Name _____ Date _____ Class _____

Concentration and Solubility

Key Concepts

- How is concentration measured?
- Why is solubility useful in identifying substances?
- What factors affect the solubility of a substance?

Concentration is the amount of solute dissolved in a certain amount of solvent. A **dilute solution** has only a little solute dissolved in the solvent. A **concentrated solution** has a lot more solute dissolved in the solvent. You can change the concentration of a solution by adding more solute. You can also change the concentration by adding or removing solvent. **To measure concentration, you compare the amount of solute to the amount of solvent or to the total amount of solution.**

Solubility is a measure of how much solute can dissolve in a solvent at a given temperature. When you've added so much solute that no more dissolves, you have a **saturated solution.** If you can continue to dissolve more solute, you still have an **unsaturated solution.** The solubility of a substance tells you how much solute you can dissolve before a solution becomes saturated. **Solubility can be used to help identify a substance because it is a characteristic property of matter.**

The solubilities of solutes change when conditions change. **Factors that affect the solubility of a substance include pressure, the type of solvent, and temperature.** Pressure affects the solubility of gases. The higher the pressure of the gas over the solvent, the more gas can dissolve.

Sometimes you can't make a solution because the solute and solvent will not mix. Ionic and polar compounds dissolve in polar solvents. Nonpolar compounds do not dissolve in polar solvents.

Many solids dissolve better when the temperature of the solvent increases. Unlike most solids, gases become less soluble when the temperature goes up. When heated, a solution can dissolve more solute than it can at cooler temperatures. A **supersaturated solution** has more dissolved solute than is predicted by its solubility at the given temperature. Dropping a crystal of the solute in a supersaturated solution will cause the extra solute to come out of solution.

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Concentration and Solubility (pp. 230–235)

This section describes how concentration is measured. It also describes the usefulness of solubility and factors that affect it.

Use Target Reading Skills

After you read the section, for each Key Term write a meaningful sentence that incorporates that Key Term.

dilute solution

_____

_____

concentrated solution

_____

_____

solubility

_____

_____

saturated solution

_____

_____

unsaturated solution

_____

_____

supersaturated solution

_____

_____

Concentration (pp. 230–231)

Match the term with its definition.

Term	Definition
___ 1. dilute solution	a. A mixture that has a lot of solute dissolved in it.
___ 2. concentrated solution	b. A mixture that has only a little solute dissolved in it.