

Name: \_\_\_\_\_  
Per: \_\_\_\_\_

## Reaction Types

II. Purpose: To observe chemical reactions and identify the reactants, products and the reaction types.

III. Procedure:

### Part 1

1. Use a piece of fine sandpaper to strip a 2 cm piece of copper wire.
2. Using crucible tongs, hold the copper in the hottest part of a burner flame for 90 seconds.
3. Return sand paper; put wire in trash.

### Part 2

1. Collect a 5 cm piece of magnesium ribbon.
2. Using tongs, hold the ribbon in the burner flame until a reaction begins.
3. Once started, hold the burning ribbon over the countertop and allow the reaction to continue to completion, then throw product in trash.

### Part 3

1. Place approximately 1.0 cm of copper II carbonate in a medium dry test tube.
2. Using a test tube clamp, heat the compound strongly for about 3 minutes. Have a stirring rod ready to “poke” the powder if it begins to climb the test tube.
3. Remove the tube from the flame.
4. Test for the presence of CO<sub>2</sub> by inserting a burning wood splint into the test tube.
5. Run splint under water. Then, put all components in trash.

### Part 4

1. Stand a medium clean test tube in the test tube rack.
2. Add 2 cm of 6M HCl to the test tube.
3. Carefully slide 4 small pieces of Zn into acid.
4. Invert another larger test tube over the reaction test tube.
5. Collect any gas produced for 30 seconds.
6. Test the product for the presence of hydrogen gas by inserting a burning splint into the upper collection test tube (not the reaction test tube).
7. Pour solution and Zn in waste bucket in the fume hood. Put the wet splint in trash.

Part 5

1. Add 2 cm of 1M copper II sulfate to a medium clean test tube.
2. Carefully slide a small piece of Zn into the solution.
3. Place the test tube in rack and allow the reaction to continue for the remainder of lab.
4. After Part 6, return to this test tube and record your observations.
4. Pour solution and Zn in waster bucket.

Part 6

1. Add 1 cm of 0.1M zinc acetate to a small clean test tube.
2. Add 1 cm of 0.1M sodium phosphate to another small test tube.
3. Pour the solutions together in one of the test tubes.
3. Pour the mixture in waste bucket.

IV. Data

Procedure #	<u>Before Reaction</u>	<u>After Reaction</u>
1		
2		
3		
4		
5		
6		

## V. Calculations

Identify the type of reaction and write the balanced equation for each procedure. **Include the subscripts indicating the phase of each reactant and product.**

Part 1 Reaction Type =

Part 2 Reaction Type =

Part 3 Reaction Type =

Part 4 Reaction Type =

Part 5 Reaction Type =

Part 6 Reaction Type =

## VI. Conclusions

1. Describe the tests used to check for the presence of:

CO<sub>2</sub>

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H<sub>2</sub>

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2. Which of the five reaction types are always endothermic? Which are always exothermic?

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3. During this lab, we also carried out a combustion reaction. When did you do this? Write the balanced equation for this reaction. (Hint: the answer to this question is not immediately obvious)

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