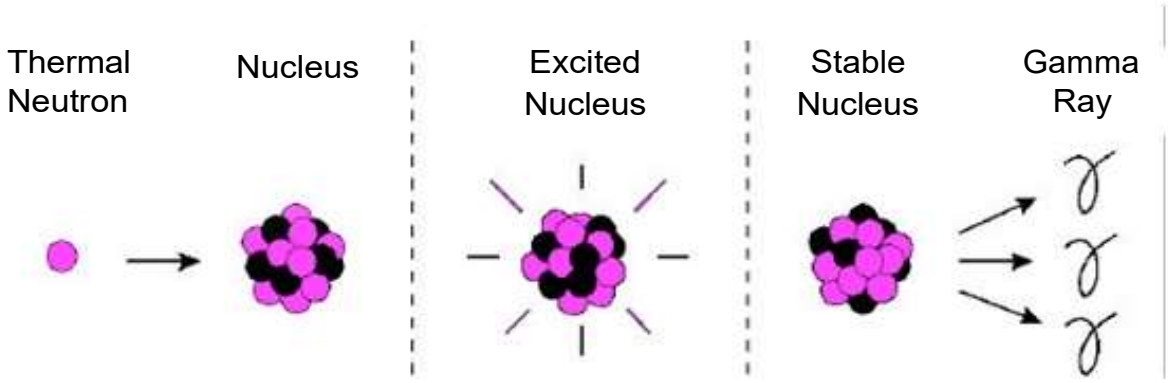
What is PGNAA?

The PGNAA technology uses Californium-252 to produce neutrons that penetrate into and through the conveyed material. When the atoms in the recycled material absorb neutrons they are placed in an "excited state" and quickly return to a stable condition by emitting gamma rays. The distribution of the gamma ray energies is unique to each element.



Scintillation detectors that produce pulses of light detect the gamma rays and sophisticated high-speed electronic circuits process these pulses yielding a composite spectrum. A computer continuously analyzes this spectrum to determine the concentration of individual elements. The weighted average elemental composition is calculated using the mass flow measurements provided by a customer-supplied belt scale. The result is a real-time composite chemical analysis of the material.

The key features of the PGNAA technology for analyzing recycled materials are:

A. The neutrons and gamma rays can penetrate several inches of solid steel and even greater depths of lower bulk density scrap material, thus allowing all of the material to be analyzed.

B. The analysis is truly real-time with a new analysis provided each minute.

C. Because the reaction is so fast, it occurs within the confines of the Recycled Metal Analyzer tunnel and there is no residual radioactivity of the analyzed material.

Californium-252 has a half-life of 2.6 years. Therefore, in order to maintain the necessary level of accuracy the source must be changed every 18-24 months. Gamma-Tech provides this scheduled source replenishment as a part of the full service program.

The CB-RM also includes the latest in radiation safety features. The shielding and source lockout systems help to ensure that employees working around the CB-RM are not exposed to dangerous levels of radiation. Dose levels around the analyzer are slow low that workers receive a lower dose in working around the analyzer for weeks than a person would receive from a 1000 mile plane flight and far less than a dental x-ray.