

Honors Chemistry: Stoichiometry 3 Problem Set- Limiting Reactants

1. When 114.0 g of iron and 292.7 g of chlorine gas reacts, iron(III) chloride is formed.
 - a. How many grams of iron(III) chloride are formed?
 - b. How many grams of chlorine gas are consumed?
 - c. How many grams of iron are consumed?
 - d. How much excess reagent is left over at the end of the experiment?

2. In a combustion reaction, 20 L of oxygen gas reacts with 1.0 L of methyl alcohol, CH₃OH
 - a. How many liters of water vapor will be formed at STP?
 - b. How many grams of carbon dioxide will be formed?
 - c. How many grams of oxygen are consumed?
 - d. How much excess reagent is left over at the end of the experiment?

3. Nitrogen gas and water are formed when 25 g of hydrazine, N₂H₄ (l), and 66 g of hydrogen peroxide react.
 - a. How many grams of nitrogen are produced?
 - b. How many grams of water are produced?
 - c. How much excess reagent is left over at the end of the experiment?

4. In a single replacement reaction, 22.5 grams of lithium reacts with 33.5 grams of aqueous aluminum sulfate.
 - a. How many grams of lithium sulfate will be formed?
 - b. How many grams of aluminum are produced?
 - c. How much excess reagent is left over at the end of the experiment?

5. Sulfurous acid is formed when 33.6 grams of sulfur dioxide reacts with 55.3 grams of water.
 - a. How many milliliters of sulfurous acid will be formed (density = 1.03 g/cm³)
 - b. How many grams of the excess reactant are left over at the end of the experiment?

6. A yellow precipitate forms when 77 grams of potassium iodide react with 32 grams of lead(II) nitrate.
 - a. How many grams of the precipitate will be formed?
 - b. How many grams of potassium nitrate are produced?
 - c. How much excess reagent is left over at the end of the experiment?