Thorium was discovered in 1828 by the Norwegian mineralogist Morten Thrane Esmark and was identified by the Swedish chemist Jons Jakob Berzelius. It was named after Thor, the Norse god of thunder. It is a gray, radioactive metal which is fairly abundant in the earth's crust (more than twice as much as tin) and is the first of the so-called "actinide" series which ends with lawrencium (element 103). The long half-life of the principal isotope, Th-232, (about $10^{10}$ years) insures that there will be plenty for quite some time to come!

**Properties**

The metal is fairly soft and malleable but darkens slowly in air due to oxidation. It reacts slowly with water at room temperature.

- melting point: 1842°C
- boiling point: 4788°C
- dimorphic: changes from a face-centered cubic to a body centered cubic at 1360 °C
- radioactive
- common oxidation state is +4 / also exist in +3, +2, +1
- weakly basic oxide
- paramagnetic

Applications of thorium include some special magnesium alloys and photosensors. The oxide is used in high-quality lenses. An isotope of thorium can be "bred" into uranium-234 by bombardment with slow neutrons. The U-234 is a fissile form of uranium and can be used in power plants.

**Contributors and Attributions**

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