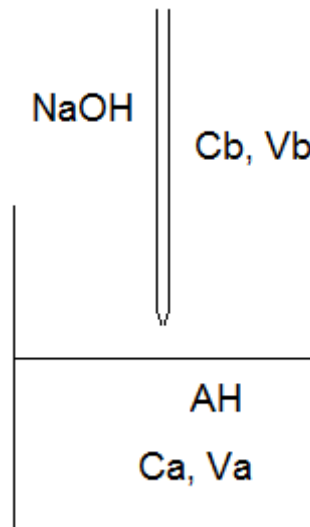


Dosage de l'acide lactique par la soude



Produit ionique de l'eau

$$[H_3O^+]. [HO^-] = Ke$$

$$[HO^-] = \frac{Ke}{[H_3O^+]}$$

Conservation de la matière

$$[A^-] + [AH] = \frac{Ca.Va}{Va + Vb} = C'a$$

$$[AH] = C'a - [A^-]$$

Constante d'acidité

$$Ka = \frac{[A^-]. [H_3O^+]}{[AH]}$$

$$Ka = \frac{[A^-]. [H_3O^+]}{C'a - [A^-]}$$

$$Ka. (C'a - [A^-]) = [A^-]. [H_3O^+]$$

$$Ka. C'a = [A^-]. ([H_3O^+] + Ka)$$

$$[A^-] = \frac{Ka. C'a}{[H_3O^+] + Ka}$$

Electro-neutralité

$$[Na^+] + [H_3O^+] = [A^-] + [HO^-]$$

$$[Na^+] + [H_3O^+] = \frac{Ka.C'a}{[H_3O^+] + Ka} + \frac{Ke}{[H_3O^+]}$$

$$[Na^+].[H_3O^+] + [H_3O^+]^2 = \frac{Ka.C'a.[H_3O^+]}{[H_3O^+] + Ka} + Ke$$

$$[Na^+].[H_3O^+].([H_3O^+] + Ka) + [H_3O^+]^2.([H_3O^+] + Ka) = Ka.C'a.[H_3O^+] + Ke.([H_3O^+] + Ka)$$

$$[Na^+].[H_3O^+]^2 + [Na^+].Ka.[H_3O^+] + [H_3O^+]^3 + Ka.[H_3O^+]^2 = Ka.C'a.[H_3O^+] + Ke.[H_3O^+] + Ke.Ka$$

$$[H_3O^+]^3 + [H_3O^+]^2.(Ka + [Na^+]) + [H_3O^+].([Na^+].Ka - Ka.C'a - Ke) - Ka.Ke = 0$$