

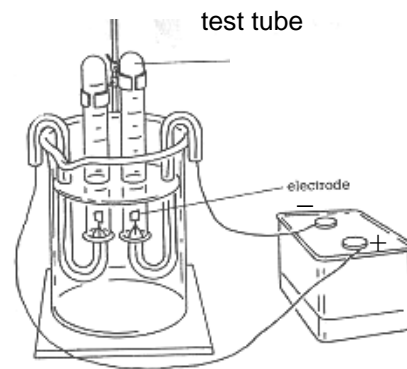
## Lab 2.1: The Electrolysis of Water (2005-06 Version)

Electrolysed partner=

**Purpose:** To use electrolysis to dissociate water into its constituent elements, to check the identity of these elements and to discover the ratio in which these elements are produced.

**Procedure:**

1. Pour about 400 mL of a water-sulfuric acid mixture into a large beaker, if it has not been done for you already.
2.
  - a. Completely fill a test tube with that same water-acid mixture.
  - b. Cover the test tube with a small piece of brown paper, making sure that the paper is wet, and that it sticks to the rim of the tube.
  - c. Gently turn the test tube upside down, and place it in the beaker. Make sure there are no bubbles in the test tube.
3. Repeat steps 2a→c with a second test tube.
4. The electrodes are found at the tips of what look like little black or red umbrella handles. Insert the electrodes into the test tubes, and, if available, secure the tubes with clips.
5.
  - a. Connect one end of the electrical wire to the (+) terminal of the power supply, and connect the other end to one of the brass screws on the flat plate holding the electrodes. If no screw exists, support the electrode against the side of the beaker.
  - b. Connect the end of a second electrical wire to the (-) terminal of the power supply, and connect the other end to one of the brass screws or support the electrode against the side of the beaker.
6. *Make sure the electrode ends are inside the test tubes.*
7.
  - a. Turn on the power supply.
  - b. Turn the control knob to 9.0 V.
8. Record the present clock time.
9. Begin to record your observations.



10. After 10 minutes measure the amount of gas collected in each test tube with a ruler. Record your measurements in the table found in the analysis section. Use *cm* and estimate to 2 decimal places.
11. a. Let the reaction continue for 3 more minutes, and test each tube with a glowing splint. Record your observations in the table found in the analysis section.

**Data and Analysis:**

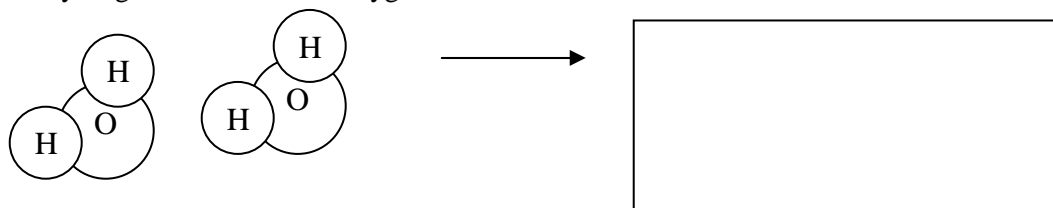
1.

Terminal	Height of gas in tube	Ratio of gas height at (-) terminal to that of (+) terminal
+		
-		

2.

Test Tube(terminal)	Observations with glowing splint test	Identity of Gas
+		
-		

3. a. Theoretically, in what ratio are the two gases produced? \_\_\_H<sub>2</sub> to \_\_\_O<sub>2</sub>
- b. Examine the diagram below, which shows that when water molecules decompose, they do so two H<sub>2</sub>O's at a time. When this occurs, how many hydrogen molecules and oxygen molecules will be created? Draw in the answer.



**Conclusion:**

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