

ORKE A ANCBANJI 24K001DE

# 19 (MHS 01 / 311

CHEM 102

TUPAC NAMES

1  $\text{CH}_3\text{OCH}_3$  - Methoxy methane

$\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$  - Ethoxy ethane

~~CH~~  $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$  - Butoxy butane

$\text{CH}_3\text{CH}_2\text{OCH}_3$  - Methoxy ethane

$\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$  - Ethoxy propane

2 Properties of Ethers

- Physical states

At room temperature they are colorless, neutral liquids with pleasant odours. However aliphatic ethers are highly flammable and gases volatile.

- Density

The Density of ethers increases with ~~the~~ increase in Relative Molecular Mass. Most simple ethers are less dense than water.

### - Solubility

They are less soluble in water than the corresponding alcohols. Increase in hydrocarbon content of molecules ~~increases~~ decrease solubility.

### - Boiling point

Low molecular mass ethers have a lower boiling point than the corresponding alcohol.

### - Reactivity

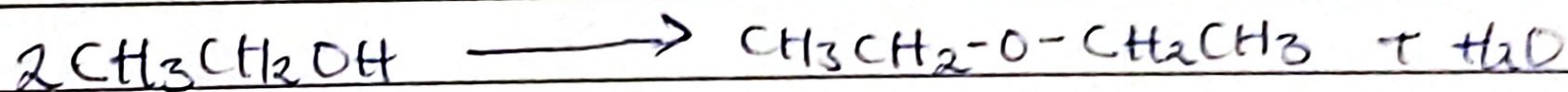
They are inert at moderate temperature.

### 3 Preparation of ethers

#### (a) Partial dehydration of alcohol

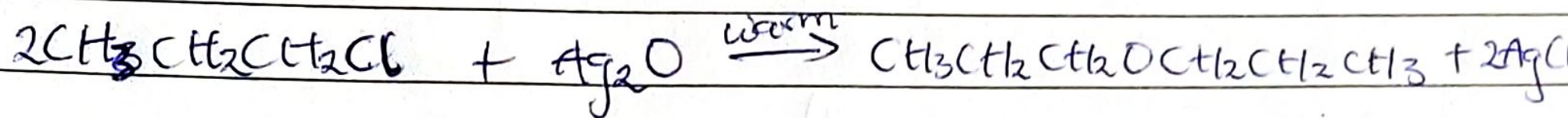
Alcohols form simple ethers by catalytic dehydration.

The alcohol is in excess & with the  $H_2SO_4$  conc. It is heated carefully at  $140^\circ C$



b From Haloalkanes & Dry silver (I) oxide

This is like a displacement reaction. Oxygen is displaced by the halogen element. The oxygen reacts with the alkane to form an ether.



4 Uses of Ethylene Oxide

- It is used as a gaseous sterilizing agent.
- It is used in the preparation of nonionic emulsifying agent, plastics etc.
- It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.