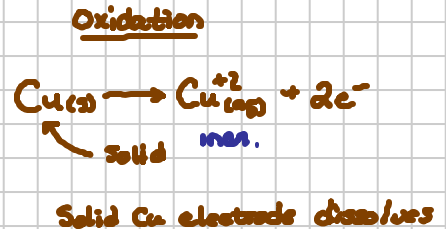
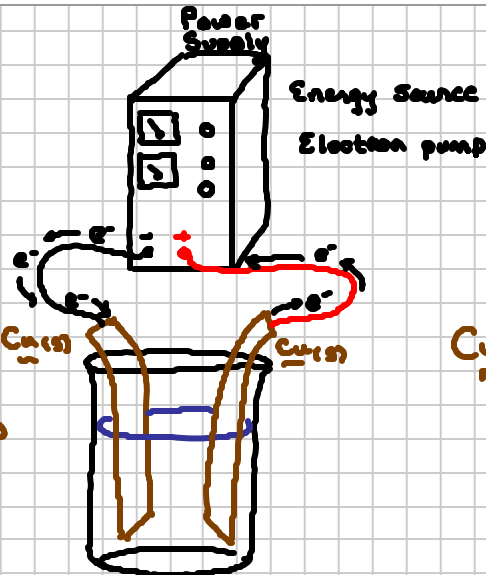
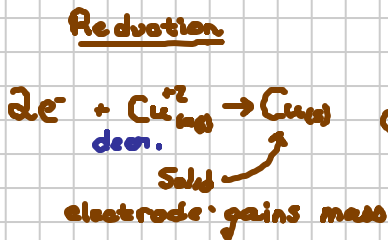


Lecture 23.1 Electrolysis.. Non-spontaneous REDOX chemistry.

Note Title

Electrolytic cell.

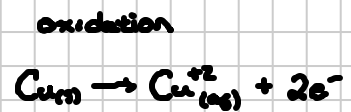
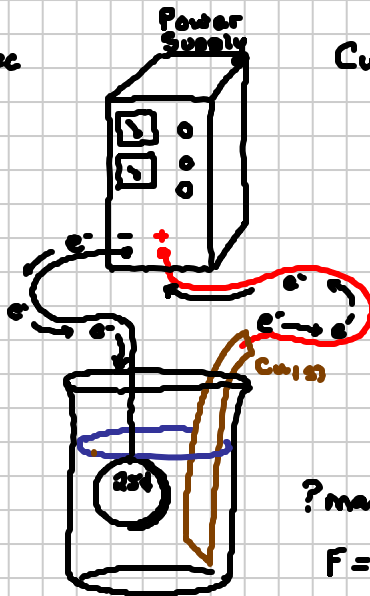
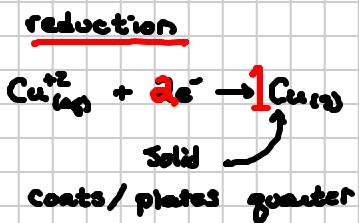
$\Delta G_{rxn} > 0$. requires work



1.0M $CuSO_4$
 $[Cu^{2+}]$ \uparrow in sol. \downarrow in sol. same .. conc. of Cu^{2+} doesn't change

time = 60.0 sec

Current = 0.250 amps
 $= \frac{0.250 \text{ coulombs}}{1s}$



? mass Cu in 60 sec

$$F = \frac{96485 \text{ Coul}}{1 \text{ mole } e^-}$$

Current

$$\frac{0.250 \cancel{C}}{s} \times \frac{1 \cancel{\text{mole } e^-}}{96485 \cancel{C}} \times \frac{1 \text{ mole } Cu}{2 \cancel{\text{mole } e^-}} \times \frac{63.546 \text{ g } Cu}{\cancel{\text{mole } Cu}} = 8.23 \times 10^{-3} \text{ g/s}$$

balanced equation

rate \cdot time = g Cu

$$\frac{8.23 \times 10^{-3} \text{ g}}{1s} \cdot \frac{60s}{1} = 0.00493 \text{ g } Cu = 4.93 \text{ mg } Cu \text{ plated out}$$