

ARUBALUEZE GOODNESS EBELI

191MHS011101

CHEMISTRY ASSIGNMENT

1. Give the IUPAC Names of the following compounds

CH_3OCH_3 - Methoxymethane

$\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxyethane

$(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ - Dibutoxymethane

$\text{CH}_3\text{CH}_2\text{OCH}_3$ - Methoxyethane

$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxypropane

2. Discuss the properties of ethers

i. Physical states

Ethers are colourless, neutral liquids with pleasant odours at room temperatures. The lower aliphatic ethers are highly flammable

ii. Solubility

Ethers are less soluble in water than the corresponding alcohols

iii. Density

Most of the simple ethers are less dense than water. Although density increases with increasing relative molecular mass

iv. Boiling point

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

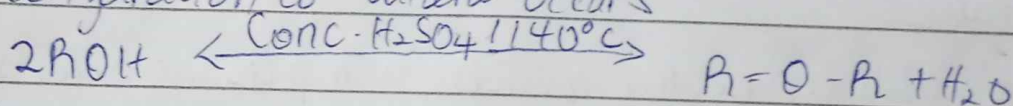
v. Reactivity - Ethers are inert at moderate temperature. Their inertness at moderate temperature leads to their wide use as reaction media

3. Discuss explicitly two methods of preparing ethers and show equation of reaction

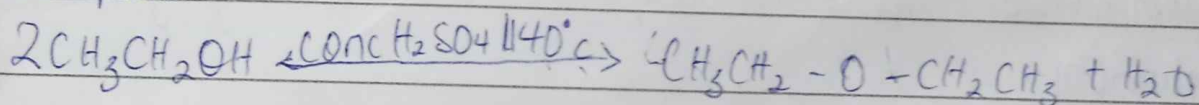
1. Partial dehydration of alcohols.

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

Further dehydration to alkene occurs

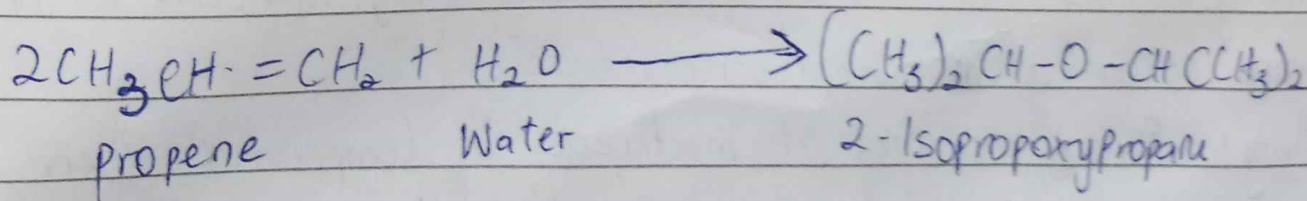


Examples



2. Controlled catalytic hydration of olefins.

Controlled hydration of olefins with a catalyst can lead to the production of ethers. If this is not controlled it can lead to the production of an alcohol instead of an ether.



3. State three uses of ethylene oxide.

1. It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.

2. It is used in the preparation of non ionic emulsifying agents, plastics, plasticizers and several synthetic ~~to~~ textiles.

3. Ethylene oxide is used as a gaseous sterilizing agent.