

Alcohols

Alcohols: a hydrocarbon with a hydroxyl group attached.

General Formula: ROH where R is an alkane

Naming Alcohols

Ex 1. CH₃OH - methanol

Prefix – meth – how many carbons

Middle – an – derived from an alkane

Ending – ol – for alcohol

The name may have a number in front of it. This tells you where the hydroxyl group is attached.

Ex 2. 1-propanol

2-propanol

Properties of Alcohols

The hydroxyl group creates the ability for alcohols to hydrogen bond. This gives them much higher melting and boiling points than similar sized alkanes.

Ex B.P. ethanol = 78 °C

ethane = -89 °C

Because of London Dispersion forces, the longer the alcohol, the higher the boiling point.

Alcohols are soluble both in polar and non-polar substances

Alcohols also undergo complete combustion reactions like alkanes.

Ex 1-propanol

Ethers

Ether: Made from a condensation reaction with two alcohols. Have an O atom bonded to 2 C atoms.

General Formula: ROR

Ex 1. Methoxyethane

Naming Ethers

Prefix – Meth – from smallest alkyl group (hydrocarbon)

Middle – oxy – for ether

End – ethane – alkane name of larger alkyl group.

Ex 2. propoxybutane

Properties of Ethers

Since there are no O-H bonds, ethers can't H-bond.

Since are polar O-C bonds, ethers have slightly higher M.P. and B.P. than alkanes.

Ethers readily mix with both polar and non-polar substances.