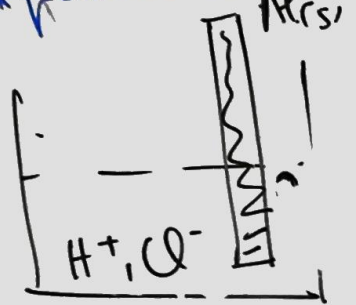


Chap II - Cinétique Electrochimique

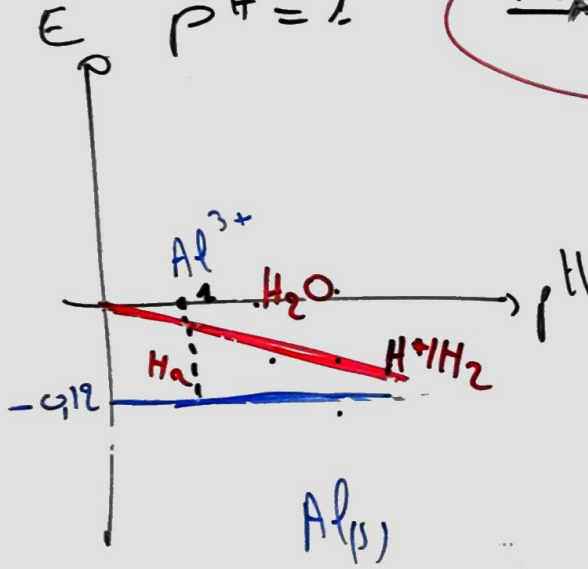
I - Introduction

Expérience (1)



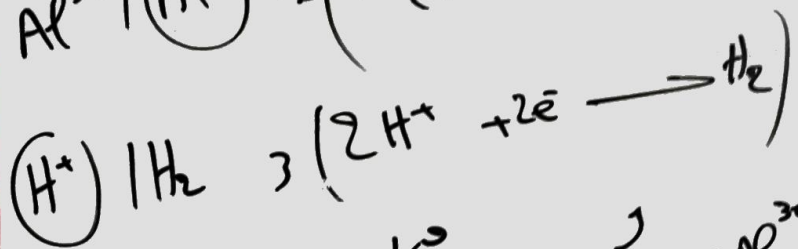
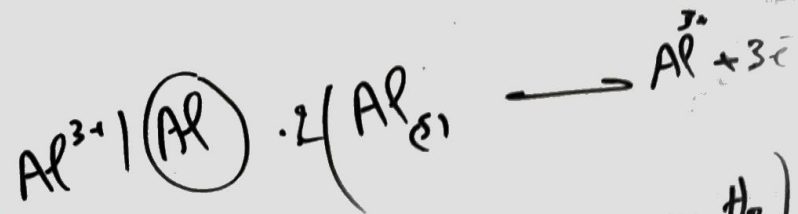
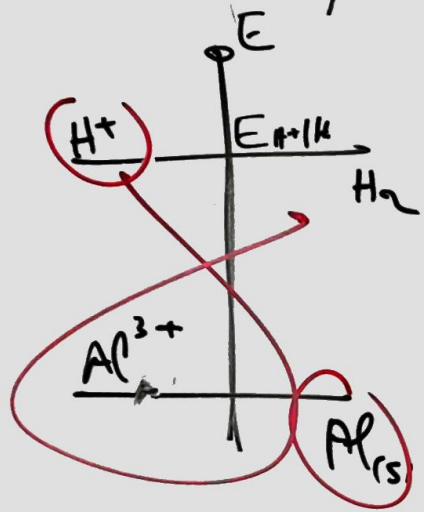
$C = 10^{-1} \text{ mol/L}$

$\text{pH} = 1$



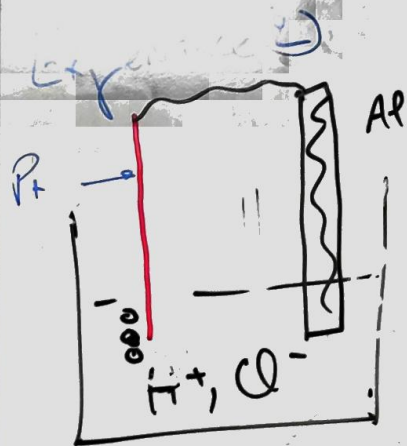
$a_{\text{H}^+} = 1$

$E_{\text{H}^+/\text{H}_2} \quad E_{\text{Al}^{3+}/\text{Al}}$



mais expérimentalement, nous remarquons l'absence de dégagement de $\text{H}_2 \Rightarrow (\text{R})$ n'est pas observée

