

## 5 • Reactions in Aqueous Solutions

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### INTRODUCTION TO OXIDATION/REDUCTION

#### Materials:

- Test tube with cupric chloride
- Aluminum foil
- Stirring rod (longer than test tube)
- Test tube holder (if needed)
- Distilled water

#### Procedure:

1. Put on goggles.
2. Obtain first four items. (Water is at lab.)
3. Observe cupric chloride.
  - a. Color: \_\_\_\_\_
  - b. Formula: \_\_\_\_\_
4. Add a **few drops** of water. Observe.
  - a. Color: \_\_\_\_\_
5. Add water until test tube is one-third full. Stir. (Hold test tube with **hand** while stirring.)
  - a. Color: \_\_\_\_\_
6. Loosely crumple foil so it fits into tube.
  - a. Formula: \_\_\_\_\_
7. Add foil to cupric chloride solution. Observations:
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8. Clean up:
  - a. Dump contents of test tube into waste container (not down the sink).
  - b. Wash test tube with soapy water and leave to dry on rack.
  - c. Return rinsed stirring rod.
  - d. Return test tube holder.

Questions:

1. Write the reactants for this reaction:

\_\_\_\_\_ + \_\_\_\_\_ →

2. What was the red-brown product? \_\_\_\_\_

3.  $\text{Cu}^{2+}$  ions turned into \_\_\_\_\_.

Al metal turned into \_\_\_\_\_.

4. Al (gained/lost) \_\_\_\_\_ electrons. How many?

$\text{Cu}^{2+}$  (gained/lost) \_\_\_\_\_ electrons. How many?

5. Balanced equation:

\_\_\_\_\_

6. Gaining and losing electrons is **so** important that we have special names for it. (Full definition.)

Oxidation –

LeO

Reduction –

GeR

7. ( $\text{Cu}^{2+}/\text{Al}$ ) \_\_\_\_\_ is oxidized. ( $\text{Cu}^{2+}/\text{Al}$ ) \_\_\_\_\_ is reduced.