

Warm-UP:

- Listen to "What if" pg. 10

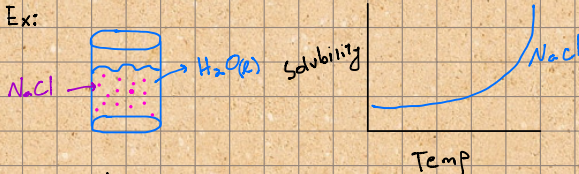
- Solution: homogeneous mixture where one substance is dissolved into another

↳ Solute: substance that is dissolved

↳ Solvent: substance that dissolves the solute

↳ This class will use H_2O as a solvent

Ex:



- Saturated: Max amount of solute per solvent at particular temp

- Super saturated: contains an excess amount of solute → above max

- Concentration: amount of solute in a solution

$$\text{↳ Molarity } [M] = \frac{\text{Moles Solute}}{\text{Liters Solvent}}$$

$$\text{ex: } 1 \text{ M HCl} = \frac{1 \text{ mol HCl}}{1 \text{ Liter of H}_2\text{O}}$$

Ex: what is the molarity of a solution if 100 mL of H_2O is combined with 0.90 g NaCl?

$$\frac{0.90 \text{ g NaCl}}{58.44 \text{ g NaCl}} \cdot \frac{1 \text{ mol NaCl}}{1 \text{ mol NaCl}} = \frac{0.015 \text{ mol NaCl}}{0.1 \text{ L H}_2\text{O}} = \boxed{0.15 \text{ M NaCl}}$$

Ex2: How many moles of NaHClO are there in 1.5 L of 0.70 M NaHClO?

$$M = \frac{\text{mol}}{\text{L}} \rightarrow 0.7 \text{ M} = \frac{\text{mol}}{1.5 \text{ L}} \cdot 1.5$$
$$\boxed{\text{mol} = 1.1 \text{ mol NaHClO}}$$

★ Solutions can be diluted by adding more solvent

$$\downarrow M = \frac{\text{mol solute}}{\text{L solvent}} \uparrow$$

M_1 = initial M

$$M_1 V_1 = M_2 V_2 \quad V_1 = \text{initial Volume}$$

M_2 = final M

V_2 = final Volume

Ex3: $M_1 = 2.00 \text{ M MgSO}_4$ $2.00 \text{ M} \cdot V_1 = \frac{0.40 \text{ M} \cdot 100.0 \text{ mL}}{2.00}$
 $V_1 = ?$
 $M_2 = 0.40 \text{ M MgSO}_4$ $V_1 = 20. \text{ mL}$
 $V_2 = 100.0 \text{ mL}$ $= 0.020 \text{ L}$