

AP Chemistry Chapter 17 Section 7 Electrolysis/Quantitative Electrochemistry

1. How many amps are required to deposit 5.00 grams of gold per hour on the cathode of an electrolytic cell containing a solution of a salt of gold in the +3 oxidation state?

$$5.00 \text{ g Au} \times \frac{1 \text{ mol Au}}{196.97 \text{ g}} \times \frac{3 \text{ mol } e^-}{1 \text{ mol Au}} \times \frac{96500 \text{ C}}{1 \text{ mol } e^-} \times \frac{1}{3600} \times \frac{1 \text{ hour}}{3600} = \boxed{2.04 \text{ C/sec}}$$