

Name: OKWUOKWU BRYAN COURSE: CHEM 102

MATRIC NO: 19/ENCL05/049 Dept.: Mechatronics

- ① a) CH_3OCH_3 - Methoxymethane
- b) $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxyethane
- c) $[\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2]_2\text{O}$ - Pentanamide
- d) $\text{CH}_3\text{CH}_2\text{OCH}_3$ - Methoxyethane
- e) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxypropane

② General Physical Properties

a) Physical State; At room temperature, they are colorless, neutral liquids with pleasant odours.

b) Solubility; Ethers are less soluble in water than are the corresponding alcohols. They are miscible with most organic solvents.

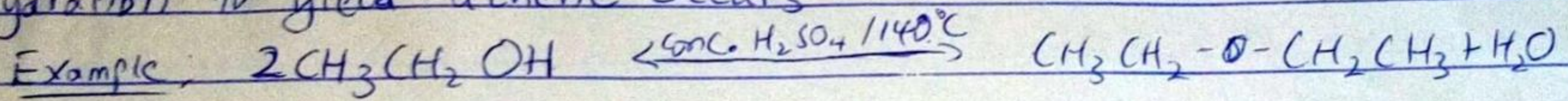
c) Density; Most simple ethers are less dense than water, but density increases with relative molecular mass and some aromatic ethers are in fact denser than water.

d) Boiling Point; Low molecular mass ethers have a lower boiling point than the corresponding alcohols but those ethers containing alkyl radicals larger than four carbon atoms, the reverse is true.

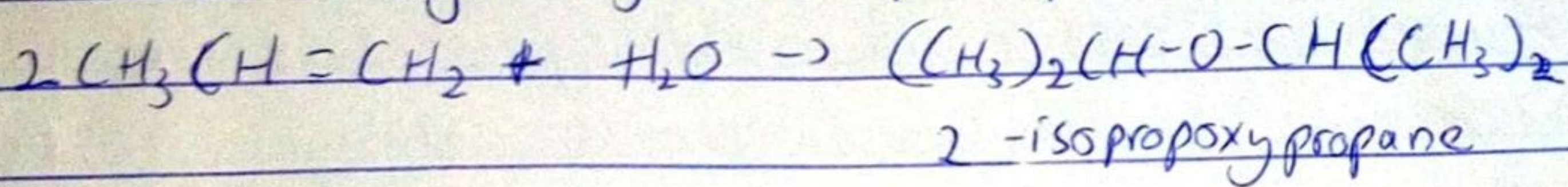
e) Reactivity; Ethers are inert at moderate temperature.

③ (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 $170-180^{\circ}\text{C}$, further dehydration to yield alkene occurs.



(b) Controlled Catalytic hydration of olefins



④ (a) Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol.

(b) Ethylene oxide is used in the preparation of plastics, plasticizers and several synthetic textiles.

(c) Ethylene oxide is used as a gaseous sterilizing agent.