

Answer on Question #64424, Physics / Atomic and Nuclear Physics

A 1.0g sample of pure KCL from chemistry stock room is found to be radioactive and to decay at the rate of 1600 counts/sec.the decay are traced to be element potassium and in particular to isotope potassium 40 which constitute 1.18% of normal potassium.calculate half of this decay

Find: $T_{1/2}$ - ?

Given:

$\lambda=1600$ counts/sec

Solution:

Decay constant λ : $\lambda = \frac{\ln 2}{T_{1/2}}$ (1)

Of (1) $\Rightarrow T_{1/2} = \frac{\ln 2}{\lambda}$ (2)

Of (2) $\Rightarrow T_{1/2} = 0.00043$ sec

Answer:

0.00043 sec