Tantalum Top Hat Single Crystal

Formula: Ta
Percentage Purity: 99.999%
Top Section Thickness: 1mm
Bottom Section Thickness: 1mm
Outside Diameter: 10mm
Inside Diameter: 8mm
Orientation: -100
Orientation Accuracy: = 0.5°
Polish: Polished
Surface Finish: = 0.03µm Ra
CAS Number: 7440-25-7
UOM Code: 176-605-23
SKU: 1000066222-group
Product Code: TA00-SC-000197

Material Properties for Metals

Atomic Properties

Element	Value
Atomic number	73
Crystal structure	Body centred cubic
Electronic structure	Xe $4f^{1}$? $5d^{3}$ $6s^{2}$
Valences shown	2,3,4,5
Atomic weight(amu)	180.9479
Thermal neutron absorption cross-section(Barns)	22
Photo-electric work function(eV)	4.1
Natural isotope distribution(Mass No./%)	180/ 0.012
Natural isotope distribution(Mass No./%)	181/ 99.988
Atomic radius - Goldschmidt(nm)	0.147
Ionisation potential(No./eV)	1/ 7.88
Ionisation potential(No./eV)	2/ 16.2

Mechanical Properties

Element	Value
Material condition	Hard

Element	Value
Material condition	Soft
Poisson's ratio	0.342
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Bulk modulus(GPa)	196.3
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Tensile modulus(GPa)	185.7
Tensile modulus(GPa)	185.7
Hardness - Vickers(kgf mm?²)	200
Hardness - Vickers(kgf mm?²)	90
Tensile strength(MPa)	760
Tensile strength(MPa)	172-207
Yield strength(MPa)	705
Yield strength(MPa)	310-380

Electrical Properties

Element	Value
Electrical resistivity(µOhmcm)	13.5@20@20°C
Superconductivity critical temperature(K)	4.47
Temperature coefficient(K?¹)	0.0035@0-100°C
Thermal emf against Pt (cold 0C - hot 100C)(mV)	0.33

Physical Properties

Element	Value
Boiling point(C)	5425
Density(gcm?³)	16.6@20°C

Thermal Properties

Element	Value
Melting point(C)	2996
Latent heat of evaporation(J g?¹)	4165
Latent heat of fusion(J g?¹)	174
Specific heat(J K?¹ kg?¹)	140@25°C
Thermal conductivity(W m?¹ K?¹)	57.5@0-100
Coefficient of thermal expansion(x10?? K?¹)	6.5@0-100°C