

# Neptunium Encyclopedia Article

## Neptunium

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# Neptunium

Neptunium is a transuranium element, one of the elements found in Row 7 of the **periodic table** after **uranium** (atomic number 92). Neptunium's **atomic number** is 93, its atomic **mass** is 237.0482, and its chemical symbol is Np.

## Properties

All isotopes of neptunium are radioactive, the longest lived being neptunium-237 with a half life of 2,140,000 years. The element exists as a silvery white metal with a melting point of 1,180°F (640°C) and a **density** of 20.45 grams per cubic centimeter. Neptunium is a fairly active element from which some unusual compounds, such as neptunium dialuminide (NpAl<sub>2</sub>) and neptunium beryllide (NpBe<sub>3</sub>), have been made. The element also forms more traditional compounds, such as neptunium dioxide (NpO<sub>2</sub>) and neptunium trifluoride (NpF<sub>3</sub>).

## Occurrence and Extraction

Neptunium occurs in only very small amounts in nature, as the byproduct of the radioactive decay of uranium. The element is now produced routinely for commercial use in **nuclear reactors**.

## Discovery and Naming

Neptunium was discovered in 1940 by a pair of physicists at the University of California at Berkeley, Edwin M. McMillan and Philip H. Abelson (1913-). They produced the element artificially by bombarding uranium atoms with neutrons. McMillan and Abelson suggested the name neptunium for the element in honor of the planet Neptune. Uranium, the element before neptunium in the periodic table, had earlier been named for the planet Uranus.

## Uses

Neptunium and its compounds have been made for research purposes, but they have no commercial applications of any consequence.