

# Nickel Disk Single Crystal

**Formula:** Ni

**Percentage Purity:** 99.999%

**Thickness:** 1mm

**Diameter:** 8mm

**Orientation:** -110

**Orientation Accuracy:** Approx. 0.1°

**Polish:** Polished

**Surface Finish:** = 0.03µm Ra

**CAS Number:** 7440-02-0

**UOM Code:** 105-547-56

**SKU:** 1000018647-group

**Product Code:** NI00-SC-000395

## Material Properties for Metals

### Atomic Properties

Element	Value
Atomic number	28
Crystal structure	Face centred cubic
Electronic structure	Ar 3d <sup>8</sup> 4s <sup>2</sup>
Valences shown	0, 1, 2, 3
Atomic weight( amu )	58.69
Thermal neutron absorption cross-section( Barns )	4.54
Photo-electric work function( eV )	4.9
Natural isotope distribution( Mass No./% )	60/ 26.10
Natural isotope distribution( Mass No./% )	62/ 3.59
Natural isotope distribution( Mass No./% )	61/ 1.13
Natural isotope distribution( Mass No./% )	58/ 68.27
Natural isotope distribution( Mass No./% )	64/ 0.91
Atomic radius - Goldschmidt( nm )	0.125
Ionisation potential( No./eV )	2/ 18.2
Ionisation potential( No./eV )	4/ 54.9
Ionisation potential( No./eV )	6/ 108
Ionisation potential( No./eV )	1/ 7.63
Ionisation potential( No./eV )	3/ 35.2

Element	Value
Ionisation potential( No./eV )	5/ 75.5

## Mechanical Properties

Element	Value
Hardness - Brinell	190
Hardness - Brinell	100
Material condition	Hard
Material condition	Soft
Poisson's ratio	0.312
Poisson's ratio	0.312
Bulk modulus( GPa )	177.3
Bulk modulus( GPa )	177.3
Tensile modulus( GPa )	199.5
Tensile modulus( GPa )	199.5
Izod toughness( J m <sup>2</sup> )	160
Izod toughness( J m <sup>2</sup> )	160
Tensile strength( MPa )	400
Tensile strength( MPa )	660
Yield strength( MPa )	150
Yield strength( MPa )	480

## Electrical Properties

Element	Value
Electrical resistivity( $\mu\text{Ohmcm}$ )	6.9@20@20°C
Temperature coefficient( K <sup>-1</sup> )	0.0068@0-100°C
Thermal emf against Pt (cold 0C - hot 100C)( mV )	-1.48

## Physical Properties

Element	Value
Boiling point( C )	2732
Density( gcm <sup>3</sup> )	8.9@20
Density( gcm <sup>3</sup> )	8.9@20C

## Thermal Properties

Element	Value
Melting point( C )	1453
Latent heat of evaporation( J g <sup>-1</sup> )	6378
Latent heat of fusion( J g <sup>-1</sup> )	292

<b>Element</b>	<b>Value</b>
Specific heat( J K <sup>-1</sup> kg <sup>-1</sup> )	444@25°C
Thermal conductivity( W m <sup>-1</sup> K <sup>-1</sup> )	90.9@0-100°C
Coefficient of thermal expansion( x10 <sup>-6</sup> K <sup>-1</sup> )	13.3@0-100°C