Curium (Cm)

Element 96 — Complete Summary

96
Cm
Curium
[247]

Key Properties

Atomic Mass	[247]
Category	actinide
State at 20°C	solid
Melting Point	1345°C
Boiling Point	null
Density	13.51
Electron Config	[Rn] 5f76d17s2
Electronegativity	1.3
Year Discovered	1944
Discovered By	Glenn Seaborg and colleagues

✨ Did You Know?

1. It is named in honor of Marie and Pierre Curie, the famous pioneers of radioactivity research.
2. It is so radioactive that a small sample will glow with a purple light in the dark.
3. Curium is also intensely hot due to the energy released by its own radioactive decay.
4. The alpha particles emitted by curium-244 were used in the Alpha Particle X-ray Spectrometers on the Mars rovers Sojourner, Spirit, and Opportunity to analyze the composition of Martian rocks and soil.
5. It was the third transuranic element to be synthesized, even though it is the fourth in the series.

APPEARANCE
Curium is a hard, dense, silvery, radioactive metal.

SUPERHERO PERSONA
"The Power Couple, a hero named for the pioneers of radioactivity, who powers missions on other worlds."

EVERYDAY CONNECTION
Curium is found in the APXS instrument on the Mars rovers used to analyze rocks.

POP CULTURE
Curium is so radioactive it visibly glows purple in the dark.

Overview of Curium

Curium is a silvery, synthetic, and highly radioactive metal belonging to the actinide series. It tarnishes quickly in air and is produced only in milligram quantities each year. Named after pioneering scientists Marie and Pierre Curie, curium honors their groundbreaking contributions to the study of radioactivity.

Uses of Curium

Curium's extreme rarity and radioactivity limit its applications, but it has found some use in specialized technology:

Spacecraft power: The isotope curium-242 was used in a compact generator aboard the Surveyor 5 lunar lander in 1967. Its ability to release large amounts of heat through radioactive decay makes it a potential energy source for space probes and instruments.

Research applications: Curium is used in nuclear science to study the behavior of heavy actinides and to produce heavier synthetic elements.

Natural Occurrence and Production of Curium

Curium does not occur naturally on Earth in measurable quantities. It is artificially produced in nuclear reactors by bombarding plutonium-239 or americium with neutrons or alpha particles. Only a few grams of curium are manufactured annually, mainly for research purposes.

History of Curium

1944 – Discovery: Curium was first synthesized at the University of California, Berkeley by a team led by Glenn Seaborg, Ralph James, and Albert Ghiorso, who bombarded plutonium-239 with alpha particles.

Postwar announcement: Because the discovery occurred during World War II, it was initially kept secret. In a unique twist, Seaborg publicly announced the element's discovery on November 11, 1945, during a children's radio science program before it appeared in scientific journals.

Naming: The element was named after Marie and Pierre Curie to honor their pioneering work in radioactivity.

Biological Role of Curium

Curium has no biological function. It is toxic due to its strong radioactivity and must be handled under strict safety protocols.