

Chapter 8
Aqueous Solutions: Chemistry of the Hydrosphere
Learning Objectives

8.2.2021

To satisfy the minimum requirements for this course, you should be able to:

1. Define parts per million (ppm) and molarity
2. Apply your understanding of the properties of aqueous solutions to:
 - identify the solvent and solute(s) in a solution
 - determine whether a substance is a strong electrolyte, weak electrolyte, or nonelectrolyte
 - write balanced chemical equations for the dissolving of molecular compounds, ionic compounds, and acids and bases in water
3. Perform the following calculations involving concentration:
 - calculate the molarity, solution volume, or number of moles of solute given any two of these quantities
 - dilution calculations
 - stoichiometric calculations for reactions in aqueous solutions, e.g. titration calculations
 - use Beer's Law and absorbance data to determine the concentration of an unknown solution
4. Recognize acid-base reactions and be able to:
 - define Brønsted acids and bases and identify common examples of each.
 - explain the differences between strong and weak acids, and between strong and weak bases
5. Write complete ionic and net ionic equations, and identify spectator ions for:
 - precipitation reactions
 - strong acid/base neutralization reactions
6. Recognize precipitation reactions and use solubility rules (see the General Chemistry Reference Sheet and Table 8.4 in the textbook) to predict when a precipitation reaction is likely to occur.
7. Explain what is meant by the terms saturated, unsaturated and supersaturated.

N.B. Section 8.7 (Oxidation-Reduction Reactions) will be covered in SC112