Europium Encyclopedia Article

Europium

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Europium

Europium is a rare earth metal element whose atomic number is 63. Its atomic weight is 151.96, and its chemical symbol is Eu. The element is a soft, malleable, silvery-white metal. It is the most reactive of the rare earth elements, reacting with cold water and oxidizing quickly in air. It may catch fire spontaneously. The element can be prepared by heating its oxide with lanthanum.

By the end of the nineteenth century, great progress had been made in the field of rare-earth chemistry. Out of the complex new mineral, ytterite, discovered in 1787, chemists had extracted nearly a dozen new chemical elements. In 1901, yet another element was added to that list. In that year, the French chemist, Eugène-Anatole Demarçay found that a compound of samarium actually contained a previously unrecognized substance. He named the new element *europium*, in honor of the European continent.

Europium had actually been recognized more than a decade earlier by Paul Émile Lecoq de Boisbaudran. In studying the spectrograph of a samarium- gadolinium mixture, Boisbaudran observed lines that did not belong to either element. He did not pursue this finding, however, so credit for the element's discovery is usually given to Demarçay.

Europium is one of the most efficient of all elements in the capture of neutrons. This property makes it useful in control systems used in nuclear reactors. Its compounds are also used in the manufacture of phosphors. One such compound is a component of the red phosphor used in color television sets. Another is added to the glue on postage stamps to make possible electronic scanning of the stamps.