

78
Pt
Platinum
195.084

Key Properties

Atomic Mass	195.084
Category	Transition Metals
State at 20°C	solid
Melting Point	1768.2°C
Boiling Point	3825°C
Density	21.45
Electron Config	[Xe] 4f145d96s1
Electronegativity	2.28
Year Discovered	1735
Discovered By	Antonio de Ulloa

Did You Know?

- 1 It is one of the least reactive metals and has remarkable resistance to corrosion, even at high temperatures.
- 2 The vast majority of platinum is used in catalytic converters for vehicles, which convert toxic pollutants in exhaust fumes into less harmful substances.
- 3 King Louis XV of France declared platinum the only metal fit for a king.
- 4 Unlike gold, there is no such thing as \
- 5 Some of the most effective anti-cancer drugs, like cisplatin, are based on platinum compounds.

APPEARANCE

Platinum is a dense, malleable, silvery-white, precious metal.

SUPERHERO PERSONA

"The Noble Catalyst, a highly unreactive and precious hero who purifies harmful fumes."

EVERYDAY CONNECTION

Platinum is found as the catalyst in a car's catalytic converter.

POP CULTURE

Platinum is a valuable, rare metal often used for the highest awards such as platinum records.

Platinum: The Precious, Catalytic Metal

Platinum is a shiny, silvery-white metal that's as resistant to corrosion as gold. It is one of the world's most valuable precious metals—admired for its rarity, beauty, and incredible ability to act as a catalyst in chemical reactions.

Why Is Platinum Useful?

Platinum's unique properties make it vital in both industry and medicine:

Catalytic Converters: About half of all platinum produced each year goes into catalytic converters in cars, trucks, and buses. These devices turn toxic exhaust gases into safer emissions.

Chemical Catalyst: Platinum is used in making nitric acid, silicone, and benzene, and it plays a role in fuel cells, helping them run more efficiently.

Jewelry & Electronics: Because it never tarnishes, platinum is ideal for rings, necklaces, and luxury watches. In electronics, it's used in hard disks, thermocouples, optical fibers, and LCDs.

High-Performance Components: With a high melting point and durability, platinum is used in turbine blades, spark plugs, pacemakers, and dental fillings.

Medicine: Certain platinum compounds are powerful chemotherapy drugs that help treat cancer.

Natural Abundance & History

Platinum is very rare. It can be found in its pure form in alluvial deposits, but most commercial platinum comes from South Africa, mainly from the mineral cooperite. It is also recovered as a by-product of copper and nickel refining.

Ancient Uses: The oldest known use of platinum is from a 7th-century BC Egyptian casket. In South America, people were working with platinum over 2,000 years ago, as shown by burial artifacts.

Modern Discovery: Platinum was little known in Europe until the 1730s, when Spanish officer Antonio de Ulloa brought samples back from South America. In London, the Royal Society marveled at the strange metal that could not be melted with ordinary fires. By the 1750s, platinum had become a subject of intense scientific study.

Biological Role

Platinum has no biological role. It is non-toxic, although some of its compounds (like chemotherapy drugs) can strongly affect the body.