Chemistry Unit 5

Homework 3

1. Sulfuric acid reacts with aluminum hydroxide in a double displacement reaction.
   1. If 80.0 g of sulfuric acid react with 75.0 g of aluminum hydroxide, identify the limiting reactant.
   2. Determine the mass of excess reactant remaining.
   3. Determine the mass of each product formed.
2. A solution with 3.0 mol of tin(IV) nitrate is mixed with a solution containing 5.0 mol of sodium chloride.
   1. Write the equation for this reaction.
   2. Which reactant is the limiting reactant?
   3. Which reactant is in excess?
   4. How many moles of excess reactant are left?
   5. How many moles of each product are produced?
3. A solution with 6.0 mol of silver nitrate is mixed with a solution containing 5.0 mol of aluminum chloride.
   1. Write the equation for this reaction.
   2. Which reactant is the limiting reactant?
   3. Which reactant is in excess?
   4. How many moles of excess reactant are left?
   5. How many moles of each product are produced?
4. One hot day, a container (like a Bic© lighter) holding .25 moles of butane (C4H10) burst into flames generating a cloud of carbon dioxide and water vapor.
   1. Write the equation for this reaction.
   2. Is there a limiting reactant in this case?
   3. How many moles of each product are produced?
   4. How many grams of each product are produced?
5. Calcium chloride reacts with sodium phosphate in a double displacement reaction.
   1. Write the equation for this reaction.
   2. If 50.0 g of calcium chloride is mixed with a solution containing 100.0 g of sodium phosphate, which reactant is the limiting reactant?
   3. Which reactant is in excess?
   4. How many moles of excess reactant are left?
   5. How many grams of each product are produced?