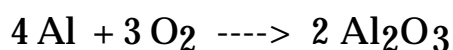


Stoichiometry - Given Grams find Grams Name_____

You've been hired by an Aluminum foil company to study the reaction of Aluminum with the oxygen in the air. Someone has found a use for Aluminum oxide (Al_2O_3) and the company wants to explore possibilities for producing this compound. Your job is to study the relationship between the grams of reactants and products by solving a series of stoichiometry equations.

Use the following equation for solving all problems:



- 1) If you were given 74.00 grams of Al, how many grams of Al_2O_3 would be produced?
- 2) If had 64.00 grams of O_2 , how many grams of Al would be needed to react with that oxygen?
- 3) How many grams of Al_2O_3 would be produced in the reaction described in #2?
- 4) If you wanted to produce 4.00 grams of Al_2O_3 how many grams of O_2 would be needed for the reaction?
- 5) If 6.54 grams of Al were used in the reaction, how many grams of O_2 would be needed?
- 6) You decide that you want to make a sample of Al_2O_3 with a mass of 450.0 grams. How many grams of Al would you need and how many grams of O_2 would you need?
- 7) If you solved the above problem correctly the grams of Al and grams of O_2 you calculated should add up to 450.0 g. What law did we learn about that would predict this should be the result? Explain your answer.

Bonus: (check plus if you get this one)

- 8) If you were given 53.96 grams of Aluminum and 32.00 grams of oxygen for a reaction, which would be used up first and how much would be left over from the reactant that is not completely consumed in the reaction?

Answers:

- 1) 139.8 grams of Al_2O_3 2) 71.95 grams of Al 3) 135.9 grams of Al_2O_3 4) 1.88 grams of O_2 5) 5.82 grams of O_2
6) 238.2 grams of Al and 211.8 grams of O_2 8) Oxygen will run out first. 17.99 grams of Al will be left.