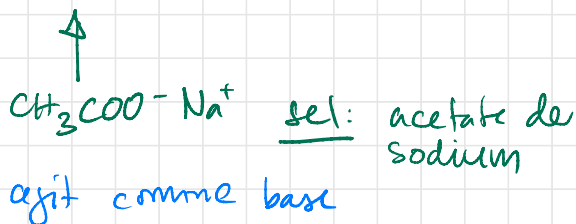
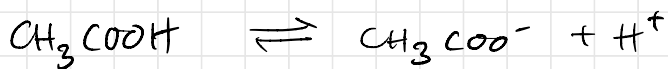
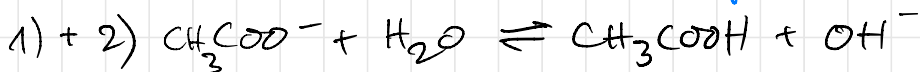
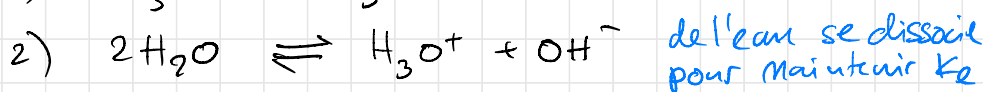
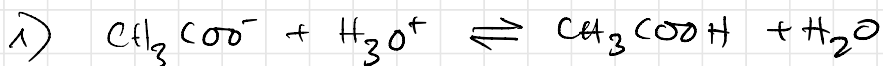


Hydrolyse des ions basiques

ions $\rightarrow$ agit comme acides ou bases



système des équations :



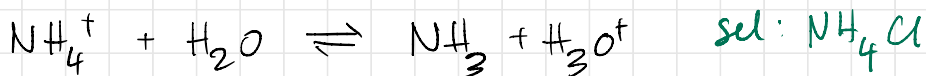
Réaction d'hydrolyse de l'ion acetate

$$K_h = \frac{[\text{CH}_3\text{COOH}] \cdot [\text{OH}^-]}{[\text{CH}_3\text{COO}^-] \cdot c^0}$$

$$K_a = \frac{[\text{CH}_3\text{COO}^-] [\text{H}_3\text{O}^+]}{[\text{CH}_3\text{COOH}] \cdot c^0}$$

$$K_e = [\text{H}_3\text{O}^+][\text{OH}^-] / (c^0)^2 = K_h \cdot K_a$$

lous acides :



Réaction d'hydrolyse de l'ion ammonium

$$K_h = \frac{[\text{NH}_3][\text{H}_3\text{O}^+]}{[\text{NH}_4^+] \cdot c^0} \quad K_b = \frac{[\text{NH}_4^+][\text{OH}^-]}{[\text{NH}_3] \cdot c^0}$$

$$K_c = [\text{H}_3\text{O}^+][\text{OH}^-] / (c^0)^2 = K_h \cdot K_b$$

Autre exemple :



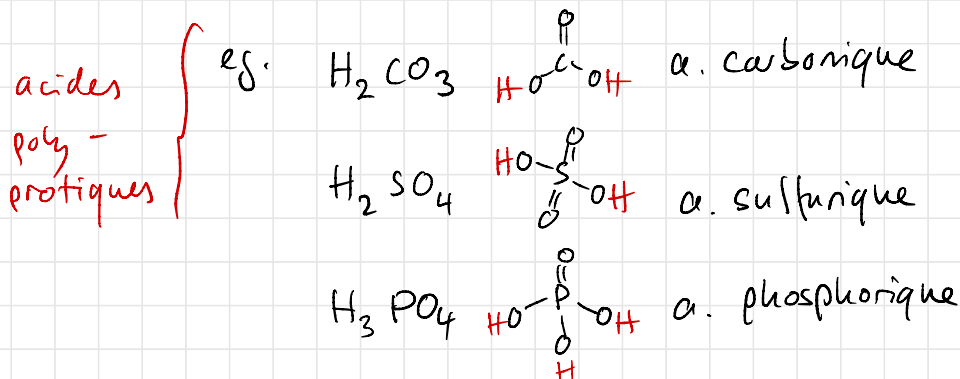
non-Arrhenius
mais Brønsted

sel, ex. FeCl_3

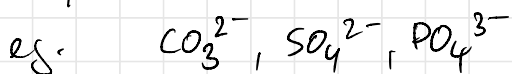
$$K_h = \frac{[\text{Fe}(\text{OH})^{2+}][\text{H}_3\text{O}^+]}{[\text{Fe}^{3+}] \cdot c^0}$$

Acides et bases polyprotiques

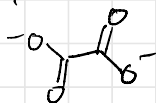
→ acides qui peut céder $> 1 \text{ H}^+$



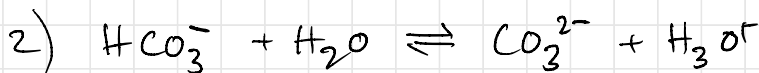
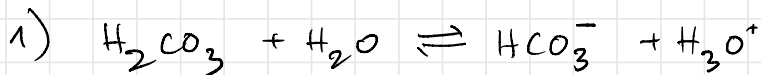
→ bases qui peut capter $> 1 \text{ H}^+$



ou $\text{C}_2\text{O}_4^{2-}$ anion oxalate

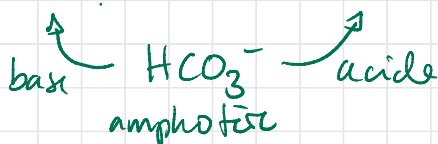


ionisation en étapes

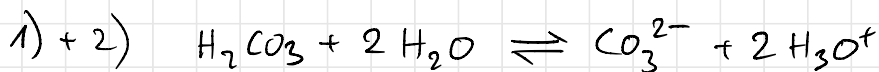


$$K_{a1} = \frac{[\text{HCO}_3^-][\text{H}_3\text{O}^+]}{[\text{H}_2\text{CO}_3] \cdot c^0}$$

$$K_{a2} = \frac{[\text{CO}_3^{2-}][\text{H}_3\text{O}^+]}{[\text{HCO}_3^-] \cdot c^0}$$



ionisation totale



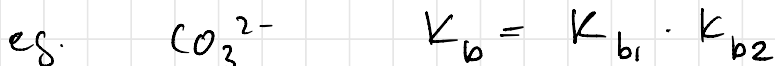
$$K_a = K_{a1} \cdot K_{a2} = \frac{\cancel{[\text{HCO}_3^-]} \cdot [\text{H}_3\text{O}^+]}{[\text{H}_2\text{CO}_3] \cdot c^0} \cdot \frac{[\text{CO}_3^{2-}] [\text{H}_3\text{O}^+]}{\cancel{[\text{HCO}_3^-]} \cdot c^0}$$

$$K_a = \frac{[\text{CO}_3^{2-}] [\text{H}_3\text{O}^+]^2}{[\text{H}_2\text{CO}_3] (c^0)^2}$$

constante d'acidité globale

polyacides : $K_{a1} > K_{a2} > K_{a3} > \dots$

base polyprotique :



effet d'ion commun :

$$K_{1+2} = K_1 \cdot K_2$$

pour 2 équilibres avec un ion commun.

→ slide avec table pK_a , pK_b