ANALYSIS OF BLEACH

Name: _____ Date: _____ Station #: _____

Objective: To determine the percent by mass of NaOCl in a bleach solution.

Procedure: As in Kwantlen Chemistry 1105 lab manual, pages _____.

Observations:

Data:

Table 1. Titration Data
Molarity of $Na_2S_2O_3$ solution: _____

Volume of the diluted bleach pipetted: _____

	Run 1	Run 2	Run 3
Initial Buret Reading			
Final Buret Reading			
Volume added			
End Point Description			

Table 2. Gravimetric Analysis

Mass of 25 mL stoppered Erlenmeyer flask (g)	
Mass of stoppered Erlenmeyer flask & liquid (g)	
Mass of 15.00 mL liquid ONLY (g)	
Volume of the undiluted bleach pipetted (mL)	

Calculations:

Part-1

1. Determine the number of moles of iodine (I_2) in each titration run.

   Run 1 (show calculation):

   Run 2: _____

   Run 3: _____

2. Determine the number of moles of hypochlorite ion (ClO^-) in your 10.00 mL diluted sample of bleach.

   Run 1 (show calculation):

   Run 2: _____

Run 3: _____

3. Calculate the average number of moles.

4. Determine the molarity (in terms of ClO^-) in the original undiluted sample of bleach.

Part-2

1. Calculate the density of undiluted bleach sample.

2. Using the calculated density, determine the % (by mass) of NaOCl in your original undiluted sample of bleach.

Conclusion:

Questions:

1. Write the two half-reactions for each of the reactions involve in the titration.

$$ClO^-(aq) + 2I^-(aq) + 2H^+(aq) \longrightarrow Cl^-(aq) + I_2(aq) + H_2O(l)$$

$$I_2(aq) + 2S_2O_3^{2-}(aq) \longrightarrow 2I^-(aq) + S_4O_6^{2-}(aq)$$

2. What are some of the uses of bleach?