

ELEMSON BOMA JESSE

HUMAN ANATOMY

19/MHS03/003

CHM 102 ASSIGNMENT ON ETHERS

1. GIVE THE IUPAC NAME OF THE FOLLOWING ORGANIC COMPOUNDS

- [A] CH_3OCH_3 ----- Methoxymethane
- [B] $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ ----- Ethoxyethane
- [C] $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ ----- Buthoxymethane
- [D] CH_3CH_2 ----- Ethylmethyl
- [E] $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ ----- Ethoxypropane

2. PROPERTIES OF ETHERS

- A. REACTIVITY: Ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media
- B. PHYSICAL STATES: At room temperature, ethers are colorless, neutral liquids with pleasant odours. The lower aliphatic ethers are highly flammable gases or volatile liquids.
- C. DENSITY: Most of the simple ethers are less dense than water, although the density increases with increasing molecular mass and some of the aromatic ethers are in fact denser than water.
- D. BOILING POINT: Low molecular mass ethers have a lower boiling point than the corresponding alcohols but these ethers containing alkyl radicals larger than four carbon atoms, the reverse is true.
- E. SOLUBILITY: Ethers are less soluble in water than the corresponding alcohols. They are miscible with most organic solvents.

3. TWO METHODS OF PREPARING ETHERS WITH CHEMICAL REACTIONS

- A. 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 140°C . This process is known as continuous

etherification. If excess alcohol is not used, the temperature is as high as 170-180°C, further dehydration to yield alkene occurs.



EXAMPLES



- B. **CONTROLLED CATALYTIC HYDRATION OF OLEFINS:** This is done under controlled temperature, whereby the production of ether is by hydration and etherification of olefinic feedstock containing at one lower alkene by contacting the olefinic feedstock and water in a plurality of catalytic reaction zones containing porous solid metal oxide acidic olefin hydration and etherification catalyst under olefin hydration and etherification conditions.



2-isopropoxypropane

4. USES OF ETHYLENE OXIDE

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