

22 Activity Data

1 Curie (Ci) = 3.7×10^{10} disintegration/s

= 3.7×10^{10} Becquerel

The conversion of DAC from $\mu\text{Ci/ml}$ to DPM/m^3

$$\mu\text{Ci/ml} \times 2.22 \times 10^{12} = \text{DPM/m}^3$$

Decay - Rule of Thumb:

- Activity is reduced to less than 1% after 7 half lives
- Activity is reduced to less than 0.1% after 10 half lives.

Decay - Calculation (simplified)

Multiply original activity by 1/2 for each half life that has passed, i.e.,

A_1 = original activity, say 8,000 DPM

A_2 = present activity, say 500 DPM

n = number of half lives, is 4:

$$8,000 \text{ DPM} \times 1/2 \times 1/2 \times 1/2 \times 1/2 = 500 \text{ dpm.}$$

This can be expressed as a formula:

$$A_2 = A_1 (1/2)^n$$