

Cadmium ${}_{48}\text{Cd}^{112.40}$

Discovered in 1817 by F. Stromeyer at Göttingen, Germany.

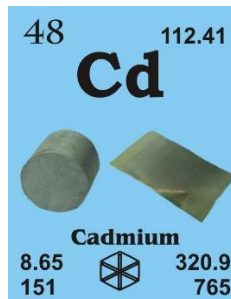
[Latin: cadmia = calamine]

French: cadmium

German: Cadmium

Italian: cadmio

Spanish: cadmio



Atomic number	48
Density in g/cm ³	8.65
Atomic radius in pm	161
Atomic weight	112.41
Melting point in °C	320.9
Boiling point in °C	765

Description: Cadmium is a silvery metal that tarnishes in air, and is soluble in acids but not alkalis. It is used in rechargeable batteries, alloys and pigments, but because of its toxicity these uses are being phased out wherever possible.

CADMIUM SINGLE CRYSTAL PROPERTIES

State:	Single crystal
Crystal structure:	rhombohedral
Production method:	Bridgman
Standard size:	diameter 12 thickness 1-2mm
Orientation:	(0001)
Orientation accuracy:	<2°, <1°, <0.4° or <0.1°
Polishing:	as cut, one or two sides polished
Roughness of surface:	<0.03 μm
Purity:	99.999%
Crystal structure:	(cell dimensions/pm), space group, h.c.p. (a=297.94, c=561.86), P63/mmc
X-ray diffractions mass absorption coefficients:	CuKα 231 (μ/ρ) / cm ² g ⁻¹ MoKα 27.5 (μ/ρ) / cm ² g ⁻¹
Neutron scattering length:	0.51 b/10 ⁻¹² cm
Thermal neutron capture cross-section:	2450 barns
Density:	8.65 kg/m ³
Melting point:	320.95 °C / 594.1 °K
Boiling point:	764.85 °C / 1038 °K
Molar volume:	13.00 cm ³
Thermal conductivity:	96.8 [300 K] Wm ⁻¹ K ⁻¹
Coefficient of linear thermal expansion:	29.8 x 10 ⁻⁶ K ⁻¹
Electrical resistivity:	6.83x10 ⁻⁸ [293 K] Ωm
Mass magnetic susceptibility:	-2.21 x 10 ⁻⁹ (s) kg ⁻¹ m ³
Young's modulus:	62.6 GPa
Rigidity modulus:	24.0 GPa

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Bulk modulus:	51.0 GPa
Poisson's ratio:	0.30
Radi:	Cd ²⁺ 103; Cd ⁺ 114; atomic 149; covalent 141
Electronegativity:	1.69 (Pauling); 1.46 (Allred); 4.33 eV (absolute)
Effective nuclear charge:	4.35 (Slater); 8.19 (Clementi); 11.58 (Froese-Fischer)
Number of Isotopes (incl. nuclear isomers):	31
Isotope mass range:	99 -> 124

