

CHM 102 Assignment

Name
Dept
Course
code
MATRIC
NO:

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NURSING

CHM 102

19/MHS02/051

1. Give the IUPAC names of the following organic compounds

$\text{CH}_3\text{OCH}_3 \rightarrow$ Methoxymethane

$\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3 \rightarrow$ Ethoxyethane

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

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

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

2. Discuss the properties of Ethers

- PHYSICAL STATE

Ethers are colourless, neutral liquids with pleasant odours at room temperature. Low aliphatic ethers are highly flammable gases.

- BOILING POINT

The boiling point of ethers is comparable to alkanes. It is much lower compared to that of alcohols of comparable molecular mass. Ether molecules are miscible in water. The oxygen atom of ether can also form hydrogen bonds with a water molecule.

- DENSITY

Simple ethers are less dense than water, though some of the aromatic ethers are in fact denser than water.

- REACTIVITY

Ethers are inert at a moderate temperature, which leads to their wide use as reaction media.

- SOLUBILITY

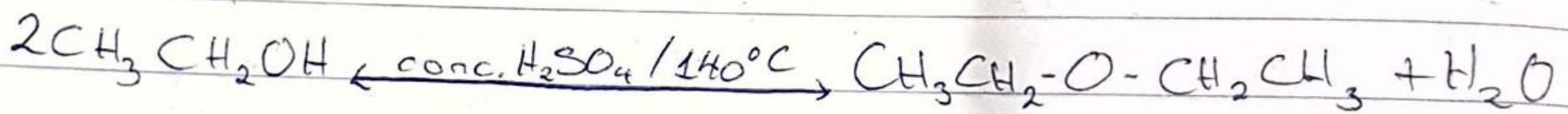
Lower ethers (up to three carbon atoms) are soluble in water because they form hydrogen bond with water molecules. The solubility of ethers in water decreases with increase in mass because the hydrocarbon part becomes larger and resists the formation of hydrogen bonds with water molecules.

3 Two METHODS OF PREPARING ETHERS

- Partial Dehydration of Alcohols

By catalytic dehydration, simple ethers are manufactured from alcohols. With the alcohol in excess and concentrated tetraoxo-sulphate(VI) acid is heated at a carefully maintained temperature of 140°C . This process is known as continuous etherification.

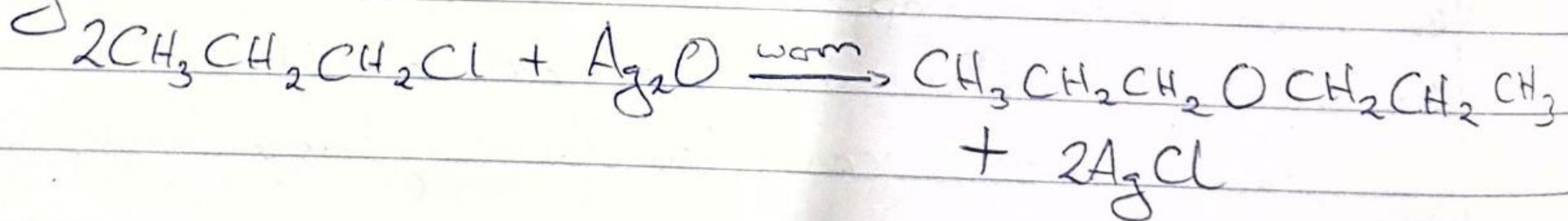
E.g



- From Haloalkanes and dry silver (I) oxide

Vigorous shaking of haloalkane with dry silver oxide produces an ether and precipitates out silver halide.

E.g



4 THREE USES OF ETHYLENE OXIDE

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