

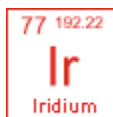


IRIDIUM

Named after the Latin word *iridis* (rainbow) because of its colorful spectrum when heated.

BASIC INFO

Atomic # - 77
Atomic Mass — 192.21
Group — 9
Period — 6
Number of Transition Elements

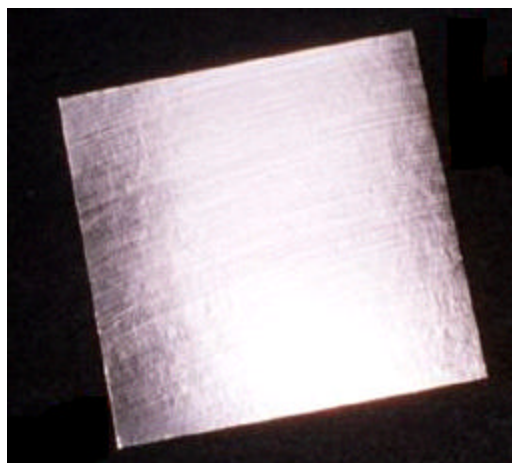
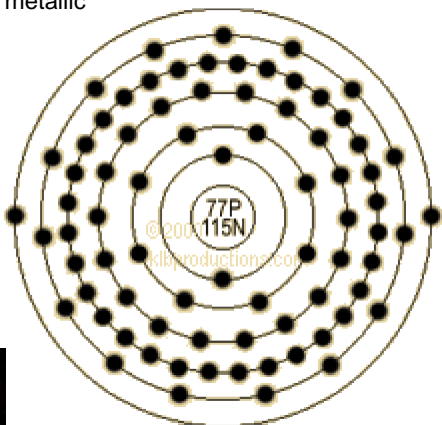


HISTORY

France, after William Hyde Wollaston discovered platinum and palladium, he passed the remaining residues of platinum to his partner Smithson Tennant, a Cambridge graduate student at the time. In 1804, Tennant was able to isolate iridium from the residues, but was still unable to obtain a pure sample of it because no flame in that time was hot enough to melt it down.

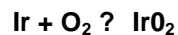
PROPERTIES

Color = silvery white
Density = 22.65 g/cc
Melting Point = 4449° F
Standard State = solid at 298 Kelvin
Classification = metallic

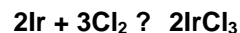


CHEMICAL PROPERTIES

Iridium dioxide (IrO₂) is formed when iridium reacts with oxygen



Iridium reacts with oxygen and halogens, at high temperatures, to form iridium dioxide and iridium trihalides.

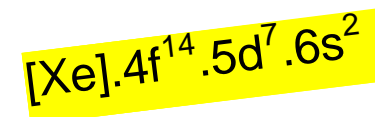


SOURCES

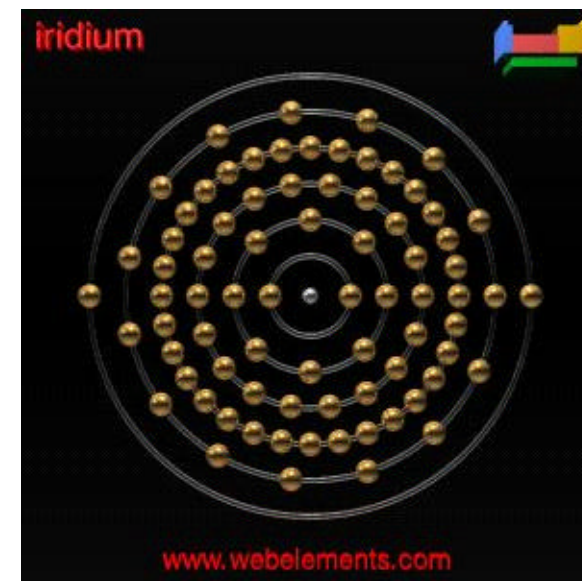
- <http://www.webelements.com/webelements/elements/text/Ir/key.html>
- <http://environmentalchemistry.com/yogi/periodic/Ir.html#Physical>
- <http://helios.physics.uoguelph.ca/summer/scor/articles/scor150.htm>
- <http://www.sciencelab.com/data/elements/Ir.shtml>
- [Chemical Elements Vol. 2 G-O](#) by David E. Newton
- <http://www.webelements.com/webelements/school/elements/iridium/nuclear.html>



Iridium



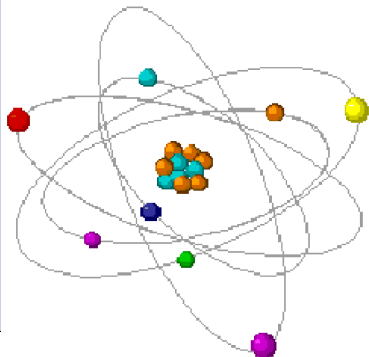
Reid Eickhorst
1st hr H-Chemistry



USES FOR IRIIDIUM

1. Coins, jewelry, and metal sculptures
2. Making crucibles to use at high temperatures
3. Used to harden platinum, resulting in a very expensive alloy only used for special purposes
4. Used in the tips of fountain pens because of its extreme hardness
5. Compass bearings
6. Helicopters have platinum-iridium alloy sparkplugs
7. Electrical contacts, electrical wires, and electrodes
8. Iridium metals are used as catalysts speed up reactions. One kind captures sunlight and turns it into chemical energy.
9. Alloys with iridium, which are too expensive for everyday use, have revolutionized space technology. They are used to keep satellites in place and are able to remain strong at high temperatures and are not attacked by fuels in the systems.

* It's almost always used because of its one distinct characteristic: a hard, brittle surface that will provide durability and dependability for any product.

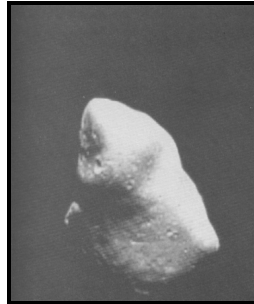


NON-RADIOACTIVE ISOTOPES

Isotope	Atomic Mass	Atom %
191Ir	190.960584	37.3 %
193Ir	192.962917	62.7 %

RADIOACTIVE ISOTOPES

Isotope	Atomic Mass	Half-Life
188Ir	187.95885	1.72 d
189Ir	188.95872	13.2 d
190Ir	189.9606	11.8 d
192Ir	191.962602	73.83 d



Small parts of iridium can be found in meteorites. Pictured here is the Barrington Crater in northern Arizona which was formed about 25,000 years ago by a meteorite that hit the ground at 9 mi/s and created a hole 590 feet deep.

IRIDIUM IN NATURE

It is thought to exist in two parts per billion, and is one of the rarest elements in the Earth's crust. But, it is more common in other parts of the universe such as Iron meteorites, which usually contain three parts per million of iridium.

Iridium usually occurs in combination with other noble metals, such as osmium. When these two are combined they either form osmiridium or iridosmine.

* Canada, South Africa, Russia, and Alaska are the most important sources of Iridium metal.

