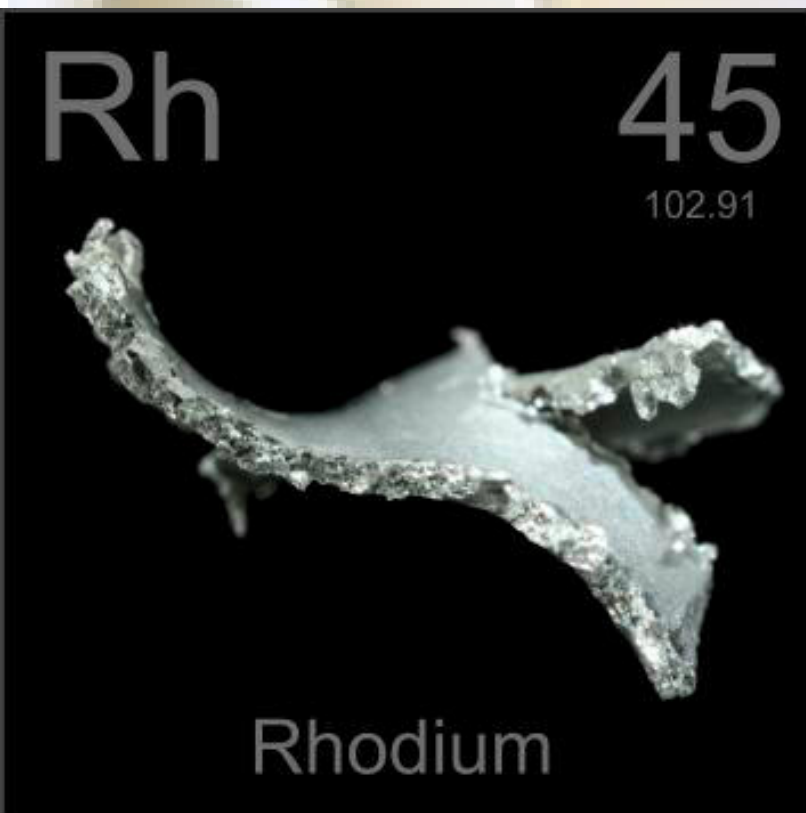


# Rhodium The Rose Metal

Rhodium also known as the rose metal because of it's color has as interesting a history as any other element. How it was discovered and named, how many protons; neutrons, and electrons create and many other things besides can be found in the following report.



# Structure

## Protons, Neutrons, Electrons, and Valence Electrons

Rhodium, same as any other element is made up of a nucleus and rings of electrons surrounding the nucleus. Within the nucleus of Rhodium you can find 45 protons and 58 neutrons giving the nucleus a positive charge. Surrounding the nucleus you can find 45 electrons and 4d8 5s1 valence electrons giving the atom a neutral charge.

