

Rudra Guel

Lab 3: Stoichiometric Characterization

	Na_2CO_3	Sodium thiosulfate	
Mass (g)	0.025 g		
Volume (mL)		25.7 mL	25.65 mL after
Moles (mol)		5×10^{-6} mol	

	Quantity
Amount of $\text{S}_2\text{O}_3^{2-}$ delivered (mol)	5×10^{-6} mol
Amount of H_2O_2 consumed (mol)	2.5×10^{-6} mol
Mass of H_2O_2 in sample (g)	8.5036×10^{-5} g
Mass of Na_2CO_3 in sample (g)	0.024914 g
Amount of Na_2CO_3 in sample (mol)	2.351×10^{-4}
Molar Ratio $\text{H}_2\text{O}_2/\text{Na}_2\text{CO}_3$	≈ 0.0106

Step 5: Solution turned deep blue/purple color upon addition of starch

98.233 g $\Delta \text{mass} = 1.732$ g } Part b
 99.965 g (AgNO_3)

$$n = \frac{\text{mol H}_2\text{O}_2}{\text{mol H}_2\text{CO}_3} = (1)(0.0257 - 0.02565) \text{ mol S}_2\text{O}_3^{2-} \left| \frac{1 \text{ mol I}_3^-}{2 \text{ mol S}_2\text{O}_3^{2-}} \right.$$

Part A

$$\frac{2.5 \times 10^{-6} \text{ mol H}_2\text{O}_2}{2.351 \times 10^{-4} \text{ mol Na}_2\text{CO}_3} \left| \frac{1 \text{ mol I}_3^-}{1 \text{ mol H}_2\text{O}_2} \right| \frac{34.0147 \text{ g H}_2\text{O}_2}{1 \text{ mol H}_2\text{O}_2}$$

$$\Rightarrow n = 0.0106 \quad 8.5036 \times 10^{-5} \text{ g H}_2\text{O}_2$$

$$\text{moles of H}_2\text{O}_2 \text{ per Na}_2\text{CO}_3 = 0.024914 \text{ g Na}_2\text{CO}_3$$

$$\text{Based on stoichiometry} \quad 105.99 \text{ g/mol Na}_2\text{CO}_3$$

lesse Am

99.965 final }
 98.233 initial } mass of silver nitrate

1.732 grams of 1.7% AgNO_3

$$(1.732)(.017) = .029444 \text{ g AgNO}_3$$

$.029444 \text{ g AgNO}_3$	1 mol AgNO_3	1 mol Cl^-
	169.87 g AgNO_3	1 mol AgNO_3

$$1.733 \times 10^{-4} \text{ mol Cl}^- \Rightarrow 1.733 \times 10^{-4} \text{ mol NaCl}$$

$1.733 \times 10^{-4} \text{ mol NaCl}$	58.44 g NaCl	$-.0101295 \text{ g NaCl}$
	1 mol NaCl	

$$.05 - .0101295 = .03987 \text{ g NaNO}_3$$

$$\% \text{ comp NaCl} = \frac{.0101295}{.05} = 20.59\%$$

$$\% \text{ comp NaNO}_3 = 100 - \% \text{ comp NaCl} = .7941$$

Jesse J...