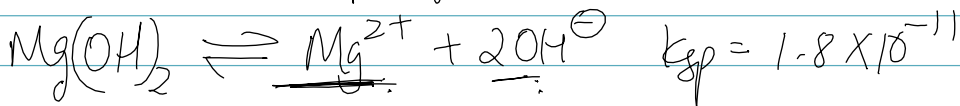


Sopna Juyot

K_{sp} Solubility and pH.

① What is the molar solubility of Mg(OH)₂ in a buffer of pH 9.



pOH = 14 - 9 = 5 [OH⁻] is antilog of 5 = 1.0 × 10⁻⁵ M

$$K_{sp} = [\text{Mg}^{2+}] [\text{OH}^-]^2$$

$$1.8 \times 10^{-11} = [\text{Mg}^{2+}] [1.0 \times 10^{-5}]^2$$

$$[\text{Mg}^{2+}] = \frac{1.8 \times 10^{-11}}{1.0 \times 10^{-10}} = 0.18 \text{ M}$$

1 mol Mg²⁺ ≡ 1 mol Mg(OH)₂ = 0.18 mol/l

② In which of the following solutions will Mg(OH)₂ be most ~~sub~~ soluble?

- (a) 1M NH₃ (b) 1M NH₃ / 1M NH₄⁺ (c) 1.00M NH₄Cl.
 least. NH₄⁺ most

Mg(OH)₂ (base) - more sol. in acidic

③ In which solution will strontium sulfite (SrSO₃) be most soluble in

- (a) 1M Na₂SO₃ (b) pure H₂O (c) 1M NH₃ (d) 1M NH₄NO₃.
 least NH₄⁺ / acidic most

Sr(SO₃) - slightly acidic. basic