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COURSE: CHEM 102
DEPARTMENT: MEDICINE AND SURGERY
DATE: MONDAY 13TH APRIL 2020

ANSWERS

1) $CH_2OCH_3$ : Methoxymethane
2) $CH_3CH_2OCH_2CH_3$ : Ethoxyethane
3) $CH_3CH_2OCH_3$ : Ethoxymethane
4) $CH_3CH_2CH_2OCH_2CH_3$ : Ethoxypropane
5) $(CH_3CH_2CH_2CH_2)_2O$ : Butoxymethane

PROPERTIES OF ETHERS

1) Physical state: Ethers are colourless, neutral liquid with pleasant odours at room temperature, lowers aliphatic ethers are highly flamable gas or volatile liquids

2) Solubility: Ethers are less soluble in water than corresponding alcohols lower molecular ethers are fairly soluble in water

3) Boiling point: lower molecular mass ethers have a bigger boiling point than corresponding alcohols while ethers containing alkyl radicals larger than four carbon atoms have a higher boiling point

4) Reactivity: ethers are reactively at moderate temperature and such leads to their wide use as ~~reactive~~ reactive media.

Density: Increases with increasing relative molecular mass. Simple ethers are less than water

4) Uses of ethylene Oxide

(1) As a gaseous sterlizing agent
(2) As an intermediate in the hydrolytramanufsatin of ethylene glycols.
(3) Used in the manufacture of products like polyethylene glycol

3) Two methods of prepering ethers and their equations of reactions.

1) Partical delayelrogamation of alcohols: Simple ethers are prepared by catalytic dehydration of manufacturer alcohols by a process called esterfication in excess alcohols or high temperature as high as C170-180°C

$$2C_2H_5CH_2OH \xrightarrow[140^\circ C]{\text{conc } H_2SO_4} CH_3CH_3-O-CH_2CH_3 + H_2O$$

2) From haloalkanes and dry silver (I) oxide: Ethers can be prepared by heating haloalkanes with dry silver oxide

$$2CH_3CH_2CH_2Cl + Ag_2O \longrightarrow CH_3CH_2CH_2OCH_2CH_2CH_3 + 2AgCl$$