Effect of Temperature on Radon Decay Rate

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The main objective of this experiment was to determine whether temperature affects the rate of decay of an alpha particle resulting in radioactivity. During the research it was learned that radon is known as a radioactive isotope. When placed in an ionization chamber, the radon will lose its outer shell electron. The newly formed ion and electron will make a small current of electricity that is measured to determine the radon found. Taking this knowledge, an ionization chamber was built simply with a negatively charged wire in the middle of a metal can. To make the electrons and ions move, in order to be able to test for the presence of radon, a positively charged circuit was built and connected to the wire. In the experiment, the ionization chamber was exposed to soil samples placed in environments with three different temperatures. After the experimentation, it could be observed that the sample placed in the room with the highest average temperature saw an average increase of 4.9 millivolts at the third recording. The control, placed in the average room temperature had an average millivolt reading of 4.3 millivolts at the fourth recording.The sample in the lowest temperature never saw a significant millivolt increase. The experiment proved that the highest temperature saw radon decay, an average, of 30 minutes faster than if placed at an average temperature. The lowest temperature never even saw the decay begin to happen within the allotted time frame.

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