# Chemistry 20

# Lesson 34 – Collecting Hydrogen Gas

## Materials:

| | |
|---|---|
| 2.0 cm length of magnesium ribbon | ruler |
| 1.0 mol/L hydrochloric acid | #5 1-hole rubber stopper |
| 100 mL graduated cylinder | 500 mL beaker |

## Instructions:

- Find the mass of the ribbon. Measure the length in centimetres and multiply by the conversion factor which the teacher has written on the board.
- Half fill the 500 mL beaker with tap water.
- Pour about 70 mL of the acid into your graduated cylinder. Fill to the top with tap water.
- In one swift action, drop the magnesium ribbon in the acid solution and place the one hole stopper immediately in the cylinder with your finger covering the hole. Quickly invert the cylinder and place it within the 500 mL beaker.
- Wait until all of the magnesium ribbon has disappeared and observe the volume of gas collected.
- With a flame, test the contents of the cylinder. (If you are unsure of what to do, ask your kind and benevolent teacher for instructions.)
- Safely dispose of remaining materials.

## To complete the activity:

1. Write a <u>purpose</u> for the activity.

2. <u>Experimental design</u> - a) manipulated variable
   b) responding variable

3. <u>Observations</u>

4. <u>Conclusion</u>.
   A. Analysis.
      a. Provide a stoichiometric calculation of the theoretical yield.

   B. Evaluation
      a. Calculate the percent error.
      b. Give at least 2 possible reasons for the error.

5. <u>Questions</u>
   1. What "conditions" did you assume for your calculations?
   2. What <u>mass</u> of gas was produced?
   3. What was the result of the flame test?

**Be prepared to perform and write-up the lab next class.**

- **The lab write-up is to be turned in <u>before the end of class</u>.**
- **One write-up for two people.**