



Ruthenium

Ruthenium **Ru**⁴⁴

101,07

1,4

[Kr] 4d⁷5s¹

Ruthenium

is derived from the Latin name for Russia, "Ruthenia".

Transition Metal

Transition Metal



Dye-sensitized solar cells use ruthenium compounds

Solid

Silvery white, hard metal.

Uses: electrical contacts, jewellery, to increase hardness of platinum.



Rhodium

Rhodium

Rh⁴⁵

102,91

1,5

[Kr] 4d⁸5s¹

Rhodium

is derived from the Greek
"rhodon", meaning "rose".

**Transition
Metal**

**Transition
Metal**



Rhodium plated ring

Solid

Hard, silvery white
metal.

Uses: catalytic
converters, to harden
platinum, headlight
reflectors, jewellery.



Palladium

Palladium **Pd**⁴⁶

106,42

1,4

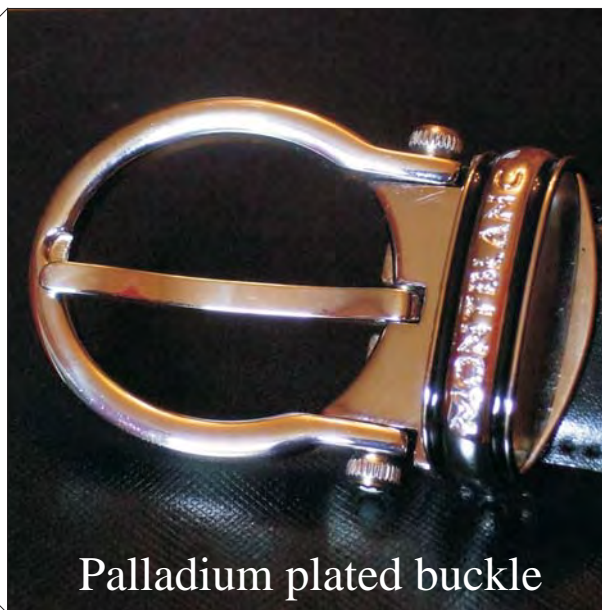
[Kr] 4d¹⁰

Palladium

is named after the asteroid Pallas; Pallas is a goddess in Greek mythology.

Transition Metal

Transition Metal



Palladium plated buckle

Solid

Soft, silver-white metal.

Used in dentistry, jewellery, to treat tumors, black&white photographic prints.



Silver crystal

Silver **Ag**⁴⁷

107,87

1,4

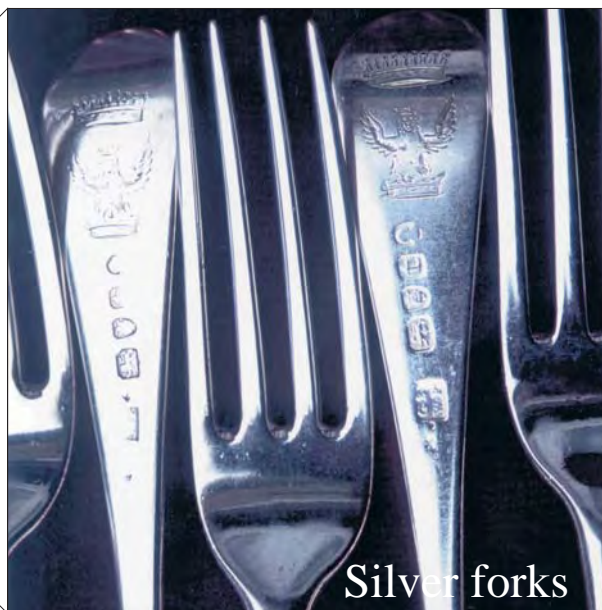
[Kr] 4d¹⁰5s¹

Transition
Metal

Silver

is derived from the Latin
“argentum”, meaning silver.

Transition
Metal



Silver forks

Solid

Ductile, brilliant
white metal.

Uses: coins, mirrors,
jewellery, silver-
ware, photographic
film.



Cadmium

Cadmium



112,41

1,5



Cadmium

is named after the dragon slayer, Cadmus, in Greek mythology.

Transition Metal

Transition Metal



Solid

Soft, malleable, bluish-white metal.

Uses: rechargeable batteries, yellow & red paint pigment, lasers, photocopiers.



Hafnium shavings

Hafnium **Hf**⁷²

178,49

1,2

[Xe] 4f¹⁴5d²6s²

Hafnium

is derived from the Latin name for Copenhagen, "Hafnia".

