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Course: CHM 102

Assignment

- 1 Give the IUPAC of the following organic compounds
- CH_3OCH_3 — Methoxymethane
 - $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ — Ethoxyethane
 - $(\text{C}_4\text{H}_9)_2\text{O}$ — Butoxybutane
 - $\text{CH}_3\text{CH}_2\text{OCH}_3$ — Methoxyethane
 - $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ — Ethoxypropane

General Properties

2 Physical state:— At room temperature, ethers are colourless, neutral liquids with pleasant odours. The lower aliphatic ethers are highly flammable gases or volatile liquid.

Solubility:— Ethers are less soluble in water than are the corresponding alcohols. Lower molecular weight ethers such as methoxymethane are fairly soluble in water since the molecule are able to form hydrogen bonds with water molecules but as the hydrocarbon content of the molecules increases, there is rapid decline in solubility.

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 ether are in fact denser than water.

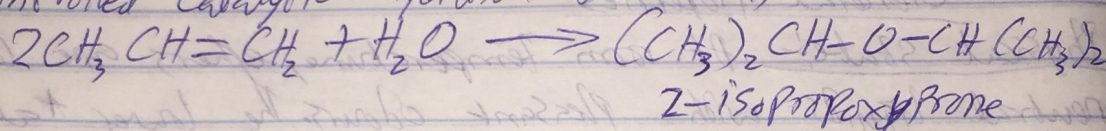
Boiling point:— Low molecular mass ethers have a lower boiling point than the corresponding alcohols but those ethers containing alkyl radicals larger than four carbon atoms, the reverse is true. The boiling point of ethers tend to approximate those of hydrocarbons of same relative molecular mass from which it can be concluded that the molecules are not associated in the liquid phase as there are no

Suitably available hydrogen for association through hydrogen bonds.

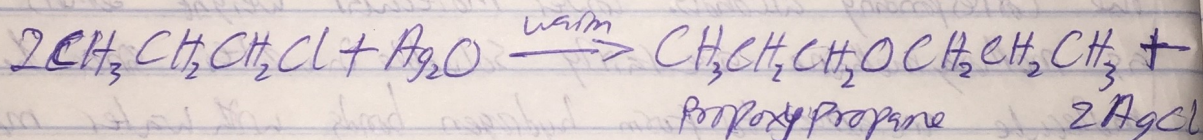
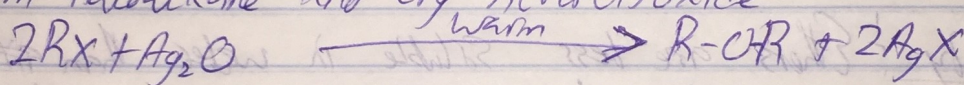
Reactivity of Ethers are inert at moderate temperatures. Their inertness at moderate temperatures lead to their wide use as reaction media.

Simple ethers are not found commonly in nature but the ether linkage is present in such natural products as sugars, starches and cellulose.

3- Controlled Catalytic hydration of olefins



- from Haloalkane and dry silver(I) oxide



4- Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol

- Ethylene oxide is used in the preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetic textile

- Ethylene oxide is used as a gaseous sterilizing agent