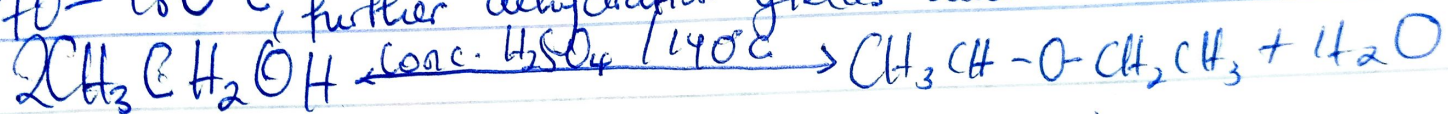


e.) Reactivity: Ethers are inert at moderate temperature. The ~~too~~ inertness at moderate temperatures leads to their wide use as reaction media.

3.) - Partial dehydration of alcohols

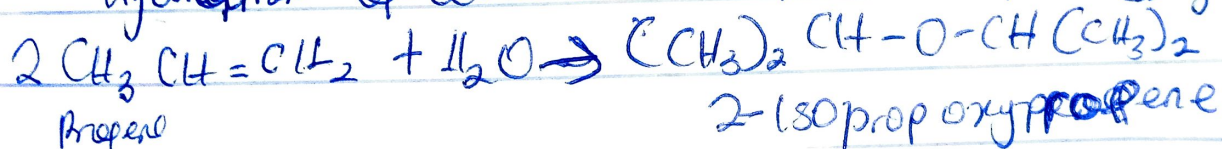
Excess alcohol and concentrated H_2SO_4 is heated at a carefully maintained temperature of $140^\circ C$. This process is called etherification.

If excess alcohol is not used, the temperature is ~~as~~ as high as $170-180^\circ C$, further dehydration yields alkenes



- Controlled catalytic hydration of alkenes (alkenes)

Hydration of alkenes in the presence of a catalyst yield ethers.



4.) - It is used as a gaseous sterilizing agent.

- It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.

- It is used in the preparation of non-ionic emulsifying agents, plastics, plasticizers and several synthetic textiles.

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- 1.) - CH_3OCH_3 :- Methoxymethane
- $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$:- ethoxy ethane
- $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$:- butoxymethane
- $\text{C}_2\text{H}_5\text{OCH}_3$:- methoxy ethane
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$:- ethoxy propane

2a) Physical properties:- At room temperature ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers are highly flammable gases or volatile liquids.

b) Solubility :- Ethers are less soluble in water than alcohol. Lower molecular weight ethers are fairly soluble in water since the molecules are able to form hydrogen bond with the water molecules, but as the hydrogen content of the molecules increases, there is a decrease in solubility.

c) Density:- Most of the simple ethers are less dense than water, although the density increases with increasing relative molecular mass and some of the aromatic ethers are denser than water.

d) Boiling point:- Low molecular mass ethers have a lower boiling point than alcohols, but reverse is the case for ethers containing alkyl radicals ~~for~~ larger than four carbon atoms. The boiling point of ethers tend to approximate those of hydrocarbons of same molecular mass.