Transition Metal

Transition Metal

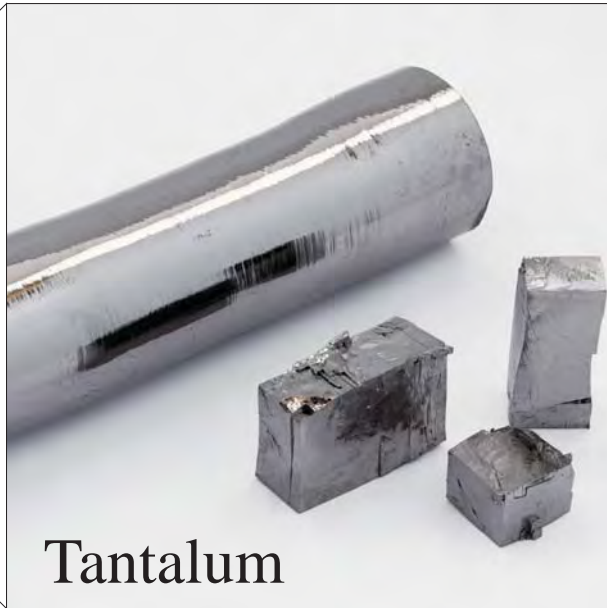


Oxydised hafnium

Solid

Shiny, steel grey, ductile metal.

Used in integrated circuits, alloys for rockets, nuclear reactors, plasma cutting.



Tantalum

Tantalum **Ta**⁷³

180,95

1,3

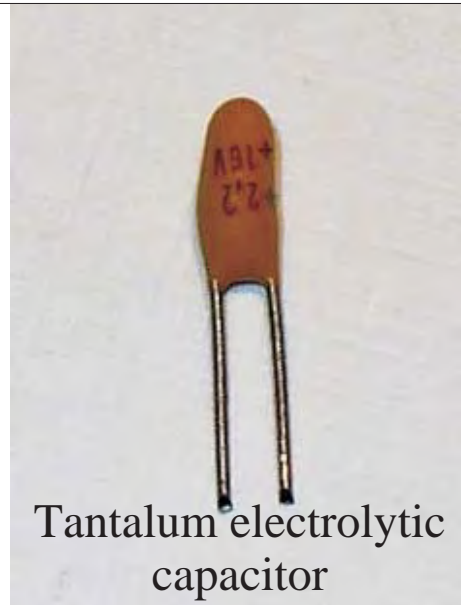
[Xe] 4f¹⁴5d³6s²

Tantalum

is named after "Tantalus", the bearer/sufferer, in Greek mythology.

Transition Metal

Transition Metal



Tantalum electrolytic capacitor

Solid

Blue grey, very hard metal.

Uses: capacitors, resistor, steel for missiles, in glass for camera lenses.



Tungsten

Tungsten **W**⁷⁴
183,84
1,4
[Xe] 4f¹⁴5d⁴6s²

Tungsten

is derived from the Swedish "tung sten", meaning "heavy stone". Also known as Wolfram.

Transition Metal

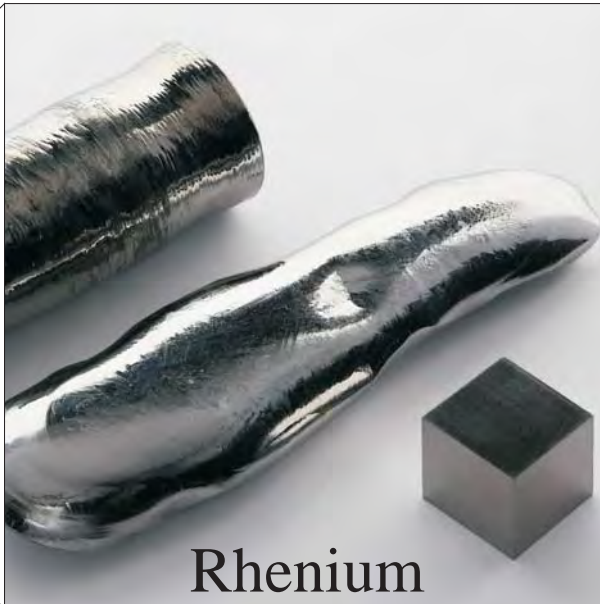
Transition Metal



Solid

Brittle, steel grey metal.

Uses: filaments in light bulbs, cutting tools, TV tubes, glass-to-metal seals.



Rhenium

Rhenium

Re⁷⁵

186,21

1,5

[Xe] 4f¹⁴5d⁵6s²

Rhenium

is named after the Latin name
of the river Rhine, "Rhenus".

