## Solutions

How many moles of solute particles are in each of the following solutions?

0.50 M $CH_3Cl$ 0.50 moles

0.50 M $K_2SO_4$ 1.5 moles

0.50 M $FeCl_3$ 2.0 moles

0.50 M $CH_3CH_2OH$ 0.50 moles

Label the following as strong, weak, or nonelectrolytes

| | | |
|---|---|---|
| HF | HBr | $Na_2CO_3$ |
| Weak | strong | strong |
| $CH_3COOH$ | $CH_3COCH_3$ | KOH |
| Weak | non | strong |

What is the difference between solvation and hydration?

Solvation is when solvent molecules surround the solute particles.
Hydration is when water molecules surround the solute particles.

Indicate if the following pairs will or will not form a solution.

| | |
|---|---|
| $C_3H_8$ and $H_2O$ | $CH_3OH$ and $C_7H_8$ (toluene) |
| No | No |
| $C_{20}H_{30}O$ and water | Gasoline (large hydrocarbons) and NaCl |
| No | No |
| $C_7H_8$ and $C_6H_{14}$ | $KNO_3$ and $H_2O$ |
| Yes | Yes |

How does temperature affect the solubility of a solid? A gas?

In general solids become more soluble as temperature increases.
Gases become less soluble with increasing temperature.