

# CHEMISTRY STUDY MATERIALS FOR CLASS 10

## (NCERT Based notes of Chapter -04)

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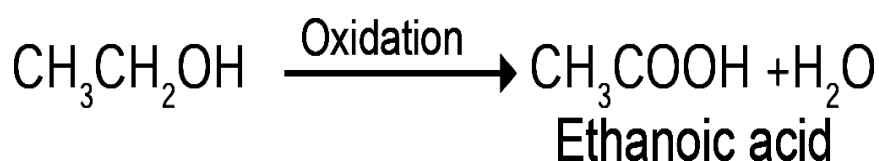
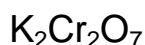
DATE:- 05/07/2021

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### CARBON AND ITS COMPOUND

#### CHEMICAL PROPERTIES OF ETHANOL

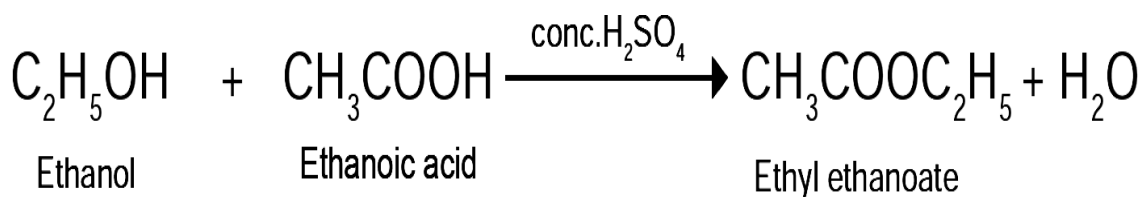
**Oxidation** : Ethanol is oxidized to ethanoic acid with alkaline  $\text{KMnO}_4$  or acidified



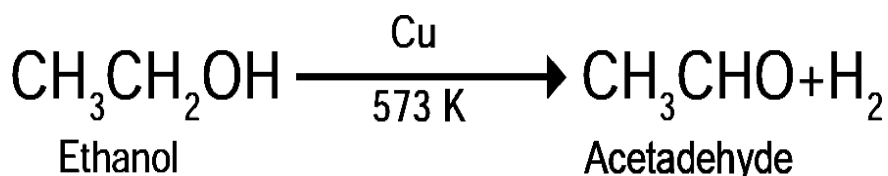
During this reaction, orange colour of  $\text{K}_2\text{Cr}_2\text{O}_7$  changes to green.

Therefore, this reaction can be used for the **identification of alcohols**.

**(i) Esterification** : Ethanol reacts with ethanoic acid in the presence of  $\text{conc. H}_2\text{SO}_4$  (catalyst) to form ethyl ethanoate and water. The compound formed by the reaction of an alcohol with carboxylic acid is known as ester (fruity smelling compound) and the reaction is called esterification.



**(ii) Dehydrogenation** : When the vapour of ethanol is passed over reduced copper catalyst at 573 K, it is dehydrogenated to acetaldehyde.



## **USES OF ETHANOL**

- As an anti-freeze in automobile radiators.
- As a preservative for biological specimen.
- As an antiseptic to sterilize wounds in hospitals.
- As a solvent for drugs, oils, fats, perfumes, dyes, etc.
- In the preparation of methylated spirit (mixture of 95% of ethanol and 5% of methanol), rectified spirit (mixture of 95.5% of ethanol and 4.5% of water), power alcohol (mixture of petrol and ethanol) and denatured spirit (ethanol mixed with pyridine).
- In cough and digestive syrups.

## **EVIL EFFECTS OF CONSUMING ALCOHOL**

- If ethanol is consumed, it tends to slow down metabolism of our body and depresses the central nervous system.
- It causes mental depression and emotional disorder.
- It affects our health by causing ulcer, high blood pressure, cancer, brain and liver damage.
- Nearly 40% accidents are due to drunken drive.
- Unlike ethanol, intake of methanol in very small quantities can cause death.
- Methanol is oxidized to methanal (formaldehyde) in the liver and methanal reacts rapidly with the components of cells.
- Methanal causes the protoplasm to get coagulated, in the same way an egg is coagulated by cooking. Methanol also affects the optic nerve, causing blindness.

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