

# Titration and Buffers

## Objectives

1. To learn about acid-base titrations
2. To understand the general characteristics of buffered solutions

# Titration and Buffers

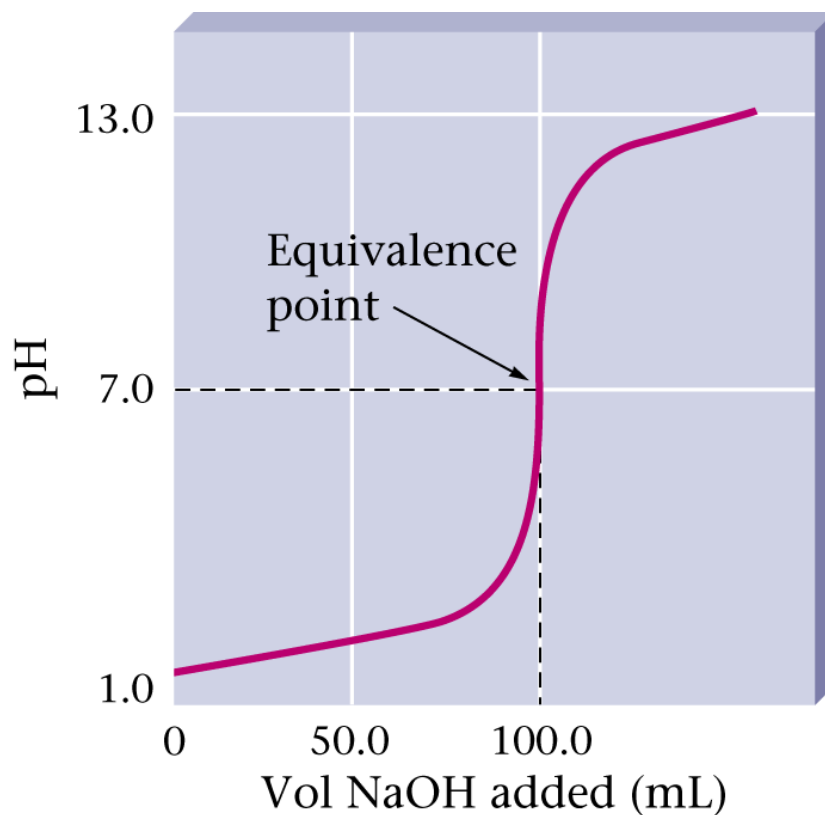
## A. Acid-Base Titrations

- **Titration** – delivering a measured volume of a solution of known concentration into the solution being analyzed
- **Titrant** – a standard solution
- **Buret** – device used for accurate measurement of the delivery of a liquid
- **Stoichiometric point (equivalence point)** – when just enough titrant has been added to react with all of the solution being analyzed

# Titration and Buffers

## A. Acid-Base Titrations

- **Titration curve (pH curve)** – plot of the data (pH vs volume) for a titration



# Titration and Buffers

## B. Buffered Solutions

- **Buffered solution** – resists a change in its pH when either an acid or a base has been added
  - Presence of a weak acid and its conjugate base buffers the solution

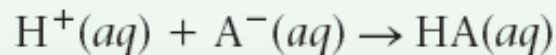
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## B. Buffered Solutions

**Table 16.3**

### The Characteristics of a Buffer

1. The solution contains a weak acid HA and its conjugate base A<sup>-</sup>.
2. The buffer resists changes in pH by reacting with any added H<sup>+</sup> or OH<sup>-</sup> so that these ions do not accumulate.
3. Any added H<sup>+</sup> reacts with the base A<sup>-</sup>.



4. Any added OH<sup>-</sup> reacts with the weak acid HA.

