

Unit 12: Salts (1 week)

Core Textbook:

Brown, LeMay, Bursten, Murphy. Chemistry: The Central Science, 11th ed. New Jersey: Pearson Education, Inc., 2009.
Zumdahl, Steven S., Susan A. Zumdahl. Chemistry, 6th ed. Boston: Houghton Mifflin Company, 2003.

Additional Text:

Moog, Richard S., John J. Farrell. Chemistry: A Guided Inquiry, 3rd ed. US: John Wiley & Sons, Inc., 2006.

Vocabulary/Topics

Unit 12: Salts - K_{sp} , Common Ion Effect

Tentative Calendar:

Dr. Fus Videos:
(Chapter 17)

Salts

- [17.4 Overview of Solubility](#)
- [17.4.2 The Solubility Product Constant \(\$K_{sp}\$ \)](#)
- [17.4.3 Solubility Example Problem](#)
- [17.4.4 Ranking the Solubility of "Insoluble" Salts #1](#)
- [17.4.5 Ranking the Solubility of "Insoluble" Salts #2](#)

Common Ions

- [17.1 The Common Ion Effect](#)
- [17.5 Common Ion Effect](#)
- [17.5.2 pH Effects](#)

**** K_{sp} will be incorporated into the Unit 13 test on electrochemistry****

Tuesday 3/17 *K_{sp} Demo & Discussion (saturated KCl & 12M HCl)*

Before Class:

- Watch video: [17.4 Overview of Solubility](#); [17.4.2 The Solubility Product Constant \(\$K_{sp}\$ \)](#); [17.4.3 Solubility Example Problem](#); [17.4.4 Ranking the Solubility of "Insoluble" Salts #1](#); and [17.4.5 Ranking the Solubility of "Insoluble" Salts #2](#)
- Watch Mr. Kiffe's [Online Hwk#37 \(aka#90\) Video Help](#)
- Read these notes:
 - The dissolution of a salt is a reversible process whose extent can be described by K_{sp} , the solubility-product constant.
 - The solubility of a substance can be calculated from the K_{sp} for the dissolution process. This relationship can also be used to predict the relative solubility of different substances
 - The solubility rules can be quantitatively related to K_{sp} , in which K_{sp} values greater than one ($K_{sp} > 1$) correspond to soluble salts (Group 1 ANA).

1. Go over Unit 12 Test
2. K_{sp} Overview (ActivInspire.....also goes over 2-3 examples of online homework)
3. Complete 5 problems from [Slightly Soluble Salts Online Homework #90](#) or [Jaffe Online Hwk#37](#) or [HenryHigh Online Homework #37](#): ****UPLOAD Your Work HERE****

-*If the Online Hwk link isn't working, use this [backup video link for Online Hwk#90](#)

-Make sure K_{sp} values have 3 sig figs for this online hwk AND if need help watch [Online Hwk#37 \(aka#90\) Video Help](#)

Wednesday 3/18

Before Class:

-Watch video [Video 17.1](#); [17.5 Common Ion Effect](#); and [17.5.2 pH Effects](#)

-Read these notes:

- The solubility of a salt is reduced when it is dissolved into a solution that already contains one of the ions present in the salt. The impact of this “common-ion effect” on solubility can be understood qualitatively using Le Châtelier’s principle or calculated from the K_{sp} for the dissolution process.
- The solubility of a salt is pH sensitive when one of the constituent ions is a weak acid or base. These effects can be understood qualitatively using Le Châtelier’s principle.

1. [Ksp Problems using RICE Tables](#) ActivInspire
2. [Ksp Online Hwks#90-92](#) Practice Problems Handout ([KEY](#))

OR

3. Finish Ksp Overview (ActivInspire) from yesterday **OR** quick review of [Slightly Soluble Salts Online Homework #90](#) OR [Jaffe Online Hwk#37](#) OR [HenryHigh Online Homework #37](#)
*If the Online Hwk link isn’t working, use this [backup video link for Online Hwk#90](#)
4. Complete EACH of the following: *(You do **NOT** need to submit this online homework)*
 - a. 5 problems from [Solubility & The Common Ion Effect Online Hwk #92](#) *(For the first couple problems, just click the “Show Answer” button to see how to solve these type of problems)*
 - i. *If the Online Hwk link isn’t working, use this [backup video link for Online Hwk#92](#)
 - b. 5 problems from [Predicting Precipitation Online Hwk #91](#) *(These are Q_{sp} v K_{sp} problems - For the first couple problems, just click “Yes” or “No” to see how to solve these type of problems)*
 - i. *If the Online Hwk link isn’t working, use this [backup video link for Online Hwk#91](#) (It may look as though “YES” is selected every time; however, that is just because that is the only way to get it to show the answer)
 - ii. **NOTE:** *Always make sure to $\frac{1}{2}$ the molarity because you are adding equal volumes (For example, it would be like adding 10mL of a 0.2M solution to 10mL of a 0.3M solution.....once added together each concentration would be halved)*

Thursday 3/19

1. Work [K_{sp} Exam Question with KEY](#) (Click here for *old school* Mr. Kiffe [video covering problem #1](#))
- OR
2. Lab #13 - Determination of the K_{sp} of $\text{Ca}(\text{OH})_2$ (Informal lab)

Friday 3/20

1. Unit 12 Test RETAKE (“2nd Olympics”)
2. Work [K_{sp} Exam Question with KEY](#) (Click here for *old school* Mr. Kiffe [video covering problem #1](#))