

## OVERVIEW

Full Name	Rhodium (None)
Symbol	Rh
Atomic Number	45
Series	Transition Metal
Block / Group / Period	d-block   Group 9   Period 5
Electron Config.	[Kr]5s14d8
Phase at STP	Solid
Colour	Silver
Discovery	1803 in The United Kingdom

## THERMAL PROPERTIES

Melting Point	1964 °C	°C
Melting Point (abs.)	2237 K	K
Boiling Point	3695 °C	°C
Boiling Point (abs.)	3968 K	K
Heat of Fusion	21.7 kJ/mol	kJ/mol
Heat of Vaporization	495 kJ/mol	kJ/mol
Specific Heat (solid)	240 J/(kg K)	J/(kg·K)
Thermal Conductivity	150 W/(m K)	W/(m·K)
Thermal Expansion	8×10 <sup>-6</sup> K <sup>-1</sup>	K <sup>-1</sup>

## MECHANICAL PROPERTIES

Density (solid, STP)	12.45 g/cm <sup>3</sup>	g/cm <sup>3</sup>
Density (liquid, MP)	10.7 g/cm <sup>3</sup>	g/cm <sup>3</sup>
Young's Modulus	275 GPa	GPa
Shear Modulus	150 GPa	GPa
Bulk Modulus	380 GPa	GPa
Poisson's Ratio	0.26	
Speed of Sound	4700 m/s	m/s
Mohs Hardness	6	
Vickers Hardness	1246 MPa	MPa
Brinell Hardness	1100 MPa	MPa

## ELECTRICAL PROPERTIES

Type	Conductor
Conductivity	2.3×10 <sup>7</sup> S/m S/m
Resistivity	4.300000000003×10 <sup>-8</sup> mΩ/m·m

## MAGNETIC PROPERTIES

Type	Paramagnetic
Vol. Susceptibility	0.0001693
Mass Susceptibility	1.36×10 <sup>-8</sup> m <sup>3</sup> /Kg m <sup>3</sup> /kg

## REACTIVITY

Valence	6
Electronegativity	2.28 (Pauling)
Electron Affinity	109.7 kJ/mol kJ/mol
Ionization Energies	719.7, 1740 kJ/mol

## ATOMIC DIMENSIONS

Atomic Radius	173 pm pm
Covalent Radius	142 pm pm

## CRYSTAL STRUCTURE

Structure	Face-centered Cubic
Lattice Constant	380.34, 380.34, 380.34 pm
Space Group	Fm <sub>3</sub> #225

## ISOTOPES &amp; NUCLEAR

Stability	Stable
Stable Isotopes	103Rh
Isotopic Abundance	103Rh 100%
Known Isotopes	89Rh ■ 122Rh (34 total)
Neutron Cross Sect.	145 barns

## ELEMENTAL ABUNDANCES

Universe	6×10 <sup>-8</sup> % %
Earth's Crust	7×10 <sup>-8</sup> % %

## HEALTH &amp; SAFETY

DOT Hazard Class	4.1
RTECS Number	VI9069000
NFPA Health/Fire/Rx	0 / 0 / 0