

CH 223 Chapter Fifteen Study Guide

- Be able to write the solubility product constant expression (K_{sp}) for any insoluble salt. Recall the solubility tables from CH 221 – what do you think of them now?
- Be able to calculate K_{sp} values from experimental data.
- Know how to estimate the solubility of a salt from the value of K_{sp} .
- Be able to use the values of different K_{sp} s to predict the order of precipitation amongst various salts.
- Know how to decide if a precipitate forms when the ion concentrations are known using Q values.
- Be able to calculate the ion concentrations required to begin the precipitation of an insoluble salt.
- Be familiar with the concept of the common ion effect, and be able to calculate the solubility of a salt in the presence of a common ion.
- Know how to use K_{sp} values to devise a method of separating ions in solution from one another. This will become quite important during the last three labs of CH 223.
- Realize the differences between the solubility product constant and the formation constant (K_f). Know the definition of a complex ion and be able to recognize a complex ion in a reaction.
- Know that pH can affect the solubility of certain salts when basic anions are present. Be able to predict which salts should be soluble in strong acids, and know that most metal cations form "insoluble" hydroxide complexes (with the exception of the alkali metals and alkaline earths.)
- Recognize the reason for the quotation marks around "insoluble" in the above statement. Are the metal hydroxide salts *truly* insoluble? Do you recognize the reason for my scorn of the "solubility tables" from Chapter Five?
- Be able to solve and understand the assigned problems in problem set #4.