

AP Chemistry Lab Handout 04 "Limiting Reactant"

Your Name: _____ Lab Partners: _____

Purpose: To determine the limiting reactant in a chemical reaction.

Materials:	two 250 mL beakers	100 mL grad. cylinder
distilled water	massing paper	scoopula
balance	Sodium Phosphate Dodecahydrate	
stirring rod	Barium Chloride Dihydrate	
filter paper	funnel	80°C oven

Procedure:

1. Pour 75 mL of distilled water into a clean 250 mL beaker using a 100 mL graduated cylinder.
2. Place a small piece of paper on a balance and find its mass. Add 0.700 grams to the reading on the balance.
3. Using a scoopula, place Sodium Phosphate Dodecahydrate on the piece of paper until you reach the balancing point.
4. Add the Sodium Phosphate Dodecahydrate to the distilled water. Stir until dissolved.
5. Using the paper on the balance again, set the balance to read 0.700 g above the mass of the piece of paper.
6. Using a scoopula, place Barium Chloride Dihydrate on the piece of paper until you reach the balancing point.
7. Add the Barium Chloride Dihydrate to the Sodium Phosphate Dodecahydrate solution. Stir for about three minutes so the reaction goes to completion.
8. Obtain a piece of filter paper and find its mass to the nearest 0.001 g. Record this on the data table.
9. Fold the piece of filter paper into quarters and place it in a funnel. Place the funnel into a second beaker.
10. Filter the solution through the filter paper so you capture all of the precipitate on the filter paper.
11. Pour 10 mL of distilled water into the original 250 mL beaker and swirl this around.
12. Pour the distilled water into the funnel. Repeat as necessary to transfer any remaining chunks of precipitate to the filter paper.
13. Remove the piece of filter paper from the funnel and place it on a paper towel.
14. Place the piece of filter paper into a 80°C oven.
15. After all of the water has evaporated away, find the mass of the filter paper and precipitate. Calculate the mass of the precipitate.

Results:

Description of the reaction between Sodium Phosphate Dodecahydrate and Barium Chloride Dihydrate:

Data:

initial mass of filter paper:	
mass of filter paper and precipitate:	
mass of precipitate:	

Calculations:

Include theoretical yield of precipitate from both reactants.

Include the percent yield of the precipitate produced.

Error Analysis:

Conclusion:

Include a balanced chemical reaction for the lab and the type of reaction. Which reactant was limiting?