



- OHMS LAW $J = \sigma E$

- $V_0 = \left| \int \vec{E} \cdot d\vec{\ell} \right| = ED$

- $J = \rho \sigma$ units $\frac{\text{Coul}}{\text{m}^3} \frac{\text{m}}{\text{s}} = \frac{\text{Coul}}{\text{s}} \frac{1}{\text{m}^2} = \frac{\text{Amperes}}{\text{m}^2}$

So JA is the current flowing through the body of salt water

$$JA = \sigma EA$$

$$I = \sigma \frac{V}{D} A \quad \text{AMPS}$$

- A percentage α of the actual current delivers molecules of medicine. $\alpha I \frac{\text{Coul}}{\text{s}} \frac{1}{1.6 \times 10^{-19} \text{C/electron}}$

$$= \frac{\alpha I}{1.6} \times 10^{19} \frac{\text{molecules of medicine}}{\text{s}}$$