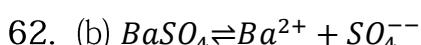


61. (b) CH_3COONa is a salt of weak acid and strong base. Hence its aqueous solution is alkaline.



$$\text{Solubility constant} = S \times S$$

$$1.5 \times 10^{-19} = S^2; S = \sqrt{1.5 \times 10^{-19}}; S = 3.9 \times 10^{-5}$$

63. (a) In a strongly acidic solution, very few S^{2-} ions are available because H_2S does not ionize completely.

Since precipitation of CdS needs S^{2-} ions, it does not precipitate.

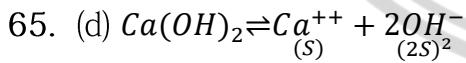
(a) Due to common ion effect (*very low S^{2-} concentration in acidic medium*)

64. (c) Dilution increases ionization

So $[H^+]$ decreases but ionization % increases

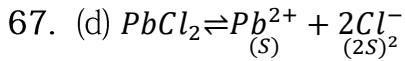
K_a remains constant (depends only on temperature)

(c) Percentage ionization will increase

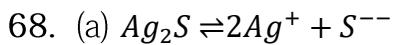


$$K_{sp} = 4S^3 = 4 \times \sqrt{3} \times \sqrt{3} \times \sqrt{3} = 12\sqrt{3}$$

66. (a) Due to common ion effect.

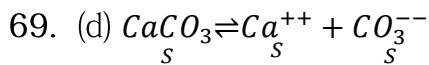


$$K_{sp} = 4S^3 = 4 \times (2 \times 10^{-2})^3 = 3.2 \times 10^{-5}$$



$$K_{sp} = 4S^3$$

$$S = \sqrt[3]{\frac{K_{sp}}{4}} = \sqrt[3]{\frac{3.2 \times 10^{-11}}{4}} = 2 \times 10^{-6}$$



Solubility product of $CaCO_3$

$$K_{sp} = S^2; S = \sqrt{K_{sp}}$$

It is a binary electrolyte.

$$S^2 = K_{sp}; (3.05 \times 10^{-4})^2 = K_{sp}; K_{sp} = 9.3 \times 10^{-8}$$



Let solubility = S

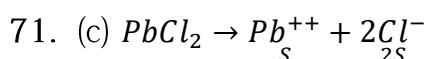
Then:

$$[Ba^{2+}] = S$$

$$[F^-] = 2S$$

But $Ba(NO_3)_2$ already provides Ba^{2+} ions, so Ba^{2+} is a common ion.

Due to the common ion effect, solubility is reduced, and we express solubility using F^- only



$$K_{sp} = S \times (2S)^2 = [6.3 \times 10^{-3}] \times [12.6 \times 10^{-3}]^2.$$

72. (d) A salt of strong acid and strong base cannot be hydrolysed. In this case the equilibrium cannot shift towards the backward.

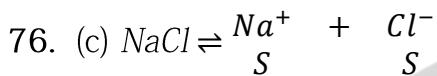


73. (d) If we mixed any substance into the solution. Then the value of pH is increased

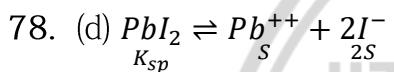
these substance is a salt of weak acid and strong base.

74. (d) It is a salt of strong base and weak acid.

$$75. \text{ (a)} \quad K_{sp} = 4s^3 = 4 \times [2.5 \times 10^{-2}]^3 = 62.5 \times 10^{-6}.$$



$$K_{sp} = S^2, S = \sqrt{K_{sp}} = \sqrt{36} = 6.$$



$$K_{sp} = 4S^3 = 4 \times [2 \times 10^{-3}]^3 = 32 \times 10^{-9}.$$

79. (b) When ionic product is greater than K_{sp} then precipitation occur

$$K_{sp} < 10^{-2}MCa^{2+} + 10^{-3}MF^-$$

80. (d) In IVth group the S^{2-} concentration increase when added the NH_4OH because

