

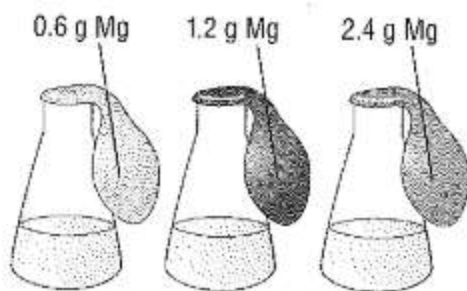
Quick Lab: Limiting Reagents
No lab report-turn this paper in

Name: _____

Purpose: To illustrate the concept of a limiting reagent in a chemical reaction.

Procedures:

1. Add 100 mL of the hydrochloric acid solution to each flask. Record the exact volume in the data table.
2. Weigh out 0.6 g, 1.2 g, and 2.4 g of magnesium ribbon, and place each sample into its own balloon. Record the exact mass in the data table.
3. Stretch the end of each balloon over the mouth of each flask. Do not allow the magnesium ribbon into the balloon to fall into the flask.



4. Magnesium reacts with hydrochloric acid to form hydrogen gas and one other product. Write the equation for this single displacement reaction below. When you mix the magnesium with the hydrochloric acid in the next step, you will generate a certain volume of hydrogen gas. How do you think the volume of hydrogen gas produced in each flask will compare? Hypothesis:

6. Lift up on each balloon and shake the magnesium metal down into each flask. Observe the volume of gas produced until the reaction in each flask is completed.

Analyses and Conclusions:

1. How did the volumes of hydrogen gas produced, as measured by the size of the balloons, compare? Did the results agree with your predictions?

2. Write the balanced equation for the reaction between magnesium metal and hydrochloric acid.

3. The 100 mL of hydrochloric contained 0.10 mol HCl. Show by calculation why the balloon with 1.2 g Mg inflated to about twice the size of the balloon with 0.60g of Mg.

4. Show by calculation why the balloons with 1.2g and 2.4 g Mg inflated to approximately the same volume. What was the limiting reagent when 2.4 g Mg was added to the acid?