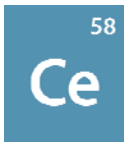
Stable isotopes of cerium available from ISOFLEX

Isotope	Z(p)	N(n)	Atomic Mass	Natural Abundance	Enrichment Level	Chemical Form
Ce-136	58	78	135.90714	0.19%	30.00-53.40%	Oxide
Ce-138	58	80	137.90599	0.25%	13.60-41.60%	Oxide
Ce-140	58	82	139.905435	88.48%	>99.00%	Oxide
Ce-142	58	84	141.909241	11.08%	93.50-95.10%	Oxide



Cerium was discovered in 1803 by Wilhelm von Hisinger, Jöns Jakob Berzelius and Martin Klaproth. It is named after the asteroid *Ceres,* which had been discovered just two years earlier.

Cerium is a grayish lustrous metal that is malleable and has four allotropic modifications. The common *γ-form* occurs at ordinary temperatures and atmospheric pressures. The *β-form* occurs at -16 ºC, the *α-form* occurs below -172 ºC, and the *δ-form* occurs at elevated temperatures above 725 ºC. Cerium reacts with water, while the metal is stable in dry air at ordinary temperatures.

Compounds of cerium have many important industrial applications as catalysts, especially in the glass industry. Misch metal, an alloy of cerium with other lanthanides, is a pyrophoric substance and is used to make gas lighters and ignition devices. Some other applications of the metal or its alloys are in solid-state devices, rocket propellant compositions, as a getter in vacuum tubes, and as a diluent for plutonium in nuclear fuel.

Properties of cerium

Name	Cerium
Symbol	Ce
Atomic number	58
Atomic weight	140.115
Standard state	Solid at 298 °K
CAS Registry ID	7440-45-1
Group in periodic table	N/A
Group name	Lanthanoid

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Properties of cerium (continued)

Period in periodic table	6
Block in periodic table	f-block
Color	Silvery white
Classification	Metallic
Melting point	799 °C
Boiling point	3426 °C
Vaporization point	3434 ºC
Thermal conductivity	11.00 W/(m·K)
Electrical resistivity	75.00 μΩ·cm at 25 °C
Electronegativity	1.1
Specific heat	192 J/kg K
Heat of vaporization	350 $kJ \cdot mol^{-1}$
Heat of fusion	5.50 $kJ \cdot mol^{-1}$
Density of liquid	6.55 g/cm^3 at 799 °C
Density of solid	6.77 g/cm^3
Electronic configuration	$[Xe]4f^15d^16s^2$
Metallic radius (alpha form)	1.8247 Å (coordination number 12)
Atomic volume	20.696 cm^3/mol
Common oxidation states	+3, +4