

Lesson 12: Reactions I: Dissolution and Precipitation Reactions

text: 125-134

handout or webout (haha, nice new word I coined huh?):

-Solubility of ionic compounds in water (10), Reactions and equations (11)

what to know:

- difference between chemical equations and chemical reactions, sup- 11
- indicators that a reaction has occurred, make a list and ask in class
- process of dissolving including terms: dissolution, solute, solvent, aqueous, aqution, hydration, dissociation, ionize, strong (weak, non) electrolytes, saturated, solubility, miscible “like dissolves like”, §4- 1
- generalities regarding solubility, p- 130
- precipitation reactions, ionic equations, spectator ions, net ionic equations, §4-2
- solubility of ionic compounds (solubility rules), ask for the simple way!!, p- 130
- how to write net ionic dissolution and precipitation reactions, practice sheet

questions:

1. Write net ionic equations to illustrate the dissolving process for those which are water soluble compounds: AgCl , $\text{Ba}(\text{NO}_3)_2$, BaSO_4 , ZnSO_4 , NH_4Br , HgS , Na_3PO_4 , CaCO_3 , $\text{Mn}_3(\text{PO}_4)_2$, $\text{Cu}(\text{OH})_2$, $(\text{NH}_4)_2\text{CrO}_4$, MgS
2. State whether a precipitate will form when aqueous solutions of the following are mixed and write net
 - a. aluminum sulfate and sodium chloride
 - b. lead(II) nitrate and ammonium chloride
 - c. barium nitrate and chromium(II) sulfate
 - d. potassium nitrate and sodium hydroxide
 - e. nickel(II) chloride and sodium sulfide
 - f. silver nitrate and copper(II) chloride
 - g. titanium(IV) iodide and cadmium(II) nitrate
 - h. sodium carbonate, barium hydroxide and potassium chloride
 - I. ammonium phosphate, calcium sulfate and sodium nitrate
 - j. magnesium acetate and tin(IV) chlorate
 - k. iron(III) chloride and sodium hydroxide
 - l. cadmium(II) sulfate and barium sulfide
 - m. copper(II) sulfate and potassium sulfide
 - n. lead(II) nitrate and potassium iodide

Lesson 12: Reactions II: Acid-base Reactions

text: 135-138, 140-145

what to know:

- acids, bases, alkalis, indicators, neutralization, amphoteric, §4-3
- Arrhenius theory of acids and bases, concept of strong and weak acids and bases. §4-3
- list of strong acids and bases, §4-3, sup-10
- acid and base anhydrides, §4-3
- how to write net ionic equations for reactions involving acids and bases, §4-3, sup 11

questions:

1. What makes aqueous acid-base reactions go? What drives them?
2. For acid-base reactions in aqueous solution, what is the reacting species for each of the following acids or bases?
 - nitric acid, hydrofluoric acid, barium hydroxide, nitrous acid, sulfuric acid, acetic acid, hydrogen sulfide, potassium hydroxide, hydroiodic acid, perchloric acid, lactic acid($\text{HC}_3\text{H}_5\text{O}_3$), hypochlorous acid, ammonia
3. Write an equation to represent the net change occurring when the following are mixed and allowed to react. All are aqueous solutions unless otherwise specified. (i.e. the Net Ionic Equations)
 - a. AgNO_3 and HBr
 - b. $\text{Ba}(\text{OH})_2$ and $(\text{NH}_4)_2\text{CO}_3$
 - c. HCl and H_2SO_4
 - d. NH_4Cl and NaOH
 - e. BaCl_2 and NaOH
 - f. CuSO_4 and KOH
 - g. barium hydroxide and sulfuric acid
 - h. perchloric acid and potassium hydroxide
 - i. phosphoric acid and ammonia
 - j. HF and barium hydroxide
 - k. nitric acid and methylamine (CH_3NH_2)
 - l. acetic acid and lithium hydroxide
 - m. NH_4OH and H_2S
 - n. HNO_3 and $\text{NaC}_2\text{H}_3\text{O}_2$
 - o. Na_2CO_3 and HNO_2
 - p. $\text{CaCO}_3(\text{s})$ and HBr
 - q. $\text{ZnS}(\text{s})$ and H_2SO_4
 - r. Na_2S and HF
 - s. NH_4NO_3 and KI
 - t. Na_2SO_4 , $\text{Pb}(\text{NO}_3)_2$ and $\text{Zn}(\text{NO}_3)_2$