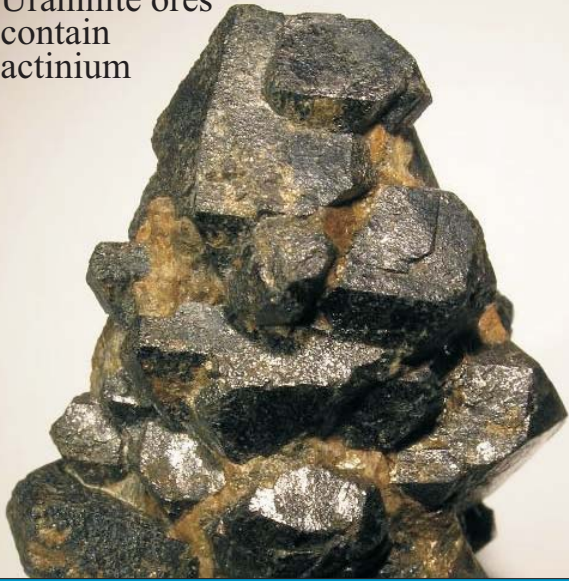


Uraninite ores  
contain  
actinium



Actinium

**Ac**<sup>89</sup>

227,03

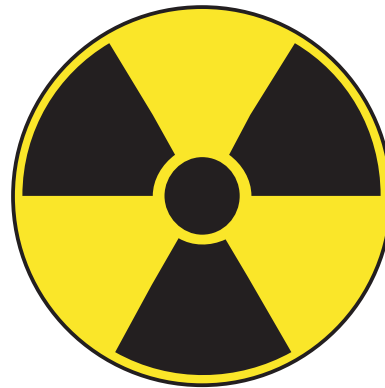
1,0

[Rn] 6d<sup>1</sup>7s<sup>2</sup>

**Actinium**

is derived from the Greek  
“aktinos”, meaning beam or  
ray.

Actinide



<sup>227</sup>Ac decays with a half-life of 21,77 years.

**Solid**

Soft, silvery-white  
radioactive metal;  
origin: decay of  
uranium, neptunium.

Used in radioactive  
therapy (medicine).

Actinide

×

Monazite is the primary source of thorium

**Thorium**

is named after the Norse god of thunder, "Thor".

Actinide

Thorium

**Th<sup>90</sup>**

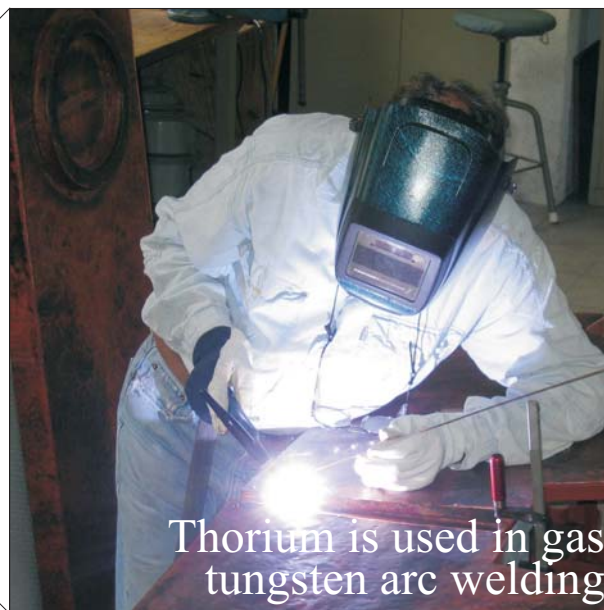
232,04

1,1

[Rn] 6d<sup>2</sup>7s<sup>2</sup>

Actinide

×

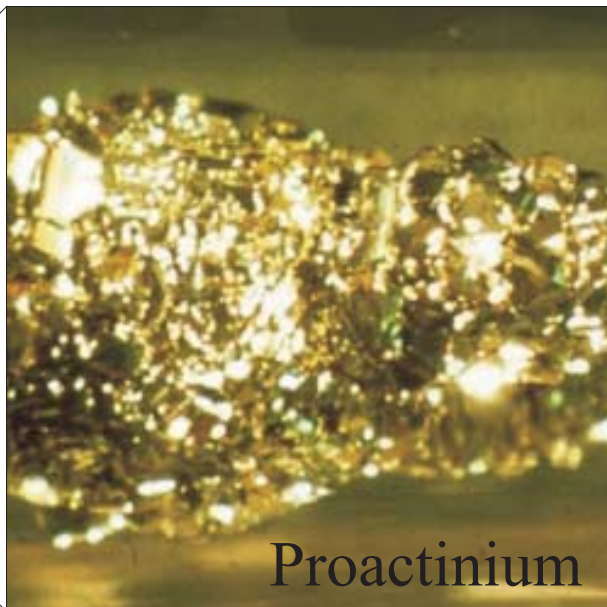


Thorium is used in gas tungsten arc welding

**Solid**

Silvery-white, radioactive metal.

Uses: gas mantles, high-quality lenses, fuel in nuclear reactors.



