a gaseous sterilizing agent

- it is used as an intermediate in the hydrolytic manufacture of ethylene glycol