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**COLLEGE: MEDICINE AND HEALTH SCIENCES MATRIC NO: 19/MHS11/111**

**CHM 102 ASSIGNMENT**

1. **IUPAC NAMES OF ORGANICCOMPOUNDS.**

CH3OCH3– Methoxymethane CH3CH2OCH2CH3– Ethoxyethane (CH3CH2CH2CH2)2O– Butoxymethane CH3CH2CH2OCH2CH3– Ethoxypropane

# PROPERTIES OFETHERS

* 1. **Physical states**: at room temperature, ethers are colorless, neutral liquids with pleasant odors. The lower aliphatic ethers are highly flammable gases or volatileliquids.
  2. **Solubility**: ethers are less soluble in water than are the corresponding alcohols. Lower molecular weight ethers such as methoxyethane are fairly soluble in water since the molecule are able to form hydrogen bonds with the water molecules but as the hydrocarbon content of the molecules increases, there is a fast decline in solubility. They are miscible with most organicsolvents.
  3. **Reactivity**: ethers are inert at moderate temperature. Their inertness atmoderatetemperaturesleadstotheirwideuseasreactionmedia.
  4. **Density**: most of the simple ethers are less dense than water, although the density increases with increasing relative molecular massandsomeofthearomaticethersareinfactdenserthanwater.
  5. **Boiling point**: low molecular mass ethers have a lower boiling point than the corresponding alcohols but those ethers containing alkyl radicals larger than four carbon atoms, the reverse is the case. The boiling point of ethers tends to be almost the same with those of hydrocarbons of some relativemolecular mass from which it can be

concluded that the molecules are not associated in the liquid phase as there are no suitably available hydrogen for association through hydrogen bonds.

# PREPARATION OFETHERS.

* 1. **Partial dehydration of alcohols:** simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concentrated tetraoxosulphate(vi) acid is heated at a carefully maintained temperature of 1400c. this process is known as continuous etherification. If excess alcohol is not used, the temperature is as high as 170-1800c. further dehydration to yield alkeneoccurs.

# Equation for the reaction:

2ROH conc. H2SO4/1400cR-O-R + H2O

Example

2CH3CH2OH conc. H2SO4/1400cCH3CH2-O-CH2CH3 + H2O

# From haloalkanes and dry silver (I)oxide

Equation for the reaction:

2RX + Ag2O warmR-O-R + 2AgX

Example:

2CH3CH2CH2Cl + Ag2O warmCH3CH2CH2OCH2CH2CH3 + 2AgCl

Propoxypropane

# Uses of ethyleneoxide

1. Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethyleneglycol
2. Ethylene oxide is used in the preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetictextiles
3. Ethylene oxide is used as a gaseous sterilizingagent