

1 Types of Radiation:

There are three types of radiation which may be detected with a geiger counter:

Alpha Particles: Helium nuclei, generally emitted from heavy elements such as uranium and thorium. Alpha particles only travel a few inches in the air, and can be stopped by a piece of paper. Special geiger tubes with a mica window are necessary to detect them, as other windows will stop alpha particles.

Beta Rays: Electrons moving at extremely high (often relativistic) speeds. They are more penetrating than alpha particles. They can pass through light elements, such as paper and aluminum (but only small thicknesses).

Gamma Rays: Electromagnetic waves, similar to light, but at a much higher energy. Much more penetrating than alpha or beta radiations. High energy gamma rays can pass through several inches of metal. Note that X-Rays and Gamma Rays are really the same thing, the term X-Ray is used when the radiation is produced by electrons striking a material, such as in an X-Ray tube.