

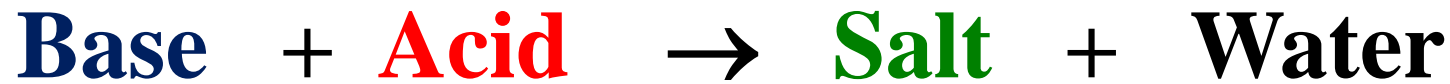
# **Chemistry 1105 Lab: ASA Titration**

## **Goals:**

- 1. Technique of Titration.**
- 2. Prepare and standardize 0.1 M NaOH.**
- 3. Determine %ASA in the sample you synthesized in previous experiment.**

# Acid-Base Titration:

**A titration is a process in which a controlled volume of one reagent(titrant) is added to a known amount or volume of a second reagent until a complete reaction is observed.**



**Preparation of 0.1 M NaOH:**

**Preparation of 200. mL of a solution of 0.1 M NaOH by dilution of a 1 M NaOH stock solution.**

$$M_1 \times V_1 = M_2 \times V_2$$

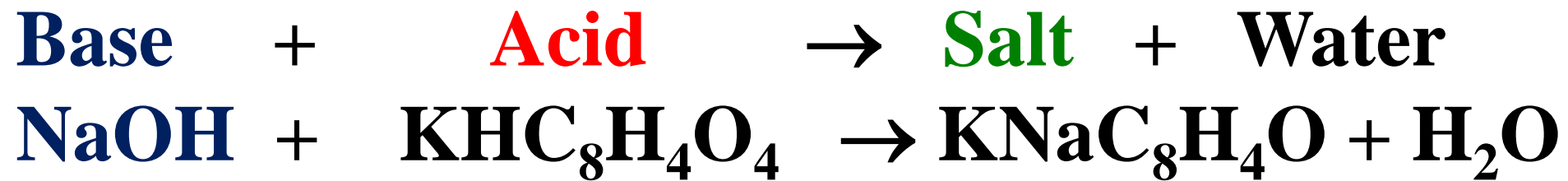
**$M_1$ : Molarity of stock solution**

**$V_1$ : Volume of stock solution**

**$M_2$ : Molarity of dilute solution**

**$V_2$ : Volume of dilute solution**

# Standardization of 0.1 M NaOH:



? M  
mL

g  
↓

moles  $\text{KHC}_8\text{H}_4\text{O}_4$

moles  $\text{KHC}_8\text{H}_4\text{O}_4 = \text{moles NaOH}$  at  
equivalence point

# Determination of the Endpoint/Equivalence

## Point:

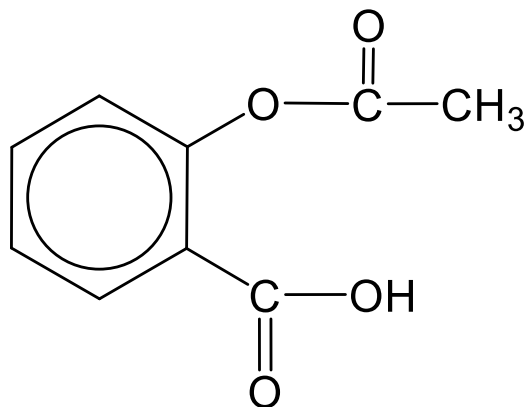
**Equivalence point determined using acid-base indicator.**



**Equivalence point is volume of base where the moles base = moles acid.**

**Endpoint. Volume of base that turns indicator color.**

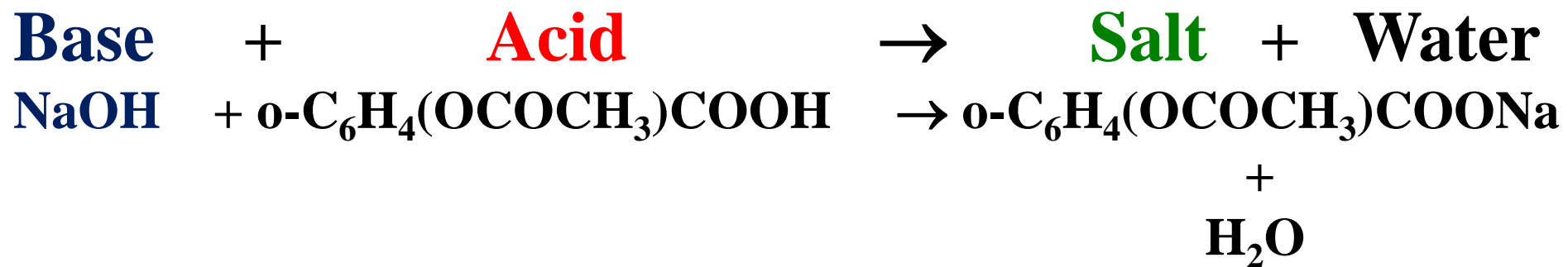
# Determining the %ASA of Sample:



**C<sub>6</sub>H<sub>4</sub> aromatic ring**

**o-ortho (position of substituents)**

$$\%ASA = \frac{\text{mass of ASA(g) from titration}}{\text{mass of sample(g) weighed}} \times 100\%$$



**Base** + **Acid** →

**NaOH** + **o-C<sub>6</sub>H<sub>4</sub>(OCOCH<sub>3</sub>)COOH** →

**(now known)**

**? %ASA of Sample**

**0.1 M**

**mL**



**moles NaOH**

**=**

**moles o-C<sub>6</sub>H<sub>4</sub>(OH)COOH**



**g ASA**

