

OVERVIEW

Full Name	Platinum (None)
Symbol	Pt
Atomic Number	78
Series	Transition Metal
Block / Group / Period	d-block Group 10 Period ...
Electron Config.	[Xe]6s14f145d9
Phase at STP	Solid
Colour	Gray
Discovery	1735 in Peru

THERMAL PROPERTIES

Melting Point	1768.3 °C	°C
Melting Point (abs.)	2041.4 K	K
Boiling Point	3825 °C	°C
Boiling Point (abs.)	4098 K	K
Heat of Fusion	20 kJ/mol	kJ/mol
Heat of Vaporization	490 kJ/mol	kJ/mol
Specific Heat (solid)	133 J/(kg K)	J/(kg·K)
Thermal Conductivity	71 W/(m K)	W/(m·K)
Thermal Expansion	8.9×10 ⁻⁶ K ⁻¹	K ⁻¹

MECHANICAL PROPERTIES

Density (solid, STP)	21.45 g/cm ³	g/cm ³
Density (liquid, MP)	19.77 g/cm ³	g/cm ³
Young's Modulus	168 GPa	GPa
Shear Modulus	61 GPa	GPa
Bulk Modulus	230 GPa	GPa
Poisson's Ratio	0.38	
Speed of Sound	2680 m/s	m/s
Mohs Hardness	3.5	
Vickers Hardness	549 MPa	MPa
Brinell Hardness	392 MPa	MPa

ELECTRICAL PROPERTIES

Type	Conductor
Conductivity	9.4×10 ⁶ S/m S/m
Resistivity	1.1×10 ⁻⁷ m ² /V·s Ohm·m

MAGNETIC PROPERTIES

Type	Paramagnetic
Vol. Susceptibility	0.0002573
Mass Susceptibility	1.22×10 ⁻⁸ m ³ /Kg m ³ /kg

REACTIVITY

Valence	6
Electronegativity	2.28 (Pauling)
Electron Affinity	205.3 kJ/mol kJ/mol
Ionization Energies	870, 1791 kJ/mol

ATOMIC DIMENSIONS

Atomic Radius	177 pm	pm
Covalent Radius	136 pm	pm
Van der Waals Radius	175 pm	pm

CRYSTAL STRUCTURE

Structure	Face-centered Cubic
Lattice Constant	392.42, 392.42, 392.42 pm
Space Group	Fm ₃ #225

ISOTOPES & NUCLEAR

Stability	Stable
Stable Isotopes	192Pt, 194Pt, 195Pt, 196Pt, 198P...
Isotopic Abundance	190Pt0.014%192Pt0.782%194Pt32.96...
Known Isotopes	166Pt ■ 202Pt (37 total)
Neutron Cross Sect.	10 barns

ELEMENTAL ABUNDANCES

Universe	5×10 ⁻⁷ %	%
Earth's Crust	3.7×10 ⁻⁶ %	%

HEALTH & SAFETY

DOT Hazard Class	4.1
RTECS Number	TP2160000
NFPA Health/Fire/Rx	0 / 0 / 0