

# Conductimétrie

## Conversion d'unités

$$1) C = 1,20 \cdot 10^{-3} \text{ mol} \cdot \text{L}^{-1} = 1,20 \times 10^{-3} \frac{\text{mol}}{\text{L}} = 1,20 \cdot 10^{-3} \frac{\text{mol}}{10^{-3} \text{m}^3}$$

$$= 1,20 \text{ mol} \cdot \text{m}^{-3}$$

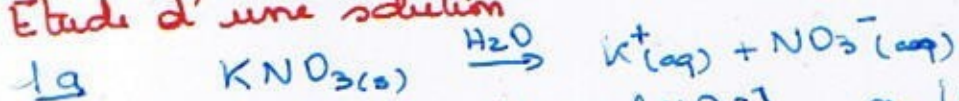
$$2) C = 2,55 \cdot 10^{-3} \text{ mol} \cdot \text{m}^{-3} = 2,55 \times 10^{-3} \frac{\text{mol}}{\text{m}^3} = 2,55 \times 10^{-3} \frac{\text{mol}}{10^3 \text{L}} = 2,55 \cdot 10^{-6} \text{ mol} \cdot \text{L}^{-1}$$

$$3) \sigma = 0,465 \text{ S} \cdot \text{m}^{-1} = 465 \text{ mS} \cdot \text{m}^{-1}$$

$$4) \sigma = 3,86 \text{ mS} \cdot \text{cm}^{-1} = 3,86 \times \frac{10^{-3} \text{ S}}{10^{-2} \text{ m}} = 3,86 \cdot 10^{-1} \text{ S} \cdot \text{m}^{-1}$$

$$5) \sigma = 7,59 \mu\text{S} \cdot \text{cm}^{-1} = 7,59 \times \frac{10^{-6} \text{ S}}{10^{-2} \text{ m}} = 7,59 \cdot 10^{-4} \text{ S} \cdot \text{m}^{-1}$$

## Etude d'une solution



$$1b) \sigma = \lambda_{\text{K}^+} [\text{K}^+] + \lambda_{\text{NO}_3^-} [\text{NO}_3^-] \quad \text{or } [\text{K}^+] = [\text{NO}_3^-] \text{ d'après la réaction}$$

$$\Rightarrow \sigma = [\text{K}^+] \times (\lambda_{\text{K}^+} + \lambda_{\text{NO}_3^-})$$

$$\Rightarrow [\text{K}^+] = \frac{\sigma}{(\lambda_{\text{K}^+} + \lambda_{\text{NO}_3^-})}$$

$$[\text{K}^+] = \frac{7,24 \times 10^{-3} \times 10^2}{(7,14 + 7,35) \times 10^{-3}} = 50 \text{ mol} \cdot \text{m}^{-3} = \underline{5,0 \times 10^{-2} \text{ mol} \cdot \text{L}^{-1}}$$

$$2) \sigma = (\lambda_{\text{K}^+} + \lambda_{\text{NO}_3^-}) \times [\text{NO}_3^-]$$

$$= (7,14 + 7,35) \times 10^{-3} \times 4,0 \times 10^{-3} \times 10^{+3}$$

$$= \underline{5,8 \times 10^{-2} \text{ S} \cdot \text{m}^{-1}}$$