

## OVERVIEW

Full Name	Molybdenum (None)
Symbol	Mo
Atomic Number	42
Series	Transition Metal
Block / Group / Period	d-block   Group 6   Period 5
Electron Config.	[Kr]5s14d5
Phase at STP	Solid
Colour	Gray
Discovery	1781 in Sweden

## THERMAL PROPERTIES

Melting Point	2623 °C	°C
Melting Point (abs.)	2896 K	K
Boiling Point	4639 °C	°C
Boiling Point (abs.)	4912 K	K
Heat of Fusion	36 kJ/mol	kJ/mol
Heat of Vaporization	600 kJ/mol	kJ/mol
Specific Heat (solid)	251 J/(kg K)	J/(kg·K)
Thermal Conductivity	139 W/(m K)	W/(m·K)
Thermal Expansion	4.8×10 <sup>-6</sup> K <sup>-1</sup>	K <sup>-1</sup>

## MECHANICAL PROPERTIES

Density (solid, STP)	10.28 g/cm <sup>3</sup>	g/cm <sup>3</sup>
Density (liquid, MP)	9.33 g/cm <sup>3</sup>	g/cm <sup>3</sup>
Young's Modulus	329 GPa	GPa
Shear Modulus	20 GPa	GPa
Bulk Modulus	230 GPa	GPa
Poisson's Ratio	0.31	
Speed of Sound	6190 m/s	m/s
Mohs Hardness	5.5	
Vickers Hardness	1530 MPa	MPa
Brinell Hardness	1500 MPa	MPa

## ELECTRICAL PROPERTIES

Type	Conductor
Conductivity	2×10 <sup>7</sup> S/m S/m
Resistivity	4.9999999999997×10 <sup>-8</sup> mΩ/m·m
Superconducting Pt.	0.915 K

## MAGNETIC PROPERTIES

Type	Paramagnetic
Vol. Susceptibility	0.0001203
Mass Susceptibility	1.17×10 <sup>-8</sup> m <sup>3</sup> /Kg m <sup>3</sup> /kg

## REACTIVITY

Valence	6
Electronegativity	2.16 (Pauling)
Electron Affinity	71.9 kJ/mol kJ/mol
Ionization Energies	684.3, 1560 kJ/mol

## ATOMIC DIMENSIONS

Atomic Radius	190 pm pm
Covalent Radius	154 pm pm

## CRYSTAL STRUCTURE

Structure	Body-centered Cubic
Lattice Constant	314.7, 314.7, 314.7 pm pm
Space Group	Im_3m #229

## ISOTOPES &amp; NUCLEAR

Stability	Stable
Stable Isotopes	92Mo, 94Mo, 95Mo, 96Mo, 97Mo, 98...
Isotopic Abundance	100Mo9.63%92Mo14.84%94Mo9.25%95M...
Known Isotopes	83Mo ■ 115Mo (33 total)
Neutron Cross Sect.	2.6 barns

## ELEMENTAL ABUNDANCES

Universe	5×10 <sup>-7</sup> % %
Earth's Crust	0.00011% %
Oceans	9.9×10 <sup>-7</sup> % %
Human Body	0.00001% %

## HEALTH &amp; SAFETY

DOT Hazard Class	4.1
RTECS Number	QA4680000
NFPA Health/Fire/Rx	0 / 0 / 0