

Electrolysis Sample Problem

Zn^{+2} is reduced to Zn by electrolysis on a cathode metal.

100.0 amps of current flowed for 5.00 min.

How many grams of Zn (65.39 g/mole) are plated out?

$F = 96490 \text{ coulombs/mole } e^-$ $1 \text{ amp} = 1 \text{ coulomb/sec}$

Calculation involves getting moles of electrons supplied from the current and time.
Then moles of electrons connected to the metal from the reduction half-reaction.
Finally, grams of metal found from moles of metal and atomic weight.

100.0 C	60 sec	5.00 min	1 mole e^-	1 mole Zn	65.39 g Zn	=
sec	1 min		96490 C	2 moles e^-	1 mole Zn	

10.2 grams of zinc