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MBBS (MEDICINE AND HEALTH SCIENCES)

CHM 102

19/MHS01/059

D) IUPAC NAMES

CH_3OCH_3 - Methoxymethane / Dimethyl ether

$\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - diethyl ether / ethyl methyl ether

$(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ -

$\text{CH}_3\text{CH}_2\text{OCH}_3$ - Methoxyethane

$\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxyethane / Diethyl ether

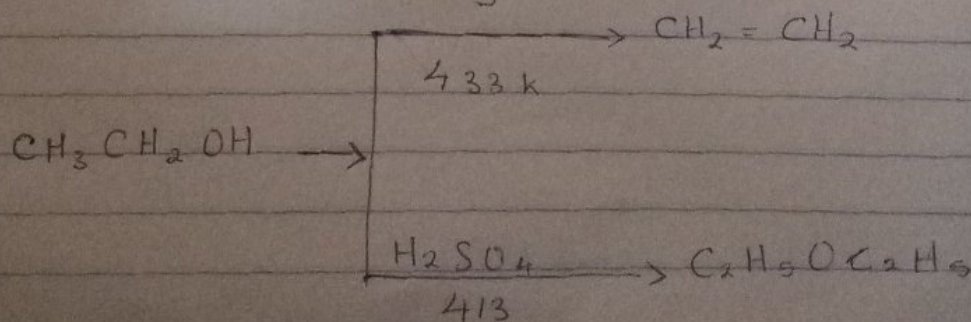
2) An ether molecule has a net dipole moment, it also has polarity of C-O bonds

The miscibility of ethers in water resemble those of alcohols

Ether molecules are miscible in water

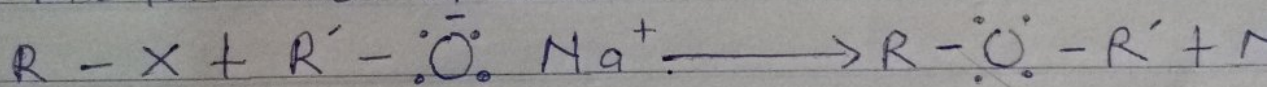
The boiling point of ether is comparable to alkanes

(3) Dehydration of Alcohols:- In the presence of protic acids (Sulphuric acid), alcohols undergo dehydration to produce alkenes and ethers under different conditions. For Example:- In the presence of Sulphuric acid, dehydration of ethanol at 433K yields ethene whereas it yields ethoxyethane at 413K. This is an ideal method of preparation through primary alcohols.



The preparation of ethers by dehydration of alcohols is a nucleophilic substitution reaction. The alcohol involved in reaction plays two roles one molecule as a substrate which the other acts as a nucleophile. It can follow either an S_N1 or S_N2 mechanism. Secondary and tertiary alcohols follow the S_N1 mechanism while primary alcohols follow the S_N2 mechanism.

* Williamson Synthesis :- This is an important method for the preparation of symmetrical and asymmetrical ethers in laboratories. In this method, an alkyl halide reacts with sodium alkoxide to give ether.



3) Ethylene Oxide is used as gaseous sterilizing agent.

* It is used in the preparation of nonionic emulsifying agent.

* It is used as an intermediate in the hydrolytic synthesis of glycol.