

Stable isotopes of lanthanum available from ISOFLEX

Isotope	Z(p)	N(n)	Atomic Mass	Natural Abundance	Enrichment Level	Chemical Form
La-138	57	81	137.90711	0.09%	5.90%	Oxide
La-139	57	82	138.906349	99.91%	99.99%	Oxide



Lanthanum was discovered in 1839 by Carl Gustaf Mosander. Its name derives from the Greek word *lanthanein*, meaning “to lie hidden.”

Lanthanum is a white, malleable, soft, ductile metal with a hexagonal close-pack crystal system that transforms to face-centered cubic crystals at 310 °C, further transforming to a body-centered cubic allotropic modification at 868 °C. It oxidizes rapidly in air and corrodes in moist air. It is soluble in acids and decomposes in water to lanthanum hydroxide and hydrogen. Combustion in air or oxygen produces lanthanum sesquioxide. Lanthanum reacts vigorously when heated with halogens above 200 °C, forming lanthanum halides. It combines with nitrogen, carbon, sulfur and phosphorus at elevated temperatures, forming binary salts. With metalloid elements such as boron, silicon, selenium and arsenic, similar reactions occur at high temperatures, forming similar binary compounds. In nature, lanthanum never occurs in its free state; it is always found associated with other rare-earth metals.

As a pure metal, lanthanum has limited uses except for research purposes; however, in alloy form, it has several metallurgical applications. When alloyed with iron, chromium, nickel or molybdenum, it improves resistance of these metals to oxidation. It also improves the impact strength, fluidity, ductility and other mechanical properties of the alloys.

In its powdered form, lanthanum ignites spontaneously. Exposure to lanthanum may delay blood clotting and cause liver injury.

Properties of Lanthanum

Name	Lanthanum
Symbol	La
Atomic number	57
Atomic weight	138.91
Standard state	Solid at 298 °K
CAS Registry ID	7439-91-0
Group in periodic table	N/A
Group name	Lanthanoid

Properties of Lanthanum (continued)

Period in periodic table	6
Block in periodic table	f-block
Color	Silvery white
Classification	Metallic
Melting point	918 °C
Boiling point	3457 °C
Vaporization point	3464 °C
Thermal conductivity	0.134 W/cm/K at 298.2 °K
Electrical resistivity	5.70 $\mu\Omega\cdot\text{cm}$ at 25 °C
Electronegativity	1.17
Specific heat	0.19 J/(g·K)
Heat of vaporization	400 $\text{kJ}\cdot\text{mol}^{-1}$ at 3457 °C
Heat of fusion	6.20 $\text{kJ}\cdot\text{mol}^{-1}$
Density of liquid	5.94 g/cm^3 at 918 °C
Density of solid	6.166 g/cm^3
Electron configuration	[Xe]5d ¹ 6s ²
Atomic radius	1.879 Å
Ionic radius	La ³⁺ : 1.061 Å
Oxidation state	+3