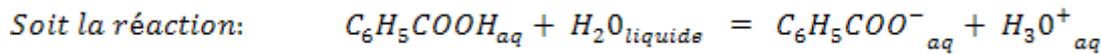
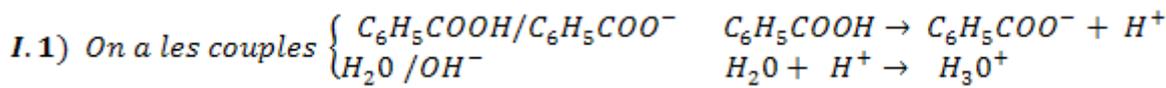


Exercice 2 :



$C(C_6H_5COOH) = 5,00 \cdot 10^{-3} \text{ mol} \cdot L^{-1} = 5,00 \cdot 10^{-3} \text{ mol} \cdot (10^{-3} m^3)^{-1} = 5,00 \cdot \text{mol} \cdot m^{-3}$

<i>x en moles</i>		$C_6H_5COOH_{aq}$	$H_2O_l \rightleftharpoons$	$C_6H_5COO^-_{aq}$	$H_3O^+_{aq}$
Etat initial	0	5,00.V	excès	0	0
Etat intermédiaire	x	5,00.V - x	excès	x	x
Etat équilibre	x_{eq}	5,00.V - x_{eq}	excès	x_{eq}	x_{eq}

I.2) $\sigma = \sum \lambda_i [X_i]$ donc $\sigma = \lambda_{C_6H_5COO^-} [C_6H_5COO^-]_{eq} + \lambda_{H_3O^+} [H_3O^+]_{eq}$

or $[C_6H_5COO^-]_{eq} = [H_3O^+]_{eq} = \frac{x_{eq}}{V} \Rightarrow \frac{x_{eq}}{V} (\lambda_{C_6H_5COO^-} + \lambda_{H_3O^+}) \rightarrow \frac{x_{eq}}{V} = \frac{\sigma}{\lambda_{C_6H_5COO^-} + \lambda_{H_3O^+}}$

$213 \mu S \cdot cm^{-1} = 213 \cdot 10^{-3} mS \cdot (10^{-2} m)^{-1} = 213 \cdot 10^{-3} \cdot mS \cdot 10^2 m^{-1} = 21,3 mS \cdot m^{-1}$

$\frac{x_{eq}}{V} = \frac{21,3}{35 + 3,24} = \frac{21,3}{38,24} = 5,57 \cdot 10^{-1} \text{ mol} \cdot m^{-3}$

$[C_6H_5COO^-] = [H_3O^+] = \frac{x_{eq}}{V} = 5,57 \cdot 10^{-1} \text{ mol} \cdot m^{-3}$

$[C_6H_5COOH] = \frac{5V - x_{eq}}{V} = 5 - \frac{x_{eq}}{V} = 5 - 5,57 \cdot 10^{-1} = 4,44 \text{ mol} \cdot m^{-3}$

I.3) $K_A = \frac{[C_6H_5COO^-] \cdot [H_3O^+]}{[C_6H_5COOH]} = \frac{(5,57 \cdot 10^{-1})^2}{4,44} = 6,99 \cdot 10^{-2}$

$\rightarrow pK_A = -\text{Log}(K_A) = -\text{Log}(6,99 \cdot 10^{-2}) = -0,844 \text{ ???}$