Europium Encyclopedia Article

Europium

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Europium

Europium is a member of the rare earth family of elements, found in Row 6 of the **periodic table**. The element has an **atomic number** of 63, an atomic **mass** of 151.96, and a chemical symbol of Eu.

Properties

Europium is a steel-gray solid with a bright, shiny surface. Its melting point is 1,519°F (826°C), its **boiling point** is about 2,712°F (1,489°), and its **density**, 5.24 grams per cubic centimeter. It is a very active metal that reacts vigorously with **oxygen** in the air, catching fire spontaneously. It also reacts easily with **water** to produce **hydrogen** gas.

Occurrence and Extraction

Europium is not very abundant in the Earth's crust, with a **concentration** of no more than about one part per million. It is one of the least abundant of the **rare earth elements**. Europium is extracted from its ores by heating with **lanthanum** metal: Eu_2O_3 + 2La La_2O_3 + 2Eu.

Discovery and Naming

Europium was discovered in 1901 by French chemist Eugène-Anatole Demarccedil;ay (1852-1904) while he was analyzing the mineral cerite, found more than a century earlier near the town of Bastnas, Sweden. Cerite was eventually found to contain six new elements in addition to europium. Demarccedil;ay chose to name the new element after the continent of Europe.

Uses

Although there are no commercially important uses for europium metal, some of its compounds do have useful applications. Some europium compounds, for example, are used as phosphors in television picture tubes, producing a red **color** when bombarded with electrons. Europium **oxide** phosphors are also used in printing postage stamps because they allow machines to read the stamp and determine its monetary value.