

EKPOLO-EKLOMAZINDO-ESTHER.  
19/11/2020  
NURSING  
MEDICINE AND HEALTH SCIENCES  
CHEM 102.

Give the IUPAC name of the following organic compounds

- (a)  $\text{CH}_3\text{OCH}_3 \Rightarrow$  methoxy methane.
- (b)  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3 \Rightarrow$  ethoxy ethane.
- (c)  $[\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2]_2\text{O} \Rightarrow$  Butoxy methane.
- (d)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3 \Rightarrow$  Ethoxy propane.
- ~~(e)  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3 \Rightarrow$~~
- (f)  $\text{CH}_3\text{CH}_2\text{OCH}_3 \Rightarrow$  methoxy ethane.

② Discuss the properties of ethers

① Physical states & Simple ethers are colorless, neutral liquid with pleasant odors while the Aliphatic ethers are flammable gases or volatile liquids.

② Solubility & Ethers are less soluble than other alcohols. The lower ethers such as methoxy methane ( $\text{CCH}_3\text{OCH}_3$ ) and methoxy ethane ( $\text{CCH}_3\text{CH}_2\text{OCH}_3$ ) are fairly soluble.

③ Density & Ethers are <sup>less</sup> denser than water.

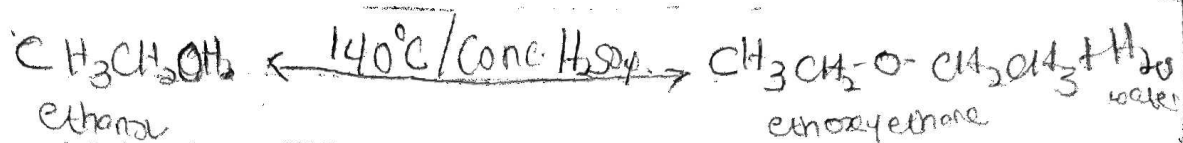
④ Boiling points & low molecular mass ethers have lower boiling points than the corresponding alcohols. The molecules are not in the liquid phase as there are no suitably available hydrogen for association through hydrogen bonds.

⑤ Reactivity & ethers are inert at moderate temperature which lead to their used as reaction media.

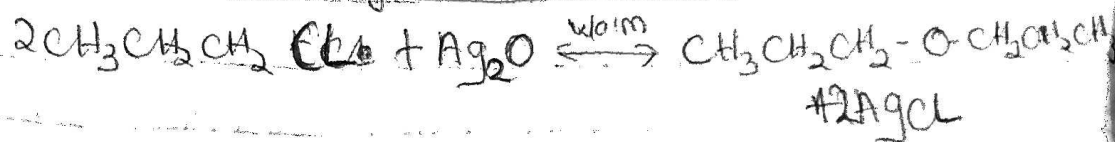
3) Discuss explicitly two methods of preparing ethers and show equations of reaction.

Answer:

Partial dehydration of Alcohols & ethers are produced from Alcohols by catalytic dehydration. Alcohols when <sup>heated</sup> placed in excess concentrated tetraoxosulphate (VI) acids <sup>[H<sub>2</sub>SO<sub>4</sub>]</sup> produces At a temperature of 140°C produces ethers. This process is known as etherification. But when the conc. tetraoxosulphate (VI) is not used then the temperature must be raised to 170°C - 180°C.



(2) From Haloalkanes and dry silver oxide.



① State three uses of ethylene oxides.

① Ethylene oxides is used as an intermediate in the hydrolytic manufacture of ethylene glycol.

② Ethylene oxides is used as a gaseous sterilizing agents.

③ ethylene oxide is used in the preparation of Nonionic emulsifying agents, plastic, synthetic textiles and plasticizers.