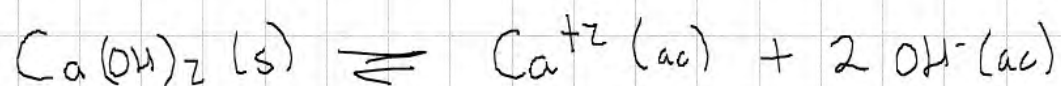


Sesión 3. 25 Junio 2025

Título de la nota

25/06/2025

$$K_s \text{ Ca(OH)}_2 = 10^{-5.26} \quad [\text{Ca}^{+2}] = 10^{-2} \text{ M}$$



$$K_R = [\text{Ca}^{+2}] [\text{OH}^{-}]^2 = 10^{-5.26}$$

$$[\text{OH}^{-}]^2 = \frac{K_s}{[\text{Ca}^{+2}]} = \frac{10^{-5.26}}{10^{-2}}$$

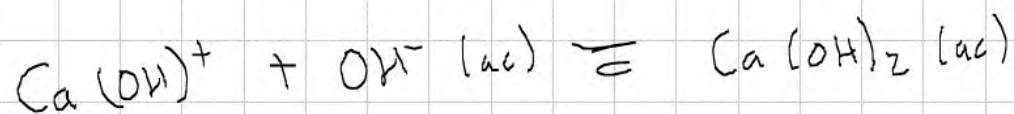
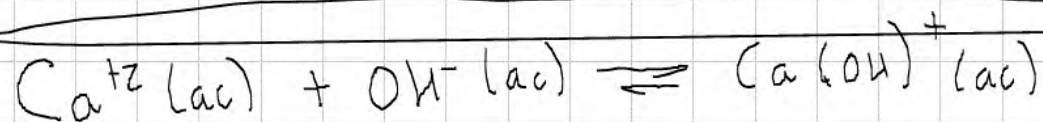
$$[\text{OH}^{-}] = \sqrt{\frac{10^{-5.26}}{10^{-2}}} = 10^{-3.26/2} = 10^{-1.63}$$

$$pH = 14 + \log C_{OH^-}$$

$$= 14 + 10^{-1.63}$$

$$= 14 - 1.63$$

$$= 12.37$$



$$\alpha_{Ca(OH)} = 1 + \beta_1 [OH^-]$$

$$\approx 1 + 10^{1.3} [OH^-]$$

$$= 1 + 10^{1.3} [10^{-2}]$$

$$= 1 + 10^{-0.7}$$

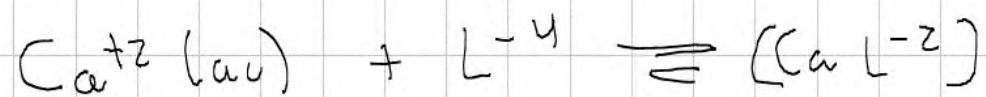
$$=$$

$$\alpha_{Ca(OH)} = \frac{[Ca^{+2}]_T}{[Ca^{+2}]_L}$$

$$pH=12$$

$$[OH^-] = 10^{-2}$$

$$[Ca^{+2}]_L = \frac{[Ca^{+2}]_T}{\alpha_{Ca(OH)}}$$



$$K_F = 10^{10.7}$$

$$K_F' = \frac{K_F}{\alpha_{\text{Ca}(\text{OH})} \alpha_{\text{L}(\text{H}_3\text{O}^+)}}$$

$$= \frac{10^{10.7}}{(1.1995)(1)} = \frac{10^{10.7}}{10^{0.08} 10^0}$$

$$= 10^{10.62}$$

$$pH = 12$$

$$\alpha_{L(H_3O^+)} = 1 + \beta_1 [H_3O^+] + \beta_2 [H_3O^+]^2 + \beta_3 [H_3O^+]^3 + \beta_4 [H_3O^+]^4 + \beta_5 [H_3O^+]^5 + \beta_6 [H_3O^+]^6$$

$$= 1$$

$$\beta_1 = \frac{1}{K_{a6}}$$

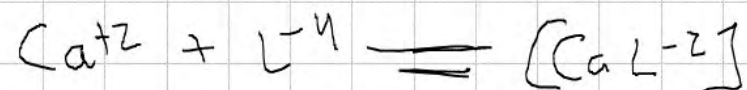
$$\beta_3 = \frac{1}{K_{a6} K_{a5} K_{a4}}$$

$$\beta_5 = \frac{1}{K_{a6} K_{a5} K_{a4} K_{a3} K_{a2}}$$

$$\beta_2 = \frac{1}{K_{a6} K_{a5}}$$

$$\beta_4 = \frac{1}{K_{a6} K_{a5} K_{a4} K_{a3}}$$

$$\beta_6 = \frac{1}{K_{a6} K_{a5} K_{a4} K_{a3} K_{a2} K_{a1}}$$



$$p_e \quad \varepsilon_{\text{Co}} \cdot \varepsilon_{\text{Co}} \quad \text{Co}$$

$$K_F' = 10^{10.62} = \frac{\cancel{\text{Co}}}{\varepsilon_{\text{Co}} \varepsilon_{\cancel{\text{Co}}}}$$

$$\varepsilon^2 = \frac{1}{K_F' \text{Co}}$$

$$\varepsilon = \sqrt{\frac{1}{K_F' \text{Co}}} = \sqrt{\frac{1}{10^{10.62} 10^{-2}}} = \sqrt{\frac{1}{10^{8.62}}}$$

$$\begin{aligned}\varepsilon &= \sqrt{10^{-8.62}} = 10^{-8.62/2} \\ &= 10^{-4.31}\end{aligned}$$

$$\begin{aligned}\% Q &= (1 - \varepsilon) 100 \\ &= (1 - 10^{-4.31}) \\ &= 99.995\%\end{aligned}$$



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