

# Aluminum Coated Thin Film Disk

**Formula:** Al

**Percentage Purity:** 99.999%

**Thickness:** 0.25 $\mu$ m

**Diameter:** 25mm

**Specific Density:** 68.8 $\mu$ g/cm<sup>2</sup>

**Support:** Removable

**CAS Number:** 7429-90-5

**UOM Code:** 101-055-24

**SKU:** 1000014760-group

**Product Code:** AL00-ML-000125

## Material Properties for Metals

### Atomic Properties

Element	Value
Atomic number	13
Crystal structure	Face centred cubic
Electronic structure	Ne 3s <sup>2</sup> 3p <sup>1</sup>
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

<b>Element</b>	<b>Value</b>
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
Hardness - Vickers( kgf mm <sup>2</sup> )	21
Hardness - Vickers( kgf mm <sup>2</sup> )	35-48
Tensile strength( MPa )	130-195
Tensile strength( MPa )	50-90
Yield strength( MPa )	110-170
Yield strength( MPa )	Oct-35

## **Electrical Properties**

<b>Element</b>	<b>Value</b>
Electrical resistivity( $\mu\text{Ohmcm}$ )	2.67@20@20°C
Superconductivity critical temperature( K )	1.175
Temperature coefficient( K <sup>-1</sup> )	0.0045@0-100°C
Thermal emf against Pt (cold 0C - hot 100C)( mV )	0.42

## **Physical Properties**

<b>Element</b>	<b>Value</b>
Boiling point( C )	2467
Density( gcm <sup>3</sup> )	2.7@20°C

## **Thermal Properties**

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