

Tungsten Thin Film Disk

Formula: W

Percentage Purity: 99.95%

Thickness: 0.25µm

Diameter: 10mm

Area Density: 474µg/cm²

Support: Permanent Mylar® 3.5µm

CAS Number: 7440-33-7

UOM Code: 180-637-83

SKU: 1000068854-group

Product Code: W-00-MF-000300

Material Properties for Metals

Atomic Properties

Element	Value
Atomic number	74
Crystal structure	Body centred cubic
Electronic structure	Xe 4f ¹⁴ 5d ⁴ 6s ²
Valences shown	2,3,4,5,6
Atomic weight(amu)	183.85
Thermal neutron absorption cross-section(Barns)	18.5
Photo-electric work function(eV)	4.55
Natural isotope distribution(Mass No./%)	183/ 14.3
Natural isotope distribution(Mass No./%)	182/ 26.3
Natural isotope distribution(Mass No./%)	186/ 28.6
Natural isotope distribution(Mass No./%)	180/ 0.1
Natural isotope distribution(Mass No./%)	184/ 30.7
Atomic radius - Goldschmidt(nm)	0.141
Ionisation potential(No./eV)	1/ 7.98
Ionisation potential(No./eV)	2/ 17.7

Mechanical Properties

Element	Value
Material condition	Soft

Element	Value
Material condition	Hard
Poisson's ratio	0.28
Poisson's ratio	0.28
Bulk modulus(GPa)	311
Bulk modulus(GPa)	311
Tensile modulus(GPa)	411
Tensile modulus(GPa)	411
Hardness - Vickers(kgf mm ²)	360
Hardness - Vickers(kgf mm ²)	500
Tensile strength(MPa)	550-620
Tensile strength(MPa)	1920
Yield strength(MPa)	550

Electrical Properties

Element	Value
Electrical resistivity(μOhmcm)	5.4@20@20°C
Superconductivity critical temperature(K)	0.0154
Temperature coefficient(K ⁻¹)	0.0048@0-100°C
Thermal emf against Pt (cold 0C - hot 100C)(mV)	1.12

Physical Properties

Element	Value
Boiling point(C)	5660
Density(gcm ³)	19.3@20°C

Thermal Properties

Element	Value
Melting point(C)	3410
Latent heat of evaporation(J g ⁻¹)	4009
Latent heat of fusion(J g ⁻¹)	192
Specific heat(J K ⁻¹ kg ⁻¹)	133@25°C
Thermal conductivity(W m ⁻¹ K ⁻¹)	173@0-100°C
Coefficient of thermal expansion($\times 10^{-6}$ K ⁻¹)	4.5@0-100°C