

Chem 102
 Name: Middle - Duanqi - Anomide Beifeng
 Department: Nursing
 Course: Chem 102

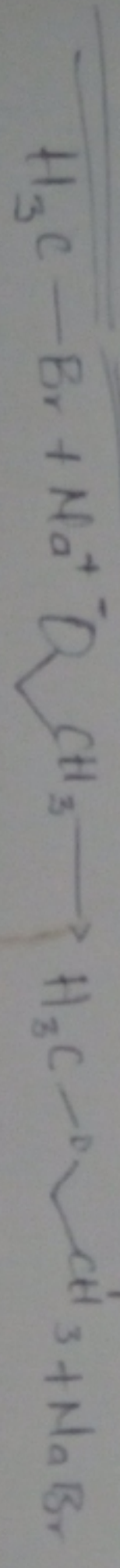
1. (a) CH_3OCH_3 IUPAC NAME
 Methoxymethane
 (b) $\text{C}_2\text{H}_5\text{CH}_2\text{OC}_2\text{H}_5$ IUPAC NAME
 Ethoxyethane or Diethyl ether
 (c) $\text{C}_4\text{H}_9\text{O}$ IUPAC NAME
 Butoxyethane
 (d) $\text{CH}_3\text{CH}_2\text{OCH}_3$ IUPAC NAME
 Ethyl methyl ether
 (e) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ IUPAC NAME
 Ethyl propyl ether

2. Physical Properties of Ethers.

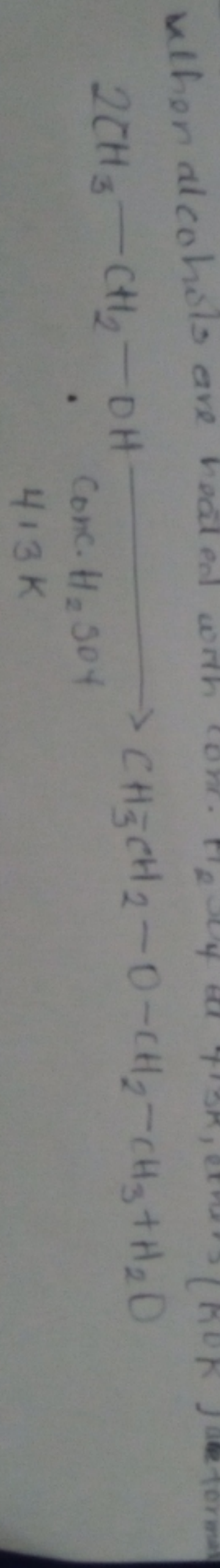
1. An ether molecule has a net dipole moment. We can attribute this to the POLARITY of C-O bonds. They are slightly polar.
 2. The Boiling Point of ethers is comparable to the alkanes. However, it is much lower compared to that of alcohols of comparable MOLECULAR MASS.
 3. The miscibility of ethers with 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, whereas 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 Williamson 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.



(b) Preparation of ethers by dehydration of alcohols.



4. uses of ethylene oxide.

1. It is used as a raw material for industrial manufacture of ethylene glycol.
2. It is used as a fumigant for foods and textile.
3. It is also used as a sterilant for medical equipment.