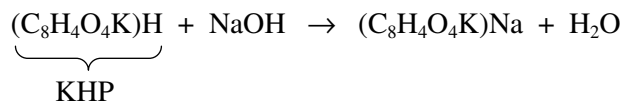


1. Standardization of NaOH Solution

At the equivalence point: Moles of KHP = Moles of NaOH

Known: Mass of KHP (g)
Volume of NaOH used in titration (ml)

To be determined: Molarity of NaOH (mole/L)

Calculations:

1. Moles KHP = $\frac{\text{g of KHP}}{\text{MW (KHP)}}$
2. Moles NaOH = Moles KHP
3. $M_{\text{NaOH}} = \frac{\text{Moles NaOH}}{V_{\text{NaOH}} (\text{L})}$

2. Determination of the Unknown Acid Concentration

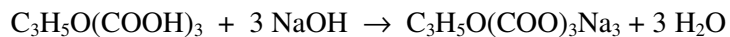
At the equivalence point: Moles HCl = Moles NaOH

Known: Molarity of NaOH from Part 1 (mole/L)
Volume of NaOH used in titration (ml)
Volume of the unknown acid (ml)

To be determined: Molarity of HCl (mole/L)

Calculations:

1. Moles NaOH = $M_{\text{NaOH}} (\text{mole/L}) \times V_{\text{NaOH}} (\text{L})$
2. Moles HCl = Moles NaOH (this equation will be different for H_2SO_4)
3. $M_{\text{HCl}} = \frac{\text{Moles HCl}}{V_{\text{HCl}} (\text{L})}$

3. Determination of an Acid Content of a Fruit Juice

At the equivalence point: Moles $\text{C}_3\text{H}_5\text{O}(\text{COOH})_3 = \frac{1}{3} \times \text{Moles NaOH}$

Known: Molarity of NaOH from Part 1 (mole/L)
Volume of NaOH used in titration (ml)
Volume of the juice sample (ml)

To be determined: g of $\text{C}_3\text{H}_5\text{O}(\text{COOH})_3$ per 100 g of juice

Calculations: 1. Moles NaOH = M_{NaOH} (mole/L) $\times V_{\text{NaOH}}$ (L)

2. Moles $\text{C}_3\text{H}_5\text{O}(\text{COOH})_3 = \frac{1}{3} \times \text{Moles NaOH}$

3. Mass (g) of $\text{C}_3\text{H}_5\text{O}(\text{COOH})_3 = \text{Moles } \text{C}_3\text{H}_5\text{O}(\text{COOH})_3 \times \text{MW (g/mole)}$

4. Mass (g) $\text{C}_3\text{H}_5\text{O}(\text{COOH})_3$ per 100 g juice = $\frac{\text{Mass (g) } \text{C}_3\text{H}_5\text{O}(\text{COOH})_3 \times 100 \text{ ml}}{V_{\text{juice}} \text{ (ml)}}$