

### EXPERIMENT 33: ELECTROPLATING

Equipment: battery, two 150mL beakers, 1 teaspoon.

Materials: 100mL of  $\text{CuSO}_4$ , 2 carbon rods, 1 piece of emery cloth

- A. Place two carbon rods in a 5% copper II sulfate solution. Connect them to the terminals of a battery and let the current flow five minutes. Remove and examine them.

1. At which electrode does a change take place? \_\_\_\_\_

Diagram of Electroplating

2. Describe the change that has taken place. \_\_\_\_\_  
\_\_\_\_\_

3. What symbol represents the copper particle as it existed in the  $\text{CuSO}_4$  solution? \_\_\_\_\_

4. What symbol represents the copper deposited on the cathode? \_\_\_\_\_

5. Write the electronic equation for the reaction at the cathode. \_\_\_\_\_

6. What kind of anode must be used to keep the copper II sulfate solution at a constant concentration? \_\_\_\_\_

7. Write the electronic equation to represent the change that must take place at the anode to maintain the copper ion concentration in the solution. (Refer to your textbook) \_\_\_\_\_  
\_\_\_\_\_

- B. Use the copper coated carbon rod as an anode and a teaspoon as a cathode. Allow the current to flow for five minutes. Remove the spoon and polish it by rubbing it with a piece of cloth.

8. Describe the result. \_\_\_\_\_

9. Mention two important industries that are dependent on the process illustrated in this experiment. \_\_\_\_\_

### CONCLUSION

Copper deposits on a cathode immersed in a solution of  $\text{CuSO}_4$ , because the copper ions from the  $\text{CuSO}_4$  gain \_\_\_\_\_ at the \_\_\_\_\_.