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COLLEGE: Sciences.

- 1a)  $\text{CH}_3\text{OCH}_3 \rightarrow$  Methoxy methane  
 $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3 \rightarrow$  Ethoxy ethane  
 $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O} \rightarrow$  Butoxy methane  
 $\text{CH}_3\text{CH}_2\text{OCH}_3 \rightarrow$  methoxy ethane  
 $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3 \rightarrow$  Ethoxy propane

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

SOLUBILITY: Ethers are less soluble in water than in corresponding alcohols. Lower molecular weight ethers such as methoxy methane and methoxy ethane are fairly soluble in 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.

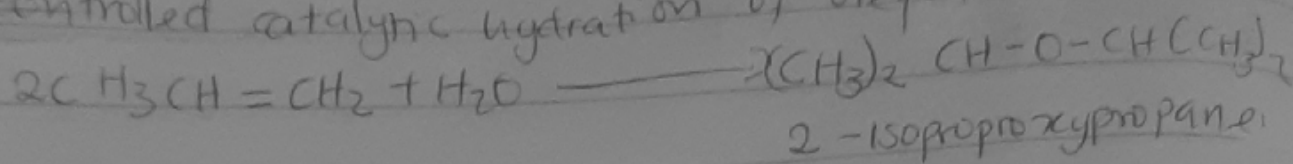
DENSITY: Most of the simple ethers are less dense than water although the density increases with increasing relative molecular mass and some of the aromatic ethers are in fact denser than water.

BOILING POINT: Lower molecular mass ethers have a lower boiling point than the corresponding alcohols but these ethers containing alkyl radicals larger than four carbon atoms, the reverse is true.

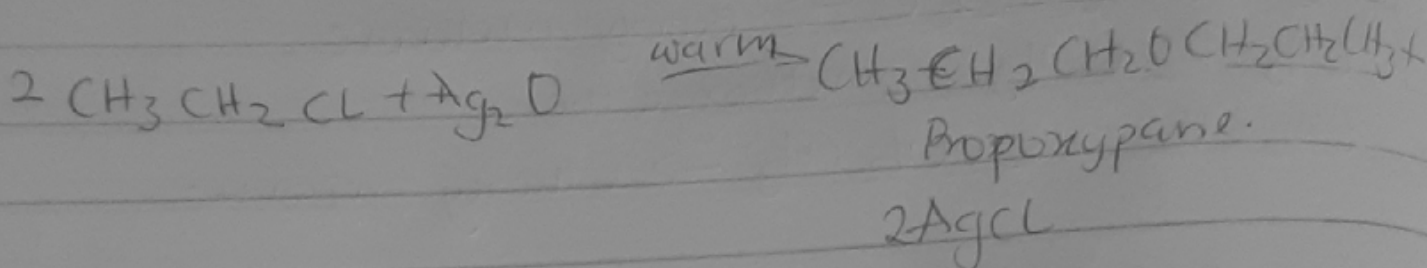
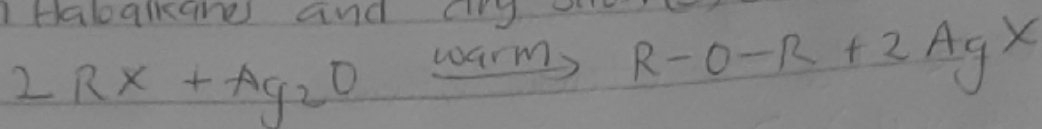
REACTIVITY: Ethers are inert at moderate temperatures. The inertness of moderate temperatures leads to their wide

## 2) Preparation of ether

Controlled catalytic hydration of olefins



from Halalkanes and dry silver(I) oxide



## 3) 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 non ionic emulsifying agents, plastics, plasticizers and several synthetic textiles.
- 3) Ethylene oxide is used as a gaseous sterilizing agent.