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Matricno: 19/MHS06/003

Dept: Medical laboratory Science

Course: CHM 102

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

$(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ — Butoxymethane

$\text{CH}_3\text{CH}_2\text{OCH}_3$ — Methoxyethane

$\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ — Ethoxypropane

2. Discuss the properties of Ethers.

* Reactivity: Ethers are inert at moderate temperature.

* Physical states: At room temperature, ethers are colourless, neutral liquids with pleasant odours.

* Boiling point: Ethers have low boiling point than the corresponding alcohols.

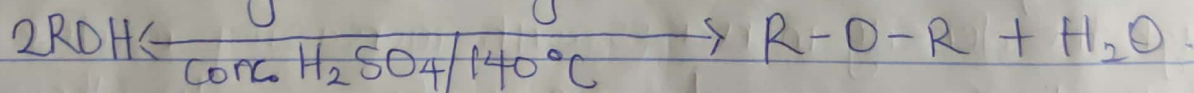
* Density: Simple ethers are less dense than water, although the density increases with increasing relative molecular mass and some of the aromatic ethers are in fact denser than water.

* Solubility: Ethers are less soluble in water than the corresponding alcohols.

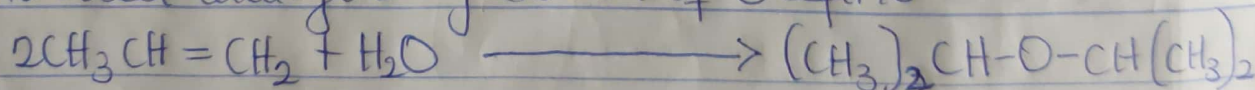
3. Discuss explicitly two methods of preparing ethers and show equations of reaction.

i) Partial dehydration of alcohols.

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



ii) Controlled catalytic hydration of Olefins.



4. State three uses of ethylene oxide.

- i. Ethylene oxide is used as a gaseous sterilizing agent.
- ii. It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.
- iii. It is used in the preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetic textiles.