

Friedrich Faustin Elayeta
R/mhsol/173.

Assignment on Ether

- i) CH_3OCH_3 - Methoxymethane
- ii) $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - ethoxyethane
- iii) $(\text{CH}_3\text{CH}_2\text{O})_2\text{CH}_2$ - Diethyl ether
- iv) $\text{CH}_3\text{CH}_2\text{OCH}_3$ - ethoxymethane
- v) $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ - ethoxypropane

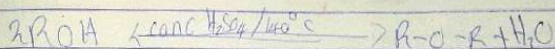
uses of ethylene glycol oxide

- 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

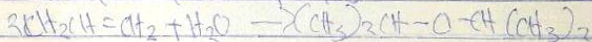
Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concentrated tetraoxosulphate(VI) acid is heated at a carefully maintained temperature of 140°C . This process is known as continuous esterification. If excess alcohol is not used, temperature is as high as $170-180^{\circ}\text{C}$, (further dehydration to yield alkene occurs).



examples

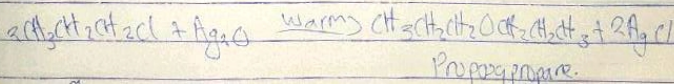
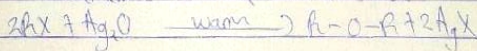


2) Controlled catalytic hydration of olefins



Diethyl propyl ether

3) From Haloalkenes and dry silver (I) oxide



General Properties

(1) Physical states

At room temperature, ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers 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 methoxyethane and methoxyethane are fairly soluble in water since the molecules 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 solvents.

(3) b.p.

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

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