81. Eq. 43-19 leads to

$$\begin{aligned} R &= \frac{\ln 2}{T_{1/2}} N \\ &= \frac{\ln 2}{30.2\,\mathrm{y}} \left(\frac{M_{\mathrm{sam}}}{m_{\mathrm{atom}}} \right) \\ &= \frac{\ln 2}{9.53 \times 10^8\,\mathrm{s}} \left(\frac{0.0010\,\mathrm{kg}}{137 \times 1.661 \times 10^{-27}\,\mathrm{kg}} \right) \\ &= 3.2 \times 10^{12}\ \mathrm{Bq} \ = \ 86\ \mathrm{Ci}\ . \end{aligned}$$