

Assignment on Esters

- 1) Give the IUPAC names of the following organic compounds
- ∞ CH_3OCH_3 - Methoxymethane
 - ∞ $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxyethane
 - ∞ $\text{C}_6\text{H}_5\text{OCH}_2\text{CH}_3$ - Ethoxybenzene
 - ∞ $\text{CH}_3\text{CH}_2\text{COCH}_3$ - Butoxy methane
 - ∞ $\text{CH}_3\text{CH}_2\text{COCH}_2\text{CH}_3$ - Methoxy ethane
 - ∞ $\text{CH}_3\text{CH}_2\text{COCH}_2\text{CH}_2\text{CH}_3$ - Ethoxy propane

- 2) Discuss the properties of esters
- Physical states: At room temperature esters are colourless, neutral liquids with pleasant odours. The lower aliphatic esters are highly flammable gases or volatile liquids.
- 3) Solubility: Esters are less soluble in water than the corresponding alcohols. Lower molecular weight esters such as methoxymethane and methoxyethane are fairly soluble in water since the molecule are able to form hydrogen bonds with the water molecules but as the hydrocarbon content of the molecules increases, there is a rapid decline in solubility. They are miscible with most organic solvents.
- 4) Density: Most of the simple esters are less dense than water, although the density increases with increasing relative molecular mass and some of the aromatic esters are in fact denser than water.
- 5) Boiling point: Low molecular esters have a low boiling point than the corresponding alcohols but those esters containing alkyl radicals larger than four carbon atoms, the reverse is true. The boiling points of esters tend to approximate those of hydrocarbons of same relative molecular mass from which it can be concluded that the molecules are not associated in the liquid phase as there are no suitably available hydrogen for association through hydrogen bonds.
- 6) Reactivity: Esters are inert at moderate temperature