

# Molybdenum Thin Film Disk

**Formula:** Mo

**Percentage Purity:** 99.9%

**Thickness:** 0.1 $\mu$ m

**Diameter:** 10mm

**Area Density:** 92.4 $\mu$ g/cm<sup>2</sup>

**Support:** Permanent Mylar® 3.5 $\mu$ m

**CAS Number:** 7439-98-7

**UOM Code:** 280-176-37

**SKU:** 1000118142-group

**Product Code:** MO00-MF-000100

## Material Properties for Metals

### Atomic Properties

Element	Value
Atomic number	42
Crystal structure	Body centred cubic
Electronic structure	Kr 4d <sup>5</sup> 5s <sup>1</sup>
Valences shown	2, 3, 4, 5, 6
Atomic weight( amu )	95.94
Thermal neutron absorption cross-section( Barns )	2.65
Photo-electric work function( eV )	4.2
Natural isotope distribution( Mass No./% )	95/ 15.9
Natural isotope distribution( Mass No./% )	96/ 16.7
Natural isotope distribution( Mass No./% )	98/ 24.1
Natural isotope distribution( Mass No./% )	97/ 9.6
Natural isotope distribution( Mass No./% )	92/ 14.8
Natural isotope distribution( Mass No./% )	94/ 9.3
Natural isotope distribution( Mass No./% )	100/ 9.6
Atomic radius - Goldschmidt( nm )	0.14
Ionisation potential( No./eV )	2/ 16.15
Ionisation potential( No./eV )	5/ 61.2
Ionisation potential( No./eV )	68
Ionisation potential( No./eV )	1/ 7.10
Ionisation potential( No./eV )	3/ 27.2

Element	Value
Ionisation potential( No./eV )	4/ 46.4

## Mechanical Properties

Element	Value
Material condition	Hard
Material condition	Soft
Poisson's ratio	0.293
Poisson's ratio	0.293
Bulk modulus( GPa )	261.2
Bulk modulus( GPa )	261.2
Tensile modulus( GPa )	324.8
Tensile modulus( GPa )	324.8
Hardness - Vickers( kgf mm <sup>2</sup> )	250
Hardness - Vickers( kgf mm <sup>2</sup> )	200
Tensile strength( MPa )	485-550
Tensile strength( MPa )	620-690
Yield strength( MPa )	550
Yield strength( MPa )	415-450

## Electrical Properties

Element	Value
Electrical resistivity( $\mu\text{Ohmcm}$ )	5.7@20@20°C
Superconductivity critical temperature( K )	0.915
Temperature coefficient( K <sup>-1</sup> )	0.00435@0-100°C
Thermal emf against Pt (cold 0C - hot 100C)( mV )	1.45

## Physical Properties

Element	Value
Boiling point( C )	4612
Density( gcm <sup>3</sup> )	10.22@20°C

## Thermal Properties

Element	Value
Melting point( C )	2617
Latent heat of evaporation( J g <sup>-1</sup> )	6153
Latent heat of fusion( J g <sup>-1</sup> )	290
Specific heat( J K <sup>-1</sup> kg <sup>-1</sup> )	251@25°C
Thermal conductivity( W m <sup>-1</sup> K <sup>-1</sup> )	138@0-100°C

<b>Element</b>	<b>Value</b>
Coefficient of thermal expansion( $\times 10^{-6} \text{ K}^{-1}$ )	5.1@0-100°C