ADVENT
RESEARCH MATERIALS

TECHNICAL DATA SHEET

Source: Wolfram Research / periodictable.com

CAS: 7440-50-8
Atomic Weight: 63.546 g/mol

Cu
Copper
29

OVERVIEW

Full Name	**Copper (Cuprum)**
Symbol	**Cu**
Atomic Number	**29**
Series	**Transition Metal**
Block / Group / Period	**d-block | Group 11 | Period ...**
Electron Config.	**[Ar]4s13d10**
Phase at STP	**Solid**
Colour	**Copper**
Discovery	**8000 BC**

THERMAL PROPERTIES

Melting Point	**1084.62 °C**	°C
Melting Point (abs.)	**1357.77 K**	K
Boiling Point	**2562 °C**	°C
Boiling Point (abs.)	**2835 K**	K
Heat of Fusion	**13.1 kJ/mol**	kJ/mol
Heat of Vaporization	**300 kJ/mol**	kJ/mol
Specific Heat (solid)	**384.4 J/(kg K)**	J/(kg·K)
Thermal Conductivity	**400 W/(m K)**	W/(m·K)
Thermal Expansion	**0.0000165 K-1**	K^-1

MECHANICAL PROPERTIES

Density (solid, STP)	**8.96 g/cm3**	g/cm3
Density (liquid, MP)	**8.02 g/cm3**	g/cm3
Young's Modulus	**130 GPa**	GPa
Shear Modulus	**48 GPa**	GPa
Bulk Modulus	**140 GPa**	GPa
Poisson's Ratio	**0.34**	
Speed of Sound	**3570 m/s**	m/s
Mohs Hardness	**3**	
Vickers Hardness	**369 MPa**	MPa
Brinell Hardness	**874 MPa**	MPa

ELECTRICAL PROPERTIES

Type	**Conductor**	
Conductivity	**5.9×107 S/m**	S/m
Resistivity	**1.7×10-8 m ?**	Ohm·m

MAGNETIC PROPERTIES

Type	**Diamagnetic**	
Vol. Susceptibility	**-9.63×10-6**	
Mass Susceptibility	**-1.08×10-9 m3/Kg**	m3/kg

REACTIVITY

Valence	**2**	
Electronegativity	**1.9**	(Pauling)
Electron Affinity	**118.4 kJ/mol**	kJ/mol
Ionization Energies	**745.5, 1957.9**	kJ/mol

ATOMIC DIMENSIONS

Atomic Radius	**145 pm**	pm
Covalent Radius	**132 pm**	pm
Van der Waals Radius	**140 pm**	pm

CRYSTAL STRUCTURE

Structure	**Face-centered Cubic**	
Lattice Constant	**361.49, 361.49, 361.49 pm**	
Space Group	**Fm_ 3m**	#225

ISOTOPES & NUCLEAR

Stability	**Stable**	
Stable Isotopes	**63Cu, 65Cu**	
Isotopic Abundance	**63Cu69.17%65Cu30.83%**	
Known Isotopes	**52Cu ■ 80Cu (29 total)**	
Neutron Cross Sect.	**3.78**	barns

ELEMENTAL ABUNDANCES

Universe	**6×10-6%**	%
Earth's Crust	**0.0068%**	%
Oceans	**3×10-7%**	%
Human Body	**0.0001%**	%

HEALTH & SAFETY

DOT Hazard Class	**4.1**
RTECS Number	**GL5325000**
NFPA Health/Fire/Rx	**0 / 0 / 0**