

Assignment

Chapter
11

matric no. 19/m/150/299

1. Give the IUPAC names of the following organic compounds.

- CH_3OCH_3 - methoxymethane.
- $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxyethane.
- $\text{C(CH}_3)_2\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_3$ - Butoxy methane.
- $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - methoxy ethane.
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_3$ - Ethoxy pentane.

2. Discuss the properties of ethers.

1. physical states-

- At the room temperature are colourless, neutral liquids with pleasant smells. Those ethers with lower aliphatic ethers are highly flammable or volatile liquids.

2. Solubility: They are less soluble in water than in alcohols. Those lower molecular weight like methoxyethane and methoxymethane are ^{fairly} soluble in water since their molecules are able to form hydrogen bonds. But increase in their hydrocarbon content can reduce it's solubility in water. They are most miscible in organic solvents.

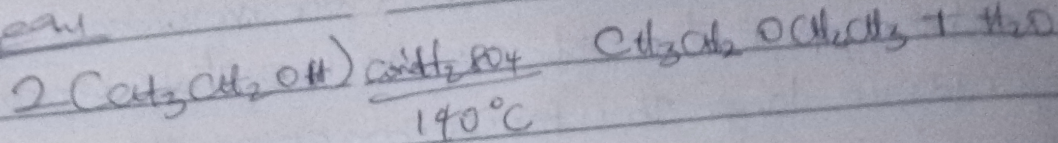
3. Boiling point: Those ethers with ~~higher~~ ^{higher} molecular mass have lower boiling point than the alcohols but those containing alkyl radicals larger than four carbon atoms, the reverse is true.

4. Flammability: Ethers are inert at moderate temperature. Their is advised to keep in a dark bottle ~~in~~ ⁱⁿ but its inertness is used as a reaction medium.

5. Density: The ethers are less dense than water, although density increase with high relative molecular mass. Aromatic ethers are far denser than water.

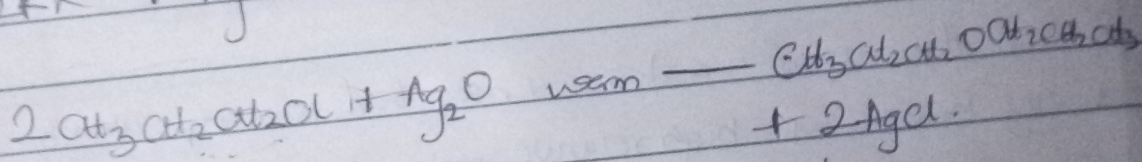
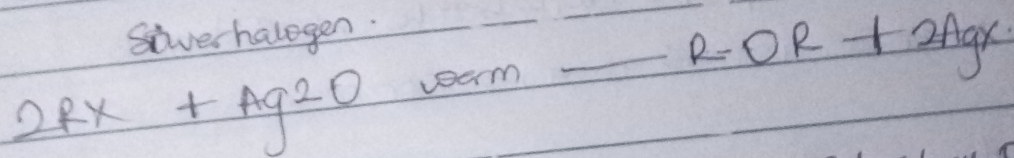
3. Discuss explicitly two methods of preparing ethers and show equations of reaction.

a. Partial hydration of alcohols: Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and tetraoxosulphate (VI) acid at a moderate temperature of 140°C . This is called continuous etherification. When it is less alcohol, the temperature increases $170-180^{\circ}\text{C}$. Further dehydration brings about olefins.

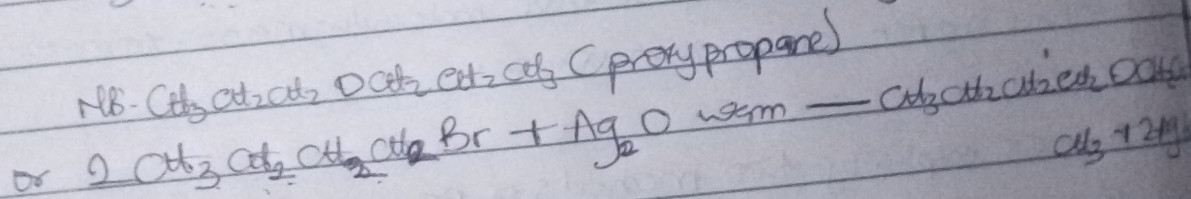


2. Haloalkanes with silver (Ag) oxide.

Haloalkanes with silver (Ag) oxide, warmed, will give ether and silver halogen.



NB. $\text{C}_2\text{H}_5\text{OCH}_2\text{CH}_2\text{OC}_2\text{H}_5$ (propyl propano)



4. Uses of Ethylene oxide.

- It is used as an intermediate in the production of ethylene glycol.

- It is used to produce nonionic emulsifying agents, plastics, ~~monomers~~ plasticizer and several synthetic textiles.

- It is also used as a gaseous sterilizing agent.