Name: _____ **20 Pts.**

Honors Chemistry Lab: Limiting Reactant Stoichiometry

I. Purpose:

To determine the mass percent of salts in a potassium iodate/ barium nitrate mixture.

II. Procedure:

1. Using the balance measure out 2.00g of the unknown mixture into a 150 ml beaker. Add 100 ml of water to the salt mixture. Stir the mixture until all of the salts disappear.
2. Find the mass of a piece of filter paper. Record the mass and set up a gravity filtration apparatus with a beaker under the funnel to filter and separate your precipitate from filtrate. Remember to save the filtrate.
3. Filter the mixture. Pour slowly and never allow the mixture to rise above the edge of the filter paper.
4. Rinse the beaker with 20 ml of water. Pour the rinse through the filter. Repeat the rinsing's until all of the precipitate is washed out.
5. To the filtrate: Remove two small portions (approximately 5-10 ml) of the filtrate and place these amounts into 2 clean test tubes. Add drops of potassium iodate solution to one of the test tubes. Record observations. Repeat with the other test tube but add drops of barium nitrate in place of potassium iodate. Which reactant is in excess?
6. Remove the filter paper with precipitate from the funnel and place in a 45 °C drying oven overnight.
7. Measure the mass of the dry precipitate and find the mass of the dry precipitate.

III. Analysis:

Data and Observations:

a.) Mass of mixture: _____

b.) Mass of filter paper: _____

c.) Mass of dry precipitate with filter paper: _____

d.) Mass of dry precipitate: _____

e.) Observation of adding drops of potassium iodate solution:

f.) Observation of adding drops of barium nitrate:

IV. **Calculations:** Show all work with Sig Figs and Units

a.) Write a balance the equation for the reaction of barium nitrate with potassium iodate. Include phase notation.

b.) Write a net ionic equation for this reaction. Include phase notation.

c.) Which reactant is the limiting reactant? Which reactant is inexcess? Explain your answer.

d.) Find the number of moles of the precipitate.

e.) How many moles of the limiting reactant were used?

f.) What mass of the limiting reactant reacted?

g.) How many moles of the excess reactant reacted?

h.) What mass of excess reactant reacted?

i.) What mass of excess reactant was not used?

j.) Find the percent composition of the mixture for both reactants.