



a. The above reaction is used to chemically extract copper from copper (II) sulfate. 2.234 grams of  $\text{CuSO}_4$  are dissolved into water. After the reaction with iron is complete, 0.872 grams of copper have formed. Determine the percent copper (by mass) in the copper (II) sulfate, according to this lab data.

b. Determine the percent (by mass) of each element in  $\text{CuSO}_4$ , according to the periodic table masses.

c. Determine the percent error for the experiment in (a).

3a. Sodium chlorate,  $\text{NaClO}_3$ , is heated until it decomposes into  $\text{NaCl}$  and oxygen gas. When 8.45 grams of sodium chlorate are heated, the reaction produces 3.71 grams of oxygen gas. Determine the percent oxygen (by mass) in sodium chlorate, according to this data.

b. Use the periodic table to determine the percent oxygen in  $\text{NaClO}_3$ , by mass.

c. Determine the percent error for the experiment in (a).

4. Sucrose ("Table Sugar") has the formula  $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ .

It can decompose according to the following reaction (concentrated sulfuric acid acts as a catalyst):



a. Calculate the percent carbon (by mass) in sucrose.