Grading Notes Student Name_____
Determination of Sodium Carbonate
Chem 2223, Revised Summer 2008 TA____Date_____

| **A. Notebook. General organization, completeness, documentation, clarity.** | **Comments** |
|---|---|
| 1. Table of Contents up-to-date | |
| 2. Title, dates, signature | |
| 3. Summary of method, reactions | |
| 4. Stepwise working procedure | |
| 5. Data entered in ink, documented. Original data reorganized as needed to produce original, legible record. | |
| | |
| **B. Notebook. Calculations and Data Treatment** | |
| 1. Data complete | |
| 2. Equations and calculations | |
| 3. Error analysis | |
| | |
| **C. Lab Practice** | |
| 1. Wears safety goggles at all times | |
| 2. Practices good chemical hygiene (keeps clean, organized work space at workstation and elsewhere in lab) | |
| 3. Arrives on time for beginning of lab | |
| 4. Employs recommended lab techniques (eg, weighing by difference, data entered directly in notebook) | |
| 5. Comes to lab prepared (eg, procedure outlined in notebook) | |
| **General Comments/Recommendations** | |
| **Notebook and Lab Practice Grade (10)** | |
| **D. Accuracy of Reported Result (100)** | |

**Detail for Part B**

1. Data Complete
    a. Complete minimum of 3 trials total, including one or more potentiometric titrations.
    b. Plot pH vs volume of std HCl
2. Data and calculations
    a. Values of $K_{a1}$ and $K_{a2}$ for carbonic acid from titration curve.
    b. Equation for %Na2CO3 in unknown with data entered, mean reported.
3. Error Analysis
    a. Discuss effects of carbonate equilibria on location of equivalence points.
    b. Standard deviation and 90% confidence limits on average %$Na_2CO_3$.