

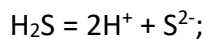
Answer on Question #77048 - Chemistry - Physical Chemistry

Question:

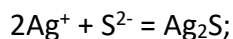
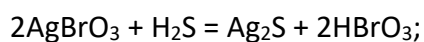
To precipitate as $\text{Ag}_2\text{S}(s)$, all Ag^+ present in 250 ml of a saturated solution of AgBrO_3 requires 3.36 cm^3 of $\text{H}_2\text{S}(g)$ measured at STP (Assuming H_2S is enough soluble in water). K_{sp} of AgBrO_3 is 10^{-50} , $K_a(\text{H}_2\text{S}) = 10^{-7}$

Solution:

$K_{sp} = [\text{Ag}^+]^2 [\text{BrO}_3^-]$, we know that AgBrO_3 is saturated, so if we find the solubility of Ag , we can refer to BrO_3^- , and also find the mole Ag .



$$K_a = [\text{H}^+]^2 [\text{S}^{2-}]$$



$$K_{sp} = [\text{Ag}^+]^2 [\text{S}^{2-}]$$

$$10^{-50} = (2x)^2 * x = 4x^3$$

$$10^{-50/3} = 4x$$

$$x = 10^{-50/3}/4$$

Answer provided by AssignmentExpert.com