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991MHS111023

Pharmacy
Chem 102

1. CH_3OCH_3 - methoxy methane

$\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - ethoxyethane

$(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ - butoxymethane

$\text{CH}_3(\text{H}_2\text{OCH}_3$ - methoxyethane

$\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - ethoxypropane

2. Properties of ethers.

① Physical state

At room temperature, ethers are colorless, neutral liquids with pleasant colors. The lower aliphatic ethers are highly flammable gases or volatile liquids.

2. Solubility

Ethers are less soluble in water than the corresponding alcohols. Lower molecular weight ethers such as methoxymethane and methoxyethane are fairly soluble in water.

3. 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.

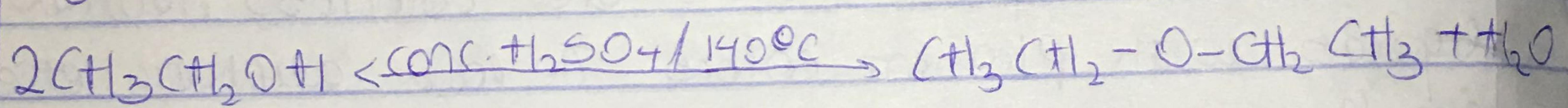
4. Boiling point.

Low molecular mass ethers have a low boiling point than the corresponding alcohol but those ethers containing alkyl radicals larger than four carbon atoms, the reverse is true.

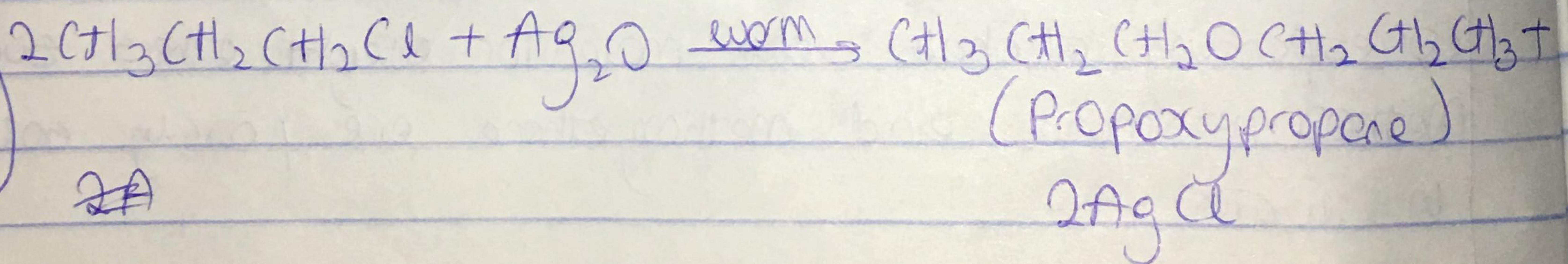
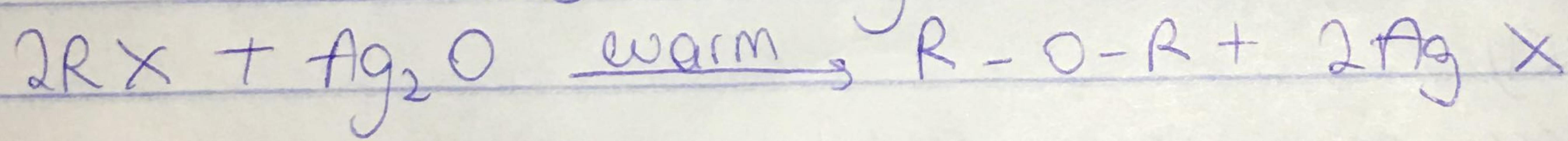
5 Reactivity: Ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media.

3a. Partial Dehydration of alcohols

Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concentrated tetroxido sulphate (VI) acid is heated at a carefully maintained temp. of 140°C . This process is known as continuous esterification. If excess alcohol is not used, the temp. is as high as $170-180^{\circ}\text{C}$, further dehydration to yield alkene occurs.



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 in the preparation of non-ionic emulsifying agents, plastics, plasticizers and several synthetic textiles.

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