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**Determination of reaction rate constant for first order.**

**Aim:**

To determine the reaction rate constant and half-life for the ester methyl acetate at 0.5M temperature.

**Apparatus Required:**

250ml conical flask, Burette, Test tube, 10ml volumetric pipette.

**Chemicals required :**

Ethyl acetate (or) Methyl acetate, 0.5N HCL solution 0.25N NaoH solution, phenol pthalein indicator Ice cold water.,

**Procedure:**

(a) Preparation of Hydrochloric acid solution (0.5N) IP: solutions of any normality XN may be prepared by diluting 85 ml HCL to 1000ml with water. Measure 850 of distilled water into 1000ml volumetric flask Add 42.5ml of conc. HCL and slowly added finally make up the water to 1000 ml.

(b) preparation of NaoH solution (0.25N) IP: solutions of any normally may be prepared by dissolving 40x gm of NaoH in water and diluting to 1000ml weigh 10mg of NaoH transferred into 1000ml volumetric flask add water slowly with stirring finally make upto 1000 ml.

**Kinetic method:**

100ml of 0.5N HCL solution is measured and transfered into a 200ml conical flask.

It should be kept in the water bath for equillibrium (do not heat)

10ml of the given ester is transferred into the test tube and kept in the water bath for equillibrium normally it takes 10 minutes.

The acid solution is mix ester sample throughly & kept in water bath.

Immediately after mixing 5ml of the mixer is with drawn using the pipette rod.

And transfered into conical flask containing 10ml of ice water.

The few drops of phenolpthalein indicator is added to the mixture.

The reaction mixture is titrated against 0.25N NaOH solution this value of alkali consumed represent

5ml samples by periodically at 10, 20, 30, 40, 50, 60,75 min the volume consumed at each time interval represent Ut

The reaction mixture is heated at water bath 60°C at 20 mins.

The mixture War cooled to room temperature.

5ml of sample was withdrawn and transferred into conical flask containing 10ml ice cold water The titration repeated and this volume represents.

**Report:**