CHEMISTRY A NAME

PERIOD\_\_\_\_\_\_

**QUANTITATIVE DECOMPOSITION OF SODIUM BICARBONATE**

**CAUTION**: 1. EQUIPMENT WILL BE HOT. ALLOW TIME TO COOL BEFORE TOUCHING OR MOVING.

1. SODIUM BICARBONATE GENERATES GAS WHEN HEATED. HEAT GENTLY TO PREVENT THE SUBSTANCE FROM BLOWING OUT THE TEST TUBE.

**PROCEDURE:**

1. Get a large test tube and clean it. Clamp it to the ring stand and dry it thoroughly by gently heating. Allow to cool for 3 or 4 minutes then take an accurate weight. Record the weight of the test tube in the data table.
2. Bring your test tube to the instructor and obtain sample (sodium hydrogen carbonate). Weigh the test tube and its contents. Record the weight on the data table.
3. Clamp the test tube onto the ring stand and gently heat the sample. If the powder begins to “boil”, remove the heat source. Heat for approximately 5 – 10 minutes. Periodically move the flame to the top of the test tube to dry off the condensed water.
4. Increase the heat and continue heating for an additional 5 minutes. Continue to drive off the moisture at the top of the tube as it accumulates.
5. Allow the test tube to cool for a few minutes then weigh. Record the weight on the data table.
6. Heat the sample for an additional 3-4 minutes. Allow the tube to cool and weigh again. Record the weight.
7. Discard the sample as instructed. Clean all equipment and return it. MAKE SURE THE METAL EQUIPMENT IS COOL ENOUGH TO HANDLE!

Weight table:

1. Weight of test tube

1. Weight of test tube and sample (NaHCO3)

3. Calculate the weight of sample (NaHCO3)

(# 2 – # 1)

4. First weight of heated test tube and sample (Na2CO3)

1. Calculate the weight of heated sample (Na2CO3)

(# 4 – # 1)

1. Second weight of heated test tube and sample (Na2CO3)
2. Calculate the weight of heated sample (Na2CO3)

(# 6 – # 1)

1. Calculate the weight of water and CO2 lost from the sample

CALCULATIONS:

1. Calculate the theoretical yield of heated sample (what mass of sodium carbonate should you have made?).

Equation:

Calculation:

2. Calculate the percent yield from your experiment.