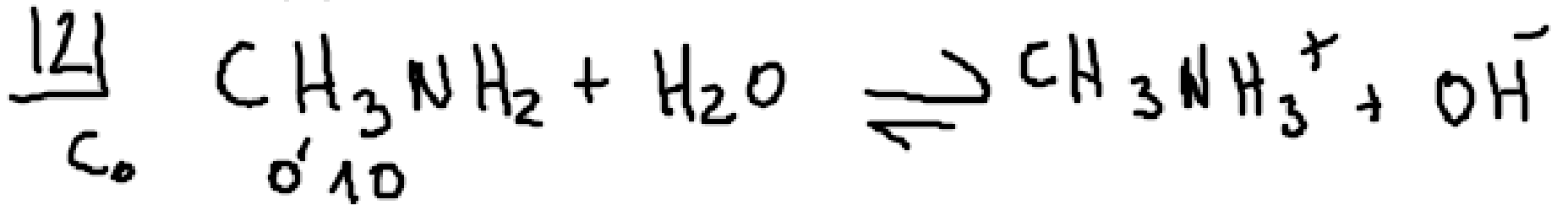


Página 244 K_b
base



C_e $0.1 - 0.0071 = 0.09$

$\text{pH} = 11.85$



$\text{pOH} = 14 - 11.85 = 2.15$

$\text{pOH} = -\log[\text{OH}^-] \rightarrow [\text{OH}^-] = 10^{-2.15} = 0.0071 \text{ M}$

0.0071

0.0071

$$K_b = \frac{[\text{OH}^-] \cdot [\text{CH}_3\text{NH}_3^+]}{[\text{CH}_3\text{NH}_2]} = \frac{0.0071^2}{0.09} =$$

$$= 5.5 \cdot 10^{-4} \text{ M}$$

$$\alpha = \frac{[\text{eq}]}{[\text{ini}]} = \frac{0.0071}{0.1} = 0.071 //$$



Co 0'5

Cr x

x

x

Ce 0'5-x

x

x

$$K_b = \frac{x \cdot x}{0'5 - x} \Rightarrow 5'6 \cdot 10^{-10} = \frac{x^2}{0'5 - x}$$

Quando $K_b \ll 10^{-9}$ $5'6 \cdot 10^{-10} = \frac{x^2}{0'5}$

$$5'6 \cdot 10^{-10} = \frac{x^2}{0'5} \rightarrow 0'5 \cdot 5'6 \cdot 10^{-10} = x^2$$

$$2'8 \cdot 10^{-10} = x^2 \rightarrow \sqrt{2'8 \cdot 10^{-10}} = x$$

$$x = 1'67 \cdot 10^{-5}$$

Como la base (Kb) es débil, se disocia poco, $0'5 - x \approx 0'5$

$$pOH = -\log [1'67 \cdot 10^{-5}] = 4'78$$

$$pH = 14 - 4'78 = 9'22$$

- Si tenemos la concentración calculamos el pH o pOH

$$\text{pH} = -\log[\text{H}_3\text{O}^+], \quad \text{pOH} = -\log[\text{OH}^-]$$

- Si tenemos el pH o pOH, calculamos la concentración

$$\begin{aligned} [\text{H}_3\text{O}^+] &= 10^{-\text{pH}} \\ [\text{OH}^-] &= 10^{-\text{pOH}} \end{aligned}$$

$$4) \text{ pH} = 2,087$$

$$[\text{H}^+] = [\text{H}_3\text{O}^+]$$

$$[\text{H}_3\text{O}^+] = 10^{-2,087} = \underline{\underline{8,18 \cdot 10^{-3}}}$$



$$10^{(-2,087)}$$



$C_0 \quad 2 \cdot 10^{-2}$

$C_r \quad x \qquad \qquad \qquad x \qquad \qquad x$

$C_e \quad 2 \cdot 10^{-2} - x \qquad \qquad \qquad x \qquad \qquad x$

$pH = 3.23 \rightarrow [H_3O^+] = 10^{-3.23} = 5.88 \cdot 10^{-4}$

$$K_a = \frac{x \cdot x}{2 \cdot 10^{-2} - x} = \frac{(5.88 \cdot 10^{-4})^2}{(2 \cdot 10^{-2} - 5.88 \cdot 10^{-4})} = 1.8 \cdot 10^{-5}$$

1, 2, 13