

Topic Page: [Actinium](#)

Definition: **actinium** from *Philip's Encyclopedia*

(symbol Ac) Radioactive, metallic element, the first of the actinide series, discovered (1899) by French chemist André Debierne. It is found associated with uranium ores. Ac^{227} , a decay product of U^{235} , emits beta particles during disintegration. Properties: at.no.89; r.d.10.07; m.p. 1100°C (1900°F); b.p. 3200°C (5800°F); most stable isotope Ac^{227} (half-life 21.8 yr).



Image from: [Uraninite in Guide to Minerals, Rocks and Fossils](#)

Summary Article: **actinium**

From *The Columbia Encyclopedia*

(ăktĭn'ēĀm) [Gr.,=like a ray], radioactive chemical element; symbol Ac; at. no. 89; mass number of most stable isotope 227; m.p. about 1,050 degrees Celsius; b.p. 3,200 degrees Celsius±300 degrees Celsius; sp. gr. 10.07; valence +3. Actinium is a silver-white metal with a cubic crystalline structure. It is found with uranium minerals in pitchblende. The pure metal can be prepared by reducing its fluoride with lithium vapor at about 1,200 degrees Celsius.

Actinium-227, the most stable isotope, has a half-life of 21.77 years. The other seven isotopes of actinium have very short half-lives ranging from 10 days to less than 1 min.

Actinium is in Group 3 of the periodic table. Its chemical properties are similar to those of lanthanum and of members of the actinide series, of which it is usually considered the first member. It reacts with water to form an insoluble hydroxide; with halides to form a trifluoride, trichloride, bromide, or iodide; with oxalic acid to form the oxalate; with oxygen or sulfur to form the sesquioxide or sesquisulfide.

Actinium was first recognized in 1899 by André Debierne in uranium residues from pitchblende after the radium was extracted by Pierre and Marie Curie. It was later found to be identical with an element discovered in 1902 by Fritz Giesel and which he called emanium.

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