

Answer on Question #83278, Chemistry / General Chemistry

La demie-vie de ^{14}C est 5730 ans. Un échantillon contient 91.2 % du ^{14}C qu'il contiendrait si il faisait encore partie d'un être vivant. Quel est l'age (en ans) de cet échantillon?

Solution

In 5730 years there would be $1/2$ of ^{14}C in the sample.

In 2×5730 years there would be $1/4$ or $1/2^2$ of ^{14}C in the sample.

In $n \times 5730$ years there would be $1/2^n$ of ^{14}C in the sample.

$$0.912 = 1/2^n$$

$$2^n = \frac{1}{0.912} = 1.096$$

$$n = \text{Log}_2 1.096 = 0.132$$

$$\text{Age} = 0.132 \times 5730 = \mathbf{756.36 \text{ (y.)}}$$

Answer

The age of sample is **756.36 years**.