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Nursing

19/MHS02/037

CHM 102.

1. GIVE THE IUPAC NAMES OF THE FOLOWING:
* CH3OCH3-----**Methoxymethane.**
* CH3CH2OCH2CH3-----**Ethoxyethane.**
* (CH3CH2CH2CH2)2O----**Butoxymethane.**
* CH3CH2OCH3----**Methoxyethane.**
* CH3CH2CH2OCH2CH3----**Ethoxypropane.**
1. PROPERTIES OF ETHERS:
* DENSITY: Most ether is less dense with water, although density increases with increasing molecular mass and some aromatic ethers are denser than water.
* REACTIVITY: Ethers are inert at moderate temperature. Their moderate temperature leads to their wide use as reaction media.
* BOILING POINT: Low mass ethers have a lower boiling point than the corresponding alcohols but the ethers contain alkyl radicals larger than four carbon atoms, the reverse is true.
* SOLUBILITY: Ethers are less soluble in water. Lower molecule ethers such as **METHOXYMETHANE & METHOXYETHANE** are fairly soluble in water since the molecules are able to form hydrogen bonds.
* PHYSICAL STATES: At room temperatures, ethers are colorless, neutral liquids with pleasant odors. The lower aliphatic ethers are highly flammable gases or volatile liquids.
1. TWO METHODS OF PREPARING ETHER WITH EQUATION OF REACTION ARE;
* CONTROLLED CATALYTIC HYDRATION OF OLEFINS

**2CH3CH=CH + H20 (CH3)2CH-O-CH(CH3)2**

**2-isopropoxypropane**

* PARTIAL DEHYDRATION OF ALCOHOLS: Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and CONC H2SO4 is heated at a carefully maintained temperature of 140 ͦ C.

 Conc.H2SO4/140 ͦ C

2ROH R-O-R + H20

 Conc. H2SO4/140 ͦ C

eg: 2CH3CHOH CH3CH2-O-CH2CH3 +H2O.

1. THREE USES OF ETHYLENE OXIDE ARE:
* It is used in preparation of nonionic emulsifying agents, plastics, and several synthetic textiles.
* It is used as a gaseous sterilizing agent.
* It is used in the hydroxylic manufacture of ethylene glycol.