

Lanthanum Encyclopedia Article

Lanthanum

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Lanthanum

Lanthanum is the third element in Row 6 of the **periodic table**. It is sometimes classified as a rare earth element, a group of elements that follow it in Row 6 and are also known as the lanthanides. Lanthanum's **atomic number** is 57, its atomic **mass** is 138.9055, and its chemical symbol is La.

Properties

Lanthanum is a white metal that is both ductile and malleable. It is relatively soft and can be cut with a sharp knife. The element's melting point is 1,688°F (920°C), its **boiling point** is 6,249°F (3,454°C), and its **density** is about 6.18 grams per cubic centimeter. Lanthanum is chemically very active, reacting with both cold **water** and most acids. It also reacts with **oxygen** in moist air.

Occurrence and Extraction

Lanthanum is a relatively common element with an abundance of about 18 parts per million in the Earth's crust. Although it is about as abundant as **copper** and **zinc**, it is much more difficult to obtain than those two elements. Copper and zinc often occur in large deposits that are easily mined, while lanthanum occurs in a variety of minerals that are spread widely throughout the earth. Its most common minerals are monazite, bastnasite, and cerite. Lanthanum is separated from other **rare earth elements** by an extended series of processes based on the differential **solubility** of the elements' compounds.

Discovery and Naming

Credit for the discovery of lanthanum is usually given to the Swedish chemist Carl Gustav Mosander. Mosander was very much interested in an unusual black rock found near the town of Bastnas, Sweden, in the 1830s. Over the next 60 years, chemists discovered a total of seven new elements in that rock, one of them being lanthanum, discovered in 1839. The element was named after the Greek word *lanthanein*, meaning "to hide."

Uses

One of the oldest use of lanthanum metal is in the production of misch metal, an **alloy** that produces sparks when struck. Misch metal is used to make the flint in cigarette lighters. Compounds of lanthanum are used to make phosphors, special kinds of **glass**, and optical fibers.