

88. Adapting Eq. 43-20, we have

$$N_{\text{Kr}} = \frac{M_{\text{sam}}}{M_{\text{Kr}}} N_A = \left(\frac{20 \times 10^{-9} \text{ g}}{92 \text{ g/mol}} \right) (6.02 \times 10^{23} \text{ atoms/mol}) = 1.3 \times 10^{14} \text{ atoms} .$$

Consequently, Eq. 43-19 leads to

$$R = \frac{N \ln 2}{T_{1/2}} = \frac{(1.3 \times 10^{14}) \ln 2}{1.84 \text{ s}} = 4.9 \times 10^{13} \text{ Bq} .$$