

Salt Lake Community College, Chemistry Department

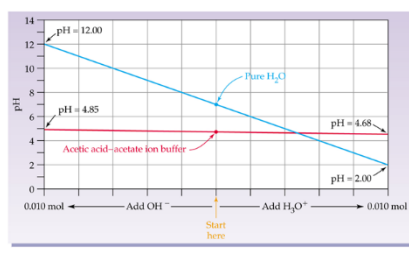
Chem 1110 Workshop 11

Topic: Acids and Bases Part II

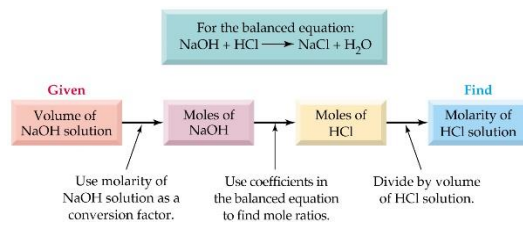
Objective:

- Buffer Solutions
- To be able to make calculations of titrations and concentration of acids
- Acidity and Basicity of Salt Solutions

Buffer: A combination of substances that act together to prevent a drastic change in pH; usually a weak acid and its conjugate base



Acid- Base Titration:



Acidity and Basicity of Salt Solutions:

Table 10.4 Acidity and Basicity of Salt Solutions

Anion Derived from Acid That Is:	Cation Derived from Base That Is:	Solution	Example
Strong	Weak	Acidic	NH_4Cl , NH_4NO_3
Weak	Strong	Basic	NaHCO_3 , KCH_3CO_2
Strong	Strong	Neutral	NaCl , KBr , $\text{Ca}(\text{NO}_3)_2$
Weak	Weak	More information needed	

Practice Problems:

1. Find $[\text{H}_3\text{O}^+]$ and the pH in a solution prepared by dissolving 0.900 g of $\text{Ca}(\text{OH})_2$ in water and diluting the solution to a final volume of 800 mL.
2. What is the pH of a solution prepared by dissolving 150.0 g KOH in enough water to make 7.867 L solution?
3. What volume of 0.100 M NaOH (aq) is needed to titrate 200.0 mL of 0.200 M H_2SO_4 (aq) to the neutralization point?
4. Calculate the pH of a buffer solution containing 0.015 M HClO and 0.025 M ClO^- .
The K_a for HClO is 3.0×10^{-8} .
5. For a solution of the weak acid $\text{HC}_2\text{H}_3\text{O}_2$ (aq), state whether the H_3O^+ (aq) concentration will increase, decrease, or stay the same if: (There is no volume change in questions a, b, and c.)
 - (a) we add some $\text{NaC}_2\text{H}_3\text{O}_2$ (sodium acetate) _____ .
 - (b) we add some HCl _____.
 - (c) we add some NaCl _____.