



Key Properties

Atomic Mass	[247]
Category	actinide
State at 20°C	solid
Melting Point	986°C
Boiling Point	null
Density	14.78
Electron Config	[Rn] 5f97s2
Electronegativity	1.3
Year Discovered	1949
Discovered By	Stanley Thompson, Albert Ghiorso, and Glenn Seaborg

Did You Know?

- 1 It was named after the city of Berkeley, California, where it was first synthesized at the University of California, Berkeley.
- 2 It is so rare and difficult to produce that only just over one gram of berkelium has ever been created in total since its discovery in 1949.
- 3 Because it is produced in such tiny amounts, it currently has no practical uses outside of basic scientific research and for creating even heavier elements.
- 4 It is a soft, silvery-white radioactive metal.
- 5 It was the fifth transuranic element to be discovered.

APPEARANCE

Berkelium is a silvery, radioactive, synthetic metal.

SUPERHERO PERSONA

"The Stepping Stone, a hero whose sole purpose is to be a target for creating even heavier, more exotic heroes."

EVERYDAY CONNECTION

Berkelium has no everyday connection, used only for creating heavier elements.

POP CULTURE

Berkelium is extremely rare — only about one gram has ever been produced.

Overview of Berkelium

Berkelium is a synthetic, silvery-white, radioactive metal belonging to the actinide series. It is so rare that less than a gram is produced worldwide each year, and it has no commercial applications. Berkelium is mainly of interest to scientists studying the chemistry of heavy actinides and the synthesis of even heavier elements.

How Berkelium Is Made

Berkelium does not occur naturally. It is produced in nuclear reactors through neutron bombardment of plutonium-239, which gradually builds heavier nuclei.

The very first synthesis in 1949 used a particle accelerator: scientists bombarded americium-241 with alpha particles (helium nuclei) to create berkelium-243, an isotope with a half-life of about 5 hours. Modern production methods yield isotopes like berkelium-249, which has a half-life of about 330 days and is useful for research.

History of Berkelium

1949 – First synthesis: Berkelium was discovered at the University of California, Berkeley, by a team led by Stanley Thompson, Albert Ghiorso, and Glenn Seaborg. It was named after the city of Berkeley.

1958 – Visible sample: After nearly a decade of work, researchers were able to accumulate a few micrograms of berkelium, just enough to be seen with the naked eye.

1962 – First compound: The first chemical compound, berkelium dioxide (BkO₂), was successfully prepared.

Natural Occurrence of Berkelium

Berkelium does not exist in nature because of its radioactivity and relatively short half-lives. All isotopes are artificially produced in laboratories, primarily in high-flux nuclear reactors.

Biological Role of Berkelium

Berkelium has no biological function. Like other synthetic actinides, it is highly toxic due to its intense radioactivity and must be handled under strict safety protocols.