Prometheum Encyclopedia Article

Prometheum

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Prometheum

Prometheum is one of the **rare earth elements** found in Row 6 of the **periodic table**. Elements in this group are also known as the lanthanides after the first element in that group, **lanthanum**. Prometheum has an **atomic number** of 61, an atomic **mass** of 144.9128, and a chemical symbol of Pm.

Properties

All isotopes of prometheum are radioactive, the most stable being prometheum-145 with a half life of 17.7 years. The element is a silver-white metal with a melting point of 2,120°F (1,160°C) and a **density** of 7.2 grams per cubic centimeter. Other properties of the element have not been thoroughly studied since researchers are more interested in its radioactive properties than its chemical or physical properties.

Occurrence and Extraction

Prometheum has never been found in the Earth's crust although it has been observed in the spectra of some stars in the galaxy of Andromeda. The element can be prepared artificially in particle accelerators and is a byproduct of **nuclear fission** reactions.

Discovery and Naming

The existence of an element with atomic number of 61 was fairly well accepted by the beginning of the nineteenth century. The periodic chart developed by Russian chemist Dmitri Mendeleev showed that an element should be found between **neodymium** (atomic number 60) and **samarium** (atomic number 62). However, searches for the missing element produced no positive results until 1945. In that year, scientists working at the Oak Ridge National Laboratory in Oak Ridge, Tennessee, discovered the new element among fission products formed during reactions occurring the laboratory's fission reactor. The element was named after the Greek god Prometheus who, according to legend, stole fire from the gods and brought it to Earth for human use.

Uses

Prometheum has a limited number of commercial applications. For example, it is used to provide **energy** in a battery-like device where more traditional, bulkier **batteries** would be an inconvenience. Such devices have been used to provide energy in space probes and space vehicles. The element has also been used to measure the thickness of objects, a measurement that can be made on the basis of the amount of the element's radiation that passes through the object.