

1a. Write the formula for calcium chlorate. _____

When calcium chlorate is heated, it decomposes to release oxygen gas and calcium chloride.

b. Determine the percent oxygen (by mass) in calcium chlorate.

c. If 30.0 grams of calcium chlorate are decomposed, what mass of oxygen could be released?
(In other words, what mass of oxygen is found in 30.0 grams of calcium chlorate?)

d. What mass of calcium chlorate would contain 30.0 grams of oxygen?
(In other words, how much calcium chlorate must decompose in order to produce 30.0 grams of oxygen?)

2a. What is the formula for table salt (sodium chloride)? _____

b. What percent of sodium chloride is sodium (by mass)?

c. If you consume 1.2 grams (1200 mg) of sodium chloride, how many grams of sodium would you be consuming?

d. If one serving of soup contains 0.800 grams of sodium (800. mg), how many grams of sodium chloride are in one serving of the soup?

3. Copper II carbonate, CuCO_3 , is a green compound that forms when copper is oxidized and reacts with the carbon dioxide in the air. (The Statue of Liberty is green because the copper on the surface has reacted to form copper carbonate). If you have 2.00 grams of copper that react completely to form CuCO_3 , how many grams of CuCO_3 would form? (Hint, #3 is like problem 2b and 2d, combined; start by finding the % Cu in CuCO_3)

4. Some iron wool was burned in a crucible, and the following lab data was obtained:

Mass of empty crucible: 24.30 grams

Mass of crucible and iron wool (before burning): 26.31 g

Mass of crucible and iron oxide (after burning): 26.89 g

- a. Calculate the mass of iron wool used in the experiment.
- b. Calculate the mass of iron oxide present at the end of the experiment.
- c. Determine the percent iron in the iron oxide that formed.

5. An experiment was done to determine the percent oxygen in aluminum oxide.
2.00 grams of aluminum were burned, to produce 3.74 grams of aluminum oxide.

- a. Calculate the mass of oxygen gained (through bonding) in the experiment.
- b. Determine the percent composition of oxygen in aluminum oxide, according to lab data.
- c. What is the formula for aluminum oxide? _____ (balance charges!!)
- d. Calculate the "book value" for the percent oxygen in aluminum oxide.

e. Calculate the percent error for this experiment.

6. When silver is found in nature, it is often part of the compound silver sulfide (Ag_2S).

- a. Calculate the percent silver (by mass) in silver sulfide.
- b. What mass of silver sulfide would you have to start with, to extract 40.0 grams of silver from it?
- c. If you have 4.26 grams of silver sulfide, what mass of silver could be extracted from this?