Name _____ Period _____

Partner _____ Date _____

Excess Reactants Lab

Prelab Questions

1. Calculate the number of moles in 2.65 g of zinc.

2. Calculate the number of moles of HCl in 37.5 mL of 3M HCl.

3. How many moles of HCl are required to react with 0.244 moles of zinc?

Procedure

1. Determine the volume of a dry thin-stem Beral Pipet.
a. Determine the mass of the pipet and record this mass on the data table.
b. Completely fill the pipet with water.
c. Determine the mass of the pipet when it is completely filled with water. Record the mass. Empty the pipet completely.

2. Find the mass of a small beaker.

3. Select a piece of zinc with a mass between 0.1 and 0.5 grams. Put the zinc into the beaker and determine the mass of the beaker and the zinc.

4. Add one complete pipet of 1.0 M HCl to the beaker with the zinc.

5. Record what it looks like. Draw a picture and label everything you can.

6. Allow this beaker to sit undisturbed for ten minutes.

7. Rinse the pipet three times by taking up some water and then emptying.

8. Observe your beaker and its contents. Make another drawing of the beaker on the Report Sheet and label its contents.

9. Empty the liquid contents of your beaker into the sink and put any remaining zinc into the container provided by your teacher. Rinse the beaker with running water and discard it in the wastebasket.

Data and Observations

Mass of dry Beral pipet	
Mass of pipet and water	
Mass of beaker	
Mass of beaker and Zn	
Mass of pipet with 1M HCl added	

Describe what takes place in the beaker containing the zinc after you have added HCl.

Make a drawing of the beaker and its contents. Label all substances present.

Describe the beaker and its contents after it has sat for ten minutes.

Postlab Questions

1) Calculate the mass of water in the pipet.

2) Determine the volume of the pipet (this is the same as the volume of water).

3) What mass of Zn did you use?

4) How many moles of Zn did you use?

5) Calculate the volume and mass of HCl solution you used?

6) Calculate the number of moles of HCl you used.

7) Determine which reactant is in excess.

8) Based on your macroscopic observations of the beaker and its content, which reactant is in excess? How can you tell?

9) Do the answers for the last two questions agree with each other?

10) There are two possible explanations for having no zinc left after the reaction. What are they?