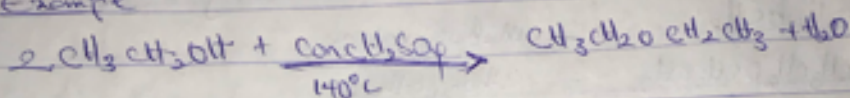


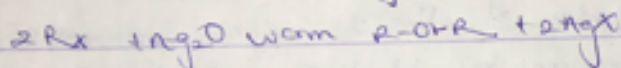
is as high as  $120^{\circ}\text{C}$  to  $150^{\circ}\text{C}$  further dehydrates to yield alkene. some  
 $2\text{ROH} \xrightarrow{\text{conc. H}_2\text{SO}_4 / 140^{\circ}\text{C}} \text{ROR} + \text{H}_2\text{O}$

Example

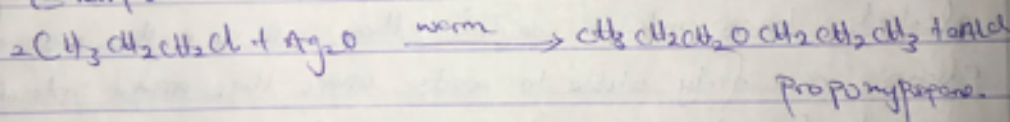


(ii) ~~Controlled catalytic hydration of aldehydes~~  
 $2\text{C}_2\text{H}_5\text{CHO} \xrightarrow{\text{C}_2\text{H}_5\text{OCH}_2\text{CH}_2\text{OC}_2\text{H}_5} \text{C}_2\text{H}_5\text{CH}_2\text{CH}_2\text{OC}_2\text{H}_5 + \text{H}_2\text{O}$

(iii) from haloalkanes and dry silver



Example



(iv) State three uses of ethylene oxide.

oxide

(i) Ethylene oxide is used as gaseous sterilizing agent

(ii) Ethylene oxide is used in the preparation of various modifying agents, plasticizers, plasticizers and several synthetic materials

(iii) Ethylene oxide is used as intermediate in hydrolytic manufacture of ethylene glycol.

## PYLA - ANSWERS IN SCIENCE

19/11/2018

Chem 102

1) Give the IUPAC names of the following Organic compounds

- $\text{CH}_3\text{OCH}_3$  - Methoxymethane
- $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$  - Ethoxyethane
- $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{O})_2$  - Butoxymethane
- $\text{CH}_3\text{CH}_2\text{OCH}_3$  - Methoxyethane
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$  - Ethoxypropane.

2. Discuss the properties of ethers.

\* Solubility: Ethers are less soluble in water than the corresponding alcohols. Lower molecular weight ethers such as methoxymethane and ethoxyethane are freely soluble in water since the same molecules are able to form hydrogen bonds with the water molecules but as the hydrocarbon content of the molecule increases there is a rapid decline in solubility.

\* Density: 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 indeed denser than water.

\* Boiling point: Lower molecular mass ethers have lower boiling points than corresponding alcohols but those ethers contain alkyl radicals larger than four carbon atoms, the reverse is true.

\* 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 equations of reaction.

① Partial dehydration of alcohols.

Simple ethers are manufactured from alcohol by catalytic dehydration. The alcohol and concentrated sulphuric acid (or) acid is heated carefully maintained temperature of  $140^\circ\text{C}$ . This process is known as continuous distillation. If excess alcohol is not used, the temperature