P: 45

N: 58



# Rh

# Discovery

## Discoverer

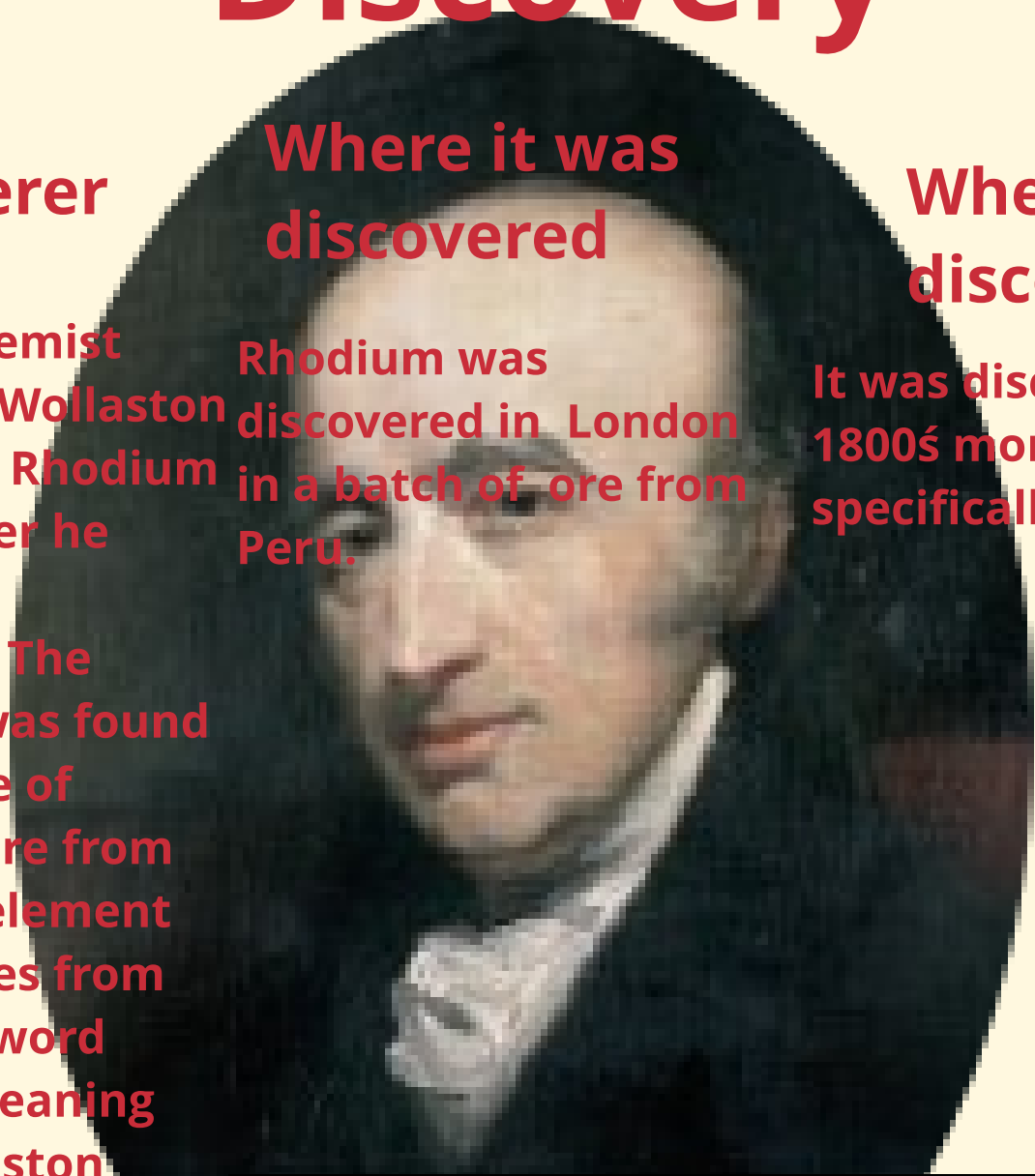
English chemist William H. Wollaston discovered Rhodium shortly after he discovered Palladium. The Rhodium was found in a sample of platinum ore from Peru. The element name comes from the Greek word 'rhodon' meaning rose. Wollaston chose this name because of the rose color of a dilute solution of rhodium's salts.

## Where it was discovered

Rhodium was discovered in London in a batch of ore from Peru.

## When it was discovered

It was discovered in 1800s more specifically 1803.



## Rhodium



William H. Wollaston

August 6, 1766 - August 22, 1842

# Compounds, Hazards and Uses

## Uses

Rhodium is a rare and valuable. It can be used as an alloying agent for hardening and improving the corrosion resistance of platinum and palladium. These alloys are used in furnace windings, bushings for glass fiber production, thermocouple elements, electrodes for aircraft spark plugs, laboratory crucibles, in jewelry, and time pieces..

## Compounds

Unlike ruthenium and osmium, rhodium forms no volatile oxygen compounds. The known stable oxides include  $Rh_2O_3$ ,  $RhO_2$ ,  $RhO_2 \cdot xH_2O$ ,  $Na_2RhO_3$ ,  $Sr_3LiRhO_6$  and  $Sr_3NaRhO_6$ .

## Hazards

While Rhodium has its uses it also has its hazards. Rhodium powder can affect you when breathed in. Contact can irritate the skin and eyes. Powder can also cause a skin allergy if allergy develops very low exposure can cause itching and a skin rash.

### Did You Know About Rhodium ?



Rhodium has a higher melting point and lower density than platinum. Rhodium is resistant to tarnishing and corrosion. Rhodium costs about six times as much as gold by weight. Rhodium is never found in mine, only being found in trace amounts in platinum or nickel ores.



60% of the world's rhodium is produced in South Africa, and world production of the metal is only about 16 tons per year. Rhodium was made famous in 1979 when the Guinness Book of World Records awarded Paul McCartney a rhodium-plated disc to celebrate his status as history's all-time best-selling songwriter and recording artist. Rhodium is commonly used as a coating for white gold jewelry and various silver objects. Rhodium is one of the rarest elements on Earth. Its abundance is estimated to be 0.0001.

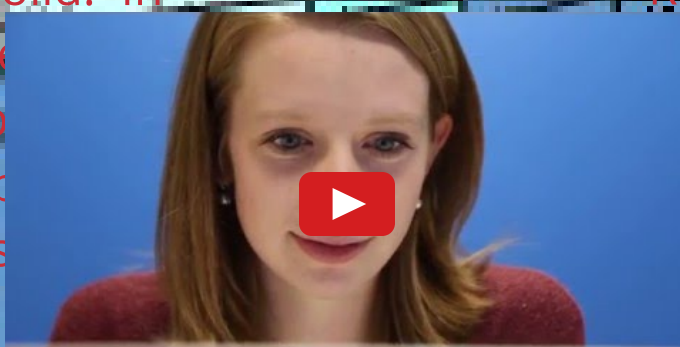
# Periodic Table of Elements

## Platinum Group

# Physical and Chemical Properties

## Physical

Rhodium is usually solid. In abundance it is in the crust 1 part per billion, 0.1 parts per billion in the solar system it is 1 billion by weight, 0.02 billion by moles. Rhodium is a silvery, durable metal that has a high reflectance. Rhodium metal does not normally form an oxide, even when heated. Oxygen is absorbed from the atmosphere only at the melting point of rhodium, but is released on solidification. Rhodium has both a higher melting point and lower density than platinum. It is not attacked by most acids: it is completely insoluble in nitric acid and dissolves slightly in aqua regia.



