Aluminum Single Crystal

Aluminum single crystal is a uniformly oriented metal with minimal defects for high conductivity, thermal uniformity, and stability in X?ray optics, EBSD standards, and epitaxy substrates. **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
Poisson's ratio	0.345
Bulk modulus(GPa)	75.2
Bulk modulus(GPa)	75.2
Tensile modulus(GPa)	70.6
Tensile modulus(GPa)	70.6

Element	Value
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)	10?35

Electrical Properties

Element	Value
Electrical resistivity(µOhmcm)	2.67@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(x10?? K?¹)	23.5@0-100°C