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DEPARTMENT:NURSING

COURSE CODE: CHM 102

ASSIGNMENT

QUESTIONS

1. Give the IUPAC names of the following organic compounds

CH3OCH3 CH3CH2OCH2CH3 (CH3CH2CH2CH2)2O CH3CH2OCH3 CH3CH2CH2OCH2CH3

1. Discuss the properties of ethers
2. Discuss explicitly two methods of preparing ethers and show equations of reaction
3. State three uses of ethylene oxide

ANSWERS

* Methoxymethane
* Ethoxyethane
* Pentanamide
* Methoxyethane
* Ethoxypropane

2. General properties

a. physical states: Ethers are colorless, neutral liquid with pleasant odors at room temperature. Meanwhile, the lower aliphatic ethers are highly flammable gases or volatile liquids.

b. Density: majority of the simple ethers are less dense than water, although the density of ethers increases with increasing relative molecular mass and some of the aromatic ethers are in fact denser than water.

c. 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 true.

3. PREPARATION OF ETHERS

a. Controlled catalytic hydration of olefins

2CH3CH=CH2 + H2O 🡪 (CH3)2CH-O-CH(CH3)2

2-Isoproproxypropane

b. From Haloalkanes and dry silver(1) oxide

2CH3CH2CH2Cl + Ag2O + warm🡪 CH3CH2CH2OCH2CH2CH3 + 2AgCl

Propoxypropane

4. Uses of Ethylene Oxide

a. Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol

b. it is also used in the preparation of nonionic emulsifying agent, plastics, plasticizers and several synthetic textiles

c. it is also used as a gaseous sterilizing agent.