## Chemical

Rhodium is a relatively active metal. It is not attacked by strong acids. When heated in air it combines slowly with oxygen. It also reacts with chlorine or bromine when very hot. It does not react with fluorine, an element that reacts with nearly every other element.

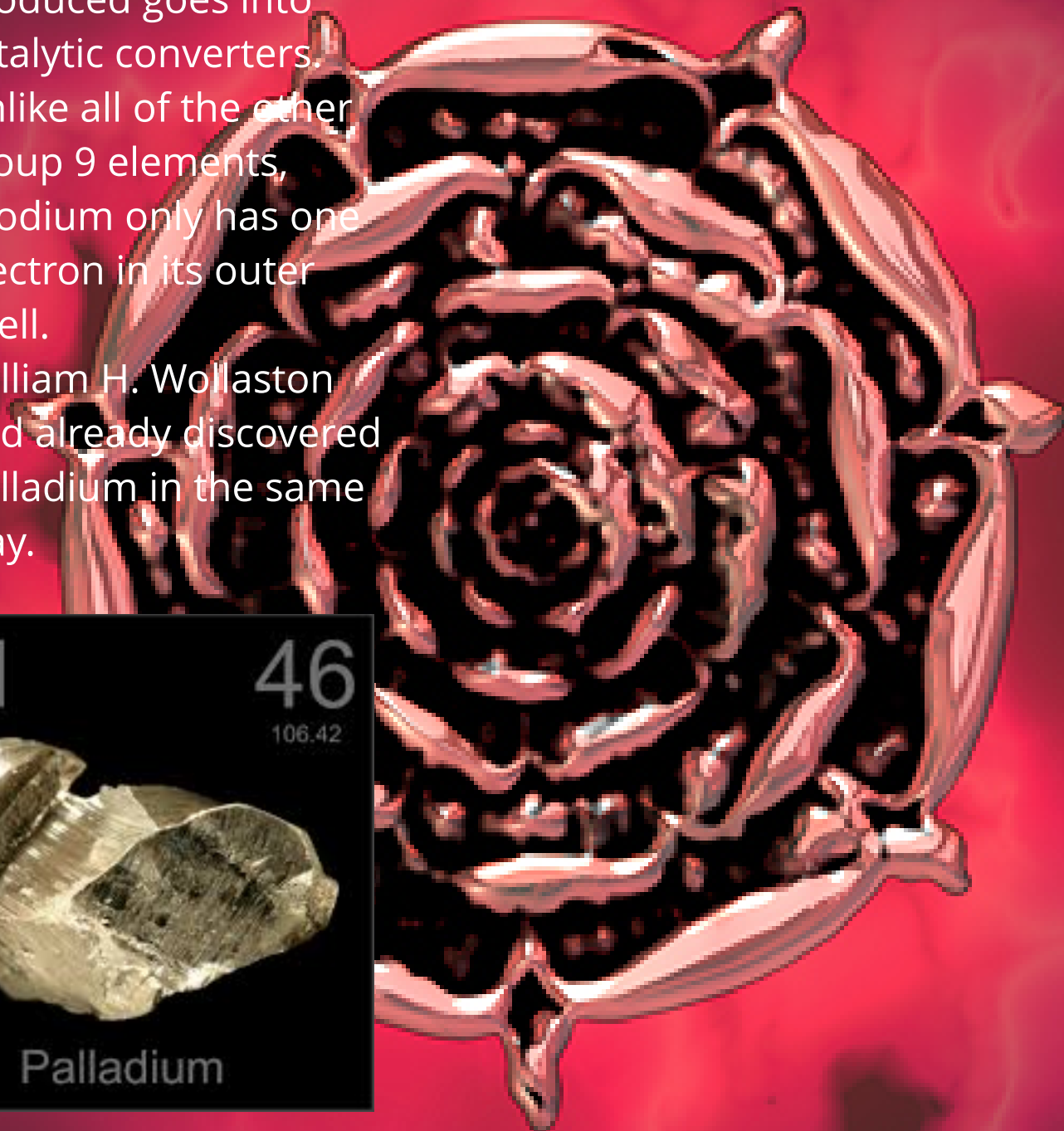
Br - liquid

Precious Metals

Metals

# Fun Facts

- 87.2% of the rhodium produced goes into catalytic converters.
- Unlike all of the other group 9 elements, rhodium only has one electron in its outer shell.
- William H. Wollaston had already discovered palladium in the same way.



Pd

46

106.42



Palladium