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COURSE: CHEM 102

IUPAC NAME

1. a) CH_3OCH_3 - methylmethane
- b) $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxymethane or Diethyl ether.
- c) $(\text{CH}_3\text{CH}_2\text{CH}_2\text{O})_2\text{CH}_2$ - Butoxymethane
- d) $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - ~~Ethyl methyl ether~~ methoxyethane
- e) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - ~~Ethyl propyl ether~~ ethoxypropane

2) Physical Properties of Ethers:

1. No other molecule has a net dipole moment. We can polarise of C-O bonds. They are slightly polar.

2. THE BOILING POINT of ethers is comparable to the alcohols. However, it is much lower compared to that of alcohols of comparable molecular mass.

3. The miscibility of ethers with water resembles those of alcohols.

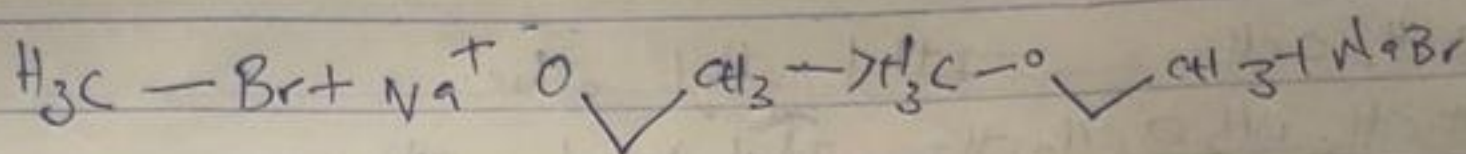
4. The solubility decreases with increase in the number of carbon atoms.

Note: Ether molecules cannot form hydrogen bonds with each other, results resulting in relatively low boiling point.

5. Ethers are good organic solvents.

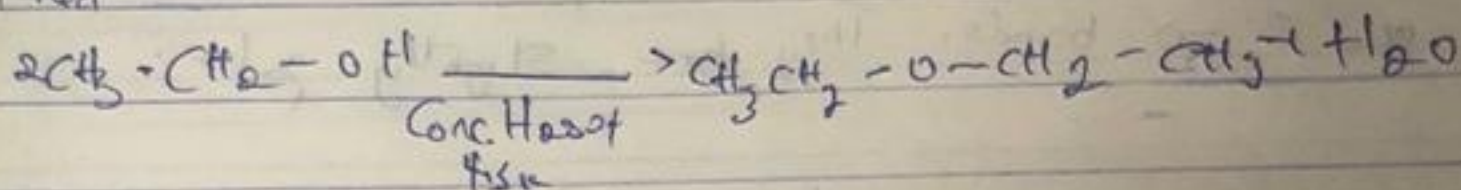
3. William - ether synthesis

Ethers can be made or synthesized using a method discovered by Alexander Williamson, which is aptly named the William - ether synthesis. In this process, an alkoxide ion (an alcohol with the hydrogen removed) reacts with an alkyl halide (a hydrogen attached to a hydrocarbon). This is also called substitution reaction because the alkoxide ion replaces the halogen.

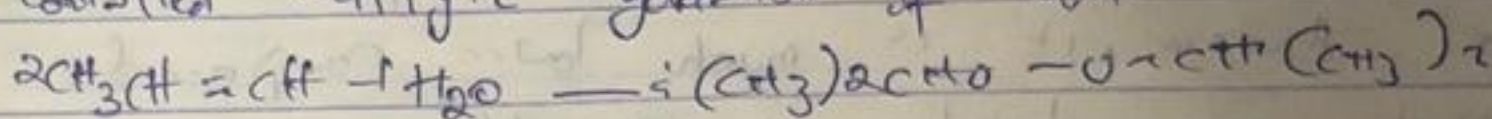


6) Preparation of ethers by dehydration of alcohols.

When alcohols are treated with conc. H_2SO_4 at 413K , ethers (ROR') are formed.



Controlled catalytic hydration of olefins



Isopropoxypropane

4) ~~uses~~ uses of ethylene oxide.

- Ethylene oxide is used as an intermediate in the hydroxylic manufacture of ethylene glycol.
- Ethylene oxide is used in the preparation of nonionic emulsifying agents, plastics, plasticizers, and several synthetic textiles.
- Ethylene oxide is used as a gaseous sterilizing agent.