



### Key Properties

Atomic Mass	192.217
Category	Transition Metals
State at 20°C	solid
Melting Point	2446°C
Boiling Point	4428°C
Density	22.56
Electron Config	[Xe] 4f145d76s2
Electronegativity	2.2
Year Discovered	1803
Discovered By	Smithson Tennant

### Did You Know?

- 1 It is considered the most corrosion-resistant metal known; it is not attacked by any acid, including aqua regia.
- 2 The global discovery of a thin layer of iridium-rich clay in geological strata from 66 million years ago is the key evidence for the massive asteroid impact that led to the extinction of the dinosaurs.
- 3 It is the second-densest element, just slightly less dense than osmium.
- 4 The tips of high-performance spark plugs are often made with iridium because of its hardness and high melting point.
- 5 The standard meter bar, which defined the length of a meter from 1889 to 1960, was made from a platinum-iridium alloy.

#### APPEARANCE

Iridium is a very hard, brittle, silvery-white metal.

#### SUPERHERO PERSONA

*"The Dinosaur-Slayer, the hero from space whose presence in the Earth's crust is the smoking gun for the asteroid that wiped out the dinosaurs."*

#### EVERYDAY CONNECTION

Iridium is found in the tip of a premium, long-lasting spark plug.

#### POP CULTURE

Iridium is the element marking the Iridium Layer, key evidence for the asteroid impact that ended the dinosaurs.

## Overview of Iridium

Iridium is a hard, silvery-white transition metal with atomic number 77. It is one of the densest elements and has an exceptionally high melting point. Known for being almost as chemically unreactive as gold, iridium is also the most corrosion-resistant metal. Its name comes from Iris, the Greek goddess of the rainbow, because its compounds display a wide variety of vivid colors.

## Why Is Iridium So Useful?

Iridium's combination of durability, resistance, and high melting point makes it ideal for extreme conditions:

**Durable alloys:** Iridium is alloyed with osmium to produce extremely hard materials, such as the tips of fountain pens and compass bearings.

**High-performance parts:** Its stability at high temperatures allows it to be used in spark plug contacts and crucibles for growing crystals under extreme heat.

**Historical standards:** A platinum-iridium alloy (90% platinum, 10% iridium) was used to create the international prototype metre bar, which defined the unit of length for more than 70 years.

## Iridium and the Dinosaurs

Although very rare in Earth's crust, iridium is more common in meteors and asteroids. A thin global layer of iridium-rich clay is found at the Cretaceous-Paleogene (K-Pg) boundary, dating to 66 million years ago. This discovery provided crucial evidence for the theory that a massive asteroid impact caused the extinction of the dinosaurs.

## Natural Abundance and Production of Iridium

**Sources:** Iridium occurs in uncombined form in river sediments and placer deposits, often alongside other platinum group metals (PGMs).

**Commercial recovery:** Most iridium is obtained as a by-product of nickel refining.

## History of Iridium

**1803 – Discovery:** Iridium was discovered in London by Smithson Tennant, who was studying the black residue left after dissolving crude platinum in aqua regia.

**Twin discovery:** In that same residue, Tennant identified two new metals—iridium and osmium—adding to the platinum group family of elements.