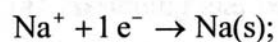


14.34 (a) $\Delta G^\circ_r = -2\Delta G^\circ_f(\text{NaCl, s}) = -2(-384.14 \text{ kJ} \cdot \text{mol}^{-1}) = 768.28 \text{ kJ} \cdot \text{mol}^{-1}$

(b) The reduction of sodium ions is a one-electron process,



therefore, $1 \text{ mol Na}^+ = 1 \text{ mol e}^-$.

$$\begin{aligned} \text{current} &= \left(\frac{400. \text{ g Na}}{4.00 \text{ h}} \right) \left(\frac{1 \text{ mol Na}}{22.99 \text{ g Na}} \right) \left(\frac{96\,485 \text{ C}}{1 \text{ mol Na}} \right) \left(\frac{1 \text{ h}}{3600 \text{ s}} \right) \\ &= 117 \text{ C} \cdot \text{s}^{-1} = 117 \text{ A} \end{aligned}$$

