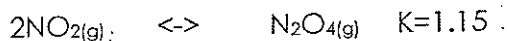


Equilibrium Constant- K_{eq}

- In an experiment, 0.500 mol/L of hydrogen bromide gas is decomposed into hydrogen and bromine gases.
 - Write the equilibrium equation and equilibrium law for this reaction.
 - The equilibrium concentrations in this system are $[HBr_{(g)}] = 0.240$ mol/L and $[H_2_{(g)}] = 0.130$ mol/L and $[Br_{2(g)}] = 0.130$ mol/L. Calculate K_{eq} .
- Nitrogen dioxide gas (4.6 mol/L) is produced from nitrogen monoxide gas (1.3 mol/L) and oxygen gas (1.8 mol/L). What is the equilibrium constant of this reaction? Are reactants or products favored?
- Sulfur dioxide gas (0.141 mol/L) and oxygen gas (0.25 mol/L) are produced when sulfur trioxide gas (1.6 mol/L) is decomposed.
 - Write a balanced chemical equation
 - Write the equilibrium law
 - Calculate the equilibrium constant
 - Describe the percent reaction.
- Hydrogen Chloride is produced from hydrogen and chlorine gases. At equilibrium, the hydrogen concentration is 0.12 mol/L and chlorine is 0.10 mol/L. Find the concentration of the hydrogen chloride if the equilibrium constant is 1.6.
- Methane and water vapor are reacted, in a 5.0L flask, to produce carbon monoxide and hydrogen. At equilibrium, the amounts of each material, respectively, are 4.8g, 4.3g, 8.62g and 2.60g. Calculate the K_{eq} . (Hint change mass to concentration)
- In a sealed container, Nitrogen dioxide is in equilibrium with dinitrogen tetroxide.



- write the mathematical expression for the equilibrium law applied to this chemical system
- If the equilibrium concentration of nitrogen dioxide is 0.050 mol/L, predict the concentration of dinitrogen tetroxide.
- Write a prediction for the shift in equilibrium that occurs when the concentration of nitrogen dioxide is increased