

Unit 6: TPS IV

1. If the pH of a saturated solution of $\text{Cd}(\text{OH})_2$ is 9.333, what is its K_{sp} ?
2. 20.0mL of a 0.0100M $\text{Mg}(\text{NO}_3)_2$ is mixed with 10.0mL of a 0.0010M ZnCl_2 . If sodium hydroxide solution is slowly added to the mixture which substance, $\text{Mg}(\text{OH})_2$ with a K_{sp} of 6×10^{-12} & $\text{Zn}(\text{OH})_2$ with a K_{sp} of 4×10^{-17} , will precipitate first? (assume no volume change w/ NaOH added)

TPS for Acid/Base Chemistry

1. What is the net ionic equation for a strong acid/strong base reaction. (When doing a SA/SB titration always use this equation or the regular balanced equation and do not forget to always use total volume with left over moles from a non ICE chart)
2. What is the pH of a 0.15M HCl solution?
3. What is the pH of a 0.10M KOH solution?
4. What indicator would you use for a strong acid/strong base titration?
5. What would the acid/base titration curve look like for a strong acid (HCl) titrated with a strong base (NaOH)?
6. 1.00 L of a 0.15M HCl solution is titrated w/ a .30M NaOH. What is the pH
 - a. before titration?
 - b. when 0.100L of NaOH is added?
 - c. when 0.250L of NaOH is added?
 - d. at the equivalence point?

HW: Ksp Review & Titrations

1. Calculate the molar solubility in moles per liter of chromium(III) hydroxide ($K_{sp}=6.3 \times 10^{-31}$) in
 - a. Pure water.
 - b. 0.050M chromium (III) nitrate solution.
 - c. 0.010 M sodium hydroxide solution.
2. If the pH of a saturated iron(III) hydroxide solution is 4.769, calculate the K_{sp} of $Fe(OH)_3$.
3. HF is a weak acid with a $K_a = 6.0 \times 10^{-4}$
 - a. What is the pH of 3.00L of a 0.150M solution?
 - b. What is the pH when 0.500 L of a 0.300M KOH is added to the weak acid solution?
 - c. What is the pH when 1.00 L of a 0.300M KOH is added to the weak acid solution?
 - d. What is the pH when 1.50L of a 0.300 M KOH is added to the weak acid solution?
 - e. What indicator would be used for this titration?