

Name \_\_\_\_\_ Period \_\_\_\_\_  
LTHS: Chemistry

## Chemical Reactions Lab

Pre- Lab Questions:

1. Name the five types of chemical reactions.
2. What is a reactant in a chemical reaction?
3. What is a product in a chemical reaction?
4. Name four ways you can tell a chemical reaction has taken place.
5. What does the arrow ( $\rightarrow$ ) in a chemical reaction mean?
6. Give the four symbols for physical states of reactants and products, and tell what each symbol means.

Demo:

**Word equation:** Ethanol ( $C_2H_5OH$ ) reacts with oxygen in the air to produce carbon dioxide and water vapor.

- a. How did you know a chemical reaction took place?
- b. Formula of reactant(s)
- c. Formula of product(s)
- d. Type of chemical reaction
- e. Write the equation for the reaction (including all physical states).



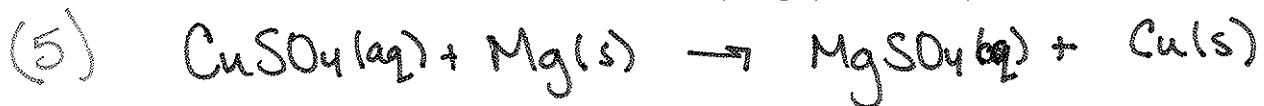
9. Place a small piece of magnesium ribbon (about 10 mm long) into a small test tube. Add enough copper (II) sulfate to just cover the ribbon. Compare to the sample prepared by the teacher.

**Word Equation:** Aqueous copper (II) sulfate reacts with solid magnesium to produce aqueous magnesium sulfate and solid copper.

- a. How did you know a chemical reaction took place?
- b. Formula of reactant(s)
- c. Formula of product(s)
- d. Type of chemical reaction

(1) Single Replacement

- e. Write the equation for the reaction (including all physical states).



10. Place 10 drops of barium chloride into a small test tube. Add 10 drops of sodium sulfate.

**Word Equation:** Aqueous barium chloride reacts with aqueous sodium sulfate to make solid barium sulfate and aqueous sodium chloride.

- a. How did you know a chemical reaction took place?
- b. Formula of reactant(s)
- c. Formula of product(s)
- d. Type of chemical reaction

(1) Double Replacement

- e. Write the equation for the reaction (including all physical states).



11. Place 20 drops of hydrogen peroxide into a small test tube. Add a small amount of manganese (IV) oxide to the tube (just enough to cover the bottom of the test tube).

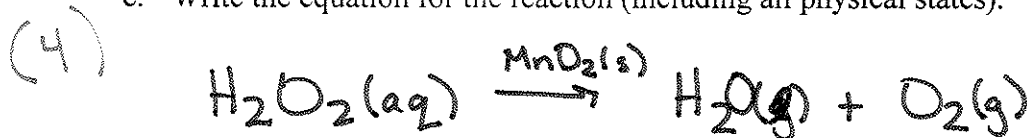
**HINT:** manganese (IV) oxide is a catalyst. It is not a reactant or product, but it speeds up the reaction. A catalyst is indicated in a chemical reaction by writing the formula of the catalyst over the arrow.

**Word Equation:** Aqueous dihydrogen dioxide (hydrogen peroxide) decomposes to produce water and oxygen.

- How did you know a chemical reaction took place?
- Formula of reactant(s)
- Formula of product(s)
- Type of chemical reaction

(1) Decomposition

- Write the equation for the reaction (including all physical states).



12. Light the Bunsen burner using a striker.

**Word Equation:** When carbon tetrahydride gas reacts with elemental oxygen, carbon dioxide gas and water vapor are produced.

- How did you know a chemical reaction took place?
- Formula of reactant(s)
- Formula of product(s)
- Type of chemical reaction

(1) Combustion

- Write the equation for the reaction (including all physical states).