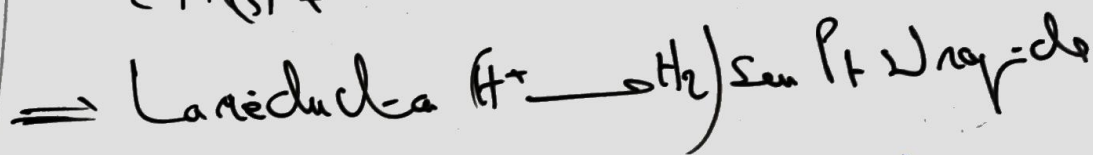
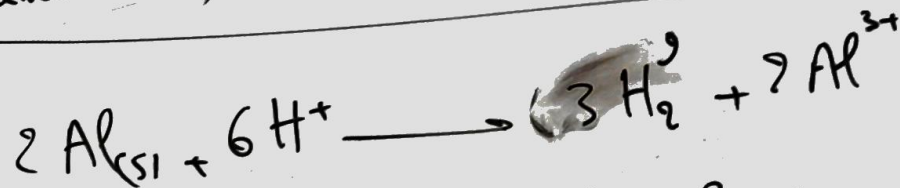
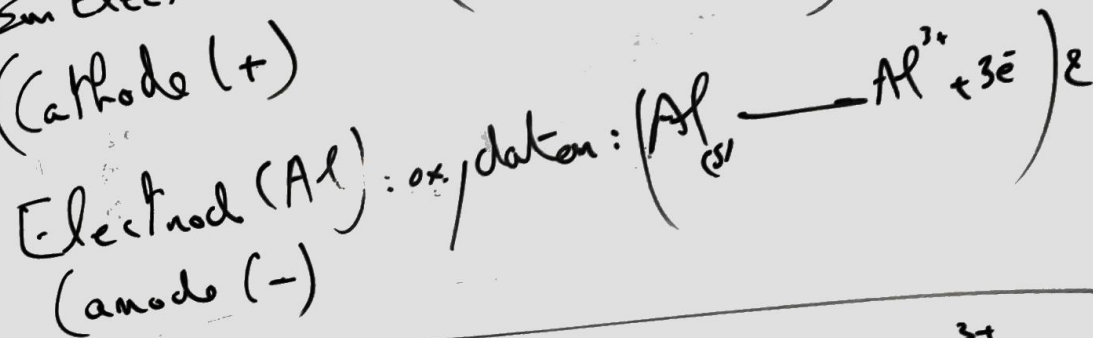
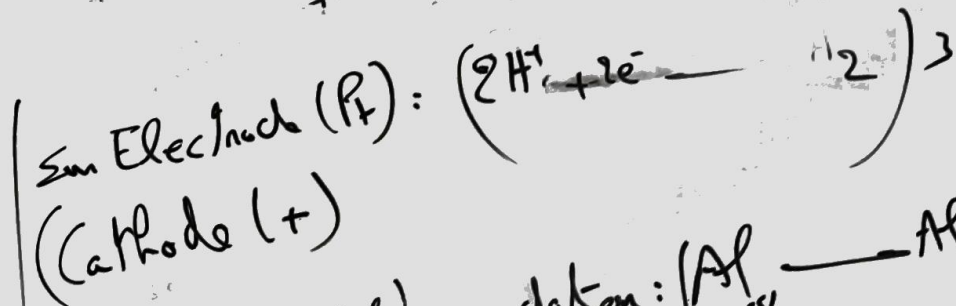
donc cette réaction possible THO mais cinétiquement est défavorisée
En effet la réduction de $(\text{H}^+ \rightarrow \text{H}_2)$
Sur (Al) a eu le blocage cinétique



$$C = 0,1 \text{ M}$$

$$\text{pH} = 1$$

Expérimentalement, on observe
le dégagement de H_2 sur
l'électrode (Pt)



