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# DEPARTMENT: PHARMACY

# COURSE: CHEMISTRY

# MATRIC. NO: 19/MHS11/130

## CHEMISTRY ASSIGNMENT.

## IUPAC NAMES:

## CH3OCH3- Methoxymethane

## CH3CH2CH2OCH2CH3- Ethoxyethane

## CH3CH2CH2(H2)2O-

## CH3CH2OCH3- Ethymethyl ether

## CH3CH2CH2OCH2CH3- Ethylpropyl ether(1-Ethoxypropane)

## a. Physical state

## At room temperature, ethers are colourless, neutral liquids with pleasant odour. The lower aliphatic ethers are highly flammable gases

## b. Solubility

## Ethers are less soluble in water than are the corresponding alcohol. Lower molecular weight ethers such as methoxymethane and methoxyethane are fairly soluble in water since the molecules are able to form hydrogen bonds with the water molecules but as the hydrocarbon content of the molecules increases, there is a rapid decline in solubility. They are miscible with most organic solvents

## c. Density

## Most of the simple ethers are less dense than water, although the ensity increases with the increasing relative molecular mass and some of the aromatic ethers are in fact denser than water.

## d. Boiling point

## Lower molecular mass ethers have lower boiling point than the corresponding alcohol but those etherscontaining alkyl radicals larger than four carbon atoms, the reverse is true. The boiling points of ethers tend to approximate those of hydrocarbon of same molecular mass from which it can be conducted that the molrcules are not associated In the liquid phase as there are no suitably available hydrogen for association through hydrogen bonds

## Reactivity

## Ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media. Simple ethers are not found commonly in nature but the linkage is present in such natural products as sugars, starches and cellulose.

## Preparation of ethers a. partial dehydration of alcohol

## Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concerntrated tetraoxosulphate(vi) acid is heated at a maintained temperature of 140°C. the process is known as continuous etherification if excess alcohol is not used, the temperature is as high as 170°C- 180°C, further dehydration to yield alkene occurs

## Conc.H2SO4/140°C

## 2ROH ←----------→ R-O-R + H2O

## Examples;

Conc.H2SO4/140°C

## 2CH3CH2CH2CL + Ag2O ----------→ CH3CH2-O-CH2CH3+ H2O

### b. From haloalkanes and dry silver(I) oxide

WARM

## 2RX + Ag2O ----------------→ **R-O-R +2AgX**

**WARM**

## 2CH3CH2CH2Cl + Ag2O -------------→ **CH3CH2CH2OCH2CH2CH3 + 2AgCl propoxypropane**

## a. Thylene oxide is uaually as an intermediate in the hydrolytic manufacture of ethylene glycol.

## b. Ethylene oxide is used in the preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetic textiles.

## c. Ethylene oxide is used as a gasous sterilizing agent.

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