

Stable isotopes of europium available from ISOFLEX

Isotope	Z(p)	N(n)	Atomic Mass	Natural Abundance	Enrichment Level	Chemical Form
Eu-151	63	88	150.919846	47.80%	97.50-99.24%	Oxide
Eu-153	63	90	152.921226	52.20%	99.70%	Oxide



The discovery and isolation of europium are generally credited to Eugène-Anatole Demarçay, who successfully isolated the element in 1901. He named it after Europe.

A steel-gray metal with a body-centered cubic crystal lattice, europium is difficult to prepare. It is quite soft and malleable. It oxidizes rapidly in air and may burn spontaneously. It is the most reactive of the rare earth metals; it liberates hydrogen from water; and it reduces metallic oxides. It reacts with water and is soluble in liquid ammonia.

Europium is used for the capture of thermal neutrons for nuclear control rods in atomic power stations. While its salts are used in coatings for cathode ray tubes in color televisions, organoderivatives are used in nuclear magnetic resonance (NMR) spectroscopy.

Properties of Europium

Name	Europium
Symbol	Eu
Atomic number	63
Atomic weight	151.97
Standard state	Solid at 298 °K
CAS Registry ID	7440-53-1
Group in periodic table	N/A
Group name	Lanthanoid
Period in periodic table	6 (lanthanoid)
Block in periodic table	f-block
Color	Silvery white
Classification	Metallic

Properties of Europium (continued)

Melting point	822 °C
Boiling point	1597 °C
Vaporization point	1596 °C
Thermal conductivity	13.9 W/(m·K) at 298.2 °K
Electrical resistivity	90.0 $\mu\Omega\cdot\text{cm}$ at 25 °C
Electronegativity	1.2
Specific heat	0.176 J/g mol at 20 °C
Heat of vaporization	175 $\text{kJ}\cdot\text{mol}^{-1}$
Heat of fusion	9.2 $\text{kJ}\cdot\text{mol}^{-1}$
Density of liquid	5.13 g/cm^3 at 822 °C
Density of solid	5.26 g/cm^3
Electron configuration	[Xe]4f ⁶ 5d ¹ 6s ² (partially filled orbitals)
Oxidation states	+2, +3