

Answer on Question 77587 in Physical Chemistry

$$m(\text{Ag}) = 1.0 \text{ g}$$

$$I = 30 \text{ A}$$

$$\tau = ?$$

Solution: According to the Faraday law

$$m = \frac{E(\text{Ag}) \times I \times \tau}{F} \text{ from which } \tau = \frac{m \times F}{E(\text{Ag}) \times I}$$

$F = 96500$  Faraday's constant

$E(\text{Ag}) = \text{Ar}(\text{Ag}) = 107.87$  because Ag is the singly charged ion in  $\text{AgNO}_3$

$$\tau = \frac{1 \times 96500}{107.87 \times 30} = 30 \text{ seconds}$$

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