**Transition
Metal**

**Transition
Metal**



CFM56 jet engine with
blades made with 3% rhenium

Solid

Greyish-white metal.

Uses: jet engine
parts, treatment of
liver cancer, thermo-
couples to measure
high temperatures.



Osmium crystals

Osmium

Os⁷⁶

190,23

1,5

[Xe] 4f¹⁴5d⁶6s²

Osmium

is derived from the Greek
"osme", meaning "smell".

**Transition
Metal**

**Transition
Metal**



Solid

Blue-grey, hard,
brittle metal.

Uses: fingerprint
detection, pen tips,
compass needles,
pacemakers.



Iridium

Iridium

Ir⁷⁷

192,22

1,6

[Xe] 4f¹⁴5d⁷6s²

Iridium

is named after the Greek goddess of the rainbow.

Transition Metal

Transition Metal



Solid

White, slightly yellowish metal.

Uses: spark plugs, pen tips, compass bearings, coloured salts.



Platinum nugget

Platinum **Pt**⁷⁸
195,08
1,4
[Xe] 4f¹⁴5d⁹6s¹

Platinum

is from the Spanish word
"platina", meaning "little

**Transition
Metal**

**Transition
Metal**



Catalytic converter

Solid

Grey-white, ductile,
malleable, precious,
transition metal.

Uses: catalytic con-
verters, jewellery,
crucibles, chemo.



Gold nugget

Gold **Au**⁷⁹

196,97

1,4

[Xe] 4f¹⁴5d¹⁰6s¹

Gold

is derived from the Latin
“aurum”, meaning “shining
dawn”.

Transition
Metal

Transition
Metal

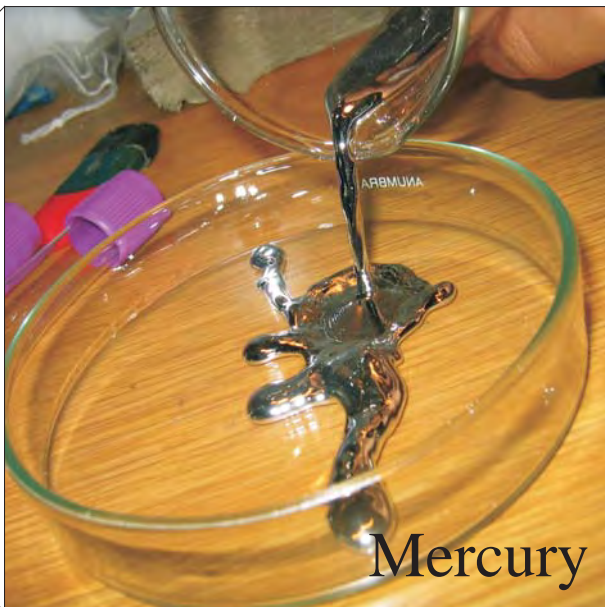
Gold necklace from
the Moche (early Peru)
culture



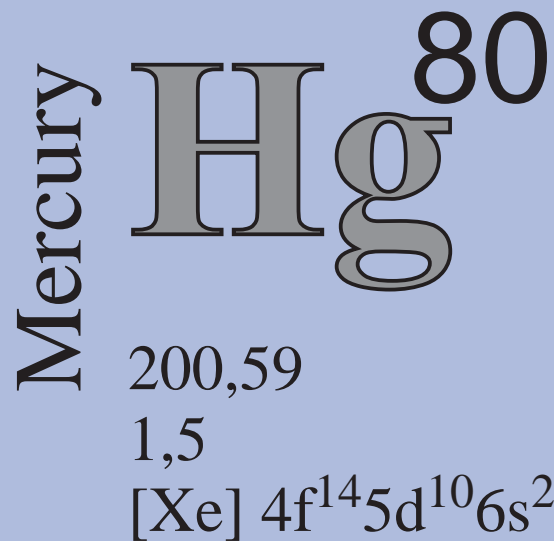
Solid

Yellow, ductile,
malleable metal.

Uses: coins, wires,
jewellery, reflective
coating on windows,
as investment.



Mercury



Mercury
is named after the Roman
god Mercury. The symbol is
from the Greek "hydor"
(water) and "argyros"
(silver).

**Transition
Metal**

**Transition
Metal**



Fluorescent bulbs

Liquid
Heavy, silvery,
liquid metal.

Uses: thermometers
and barometers,
fluorescent bulbs,
mercury switches.