

PHARMACEUTICAL ANALYSIS – BP102T

UNIT : II ACID-BASE TITRATIONS AND NON-AQUEOUS TITRATIONS

CLASS:18

TOPIC: ALKALIMETRY

ALKALIMETRY:

This term alkalimetry refers to determination of strength of basic substances and acidimetry refers to determination strength of acid.

In non-aqueous titrations, generally weak acids and basic substances are determined therefore in non-aqueous titrations alkalimetry is defined as titrations of weak bases and acidimetry is defined as titrations of weak acids.

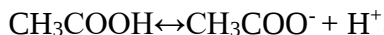
Titration of weak bases:-

Titration of weak bases is done by using mainly perchloric acid as a standard acid. Acetic acid is generally used as the solvent for dissolving weak base.

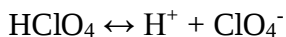
Weak bases dissolved in non-aqueous solvent is titrated with standard perchloric acid solution.

Reactions involved in the titration can be explained as follows :

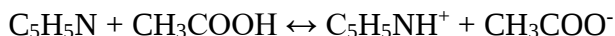
When acetic acid is alone, it behaves as a weak acid as it dissociates poorly and has a tendency to donate protons.



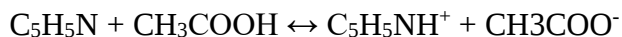
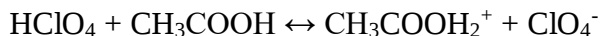
But while adding perchloric acid to acetic acid, onium ions are formed which have higher tendency to donate protons.



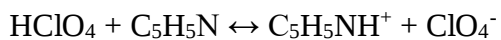
On addition of pyridine to acetic acid, following reaction occurs:



Acetate ions produced have higher tendency to accept protons. Thus, accurate end point is generated on titrating a weak base in acetic acid using perchloric acid as titrant.



Final reaction,



From these reactions, it is concluded that tendency of acid to donate proton is increased while tendency of base to accept a proton is increased which provides accurate and sharp end point.