

Antimony ${}_{51}\text{Sb}^{121.75}$

Probably known to the ancients and certainly to the alchemists.

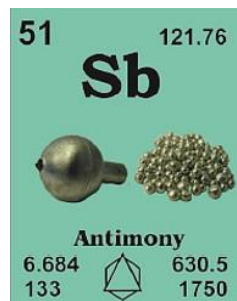
[Greek: anti + monos = not alone; Latin: stibium]

French: antimoine

German: Antimon

Italian: antimonio

Spanish: antimonio



Atomic number	51
Density in g/cm ³	6.684
Atomic radius in pm	133
Atomic weight in u	121.76
Melting point in °C	630.5
Boiling point in °C	1750

Description: Antimony is a metalloid element with three forms. The metallic form is the more stable and is bright, silvery, hard and brittle. It is stable in dry air, and is not attacked by dilute acids or alkalis. The addition of antimony will harden other metals, and is used in storage batteries, bearings, etc.

ANTIMONY SINGLE CRYSTAL PROPERTIES

State:	Single crystal
Crystal structure:	rhombohedral
Production method:	Bridgman
Standard size:	diameter 12mm thickness 1mm
Orientation:	(100), (110) and (111)
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, grey rhombohedral (a=430.84, c=1124.79), R3m (grey) cubic (a=298.6), Pm3m metal h.c.p. (a=336.9, c=533), P63/mmc
X-ray diffractions mass absorption coefficients:	CuKa 270 (μ/r) / cm ² g ⁻¹ MoKa 33.1 (μ/r) / cm ² g ⁻¹
Neutron scattering length:	0.557 b/10 ⁻¹² cm
Thermal neutron capture cross-section:	4.91 sa / barns
Density:	6.62 kg/m ⁻³ [293 K]; 2390 [liquid at m.p.]
Melting point:	630.74 °C / 903.89 °K
Boiling point:	1634.85 °C / 1908 °K
Molar volume:	18.20 cm ³
Thermal conductivity:	24.3 [300 K] Wm ⁻¹ K ⁻¹
Coefficient of linear thermal expansion:	8.5 x 10 ⁻⁶ K ⁻¹
Electrical resistivity:	39.0 x 10 ⁻⁸ [293 K] Wm

www.princetonscientific.com

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



Mass magnetic susceptibility:	-1.0 x 10 ⁻⁹ (s) kg-1m ³
Young's modulus:	54.7 GPa
Rigidity modulus:	20.7 GPa
Bulk modulus:	n.a.
Poisson's ratio:	0.25 - 0.33
Radi:	Sb5+ 62; Sb3+ 89; Sb2- 245; atomic 182; covalent 141; van der Waals 220
Electronegativity:	2.05 (Pauling); 1.82 (Allred); 4.85 eV (absolute)
Effective nuclear charge:	6.30 (Slater); 9.99 (Clementi); 12.37(Froese-Fischer)
Number of Isotopes (incl. nuclear isomers):	40
Isotope mass range:	108 -> 136

