

CHEMISTRY STUDY MATERIALS FOR CLASS 10

(NCERT Based notes of Chapter -04)

GANESH KUMAR

DATE:- 07/07/2021

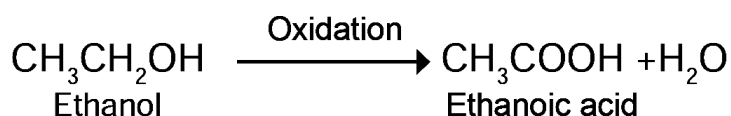
CARBON AND ITS COMPOUND

Ethanoic Acid/ Acetic Acid (CH₃COOH)

Ethanoic acid is most commonly known as acetic acid and belongs to a group of acids called carboxylic acids. Acetic acid is present in many fruits and sour taste of fruits is because of this acid.

PREPARATION OF ETHANOIC ACID

Ethanol on oxidation in the presence of alkaline potassium permanganate or acidified potassium dichromate gives ethanoic acid.



PROPERTIES OF ETHANOIC

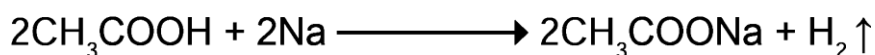
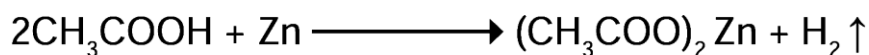
ACID PHYSICAL PROPERTIES

- (i) Ethanoic acid is a colourless liquid and has a sour taste.
- (ii) It is miscible with water in all proportions.
- (iii) Boiling point (391 K) is higher than corresponding alcohols, aldehydes and ketones.
- (iv) On cooling, pure ethanoic acid is frozen to form ice like flakes. They look like glaciers, so it is called glacial acetic acid.

CHEMICAL PROPERTIES

- (i) Ethanoic acid is a weak acid but it turns blue litmus to red.

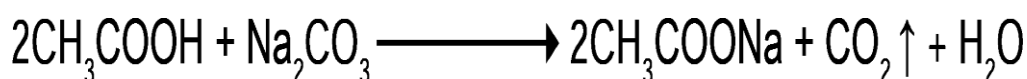
(ii) Reaction with metal



Ethanoic acid reacts with metals like Na, K, Zn, etc to form metal ethanoate and hydrogen gas.

(iii) Reaction with carbonates and bicarbonates.

Ethanoic acid reacts with carbonates and bicarbonates and produces brisk effervescence due to the evolution of carbon dioxide.



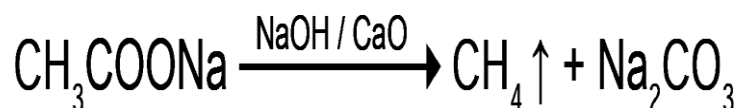
(iv) Reaction with base

Ethanoic acid reacts with sodium hydroxide to form sodium ethanoate and water.



(v) Decarboxylation (Removal of CO₂)

When sodium salt of ethanoic acid is heated with soda lime (Solid mixture of 3 parts of NaOH and 1 part of CaO) methane gas is formed.



USES OF ETHANOIC ACID

- For making vinegar which is used as a preservative in food and fruit juices.
- As a laboratory reagent.
- For coagulating rubber from latex.
- In the preparation of dyes, perfumes and medicine.

INTEXT QUESTIONS PAGE NO. 74

Q1. How would you distinguish experimentally between an alcohol and a carboxylic acid?

Ans: Sodium bicarbonate test (NaHCO₃ test)

Alcohol + NaHCO₃ → No effervescence

Acid + NaHCO₃ → Brisk effervescence

The sample which produces brisk effervescence when treated with NaHCO₃ due to release of CO₂ is a carboxylic acid.

Q2. What are oxidising agents?

Ans: Those substances which are capable of providing oxygen to other substances are called oxidising agents. e.g., alkaline KMnO₄ and acidified K₂Cr₂O₇ can both behave as oxidising agents.

