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Course: CHM102

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- 1a CH_3OCH_3 - Methoxymethane
- b $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxyethane
- c $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ - Butoxymethane
- d $\text{CH}_3\text{CH}_2\text{OCH}_3$ - ~~Ethoxymethane~~ Methoxyethane
- e $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxypropane

2a Physical States: They are colourless, neutral liquids with a pleasant odour at room temperatures

- The lower aliphatic ethers are

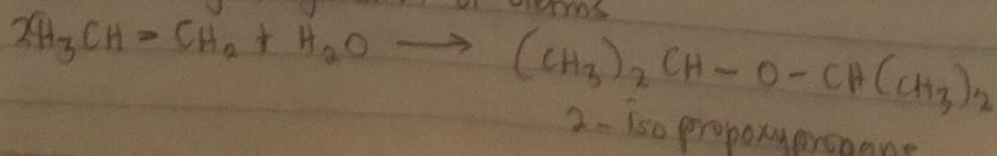
b Solubility: ethers are more soluble in water than alkanols and are miscible in organic solvents

c Density: Most simple ethers are less dense than water, although the density increases with increasing relative molecular mass

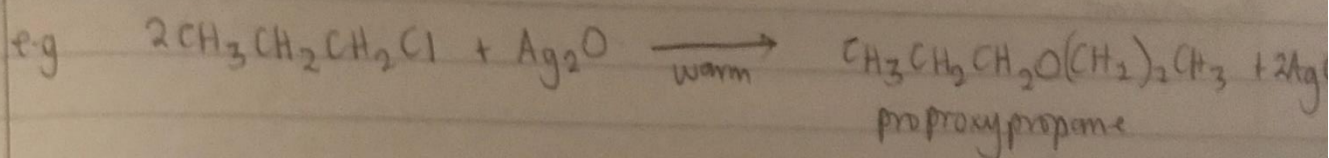
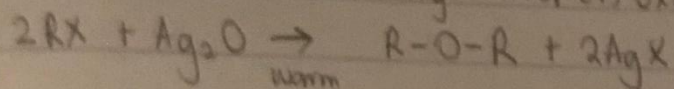
d Boiling point: Lower molecular mass ethers have a lower boiling point than the corresponding alcohols but those ethers containing alkyl radicals longer than four carbon atoms, the reverse is true.

e Reactivity: Ethers are inert at moderate temperature. Simple ethers are not found commonly in nature but the linkage is present in such natural products as sugars, starches and cellulose

3a Controlled catalytic hydration of olefins



b From haloalkanes and dry silver (I) oxide



4a. Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol

b Ethylene oxide is used as a ~~gas~~ gaseous sterilizing agent

c Ethylene oxide is used in preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetic textiles.

