

Holmium ${}_{67}\text{Ho}^{164.930}$

Holmium was discovered in 1878 by P.T. Cleve at Uppsala, Sweden, and independently by M. Delafontaine and J.L. Soret at Geneva, Switzerland.

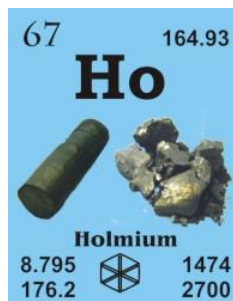
[Greek: Holmia = Sweden]

French: holmium

German: holmium

Italian: olmio

Spanish: holmio



Atomic number	67
Density in g/cm ³	8.795
Atomic radius in pm	226
Atomic weight	164.93
Melting point in °C	1474
Boiling point in °C	2700

Description: Holmium is a silvery metal of the so-called rare earth group (more correctly termed the lanthanides). It is slowly attacked by oxygen and water, and dissolves in acids. Holmium is used as a flux concentrator for high magnetic fields.

HOLMIUM SINGLE CRYSTAL PROPERTIES

State:	Single crystal
Crystal structure:	hexagonal
Production method:	Floating zone
Standard size:	diameter 7–8mm thickness 1mm
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:	99.99%
Crystal structure:	(cell dimensions/pm), space group a-Ho h.c.p. (a=357.73, c=561.58), P63/mmc b-Ho b.c.c. (a=396), Im3m T(a → a) = just below melting point High pressure form: (a=334, c=2410), R3m
X-ray diffractions mass absorption coefficients:	CuKα 128 (μ/ρ) / cm ² g ⁻¹ MoKα 73.9 (μ/ρ) / cm ² g ⁻¹
Neutron scattering length:	0.808 b/10 ⁻¹² cm
Thermal neutron capture cross-section:	65 σ _a / barns
Density:	8.8 kg/m ⁻³ [293 K]; 2390 [liquid at m.p.]
Melting point:	1473.85 °C / 1747 °K
Boiling point:	2694.85 °C / 2968 °K
Molar volume:	18.75 cm ³
Thermal conductivity:	16.2 [300 K] Wm ⁻¹ K ⁻¹
Coefficient of linear thermal expansion:	9.5 x 10 ⁻⁶ K ⁻¹

www.princetonscientific.com

Tel. (609) 9243011 | Fax (609) 9243018 | info@princetonscientific.com | P.O. Box 148 · Easton, PA 18044



Electrical resistivity:	87.0 x 10 ⁻⁸ [293 K] Ωm
Mass magnetic susceptibility:	+5.49 x 10 ⁻⁶ (s) kg-lm ³
Young's modulus:	64.8 GPa
Rigidity modulus:	26.3 GPa
Bulk modulus:	40.2 GPa
Poisson's ratio:	0.231
Radi:	Ho ³⁺ 89; atomic 177; covalent 158
Electronegativity:	1.23 (Pauling); 1.10 (Allred); £3.3 eV (absolute)
Effective nuclear charge:	2.85 (Slater); 8.44 (Clementi); 11.60 (Froese-Fischer)
Number of Isotopes (incl. nuclear isomers):	39
Isotope mass range:	148 -> 170

