Equilibrium Systems

System 1

Investigate reactions other than the R + BG → B + RG.

For R + G → RG go to:

Molecular - http://cheminfo.chem.ou.edu/~mra/CCLI2004/ERGM.htm

Graphic - http://cheminfo.chem.ou.edu/~mra/CCLI2004/ERGN.htm

For BG → B + G go to:

Molecular - http://cheminfo.chem.ou.edu/~mra/CCLI2004/EBGM.htm

Graphic - http://cheminfo.chem.ou.edu/~mra/CCLI2004/EBGN.htm

For RB → R + B go to:

Molecular - http://cheminfo.chem.ou.edu/~mra/CCLI2004/ERBM.htm

Graphic - http://cheminfo.chem.ou.edu/~mra/CCLI2004/ERBN.htm

System 2

Investigate the affect that temperature has on the shifting of exothermic (BG → B + G) and endothermic (RB → R + B) reactions (see system 1). Investigate how the value of K is affected.

System 3

Investigate the affect that pressure/volume has on the shifting of different reactions (see system 1). Investigate how the value of K is affected.

System 4

Investigate the relationships among K, T, and ΔH. (Hint: use the van't Hoff equation.)

System 5

Investigate the relationships between K and Q for different kinds of concentration, pressure, and temperature changes.

System 6

Investigate the relationships between the rates of forward and reverse reactions as the reaction proceeds from initial to final states.

System 7

Investigate any other equilibrium system or investigate a modification of any of the above systems.

Research Statements

Use evidence from the MoLE simulations to prove or disprove the following assertions. Following are locations of various reactions that can be used in your investigations.

For R + G → RG go to:
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For BG → B + G go to:
Molecular - http://cheminfo.chem.ou.edu/~mra/CCLI2004/EBGM.htm
Graphic - http://cheminfo.chem.ou.edu/~mra/CCLI2004/EBGN.htm
For RB → R + B go to:
Molecular - http://cheminfo.chem.ou.edu/~mra/CCLI2004/ERBM.htm
Graphic - http://cheminfo.chem.ou.edu/~mra/CCLI2004/ERBN.htm

1. Temperature is the only factor that will affect the value of the equilibrium constant for a chemical reaction.

2. Reactions at equilibrium have concentrations related by stoichiometry.

3. At equilibrium, chemical reactions have equal concentrations of reactants and products.

4. The rates of chemical reactions slow as they go from initial states until they stop at the final state.

5. The changes in concentrations of reactants and products as the reaction proceeds from the initial state to the final state are controlled by the stoichiometry of the equation.