

Cobalt Square Single Crystal

Formula: Co

Percentage Purity: 99.99%

Thickness: 1mm

Size: 4x4mm

Orientation: (10-10)

Orientation Accuracy: = 1°

Polish: Unpolished

CAS Number: 7440-48-4

UOM Code: 102-943-61

SKU: 1000016396-group

Product Code: CO00-SC-000201

Material Properties for Metals

Atomic Properties

Element	Value
Atomic number	27
Crystal structure	Hexagonal close packed
Electronic structure	Ar 3d ⁷ 4s ²
Valences shown	2, 3
Atomic weight(amu)	58.9332
Thermal neutron absorption cross-section(Barns)	37.5
Photo-electric work function(eV)	5
Atomic radius - Goldschmidt(nm)	0.125
Ionisation potential(No./eV)	2/ 17.06
Ionisation potential(No./eV)	4/ 51.3
Ionisation potential(No./eV)	3/ 33.5
Ionisation potential(No./eV)	1/ 79.5
Ionisation potential(No./eV)	1/ 79.5
Ionisation potential(No./eV)	6/ 102

Mechanical Properties

Element	Value
Material condition	Hard

Element	Value
Material condition	Soft
Poisson's ratio	0.32
Poisson's ratio	0.32
Bulk modulus(GPa)	181.5
Bulk modulus(GPa)	181.5
Tensile modulus(GPa)	211
Tensile modulus(GPa)	211
Hardness - Vickers(kgf mm ²)	320
Hardness - Vickers(kgf mm ²)	170
Tensile strength(MPa)	1135
Tensile strength(MPa)	760
Yield strength(MPa)	345-485

Electrical Properties

Element	Value
Electrical resistivity(μOhmcm)	6.34@20@20°C
Temperature coefficient(K ⁻¹)	0.0066@0-100°C
Thermal emf against Pt (cold 0C - hot 100C)(mV)	-1.33

Physical Properties

Element	Value
Boiling point(C)	2870
Density(gcm ³)	8.9@20°C

Thermal Properties

Element	Value
Melting point(C)	1495
Latent heat of evaporation(J g ⁻¹)	6490
Latent heat of fusion(J g ⁻¹)	263
Specific heat(J K ⁻¹ kg ⁻¹)	456@25°C
Thermal conductivity(W m ⁻¹ K ⁻¹)	100@0-100°C
Coefficient of thermal expansion($\times 10^{-6}$ K ⁻¹)	12.5@0-100°C