



[Chemical Thermodynamics]

[Example]

- Assume vapor pressure of the components in solution can be represented by

$$P_1 = X_1 P_1^* e^{\alpha X_2^2}$$

$$P_2 = X_2 P_2^* e^{\alpha X_1^2}$$

- What is the relationship between α and β ?

[Activities]

- Hide all non-ideal aspects in activity coefficient

[Activities]

- For a dilute solution of solute j in solvent i :

[Activities]

- Common concentration units can be written in terms of activity.
- Molality
- Molarity

[Chemical Equilibrium]

- For a generic chemical reaction, define the extent of reaction.
- Look at Gibbs free energy as a function of reaction extent.

[Chemical Equilibrium]

- Derivative of Gibbs free energy relative to reaction extent can help define the location of equilibrium.

[Chemical Equilibrium]

- Continued
- Results in the equilibrium constant, K .