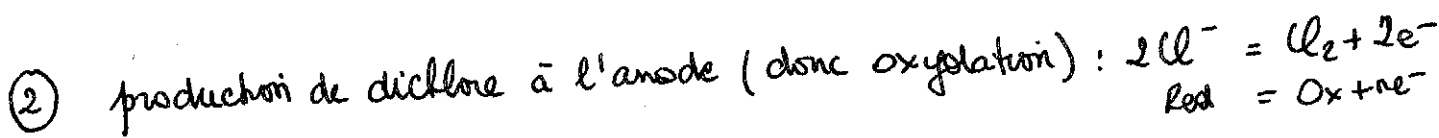


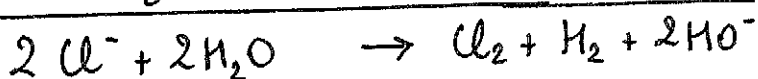
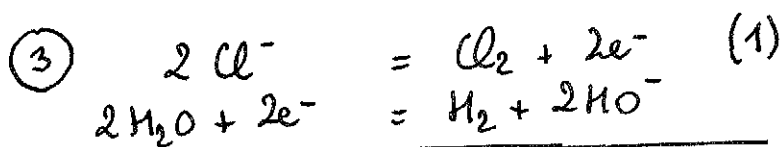
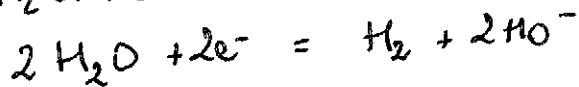
Solution 3

① $C_m = 310 \text{ g} \cdot \text{L}^{-1}$

$$\frac{\text{mol/L}}{\text{g/L}} \cdot \frac{\text{C}}{C_m} = \frac{1}{M} \quad \text{d'où} \quad \underline{\underline{C = \frac{C_m}{M} = 5,30 \text{ mol} \cdot \text{L}^{-1}}}$$



production de H₂ et HO⁻ à la cathode (donc réduction):



④ Un jour de 24h : $\Delta t = 24 \times 3600 = 86\,400$ secondes

a) $Q = I \times \Delta t = (170 \times 10^3) \times 86\,400 = \underline{1,47 \times 10^{10} \text{ C}}$

$\begin{matrix} | & | & | \\ \text{C} & \text{A} & \text{s} \end{matrix}$

b) d'après la réaction (1) : $n(\text{Cl}^-) = n(e^-) = \frac{Q}{1F} = \underline{152 \times 10^3 \text{ mol}}$

donc $m(\text{NaCl}) = n(\text{Cl}^-) \times M(\text{NaCl}) = \underline{8,90 \text{ tonnes}}$

c) d'après la réaction (1) : $m(\text{Cl}_2) = \frac{m(\text{Cl}^-)}{2}$

$V = V_m \times n(\text{Cl}_2) = 30,0 \times \frac{1}{2} (152 \times 10^3) = \underline{2\,280 \text{ m}^3}$

$\begin{matrix} | & | \\ \text{L} \cdot \text{mol}^{-1} & \text{mol} \end{matrix}$

d) $W_e = U \times I \times \Delta t = 3,00 \times (170 \times 10^3) \times 86\,400 = \underline{4,41 \times 10^{10} \text{ J}}$

$1 \text{ kWh} = (1000 \text{ W}) \times (86\,400 \text{ s}) = 8,64 \times 10^7 \text{ J}$ $\underline{510 \text{ kWh}}$