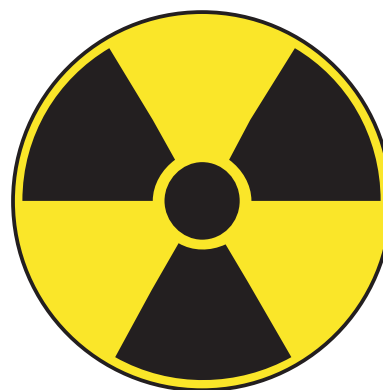
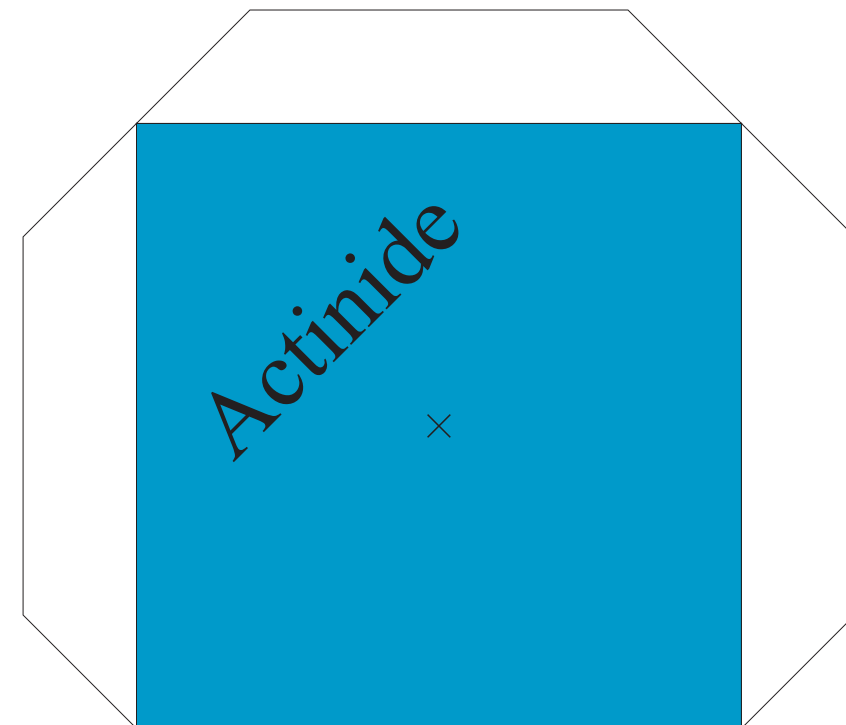
Proactinium

Protactinium **Pa**<sup>91</sup>  
231,04  
1,1  
[Rn] 6d<sup>2</sup>7s<sup>2</sup>

**Protactinium**

is derived from the two  
Greek words: "proto" (first)  
and "aktinos" (ray).

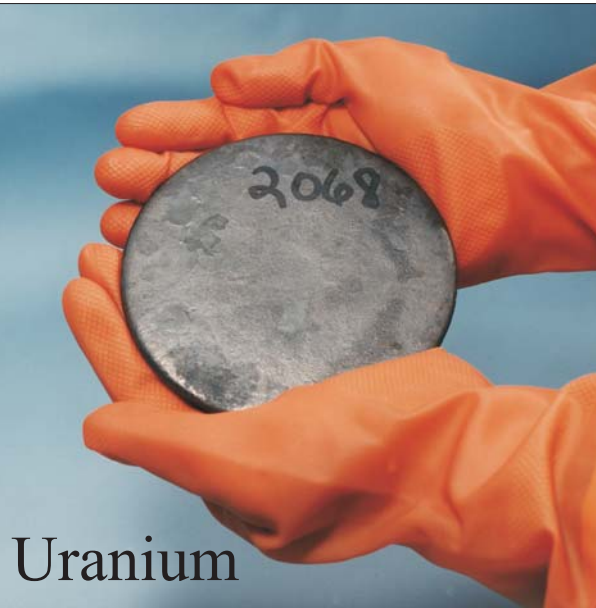
Actinide



**Solid**  
Bright, silvery  
metal.

It is a decay product  
of uranium-235 and  
has no commercial  
use.

<sup>231</sup>Pa decays with a half-life of 32 760 years.



