

Equilibrium Worksheet #2

1. Gaseous NOCl decomposes to form the gases NO and Cl₂. At 35°C the equilibrium constant is 1.6×10^{-5} . In an experiment in which 1.0 mol of NOCl is placed in a 2.0 L flask, what are the concentrations at equilibrium?

Heterogeneous equilibrium: more than one phase in solution.

-concentrations of pure solids and pure liquids cannot change.

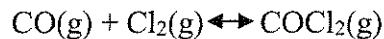
-not included in equilibrium expression.

2. Solid calcium carbonate dissociates in water to form calcium ions and carbonate ions. If 14 grams of calcium carbonate are dissolved in water, what will be the concentration of each ion in solution if $K = 9.7 \times 10^{-9}$?

3. Lead chloride dissociates to form Pb⁺² ions and Cl⁻¹ ions. What will be the concentration of each if $K = 1.6 \times 10^{-5}$?

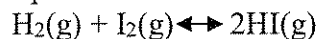
Equilibrium Review

1. At 25°C, $K = 3.7 \times 10^9$ for the reaction:



What will be the concentrations of CO and Cl_2 if the concentration of COCl_2 is 8.7 M at equilibrium?

2. At a particular temperature, a 3.00 L flask contains 3.5 mol HI, 4.10 mol H_2 , and 0.30 mol I_2 in equilibrium. What will be the new concentrations of all reactants and products if 2 moles of I_2 are added to this equilibrium mixture?



3. An equilibrium mixture contains 1.0 mole Fe, 2.5 mol O_2 , and 2.0 mol Fe_2O_3 all in a 8.5 L container. Calculate the value of K for this reaction.

