

Chem 102

- a) CH_3OCH_3 - Methoxymethane
- b) $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxyethane
- c) $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ - Butoxyethane
- d) $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Methoxyethane
- e) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxypropane

2) Properties of Ethers

i) Physical States: At room temperature, ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers are highly flammable gases or volatile liquids.

ii) Solubility: Ethers are less soluble in water than the corresponding alcohols. They are miscible with most organic solvents.

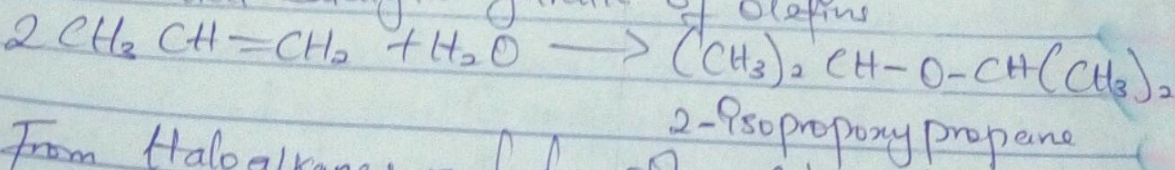
iii) Density: Most of the simple ethers are less dense than water, although the density increases with increasing relative molecular mass and some of the aromatic ethers are in fact denser than water.

iv) Boiling point: Low 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.

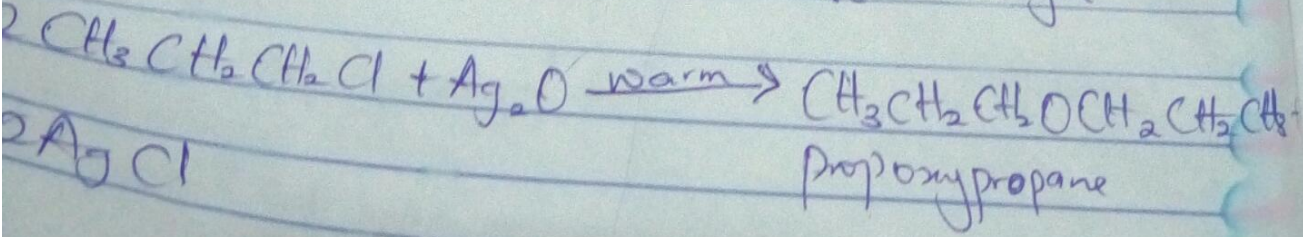
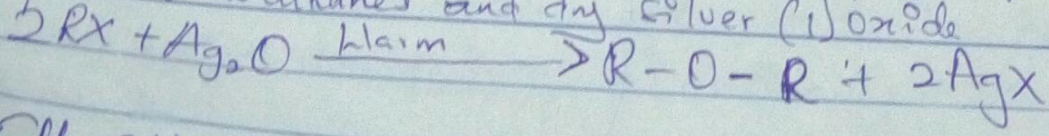
v) Reactivity: Ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media.

3) Preparation of Ethers

i) Controlled catalytic hydration of olefins



ii) From Haloalkanes and dry silver (I) oxide



- 4) Uses of
- 1) Ethylene glycol
 - 2) Ethylene glycol
 - 3) Ethylene glycol

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A) Uses of Ethylene oxide

- 1) Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol.
- 2) Ethylene oxide is used in the preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetic textiles.
- 3) Ethylene oxide is used as a gaseous sterilizing agent.