

19 A school science department keeps a sample of potassium chloride to use as a test source for Geiger-Müller tubes.

Potassium contains 0.0117% of the unstable isotope potassium-40.
a) Write down the nuclide symbol of this isotope, including a value for the atomic number.
Complete the nuclear equation for the decay.

$^{40}_{19}\text{K} \rightarrow ^{40}_{20}\text{Ca} + \beta$

b) A teacher collects some potassium-40 using the apparatus shown. The source is a potassium chloride crystal. The Geiger-Müller tube is connected to a counter. The counter is set to count the number of decays per second.
c) The teacher records the number of decays per second for 10 minutes.
d) The teacher records the number of decays per second for 10 minutes.
e) The teacher records the number of decays per second for 10 minutes.

1. Name of the source: _____

2. Date of the experiment: _____

3. Name of the student: _____

4. Name of the teacher: _____

5. Name of the school: _____

6. Name of the city: _____

7. Name of the country: _____

8. Name of the continent: _____

9. Name of the world: _____

10. Name of the universe: _____