

## Reaction Representation

A **chemical equation** is a short way of describing the changes that occur during a chemical reaction. The substances that react during a chemical reaction are called the **reactants**. The substances that are produced are called the **products**. The symbol  $\longrightarrow$ , called a yield sign, means "produces" or "yields." The + sign means "and" or "add." Chemical formulas and symbols are used to represent the names of the substances in a reaction.

The following symbols can be used after the chemical formulas to indicate the state of each of the reactants and products in a chemical reaction:

*s* means "solid." (Solids can also be labeled *c* if they look like crystals.)

*l* means "liquid."

*g* means "gas."

*aq* means "aqueous" or "dissolved in water."

The following is the chemical equation for the chemical reaction that takes place when silver nitrate is dissolved in water and is then mixed with sodium chloride that has been dissolved in water. When these two are mixed, a chemical reaction takes place and silver chloride in solid form and sodium nitrate in solution are produced.



The reactants are on the left side of the yield sign. The products are on the right side.

Name the reactant(s) in the following chemical reactions:

1.  $2\text{Mg} (\text{s}) + \text{O}_2 (\text{g}) \longrightarrow 2\text{MgO}$  \_\_\_\_\_
2.  $\text{C} (\text{s}) + \text{O}_2 (\text{g}) \longrightarrow \text{CO}_2 (\text{g})$  \_\_\_\_\_
3.  $2\text{H}_2 + \text{O}_2 \longrightarrow 2\text{H}_2\text{O}$  \_\_\_\_\_

Name the product(s) in the following chemical reactions:

4.  $2\text{CO} + \text{O}_2 \longrightarrow 2\text{CO}_2$  \_\_\_\_\_
5.  $\text{N}_2\text{H}_4 + \text{O}_2 \longrightarrow \text{N}_2 + 2\text{H}_2\text{O}$  \_\_\_\_\_
6.  $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \longrightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$  \_\_\_\_\_

7. Write the chemical equation for the following chemical reaction: Silver nitrate in solution (dissolved in water) and potassium chloride in solution react to produce silver chloride as a precipitate or solid, and potassium nitrate in solution. (Note that the chemical formula for potassium chloride is  $\text{KCl}$ . The formula for silver nitrate is  $\text{AgNO}_3$ .)  
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