

OVERVIEW

Full Name	Nickel (None)
Symbol	Ni
Atomic Number	28
Series	Transition Metal
Block / Group / Period	d-block Group 10 Period ...
Electron Config.	[Ar]4s23d8
Phase at STP	Solid
Colour	Gray
Discovery	1751 in Sweden

THERMAL PROPERTIES

Melting Point	1455 °C	°C
Melting Point (abs.)	1728 K	K
Boiling Point	2913 °C	°C
Boiling Point (abs.)	3186 K	K
Heat of Fusion	17.2 kJ/mol	kJ/mol
Heat of Vaporization	378 kJ/mol	kJ/mol
Specific Heat (solid)	445 J/(kg K)	J/(kg·K)
Thermal Conductivity	91 W/(m K)	W/(m·K)
Thermal Expansion	0.0000134 K ⁻¹	K ⁻¹

MECHANICAL PROPERTIES

Density (solid, STP)	8.908 g/cm ³	g/cm ³
Density (liquid, MP)	7.81 g/cm ³	g/cm ³
Young's Modulus	200 GPa	GPa
Shear Modulus	76 GPa	GPa
Bulk Modulus	180 GPa	GPa
Poisson's Ratio	0.31	
Speed of Sound	4970 m/s	m/s
Mohs Hardness	4	
Vickers Hardness	638 MPa	MPa
Brinell Hardness	700 MPa	MPa

ELECTRICAL PROPERTIES

Type	Conductor
Conductivity	1.4×10 ⁷ S/m S/m
Resistivity	7.000000000002×10 ⁻⁸ mΩ/m·m

MAGNETIC PROPERTIES

Type	Ferromagnetic
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REACTIVITY

Valence	2
Electronegativity	1.91 (Pauling)
Electron Affinity	112 kJ/mol kJ/mol
Ionization Energies	737.1, 1753 kJ/mol

ATOMIC DIMENSIONS

Atomic Radius	149 pm	pm
Covalent Radius	124 pm	pm
Van der Waals Radius	163 pm	pm

CRYSTAL STRUCTURE

Structure	Face-centered Cubic
Lattice Constant	352.4, 352.4, 352.4 pm pm
Space Group	Fm ₃ #225

ISOTOPES & NUCLEAR

Stability	Stable
Stable Isotopes	58Ni, 60Ni, 61Ni, 62Ni, 64Ni
Isotopic Abundance	58Ni68.0769%60Ni26.2231%61Ni1.13...
Known Isotopes	48Ni ■ 78Ni (31 total)
Neutron Cross Sect.	4.5 barns

ELEMENTAL ABUNDANCES

Universe	0.006%	%
Earth's Crust	0.009%	%
Oceans	2×10 ⁻⁷ %	%
Human Body	0.00001%	%

HEALTH & SAFETY

DOT Hazard Class	4.1
RTECS Number	QR5950000
NFPA Health/Fire/Rx	0 / 0 / 0