

OVERVIEW

Full Name	Germanium (None)	
Symbol	Ge	
Atomic Number	32	
Series	Metalloid	
Block / Group / Period	p-block Group 14 Period ...	
Electron Config.	[Ar]4s23d104p2	
Phase at STP	Solid	
Colour	Gray	
Discovery	1886 in Germany	

THERMAL PROPERTIES

Melting Point	938.3 °C	°C
Melting Point (abs.)	1211.4 K	K
Boiling Point	2820 °C	°C
Boiling Point (abs.)	3093 K	K
Heat of Fusion	31.8 kJ/mol	kJ/mol
Heat of Vaporization	334 kJ/mol	kJ/mol
Specific Heat (solid)	321.4 J/(kg K)	J/(kg·K)
Thermal Conductivity	60 W/(m K)	W/(m·K)
Thermal Expansion	6×10 ⁻⁶ K ⁻¹	K ⁻¹

MECHANICAL PROPERTIES

Density (solid, STP)	5.323 g/cm ³	g/cm ³
Density (liquid, MP)	5.6 g/cm ³	g/cm ³
Speed of Sound	5400 m/s	m/s
Mohs Hardness	6	
Vickers Hardness	8012.03305 MPa	MPa
Brinell Hardness	7273.402498871 MPa	MPa

ELECTRICAL PROPERTIES

Type	Semiconductor	
Conductivity	2000 S/m	S/m
Resistivity	0.0005 m ?	Ohm·m

MAGNETIC PROPERTIES

Type	Diamagnetic	
Vol. Susceptibility	-7.98×10 ⁻⁶	
Mass Susceptibility	-1.5×10 ⁻⁹ m ³ /Kg	m ³ /kg

REACTIVITY

Valence	4	
Electronegativity	2.01	(Pauling)
Electron Affinity	119 kJ/mol	kJ/mol
Ionization Energies	762, 1537.5	kJ/mol

ATOMIC DIMENSIONS

Atomic Radius	125 pm	pm
Covalent Radius	120 pm	pm

CRYSTAL STRUCTURE

Structure	Face-centered Cubic	
Lattice Constant	565.75, 565.75, 565.75 pm	
Space Group	Fm_ 3m	#225

ISOTOPES & NUCLEAR

Stability	Stable	
Stable Isotopes	70Ge, 72Ge, 73Ge, 74Ge	
Isotopic Abundance	70Ge20.84%72Ge27.54%73Ge7.73%74G...	
Known Isotopes	58Ge ■ 89Ge (32 total)	
Neutron Cross Sect.	2.2	barns

ELEMENTAL ABUNDANCES

Universe	0.00002%	%
Earth's Crust	0.00014%	%
Oceans	6×10 ⁻⁹ %	%

HEALTH & SAFETY

DOT Hazard Class	4.1	
RTECS Number	LY5200000	
NFPA Health/Fire/Rx	0 / 0 / 0	