

Aluminum Single Crystal

Formula: Al

Percentage Purity: 99.999%

Diameter: 12mm

Length: 50mm

Orientation: -110

CAS Number: 7429-90-5

UOM Code: 832-396-67

SKU: 1000030786-group

Product Code: AL00-SC-000120

Material Properties for Metals

Atomic Properties

Element	Value
Atomic number	13
Crystal structure	Face centred cubic
Electronic structure	Ne 3s ² 3p ¹
Valences shown	3
Atomic weight(amu)	26.98154
Thermal neutron absorption cross-section(Barns)	0.232
Photo-electric work function(eV)	4.2
Atomic radius - Goldschmidt(nm)	0.143
Ionisation potential(No./eV)	4/ 120
Ionisation potential(No./eV)	5/ 154
Ionisation potential(No./eV)	6/ 190
Ionisation potential(No./eV)	1/ 5.99
Ionisation potential(No./eV)	3/ 28.4
Ionisation potential(No./eV)	2/ 18.8

Mechanical Properties

Element	Value
Material condition	Soft
Material condition	Hard
Poisson's ratio	0.345

Element	Value
Poisson's ratio	0.345
Bulk modulus(GPa)	75.2
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Tensile modulus(GPa)	70.6
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Hardness - Vickers(kgf mm ²)	21
Hardness - Vickers(kgf mm ²)	35-48
Tensile strength(MPa)	130-195
Tensile strength(MPa)	50-90
Yield strength(MPa)	110-170
Yield strength(MPa)	Oct-35

Electrical Properties

Element	Value
Electrical resistivity(μOhmcm)	2.67@20@20°C
Superconductivity critical temperature(K)	1.175
Temperature coefficient(K ⁻¹)	0.0045@0-100°C
Thermal emf against Pt (cold 0C - hot 100C)(mV)	0.42

Physical Properties

Element	Value
Boiling point(C)	2467
Density(gcm ³)	2.7@20°C

Thermal Properties

Element	Value
Melting point(C)	660.4
Latent heat of evaporation(J g ⁻¹)	10800
Latent heat of fusion(J g ⁻¹)	388
Specific heat(J K ⁻¹ kg ⁻¹)	900@25°C
Thermal conductivity(W m ⁻¹ K ⁻¹)	237@0-100°C
Coefficient of thermal expansion($\times 10^{-6}$ K ⁻¹)	23.5@0-100°C