

Practical No. 12

Aim : To study oxidation and addition reactions of carbon compounds.

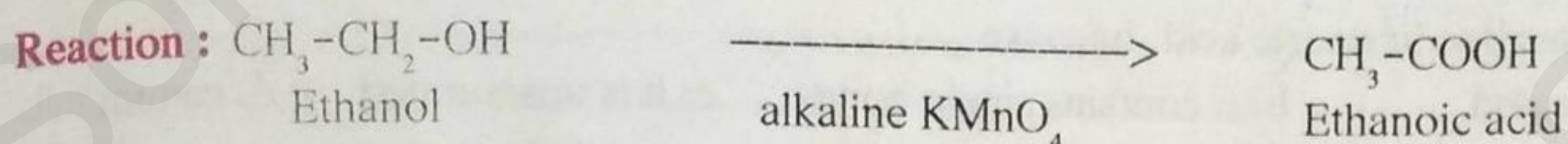
Apparatus : Test tubes, dropper, burner, etc.

Chemical substances : Ethanol, dilute solution of sodium carbonate, dilute solution of potassium permanganate, alcoholic solution of iodine (tincture iodine), liquified vanaspati ghee, various vegetable oils (groundnut oil, safflower oil, sunflower oil, etc.)

Procedure :

A. Oxidation of ethanol

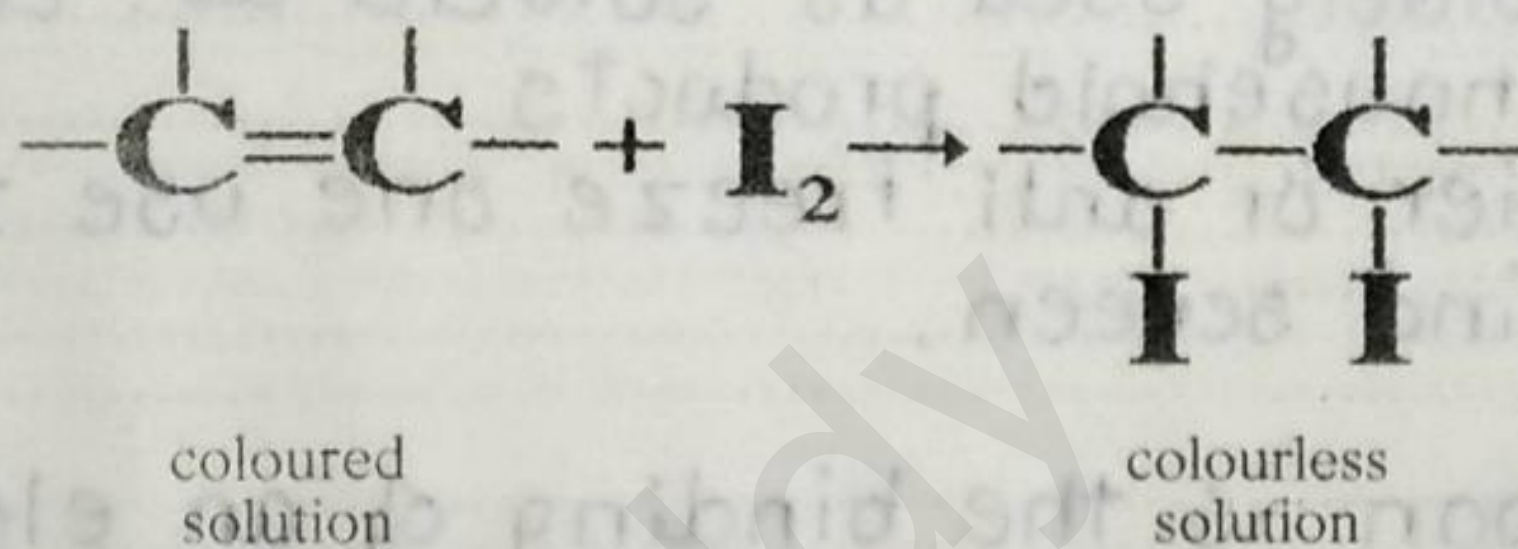
1. Take 2-3ml of ethanol in a test tube. Add 5ml sodium carbonate solution to it. Warm the mixture by holding the test tube on a burner.
2. Add dilute solution of potassium permanganate dropwise in it and keep on stirring the mixture.
3. Observe the change in the pink colour of the potassium permanganate when its addition is started.



B. Addition reaction of fatty acids

1. Take 2ml oil in a test tube. Add 4 drops of tincture iodine in it and stir.
2. Observe whether original colour of iodine disappears or not.
3. Repeat the same procedure using the other oils and vanaspati ghee and note in the observation table.

Reaction :



Observations :

- A. i. When a dilute solution of potassium permanganate is added to ethanol, initially the pink colour disappears.
 ii. When the addition is continued further, the pink colour of potassium permanganate does not vanish and stays there.

B.

| Oil sample | Colour change observed in the solution |
|----------------|--|
| groundnut oil | orange \rightarrow brown |
| safflower oil | colour vanished |
| sunflower oil | colour vanished |
| vanaspati ghee | colour does not vanish |

Conclusion / Inference :

- a. Potassium permanganate oxidizes ethanol to As potassium permanganate is consumed in this reaction its Pink.... colour vanishes.
- b. Iodine is consumed due to its addition to fatty acid. Therefore the coloured solution becomes colourless. But when the same procedure is followed for vanaspati ghee, a similar colour change is not observed. As vanaspati ghee is saturated hydrocarbon the addition reaction does not occur there.

Multiple Choice Questions

1. What type of reaction is the transformation of ethanol into ethanoic acid?
a. Addition reaction
☒ b. Substitution reaction
c. Oxidation reaction
d. Dehydration reaction
2. In which of the following substances, is ethanol not used?
a. tonics
b. cough mixture
c. candle
d. alcohol
3. What type of carbon-carbon bonds are present in vanaspati ghee?
☒ a. single bonds
b. double bonds
c. triple bonds
d. none of these
4. Iodine decolourises in stearic acid, because
a. it is saturated.
b. it contains single bonds.
c. it is unsaturated.
d. cannot tell.
5. The saturated hydrocarbon from the following carbon compounds is
a. Ethene
b. Ethyne
☒ c. Ethane
d. Benzene

: Exercise :

1. In which industry ethanol is obtained as a byproduct?

Ethanol is widely used as solvent ~~do~~ can find it in mainly household products
~~ex~~ The deicer or anti freeze one use to clear the car's wind screen.

2. What is Catenation?

Catenation-carbon is the binding of an element or its through covalent bonds to form chain of ring molecules ex. carbon is the most common element, that exhibits catenation it can form.

3. Why is it made compulsory to mix ethanol in a fuel?

When ethanol is mixed in a fuel. It produce less carbon-dioxide and also prizes of fuel can be made stable to mix ethanol fuel.

Remark and Signature