Uranium

Uranium

**U**

92

238,03

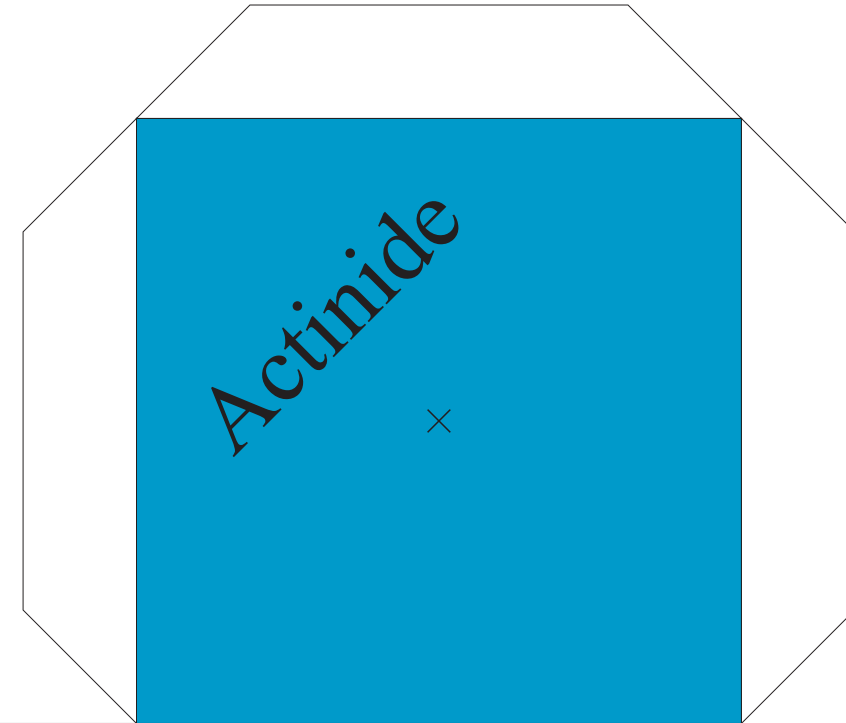
1,2

[Rn] 5f<sup>3</sup>6d<sup>1</sup>7s<sup>2</sup>

Uranium

is named after the planet  
Uranus.

Actinide



Uranium glass  
glowing under UV light



**Solid**

Silvery grey metal.

Uses: atomic bombs,  
fuel in nuclear  
reactors, gives glass  
a yellow or green  
colour.

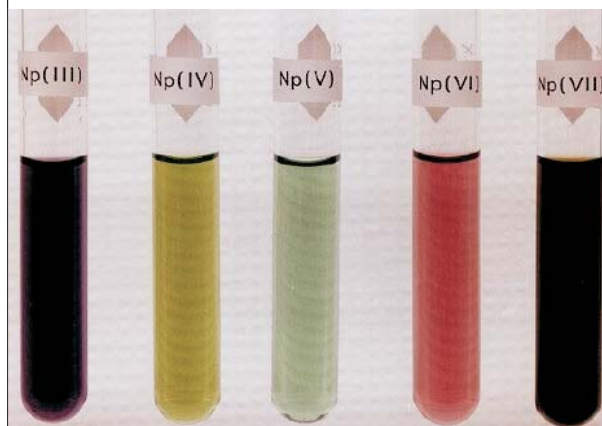
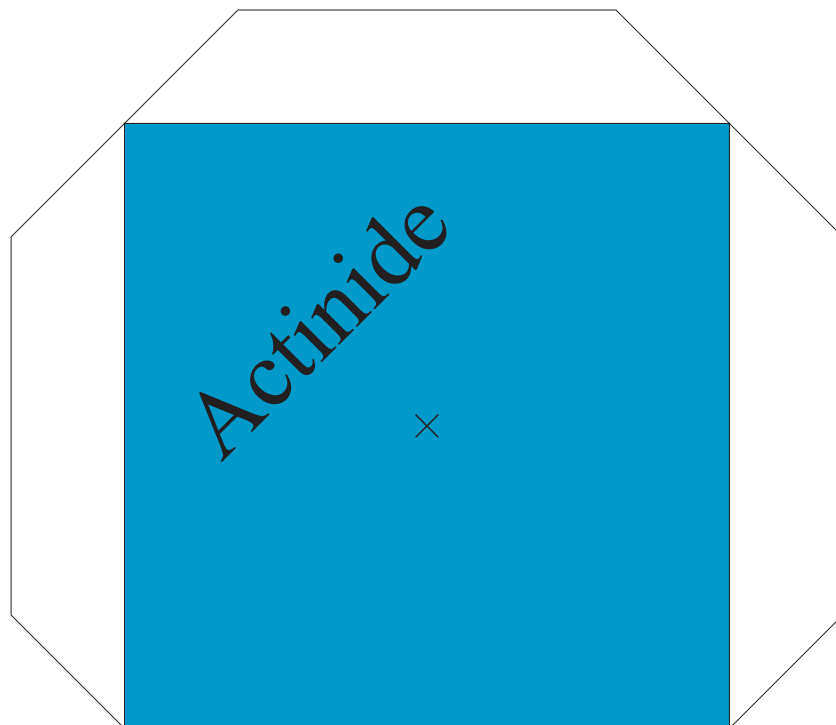


Neptunium

Neptunium  $\text{Np}^{93}$   
237,05  
1,2  
[Rn]  $5f^4 6d^1 7s^2$

Neptunium  
is named after the planet  
Neptune.

Actinide



Solutions of ionic oxidation states are different colours.

**Solid**  
Silvery metal; decay product of uranium.  
Used in neutron detection instruments; radio-active waste.



Plutonium

Plutonium

**Pu**<sup>94</sup>

244,08

1,2

[Rn] 5f<sup>6</sup>7s<sup>2</sup>

**Plutonium**

is named after the planet Pluto, Roman god of the dead. The Greek "plouton" means wealth.

Actinide



Actinide



A pacemaker

**Solid**  
Silvery-white metal.  
Used in nuclear weapons, to power heart pacemakers and space probes.