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MATRIC NO: 19/MHS01/407

### CHM 102 ASSIGNMENT

- $\text{CH}_3\text{OCH}_3 \rightarrow$  Methoxymethane
- $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3 \rightarrow$  Ethoxyethane
- $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O} \rightarrow$  dibutoxy dibutane
- $\text{CH}_3\text{CH}_2\text{OCH}_3 \rightarrow$  Methoxyethane
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3 \rightarrow$  Ethoxyethane

2a) Physical state: At room temperature, ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers are flammable gases or volatile liquids.

b) Solubility: Ethers are less soluble in water than corresponding alcohols. Lower molecular weight ethers such as methoxyethane and methoxymethane 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.

c) 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 in fact denser than water.

d) Boiling point: Ethers with lower molecular masses have a lower boiling point than the corresponding alcohols but those ethers containing alkyl radicals larger than four carbon atoms, the reverse is true. The boiling point of ethers tend to approximate those of hydrocarbons of same relative molecular mass from which it can be concluded that the molecules are not associated in the liquid phase as there are no suitably available hydrogen for association through hydrogen bonds.

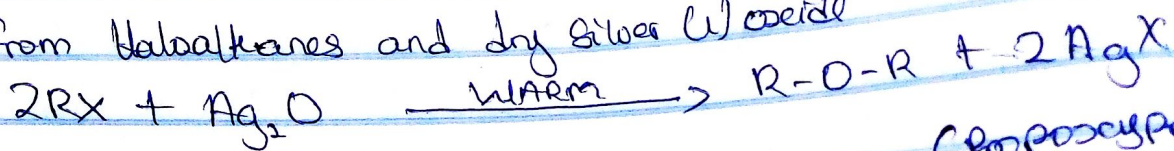
e) Reactivity: Ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media.

3. Controlled Catalytic hydration of Olefins (Alkene)

$$2\text{CH}_3\text{CH}=\text{CH}_2 + \text{H}_2\text{O} \longrightarrow (\text{CH}_3)_2\text{CH}-\text{O}-\text{CH}(\text{CH}_3)_2$$

2 - Isopropoxy propane

↓ From Haloalkanes and dry silver (I) oxide



a) Ethylene oxide is used as an intermediate in the hydrolysis manufacture of ethylene glycol

b) Ethylene oxide is used as a gaseous sterilizing agent.

c) It is used in the preparation of non ionic / emulsifying agents, plastics, plasticizers & several synthetic ketones.