Limiting Reagent Worksheet Name _____

1. **When copper (II) chloride reacts with sodium nitrate, copper (II) nitrate and sodium chloride are formed.**

   Balanced equation:

a) If 15 grams of copper (II) chloride react with 20.0 grams of sodium nitrate, how much sodium chloride can be formed?

b) What is the limiting reagent for the reaction? _____

c) How many grams of copper (II) nitrate is formed?

d) How many grams of the excess reagent is left over in this reaction?

e) If 11.3 grams of sodium chloride are formed, what is the percent yield of this reaction?

2. **When lead (II) nitrate reacts with sodium iodide, sodium nitrate and lead (II) iodide are formed.**

   Balanced equation:

a) If I start with 25.0 grams of lead (II) nitrate and 15.0 grams of sodium iodide, how many grams of sodium nitrate can be formed?

b) What is the limiting reagent in the reaction described in problem 2?

c) How many grams of lead (II) iodide is formed?

d) How much of the excess reagent will be left over from the reaction in problem #2?

e) If 6.0 grams of sodium nitrate are formed in the reaction described in problem #2, what is the percent yield of this reaction?

3. 1000.0 grams of sodium chloride is combined with 2000.0 grams of barium phosphate.

Balanced equation:

a) What is the limiting reactant?

b) How many grams of excess reactant are left?

4. A chemist burns 160.0 g of Al in excess oxygen to produce aluminum oxide, Al_2O_3. She produces 260.0 g of solid aluminum oxide.

Balanced equation:

a) Determine the theoretical yield.

b) Determine the percent yield.

5. 4000.0 grams of heptane (C_7H_{16}) completely combusts with 7000.0 grams of oxygen.

Balanced equation:

a) What is the limiting reactant?

b) How many grams of carbon dioxide is produced?

c) How many grams of excess reactant are left?

6. In the reaction of Zn with HCl, 140.15 g of $ZnCl_2$ was actually formed, although the theoretical yield was 143 g. What was the percent yield?

Balanced equation:

7. 12.5 g of copper are reacted with an excess of chlorine gas, and 25.4 g of copper (II) chloride are obtained. Calculate the theoretical yield and the percent yield.

Balanced equation: