

Ionic Compound Solubility Examples

Molar Solubility

- 1) Calculate the molar solubility of calcium carbonate. ($pK_{sp} = 8.4$)

Common Ion Effect

- 2) Calculate the molar solubility of calcium carbonate in a 0.010 M solution of sodium carbonate.

Will it Precipitate?

- 3) At what $[OH^-]$ (and pH) will copper (II) hydroxide begin to precipitate from a 0.010 M solution of copper (II) chloride?
- 4) What is the maximum concentration of Pb^{+2} that can exist in a 0.15 M sodium chloride solution before it will precipitate?
- 5) 100.0 mL of a 1.0×10^{-4} M solution of calcium chloride is mixed with 500.0 mL of a 3.0×10^{-6} M solution of potassium phosphate. Will a precipitate form?

Answers

- 1) 6.3×10^{-5} M
- 2) 4.0×10^{-7} M
- 3) 5.0×10^{-9} M (pH 5.7)
- 4) 7.1×10^{-4} M
- 5) $Q = 3.1 \times 10^{-26}$ (Q > K_{sp} so it will precipitate)