

# Glossary

## Chapter 21—Acids, Bases, and Salts

**hydronium ion** (p. 513) The cation formed by the self-ionization of water;  $\text{H}_3\text{O}^+$ .

**hydroxide ion** (p. 513) The anion formed by the self-ionization of water;  $\text{OH}^-$ .

**dynamic equilibrium** (p. 513) The state of any two-way process in which the concentration of particles remains relatively constant but the identity of the individual particles constantly changes.

**acid** (p. 514) Any substance that donates hydrogen ions (protons, or  $\text{H}^+$ ), according to the Brønsted-Lowry model; any substance that produces hydronium ions ( $\text{H}_3\text{O}^+$ ) in an aqueous solution, according to the Arrhenius model. Other definitions of acids exist.

**base** (p. 515) Any substance that accepts hydrogen ions (protons, or  $\text{H}^+$ ), according to the Brønsted-Lowry model; any substance that produces hydroxide ions ( $\text{OH}^-$ ) in an aqueous solution, according to the Arrhenius model. Other definitions of bases exist.

**Arrhenius model** (p. 515) One of the first useful models of acids and bases in which acid compounds form hydronium ions ( $\text{H}_3\text{O}^+$ ) in aqueous solutions and bases form hydroxide ions ( $\text{OH}^-$ ) in aqueous solutions.

**Brønsted-Lowry model** (p. 515) A model of acids and bases (more complete than the Arrhenius model) that defines acidity and alkalinity based on hydrogen ion transfer. Acids donate hydrogen ions ( $\text{H}^+$ , or protons), and bases accept hydrogen ions.

**monoprotic acid** (p. 516) An acid that can donate only one hydrogen ion.

**polyprotic acid** (p. 517) An acid that can donate two or more hydrogen ions.

**conjugate base** (p. 517) The proton acceptor produced after a Brønsted-Lowry acid donates a proton.

**conjugate acid** (p. 518) The proton donor produced after a Brønsted-Lowry base accepts a proton.

**salt** (p. 520) Any ionic compound that could be produced by the combination of a base cation and an acid anion in a neutralization reaction.

**neutralization reaction** (p. 520) A reaction between an acid and a base. In aqueous solutions, the products are a salt and water.

**pH scale** (p. 525) A scale that indicates the acidity or alkalinity of a solution based on the logarithm (an exponent of 10) of the hydronium ion concentration in moles per liter. A pH of 7 is neutral, a pH of 0 is extremely acidic, and a pH of 14 is extremely basic.

**acidic** (p. 525) Having a pH value less than 7.

**alkaline** (p. 525) Having a pH value greater than 7. Also called basic.

**pH indicator** (p. 526) Any substance, but often an organic compound, that turns a specific color in a solution with a particular pH and that may be used to determine the pH of a solution when used with other indicators.

**pH meter** (p. 527) An instrument designed to measure the pH of a solution, using the electrical potential of the hydronium ions in the solution.