

5 • Reactions in Aqueous Solutions

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:
 -
 -
 -
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. Cu^{2+} ions turned into _____.

Al metal turned into _____.

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

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. (Cu^{2+}/Al) _____ is oxidized. (Cu^{2+}/Al) _____ is reduced.