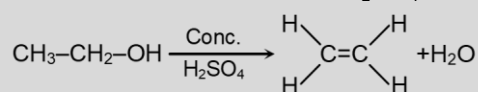


MIND MAP
Properties and versatile nature of carbon

- Always forms covalent bonds
- Tetravalent
- Tetrahedral
- 3 allotropes – diamond, graphite and fullerenes
- Catenation – Unique property of self-linking of carbon atoms

Ethanol

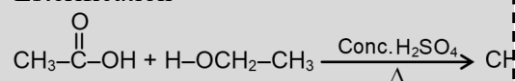
- Colourless, distinct smell and burning taste, soluble in water in all proportions, neutral to litmus
- Reaction with sodium
 $2\text{CH}_3\text{CH}_2\text{OH} + \text{Na} \rightarrow \text{CH}_3\text{CH}_2\text{ONa} + \text{H}_2$
- Reaction with concentrated H_2SO_4



- Combustion
 $\text{C}_2\text{H}_5\text{OH} + 3\text{O}_2 \rightarrow 2\text{CO}_2 + 2\text{H}_2\text{O} + \text{Heat}$

Ethanoic Acid

- Colourless, pungent smelling liquid, soluble in water in all proportions
- Reaction with sodium carbonate
 $2\text{CH}_3\text{COOH} + \text{Na}_2\text{CO}_3 \rightarrow 2\text{CH}_3\text{COONa} + \text{CO}_2 + \text{H}_2\text{O}$
- Reaction with sodium hydrogen carbonate
 $\text{CH}_3\text{COOH} + \text{NaHCO}_3 \rightarrow \text{CH}_3\text{COONa} + \text{CO}_2 + \text{H}_2\text{O}$
- Esterification



- Hydrolysis
 $\text{CH}_3\text{COOC}_2\text{H}_5 \xrightarrow{\text{NaOH}} \text{C}_2\text{H}_5\text{OH} + \text{CH}_3\text{COOH}$

Chemical properties of Carbon compounds

Combustion: Burning of carbon compound in air

Substitution: Replacement of an atom or a group of atoms in a organic molecule by another atoms or group of atoms

Addition: Addition of two reactants to form a single product

Oxidation: Addition of oxygen

Soaps

- Sodium salts (or potassium salts) of the long chain carboxylic acids. The ionic group in soaps is $-\text{COO}^-\text{Na}^+$.
- Not suitable for washing purposes when water is hard.

Detergents

- Sodium salts of long chain benzene sulphonic acids. The ionic group in a detergent is $-\text{SO}_3^-\text{Na}^+$ or $-\text{SO}_4^-\text{Na}^+$.
- Can be used for washing even when the water is hard.

Name of compounds	IUPAC Name
Alkene	Alkane – ane + ene = Alkene
Alkyne	Alkane – ane + yne = Alkyne
Haloalkanes	Halo + alkane = Haloalkane
Alcohols	Alkane – e + ol = Alkanol
Aldehydes	Alkane – e + al = Alkanal
Ketone	Alkane – e + one = Alkanone
Carboxylic acid	Alkane – e + oic acid = Alkanoic acid