

Ejercicio n° 13. T1

Datos

$$m_c = 25 \text{ g}$$

$$P_c = 100 \frac{\text{kcal}}{\text{g}} \cdot \frac{10^4}{10^4} = 10^4 \frac{\text{kcal}}{\text{g}}$$

$$V = 220 \text{ V}$$

$$I = 0.75 \text{ A}$$

$$t = 6 \text{ h}$$



$$\eta = ?$$

$$6 \text{ h} \cdot \frac{3600 \text{ s}}{1 \text{ h}} = 21600 \text{ s}$$

La energía suministrada por el combustible o energía total es:

$$E = m \cdot P_c = 25 \cdot 100 = 2500^4 \text{ kcal}$$

$$2500^4 \text{ kcal} \cdot \frac{10^3 \text{ cal}}{1 \text{ kcal}} \cdot \frac{4.18 \text{ J}}{1 \text{ cal}} = 10450000 \text{ J}$$

La energía útil será la E. eléctrica:

$$E = P \cdot t = V \cdot I \cdot t = 220 \cdot 0.75 \cdot 21600 = 3564000 \text{ J}$$

$$\eta = \frac{E_{\text{util}}}{E_{\text{total}}} \cdot 100 = \frac{3564000}{10450000} \cdot 100 = 34.105\%$$