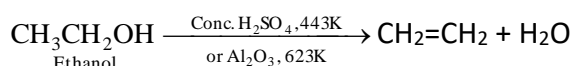


Physical Properties of Ethanol :

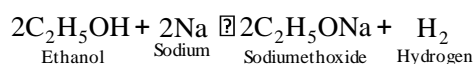
- (i) Pure ethanol is a colourless liquid.
- (ii) It has a specific smell and burning taste
- (iii) Its boiling point is 351 K which is higher than corresponding alkanes
- (iv) It is soluble in water. i.e., it is miscible with water in all proportions.

Chemical properties of Ethanol :

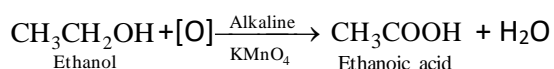
- (i) Dehydration : Ethanol. when heated with Conc. H_2SO_4 at 443 K or Al_2O_3 at 623 K undergoes dehydration, i.e. loses water molecule to form alkene.



- (ii) Reaction with Sodium : Alcohols are very weakly acidic. Ethanol reacts with sodium metal to form sodium ethoxide and hydrogen gas



- (iii) Oxidation with alkaline KMnO_4 :

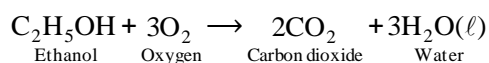


- (iv) Oxidation with acidified Potassium dichromate : Ethanol is oxidized to ethanoic acid with the help of acidified $\text{K}_2\text{Cr}_2\text{O}_7$



During this reaction, orange colour of $\text{K}_2\text{Cr}_2\text{O}_7$ changes to green. Therefore, this reaction can be used for the identification of alcohols.

- (v) Ethanol is highly inflammable liquid i.e., it catches fire very easily. It burns with blue flame in presence of oxygen to form carbon dioxide and water.



Uses of Ethanol:

- (i) Ethanol is present in alcoholic beverages such as beer, wine, whisky.
- (ii) Ethanol is used as antiseptic for sterilising wounds.
- (iii) Ethanol is used in cough syrups, digestive syrups and tonics.
- (iv) Ethanol is being mixed with petrol and is used as motor fuel. This mixture is called power alcohol.
- (v) A mixture of ethanol and water has lower freezing point than water. This mixture is known as antifreeze and is used in radiators of vehicles in cold countries and at hill stations.
- (vi) Ethanol is used for preparation of chloroform, iodoform, ethanoic acid, ethanal, ethyl ethanoate etc.
- (vii) Ethyl alcohol is used as hypnotic (induces sleep)

Harmful effects of drinking alcohol :

- (i) If ethanol is mixed with CH_3OH (methanol) and consumed, it may cause serious poisoning and loss of eyesight.
- (ii) It causes addiction (habit forming) and mixes with blood. It damages liver if taken regularly in large amount.
- (iii) The person loses sense of discrimination under its influence.
- (iv) Higher amount of consumption of ethanol leads to loss of body control and consciousness. It may even cause death.

Therefore, we should not drink alcohol under any circumstances because it leads to wastage of time, wealth and spoils health.