

Ch 19 Precipitation Reactions

NChO 1999

4. A colorless aqueous solution contains a single ionic compound. Use this experimental information to deduce the identity of the compound.

When a small amount of dilute NaOH solution is added to the solution, a precipitate forms. This precipitate dissolves when excess NaOH is added.	Addition of $\text{AgC}_2\text{H}_3\text{O}_2$ to the solution gives a white precipitate.
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- (A) AlCl_3 (C) CuSO_4
 (B) $\text{Ba}(\text{NO}_3)_2$ (D) FeI_2

40. The solubility of lead(II) carbonate is $2.7 \times 10^{-7} \text{ mol L}^{-1}$. What is its K_{sp} ?
 (A) 5.2×10^{-4} (C) 7.3×10^{-14}
 (B) 2.7×10^{-7} (D) 3.9×10^{-20}

NChO 1998

4. Which compound is least soluble in water?
 (A) $\text{Al}(\text{NO}_3)_3$ (C) K_2SO_4
 (B) Na_3PO_4 (D) PbCl_2
39. The solubility of PbI_2 is $0.0013 \text{ mol L}^{-1}$. Use this information to find the K_{sp} for PbI_2 .
 (A) 1.7×10^{-6} (C) 2.2×10^{-9}
 (B) 6.8×10^{-6} (D) 8.8×10^{-9}

NChO 1997

5. Which pair of substances can dissolve in water to give 0.1 M solutions and will produce a precipitate when they are mixed?
 (A) NaOH and BaCl_2
 (B) Na_2CO_3 and HClO_4
 (C) MgSO_4 and $\text{Pb}(\text{NO}_3)_2$
 (D) CaCl_2 and $\text{Zn}(\text{C}_2\text{H}_3\text{O}_2)_2$
40. Which product(s) would be formed when saturated solutions of calcium hydroxide and ammonium chloride are mixed?
 1. ammonia gas
 2. calcium chloride precipitate
 3. calcium diammine ion

- (A) 1 only (C) 1 and 2 only
 (B) 2 only (D) 1 and 3 only

NChO 1996

40. BaSO_4 and BaCO_3 are slightly soluble salts with comparable K_{sp} values in water. Which salt(s) will be more soluble in a 1.0 M solution of HNO_3 than in water?
 (A) BaSO_4 only
 (B) BaCO_3 only
 (C) both BaSO_4 and BaCO_3
 (D) neither BaSO_4 or BaCO_3

NChO 1995

12. Which reaction will produce a precipitate when 0.1 M aqueous solutions are mixed?
 (A) $\text{NaOH} + \text{H}_2\text{S} \rightarrow$
 (B) $\text{CaCl}_2 + \text{K}_2\text{CO}_3 \rightarrow$
 (C) $\text{Al}(\text{NO}_3)_3 + \text{Na}_2\text{SO}_4 \rightarrow$
 (D) $\text{CuSO}_4 + \text{NH}_4\text{Cl} \rightarrow$
35. The K_{sp} of CuCl is 1.9×10^{-7} at 25°C . What is the solubility of CuCl in mol L^{-1} ?
 (A) 3.6×10^{-14} (C) 4.4×10^{-4}
 (B) 1.9×10^{-7} (D) 8.8×10^{-4}

NChO 1994

36. The K_{sp} of $\text{PbI}_2(\text{s})$ is 1.4×10^{-8} at 25°C . What is the solubility of PbI_2 in moles per liter?
 (A) 1.2×10^{-4} (C) 1.9×10^{-3}
 (B) 1.5×10^{-3} (D) 2.4×10^{-3}

NChO 1993

30. The solubility of which salt will be increased the most in 1 M HCl (relative to its solubility in H_2O)?
 (A) BaCO_3 (C) NaNO_3
 (B) PbCl_2 (D) CuSO_4

NChO 1992

32. The solubility of which salt is not pH dependent?
 (A) CaF_2 (C) CaC_2O_4
 (B) CaCO_3 (D) CaCl_2