

Concentration

13-3

Concentration

- ▶ Concentration of a solution is a measure of the amount of *solute* in a given amount of *solvent* or *solution*.
 - **Dilute solution**– a relatively small amount of solute in the solvent.
 - **Concentrated Solution** – a relatively large amount of solute in the solvent.
 - ****Not related to saturated, unsaturated, or supersaturated.**

Concentration – Molarity

- ▶ Molarity is the number of moles of solute dissolved in one liter of solution.

$$\text{Molarity (M)} = \frac{\text{amount of solute (mol)}}{\text{volume of solution (L)}}$$

Molarity Practice

Molar mass NaCl = 58.44 g/mol

- ▶ You have 3.50 L of solution that contains 90.0 grams of sodium chloride, NaCl. What is the molarity of the solution?

$$\text{Molarity (M)} = \frac{\text{mol solute}}{L}$$

Molarity Practice 2

- ▶ You have 0.8 L of a 0.5M HCl solution. How many moles of HCl does this solution contain?

$$\text{Molarity (M)} = \frac{\text{mol solute}}{L}$$

Molarity Practice #3

Molar mass KI = 165.9 g/mol

- ▶ What is the molarity of a solution composed of 5.85 grams of potassium iodide, KI, dissolved in enough water of make 0.125 L of solution?

$$\text{Molarity (M)} = \frac{\text{mol solute}}{L}$$

Molarity Practice #4

Molar mass $\text{CaCO}_3 = 100.1 \text{ g/mol}$

- ▶ What is the molarity of a solution when you dissolve 60.0 grams of CaCO_3 in 500 mL of solution?

$$\text{Molarity (M)} = \frac{\text{mol solute}}{L}$$

The End

$$\text{Molarity (M)} = \frac{\text{mol solute}}{L}$$

