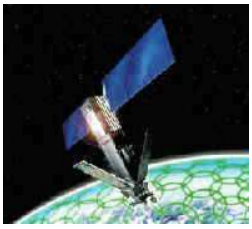
Iridium - Ir

Chemical properties of iridium - Health effects of iridium - Environmental effects of iridium

Atomic number	77
Atomic mass	192.2 g.mol $^{-1}$
Electronegativity according to Pauling	2.2
Density	22.4 g.cm^{-3} at 20°C
Melting point	2450 °C
Boiling point	4527 °C
Vanderwaals radius	0.126 nm
Ionic radius	0.066 nm (+4)
Isotopes	11
Electronic shell	[Xe] 4f^{14} 5d^{7} 6s^{2}
Energy of first ionisation	886 kJ.mol $^{-1}$
Standard potential	+ 1.0 V (Ir^{2+}/ Ir)
Discovered by	Smithson Tennant in 1804



Iridium

Iridium is a hard, brittle, lustrous, dense, transition metal of the platinum family. It is silvery-white and it is notable for being the most corrosion resistant element known. It is unaffected by air, water and acids.

Applications

Nowadays demand for iridium comes mainly from the electronic industry, the automotive industry and from the chemical industry, where it is used to coat the electrodes in the chlor-alkali process, and in catalyst.
Some applications are in pivot bearings and in scientific and other special equipment, but it is principally used in alloys: osmium/iridium alloys are used for tipping fountain pen nibs and for compass bearings.

Iridium in the environment

The level of iridium in land plants is below 20 ppb. Iridium is found as uncombined element, and also as the iridium-osmium alloys osmiridium and idrosmine. Most of the iridium comes from South Africa. Annual world production amounts to around 3 tonnes. Reserves have not been estimated.

Health effects of iridium

Highly flammable.

Potential health effects: Eye: may cause eye irritation. Skin: low hazard for usual industrial handling. Ingestion: may cause irritation of the digestive tract. Expected to be a low ingestion hazard. Inhalation: low hazard for usual industrial handling.

Environmental effects of iridium

Do not allow product to reach ground water, water bodies or sewage system.