$\Rightarrow$ La réaction électrochimique dépend

• la nature du métal de l'électrode

• l'état de la surface de l'électrode

Chap II - Cinétique Electrochimique

I - Introduction

II - Relation entre Vitesse et Courant

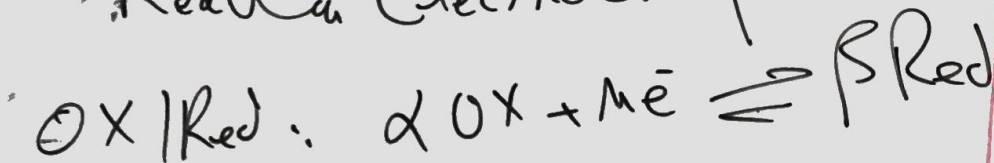
Rg : Reaction chimique :



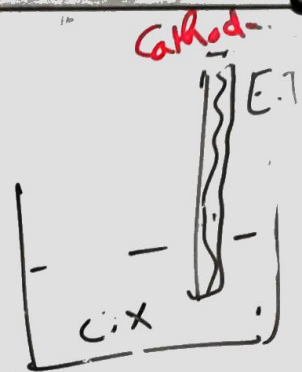
$$V_R = -\frac{1}{a} \cdot \frac{1}{N} \cdot \frac{dM_A}{dt} = -\frac{1}{a} \cdot \frac{d[A]}{dt}$$

$$V_R = \frac{1}{c} \cdot \frac{1}{N} \frac{dM_C}{dt} = \frac{1}{c} \cdot \frac{d[C]}{dt}$$

Reaction Electrochimique :



a) Reduction



$$V_{red} = -\frac{1}{\alpha} \cdot \frac{1}{N} \frac{dM_{Ox}}{dt}$$

$$V_{red} = -\frac{1}{n} \cdot \frac{1}{N} \cdot \frac{dM(e^-)}{dt}$$

$$1 \text{ mol}(e^-) \longrightarrow q = N_A \cdot (e^-) \\ q = F$$

$$dM_{e^-} \longrightarrow dq$$

$$dq = F \cdot dM_{e^-}$$

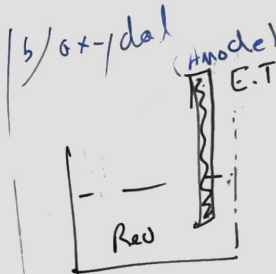
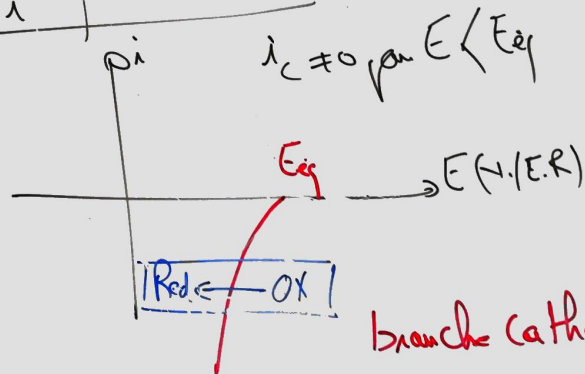
$$dM_{e^-} = \frac{dq}{F}$$

$$V_{red} = - \frac{1}{m.F.S} \left(\frac{dq}{dt} \right)$$

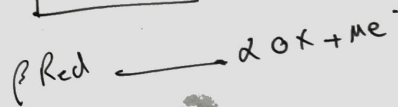
$$V_{red} = V_c = - \frac{i_c}{m.F.S}$$

$$i_c = - m.F.S. V_{red} < 0$$

$E (mV)$	
i	

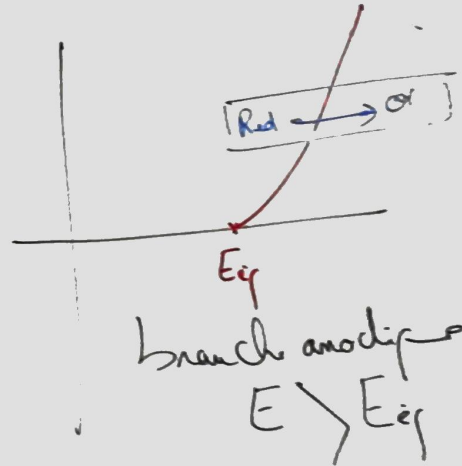


$E (mV)$	$\rightarrow$	$---$
$i (A)$	$-$	$---$



$$V_{ox} = \frac{1}{m} \cdot \frac{1}{S} \cdot \frac{dme^-}{dt} = \frac{1}{m.F.S} \left(\frac{dq}{dt} \right)$$

$$V_{ox} = V_a = \frac{i_a}{m.F.S} \Leftrightarrow i_a = m.F.S V_{ox} > 0$$



branche cathodique