

## STE Lab

### Stoichiometry of NaHCO<sub>3</sub> and HCl



1. Weigh an evaporating dish on a balance. \_\_\_\_\_
2. Add 1.0 gram of NaHCO<sub>3</sub> to the evaporating dish.
3. SLOWLY add 15 ml of 1 mole/L HCl.
4. Wait for the foaming to stop.
5. Heat the leftover contents to a boil using the #8 setting on the hot plate.
6. After it has been boiling for 15-30 seconds, switch to gentler heat (#4 setting until almost all the water and any leftover HCl evaporates.
7. Test the vapours with a pH paper wet from tap water. Record your observations. \_\_\_\_\_  
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8. Lower the heat to #2, and leave the evaporating dish on the hot plate for five more minutes.
9. Wait 3 minutes for the evaporating dish to cool.
10. Look at the crystals. How do they compare to the reactant's original fine powder (NaHCO<sub>3</sub>)? \_\_\_\_\_
11. Weigh the evaporating dish again and record your mass \_\_\_\_\_

### Questions (Analysis)

1. Create a data table for all the above measurements.
2. What do the observations make you realize about the reaction—did all of the HCl get used up?
3. Find the mass of NaCl actually produced.
4. From the number of moles of NaHCO<sub>3</sub> that were consumed, predict the number of grams of NaCl that should have been produced.
5. Find the percent yield =

$$\frac{\text{mass produced}}{\text{mass predicted}} \times 100\%$$

### Conclusion:

What reacted? What was accomplished in this lab? What were some of the sources of error?