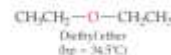
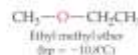


Ethers

I.5

Ethers

- Compounds with two organic groups bonded to the same oxygen atom.
- Ethers are named by identifying the two organic groups and adding the word ether.
- Compounds containing oxygen in a ring are classified as cyclic ethers and are often given common names.



Ethers

- Ethers are slightly polar but do not hydrogen bond to one another.
- Trends in boiling points (Similar MW)

Ethers: names

- Common names for ethers consist of the names of the two groups attached to the O listed in alphabetical order (or size) and followed by 'ether'. Each part is a separate word. Name:

Ethers: names

- The IUPAC names for ethers are based on the alkane name of the longest chain attached to the O. The shorter chain is named as an alkoxy substituent. (alkane with the *ane* replaced by *oxy*, eg. $\text{CH}_3\text{CH}_2\text{O}$ =ethoxy)
- Thus $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{-O-CH}_3$



- An -OR group is known as an alkoxy group. -OCH₃ is a methoxy, -OCH₂CH₃ is a ethoxy group, and so on. These names are used when the ether functional group is present in a compound that also has other functional groups.

Ethers: uses

- Ethers do not form hydrogen bonding to one another. As a result they have lower boiling point than alcohols.
 - The ether oxygen can form hydrogen bonding with water, causing low molecular weight ethers water soluble. Ethers with large organic groups are water insoluble.
 - Simple ethers are highly flammable solvents.
 - Ethers are not reactive towards acids, bases, and many other common laboratory reagents.
- Ethers are often used as anesthetics.