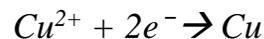


This reaction with the nail in direct contact was fast --- you even saw the blue color of Cu^{2+} fade. And yet the same concentration of Cu^{2+} in the battery lab created a very slow reaction? How come?



therefore, every mole of Cu plated out requires two moles of electrons.

$$1.573663 \text{ mol} \times 2 = 3.147326 \text{ mol } e^{-} \text{ required}$$

3) Convert moles of electrons to Coulombs of charge:

$$3.147326 \text{ mol } e^{-} \times 96,485.309 \text{ C/mol} = 3.0367 \times 10^5 \text{ C}$$

5. How many measurements do you need in the lab to get a weak acid's K_A ? What equipment is needed for each measurement?

6. Are any sig fig errors being made at any stage in solving this problem? Why or why not?

Problem: Calculate the quantity of electricity (Coulombs) necessary to deposit 100.00 g of copper from a CuSO_4 solution. Analyze all three steps.

Solution:

1) Determine moles of copper plated out:

$$100.00 \text{ g divided by } 63.546 \text{ g/mole} = 1.573663 \text{ mol}$$

2) Determine moles of electrons required: