

(21.7) In the example above, 1 t U fuel elements is removed from the reactor after 2 years. Using Fig. 21.7, (a) what is the total radioactivity from the fission products after 30 d cooling time? (b) Which FPs are the most radioactive ones at this time?

$$Bq := \text{sec}^{-1}$$

mass of fission products/year from exercise 21.6

$$(a) B_{up} := 6000 \cdot 2$$

$$m_{FP} := \frac{31.608}{5} \cdot 2 \cdot \text{kg}$$

$$m_{FP} = 12.643 \cdot \text{kg}$$

$$A_{FP} := 1.6 \cdot 10^4 \cdot 10^9 \cdot Bq \cdot \text{kg}^{-1}$$

$$A_{fuel} := A_{FP} m_{FP}$$

$$A_{fuel} = 2.023 \cdot 10^{14} \cdot Bq$$

(b) Ce-isotopes, Pr-isotopes and Nb-isotopes; Fig. 21.7