

OVERVIEW

Full Name	Iron (Ferrum)
Symbol	Fe
Atomic Number	26
Series	Transition Metal
Block / Group / Period	d-block Group 8 Period 4
Electron Config.	[Ar]4s23d6
Phase at STP	Solid
Colour	Gray
Discovery	2000 BC

THERMAL PROPERTIES

Melting Point	1538 °C	°C
Melting Point (abs.)	1811 K	K
Boiling Point	2861 °C	°C
Boiling Point (abs.)	3134 K	K
Heat of Fusion	13.8 kJ/mol	kJ/mol
Heat of Vaporization	347 kJ/mol	kJ/mol
Specific Heat (solid)	449 J/(kg K)	J/(kg·K)
Thermal Conductivity	79 W/(m K)	W/(m·K)
Thermal Expansion	0.0000118 K ⁻¹	K ⁻¹

MECHANICAL PROPERTIES

Density (solid, STP)	7.874 g/cm ³	g/cm ³
Density (liquid, MP)	6.98 g/cm ³	g/cm ³
Young's Modulus	211 GPa	GPa
Shear Modulus	82 GPa	GPa
Bulk Modulus	170 GPa	GPa
Poisson's Ratio	0.29	
Speed of Sound	4910 m/s	m/s
Mohs Hardness	4	
Vickers Hardness	608 MPa	MPa
Brinell Hardness	490 MPa	MPa

ELECTRICAL PROPERTIES

Type	Conductor
Conductivity	1×10 ⁷ S/m S/m
Resistivity	9.700000000001×10 ⁻⁸ mΩ/m·m

MAGNETIC PROPERTIES

Type	Ferromagnetic
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REACTIVITY

Valence	3
Electronegativity	1.83 (Pauling)
Electron Affinity	15.7 kJ/mol kJ/mol
Ionization Energies	762.5, 1561.9 kJ/mol

ATOMIC DIMENSIONS

Atomic Radius	156 pm	pm
Covalent Radius	132 pm	pm

CRYSTAL STRUCTURE

Structure	Body-centered Cubic
Lattice Constant	286.65, 286.65, 286.65 pm
Space Group	Im_3m #229

ISOTOPES & NUCLEAR

Stability	Stable
Stable Isotopes	54Fe, 56Fe, 57Fe, 58Fe
Isotopic Abundance	54Fe5.845%56Fe91.754%57Fe2.119%5...
Known Isotopes	45Fe ■ 72Fe (28 total)
Neutron Cross Sect.	2.56 barns

ELEMENTAL ABUNDANCES

Universe	0.11%	%
Earth's Crust	6.3%	%
Oceans	3×10 ⁻⁷ %	%
Human Body	0.006%	%

HEALTH & SAFETY

DOT Hazard Class	4.1
RTECS Number	NO4565500
NFPA Health/Fire/Rx	0 / 0 / 0