Curium Encyclopedia Article

Curium

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Curium

Curium is a transuranium element denoted by the atomic symbol Cm. Its most stable isotope has an atomic number of 96 and an atomic weight of 247. It is a radioactive element that has a half life of 16 million years. Some scientists believe that this isotope was present at the creation of the earth, and was a parent of the lower members of the actinide family.

Curium and americium were both discovered in 1944 during war-related research in the Metallurgical Research Laboratory at the University of Chicago. The two elements are, like the rare earth elements above them in the periodic table, very similar to each other chemically. In fact, they were so difficult to separate at first that one researcher suggested that they be named *pandemonium* and *delirium*.

By 1947, however, a visible quantity (30 mg) of the first pure compound of element 96 had been prepared. The element had, by that time, been given the name *curium*, in honor of Marie and Pierre Curie. The name was chosen as an analogy to the rare earth above it in the periodic table, gadolinium, named for a famous student of the rare earths, John Gadolin (1760-1852).

The first sample of pure metallic curium was produced by Wallmann, Crane, and Burris Bell Cunningham (1912-) in 1951 by reducing its fluoride with barium vapor at 2,012-2,372°F (1,100-1,300°C) in a vacuum. The metal is hard, silvery, and brittle, with a melting point of 2,444°F (1,340°C). Multigram quantities of the element are now commercially available.

Curium generates an unusually large amount of energy as it decays. This property has made it useful in small, compact power sources at remote locations on Earth and in space vehicles. The element is also highly toxic. In the body it can accumulate in bones and its radiation can interfere with normal red blood cell formation. The maximum permissible dose is 0.3 microcuries.