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Assignment on Ether

1) CH_3OCH_3 – Methoxymethane
(ii) $CH_3CH_2OCH_2CH_3$ – ethoxyethane
(iii) $(CH_3CH_2CH_2CH_2)_2O$ – ~~Botho~~ Butoxymethane
(v) $CH_3CH_2OCH_3$ – ethoxymethane
(v) $CH_3CH_2CH_2OCH_2CH_3$ – ethoxypropane

Uses of ethylene ~~glycol~~ oxide

(i) Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol
(ii) Ethylene oxide is used in the preparation of nonionic emulsifying agents.
(iii) Ethylene oxide is used as a gaseous sterilizing agent.

Manufacture And Preparations Of Ethers

1) Partial dehydration of alcohols

Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concentrated tetraoxosulphate(VI) acid is heated at a carefully maintained temperature of 140°C this process is known as sulphuric esterification. If excess alcohol is not used, temperature is as high as 170-180°C, further dehydration to give alkene occurs.

$$2ROH \xrightarrow{\text{conc } H_2SO_4/140^\circ C} R-O-R + H_2O$$

example

$$2CH_3CH_2OH \xrightarrow{\text{Conc. } H_2SO_4/140^\circ C} CH_3CH_2-O-CH_2CH_3 + H_2O$$

2) Controlled catalytic hydration of alkenes

$$3CH_3CH=CH_2 + H_2O \longrightarrow (CH_3)_2CH-O-CH(CH_3)_2$$

2 - isopropoxypropane

3) From haloalkanes and dry silver (I) oxide

$$2RX + Ag_2O \xrightarrow{\text{warm}} R-O-R + 2AgX$$

$$2CH_3CH_2CH_2Cl + Ag_2O \xrightarrow{\text{warm}} CH_3CH_2CH_2OCH_2CH_2CH_3 + 2AgCl$$

Propoxypropane.

General Properties

① Physical state

At room temperature, ethers are colourless, neutral liquids with pleasant odours. The lower diplatic ether are highly flammable gases or volatile liquids

② Solubility

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 molecule are able to form hydrogen bonds with the water molecules but as the hydrocarbon content of the molecules increases, there is a rapid decline in solubility. They are miscible with most organic solvent

③ Bpt

Low molecular mass ethers have a lower bpt than the corresponding ~~Ethers~~ alcohols but those ethers containing alkyl radicals larger than four carbon atoms, the reverse is true

Reaching -ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction mediaSimple ethers are not found commonly in nature but the