**Heterogeneous Equilibria**

**So far, we have discussed homogeneous equilibria (reactants and products are in a single phase, usually gaseous or solution).**

**Hetergenous equilibria are those in which reactants and products are present in more than 1 phase (solid somewhere).**

**For example: the thermal decomposition of solid calcium carbonate, a reaction used in manufacturing cement.**

**CaCO3 (s) CaO (s) + CO2 (g)**

**Limestone Lime Carbon Dioxide**

**Equilibrium Consant (Kc) can be expressed as:**

**Kc = [CaO] [CO2] / [CaCO3]**

**Since the equilibrium equation are ratios of actual concentrations (at standard state: 1 atm and 298 K) and the concentration of any pure solid is 1, [CaO] (s) = 1 and [CaCO3] (s) =1.**

**Since these concentrations are equal to 1, they can be omitted from the calculation of Kc, so:**

**Kc = [CaO] [CO2] / [CaCO3] = 1[CO2] /1 = [CO2]**

**You could do the same with Kp.**

**Kc = [CO2], Kp = PCO2**