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MATRIC NO: 19/MHS01/179

CHEM 1002 ASSIGNMENT (DECEMBER)

16/04/2020

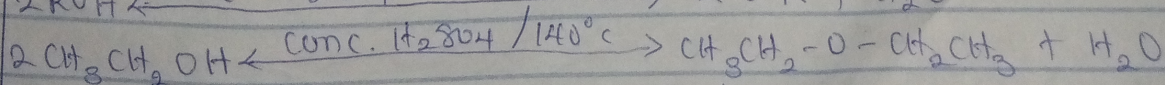
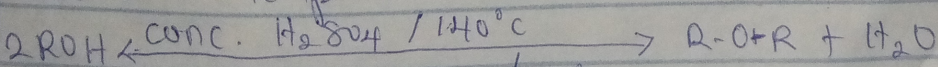
- CH_3OCH_3 - methoxymethane
- $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - ethoxyethane
- $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ - butoxymethane
- $\text{CH}_3\text{CH}_2\text{OCH}_3$ - methoxyethane
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - ethoxypropane

2. Properties of ethers are as follows:

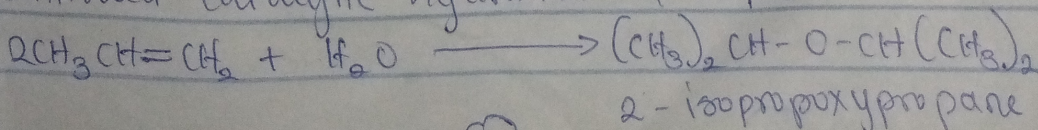
- Density:** Most simple ethers are less dense than water while some of the aromatic ethers are denser than water. But their density increases with increasing relative molecular mass.
- Reactivity:** Ethers become inert at moderate temperature. Due to their inertness, they are widely used as reaction media.
- Physical states:** Ethers are colourless, neutral liquids $\hat{=}$ possess pleasant odours at room temperature while the low aliphatic ethers are highly flammable gases or volatile liquids.
- Boiling points:** Low molecular mass ethers have a lower boiling point but the ethers containing alkyl radicals larger than four carbon atoms have a higher boiling point.
- Solubility:** Ethers are less soluble in water than their corresponding alcohols but low molecular mass ethers are fairly soluble in water.

3. Ethers can be prepared as follows:

a. Partial dehydration of alcohols: Ethers are manufactured from alcohol through catalytic dehydration. Excess alcohol and conc. H_2SO_4 acid is heated at a constant temperature of 140°C . This process is known as continuous etherification. If alcohol is not excess, there would be an increase in temperature which will lead to the production of alkenes.



b. Controlled catalytic hydration of olefine



(1)

4. Ethylene oxide can be used for the following purposes:
- i. As a gaseous sterilizing agent.
 - ii. As an intermediate in the hydrolytic manufacture of ethylene glycol.
 - iii. Preparation of nonionic emulsifying agents, plastics, plasticizers & several synthetic textiles.